RECORD OF DECISION

Operable Unit Five
Olean Well Field Superfund Site
City of Olean, Cattaraugus County, New York

United States Environmental Protection Agency
Region 2
New York, New York
September 2023

692957

DECLARATION

SITE NAME AND LOCATION

Olean Well Field Superfund Site
City of Olean, Cattaraugus County, New York

Superfund Site Identification Number: NYD980528657
Operable Unit: 05

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) selection of a remedy for Operable Unit 5 (OU5) at the Olean Well Field Superfund site (Site), in Cattaraugus County, New York. This remedy is being chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. Sections 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision document explains the factual and legal basis for selecting the OU5 remedy for the Site. The attached index (see Appendix III) identifies the items that comprise the Administrative Record upon which the selected remedy is based.

The New York State Department of Environmental Conservation (NYSDEC) was consulted on the proposed remedy in accordance with CERCLA Section 121(f), 42 U.S.C. Section 9621(f), and it concurs with the selected remedy (see Appendix IV).

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response actions selected in this OU5 ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The response action in this OU5 ROD actively addresses soil contamination at a discrete area of the property located at 1695 Seneca Avenue, Olean, New York (AVX Property). This discrete area has been designated by EPA as OU5. OU5 includes contaminated soil that is located beneath and near the footprint of a former manufacturing building located in the northern portion of the Historical Source Area[1] at the AVX Property. In prior EPA decision documents AVX is sometimes referred to as AVX Corporation (AVX)[2].

[1] A September 1996 ROD for Operable Unit 2 (OU2 ROD) addressed the four known sources of the contamination in the groundwater, including the AVX Property. A September 2015 amendment to the OU2 ROD (OU2 AVX ROD Amendment) that modified the AVX component of this remedy, defined the Historical Source Area as generally consisting of soil and groundwater contamination in a shallow groundwater unit known as the Downgradient Till Unit beneath the former AVX manufacturing building and the land at the southeast corner of the building immediately proximate thereto, including the shallow north-south trending drainage swale that begins to the south of the building. The OU2 AVX ROD Amendment provides further details regarding geologic and hydrogeologic conditions at the Site.

[2] In 2020, AVX Corporation became a wholly owned subsidiary of Kyocera Corporation. In 2021, AVX's name changed to Kyocera AVX Components Corporation or KAVX. The owner of record of the property is still listed as AVX.

The OU2 AVX ROD Amendment selected an interim remedy to address soil and groundwater at the AVX Property. An interim remedy was selected because a final remedy, requiring restoration of the City Aquifer, would not be possible until the soil under the active AVX manufacturing building became accessible and additional soil characterization and testing could be conducted. The OU2 AVX ROD Amendment specified that in the event there was a change in use of the manufacturing building, a feasibility study would need to be performed to evaluate whether further action in the form of source control and/or restoration actions was necessary to achieve the OU2 ROD goal of aquifer restoration. Therefore, a feasibility study to determine a final remedy could not be completed until the AVX property was no longer operating as an active manufacturing facility. In April 2018, AVX ceased operations at the facility and in 2020 the building was demolished. This allowed for additional characterization and the performance of a feasibility study for contaminated soil located beneath and near the footprint of the former manufacturing building. EPA has designated this portion of the Historical Source Area as OU5 at the Site.

The major components of the interim remedy selected by the OU2 AVX ROD Amendment included: maintenance of existing exposure barriers (the building and paved areas) in the northern portion of the Historical Source Area and the vegetative cover in the drainage swale area (to address soil contamination); construction and operation of a hydraulic trench containment system to address groundwater in the Downgradient Till Unit; hydraulic pumping to contain groundwater in the City Aquifer; implementation of institutional controls; implementation of a long-term groundwater monitoring program; and development of a Site Management Plan (SMP) to provide for the proper management of the interim remedy post-construction. Refer to the OU2 AVX ROD Amendment for a detailed description of the interim remedy.

The major components of the selected remedy for OU5 of the Site include the following:

- Demolition and removal of the existing concrete slab floor and foundation supports;
- Excavation of contaminated unsaturated soil located beneath and near the footprint of the former manufacturing building in the northern portion of the Historical Source Area;
- Off-Site transportation and disposal of excavated material; and
- Restoration with imported clean fill material.

As part of the remedial design, further evaluations will be conducted to define the depth of the water table and resulting excavation. If determined practicable, additional limited active remediation will be performed below the water table to address saturated soil in an effort to improve remediation timeframes for groundwater. During the remedial design, additional soil sampling will also be conducted to further evaluate the extent of contamination, including 1,4-dioxane.

The selected OU5 remedy to address contaminated soil located beneath and near the footprint of the former manufacturing building, in conjunction with the OU2 AVX ROD Amendment, constitutes the final remedy for the AVX Property.

The institutional controls to restrict use of the property to industrial uses, as selected in the OU2 AVX ROD Amendment, continue to apply to the AVX Property and as such apply to this selected remedy as well.

The environmental benefits of the selected remedy may be enhanced by employing design technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy.[3] During the remedial design, green remediation concepts, including the use of low-sulfur vehicles and the proximity to the landfill that receives the excavated soil in an effort to reduce the impacts associated with truck trips, will be considered.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy satisfies the statutory requirements for remedial actions set forth in Section 121 of CERCLA, 42 U.S.C. § 9621, as follows: 1) it is protective of human health and the environment; 2) it meets a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains the legally applicable or relevant and appropriate requirements under federal and state laws unless a statutory waiver is justified; 3) it is cost-effective; and 4) it utilizes permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. In addition, Section 121 of CERCLA, 42 U.S.C. § 9621, includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances as a principal element. Although it is not currently anticipated, if necessary, in order to meet the requirements of the disposal facilities, contaminated material will be treated prior to land disposal; only under such circumstances would the selected remedy partially satisfy the preference for treatment.

The OU5 selected remedy, in combination with the OU2 AVX ROD Amendment, will result in hazardous substances, pollutants, or contaminants remaining in and around the drainage swale area at the AVX Property above levels that would otherwise allow for unlimited use and unrestricted exposure. As a result, in accordance with Section 121(c) of CERCLA, statutory reviews will be conducted no less often than once every five years to ensure that the remedy remains protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this OU5 ROD. Additional information can be found in the Administrative Record for this Site.

- A discussion of the current nature and extent of soil and groundwater contamination is included in Section 5;
- Chemicals of concern and their respective concentrations may be found in Section 7 "Summary of Site Risks" and Table 1 in Appendix II;
- Potential adverse effects associated with exposure to Site contaminants may be found in Section 7, "Summary of Site Risks;"

[3] http://www.epa.gov/greenercleanups/epa-region-2-clean-andgreen-policy and also http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

- A discussion of cleanup levels for chemicals of concern may be found in Section 8 "Remedial Action Objectives" and in Table 9 in Appendix II;
- Current and reasonably-anticipated future land use assumptions are discussed in Section 6 "Current and Potential Future Land and Resource Uses;"
- Estimated capital, annual operation and maintenance, and total present-worth costs are discussed in Section 9 "Summary of Remedial Alternatives;" and
- Key Factors in the detailed analyses of remedial alternatives (*e.g.,* how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) may be found in Section 10 "Comparative Analysis of Alternatives" and Section 13 "Statutory Determinations."

AUTHORIZING SIGNATURE

Pat Evangelista

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September 27, 2023

Pat Evangelista, Director
Superfund & Emergency Management Division

Date

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APPENDICES

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DECISION SUMMARY

1. SITE NAME, LOCATION, AND DESCRIPTION

The Olean Well Field Superfund site (Site) is located in the eastern portion of the City of Olean and western and northwestern portions of the towns of Olean and Portville in Cattaraugus County, New York. The Site is characterized by volatile organic compound (VOC)-contaminated groundwater underlying the City of Olean, the Town of Olean, and the Town of Portville, and by VOC-contaminated soil at certain locations in the City and Town of Olean. The Site is approximately 65 miles southeast of Buffalo, New York, and seven miles north of the New York/Pennsylvania border. The Allegheny River, a principal tributary of the Ohio River, and two of its tributaries, the Olean and Haskell Creeks, flow west-northwest through the southern portion of the Site. A Site location map is provided as Figure 1 in Appendix I.

EPA has divided the Site into separate phases, or operable units, for remediation purposes. Operable Unit 1 (OU1) addresses the drinking water supply for the City and Town of Olean. OU2 addresses the sources of VOC contamination to groundwater. Investigations conducted to date identified four source areas of VOC contamination to groundwater at the Site: Alcas Cutlery Corporation (Alcas) (currently owned and operated by Cutco Corporation and located at 1116 East State Street, Olean, New York); Loohn's Dry Cleaners and Launderers (Loohn's) (currently a vacant lot located at 1713 East State Street, Olean, New York); McGraw-Edison Company (McGraw) (currently owned and operated by Eaton-Cooper Power Systems, Inc. and located at 1648 Dugan Road, Olean, New York); and AVX Corporation (AVX) (located at 1695 Seneca Avenue, Olean, New York; AVX Corporation is currently named Kyocera AVX Components Corporation (KAVX)). OU3 addresses groundwater contamination at an area south of the Alcas facility referred to as Parcel B. OU4 addresses VOC contamination in groundwater located at certain residential and commercial properties downgradient of the AVX Property and south of the Conrail railroad tracks. The AVX Property includes 18.5 acres of real property, which is still listed as being owned by the AVX Corporation.

This Record of Decision (ROD) for OU5 (OU5 ROD) addresses contaminated soil that is located beneath and near the footprint of a former manufacturing building located in the northern portion of the Historical Source Area at the AVX Property.

2. SITE HISTORY AND ENFORCEMENT ACTIVITIES

Site History

Beginning in the 1980s, several separate federal-, state- and Potentially Responsible Party (PRP)-led investigations were conducted to identify the sources of contamination to the municipal water supply wells and evaluate the nature and extent of groundwater contamination at the Site. The Site was included on the National Interim Priorities List, by publication in the Federal Register on October 23, 1981, and was included on the first National Priorities List on September 9, 1983. For more details regarding the results of the various investigations and subsequent actions taken to address Site-related contamination refer to the OU2 ROD, the OU2 AVX ROD Amendment and the OU4 ROD.

The following provides a summary of activities at the AVX Property, a source of groundwater contamination at the Site.

As mentioned previously, the remedy selected in the 1996 OU2 ROD addressed multiple sources of VOC contamination to groundwater at the Site. The major components of the selected remedy for AVX, one of the four sources targeted, included the following: excavation and removal of contaminated soil; off-Site low temperature desorption of soil contaminants, if necessary; upgradient and downgradient groundwater monitoring; implementation of groundwater treatment, if excavation and removal of the contaminated soil did not adequately improve the quality of the City Aquifer and if the property continued to affect the groundwater entering the municipal wells; and implementation of groundwater use restrictions.

AVX initiated the excavation of contaminated soil at its property in July 2000. Approximately 5,055 tons of contaminated soil was excavated to a depth of approximately 10 feet below ground surface (bgs) and transported off-Site for disposal before work was halted. AVX could not excavate all of the contaminated soil because the material extended beyond the area identified as contaminated in the OU2 ROD to beneath the southeast corner of the manufacturing building, which was fully occupied with AVX's manufacturing operations. Further excavation had the potential to impact the structural integrity of the occupied building. As a result, the excavation area was backfilled pending further study. Further evaluations revealed significant unknown contamination extending under the building and that additional excavation and removal of all contaminated soil would result in significant disruption to and/or shutdown of the on-going operations.

Following the backfilling at the AVX Property, EPA directed AVX to conduct soil and groundwater sampling activities at the AVX Property and properties to the south as part of a multi-phase investigation to assess the conditions at these properties. Results from these studies indicated that significant previously unknown VOC contamination is present in both soil and groundwater.

As indicated previously, on September 30, 2015, EPA issued a ROD Amendment for OU2 relating to the AVX Property that addressed soil and groundwater contamination in the Historical Source Area, and groundwater contamination in the Downgradient Till Unit and City Aquifer (refer to the Site Geology and Hydrogeology section in the OU2 AVX ROD Amendment for additional detail regarding geological and hydrogeologic conditions at the Site). The Downgradient Till Unit component of the selected remedy involves the construction and operation of a hydraulic trench containment system involving a gravel trench coupled with active groundwater recovery and treatment to prevent migration of groundwater downgradient of the AVX Property. Construction of this component of the selected remedy was completed in January 2023. The City Aquifer component of the selected remedy involves hydraulic pumping containment utilizing and maintaining an existing AVX Property production well (PW-1) as an active groundwater recovery system at a pumping rate that prevents further migration of contaminated groundwater within the City Aquifer. The AVX production well, in operation since 1959, continues to operate as part of the implementation of the OU2 AVX ROD Amendment selected remedy even though the plant closed down.

According to EPA's EJScreen tool, there are no demographic indicators for OU5 at the Site that would indicate a community with environmental justice concerns. Within and immediately near OU5, the national and State EJ index percentiles for all of the environmental and socioeconomic

indicators are at or below the 52nd percentile. The proposed remedy is not anticipated to result in adverse impacts to environmental resources that would affect low income or minority populations living within the vicinity of OU5.

3. COMMUNITY PARTICIPATION

On July 27, 2023, EPA released the Proposed Plan for the cleanup of OU5 to the public for comment. EPA assembled supporting documentation, which comprises the administrative record, and has made it available to the public at the information repositories maintained at the Olean Public Library located at Second and Laurens Streets, Olean, New York, and the EPA Region 2 Office in New York City, as well as at www.epa.gov/superfund/olean-wellfield.

Notice of the July 27, 2023, start of the public comment period and the availability of the above-referenced documents was published in *The Olean Times Herald* on July 27, 2023. A copy of the public notice published in *The Olean Times Herald* can be found in **Appendix V**. EPA accepted public comments on the Proposed Plan from July 27, 2023, through August 28, 2023.

On August 8, 2023, EPA held a public meeting at the Jamestown Community College, Cattaraugus County Campus, in the Mangano Reception Room, located at 305 North Barry Street, Olean, New York, to inform local officials and interested citizens about the Superfund process, to present the Proposed Plan for OU5, including the preferred remedial alternative, and to respond to questions and comments from the attendees. Responses to comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (See **Appendix V**).

4. SCOPE AND ROLE OF RESPONSE ACTION

Site remediation activities are sometimes segregated into different phases, or OUs, so that remediation of different, discrete environmental media or geographic areas of a site can proceed separately, whether sequentially or concurrently. EPA has designated five OUs for the Olean Well Field Site (refer to Figure 1 in Appendix I).

On September 24, 1985, EPA signed a ROD for OU1, which called for, among other things, the treatment of the municipal supply well water and the extension of the public water supply to residents utilizing private wells.

On September 30, 1996, EPA signed a ROD for OU2 to address the sources of the contamination in the groundwater. The four source areas targeted in the OU2 ROD were AVX, Alcas, Loohn's, and McGraw. On September 30, 2014, EPA amended the OU2 ROD to modify the selected remedy for the Alcas component of the OU2 ROD. The Alcas OU2 ROD Amendment addressed soil and groundwater contamination impacting the underlying aquifers, and also selected a remedy to address OU3 groundwater contamination. OU3 addresses groundwater contamination at an area south of the Alcas facility referred to as Parcel B.

On September 30, 2015, EPA amended the OU2 ROD to modify the selected remedy for the AVX component of the OU2 ROD. The OU2 AVX ROD Amendment selected an interim action to address soil and groundwater contamination until a final remedy for the AVX Property could be implemented. The OU2 AVX ROD Amendment indicated that a change in the current use of the

building in the future would trigger the performance of a feasibility study to evaluate source control and/or restoration actions, leading to the selection of a final remedy.

The major components of the OU2 AVX ROD Amendment include the following:

- Historical Source Area (Soil and Till Unit Groundwater): Maintenance of an exposure barrier utilizing existing surface covers (the building and paved areas in the northern portion of the Historical Source Area and the vegetative cover in the drainage swale area) to minimize leaching of volatile organic compounds (VOCs) from soil to groundwater and serve as a direct contact exposure barrier.
- Downgradient Till Unit (Groundwater): Construction and operation of a hydraulic trench containment system involving a gravel trench coupled with active groundwater recovery and treatment to prevent migration of groundwater downgradient of the AVX Property.
- City Aquifer (Groundwater): Hydraulic pumping containment utilizing and maintaining an existing AVX Property production well (PW-1) as an active groundwater recovery system at a pumping rate that prevents further migration of contaminated groundwater within the City Aquifer. An air stripper or carbon adsorption system or combination thereof will be added to the extraction system, as necessary to meet surface water discharge requirements.
- Implementation of institutional controls, including soil and groundwater use restrictions, to ensure the remedy remains protective.
- Development of a Site Management Plan (SMP) to provide for the proper management of the interim remedy post-construction, and to include long-term groundwater monitoring, periodic reviews and certifications. Until a final remedy is selected, the SMP will provide for the proper management of any contaminated unsaturated soil at the AVX Property and the evaluation of the potential for vapor intrusion at the existing building on the AVX Property and/or for any buildings constructed in the future, and mitigation, if necessary, in compliance with the SMP. The SMP will also provide for the proper implementation, management and maintenance of institutional controls. A change in the current use of the building in the future will trigger the performance of a feasibility study to evaluate source control and/or restoration actions, leading to the selection of a final remedy.
- Implementation of a long-term groundwater monitoring program as part of the SMP to verify the effectiveness of the interim remedy, and to track and monitor changes in the groundwater contamination over time at the AVX Property. The long-term groundwater monitoring program will consist of a comprehensive monitoring network made up of existing monitoring wells and additional monitoring wells and piezometers on and off the AVX Property, within not only the City Aquifer but also within the till unit, and also monitoring to further evaluate geochemical conditions.

The followings RAOs were established in the OU2 AVX ROD Amendment:

- Restore the City Aquifer beneath the AVX Property to its beneficial use as a source of drinking water by reducing contaminant levels to the more stringent of federal MCLs or New York State standards;
- Minimize, contain and/or eliminate sources of VOC contaminants already in the shallow groundwater at the AVX Property; and

- Minimize and/or eliminate the potential for future human exposure to Site contaminants via contact with contaminated groundwater and/or inhalation of vapors.

On September 30, 2022, EPA signed a ROD for OU4, which addresses groundwater contamination at certain residential and commercial properties to the south of the AVX Property.

OU5, which is the subject of this ROD, is the final planned phase of response activities at the AVX Property. OU5 addresses soil contamination located beneath and near the former AVX manufacturing building in the northern portion of the Historical Source Area. The OU5 remedy, in conjunction with the OU2 AVX ROD Amendment, constitutes the final remedy for the AVX Property.

5. SUMMARY OF SITE CHARACTERISTICS

5.1. Site Geology/Hydrogeology

The Olean Well Field is underlain by approximately 300 feet of unconsolidated glacial deposits. Previous groundwater investigations in the Olean Well Field have shown that the upper 100 feet of glacial deposits can be divided into five lithologic units based on color, texture, grain size and mode of deposition. These lithologic units have been grouped in topographically descending order into four hydrogeologic units referred to as the upper aquifer, upper aquitard (Till Unit), lower aquifer (City Aquifer), and lower aquitard.

The upper aquifer is comprised of glaciofluvial coarse sands and sandy gravels, recent fluvial deposits of fine sands, and silts with some clay. The upper aquifer is not continuous at the Olean Well Field Site. The thickest portion of the upper aquifer (approximately 41 feet) is found along the Allegheny River. The upper aquifer thins to the north, pinching out just south of the AVX Property. The upper aquifer is recharged by the infiltration of precipitation.

During previous investigations, groundwater in the upper aquifer was encountered at depths ranging from three feet bgs to more than 20 feet bgs and flow is generally toward the Allegheny River. North of the railroad tracks (on the AVX Property), groundwater flow is in a south to southeast direction in much of the undeveloped portion of the AVX Property with some components of flow towards the surface drainage swale that runs toward the unnamed stream. Groundwater and surface water east of the stream generally flow in a south-southwest direction, while groundwater and surface water to the west of the stream generally flows in a southeast direction.

The upper aquitard or Till Unit stratigraphically is located above the lower aquifer (referred to as the City Aquifer). This unit is a low-permeability lodgement till composed of greater than 50 percent silt and clay. This unit is heterogeneous and can contain some sandier layers that generally have limited lateral extents. The thickness of the till unit on the AVX Property generally ranges from 20 to over 30 feet. In the northern portion of the Olean Well Field Site this unit is present at the surface and consists of surficial till.

The City Aquifer consists of glacial outwash deposits of sand, silt, and gravel. The thickness of the City Aquifer is approximately 70 feet in the northern portion of the Site and thins to approximately 30 feet south of the Allegheny River. The City Aquifer is underlain by the lower aquitard, which has been

described as silt, clay, and fine to very fine sand, and was likely deposited in a pre-glacial lake environment. Regional groundwater level data and potentiometric surface maps indicate that lines of equal elevation for the upper aquifer generally parallel the Allegheny River. This indicates that groundwater flow is towards the river from both sides of the river valley.

The City Aquifer is the main source of drinking water for the City and Town of Olean. In addition, several industrial facilities in the area utilize wells completed in the City Aquifer for manufacturing activities. The regional groundwater flow within the City Aquifer is generally in a west-southwest direction. Recharge to the City Aquifer is via leakage from the upper aquifer through the upper aquitard or directly through the Till Unit (upper aquitard) where the upper aquifer is not present. The magnitude of leakage over the Olean Well Field Site is variable and is dependent on the thickness and permeability of the upper aquitard (Till Unit) and relative groundwater level differences between the upper aquifer and upper aquitard units and the City Aquifer. Natural flow conditions in the City Aquifer within the vicinity of the Site have been altered by the pumping of the municipal wells, in operation since 1985, and several industrial wells including an AVX production well. The AVX production well, in operation since 1959, continues to operate as part of the implementation of the OU2 AVX ROD Amendment selected remedy even though the plant closed down.

5.2. OU5 Investigation Summary

Soil Investigation Results from Previous Investigations at the AVX Property

Results of post-OU2 ROD investigations showed that VOC contamination in soil consists primarily of trichloroethene (TCE), 1,1,1-trichlorethane (1,1,1-TCA), tetrachloroethene (PCE), and the breakdown products cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride, and 1,1-dichloroethane (1,1-DCA) with elevated concentrations of other VOCs, including toluene and xylenes.

As set forth in a January 29, 2013 Feasibility Study Investigation Report (FSIR) performed after work was halted on the OU2 ROD remedy, high concentrations of VOCs have been observed in soil (up to 1,614 parts per million (ppm) of total VOCs) beneath the southeast corner of the former manufacturing building by a maintenance shop and a former solvent underground storage tank (both along the eastern edge of the manufacturing building), and in areas immediately to the south and north of the manufacturing building. Minimal detections of VOC contamination were found in soil south of the fenced area of the AVX Property.

Concentrations of VOCs observed in groundwater indicate that a groundwater plume of VOC contamination in the till unit originates from the Historical Source Area and extends through the undeveloped area to the southern property boundary and OU4.

OU5 Feasibility Study Investigation Report (FSIR)

While prior investigations have characterized the hydrogeology and the nature and extent of contaminants in the subsurface throughout much of the AVX Property, the demolition of the former manufacturing building in 2020 enabled the collection of soil and groundwater samples beneath and adjacent to the former structure. This additional soil characterization and testing were also necessary to support the evaluation of remedial alternatives for contaminated soil in and around the footprint of the former manufacturing building. The investigation activities were designed to:

- Define the lateral and vertical extent of contaminants in soil located beneath and near the footprint of the former manufacturing building within and near the northern portion of the Historical Source Area; and
- Characterize the framework of the hydrogeologic units to better define the potential contaminant transport pathways within and near the source area.

A portion of the concrete slab of the former building was left in place and is currently acting as an exposure barrier to contaminated soil.

OU5 Soil Investigation Results

The first step of the OU5 soil characterization program included screening of near-surface soil/fill for the presence and magnitude of VOCs using a photoionization detector (PID). Information gathered using a PID is classified as screening level data and does not provide chemical specific information. Following the initial soil screening and preliminary surveying, whole core soil sampling (WCSS) and vertical aquifer profile (VAP) sampling was conducted. The locations of WCSS and VAP sampling were adjusted as needed based on access and the results of soil screening. A summary of the results of this work is presented below.

Soil Screening

The VOC contamination detected in soil consists primarily of TCE, 1,1,1-TCA, PCE, and the breakdown products cis-1,2-DCE, vinyl chloride, 1,1-DCA, 1,2-DCA, with elevated concentrations of other VOCs, including toluene and xylenes. 114 soil gas screening point locations were selected and organized in a grid layout approximately 25 feet apart, in and around the source area. For all locations and depths where soil gas could be drawn, the gas was pumped by and analyzed with a PID and data were recorded.

The highest concentrations of PID-measured VOCs were observed primarily outside of the footprint of the original building, which was constructed in 1950, with those elevated concentrations observed largely within the footprint of the historical Machine Shop/Maintenance area (constructed in 1978 and used as the building maintenance area), the Receiving Area, and the Chemical Storage area (both constructed in 2001). These levels ranged from 145-1,436 ppm. Some elevated PID-measured screening concentrations were also observed beneath adjacent areas within the southeastern corner of the footprint of the original building. These included one area historically noted as the Powder and Barrel Storage area but also on other maps noted as being used for waste storage. Some elevated PID-measured concentrations were also noted farther to the west beneath or near to the historical Tape and Reel Storage area. Refer to Figure 2 in Appendix I for the layout of the former manufacturing building.

Soil Quality Characterization

Following completion of the soil screening activities, whole core soil samples were collected by rotosonic drilling methods on a modified approximately 50-foot grid spacing at 40 locations. Approximately 300 soil samples were analyzed to better characterize the nature and extent of VOCs in soil, both saturated and unsaturated, within the source area. The results are summarized in Table A below. The data revealed that the highest mass of VOCs in soil is largely concentrated in areas

predicted by the soil gas screening data, with some deviations. The highest concentrations were observed within the former footprint of the Machine Shop/Maintenance area, beneath the former Receiving area, and extending into the former chemical storage/waste storage area. Other notable areas of higher concentrations included the head of the drainage swale to the south of the facility fence, and near the southeastern corner of the former Stage 1 remedial action excavation area.

Table A: Maximum Soil Contaminant Concentrations

Contaminant	Concentration (ppm)
1,1,1-TCA	226 DJ
TCE	1,500 DJ
PCE	723 DJ
cis-1,2-DCE	93.6 DJ
vinyl chloride	2.05 DJ
1,1-DCA	9.88 D

D = Identifies all compounds identified in the analysis at the secondary dilution factor.
J = The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample.

The concentrations of contaminants were observed to generally diminish with sample depth, though not consistently in all locations. Thin and discontinuous stringers of more permeable soil appear to have acted as pathways for contaminants to reach greater depths in certain locations.

During soil sampling, if retrieved core samples appeared to be both saturated and coarse-grained enough to produce water, VAP samples were collected. In total, only 13 of 40 borings contained enough water to facilitate VAP sampling, with only two of the 13 borings containing adequate water to sample at more than one depth.

VAP sampling results can be found below in Table B. Aside from some VAP groundwater sample locations with anomalously high COC concentrations, likely due to the presence of stringers containing more permeable material that can collect water containing high contaminant concentrations, the concentrations of contaminants in the VAP groundwater samples are relatively consistent with concentrations reported for groundwater sampled from monitoring wells during the semi-annual groundwater monitoring events which have been conducted since 2000.

Table B: Maximum Groundwater Contaminant Concentrations in VAP Samples

Contaminant	Concentration (ppb)
1,1,1-TCA	59,000 D
TCE	120,000 D
PCE	4,000
cis-1,2-DCE	17,000
vinyl chloride	1,800
1,1-DCA	12,000

D = Identifies all compounds identified in the analysis at the secondary dilution factor.

Refer to the OU5 FSIR for additional details regarding the sampling results.

Previous investigations conducted at the AVX Property revealed VOC groundwater contamination as well as 1,4-dioxane, a semi-VOC, in the till unit beneath the AVX manufacturing building and in the undeveloped area between the building and the southern property boundary. Investigation results also showed that the City Aquifer has been affected, but at much lower concentrations than in the shallow (till) stratigraphic unit.

An assessment of natural attenuation conditions in groundwater was conducted as part of the 2015 OU2 ROD. Overall, the analyses indicated that some level of natural attenuation of Site-related contaminants is occurring. Groundwater samples revealed an increase in concentration of daughter products (e.g., cis-1,2-DCE and vinyl chloride) relative to the concentration of the parent compound (e.g., TCE). Reductive dechlorination is a natural attenuation process that can degrade chlorinated VOCs by transforming chlorinated compounds such as TCE to other compounds. Other natural attenuation processes can include dispersion, dilution, sorption, and volatilization. The observed concentrations of contaminants in soil and groundwater near to the former AVX manufacturing building suggest that some level of natural attenuation is occurring.

Additionally, ethene and ethane were detected in groundwater monitoring well samples, demonstrating occurrence of the full sequence of reductive dechlorination. The monitored natural attenuation (MNA) assessment also included analysis of electron acceptors, which showed moderate to strongly reducing conditions present.

The OU5 FS Report contains additional details, as does the full MNA Screening Analysis conducted in 2012. Both documents can be found in the Administrative Record file for the Site.

6. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

6.1. Land Use

The Site includes residential, commercial, and industrial zones in the City of Olean. The AVX

Property is zoned for manufacturing use, and the areas immediately surrounding the AVX Property are zoned for industrial, commercial, and residential uses. EPA expects that the land-use pattern at and surrounding OU5 of the Site will not change in the foreseeable future.

6.2. Groundwater Use

Three municipal water supply wells (18M, 37M and 38M) at the Site provide water for the City and Town of Olean. These water supply wells draw water from the City Aquifer. An air stripper at municipal supply well 18M and a separate air stripper at municipal supply wells 37M and 38M treat the extracted groundwater before distribution to the public. The current total pumping rate for these municipal wells is approximately 3 million gallons per day. In addition, although the extension of the City of Olean's water line was completed in 1988, and private well users were connected to the public water supply in 1989, some residents refused EPA's efforts to connect to the public water supply and continue to use private wells as a source of potable water.

Surface water from the undeveloped area south of the former AVX manufacturing building flows toward the stream. Prior to entering the culvert, the stream picks up substantial flow volume due to release of water from AVX State Pollutant Discharge Elimination System (SPDES) Outfall 004 effluent, which was composed of wastewater used for production cooling when the plant operated. Although the AVX plant is no longer in operation, pumping well PW-1 continues to operate at a rate of approximately 300 gallons per minute to provide hydraulic control of the City Aquifer as part of the OU2 AVX ROD Amendment. The extracted water is discharged to the unnamed stream as part of the OU2 remedy.

The remedy selected in the OU2 AVX ROD Amendment also involves a hydraulic trench containment system with active groundwater recovery and treatment on the AVX Property. Construction of this component of the selected remedy was completed in January 2023. Groundwater that is collected and treated as part of this remedy is discharged to the City of Olean sewer system.

7. SUMMARY OF SITE RISKS

A baseline Human Health Risk Assessment (HHRA) and a qualitative ecological risk assessment were conducted as part of the 1996 OU2 ROD to estimate the risks associated with current and future conditions at the Site, including the AVX facility. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects caused by hazardous substance exposure in the absence of any actions to control or mitigate these exposures under current and future land uses. A qualitative human health risk analysis was subsequently performed as part of the OU2 AVX ROD Amendment. The qualitative assessment focused on a comparison of contaminant concentrations identified at the time of the 1996 ROD and the 2015 ROD to evaluate the findings included in the baseline risk assessment, rather than a quantitative calculation of risk based on receptor exposure assumptions and toxicity.

The results of the baseline OU2 HHRA identified carcinogenic risk and/or noncarcinogenic hazards that were above the target carcinogenic risk range of $1x10^{-6}$ to $1x10^{-4}$ and the noncarcinogenic hazard index (HI) threshold of 1 for future residential exposure to groundwater. These results were confirmed in the OU2 AVX ROD Amendment. Carcinogenic risks and noncarcinogenic hazards for construction worker exposure to soil were also evaluated.

As discussed in more detail in the following sections, EPA has determined that the results of the baseline OU2 HHRA and the risk evaluation from the OU2 AVX ROD Amendment have not substantially changed. Therefore, an additional quantitative HHRA was not performed as part of OU5. However, since OU5 specifically addresses contaminated soil located beneath the AVX Property, an updated qualitative analysis concerning the risks associated with elevated VOC concentrations in soil is provided. Information concerning the baseline OU2 HHRA results for groundwater at the AVX Property can be found in the OU2 ROD and the OU2 AVX ROD Amendment.

7.1. Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure (RME) scenario:

Hazard Identification – uses the analytical data collected to identify the contaminants of potential concern at the site for each medium, with consideration of several factors explained below;

Exposure Assessment - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed;

Toxicity Assessment - determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and

Risk Characterization - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations which exceed acceptable levels, defined by the NCP as an excess lifetime cancer risk greater than 1×10^{-6} to 1×10^{-4} (also commonly expressed as: 1E-06 to 1E-04), an excess of lifetime cancer risk greater than 1×10^{-6} (i.e., point of departure) combined with site-specific circumstances, or a noncancer HI greater than 1; contaminants at these concentrations are considered contaminants of concern (COCs) and are typically those that will require remediation at the site. Also included in this section is a discussion of the uncertainties associated with these risks.

7.1.1. Hazard Identification

The baseline OU2 HHRA found in the OU2 ROD quantitatively evaluated the potential risks and hazards associated with exposure to soil at the AVX Property. In this step, the chemicals of potential concern (COPCs) in each medium were identified based on such factors as toxicity, frequency of detection, fate and transport of the contaminants in the environment, concentration, mobility, persistence, and bioaccumulation.

The COPC screening conducted at the time of the HHRA identified a variety of VOCs, SVOCs and inorganics in soil. A comprehensive list of all COPCs evaluated can be found in the HHRA in the

administrative record. Appendix II, Table 1 includes a comparison of concentrations detected in soil for the COCs during investigations supporting the OU2 ROD, OU2 AVX ROD Amendment and this ROD.

7.1.2. Exposure Assessment

Consistent with Superfund policy and guidance, the baseline HHRA assumed no remediation or institutional controls to mitigate or remove hazardous substance releases. Cancer risks and noncancer HIs were calculated based on an estimate of the RME expected to occur under current and future conditions at the Site. The RME is defined as the highest exposure that is reasonably expected to occur at a site.

Risks associated with exposure to contaminants in surface and subsurface soil were calculated for the ingestion and inhalation of contaminants by construction workers. A residential exposure scenario for soil was not calculated because all of the properties studied during the OU2 RI/FS were zoned for industrial or commercial use. It is anticipated that the AVX Property will continue to be used for commercial/industrial purposes in the future.

Typically, exposures are evaluated using a statistical estimate of the exposure point concentration (EPC), which is usually an upper-bound estimate of the average concentration for each contaminant, but in some cases may be the maximum detected concentration. 95% upper confidence limits were used to evaluate exposure in the baseline OU2 HHRA and can be found in the Administrative Record. For the purposes of the qualitative analysis performed for soil, an evaluation of maximum concentrations was performed. A summary of these concentration ranges is provided in Appendix II, Table 1. The soil exposure pathways evaluated for the baseline OU2 HHRA are included in Appendix II, Table 2.

7.1.3. Toxicity Assessment

In this step, the types of adverse health effects associated with contaminant exposures and the relationship between magnitude of exposure and severity of adverse health effects are determined. Potential health effects are contaminant-specific and may include the risk of developing cancer over a lifetime or other noncancer health effects, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of the immune system). Some contaminants are capable of causing both cancer and noncancer health effects.

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards due to exposure to Site chemicals are considered separately and were evaluated as such in the HHRA supporting the OU2 ROD. Consistent with current EPA policy, it was assumed that the toxic effects of the Site-related chemicals would be additive. Thus, cancer and noncancer risks associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Toxicity data for the OU2 HHRA were provided by the Integrated Risk Information System (IRIS) database or other sources that were identified as an appropriate reference for toxicity values consistent with EPA guidance. This information is presented in Appendix II Table 3 (Noncancer Toxicity Data Summary) and Table 4 (Cancer Toxicity Data Summary) attached hereto. These tables also include a

comparison of toxicity data used to evaluate risks in the OU2 ROD versus those currently available and their expected impact on risk and hazard. Additional toxicity information for all COPCs is presented in the baseline OU2 HHRA.

7.1.4. Risk Characterization

This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards.

Noncarcinogenic Risks

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) which are thought to be safe over a lifetime of exposure. The key concept for a noncancer HI is that a "threshold level" (measured as an HI of less than or equal to 1) exists at which noncancer health effects are not expected to occur. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical ingested from contaminated soil) is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as below. The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

HQ = Intake/RfD

Where: HQ = hazard quotient
Intake = estimated intake for a chemical (mg/kg-day)
RfD = reference dose (mg/kg-day).

The intake and the RfD will represent the same exposure period (i.e., chronic, subchronic, or acute).

As previously stated, the HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1 indicates that the potential exists for noncarcinogenic health effects to occur as a result of site-related exposures, with the potential for health effects increasing as the HI increases. When the HI calculated for all chemicals for a specific population exceeds 1, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of 1 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. A summary of the noncarcinogenic risks associated with these chemicals for each exposure pathway is contained in Table 5 of Appendix II attached hereto.

Noncarcinogenic hazards for construction worker exposure to soil were below the HI threshold of 1,

however, data collected to support the OU2 AVX ROD Amendment suggested that these hazards could be underestimated. This data, along with more recently acquired soil data, is further evaluated under the *Qualitative Analysis* section below.

Carcinogenic Risks

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen under the conditions described in the *Exposure Assessment*, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

Risk = LADD x SF

Where: Risk = a unitless probability (1×10^{-6}) of an individual developing cancer
LADD = lifetime average daily dose averaged over 70 years (mg/kg-day)
SF = cancer slope factor, expressed as [1/(mg/kg-day)].

These risks are probabilities that are usually expressed in scientific notation (such as 1×10^{-4}). An excess lifetime cancer risk of 1×10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the *Exposure Assessment*. Current Superfund guidance identify the range for determining whether a remedial action is necessary as an individual lifetime excess cancer risk of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk), with 10^{-6} being the point of departure.

Carcinogenic risks for construction worker exposure to soil were below the upper bound, or $1x10^{-4}$, of the cancer risk range, however, data collected to support the OU2 AVX ROD Amendment suggested that these risks could be underestimated. This data, along with more recently acquired soil data, is further evaluated under the *Qualitative Analysis* section below.

Qualitative Analysis

Although the estimated total risks ($5x10^{-5}$) and hazards (HI=0.5) in soil calculated for the construction worker evaluated under the OU2 ROD were within the risk range and below the noncarcinogenic HI threshold of 1, data collected at the time of the OU2 AVX ROD Amendment identified higher concentrations of VOCs in soil compared to those evaluated in the OU2 HHRA. A qualitative determination was made in the OU2 AVX ROD Amendment that the risks associated with soil in the OU2 HHRA could be underestimated. It was also determined that contamination in the subsurface soil could serve as a source of continued groundwater contamination. Additional samples were collected as part of the 2023 OU5 FSIR. Table 1 in Appendix II provides minimum and maximum VOC concentrations detected in soil during the OU2 RI and during the post-OU2 ROD investigations at the AVX Property.

As can be seen in this table, the maximum results of the soil samples collected during the OU5 FSIR were either higher than those identified during the time of the OU2 ROD and OU2 AVX ROD Amendment or are within the same order of magnitude. Notably, the maximum concentrations of PCE

and TCE identified during the OU5 FSIR were over two times greater than the OU2 RI. Maximum concentrations for cis-1,2-DCE, vinyl chloride and xylene have also increased. Furthermore, as shown in Appendix II Tables 3 and 4, updated toxicity data would likely lead to higher hazard estimates for these chemicals, as well as higher risk estimates for TCE, compared to the time of the OU2 ROD. Therefore, EPA has determined that the unacceptable risks presented in the OU2 AVX ROD Amendment remain unacceptable and could be underestimated. Additionally, groundwater on the Site continues to exceed federal MCLs and New York State standards due to impacts from contaminated soil, underscoring the need to address soil as a source to groundwater.

7.1.5. Uncertainties

The procedures and inputs used to assess human health risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis;
- environmental parameter measurement;
- fate and transport modeling;
- exposure parameter estimation; and
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the COCs, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the COCs at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment.

7.2. Ecological Risk Assessment

The AVX Property is approximately 18.5 acres in size and currently includes an open area with bare soil due to the recent removal of the former AVX building. Wetlands and a wooded area are located south of the former building area, which remains fenced. The fenced portion of the site that formerly comprised the AVX building does not currently provide habitat that could potentially support populations of indigenous wildlife receptor species. Therefore, there are no ecological risks currently recognized within this area. For the area outside of the fence, which includes the wooded area and wetland area, a qualitative ecological risk assessment was conducted as part of the OU2 ROD to determine if contamination present at the AVX Property was impacting the wooded or wetland area.

Given that the potential source of contamination in the wooded and wetland area would be contaminated groundwater discharging to the sediments, sediment samples were collected from the wetlands. Analysis of the samples did not reveal any VOC contamination. Several semi-volatile organic compounds (SVOCs) were detected but were not attributed to the AVX Property. Based on this evaluation, it was determined that there is not a completed exposure pathway from the AVX property groundwater to the wooded or wetland areas. Since the levels of contamination in groundwater at the AVX property have remained similar, or have declined, this assumption is still considered valid.

7.3. Basis for Taking Action

Based upon the results of the OU5 FSIR, the baseline OU2 ROD HHRA, and the updated qualitative analysis for OU5, the response action selected in this OU5 ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

8. REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) criteria, other guidance documents, and site-specific risk-based levels.

The followings RAOs have been established for OU5 of the Site:

- Reduce the migration of VOC contaminants in soil to groundwater.
- Eliminate the potential for human exposure to Site contaminants via contact with soil concentrations above NYSDEC soil cleanup objectives for commercial properties.

The RAOs established in the OU2 AVX ROD Amendment remain unchanged.

The cleanup levels for soil established for the OU5 COCs are identified in Table 9 in Appendix II attached hereto. The COCs are the same as those outlined in the 1996 OU2 ROD and the OU2 AVX ROD Amendment, except 1,4-dioxane. This compound was added to the COC list because of its presence in groundwater above federal MCLs and New York State standards. If it is discovered in soil above the cleanup level identified in Table 9, it would become a COC for the Site.

9. DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions be protective of human health and the environment, cost-effective, comply with ARARs, and utilize permanent solutions and alternative treatment technologies or resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the

hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4). Detailed descriptions of the remedial alternatives presented in this ROD can be found in the Feasibility Study Report, dated July 2023.

The construction time for each remedial alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any PRPs, or procure contracts for design and construction, or operation and maintenance.

9.1. Description of Common Elements Among Remedial Alternatives

Each of the alternatives address unsaturated contaminated soil located beneath and near the footprint of the former manufacturing building in the northern portion of the Historical Source Area.

Until a final remedy for the AVX Property is selected, the OU2 AVX ROD Amendment requires implementation of institutional controls and development of a Site management plan (SMP) to provide for the proper operation and maintenance (O&M) of the remedy for the AVX Property post-construction. The SMP includes a long-term groundwater monitoring program to track and monitor changes in the groundwater contamination over time at the AVX Property. The institutional controls selected in the OU2 AVX ROD Amendment would continue to apply to the AVX Property and as such would apply to each of the alternatives evaluated for OU5. Implementation of institutional controls and the SMP are ongoing.

Additionally, because the final remedy for the AVX Property (the OU5 selected remedy in combination with the remedy selected in the OU2 AVX ROD Amendment) will result in hazardous substances, pollutants, or contaminants remaining in and around the drainage swale area at the AVX Property above levels that would otherwise allow for unlimited use and unrestricted exposure, pursuant to Section 121(c) of CERCLA, statutory reviews will be conducted no less often than once every five years to ensure that the remedy remains protective of human health and environment.

9.2. Description of Remedial Alternatives

Alternative 1: No Action

Capital Cost:	$0
Periodic Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

The NCP requires that a "No Action" alternative be used as a baseline for comparing other remedial alternatives. Under this alternative, there would be no remedial actions actively conducted at OU5 to control or remove groundwater contaminants. This alternative also does not include monitoring or institutional controls.

Alternative 2: Long-Term Monitoring

Capital Cost:	$44,000
Periodic Costs:	$567,000
Present-Worth Cost:	$291,000
Construction Time:	1 month

This alternative would rely on long-term monitoring of contaminant concentrations in soil to ensure concentrations are decreasing. As discussed above, reductions in contaminant concentrations in groundwater are occurring to a limited extent already from various naturally occurring physical, chemical, and biological processes. These processes occur naturally, in-situ, and act to decrease the mass or concentration of contaminants in the subsurface. Only non-augmented natural processes would be relied upon under this alternative. In addition, existing surface covers (concrete slab floor, pavement, and vegetative cover) would be maintained to control potential leaching of contaminants in soil to groundwater and prevent exposure.

For cost-estimating and planning purposes, four new groundwater monitoring wells would be installed, and periodic monitoring would be conducted to track attenuation of contaminants immediately beneath and/or downgradient of the unsaturated soil source.

Alternative 3: Excavation

Capital Cost:	$2,228,000
Periodic Costs:	$450,000
Present-Worth Cost:	$2,414,000
Construction Time:	4 months

The major components of the soil excavation alternative are demolition and removal of the existing concrete slab floor and foundation supports, excavation of impacted unsaturated soil located beneath and near the footprint of the former manufacturing building, off-Site transportation and disposal of excavated material, and restoration with imported clean fill material. Figure 2 in Appendix I provides the approximate areas requiring excavation based on data collected during the FSIR. These areas will be further refined based on additional sampling.

Excavation areas would be restored with imported clean fill material to match the previously existing contours and grades. Imported clean fill material would meet NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation criteria for imported fill or soil at commercial or industrial properties. Surface restoration details would be developed during the remedial design.

For cost estimating and planning purposes, the conceptual design estimates 5,500 cubic yards (cy) of soil requiring excavation and off-Site transportation for disposal as non-hazardous waste at a solid waste landfill. Rainwater/surface water that accumulates in, and is then removed from, any excavation areas would be temporarily containerized onsite (e.g., in 21,000-gallon tanks). It is anticipated that any water that accumulates and is removed from the excavation would be treated by the groundwater treatment system at the AVX Property prior to discharge to the City of Olean sewer system.

Alternative 4: In-Situ Soil Solidification

Capital Cost:	$2,715,000
Periodic Costs:	$450,000
Present-Worth Cost:	$2,901,000
Construction Time:	3.5 Months

The major components of the In-Situ Soil Solidification (ISS) alternative include the demolition and removal of the existing concrete slab floor and foundation supports, excavation and removal of the asphalt paved areas to establish a level working surface for the ISS mixing equipment, construction of a management area adjacent to the ISS target areas to accommodate bulk soil that would swell as a result of the soil mixing process and amendment addition.

Solidification refers to a cleanup method that prevents or slows the release of harmful chemicals from contaminated soil. These methods usually do not destroy the contaminants. Instead, they keep them from "leaching" above safe levels into the surrounding environment. Solidification binds the waste in a solid block of material and traps it in place, using a binding agent. This block is also less permeable to water than the waste.

During the Feasibility Study Investigation, a laboratory bench-scale ISS treatability study was conducted with soil from the AVX Property to identify the optimal percentage of reagents, dosing requirements, and effectiveness. This treatability study investigated the ability of Portland Cement (PC) and blast furnace slag (BFS), as well as zero-valent iron (ZVI), to reduce the leaching potential of contaminants. Based on the results, for cost-estimating and planning purposes, the conceptual design estimates approximately 5,500 cy of soil would be mixed with a blend of 2.5% PC and 4.5% ground-granulated BFS, with a water-to-reagent ratio of 4.5 (grams of water to grams of reagent) to solidify contaminants in-place, creating a low-permeability monolith.

The conceptual design estimates that a three-foot-thick cover would be designed to maintain the ISS-treated material below the frost line and to promote stormwater drainage away from the treatment zone. The protective cover would consist of a non-woven geotextile demarcation fabric, 2.5 to 3 feet of reuse soil, and approximately six inches of gravel at the surface for erosion protection.

It has been estimated that approximately 3,755 cy of non-impacted soil would be excavated to create the management area and would be used post-ISS construction for installation of a three-foot-thick cover over both the ISS treatment and management areas.

Under this alternative, long term monitoring of groundwater would be conducted to evaluate the long-term effectiveness and permanence of the solidified mass.

Alternative 5: In-situ Thermal Remediation

Capital Cost:	$3,395,000
Periodic Costs:	$450,000
Present-Worth Cost:	$3,581,000
Construction Time:	6 months

This remedial alternative combines in-situ thermal remediation (ISTR) with a system to address vapor management within and around areas with the highest concentration of contaminants.

In-situ thermal treatment methods move or "mobilize" harmful chemicals in soil using heat. The chemicals move through soil toward wells where they are collected and piped to the ground surface to be treated using ex-situ cleanup methods. For cost estimating and planning purposes, the conceptual design assumes an ex-situ approach for vapor management composed of cooling, phase separation, air stripping, liquid-phase granular-activated carbon (GAC), and vapor-phase GAC following. If some water is encountered, multi-phase extraction (MPE) would be utilized.

Electrical resistance heating (ERH) and thermal conduction heating (TCH) were determined, based on their effectiveness for treating lower-permeability till with similar soil electrical properties, to be the most applicable ISTR technologies for source removal within the lower-permeability till unit at OU5. For cost estimating purposes, ERH was assumed for the development of this alternative.

Preliminary ERH layouts were developed using a regular 19-foot triangular grid pattern for the electrodes, with vertical MPE wells and horizontal vapor management wells located at the centroids between adjacent electrodes. Distributed temperature sensor strings would be used for performance monitoring. A thermally insulating vapor cap would be constructed to provide a no-flow barrier at the surface, limit heat losses to ground surface, and minimize the potential for recondensation of vapors near ground surface.

10. COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy for a site, EPA considers the factors set forth in CERCLA Section 121, 42 U.S.C. § 9621, by conducting a detailed analysis of remedial alternatives pursuant to the requirements of the NCP at 40 C.F.R. § 300.430(e)(9), EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER Directive 9355.3-01, and EPA's A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents, OSWER 9200.1-23.P. The detailed analysis consists of an assessment of the individual alternatives against each of the nine evaluation criteria set forth at 40 C.F.R. § 300.430(e)(9)(iii) and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The following "threshold" criteria are the most important and must be satisfied by any remedial alternative in order to be eligible for selection:

1. **Overall protection of human health and the environment** addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. **Compliance with ARARs** addresses whether a remedy would meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and regulations or provide grounds for invoking a waiver. Other federal or state advisories, criteria,

or guidance are TBCs. While TBCs are not required to be adhered to by the NCP, the NCP recognizes that they may be very useful in determining what is protective or how to carry out certain actions or requirements.

The following "primary balancing" criteria are used to make comparisons and to identify the major tradeoffs between alternatives:

3. **Long-term effectiveness and permanence** refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. **Reduction of toxicity, mobility, or volume through treatment** is the anticipated performance of the treatment technologies, with respect to these parameters, that a remedy may employ.

5. **Short-term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation of the remedy.

6. **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

7. **Cost** includes estimated capital, O&M, and present-worth costs.

The following "modifying" criteria are used in the final evaluation of the remedial alternatives after the formal comment period, and they may prompt modification of the preferred remedy that was presented in the Proposed Plan:

8. **State acceptance** indicates whether, based on its review of the RI/FS report, HHRA, and Proposed Plan, the State concurs with, opposes, or has no comments on the proposed remedy.

9. **Community acceptance** refers to the public's general response to the alternatives described in the RI/FS report, HHRA, and Proposed Plan.

A comparative analysis of the remedial alternatives considered in this OU5 ROD, based upon the evaluation criteria noted above, follows.

10.1. Overall Protection of Human Health and the Environment

All of the alternatives except Alternative 1 (No Action) would provide adequate protection of human health and the environment by eliminating, reducing, or controlling risk through off-site disposal, in-situ treatment, engineering controls, and/or institutional controls. Alternative 2 (Long-Term Monitoring) would provide some protection from future exposure to contaminated soil through the maintenance of the existing cover material (concrete slab floor, pavement, and vegetative cover), and through institutional controls such as land-use restrictions. However, contaminated soil would remain in place above the cleanup levels.

Alternative 3 (Excavation) would permanently remove unsaturated soil with VOCs above the cleanup levels for off-Site disposal while Alternative 5 (In-Situ Thermal Remediation) would remove VOCs through in-situ treatment and ex-situ recovery for on-Site treatment. Under Alternative 4 (In-Situ Soil Solidification) contaminated soil would not be destroyed, but rather would be treated in-situ to bind the contaminants to the material and prevent or slow the release of contaminants from soil.

Alternatives 2, 3, 4, and 5 would achieve the RAOs. Alternative 1 (No Action) would not achieve the RAOs.

10.2. Compliance with ARARs

EPA has identified NYSDEC's soil cleanup objectives for the protection of groundwater (6 NYCRR § 375-6.5) as an ARAR, a "to-be considered," or other guidance to address contaminated soil at the Site. Refer to Table 9 for the cleanup levels for soil.

Under Alternatives 2 through 5, ARARs would be achieved. Although soil sampling results indicate that biodegradation of VOC contaminants may be occurring at the AVX Property, given the elevated concentrations of contaminants in soil, achievement of the cleanup levels under Alternative 2 may not be reached for many years. Under Alternative 2, elevated concentrations of contaminants in soil would result in the prolonged presence of contamination in the unsaturated soil, which would continue to act as a source to groundwater contamination and likely prevent or extend the attainment of the cleanup levels established in the OU2 AVX ROD Amendment.

Alternatives 2 through 4 would comply with location-specific ARARs, such as the Clean Water Act, to mitigate adverse impacts on protected wetlands. Alternatives 2 through 4 would comply with action-specific ARARs, such as hazardous waste management regulations that manage remediation derived waste. Alternative 1 would not comply with ARARs.

Chemical-, location-, and action-specific ARARs are identified in Appendix II, Tables 6, 7, and 8, respectively.

10.3. Long-Term Effectiveness and Permanence

Alternative 2 relies on naturally occurring in-situ processes to decrease the concentrations of contaminants over time. While degradation has been shown to occur in soil and groundwater at the AVX Property, given the elevated concentrations of contaminants present the timeframe to achieve the cleanup levels resulting in long-term protectiveness is not anticipated to occur in a reasonable timeframe. Alternatives 3 through 5 are all effective alternatives in the long-term because they would remove or solidify the contaminants in unsaturated soil located beneath and near the footprint of the former manufacturing building, through physical methods (excavation, Alternative 3), solidification (Alternative 4), and volatilization via thermal treatment followed by soil vapor extraction (Alternative 5). Alternatives 2 through 5 would permanently reduce accessible contaminant concentrations over time, while Alternatives 3, 4, and 5 would achieve permanent contaminant concentration reduction or immobilization more quickly. Alternative 1 would not achieve long-term effectiveness or permanence.

Potential Site impacts from climate change have been assessed, and the future performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the Site.

10.4. Reduction of Toxicity, Mobility or Volume

Alternative 2 would reduce the toxicity and volume of contaminants in soil over time, however, the timeframe to achieve the cleanup levels and long-term protectiveness may not be reached for many years. Under Alternative 3, the mobility, volume, and exposure to contaminants would be reduced through the removal and disposal of the soil at an approved off-Site facility. Furthermore, although currently not anticipated, off-site treatment, if required, would reduce the toxicity of the contaminated soil prior to disposal. Alternatives 4 and 5 provide active in-situ treatment of contaminants in soil that would greatly reduce the mobility of these contaminants. Alternative 5 would also reduce the volume and toxicity of contaminants because it destroys the contaminants rather than solidifying them in-place. Alternative 1 would not reduce the toxicity, mobility, or volume of contaminants.

10.5. Short-Term Effectiveness

Alternatives 2 through 5 may have short-term impacts to remediation workers, the public, and the environment during implementation. Alternative 2 could have minimal adverse short-term impacts since work is limited to the installation of four additional groundwater monitoring wells associated with the groundwater sampling program. Occupational health and safety controls would be implemented to mitigate exposure risks. Alternative 2 has an estimated implementation timeframe of 30 years, although it is unclear whether RAOs would be reached within 30 years. Alternative 1 would not have any short-term impacts as no implementation would be necessary.

Under Alternative 3, the potential risks to workers, the public, or the environment would increase relative to Alternative 2 due to substantial soil disturbance and offsite transportation of soil, although these activities would be managed through engineering controls, health and safety procedures, and worker training. The implementation timeframe for Alternative 3 is estimated to be approximately 4 months.

Under Alternative 4, the potential risks to workers, the public, or the environment would increase relative to Alternative 2, due to implementation of ISS although these activities would be managed through engineering controls, health and safety procedures, and worker training. The implementation timeframe for Alternative 4 is estimated to be approximately 3.5 months.

Installation of the electrodes and associated SVE and MPE wells for Alternative 5 may result in short-term exposure risks to workers, the public, or the environment, but these potential risks are likely lower than those from Alternatives 2, 3, and 4 because there will be less physical disturbance and movement of soil. These potential risks would be managed through engineering controls, vapor monitoring and mitigation, health and safety procedures, and worker training. The implementation timeframe for Alternative 5 is estimated to be approximately 6 months.

Based on the information contained above, Alternative 2 presents the least short-term impacts. Alternative 5, while presenting more short-term impacts than Alternative 2, has less short-term impacts as compared to Alternatives 3 and 4.

10.6. Implementability

All technologies under active Alternatives 3, 4, and 5 are established technologies with commercially available equipment and are implementable.

Alternative 5 would be the most difficult to implement, as it requires the most specialized equipment with the installation of electrodes, wells for vapor management, and MPE wells (as necessary), temperature monitoring points, a power delivery system, and waste stream controls. However, the equipment is conventional and readily available.

Alternatives 3 and 4 would be easier to implement than Alternative 5, but more difficult than Alternative 2, as Alternative 2 is not an active remedy.

10.7. Cost

"Cost" includes estimated capital and annual operation and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent. This is a standard assumption in accordance with EPA guidance.

The estimated capital, O&M, and present worth costs are discussed in detail in the FS Report. The cost estimates are based on the best available information. Alternative 1: No Action has no cost because no activities are implemented. The highest present worth cost alternative is Alternative 5, at $3.58 million. The total present worth costs, using a discount rate of 7%, for Alternatives 2 through 5 are as follows:

Alternative	Capital Cost	O&M Costs	Total Present Worth
2. Long-Term Monitoring	$44,000	$567,000	$291,000
3. Excavation	$2,228,000	$450,000	$2,414,000
4. In-Situ Soil Solidification	$2,715,000	$450,000	$2,901,000
5. In-Situ Thermal Remediation	$3,395,000	$450,000	$3,581,000

10.8. State/Support Agency Acceptance

NYSDEC has consulted with NYSDOH and concurs with the selected remedy. A letter of concurrence is attached in Appendix IV attached hereto.

10.9. Community Acceptance

"Community Acceptance" considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

EPA solicited input from the community on the remedial alternatives proposed for OU5 at the Site. Oral comments received from community members at the August 8, 2023 public meeting generally

related to the details of historical site operations and the negative impact of these operations, the schedule for remediation of OU5 of the Site, and public health concerns. During the public comment period from July 27, 2023, through August 28, 2023, one written comment was received via e-mail, which can be found in Appendix V. Responses to the questions and comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (See Appendix V).

11. PRINCIPAL THREAT WASTES

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site whenever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A Source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment in the event exposure should occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of alternatives, using the remedy selection criteria which are described above. The manner in which principal threat wastes are addressed provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

Varying concentrations of VOCs were detected in soil samples collected during previous investigations from borings installed within the main manufacturing building at the AVX Property. Results from previous investigations showed concentrations of 1,1,1-TCA as high as 990 ppm and TCE as high as 650 ppm in subsurface soil, indicative of the presence of DNAPL in the soil zone at approximate depths of 16 feet and 6 feet, respectively, below the foundation of the main building.

During the FSIR, concentrations of 1,1,1-TCA and TCE as high as 226 ppm and 1,500 ppm, respectively, in subsurface soil were revealed. The FSIR results are indicative of the presence of DNAPL in the soil zone at an approximate depth of five feet below the foundation of the main building. These findings show the presence of "principal threat" wastes at the AVX Property. The selected remedy for OU5 discussed in more detail below is expected to remove this contamination through excavation and off-Site disposal.

12. THE SELECTED REMEDY

Based upon the requirements of CERCLA, the results of OU5 investigations, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative 3 (Excavation) best satisfies the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, 40 CFR §300.430(e)(9).

12.1. Summary of the Rationale for the Selected Remedy

While Alternatives 3: Excavation, 4: In-Situ Soil Solidification and 5: In-Situ Thermal Remediation all use proven technologies to actively treat VOC-contaminated soil in OU5, Alternative 3 would permanently remove the contaminated soil located beneath and near the footprint of the former

manufacturing building in a relatively short implementation timeframe. Alternative 3 is also comparatively easier to implement than Alternatives 4 and 5 and uses conventional construction equipment.

Based upon the information currently available, the selected remedy (Alternative 3: Excavation) meets the threshold criteria and provides the best balance of tradeoffs compared to the other alternatives with respect to the balancing criteria. The selected remedy satisfies the following statutory requirements of Section 121(b) of CERCLA: 1) the selected remedy is protective of human health and the environment; 2) it complies with ARARs; 3) it is cost effective; and 4) it utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Although it is not currently anticipated, if necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal and only under such circumstances would the selected alternative partially satisfy the preference for treatment.

12.2. Description of the Selected Remedy

The major components of the selected remedy for OU5 include the following:

- Demolition and removal of existing concrete slab floor and foundation supports;
- Excavation of contaminated unsaturated soil located beneath and near the footprint of the former manufacturing building in the northern portion of the Historical Source Area;
- Off-Site transportation and disposal of excavated material; and
- Restoration with imported clean fill material.

As part of the remedial design, further evaluations will be conducted to define the depth of the water table and resulting excavation. If determined practicable, additional limited active remediation will be performed below the water table to address saturated soil in an effort to improve remediation timeframes for groundwater. During the remedial design, additional soil sampling will also be conducted to further evaluate the extent of contamination, including 1,4-dioxane.

The selected OU5 remedy to address contaminated soil located beneath and near the footprint of the former manufacturing building, in conjunction with the OU2 AVX ROD Amendment, constitutes the final remedy for the AVX Property.

The institutional controls to restrict use of the use of the property to industrial uses, as selected in the OU2 AVX ROD Amendment, continue to apply to the AVX Property and as such apply to this selected remedy as well.

The environmental benefits of the selected remedy may be enhanced by employing design technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy. During the remedial design, green remediation concepts, including the use of low-sulfur vehicles and the proximity to the landfill that would receive the excavated soil in an effort to reduce the impacts associated with truck trips, will be considered.

12.3. Summary of Estimated Remedy Costs

The estimated capital, O&M, and total present-worth costs for the selected remedy are $2,228,000, $450,000, and $2,414,000, respectively. The costs estimates are based on available information and are order-of-magnitude engineering cost estimates that are expected to be between +50 to -30 percent of the actual project cost. Changes to the cost estimate can occur as a result of new information and data collected during the design of the remedy.

A cost estimate summary for the selected remedy is presented in Appendix II, Table 10 attached hereto.

12.4. Expected Outcomes of the Selected Remedy

The selected remedy actively addresses areas of VOC contaminated soil located beneath and near the footprint of the former manufacturing building at the AVX Property, identified as OU5 of the Site. The results of the risk assessment indicate that the contaminated soil at OU5 presents an unacceptable exposure risk. The response action selected in this ROD will eliminate risks associated with exposure to contaminated soil. In addition, the removal of contaminated soil is expected to facilitate and expedite the restoration of the City Aquifer. The selected remedy for OU5, in conjunction with the OU2 AVX ROD Amendment, constitutes the final remedy for the AVX Property.

13. STATUTORY DETERMINATIONS

EPA has determined that the selected remedy complies with the CERCLA and NCP provisions for remedy selection, meets the threshold criteria, and provides the best balance of tradeoffs among the alternatives with respect to the balancing and modifying criteria. These provisions require the selection of remedies that are protective of human health and the environment, comply with ARARs (or justify a waiver from such requirements), are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the toxicity, mobility, or volume of hazardous substances as a principal element (or justifies not satisfying the preference). The following sections discuss how the selected remedy meets these statutory requirements.

13.1. Protection of Human Health and the Environment

The selected remedy will protect human health and the environment because it will permanently remove unsaturated soil with VOCs above the cleanup levels for off-Site disposal.

13.2. Compliance with ARARs

EPA has identified NYSDEC's soil cleanup objectives for the protection of groundwater (6 NYCRR § 375-6.5) as an ARAR, a "to-be considered," or other guidance to address contaminated soil at the Site. The selected remedy is expected to achieve cleanup levels for COCs in soil. The COCs and the relevant cleanup levels are provided in Table 9, which can be found in Appendix II attached hereto. A full list of the ARARs, TBCs, and other guidance related to implementation of the selected remedy is presented in Tables 6, 7, and 8 which also can be found in Appendix II.

13.3. Cost Effectiveness

A cost-effective remedy is one whose costs are proportional to its overall effectiveness (40 C.F.R. § 300.430(f)(1)(ii)(D)). Overall effectiveness is based on the evaluations of long-term effectiveness and permanence, reduction in toxicity, mobility, and volume through treatment, and short-term effectiveness. Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness.

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital and annual O&M costs were estimated and used to develop present-worth costs. In the present-worth cost analysis, annual O&M costs were calculated for the estimated life of each alternative. The total estimated present worth cost for implementing the selected remedy is $2,414,000.

Based on the comparison of overall effectiveness to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost effective (40 C.F.R. § 300.430(f)(1)(ii)(D)) in that it represents reasonable value for the money to be spent and is thus cost effective. A four-month timeframe was used for planning and estimating purposes to remediate soil, although remediation timeframes could exceed this estimate.

13.4. Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to Maximum Extent Practicable

The selected remedy complies with the statutory mandate to utilize permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable because removing the contaminated soil is a permanent solution and, if necessary for disposal, treatment will be utilized.

13.5. Preference for Treatment as a Principal Element

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or justifies not satisfying the preference). Based on the sampling performed to date, the contaminated soil is not expected to require treatment to meet the requirements of off-site disposal facilities. While the selected remedy does not meet the statutory preference for treatment, it nonetheless reduces toxicity, mobility or volume through excavation and off-Site disposal and on balance is the alternative that best satisfies all of the NCP criteria.

13.6. Five-Year Review Requirements

The OU5 selected remedy, in combination with the OU2 AVX ROD Amendment, will result in hazardous substances, pollutants, or contaminants remaining in and around the drainage swale area at the AVX Property above levels that would otherwise allow for unlimited use and unrestricted exposure. As a result, in accordance with Section 121(c) of CERCLA, statutory reviews will be conducted no less often than once every five years to ensure that the remedy remains protective of human health and the environment.

14. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for OU5 was released on July 27, 2023. The Proposed Plan identified Alternative 3 as the preferred alternative for remediating the OU5 contaminated soil.

EPA considered all written and oral comments (including electronic formats such as e-mail) submitted during the public comment period and has determined that no significant changes to the remedy as originally identified in the Proposed Plan are necessary or appropriate.

APPENDIX I

FIGURES

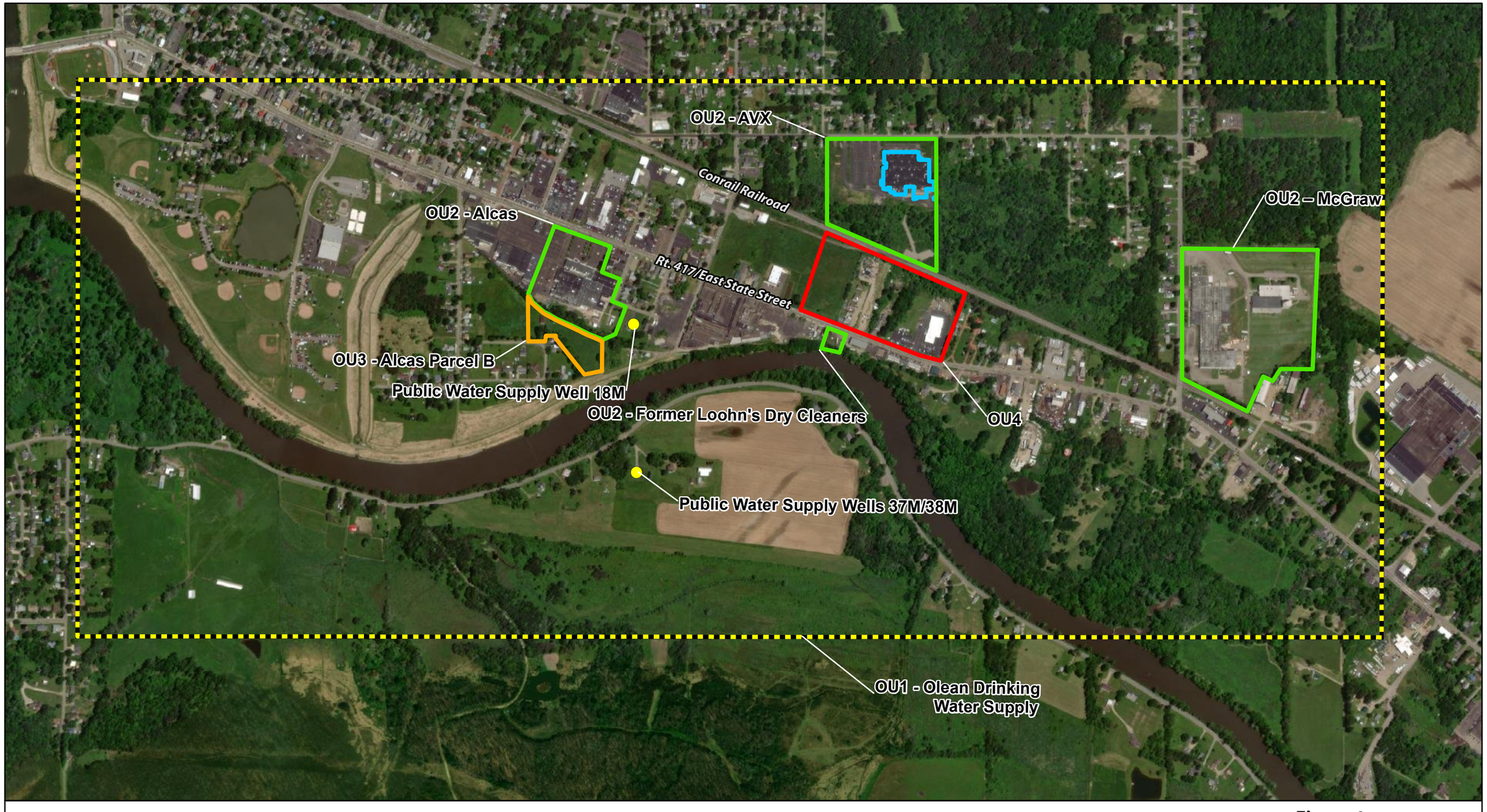

Figure 1
Olean Well Field
Site Location and
Operable Unit Map
Cattaraugus County, New York

FORMER MANUFACTURING BUILDING

Tape and Reel Storage

Powder and Barrel Storage

Receiving/ Chemical Storage

9'

Machine Shop/ Maintenance

RETAINING WALL

CHAIN LINK FENCE

WOODS

1435

1430

1425

1420

MIP5A

MIP6A

MIP2A

MIP3A

PW 1

2,9

6,9

AVX-16D

AVX-11S

AVX-3

AVX-1

OW-1A

IW-1

OW-1C

OW-1B

MC101

SW-12

SW-11

SW-9

SW-8

SW-16

SW-15

SW-14

SW-29

SW-28

2,5

SW-32

SW-31

SW-30

SW-17

SW-18

5,4

MC205

SW-26

SW-19

SW-13

4,3

SW-25

6,3

SW-21

SW-20

SW-22

SW-24

SW-23

SW-27

MC202

SS-102

SS-103

10,5

SS-105

MC302A

GP-24

SS-108

AVX-4S

AVX-4D

GP-18

0,2

PZ-3I

PZ-3S

PZ-3D

4,1

OW-2A

MC304

IW-2

OW-2B

OW-2C

SS-107

0,0

2,0

7,1

8,1

SS-104

AVX-6D

AVX-6S

SS-111

AVX-10S

AVX-10D

AVX-5I

SS-110

AVX-5S

AVX-5DR

SS-109

AVX-12D

MC505

SS-112

LEGEND:

- AVX-3 — SHALLOW MONITORING WELL LOCATION
- AVX-2B — INTERMEDIATE MONITORING WELL LOCATION
- AVX-1 — DEEP MONITORING WELL LOCATION
- PZ-1S — PIEZOMETER LOCATION
- IW-1 — INJECTION WELL LOCATION
- OW-1 — OBSERVATION WELL LOCATION
- MIP1A/MC700 — MEMBRANE INTERFACE PROBE CONFIGURATION SOIL SAMPLING 2011
- SS-110 — SURFACE SOIL SAMPLING LOCATION (2011)
- SW-11 — POST-EXCAVATION SIDEWALL SOIL SAMPLING LOCATION (2000)
- GP-24 — GEOPROBE BORING SOIL SAMPLING LOCATION (2004)
- UTILITY POLE
- BENCHMARK
- PROPERTY BOUNDARY
- SANITARY SEWER LINE
- SPDES DISCHARGE PIPE
- APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK EXCAVATION
- APPROXIMATE EDGE OF VEGETATION
- SOURCE AREA AS DEFINED BY 2015 FEASIBILITY STUDY
- STAGE 1 REMEDIAL ACTION EXCAVATION AREA (2000)
- 10,5 — VERTICAL AQUIFER PROFILE SAMPLING LOCATION (2020) - WHERE TWO COLORS ARE PRESENTED, THE INNER COLOR REPRESENTS THE DEEPER SAMPLE
- APPROXIMATE EXTENT OF EXCAVATION
- EA-1 — EXCAVATION AREA ID
- 9' — APPROXIMATE EXCAVATION DEPTH

NOTES:

1. PROPERTY LINE (JANUARY 13, 1981) AND SANITARY SEWER LINE (OCTOBER 2003) LOCATIONS OBTAINED FROM SURVEY MAPS PREPARED BY D. MICHAEL CANADA ON THE CORRESPONDING DATES.
2. AVX-18S LOCATION (FEBRUARY 2, 2005), AVX-19S, AVX-20S, AVX-18D AND AVX-19D LOCATIONS (JUNE 5, 2006), AVX-21S, AVX-22S, AVX-23S, AVX-24S, AND MW-XX LOCATIONS (MAY 5, 2008) OBTAINED FROM SURVEY MAPS PREPARED BY D. MICHAEL CANADA ON THE CORRESPONDING DATES.
3. PIEZOMETER (PZ), INJECTION WELL (IW) , OBSERVATION WELL (OW) AND MEMBRANE INTERFACE PROBE (MIP) LOCATIONS OBTAINED FROM SURVEY MAPS PREPARED BY D. MICHAEL CANADA ON APRIL 28, 2011.
4. TOPOGRAPHIC CONTOURS AND SPDES DISCHARGE PIPE LOCATIONS OBTAINED FROM SURVEY MAPS PREPARED BY FISHER ASSOCIATES ON JUNE 29, 2018.
5. WHOLE CORE SOIL SAMPLING LOCATIONS SURVEYED BY OR MEASURED FROM LOCATIONS SURVEYED BY FISHER ASSOCIATES ON NOVEMBER 17, 2020.
6. * WHOLE CORE SOIL SAMPLING LOCATION SS-1,1 HAS ONLY ONE SAMPLE WHICH WAS COLLECTED FROM A DEPTH OF 2.5 FEET BGS A DECISION WAS MADE TO SHIFT THE LOCATION FOR DEEPER SAMPLES TO SS-1,2, WHICH IS LOCATED WITH HISTORICAL BORING OP-18.

0 20' 40'
GRAPHIC SCALE

OLEAN WELL FIELD
SITE AVX- OU5
OLEAN, NEW YORK

ALTERNATIVE 3 EXCAVATION AREA

FIGURE 2

APPENDIX II

TABLES

TABLE 1
Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: AVX Surface and Subsurface Soil
Exposure Medium: Surface and Subsurface Soil

Exposure Point	Chemical of Concern	Maximum Concentration Detected OU2 ROD (mg/kg)	Maximum Concentration Detected 2015 OU2 ROD Amendment (mg/kg)	Maximum Concentration Detected 2023 FSIR
Surface and Subsurface Soil	1,1,1-trichloroethane	1,300	990	226 DJ
	Tetrachloroethene	270	270	723 DJ
	Trichloroethene	500	650	1500 DJ
	Cis-1,2-dichloroethene	-----	65	93.6 DJ
	Trans-1,2-dichloroethene	-----	ND	0.04
	Vinyl chloride	-----	0.6	2.1 DJ
	Toluene	16	460	339 DJ
	1,2-dichloroethane	0.047	ND	0.083
	Xylene	4	315	320.5 DJ

ND - Indicates chemical was not detected
D – Indicates compounds identified in the secondary dilution factor
J – Estimated value

Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

This table presents the maximum detected concentrations of the chemicals of concern (COCs) detected in surface/subsurface soil across investigations supporting the 1996 OU2 ROD, OU2 AVX ROD Amendment and this 2023 OU5 ROD.

TABLE 2
Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Soil	Surface and Subsurface Soil	On-site soil (AVX)	Construction Worker	Adult	Ingestion/Dermal /Inhalation	Quant/Qual	Current or future adult construction workers could be exposed to on-property soil.

Quant/Qual = Quantitative and qualitative risk analysis performed.

Summary of Selection of Exposure Pathways

This table describes the exposure pathways associated with soil that were evaluated for the risk assessment, to support the OU2 ROD, OU2 AVX ROD Amendment, and this 2023 OU5 ROD in addition to the rationale for the inclusion of each pathway. Exposure media, exposure points, and characteristics of receptor populations are included. Exposure to groundwater to future child and adult residents was also evaluated as presented in the OU2 ROD and 2015 AVX ROD Amendment.

TABLE 3
Noncancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Oral RfD (OU2 ROD)	Units	Oral RfD (Current)	Units	Estimated Hazard Higher/Lower
1,1,1-trichloroethane	9.0E-01	mg/kg-day	2.0E+00	mg/kg-day	Lower
1,2-dichloroethane	-----	-----	6.0E-03	mg/kg-day	Higher
Tetrachloroethene	1.0E-01	mg/kg-day	6.0E-03	mg/kg-day	Higher
Trichloroethene	------	------	5.0E-04	mg/kg-day	Higher
Cis-1,2-dichloroethene	1.0E-02	mg/kg-day	2.0E-03	mg/kg-day	Higher
Trans-1,2-dichloroethene	1.7E-02	mg/kg-day	2.0E-02	mg/kg-day	Lower
Vinyl chloride	------	------	3.0E-03	mg/kg-day	Higher
Toluene	2.0E+00	mg/kg-day	8.0E-02	mg/kg-day	Higher
Xylene	4.0E+00	mg/kg-day	2.0E-01	mg/kg-day	Higher

Pathway: Inhalation

Chemical of Concern	Inhalation RfC (OU2 ROD)	Units	Inhalation RfC (Current)	Units	Estimated Hazard Higher/Lower
1,1,1-trichloroethane	------	------	5.0E+00	mg/m^3	Higher
1,2-dichloroethane	-----	-----	7.0E-03	mg/m^3	Higher
Tetrachloroethene	------	------	4.0E-02	mg/m^3	Higher
Trichloroethene	------	------	2.0E-03	mg/m^3	Higher
Cis-1,2-dichloroethene	------	------	4.0E-02	mg/m^3	Higher
Trans-1,2-dichloroethene	-----	-----	4.0E-02	mg/m^3	Higher
Vinyl chloride	------	------	1.0E-01	mg/m^3	Higher
Toluene	2.0E+00	mg/m^3	5.0E+00	mg/m^3	Lower
Xylene	------	------	1.0E-01	mg/m^3	Higher

Summary of Toxicity Assessment

This table provides non-carcinogenic hazard information which is relevant to the contaminants of concern in soil. The last column identifies if the hazard index would be higher (increased hazard) or lower (decreased hazard) if the hazards identified in the OU2 ROD were recalculated.

TABLE 4
Cancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Oral Cancer Slope Factor (OU2 ROD)	Units	Oral Cancer Slope Factor (Current)	Units	Risk Estimate Higher/Lower
1,1,1-trichloroethane	------	------	------	------	------
1,2-dichloroethane	9.1E-02	mg/kg-day	9.1E-02	mg/kg-day	Same
Tetrachloroethene	5.32E-02	mg/kg-day	2.1E-03	mg/kg-day	Lower
Trichloroethene	1.1E-02	mg/kg-day	4.6E-02	mg/kg-day	Higher
Cis-1,2-dichloroethene	------	------	------	------	------
Trans-1,2-dichloroethene	-----	-----	-----	-----	-----
Vinyl chloride	1.9E+00	mg/kg-day	7.2E-01	mg/kg-day	Lower
Toluene	------	------	------	------	------
Xylene	------	------	------	------	------

Pathway: Inhalation

Chemical of Concern	Unit Risk (OU2 ROD)	Units	Unit Risk (Current)	Units	Risk Estimate Higher/Lower
1,1,1-trichloroethane	------	------	------	------	------
1,2-dichloroethane	2.6E-05	ug/m^3	2.6E-05	ug/m^3	Same
Tetrachloroethene	5.7E-07	ug/m^3	2.6E-07	ug/m^3	Lower
Trichloroethene	1.7E-06	ug/m^3	4.1E-06	ug/m^3	Higher
Cis-1,2-dichloroethene	------	------	------	------	------
Trans-1,2-dichloroethene	-----	-----	-----	-----	-----
Vinyl chloride	8.4E-05	ug/m^3	4.4E-06	ug/m^3	Lower
Toluene	------	------	------	------	------
Xylene	------	------	------	------	------

Summary of Toxicity Assessment

This table provides carcinogenic risk information which is relevant to the contaminants of concern in soil. Toxicity data are provided for both the oral and inhalation routes of exposure. The last column identifies if the risk would be higher (increased risk) or lower (decreased risk) if the risks identified in the OU2 ROD were recalculated.

TABLE 5
Risk Characterization Summary – Carcinogens and Noncarcinogens

Scenario Timeframe: Current/Future
Medium: Surface and subsurface soil

Receptor	Carcinogenic Risk				Non-Carcinogenic Hazard			
	Ingestion	Dermal	Inhalation	Cancer Risk Total	Ingestion	Dermal	Inhalation	Hazard Index Total
Adult Construction Worker	4.97E-05	-----	2.32E-08	4.97E-05	0.502	------	0.0512	0.507

Summary of Risk Characterization – Carcinogens and Non-Carcinogens

This table presents the cancer risks and non-cancer hazards for the construction worker exposed to soil, which was presented in the OU2 ROD. As stated in the National Contingency Plan, the point of departure is 10-6 and the acceptable risk range for site related exposure is 10-6 to 10-4. The NCP also indicates that the acceptable non-cancer hazard index is 1. Concentrations detected in surface/subsurface soil on the AVX property during investigations supporting the OU2 AVX ROD Amendment as well as this OU5 ROD are largely higher than the concentrations reported in the OU2 ROD. Thus, a qualitative evaluation found that the risks and hazards identified in the OU2 ROD were underestimated and would likely be greater than those presented in the OU2 ROD. Regardless, the contaminants in soil continue to act as a source to elevated concentrations in groundwater exceeding Maximum Contaminant Levels and a remedial action is warranted.

Table 6
Chemical-Specific ARARs, TBCs, and Other Guidelines
Olean Well Field OU5 Superfund Site
Olean, New York

Media/Authority	Requirement	Requirement Synopsis
State Criteria, Advisories, and Guidance	New York Remedial Program Soil Cleanup Objectives (6 NYCRR Subpart 375-6.4, 6.5, 6.8), pursuant to the New York Environmental Conservation Law	Applies to the development and implementation of remedial programs for soil. Establishes numeric soil cleanup objectives both for unrestricted use and for restricted use for the protection of human health, the protection of ecological resources, and the protection of groundwater.
	NYSDEC Commissioner Policy - Soil Cleanup Guidance (CP-51), October 2010	This policy provides the framework and procedures for the selection of soil cleanup levels appropriate for each of the remedial programs in the NYSDEC Division of Environmental Remediation.
	Sampling, Analysis, and Assessment of Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, April 2023	This document summarizes currently accepted procedures and updates previous NYSDEC Division of Environmental Remediation technical guidance pertaining to PFAS to ensure consistency in sampling, analysis, reporting, and assessment of PFAS.
Federal Criteria, Advisories, and Guidance	USEPA RSLs for Chemical Contaminants at Superfund Sites (USEPA May 2023 and periodic updates)	Provides non-enforceable, generic, risk-based contaminant concentrations to be used for site "screening."

Notes:
ARAR = applicable or relevant and appropriate requirement
NYCRR = New York Codes, Rules, and Regulations
NYSDEC = New York State Department of Environmental Conservation
PFAS = per- and polyfluoroalkyl Substances
PFOA = perfluorooctanoic acid
PFOS = perfluorooctanesulfonic acid
ppb = parts per billion
RSL= Regional Screening Level
TBC = To Be Considered
USEPA = United States Environmental Protection Agency

Table 7
Location-Specific ARARs, TBCs, and Other Guidelines
Olean Well Field OU5 Superfund Site
Olean, New York

Site Feature/Authority	Requirement	Requirement Synopsis
Wetlands and Floodplains		
State Criteria, Advisories, and Guidance	New York Regulations concerning Freshwater Wetlands (6 NYCRR Parts 663 and 665), pursuant to the New York Environmental Conservation Law	Regulations to ensure the preservation of New York regulated freshwater wetlands. Regulates activities that may adversely affect wetlands.
Federal Regulatory Requirements	Section 404(b)(1) of the Clean Water Act, 33 U.S.C. §1344 (Permits for Dredged or Fill Material); Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230); and Section 404(c) Procedures (40 CFR Part 231)	Under these requirements, no activity that adversely affects a CWA Section 404 wetland shall be permitted if a practicable alternative with lesser effects is available. Controls discharges of dredged or fill material to protect aquatic ecosystems.
	40 CFR Part 6, Appendix A - Statement of Procedures on Floodplain Management and Wetlands Protection (44 FR 64177, Nov. 6, 1976, as amended at 50 FR 26323, June 25, 1985)	Action to avoid, whenever possible, the long- and short-term impacts on wetlands and to preserve and enhance wetlands. Plans for action in federal wetlands must be submitted for public review.
		Action to avoid, whenever possible, the long- and short-term impacts associated with the occupancy and modifications of floodplains development, wherever there is a practical alternative. Promotes the preservation and restoration of floodplains so that their natural and beneficial value can be realized.
	Fish and Wildlife Coordination Act (16 U.S.C. 661-668ee)	Any modification of a body of water that triggers a federal approval requires consultation with the U.S. Fish and Wildlife Service and the appropriate state wildlife agency to develop measures to prevent, mitigate, or compensate for losses of fish and wildlife. This requirement is addressed under CWA Section 404 requirements.

Table 7
Location-Specific ARARs, TBCs, and Other Guidelines
Olean Well Field OU5 Superfund Site
Olean, New York

Site Feature/Authority	Requirement	Requirement Synopsis
Endangered Species		
Federal Regulatory Requirements	Endangered Species Act (16 U.S.C. 1531-1532, 1536, and 1538-1540; 50 CFR Part 402)	Requires actions to ensure the continued existence of any endangered or threatened species. Also requires that their habitats will not be jeopardized by a site action.
State Criteria, Advisories, and Guidance	6 NYCRR Parts 182.1-182.2, 182.5, 182.8-182.13, and 182.15-182.16 - Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern: Incidental Take Permits, pursuant to the New York Environmental Conservation Law	Requires actions to ensure the continued existence of endangered or threatened species.

Notes:
CFR = Code of Federal Regulations
CWA = Clean Water Act
FR = Federal Register
NYCRR = New York Codes, Rules, and Regulations
TBC = To Be Considered
U.S.C. = United States Code

Table 8
Action-Specific ARARs, TBCs, and Other Guidelines
Olean Well Field OU5 Superfund Site
Olean, New York

Media/Authority	Requirement	Requirement Synopsis
Air		
Federal Regulatory Requirements	Clean Air Act - National Primary and Secondary Ambient Air Quality Standards (40 CFR Parts 50.1-50.3 and 50.6) and National Emission Standards for Hazardous Air Pollutants (40 CFR Parts 61.01 - 61.19)	Establishes air emissions limits for hazardous air pollutants.
State Criteria, Advisories, and Guidance	New York Air Pollution Control Regulations: 6 NYCRR Part 200 (General Provisions); 6 NYCRR Part 201 (Permits and Registrations); 6 NYCRR Part 202 (Emissions Verification); 6 NYCRR Part 211 (General Prohibitions); 6 NYCRR Part 256 (Air Quality Classifications System); 6 NYCRR Part 257 (Air Quality Standards); 6 NYCRR Part 263 (Air Quality Regulations for Cattaraugus County); all pursuant to the New York Environmental Conservation Law	Prohibits emissions of any contaminant that may become injurious to human, plant, or animal life. Provides emission standards. Describes applicable permits.
	NYSDOH - Generic Community Air Monitoring Plan (DER-10, Appendix 1A)	Provides a generic plan for monitoring of air quality during remedial construction.
Surface Water		
Federal Regulatory Requirements	Federal National Pollutant Discharge Elimination System Regulations (40 CFR Part 122 and 125)	Federal water quality standards/pollutant effluent discharge standards.
State Criteria, Advisories, and Guidance	State Pollutant Discharge Elimination System Regulations (6 NYCRR Part 750), pursuant to Article 17 of the New York Environmental Conservation Law (Consolidated Laws of New York, Chapter 43-B, Article 17), New York State Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations (6 NYCRR Part 703), and New York State Division of Water Technical and Operational Guidance Series (TOGS) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (TOGS 1.1.1)	Establishes state water quality standards/pollutant effluent discharge standards.
Waste		

Table 8
Action-Specific ARARs, TBCs, and Other Guidelines
Olean Well Field OU5 Superfund Site
Olean, New York

Media/Authority	Requirement	Requirement Synopsis
Federal Regulatory Requirements	RCRA 40 CFR Part 261.30-261.31 and 261.170-261.179 (Identification and Listing of Hazardous Waste), 40 CFR Part 262.11, 262.13, 262.18, 262.40, 262.44 and subparts B, C, and H (Standards Applicable to Generators of Hazardous Waste); and 40 CFR Part 263.10-263.12, 263.20-263.22 and 263.25 Standards Applicable to Transporters of Hazardous Waste	Defines waste that are subject to regulation as hazardous waste under 40 CFR Parts 262-264. Defines regulations applicable to generators and transporters of hazardous waste.
	USDOT Rules for Transportation of Hazardous Materials (49 CFR Parts 107, 171, 172, 177, 179)	Outlines procedures for the packaging, labeling, manifesting, and transporting of hazardous materials.
State Criteria, Advisories, and Guidance	New York Solid Waste Management Regulations (6 NYCRR Part 360)	Establishes standards and criteria for solid waste management operations. Regulations apply to land disposal of non-hazardous wastes.
	New York Hazardous Waste Management Regulations (6 NYCRR Parts 370-376)	Establishes criteria for identifying and handling hazardous waste. Regulations apply to owners and operators of facilities that treat, store, or dispose hazardous wastes.
	New York State Waste Transporter Regulations (6 NYCRR Part 364)	Establishes permit requirements for transportation of regulated waste.
	New York State Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (6 NYCRR Part 372)	Establishes record keeping requirements and standards related to the manifest system for hazardous wastes.
General		
Federal Criteria, Advisories, and Guidance	USEPA Region 2 Clean and Green Policy	Establishes preferences for sustainable technologies and practices for federal cleanup programs.
State Criteria, Advisories, and Guidance	NYSDEC DER Green Remediation (DER-31, January 2011)	Defines "green remediation" and identifies the NYSDEC's approach to implementing green remediation.
	NYSDEC Groundwater Monitoring Well Decommissioning Policy (CP-43, November 2009)	Provides the procedures for decommissioning groundwater monitoring wells.

Notes:
CFR = Code of Federal Regulations
DAR - Division of Air
DER = Division of Environmental Remediation
NYCRR = New York Codes, Rules, and Regulations
NYSDEC = New York State Department of Environmental Conservation
OSWER = Office of Solid Waste and Emergency Response
RCRA = Resource Conservation and Recovery Act
RSL = Regional Screening Level
TOGS = Technical and Operational Guidance Series
TBC = To Be Considered
USEPA = United States Environmental Protection Agency
WQC = Water Quality Criteria

Table 9 - Cleanup Levels for Chemicals of Concern

Chemicals of Concern (COCs)	NYSDEC Soil Cleanup Objectives (ppm)*
TCE	0.47
Cis-1,2-DCE	0.25
1,4-dioxane	0.1
Vinyl Chloride	0.02
1,1,1-TCA	0.68
1,2-DCA	0.02
Toluene	0.7
Xylene	1.6
Trans-1,2-DCE	0.19
PCE	1.3

* NYSDEC SCOs [6 NYCRR Section 375-6.5] are based on the protection of groundwater.

Table 10
Cost Estimate Summary for the Selected Remedy

Item Description	Estimated Quantity	Unit	Unit Price	Cost
Site Preparation				
Permits and Notifications	1	Lump Sum	$5,000.00	$5,000
Submittals	1	Lump Sum	$5,000.00	$5,000
Mobilization	1	Lump Sum	$134,000.00	$134,000
Temporary Controls, Facilities, and Project Support	1	Lump Sum	$40,000.00	$40,000
Construction Layout and Surveying	1	Lump Sum	$20,000.00	$20,000
Utility Termination / Utility Protection	1	Lump Sum	$5,000.00	$5,000
			Subtotal	**$209,000**
Implementation				
On-Site Construction Wastewater Handling	1	Lump Sum	$ 30,000.00	$30,000
Imported Fill Material Geotechnical Sampling	2	Per Sample	$ 600.00	$1,200
Imported Fill Chemical Sampling	15	Per Sample	$ 1,160.00	$17,400
Concrete Removal	13,000	Square Feet	$ 1.50	$19,500
Soil Excavation - Benching/Sloping	275	Cubic Yard	$ 30.00	$8,250
Excavation Support - Trench Box	1	Lump Sum	$ 25,000.00	$25,000
Soil Excavation	5,500	Cubic Yard	$ 30.00	$165,000
Post-Excavation Soil Sampling	27	Per Sample	$ 55.00	$1,464
Soil Drying Agent	20	Ton	$ 400.00	$8,000
Waste Characterization Sampling	5	Per Sample	$ 600.00	$3,000
Transportation and Disposal - C&D Debris	600	Ton	$ 40.00	$24,000
Transportation and Disposal - Non-Hazardous Soil and Debris	10,000	Ton	$ 65.00	$650,000
			Subtotal	**$952,814**
Site Restoration				
General Fill	8,700	Ton	$26.00	$226,200
Type 2 Subbase	1,200	Ton	$80.00	$96,000
Demobilization	1	Lump Sum	$110,000.00	$110,000
			Subtotal	**$432,200**
Management				
Engineering Design and Coordination	1	Lump Sum	$ 90,000.00	$90,000
Construction Oversight	1	Lump Sum	$ 225,000.00	$225,000
			Subtotal	**$315,000**
			Total	**$1,909,014**
			Construction Contingency (20%)	**$318,803**

CAPITAL COST **$2,228,000**
TOTAL ANNUAL INSPECTION AND COVER/FENCE MAINTENANCE COSTS **$450,000**

NET PRESENT VALUE (7% Discount Rate) **$2,414,000**

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

07/26/2023

REGION ID: 02

Site Name: OLEAN WELL FIELD
CERCLIS ID: NYD980528657
OUID: 05
SSID: 0216
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
676982	7/26/2023	ADMINISTRATIVE RECORD INDEX FOR OU5 FOR THE OLEAN WELL FIELD SITE	5	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
54611	09/24/1985	Record of Decision - Olean Well Field Site, Olean, Cattaragus County, New York, September 24, 1985.	37	Report		(US ENVIRONMENTAL PROTECTION AGENCY)
54635	12/01/1993	Report: Final Risk Assessment, Olean Well Field, Olean, New York, prepared for U.S. EPA, Region II, prepared by Ebasco Services Incorporated, December 1993.	172	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(EBASCO SERVICES INC)
54888	09/30/1996	Record of Decision - Olean Well Field Site, Olean, Cattaragus County, New York, September 1996.	327	Report		(US ENVIRONMENTAL PROTECTION AGENCY)
267626	03/18/1998	CONSENT DECREE CIVIL ACTION NO. 1:98-CV-00054 UNITED STATES v. AVX CORPORATION FOR THE OLEAN WELL FIELD SITE	113	Legal Instrument		(US DISTRICT COURT FOR THE WESTERN DISTRICT OF NEW YORK)
300260	03/01/1999	FINAL REMEDIAL DESIGN / REMEDIAL ACTION WORK PLAN FOR OU2 FOR THE OLEAN WELL FIELD SITE	59	Work Plan	(AVX CORPORATION)	(BBL ENVIRONMENTAL SERVICES INCORPORATED)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

07/26/2023

REGION ID: 02

Site Name: OLEAN WELL FIELD
CERCLIS ID: NYD980528657
OUID: 05
SSID: 0216
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
122681	04/01/2001	STAGE 1 REMEDIAL ACTION REPORT VOLUME I FOR THE OLEAN WELL FIELD SITE	131	Report	(AVX CORPORATION)	(BLASLAND, BOUCK & LEE, INCORPORATED)
122682	04/01/2001	STAGE 1 REMEDIAL ACTION REPORT VOLUME II FOR THE OLEAN WELL FIELD SITE	833	Report	(AVX CORPORATION)	(BLASLAND, BOUCK & LEE, INCORPORATED)
297740	07/20/2012	ARCADIS'S MONITORED NATURAL ATTENUATION SCREENING ANALYSIS IN RESPONSE TO EPA'S COMMENT 26 TO THE FEASIBILITY STUDY REPORT FOR THE AVX CORPORATION PROPERTY FOR THE OLEAN WELL FIELD SITE	16	Letter	MANNINO,PETER (US ENVIRONMENTAL PROTECTION AGENCY)	HANISH,MARK,B (BBL ENVIRONMENTAL SERVICES INCORPORATED)
682183	04/16/2013	COMPREHENSIVE ADMINISTRATIVE RECORD INDEX FOR OU1 FOR THE OLEAN WELL FIELD SITE	2	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
687031	07/16/2013	COMPREHENSIVE ADMINISTRATIVE RECORD INDEX FOR OU2 FOR THE OLEAN WELL FIELD SITE	24	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
319291	09/30/2015	ADMINISTRATIVE RECORD INDEX FOR OU2 - AVX ROD AMENDMENT FOR THE OLEAN WELL FIELD SITE	15	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
372868	09/30/2015	RECORD OF DECISION AMENDMENT FOR OU2 - AVX PROPERTY FOR THE OLEAN WELL FIELD SITE	176	Report		MUGDAN,WALTER,E (US ENVIRONMENTAL PROTECTION AGENCY)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

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07/26/2023

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Site Name: OLEAN WELL FIELD
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OUID: 05
SSID: 0216
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
458774	01/25/2017	AMENDED REMEDIAL DESIGN / REMEDIAL ACTION CONSENT DECREE OU2 CIVIL ACTION NO. 1:98-CV-00054 REGARDING AVX CORPORATION FOR THE OLEAN WELL FIELD SITE	245	Legal Instrument		(UNITED STATES DISTRICT JUDGE)|CUMMINGS,KURT,P (AVX CORPORATION)|MUGDAN,WALTER (US ENVIRONMENTAL PROTECTION AGENCY)
607915	01/01/2018	REMEDIAL DESIGN WORK PLAN AVX PROPERTY FOR OU2 FOR THE OLEAN WELL FIELD SITE	823	Work Plan		(AVX CORPORATION)
689015	03/20/2018	NOTICE OF CESSATION OF OPERATIONS AT AVX CORPORATION FOR OU5 FOR THE OLEAN WELL FIELD SITE	2	Letter	(US DEPARTMENT OF JUSTICE)|(US ENVIRONMENTAL PROTECTION AGENCY)	(NIXON PEABODY LLP)
607919	09/01/2018	PRE-DESIGN INVESTIGATION REPORT AVX PROPERTY FOR OU2 FOR THE OLEAN WELL FIELD SITE	161	Report		(AVX CORPORATION)
689017	05/29/2020	AMENDED FEASIBILITY STUDY HEALTH AND SAFETY PLAN FOR AVX CORPORATION FOR OU2 FOR THE OLEAN WELL FIELD SITE	174	Work Plan		(ARCADIS)
615296	09/01/2020	FEASIBILITY STUDY WORK PLAN - SOURCE AREA FOR OU2 FOR THE OLEAN WEEL FIELD SITE	47	Work Plan	(AVX CORPORATION)	(ARCADIS)

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Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
689016	05/29/2021	FEASIBILITY STUDY QUALITY ASSURANCE PROJECT PLAN FOR AVX CORPORATION FOR OU2 FOR THE OLEAN WELL FIELD SITE	794	Work Plan		(ARCADIS)
677369	07/09/2021	FINAL 100% REMEDIAL DESIGN REPORT FOR THE AVX PROPERTY FOR OU2 FOR THE OLEAN WELL FIELD SITE	1841	Report		(ARCADIS)
677370	07/09/2021	TRANSMITTAL OF THE FINAL 100% REMEDIAL DESIGN REPORT AND RESPONSE TO COMMENTS ON THE 95% REMEDIAL DESIGN REPORT FOR THE AVX PROPERTY FOR OU2 FOR THE OLEAN WELL FIELD SITE	5	Letter	MANNINO,PIETRO (US ENVIRONMENTAL PROTECTION AGENCY)	(ARCADIS)
638430	10/19/2021	TRANSMITTAL OF THE REMEDIAL ACTION WORK PLAN FOR OU2 - AVX PROPERTY FOR THE OLEAN WELL FIELD SITE	1	Letter	MANNINO,PIETRO (US ENVIRONMENTAL PROTECTION AGENCY)	HANISH,MARK (ARCADIS)
638431	10/19/2021	REMEDIAL ACTION WORK PLAN FOR OU2 - AVX PROPERTY FOR THE OLEAN WELL FIELD SITE	100	Work Plan		HANISH,MARK (ARCADIS)
677221	06/30/2022	FEASIBILITY STUDY INVESTIGATION REPORT - SOURCE AREA FOR OU5 FOR THE OLEAN WELL FIELD SITE	1576	Report	(KYOCERA AVX COMPONENTS CORPORATION)	(ARCADIS)
630531	09/30/2022	ADMINISTRATIVE RECORD INDEX FOR OU4 FOR THE OLEAN WELL FIELD SITE	6	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

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Site Name: OLEAN WELL FIELD
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SSID: 0216
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
689014	07/01/2023	FEASIBILITY STUDY REPORT - AVX SOURCE AREA KYOCERA AVX COMPONENTS CORPORATION FOR OU5 FOR THE OLEAN WELL FIELD SITE	135	Report	(KYOCERA AVX COMPONENTS CORPORATION)	(ARCADIS)
652561	7/26/2023	PROPOSED PLAN FOR OU5 FOR THE OLEAN WELL FIELD SITE	19	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)

APPENDIX IV

STATE LETTER OF CONCURRENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Office of the Director
625 Broadway, 12th Floor, Albany, New York 12233-7011
P: (518) 402-9706 I F: (518) 402-9020
www.dec.ny.gov

September 25, 2023

Transmitted Via E-mail ONLY

Mr. Pat Evangelista, Director
Emergency and Remedial Response Division
United States EPA, Region 2
290 Broadway, Floor 19
New York, New York 10007-1866
Evangelista.Pat@epa.gov

RE: Olean Well Field, Site No. 905014
OU5 Record of Decision - New York State Concurrence

Dear Pat:

The New York State Department of Environmental Conservation (Department) has reviewed the Record of Decision (dated September 2023). We understand the remedy selected addresses soil contamination at a discrete area of the property located at 1695 Seneca Avenue, Olean, New York (AVX Property) designated as EPA Operable Unit 5 (OU5) of the Olean Well Field Superfund Site (Site) in Cattaraugus County, New York. OU5 includes contaminated soil that is located beneath and near the footprint of a former manufacturing building located in the northern portion of the Historical Source Area at the AVX Property. The selected remedy includes:

- Demolition and removal of the existing concrete slab floor and foundation supports;
- Excavation of contaminated unsaturated soil located beneath and near the footprint of the former manufacturing building in the northern portion of the Historical Source Area;
- Off-Site transportation and disposal of excavated material; and
- Restoration with imported clean fill material.

As part of the remedial design, further evaluations would be conducted to define the depth of the water table and resulting excavation. If determined practicable, additional limited active remediation could be performed below the water table to address saturated soil in an effort to improve remediation timeframes for groundwater. During the remedial design,

additional soil sampling would also be conducted to further evaluate the extent of contamination, including 1,4-dioxane.

The OU5 remedy in conjunction with the OU2 ROD Amendment will constitute the final remedy for the AVX Property.

The environmental benefits of the remedial alternative may be enhanced by employing design technologies and practices that are sustainable.

EPA released the Proposed Plan for the cleanup of OU5 to the public for comment on July 27, 2023. EPA also held a public meeting on August 8, 2023 to present the Proposed Plan for OU5 to local officials and interested citizens and to solicit input from the community on the remedial alternatives proposed for OU5. EPA considered all written and oral comments submitted during the public comment period (July 27, 2023 through August 28, 2023), which are documented in the Responsiveness Summary section of the ROD, and determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate. With this understanding, we concur with the selected remedy for the Olean Well Field OU5 Site.

If you have any questions or need additional information, please contact Mr. Steven Moeller at (716) 851-7220.

Sincerely,

Andrew Guglielmi

Andrew O. Guglielmi
Director
Division of Environmental Remediation

ec: P. Mannino, USEPA, Region 2 (mannino.pietro@epa.gov)
M. Wurtz, USEPA, Region 2(wurtz.maeve@epa.gov)
C. Bethoney, NYSDOH (charlotte.bethoney@health.ny.gov)
M. Cruden, NYSDEC (michael.cruden@dec.ny.gov)
S. Radon, NYSDEC, Region 9 (stanley.radon@dec.ny.gov)
S. Moeller, NYSDEC, Region 9 (steven.moeller@dec.ny.gov

APPENDIX V

RESPONSIVENESS SUMMARY

APPENDIX V

RESPONSIVENESS SUMMARY

Table of Contents

INTRODUCTION

A responsiveness summary is required by the regulations promulgated under the Superfund statute. It provides a summary of comments received during the public comment period, as well as the responses of the U.S. Environmental Protection Agency (EPA) to those comments. All comments received were considered by EPA in its Record of Decision (ROD) regarding the selection of the fifth operable unit (OU5) remedy at the Olean Well Field Superfund Site (Site).

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The Proposed Plan for OU5, attached hereto as Attachment 1, was released to the public on July 27, 2023, along with the Feasibility Study Investigation Report (FSIR) and Feasibility Study (FS), as well as other documents contained in the Administrative Record for the OU5 ROD. EPA's preferred remedy and the basis for that preference were identified in the Proposed Plan.

These documents, including the Proposed Plan, were made available to the public at information repositories maintained at the Olean Public Library; the EPA Region 2 Superfund Records Center in New York, New York; and on EPA's website for the Olean Well Field Superfund Site located at www.epa.gov/superfund/olean-wellfield.

A notice of the commencement of the public comment period, the public meeting date, a description of the preferred remedy, EPA contact information, and the availability of the above-referenced documents, attached hereto as Attachment 2, was published in the *Olean Times Herald*, a local newspaper, on July 27, 2023. The public comment period ran from July 27, 2023, to August 28, 2023.

EPA held a public meeting on August 8, 2023, at 6:00 P.M. at the Jamestown Community College TECH Building, 305 North Barry Street, Olean, New York to discuss the findings of the FSIR and FS Reports and to answer questions from the public about the remedial alternatives and the proposed remedy. A copy of the public meeting transcript is attached hereto as Attachment 3. Responses to the oral questions and comments received at the public meeting and in writing during the public comment period are included in this Responsiveness Summary.

SUMMARY OF COMMENTS AND EPA RESPONSES

A summary of the comments provided at the public meeting on August 8, 2023, as well as EPA's responses to those comments, are provided below. One written comment was received via email during the public comment period from an area resident. A copy of the email received is provided in Attachment 4 of this Responsiveness Summary.

Comment Summary

This section summarizes comments received from the public concerning OU5 of the Olean Well Field Site at the public meeting on August 8, 2023, as well as one comment via email, and EPA's responses.

Comment #1: An area resident commented that the Olean Tile property may be a source of contamination. The resident also noted a concern regarding the use of the word oversight in EPA's July 2023 community update flyer, stating their belief that the release of contamination to the environment by the PRPs was deliberate and not an oversight.

Response to Comment #1: The former Dal-Tile property (previously Olean Tile) and 13 other properties were evaluated as potential source areas in the early 1990s. Four of the 14 investigated source areas were identified as being sources of the groundwater contamination at the Site. While these previous investigations did not reveal the former Dal-Tile property as a source area, the former Dal-Tile property was included as part of the recent OU4 investigation due to its proximity to the AVX Property. While the OU4 investigation confirmed the presence of debris from tile manufacturing activities, the sampling results did not reveal the former Dal-Tile property as a source of VOC groundwater contamination.

Regarding the commenter's concern with EPA's reference to oversight in the July 2023 community update flyer, the commenter may have misinterpreted EPA's use of the term. EPA did not intend to imply that the release of contamination at the Site was not deliberate. Rather, the term in the flyer describes EPA's oversight of the work performed by PRPs at each of the source areas.

Comment #2: An area resident asked if EPA would notify the public of the issuance of the selected remedy.

Response to Comment #2: EPA will notify the public of the issuance of the OU5 Record of Decision (ROD), the document that memorializes the selection of a remedy for this OU.

Comment #3: An area resident asked when EPA would have a decision on the remedy.

Response to Comment #3: EPA typically issues RODs shortly after the close of the public comment period, which it has done for the OU5 ROD, of which this Responsiveness Summary is a part.

Comment #4: An area resident asked why no public officials were in attendance at the public meeting.

Response to Comment #4: Notification of the Proposed Plan's release, including the public meeting, was sent to Cattaraugus County and New York State officials, as well as the City of Olean mayor's office on July 27, 2023.

Comment #5: Two area residents requested sampling of the private well water at their properties. In addition, one of the residents, located to the northeast of and adjacent to the AVX Property, also requested sampling of the soil on their property.

Response to Comment #5: Based upon historic and current groundwater sampling results, there is no indication that the groundwater in the vicinity of these two residences has been impacted by Site-related contamination and therefore sampling of the two private wells is not warranted for purposes of the Superfund cleanup. EPA recommends contacting the Cattaraugus County Health Department or the New York State Department of Environmental Conservation to inquire regarding testing of potable water at a private property. Robert Ring with Cattaraugus County can be reached at rwring@cattco.org or 716-701-3437. Steve Moeller with NYSDEC can be reached at steven.moeller@dec.ny.gov or 716-851-7289.

Investigations conducted at the AVX Property have revealed contamination beneath the former AVX manufacturing building near the southern portion of the building, as well as in the southern portions of the AVX Property. Monitoring well AVX-8DR, located in the northeastern corner of the AVX Property, was installed in June 2003. While initial sampling results for this monitoring well revealed VOC contaminated groundwater, sampling conducted between 2003 and 2006 revealed gradually decreasing levels of VOCs until no concentrations were detected above their respective maximum contaminant levels for multiple sampling events. As a result, sampling of this monitoring well was discontinued. In addition, surface soil samples collected and analyzed in 2011 from the northeast portion of the AVX Property did not detect VOC contamination. Given the sampling results in the northeast corner of the AVX Property, additional off-property soil sampling is not necessary.

Comment #6: An area resident noted that the city water line was not extended to his property on Seneca Avenue and asked why it was not extended further.

Response to Comment #6: Pursuant to the 1985 OU1 ROD, work associated with the city water line extension was broken into four zones. The portion of Seneca Avenue referenced by the commenter was included as part of zone 3. For zones 1, 2, and 4, the city water line was extended enabling connections to each of the residents with private wells in those zones. For zone 3, residences were monitored quarterly until 1998, at which time monitoring was discontinued as no VOCs had been detected; since no VOCs were detected, it was determined that an extension to these residences was not warranted.

Comment #7: An area resident asked if stormwater drains near Olean Creek could get cleaned out to aid in the drainage of water.

Response to Comment #7: The clearing of debris from municipal storm drains to aid in surface water drainage cannot be addressed using Superfund authority. EPA's responsibilities at the Site relate to the VOC contaminated groundwater, soil, and the sources of the contamination. EPA recommends speaking to the local government about this issue.

Comment #8: An area resident asked about the status of the cleanup on the AVX Property, specifically the construction of the hydraulic trench.

Response to Comment #8: Construction of the remedy identified in the 2015 OU2 AVX ROD Amendment, including the hydraulic trench and treatment plant, was completed in January 2023. The remedy has been operating since construction was completed. EPA is currently reviewing periodic groundwater monitoring and treated effluent data that has been collected from the AVX Property to ensure the system is effectively treating the groundwater.

Comment #9: An area resident asked if the former canal located on the Alcas property had been tested for contamination. The resident stated that the canal is now filled in.

Response to Comment #9: While not related to the OU5 remedy, the following responds to this comment. Prior investigations of the Alcas Property do not specifically refer to a former canal. However, based on further details provided by the commenter after the public meeting ended, it is EPA's understanding that a former canal was located along the southern edge of the Alcas Property and that the main building there was built on a portion of the filled-in canal. The highest concentrations of contaminants detected on the Alcas Property were below the foundation of the main building and around the southeast corner of the main building. In addition, in September 2014, EPA issued a ROD for several parcels of land to the south of the Alcas Property and the former canal, that were determined to be impacted by contaminated groundwater from the Alcas Property, referred to as Parcel B. Implementation of the selected remedies addressing the contamination at the Alcas Property and Parcel B both began in 2020 and are ongoing. Refer to the 2014 OU2 Alcas ROD Amendment and OU3 Parcel B ROD for more information regarding these remedies.

ATTACHMENT A

PROPOSED PLAN

Olean Well Field Superfund Site

Operable Unit 5

Cattaraugus County, New York

July 2023

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan describes the remedial alternatives considered to address soil contamination at a discrete area of the property located at 1695 Seneca Avenue, Olean, New York (AVX Property), which has been designated by EPA as Operable Unit (OU) 5 of the Olean Well Field Superfund Site (Site) in Cattaraugus County, New York and identifies the preferred remedial alternative with the rationale for this preference. For the purposes of this Proposed Plan, OU5 includes contaminated soil that is located beneath and near the footprint of a former manufacturing building located in the northern portion of the Historical Source Area[1] at the AVX Property. The AVX Property is one of four source areas at the Site. In prior EPA decision documents AVX is sometimes referred to as AVX Corporation.[2] A Site location map is provided as Figure 1.

The OU2 Record of Decision (ROD) was amended in 2015 as it related to AVX. The OU2 AVX ROD Amendment selected an interim remedy to address soil and groundwater at the AVX Property. An interim remedy was selected because a final remedy, requiring restoration of the City Aquifer, would not be possible until the soil under the active AVX manufacturing building became accessible and additional soil characterization and testing could be conducted. The OU2 AVX ROD Amendment specified, that in the event there was a change in use of the manufacturing building, a feasibility study would need to be performed to evaluate whether further action in the form of source control and/or restoration actions was necessary to achieve the OU2 ROD goal of aquifer restoration. Therefore, a feasibility study to determine a final remedy could not be completed until the AVX property was no longer operating as an active manufacturing facility. In April 2018, AVX ceased operations at the facility and in 2020 the building was demolished. This allowed for additional characterization and the performance of a feasibility study for contaminated soil located beneath and near the footprint of the former manufacturing building. EPA has designated this portion of the Historical Source Area as OU5 at the Site.

The major components of the interim remedy selected by the OU2 ROD Amendment included: maintenance of existing exposure barriers (the building and paved areas) in the northern portion of the Historical Source Area and the vegetative cover in the drainage swale area (to address soil contamination); construction and operation of a hydraulic trench containment system to address groundwater in the Downgradient Till Unit; hydraulic pumping to contain groundwater in the City Aquifer; implementation of institutional controls; implementation of a long-term groundwater monitoring program; and development of a Site Management Plan (SMP) to provide for the proper management of the interim remedy post-construction. Refer to the OU2 ROD Amendment for a detailed description of the interim remedy.

The preferred remedy for OU5 includes the excavation of impacted soil located beneath and near the footprint of the former manufacturing building. In addition to identifying the preferred remedy to address contaminated soil located beneath and near the footprint of the former manufacturing building, once selected, the OU5 remedy in conjunction with the OU2 ROD Amendment will constitute the final remedy for the AVX Property.

[1] The remedy selected in a September 2015 Amendment to the Operable Unit Two Record of Decision (OU2 ROD Amendment) defined the Historical Source Area as generally consisting of soil and groundwater contamination in a shallow groundwater unit known as the Downgradient Till Unit beneath the former manufacturing building and the land at the southeast corner of the building immediately proximate thereto, including the shallow north-south trending drainage swale that begins to the south of the building. The OU2 ROD Amendment provides further details regarding geologic and hydrogeologic conditions at the Site.

[2] In 2020, AVX Corporation (AVX) became a wholly owned subsidiary of KYOCERA Corporation. In 2021, AVX's name changed to KYOCERA AVX Components Corporation or KAVX. The owner of record of the property is still AVX.

This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), the lead agency for the Site, in consultation with the New York State Department of Environmental Conservation (NYSDEC). EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also known as Superfund), as amended, and Sections 300.430(f) and 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The nature and extent of contamination for OU5 at the Site and the remedial alternatives summarized in this Proposed Plan are more fully described in the Feasibility Study Investigation Report (FSIR), dated June 2022, and the Feasibility Study (FS) Report, dated July 2023, as well as other documents in the Administrative Record file for this remedy. EPA encourages the public to review these documents to gain a more comprehensive understanding of the Site, the Superfund activities that have been conducted, and the remedial alternative that is being proposed.

The purpose of this Proposed Plan is to inform the public of EPA's preferred remedy and to solicit public comments pertaining to all of the remedial alternatives evaluated for OU5, including the preferred remedy.

Changes to the preferred remedy, or a change from the preferred remedy to another remedial alternative described in this Proposed Plan, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments. For this reason, EPA is soliciting public comments on all of the alternatives considered in the Proposed Plan and on the detailed analysis section of the FS Report because EPA may select an alternative other than the preferred alternative.

MARK YOUR CALENDAR
PUBLIC COMMENT PERIOD:

July 27, 2023 to August 28, 2023

EPA will accept written comments on the Proposed Plan during the public comment period.

IN PERSON PUBLIC MEETING:

August 8, 2023 at 6:00 pm

TECH Building, Mangano Reception Room, near the Cutco Theater, 305 North Barry Street, Cattaraugus County Campus of Jamestown Community College, Olean, New York

COMMUNITY ROLE IN SELECTION PROCESS

EPA relies on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, this Proposed Plan has been made available to the public for a public comment period which begins on July 27, 2023 and concludes on August 28, 2023.

A public meeting will be held on August 8, 2023 to present the conclusions of the studies performed, to elaborate further on the reasons for recommending the preferred alternative, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

Written comments on the Proposed Plan should be addressed to:

Maeve Wurtz
Western New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866
Telephone: (212) 637-4230
E-mail: wurtz.maeve@epa.gov

INFORMATION REPOSITORIES

Copies of the Proposed Plan and supporting documentation are available at the following information repositories.

Olean Public Library, located at Second and Laurens Streets Olean, New York
(716) 372-0200
Hours: Monday – Thursday, 9:00 AM – 9:00 PM
Friday and Saturday, 9:00 AM – 5:00 PM

USEPA – Region II
Superfund Records Center
290 Broadway, 18th Floor

New York, New York 10007
(212) 637-4308

EPA's website for the Olean Well Field Site:

www.epa.gov/superfund/olean-wellfield

SCOPE AND ROLE OF ACTION

Site remediation activities are sometimes segregated into different phases, or operable units (OUs), so that remediation of different, discrete environmental media or geographic areas of a site can proceed separately, whether sequentially or concurrently. EPA has designated five OUs for the Olean Well Field Site (refer to Figure 2) to address soil and groundwater contaminated with volatile organic compounds (VOCs).

On September 24, 1985, EPA signed a ROD for OU1, which called for, among other things, the treatment of the municipal supply well water and the extension of the public water supply to residents utilizing private wells.

On September 30, 1996, EPA signed a ROD for OU2. The four source areas targeted in the OU2 ROD were as follows: AVX Corporation (AVX) (currently owned by KYOCERA AVX Components Corporation ("KAVX") located at 1695 Seneca Avenue, Olean, New York); Alcas Cutlery Corporation (Alcas) (currently owned and operated by Cutco Corporation and located at 1116 East State Street, Olean, New York); Loohn's Dry Cleaners and Launderers (Loohns) (currently a vacant lot located at 1713 East State Street, Olean, New York); and McGraw-Edison Company (McGraw) (currently operated by Cooper Power Systems, LLC, owned by Cooper Power Systems, Inc., and located at 1648 Dugan Road, Olean, New York).

On September 30, 2014, EPA amended the OU2 ROD to modify the selected remedy for the Alcas component of the OU2 ROD. The Alcas OU2 ROD Amendment addressed soil and groundwater contamination impacting the underlying aquifers, and also selected a remedy to address OU3 groundwater contamination. OU3 addresses groundwater contamination at an area south of the Alcas facility referred to as Parcel B.

On September 30, 2015, EPA again amended the OU2 ROD to modify the selected remedy for the AVX component of the OU2 ROD. The AVX OU2 ROD Amendment selected an interim action to address soil and groundwater contamination impacting the underlying aquifers until a final remedy for the AVX Property is implemented. The AVX OU2 ROD Amendment indicated that a change in the current use of the building in the future would trigger the performance of a feasibility study to evaluate source control and/or restoration actions, leading to the selection of a final remedy. In April 2018, AVX informed EPA that it intended to cease operations at its Olean Manufacturing facility.

On September 30, 2022 EPA signed a ROD for OU4. The OU4 ROD addressed VOCs in groundwater located at certain residential and commercial properties downgradient of the AVX Property and south of the Conrail railroad tracks.

This Proposed Plan concerns OU5, the final planned phase of response activities at the AVX Property, and addresses soil contamination located beneath and near to the former AVX manufacturing building in the northern portion of the Historical Source Area. Once selected, the OU5 remedy in conjunction with the OU2 ROD Amendment will constitute the final remedy for the AVX Property.

SITE BACKGROUND

The Site is located in the eastern portion of the City of Olean and western and northwestern portions of the towns of Olean and Portville in Cattaraugus County, New York. The Site is characterized by VOC-contaminated groundwater underlying the City of Olean, the Town of Olean and the Town of Portville, and by VOC-contaminated soil at certain locations in the City and Town of Olean. The Site is approximately 65 miles

southeast of Buffalo, New York, and seven miles north of the New York/Pennsylvania border.

The AVX Property is currently zoned for manufacturing use, and the areas immediately surrounding the Property are zoned for industrial, commercial, and residential uses. EPA expects that the land-use pattern at and surrounding OU5 of the Site will not change in the foreseeable future.

Beginning in the 1980s, several separate federal-, state- and Potentially Responsible Party (PRP)-led investigations were conducted to identify the sources of contamination to the municipal water supply wells and evaluate the nature and extent of groundwater contamination at the Site. The Site was included on the National Interim Priorities List, by publication in the Federal Register on October 23, 1981, and was included on the first National Priorities List on September 9, 1983. For more details regarding the results of the various investigations and subsequent actions taken to address Site-related contamination refer to the OU4 ROD.

According to EPA's EJScreen tool, there are no demographic indicators for OU5 at the Site that would indicate a community with environmental justice concerns. Within and immediately near OU5, the national and State EJ index percentiles for all of the environmental and socioeconomic indicators are at or below the 52nd percentile. The proposed remedy is not anticipated to result in adverse impacts to environmental resources that would affect low income or minority populations living within the vicinity of OU5.

The following provides a summary of activities at the AVX Property, a source of groundwater contamination at the Site.

As mentioned previously, the remedy selected in the 1996 OU2 ROD addressed multiple sources of VOC contamination to groundwater at the Site. The major components of the selected remedy for AVX, one of the four sources targeted, included the following: excavation and removal of contaminated soil; off-Site low temperature desorption of soil contaminants, if necessary; upgradient and downgradient groundwater monitoring; implementation of groundwater treatment, if excavation and removal of the contaminated soil did not adequately improve the quality of the City Aquifer and if the property continued to affect the groundwater entering the municipal wells; and implementation of groundwater use restrictions.

AVX initiated the excavation of contaminated soil at its property in July 2000. Approximately 5,055 tons of contaminated soil was excavated to a depth of approximately 10 feet below ground surface (bgs) and transported off-Site for disposal before work was halted. AVX could not excavate all of the contaminated soil because the material extended beyond the area identified as contaminated in the OU2 ROD to beneath the southeast corner of the manufacturing building, which was fully occupied with AVX's manufacturing operations. Further excavation had the potential to impact the structural integrity of the occupied building. As a result, the excavation area was backfilled pending further study. Further evaluations revealed significant unknown contamination extending under the building and that additional excavation and removal of all contaminated soil would result in significant disruption to and/or shutdown of the on-going operations.

Following the backfilling at the AVX Property, EPA directed AVX to conduct soil and groundwater sampling activities at the AVX Property and properties to the south as part of a multi-phase investigation to assess the conditions at these properties. Results from these studies indicated that significant previously unknown VOC contamination is present in both soil and groundwater.

As indicated previously, on September 30, 2015, EPA issued a ROD Amendment for OU2 relating to the AVX Property that addressed soil and groundwater contamination in the Historical Source Area, and groundwater contamination in the Downgradient Till Unit and City Aquifer (refer to the Site Geology and Hydrogeology section in the OU2 ROD Amendment for additional detail regarding geological and hydrogeologic conditions at the Site).

The Downgradient Till Unit component of the selected remedy involves the construction and operation of a hydraulic trench containment system involving a gravel trench coupled with active groundwater recovery and treatment to prevent migration of groundwater downgradient of the AVX Property. Construction of this component of the selected remedy was completed in January 2023.

The City Aquifer component of the selected remedy involves hydraulic pumping containment utilizing and maintaining an existing AVX Property production well (PW-1) as an active groundwater recovery system at a pumping rate that prevents further migration of contaminated groundwater within the City Aquifer. The AVX production well, in operation since 1959, continues to operate as part of the implementation of the AVX OU2 ROD Amendment selected remedy even though the plant closed down.

Soil Investigation Results from Previous Investigations at the AVX Property

Results of post-OU2 ROD investigations showed that VOC contamination in soil consists primarily of trichloroethene (TCE), 1,1,1-trichlorethane (1,1,1-TCA), tetrachloroethene (PCE), and the breakdown products cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride, and 1,1-dichloroethane (1,1-DCA) with elevated concentrations of other VOCs, including toluene and xylenes.

As set forth in a January 29, 2013 FSIR performed after work was halted on the OU2 ROD remedy, high concentrations of VOCs have been observed in soil (up to 1,614 parts per million (ppm) of total VOCs) beneath the southeast corner of the former manufacturing building by a maintenance shop and a former solvent underground storage tank (both along the eastern edge of the manufacturing building), and in areas immediately to the south and north of the manufacturing building. Minimal detections of VOC contamination were found in soil south of the fenced area of the AVX Property.

Concentrations of VOCs observed in groundwater indicate that a groundwater plume of VOC contamination in the till unit originates from the Historical Source Area and extends through the undeveloped area to the southern property boundary and OU4.

OU5 Feasibility Study Investigation Report (FSIR)

While prior investigations have characterized the hydrogeology and the nature and extent of contaminants in the subsurface throughout much of the AVX Property, the demolition of the former manufacturing building in 2020, enabled the collection of soil and groundwater samples beneath and adjacent to the former structure. This additional soil characterization and testing were also necessary to support the evaluation of remedial alternatives for contaminated soil in and around the footprint of the former manufacturing building. The investigation activities were designed to:

- Define the lateral and vertical extent of contaminants in soil located beneath and near the footprint of the former manufacturing building within and near the northern portion of the Historical Source Area; and
- Characterize the hydrostratigraphic framework to better define the potential contaminant transport pathways within and near the source area.

A portion of the concrete slab of the former building was left in place and is currently acting as an exposure barrier to contaminated soil.

OU5 Soil Investigation Results

The first step of the soil characterization program included screening of near-surface soil/fill for the presence and magnitude of VOCs using a photoionization detector (PID). Information gathered using a PID is classified as screening level data and does not provide chemical specific information. Following the initial soil screening and preliminary surveying, whole core soil sampling (WCSS) and vertical aquifer profile (VAP) sampling was conducted. The locations of WCSS and VAP sampling were adjusted as needed based on access and the results of soil screening. A summary of the results of this work is presented in the following sections.

Soil Screening

The VOC contamination detected in soil consists primarily of TCE, 1,1,1-trichlorethane (1,1,1-TCA), PCE, and the breakdown products cis-1,2-DCE, vinyl chloride, 1,1-DCA, with elevated concentrations of other VOCs, including toluene and xylenes. 114 soil gas screening point locations were selected and organized in a grid layout approximately 25 feet apart, in and around the source area. For all locations and depths where soil gas could be drawn, the gas was pumped by and analyzed with a PID and data were recorded.

The highest concentrations of PID-measured VOCs were observed primarily outside of the footprint of the original building, which was constructed in 1950, with those elevated concentrations observed largely within the footprint of the historical Machine Shop/Maintenance area (constructed in 1978 and used as the building maintenance area), the Receiving Area, and the Chemical Storage area (both constructed in 2001). These levels ranged from 145 - 1,436 ppm. Some elevated PID-measured screening concentrations were also observed beneath adjacent areas within the southeastern corner of the footprint of the original building. These included one area historically noted as the Powder and Barrel Storage area but also on other maps noted as being used for waste storage. Some elevated PID-measured concentrations were also noted farther to the west beneath or near to the historical Tape and Reel Storage area. Refer to Appendix A in the 2023 FS Report for the layout of the former manufacturing building.

Soil Quality Characterization

Following completion of the soil screening activities, WCSS were collected by rotosonic drilling methods on a modified approximately 50-foot grid spacing at 40 locations. Approximately 300 soil samples were analyzed to better characterize the nature and extent of VOCs in soil, both saturated and unsaturated, within the source area. The results are summarized in Table 1 below. The data revealed that the highest mass of VOCs in soil is largely concentrated in areas predicted by the soil gas screening data, with some deviations. The highest concentrations were observed within the former footprint of the Machine Shop/Maintenance area, beneath the former Receiving area, and extending into the former chemical storage/waste storage area. Other notable areas of higher concentrations included the head of the drainage swale to the south of the facility fence, and near the southeastern corner of the former Stage 1 remedial action excavation area.

Table 1: Maximum Soil Contaminant Concentrations

Contaminant	Concentration (ppm)
1,1,1-TCA	226 DJ
TCE	1,500 DJ
PCE	723 DJ
cis-1,2-DCE	93.6 DJ
vinyl chloride	2.05 DJ
1,1-DCA	9.88 D

D = Identifies all compounds identified in the analysis at the secondary dilution factor.
J = The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample.

The concentrations of contaminants were observed to generally diminish with sample depth, though not consistently in all locations. Thin and discontinuous stringers of more permeable soil appear to have acted as pathways for contaminants to reach greater depths in certain locations.

Groundwater

During soil sampling, if retrieved core samples appeared to be both saturated and coarse-grained enough to produce water, VAP samples were collected. In total, only 13 of 40 borings contained enough water to facilitate VAP sampling, with only two of the 13 borings containing adequate water to sample at more than one depth.

Aside from some VAP groundwater sample locations with anomalously high COC concentrations, likely due to the presence of stringers containing more permeable material that can collect water containing high contaminant concentrations, the concentrations of contaminants in the VAP groundwater samples are relatively consistent with concentrations reported for groundwater sampled from monitoring wells during the semi-annual groundwater monitoring events which have been conducted since 2000.

Table 2: Maximum Groundwater Contaminant Concentrations

Contaminant	Concentration (ppm)
1,1,1-TCA	59 D
TCE	120 D
PCE	4
cis-1,2-DCE	17
vinyl chloride	1.8
1,1-DCA	12

D = Identifies all compounds identified in the analysis at the secondary dilution factor.

Refer to the OU5 Feasibility Study Investigation Report for additional details regarding the sampling results.

An assessment of natural attenuation conditions in groundwater was conducted as part of the 2015 OU2 ROD. Overall, the analyses indicated that some level of natural attenuation of Site-related contaminants is occurring. Groundwater samples revealed an increase in concentration of daughter products (e.g., cis-1,2-DCE and vinyl chloride) relative to the concentration of the parent compound (e.g., TCE). Reductive dechlorination is a natural attenuation process that can degrade chlorinated VOCs by transforming chlorinated compounds such as TCE to other compounds. Other natural attenuation processes can include dispersion, dilution, sorption, volatilization. The observed concentrations of contaminants in soil and groundwater near to the former AVX manufacturing building suggest that some level of natural attenuation is occurring.

Additionally, ethene and ethane were detected in groundwater monitoring well samples, demonstrating occurrence of the full sequence of reductive dechlorination. The monitored natural attenuation (MNA) assessment also included analysis of electron acceptors,

which showed moderate to strongly reducing conditions present.

The OU5 FS Report contains additional details, as does the full MNA Screening Analysis conducted in 2012. Both documents can be found in the Administrative Record file for the Site.

Principal Threat Waste

Principal threat wastes are considered source materials, i.e., materials that include or contain hazardous substances, pollutants or contaminants, such as DNAPL in soil, that act as a reservoir for migration of contamination to groundwater, surface water, or as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment in the event exposure should occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of alternatives, using the remedy selection criteria which are described below. The manner in which principal threat wastes are addressed provides a basis for making a statutory finding that the remedy employs treatment as a principal element. Varying concentrations of VOCs were detected in soil samples collected during previous investigations from borings installed within the main manufacturing building at the AVX Property. Results from previous investigations showed concentrations of 1,1,1-TCA as high as 990 ppm and TCE as high as 650 ppm in subsurface soil, indicative of the presence of DNAPL in the soil zone at approximate depths of 16 feet and 6 feet, respectively, below the foundation of the main building.

WHAT IS A "PRINCIPAL THREAT"?

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to ground water, surface water or air, or acts as a source for direct exposure. Contaminated ground water generally is not considered to be a source material; however, Non-Aqueous Phase Liquids (NAPLs) in ground water may be viewed as source material. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of the alternatives using the nine remedy selection criteria. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

During the FSIR, concentrations of 1,1,1-TCA and TCE as high as 226 ppm and 1,500 ppm, respectively in subsurface soil were revealed. The FSIR results are indicative of the presence of DNAPL in the soil zone at an approximate depth of five feet below the foundation of the main building. These findings show the presence of "principal threat" wastes at the AVX Property. The proposed alternative for OU5 discussed in more detail below is expected to remove this contamination through excavation and off-Site disposal. Please refer to the text box entitled, "What is a Principal Threat" for more information on the principal threat concept.

RISK SUMMARY

As part of the 1996 OU2 ROD, a baseline human health risk assessment (HHRA) and a qualitative ecological risk assessment were conducted to estimate the risks and hazards associated with the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects caused by hazardous substance exposure in the absence of any actions to control or mitigate these exposures under current and future site uses.

In the HHRA, cancer risk and noncancer health hazard estimates were based on reasonable maximum exposure (RME) scenarios. The estimates were developed by taking into account various health protective estimates about the concentrations, frequency and duration of an individual's exposure to chemicals selected as chemicals of potential concerns (COPCs), as well as the toxicity of these contaminants.

Human Health Risk Assessment

A four-step human health risk assessment (HHRA) process was used for assessing site-related cancer risks and noncancer health hazards related to soil at the AVX Property during the OU2 ROD (see box on next page "What is Risk and How is it Calculated"). The HHRA evaluated the potential health effects which would result from exposure to groundwater contamination through ingestion, dermal contact and inhalation of volatilized contaminants during showering. Risks associated with exposure to contaminants in surface and subsurface soil were calculated for the ingestion and inhalation of contaminants by construction workers. A residential exposure scenario for soil was not calculated because all of the properties studied during the OU2 RI/FS are zoned for industrial or commercial use. It is expected that the

AVX Property will continue to be used for commercial/industrial purposes in the future.

The results of the OU2 HHRA identified carcinogenic risk and/or noncarcinogenic hazards that were above the acceptable carcinogenic risk range of $1x10^{-6}$ to $1x10^{-4}$ and the noncarcinogenic hazard index (HI) of 1 for future exposure to groundwater. Carcinogenic risks and noncarcinogenic hazards for construction worker exposure to soil were within the risk range and below the noncarcinogenic HI threshold of 1. However, data collected at the time of 2015 ROD Amendment identified higher concentrations of VOCs in soil compared to those evaluated in the OU2 HHRA. Therefore, a qualitative determination was made in the 2015 ROD Amendment that the risks associated with soil in the OU2 HHRA could be underestimated. As discussed in more detail in the following sections, EPA has determined that the results of the OU2 HHRA and the risk evaluation from the 2015 ROD Amendment have not substantially changed. Therefore, an additional HHRA was not performed as part of OU5. Nevertheless, an updated qualitative analysis of the data to evaluate the risks associated with the elevated VOC concentrations detected in soil at the AVX Property is provided below.

Soil

The estimated total risks ($5x10^{-5}$) and hazards (HI=0.5) in soil included in the OU2 ROD Amendment for the AVX Property were primarily due to VOCs in the subsurface soil below the concrete slab floor of the building. It was also determined that contamination in the subsurface soil could serve as a source of continued groundwater contamination. Additional samples were collected as part of the OU5 FS. A comparison of the results for the primary contaminants is included in Table 3 below.

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED

Human Health Risk Assessment: A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases under current- and anticipated future-land uses. A four- step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the chemicals of potential concern (COPCs) at the site in various media (i.e., soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants in air, water, soil, etc. that were identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other noncancer health hazards, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and noncancer health hazards.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to Site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For noncancer health effects, a "hazard index" (HI) is calculated. The key concept for a noncancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which noncancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a noncancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at a site and are referred to as chemicals of concern, or COCs, in the final remedial decision document or Record of Decision.

Table 3. Primary contaminant results in subsurface soil at the AVX Property.

Chemicals	OU2 RI (ppm)	OU5 FS (ppm)
1,1,1-TCA	990	226 DJ
PCE	270	723 DJ
TCE	650	1,500 DJ
cis-1,2 DCE	65	93.6 DJ
Vinyl Chloride	ND	2.05 DJ

ND – Non-Detect
D – Indicates compounds identified in the secondary dilution factor
J – Estimated value

The maximum results of the soil samples collected during the OU5 FS were either higher than those identified in the OU2 RI or are within the same order of magnitude (i.e., 1,1,1-TCA). Notably, the maximum concentrations of PCE and TCE during the OU5 FFS were over two times greater than the OU2 RI. Therefore, EPA has determined that the risk conclusions presented in the OU2 ROD Amendment have not substantially changed and could be underestimated. Additionally, groundwater on the Site continues to exceed drinking water standards from impacts from contaminated soil.

Ecological Risk Assessment

The AVX Property is approximately 18.5 acres in size and currently includes an open area with bare soil due to the recent removal of the former AVX building. Wetlands and a wooded area are located south of the former building area, which remains fenced. The fenced portion of the site that formerly comprised the AVX building does not currently provide habitat that could potentially support populations of indigenous wildlife receptor species. Therefore, there are no ecological risks currently recognized within this area. For the area outside of the fence, which includes the wooded area and wetland area, a qualitative ecological risk assessment was conducted as part of the OU2 ROD to determine if contamination present at the AVX Property was impacting the wooded or wetland area. Given that the potential source of contamination in the wooded and wetland area would be contaminated groundwater discharging to the sediments, sediment samples were collected from the wetlands. Analysis of the samples did not reveal any VOC contamination. Several semi-volatile organic compounds (SVOCs) were detected but were not attributed to the AVX Property. Based on this evaluation, it was determined that there is not a completed exposure pathway from the AVX property to the wooded or wetland areas. Since the levels of contamination in groundwater at the AVX property have remained similar, or have declined, this assumption is still considered valid.

Based on the results of the data collected to support the OU5 FFS, it is EPA's current judgment that the Preferred Alternative identified in this Proposed Plan is necessary to protect public health, welfare and the environment from actual or threatened releases of hazardous substances.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and site-specific risk-based levels.

The followings RAOs have been established for OU5 of the Site:

- Reduce the migration of VOC contaminants in soil to groundwater.
- Eliminate the potential for human exposure to Site contaminants via contact with soil concentrations above NYSDEC soil cleanup objectives for commercial properties.

The RAOs established in the OU2 ROD Amendment for groundwater and the drainage swale remain the same.

The soil preliminary remediation goals established for OU5 COPCs are identified in Table 4.

Table 4: Preliminary Remediation Goals for Soil

Chemicals of Potential Concern (COPCs)	Soil Remediation Goals (ppm)*
TCE	.47
cis-1,2-DCE	.25
vinyl chloride	.02
1,1,1-TCA	.68
1,2-DCA	0.02
Trans-1,2-dichloroethene	.19
PCE	1.3
Toluene	0.7
Xylene	1.6
1,4-dioxane	0.1

* NYSDEC SCOs [6 NYCRR Section 375-6.5] are based on the protection of groundwater.

These PRGs are based on the protection of groundwater and are lower than the NYSDEC soil cleanup objectives for commercial properties. These PRGs would therefore be protective of commercial workers.

SUMMARY OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARs, and utilize permanent solutions and alternative treatment technologies or resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to reduce permanently and significantly the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. Section 121(d) further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to Section 121(d)(4) of CERCLA, 42 U.S.C. §9621(d)(4).

Since principal threat wastes are associated with OU5, treatment of the contaminated soil was considered as a principal element of some of the alternatives developed for OU5.

Detailed descriptions of the remedial alternatives for addressing the contamination associated with OU5 of the Site can be found in the OU5 FS Report, dated July 2023.

For cost-estimating and planning purposes, the FS made certain assumptions regarding the depth of the water table to distinguish between saturated and unsaturated soil and estimated an elevation of 1,430 ft above mean sea level (amsl) as the depth to the water table. While the FS assumed that unsaturated contaminated soils would be addressed under the active remedial alternatives, as part of the remedial design, further evaluation would be conducted to refine the depth of active remediation. Additional active remediation may be performed below the water table to address saturated soil with elevated concentrations of COPCs, which would have the incidental effect of improving remediation timeframes for groundwater. Additional soil sampling would also be conducted during the design, to further refine the extent of contamination. During the performance of the FSIR, analysis of soil samples did not include 1,4-dioxane. Given the presence of elevated concentrations of 1,4-dioxane in groundwater, additional soil sampling would be performed for 1,4-dioxane analysis during the remedial design.

The construction time for each alternative reflects only the actual time required to construct or implement the action and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

Common Elements

Each of the alternatives address unsaturated contaminated soil located beneath and near the footprint of the former manufacturing building in the northern portion of the Historical Source Area.

Until a final remedy for the AVX Property is selected, the OU2 Amended Remedy requires implementation of institutional controls and development of a Site management plan (SMP) to provide for the proper operation and maintenance (O&M) of the remedy for the AVX Property post-construction. The ICs selected by the OU2 Amended ROD would continue to apply to the AVX Property and as such would apply to each of the alternatives evaluated for OU5. Implementation of ICs and the SMP are ongoing.

Additionally, because the OU2 amended remedy will result in hazardous substances, pollutants, or contaminants remaining in and around the drainage swale area at the AVX Property above levels that would otherwise allow for unlimited use and unrestricted exposure, pursuant to Section 121(c) of CERCLA, statutory reviews will be conducted no less often than once every five years to ensure that the remedy remains protective of human health and environment.

Alternative 1: No Action

The NCP requires that a “No Action” alternative be used as a baseline for comparing other remedial alternatives. Under this alternative, there would be no remedial actions actively conducted at OU5 to control or remove soil contaminants. This alternative also does not include monitoring or institutional controls.

Capital Cost:	$0
Periodic Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

Alternative 2: Long-Term Monitoring

This alternative would rely on long-term monitoring of contaminant concentrations in soil to ensure concentrations are decreasing. As discussed above, reductions in contaminant concentrations in groundwater are occuring to limited extent already from various naturally occurring physical, chemical, and biological processes. These processes occur naturally, in-situ, and act to decrease the mass or concentration of contaminants in the subsurface. Only non-augmented natural processes would be relied upon under this alternative. In addition, existing surface covers (concrete slab floor, pavement, and vegetative cover) would be maintained to control potential leaching of contaminants in soil to groundwater and prevent exposure.

For cost-estimating and planning purposes, periodic monitoring of four newly installed groundwater monitoring wells would be conducted to track attenuation of contaminants immediately beneath and/or downgradient of the unsaturated soil source.

Capital Cost:	$44,000
Periodic Costs:	$567,000
Present-Worth Cost:	$291,000
Construction Time:	1 month

Alternative 3: Excavation

The major components of the soil excavation alternative are demolition and removal of the existing concrete slab floor and foundation supports, excavation of impacted unsaturated soil located beneath and near the footprint of the former manufacturing building, off-Site transportation and disposal of excavated material, and restoration with imported clean fill material.

Excavation areas would be restored with imported clean fill material to match the previously existing contours and grades. Imported clean fill material would meet NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation for imported fill or soil at commercial or industrial properties. Surface restoration details would be developed during the remedial design.

For cost estimating and planning purposes, the conceptual design estimates 5,500 cubic yards (cy) of soil requiring excavation and off-Site transportation for disposal as non-hazardous waste at a solid waste landfill. Rainwater/surface water that accumulates in, and is then removed from, any excavation areas would be temporarily containerized onsite (e.g., in 21,000-gallon tanks). It is anticipated that any water that accumulates and is removed from the excavation would be treated by the groundwater treatment system at the AVX Property prior to discharge to the City of Olean sewer system.

Capital Cost:	*$*2,228,000
Periodic Costs:	*$*450,000
Present-Worth Cost:	*$*2,414,000
Construction Time:	4 months

Alternative 4: In-Situ Soil Solidification

The major components of the In-Situ Soil Solidification (ISS) alternative include the demolition and removal of the existing concrete slab floor and foundation supports, excavation and removal of the asphalt paved areas to establish a level working surface for the ISS mixing equipment, construction of a management area adjacent to the ISS target areas to accommodate bulk soil that would swell as a result of the soil mixing process and amendment addition.

Solidification refers to a cleanup method that prevents or slows the release of harmful chemicals from contaminated soil. These methods usually do not destroy the contaminants. Instead, they keep them from "leaching" above safe levels into the surrounding environment. Solidification binds the waste in a solid block of material and traps it in place, using a binding agent. This block is also less permeable to water than the waste.

During the FSIR, a laboratory bench-scale ISS treatability study was conducted with soil from the AVX Property to identify the optimal percentage of reagents, dosing requirements, and effectiveness. This treatability study investigated the ability of (Portland Cement) (PC) and blast furnace slag (BFS), as well as zero-valent iron (ZVI), to reduce the leaching potential of contaminants. Based on the results, for cost-estimating and planning purposes, the conceptual design estimates approximately 5,500 cy of soil would be mixed with a blend of 2.5% PC and 4.5% ground-granulated BFS, with a water-to-reagent ratio of 4.5 (grams of water to grams of reagent) to solidify contaminants in-place, creating a low-permeability monolith.

The conceptual design estimates that a three-foot-thick cover would be designed to maintain the ISS-treated material below the frost line and to promote stormwater drainage away from the treatment zone. The protective cover would consist of a non-woven geotextile demarcation fabric, 2.5 to 3 feet of reuse soil, and approximately six inches of gravel at the surface for erosion protection.

It has been estimated that approximately 3,755 cy of non-impacted soil would be excavated to create the management area and would be used post-ISS construction for installation of a three-foot-thick cover over both the ISS treatment and management areas.

Under this alternative, long term monitoring would be conducted to evaluate the long-term effectiveness and permanence of the solidified mass.

Capital Cost:	$2,715,000
Periodic Costs:	$450,000
Present-Worth Cost:	$2,901,000
Construction Time:	3.5 months

Alternative 5: In-Situ Thermal Remediation

This remedial alternative combines in-situ thermal remediation (ISTR) with a system to address vapor management within and around areas with the highest concentration of contaminants.

In-situ thermal treatment methods move or "mobilize" harmful chemicals in soil using heat. The chemicals move through soil toward wells where they are collected and piped to the ground surface to be treated using ex-situ cleanup methods. For cost estimating and planning purposes, the conceptual design assumes an ex-situ approach for vapor management composed of cooling, phase separation, air stripping, liquid-phase GAC, and vapor-phase granular-activated carbon following. If some water is encountered, multi-phase extraction (MPE) would be utilized.

Electrical resistance heating (ERH) and thermal conduction heating (TCH) were determined, based on their effectiveness for treating lower-permeability till with similar soil electrical properties, to be the most applicable ISTR technologies for source removal within the lower-permeability till unit at OU5. For cost estimating purposes, ERH was assumed for the development of this alternative.

Preliminary ERH layouts were developed using a regular 19-foot triangular grid pattern for the electrodes, with vertical MPE wells and horizontal vapor management wells located at the centroids between adjacent electrodes. Distributed temperature sensor strings would be used for performance monitoring. A thermally insulating vapor cap would be constructed to provide a no-flow barrier at the surface, limit heat losses to ground surface, and minimize the potential for recondensation of vapors near ground surface.

Capital Cost:	$3,395,000
Periodic Costs:	$450,000
Present-Worth Cost:	$3,581,000
Construction Time:	6 months

EVALUATION OF ALTERNATIVES

In evaluating the remedial alternatives, each alternative is assessed against nine evaluation criteria set forth in the NCP namely, overall protection of human health and the environment, compliance with ARARs, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, cost, and state and community acceptance. Refer to the table below for a more detailed description of the evaluation criteria.

This section of the Proposed Plan summarizes the evaluation of the relative performance of each alternative against the nine criteria, noting how each compare to the others under consideration. The detailed analysis of alternatives can be found in the FS Report.

Overall Protection of Human Health and the Environment

All of the alternatives except Alternative 1 (No Action) would provide adequate protection of human health and the environment by eliminating, reducing, or controlling risk through off-site disposal, in-situ treatment, engineering controls, and/or institutional controls. Alternative 2 (Long-Term Monitoring) would provide some protection from future exposure to contaminated soil through the maintenance of the existing cover material (concrete slab floor, pavement, and vegetative cover), and through institutional controls such as land-use restrictions. However, contaminated soil would remain in place above the cleanup goals.

Alternative 3 (Excavation) would permanently remove unsaturated soil with VOCs above the PRGs for off-Site disposal while Alternative 5 (In-Situ Thermal Remediation) would remove VOCs through in-situ treatment and ex-situ recovery for on-Site treatment. Under Alternative 4 (In-Situ Soil Solidification) contaminated soil would not be destroyed, but rather would be treated in-situ to bind the contaminants to the material and prevent or slow the release of contaminants from soil.

Alternatives 2, 3, 4, and 5 would achieve the RAOs. Alternative 1 (No Action) would not achieve the RAOs. Because Alternative 1 is not protective of human health

and the environment, it is not further discussed under the remaining evaluation criteria.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

EPA has identified NYSDEC's soil cleanup objectives for the protection of groundwater (6 NYCRR § 375-6.5) as an ARAR, a "to-be considered," or other guidance to address contaminated soil at the Site. Refer to Table 4 for the preliminary remediation goals for soil.

Under Alternatives 2 through 5, it is intended that ARARs would be achieved. Although soil sampling results indicate that biodegradation of VOC contaminants may be occurring at the AVX Property, given the elevated concentrations of contaminants in soil, achievement of the preliminary remediation goals under Alternative 2 may not be reached for many years. Under Alternative 2, elevated concentrations of contaminants in soil, would result in the prolonged presence of contamination in the unsaturated soil which would continue to act as a source to groundwater contamination and likely prevent or extend the attainment of the remediation goals established in the OU2 ROD Amendment.

Alternatives 2 through 4 would comply with location-specific ARARs, such as the Clean Water Act to mitigate adverse impacts on protected wetlands. Alternatives 2 through 4 would comply with action-specific ARARs, such as hazardous waste management regulations that manage remediation derived waste.

Chemical-, location-, and action-specific ARARs are identified in the July 2023 FS Report, Tables 3-1, 3-2 and 3-3.

EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES

Overall Protectiveness of Human Health and the Environment evaluates whether and how an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the Site, or whether a waiver is justified.

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume (TMV) of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

State/Support Agency Acceptance considers whether the State agrees with EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

Community Acceptance considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

Long-Term Effectiveness and Permanence

Alternative 2 relies on naturally occurring in-situ processes to decrease the concentrations of contaminants over time. While degradation has been shown to occur in soil and groundwater at the AVX Property, given the elevated concentrations of contaminants present, the timeframe to achieve the cleanup levels, long-term protectiveness is not anticipated to occur in a reasonable timeframe. Alternatives 3 through 5 are all effective alternatives in the long-term because they would remove or solidify the contaminants in unsaturated soil located beneath and near the footprint of the former manufacturing building, through physical methods (excavation, Alternative 3), solidification (Alternative 4), and volatilization via thermal treatment followed by soil vapor extraction (Alternative 5). Alternatives 2 through 5 would permanently reduce accessible contaminant concentrations over time, while Alternatives 3, 4, and 5 would achieve permanent contaminant concentration reduction or immobilization more quickly.

Potential Site impacts from climate change have been assessed, and the future performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the Site.

Reduction of Toxicity, Mobility, or Volume

Alternatives 3 and 5 reduce toxicity and volume of contaminants in soil located beneath and near the footprint of the former manufacturing building. Alternative 4 substantially reduces the mobility of contaminants in soil by solidifying them in a solid block of material. Alternative 2 would reduce the toxicity and volume of contaminants in soil over time, however, the timeframe to achieve the cleanup levels and long-term protectiveness may not be reached for many years. Under Alternative 3, the mobility, volume, and exposure to contaminants would be reduced through the removal and disposal of the soil at an approved off-Site facility. Furthermore, although currently not anticipated, off-site treatment, if required, would reduce the toxicity of the contaminated soil prior to disposal. Alternatives 4 and 5 provide active in-situ treatment of contaminants in soil that would greatly reduce the mobility of these contaminants. Alternative 5 would also reduce the volume and toxicity of contaminants because it destroys the contaminants rather than solidifying them in-place.

Short-Term Effectiveness

Alternatives 2 through 5 may have short-term impacts to remediation workers, the public, and the environment during implementation. Alternative 2 could have minimal adverse short-term impacts since work is limited to the installation of four additional groundwater monitoring wells associated with the groundwater sampling program. Occupational health and safety controls would be implemented to mitigate exposure risks. Alternative 2 has an estimated implementation timeframe of 30 years, although it is unclear whether RAOs would be reached within 30 years.

Under Alternative 3, the potential risks to workers, the public, or the environment would increase relative to Alternative 2 due to substantial soil disturbance and offsite transportation of soil, although these activities would be managed through engineering controls, health and safety procedures, and worker training. The implementation timeframe for Alternative 3 is estimated to be approximately 4 months.

Under Alternative 4, the potential risks to workers, the public, or the environment would increase relative to Alternative 2, due to implementation of ISS although these activities would be managed through engineering controls, health and safety procedures, and worker training. The implementation timeframe for Alternative 4 is estimated to be approximately 3.5 months.

Installation of the electrodes and associated SVE and MPE wells for Alternative 5 may result in short-term exposure risks to workers, the public, or the environment, but these potential risks are likely lower than those from Alternatives 3 and 4 because there will be less physical disturbance and movement of soil. These potential risks would be managed through engineering controls, vapor monitoring and mitigation, health and safety procedures, and worker training. The implementation timeframe for Alternative 5 is estimated to be approximately 6 months.

Based on the information contained above, Alternative 2 presents the least short-term impacts. Alternative 5, while presenting more short-term impacts than Alternative 2, has less short-term impacts as compared to Alternatives 3 and 4.

Implementability

All technologies under active Alternatives 3, 4, and 5 are established technologies with commercially available equipment and are implementable.

Alternative 5 would be the most difficult to implement, as it requires the most specialized equipment with the installation of electrodes, wells for vapor management, and MPE wells (as necessary), temperature monitoring

points, a power delivery system, and waste stream controls. However, the equipment is conventional and readily available.

Alternatives 3 and 4 would be easier to implement than Alternative 5, but more difficult than Alternative 2, as Alternative 2 is not an active remedy.

Cost

The estimated capital, O&M, and present worth costs are presented in Table 5 below and discussed in detail in the FS Report. The cost estimates are based on the best available information. Alternative 1: No Action has no cost because no activities are implemented. The highest present worth cost alternative is Alternative 5, at $3.58 million.

Table 5: Summary of Costs

Alternative	Capital Cost	O&M Costs	Present Worth*
Alternative 2	$44,000	$567,000	$291,000
Alternative 3	$2,228,000	$450,000	$2,414,000
Alternative 4	$2,715,000	$450,000	$2,901,000
Alternative 5	$3,395,000	$450,000	$3,581,000

* 30-year present worth calculations are based on a 7% discount rate.

State/Support Agency Acceptance

NYSDEC has consulted with NYSDOH and concurs with the preferred alternative.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the Responsiveness Summary section of the Record of Decision for OU5.

PREFERRED REMEDY AND BASIS FOR PREFERENCE

Based upon an evaluation of the remedial alternatives, EPA, in consultation with NYSDEC, proposes Alternative 3, Excavation, as the preferred remedy for OU5.

The preferred alternative has as its key components: 1) demolition and removal of the existing concrete slab floor and foundation supports; 2) excavation of contaminated unsaturated soil located beneath and near the footprint of the former manufacturing building in the northern portion of the Historical Source Area; 3) off-Site transportation and disposal of excavated material; and 4) restoration with imported clean fill material. Refer to Figure 3 for the conceptual design depicting the estimated excavation area based on the results of the FSIR.

As part of the remedial design, further evaluations would be conducted to define the depth of the water table and resulting excavation. If determined practicable, additional limited active remediation could be performed below the water table to address saturated soil in an effort to improve remediation timeframes for groundwater. During the remedial design, additional soil sampling would also be conducted to further evaluate the extent of contamination, including 1,4-dioxane.

The environmental benefits of the preferred remedy may be enhanced by employing design technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy.[3] During the remedial design, green remediation concepts, including the use of low-sulfur vehicles and the location of the landfill that would receive the excavated soil in an effort to reduce truck trips, would be considered.

The total estimated present-worth cost for the preferred alternative is $2,414,000. This is an engineering cost estimate that is expected to be within the range of plus 50 percent to minus 30 percent of the actual project cost. Further detail on the cost is presented in Appendix C of the FS Report.

This proposed OU5 remedy addressing contaminated soil located beneath and near the footprint of the former manufacturing building, along with the remedy selected in the OU2 ROD Amendment addressing soil in the drainage swale area and groundwater, would constitute the final remedy for the AVX Property.

The ICs selected in the OU2 Amended ROD continue to apply to the AVX Property and as such would apply to the preferred remedy. Because the OU2 amended remedy will result in hazardous substances, pollutants, or contaminants remaining in and around the drainage swale area at the AVX Property above levels that would otherwise allow for unlimited use and unrestricted exposure, pursuant to Section 121(c) of CERCLA, statutory reviews will be conducted no less often than

[3] See http://www.epa.gov/greenercleanups/epa-region-2-clean-andgreen-policy and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

once every five years to ensure that the remedy remains protective of human health and environment.

Basis for the Remedy Preference

While Alternatives 3: Excavation, Alternative 4: In-Situ Soil Solidification and Alternative 5: In-Situ Thermal Remediation all use proven technologies to actively treat VOC-contaminated soil in OU5, Alternative 3 would permanently remove the contaminated soil located beneath and near the footprint of the former manufacturing building in a relatively short implementation timeframe. Alternative 3 is also comparatively easier to implement than Alternatives 4 and 5 and uses conventional construction equipment.

Based upon the information currently available, the preferred alternative (Alternative 3, Excavation) meets the threshold criteria and provides the best balance of tradeoffs compared to the other alternatives with respect to the balancing criteria. The EPA expects the preferred alternative to satisfy the following statutory requirements of Section 121(b) of CERCLA: 1) the proposed remedy is protective of human health and the environment; 2) it complies with ARARs; 3) it is cost effective; and 4) it utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Although it is not currently anticipated, if necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal and only under such circumstances would the preferred alternative partially satisfy the preference for treatment. With respect to the two modifying criteria of the comparative analysis, state acceptance and community acceptance, NYSDEC concurs with the preferred alternative, and community acceptance will be evaluated upon the close of the public comment period.

Figure 1: Site Location Map

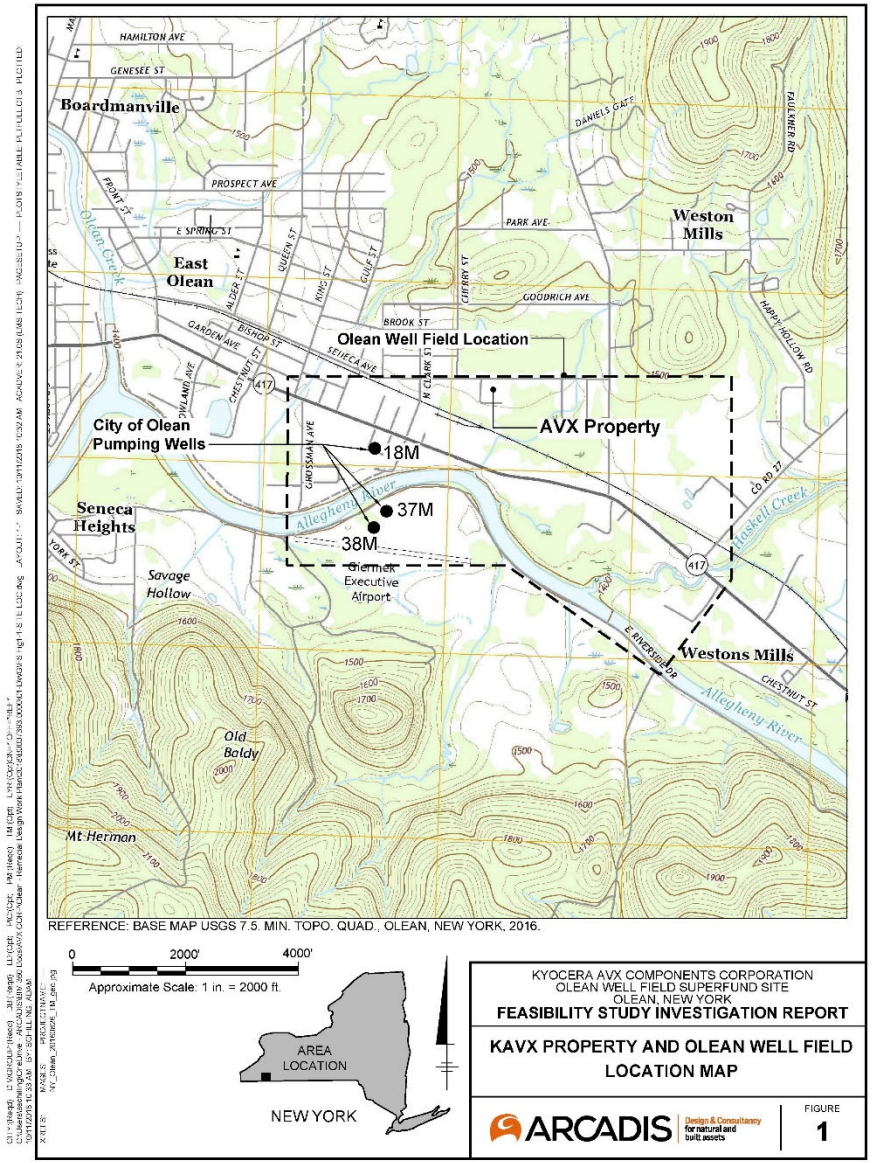


Figure 2: Operable Units

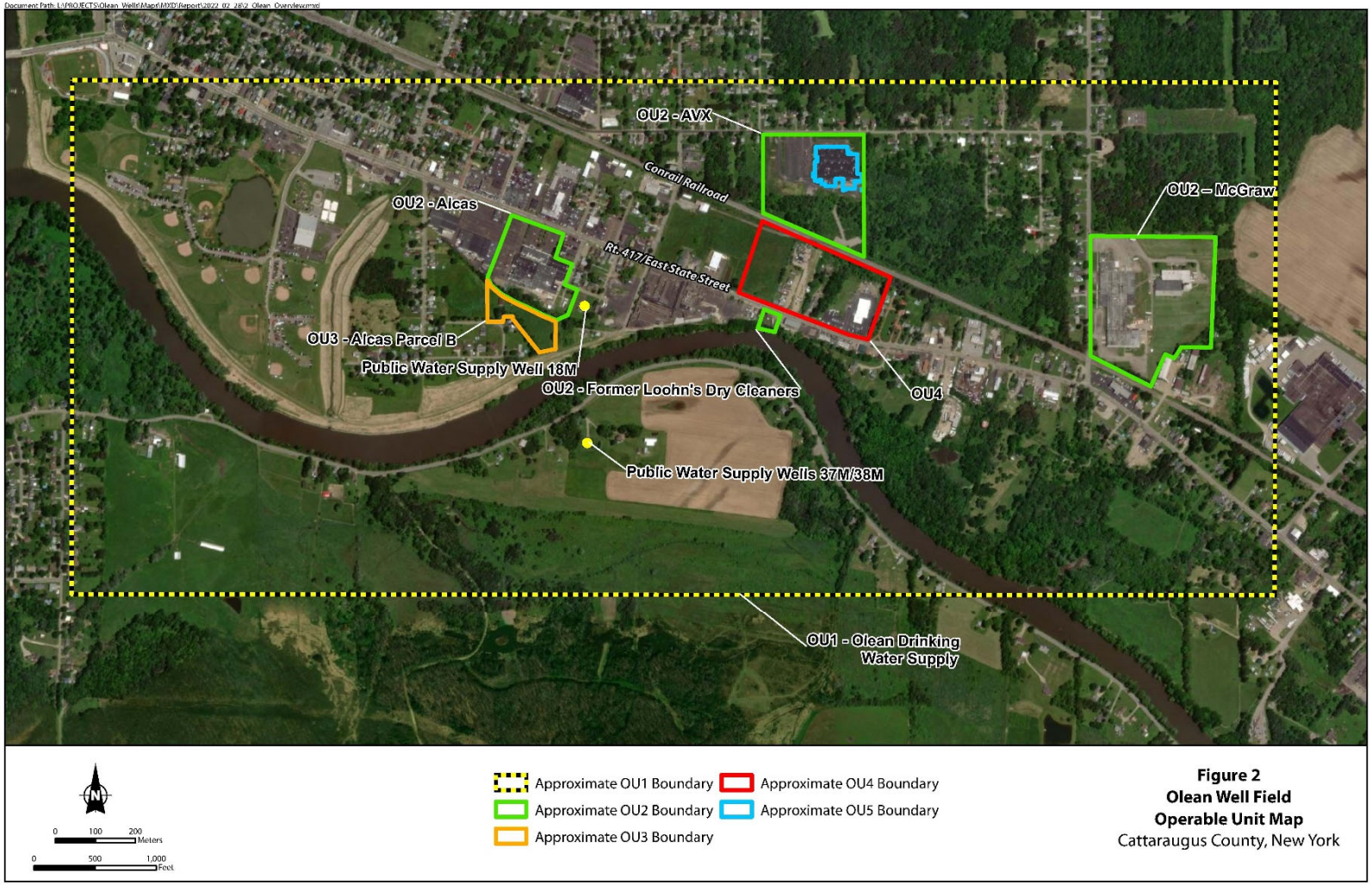
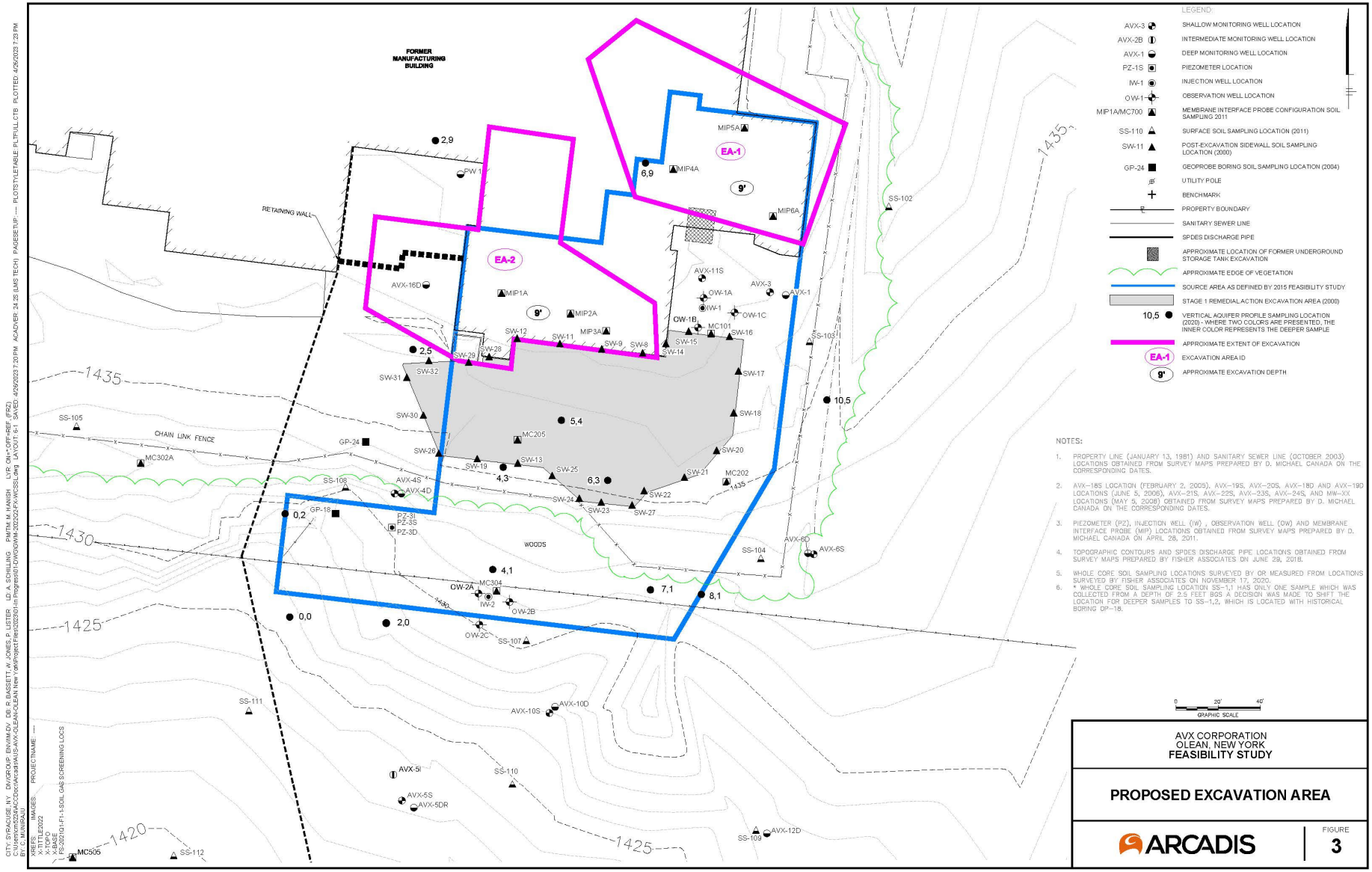


Figure 3: Alternative 3 -Excavation



ATTACHMENT B

PUBLIC NOTICE

EPA Invites Public Comment on a Proposed Cleanup Plan

Addressing Contamination near the

Olean Wellfield Superfund Site in Olean, New York

July 2023

The U.S. Environmental Protection Agency (EPA) has issued a proposed cleanup plan to address contaminated soils located beneath and near the former manufacturing building previously known as AVX Corporation.

A 30-day public comment period on the plan, which identifies EPA's cleanup alternatives, begins on July 27, 2023 and ends on August 28, 2023. EPA's proposed alternative involves soil excavation and removal of the existing concrete slab floor, removal of the impacted soil, off-site disposal and restoration with imported clean fill material. The former AVX Corporation is now owned by KYOCERA AVX Components Corporation (KAVX).

EPA will hold a public meeting at 6:00 pm on August 8, 2023 in the Magnano Reception Room near the Cutco Theater, 305 North Barry Street at the Cattaraugus County Campus of Jamestown Community College in Olean, to get public reaction and input to the proposed cleanup plan.

The proposed cleanup plan is available at: http://www.epa.gov/superfund/olean-wellfield

ATTACHMENT C

PUBLIC MEETING TRANSCRIPT

OLEAN WELL FIELD SUPERFUND SITE:

OPERABLE UNIT 5

In Re:

Proposed Plan Public Meeting

HELD ON: August 8, 2023

HELD AT: Jamestown Community College
Cattaraugus County Campus
305 North Barry Street
Olean, New York

BEFORE: CARMEN A. NASCA
Court Reporter

APPEARANCES:

MICHAEL BASILE, USEPA Region 2 Community Involvement Coordinator
MAEVE WURTZ, EPA Remedial Project Manager
BOB RING, Cattaraugus County Health Department
PETE MANNINO, Branch Chief

MICHAEL BASILE: Good evening. My name is Mike Basile. I'm the community-involving coordinator at EPA. I want to welcome you to our proposed plan rollout for the Olean well field site here in Olean, New York. Thank you for taking the time to come out. We have a simple agenda tonight. You have the agenda in front of you. Thank you for signing in. When you sign in, you automatically go on our mailing list. I'm going to give the opportunity of our remedial project manager, Maeve Wurtz. She'll have a PowerPoint presentation to explain the proposed plan for this phase of the clean up that we're recommending. We're in the 30-day public commentary. She'll be explaining all of that to you. Give her an opportunity to make the presentation and then we'll do questions and answers after. We have a stenographer that's here. We're going to ask you to stand, state your name, spell your name and your address for the stenographer at that time. At this

time, I want to introduce a few folks that will not be making presentations but are here: Mr. Bob Ring from the Cattaraugus County Health Department and with our team at EPA at 290 Broadway, Pete Mannino, a branch chief right here, Maeve Wurtz, our remedial project manager. Maeve?

MAEVE WURTZ: Hi, everyone. Thanks for coming out tonight. So Mike just introduced everyone who's here tonight. Also on the site team, we have Nick Mazziotta who's a health risk assessor and Sharon Kivowitz who is our site attorney, as well as Steve Moeller and Eamonn O'Neill with New York State. So tonight, I'm going to be talking about the Superfund process in general and then get into the site background and the site investigations that have been conducted thus far then we'll get into EPA's cleanup options, and our preferred alternative and then, at the end, we'll have time for any questions and we can go back to any slide. So just a little

bit about the Superfund process in general. It starts off with the preliminary assessment, which is an initial investigation into the type of contaminant at the site and if that determination is above a certain level, then the site gets elevated to the national priority list. Once the site is ranked on the national priority list, the remedial investigation can start and this is a more in-depth investigation into the type and extent of contamination at the site. After the remedial investigation is done, the feasibility study can be conducted and this is when the EPA looks at the different types of technology available to us to address the contamination at the site. After that, we're in the proposed planning and record of decision phase, which is where we're at right now with OU5. This is when EPA releases the proposed plan for the cleanup and that opens up a 30-day public comment period where we are open to the receiving of

any comments, questions from the community and after that comment period is closed, we finalize the alternative and take into account and record any comments or questions that were received during the public comment period. Then, the remedial design and remedial action phase is conducted. This is when the chosen remedy is constructed as -- and designed before constructed and once the remedy is constructed, EPA operates and maintains the remedy until the contaminants are at low enough levels that it is no longer needed. Throughout this whole process, community involvement is really important so I want to thank all of you for coming out tonight and hearing what we have to say.

So EPA breaks larger or more complex Superfund sites into different operable units. This is so we can address different types of contamination or different geographic sections of contamination so that we can conduct the cleanup in the most efficient and

fastest way possible. Olean has five different operable units. They are OU1, which is ground water, OU2, which is the four source areas, which are Alcas, AVX, Loohn's, and McGraw Edison. OU3 is Alcas parcel B, OU4 is the area south of the AVX property and OU5 are the source area soils at the AVX property.

This is a figure of the entire Superfund site. So over here, we have the Alcas facility. Alcas is currently owned by the cutlery corporation, Cut Co. Corporation, so we have OU2 in green above and OU3 below in orange. In the middle, we have the AVX facility. AVX is currently owned by Kyocera AVX Components Corporation or KAVX. We have OU2 in green above OU4 in red and OU5 in blue. Right below there is Loohn's Dry Cleaners and over to the right, we have McGraw Edison, which is currently owned by Cooper Power Systems. Just zooming in on the AVX site, OU5, which we're talking about tonight, is the contaminated soil located beneath and

near the footprint of the former reconstruction building on AVX property. So again, that's in blue.

A little bit about the site investigation history. The contamination was first discovered in 1981 when contamination was found in the three municipal supply wells and nearby private residential wells. So as a result of this discovery, the wells were shut down and service water treatment facility operations were started in order to get clean water to residents.

In 1985, the first Record of Decision for the decision was published and this called for the installation of air-strippers on the Municipal wells, as well as the extension of the City of Olean waterline into the Town of Olean in order to connect residents to the public water supply who were using private wells. The ROD also called for institutional controls to limit or restrict groundwater use and since then, the air-stripping devices have been

working effectively and the water that's pumped from the city Aquifer has been meeting all federal and state standards.

In 1996, we issued the OU2 ROD and this identified four source areas for the site. As I said before, they were Alcas, AVX, McGraw Edison, and Loohn's so this Record of Decision required four different cleanup methods for each different source area. All of those are still in progress. All four of those source areas were also considered sources of contamination to the City Aquifer at one point in their -- when they were running. So the four source areas were McGraw Edison, the remedy is pump and treat; there's Loohn's; that was excavation, Alcas was vacuum enhanced recovery and AVX was also excavation. In 2014, the Alcas rod amendment was issued. This is because while work was going on in Alcas, based on additional studies, it was found that the remedy that was previously selected would no longer -- would not be

successful so a new remedy of in-situ chemical oxidation was selected. There's also more contamination than previously thought in 1996 so a new operable unit, OU3, was designated at the Alcas site and that remedy that was selected in the 2014 ROD was Enhanced Anaerobic Bioremediation.

Similarly, at the AVX site during excavation, more contamination was discovered than was previously known about, specifically underneath a manufacturing building in the undeveloped wooded area to the south of the AVX manufacturing building and across the AVX property boundary to the south. The remedy picked in the OU2 ROD was an exposure barrier, a containment trench, and a hydraulic pumping containment system.

At the time of the 2015 recorded decision, the contamination underneath the manufacturing building was not accessible because the building was still an active manufacturing plant. So

at this time, the 2015 remedy was considered an interim remedy until a time where the contamination under the building was successful. In 2018, AVX ceased operations at their manufacturing facility so this -- following demolition in 2020, this started the feasibility study process in order to test and get a handle on the contamination under the building and look into possible cleanup options.

In 2022, we published the OU4 Record of Decision. Some of you were here last summer for that meeting, proposed plan meeting. The remedy selected for that was in-situ chemical oxidation and that brings us to 2023, OU5.

So a little bit about the history of AVX manufacturing. The Olean facility was opened in 1950 and they produced ceramic capacitors and resistors. TCE was used until the early 1970s, where after that they switched to PCE, and then shortly after that, 1,1,

TCA and that was used until the late 1980s.

Just a few locations that -- of the AVX manufacturing building that will come up later until the presentation. So down in the southeast corner, there was the former machine shop maintenance area and also the receiving and chemical storage area and then, a little above them are the tape and reel storage areas and the powder and barrel storage area.

So as I said before, in 2018, AVX ceased operations at the manufacturing building and in 2020, the building was demolished. The concrete slab was left behind that is acting as a barrier to the elevated concentrations of contaminations in the soil. From 2020 to 2022, the feasibility study investigation and treatability study were conducted by KAVX. In 2022 to 2023, the feasibility was conducted also by KAVX and in 2023, we are releasing our proposed plan for cleanup of the contamination.

So the investigation activities at OU5 were designed to define the location and extent of contaminants beneath and near the former manufacturing building and also to characterize the hydrogeology in order to define any potential pathways of contaminant transport. The sampling methods used during the OU5 investigations were photo ionization detector screening, soil gas screening, whole core soil sampling and vertical Aquifer profile sampling.

This is a figure of the soil, gas screening locations. Just to orient you all, this highlighted yellow is the edge of the manufacturing building, so anything to the north of that is the manufacturing building or former manufacturing building. This blue outline is the source area as defined in the 2015 Record of Decision and all of the points are different soil, gas screening locations.

This legend is hard to see. The pink and red dots are the highest areas

of contamination. So there are 114 soil and gas screening locations. This is where the highest levels popped up so you can see, if you remember the locations from the previous slide, over here is the general area of the machine shop and maintenance area and over here is the general area of the receiving area and chemical storage area. The highest levels range from 145 to 1,436 parts per million.

This is a figure of the whole core soil samples. Similarly, this is the outline of the building. Anything north of that is the former manufacturing building and the blue is the outline of the source area as defined by the 2015 Record of Decision.

There were 40 different locations for the core sampling. There were 300 soil samples that were analyzed and similarly, we found the highest levels of contamination in similar places so down near the machine shop and maintenance area, as well as the

receiving area and chemical storage areas. Another notable area was the southeast corner of the area that was formerly excavated as part of the 2015 remedy, which the former excavation is this, outlined in grey.

Vertical Aquifer profile samples were also collected during the whole core sampling. If there is enough water in the samples to sample. So only 13 out of 40 borings contained enough water to sample and the samples -- the concentration of contaminants in the samples were relatively consistent with the semi -- annual groundwater sampling that has been conducted since 2000.

The chemicals of potential concern at the site are TCE, PCE, CIS, 1, 2, DCE, 1,1,1 TCA, 1,2, DCA, trans 1, 2, dichloroethene, toluene, xylene, vinyl chloride, and 1,4-dioxane. To the left, we have a table with the maximum soil contaminant concentrations so they range from about 2 parts per million for vinyl chloride, up to 1500 parts per million

for TCE. And then, to -- on the table to the right, we have the soil remediation goals and these are the levels to which we are aiming to remediate down to. So they are a lot lower than the table on the left.

Using site-sampling results, EPA conducts risk assessments, which are used to determine the potential risks from coming into contact with contaminated soil. There was a risk assessment performed as part of the original 1996 OU2 ROD, as well as a risk evaluation performed as part of the 2015 ROD amendment.

EPA has determined that the results of both the assessment and evaluation have not substantially changed. The risk assessment was driven by high levels of contaminants in the soil, underneath the concrete slab at the former manufacturing building and the risks were associated with exposure to contaminants and soil and they were calculated for the ingestion and

inhalation of contaminants by construction workers since it is an industrial area.

An ecological risk assessment was also conducted and it was found that exposures to -- ecological exposures to soil or sediment at OU5 were considered unlikely to pose risk. Remedial action objectives are goals to protect human and health -- human health and the environment. They are site-specific. The following RAOs have been established for OU5. They are to reduce the migration of VOC contaminants in soil and groundwater and to eliminate the potential for human exposure to site contaminants via contact with soil concentrations above New York State DEC soil cleanup objectives for commercial properties.

So getting into our potential alternatives, Alternative 1 is no-action. Superfund regulations require that a no-action alternative be used as a baseline for comparing other

alternatives. Under this alternative, there would be no remediation -- no active remediation activities to control or remove soil contaminants. Alternative 2 is long-term monitoring. This would involve monitoring concentrations of contaminants in the soil that are reduced by naturally occurring processes. It would also involve installing four additional monitoring wells and coming up with a monitoring program. The long-term monitoring alternative would cost $291,000.

Alternative 3 is excavation. This would involve the demolition and removal of the existing concrete slab floor and foundation supports, excavation of contaminated, unsaturated soil, off-site transportation, disposal of excavated material and restoration with clean, imported fill material. This is a figure of the proposed excavation area. So we have our outline of the building in yellow and in pink, the proposed

excavation areas. So you can see they are in the areas of the highest contamination as found by testing. Alternative 3 would cost $2,414,000.

Alternative 4 is in-situ soil solidification. This would involve contaminants being solidified into a solid block using a binding agent and this would trap the chemicals and not allow them to move or migrate. It would also involve a cover designed to keep the treated block underneath the frost line to protect it and to promote storm water drainage away from the treatment zone. Alternative 4 would cost $2,901,000.

Alternative 5 is in-situ thermal radiation. This would involve using heat to move and mobilize the contaminants in the soil. So this would -- the heat would cause the contaminants to move through the soil towards installed wells where they'll be collected and piped to the surface to be treated and at the surface, they will be

treated using cooling phase separation, air-stripping, and activated carbon. Alternative 5 would cost $3,581,000.

EPA uses seven balancing criteria when comparing the alternatives to each other, as well as state and community acceptance. So the seven balancing criteria are the overall protection of human health and the environment, compliance with applicable or relevant and appropriate requirements, long-term effectiveness and permanence, reduction in toxicity, mobility or volume of contaminants through treatment, short-term effectiveness, implementability and cost.

EPA's preferred alternative is Alternative 3, excavation. And again, that would involve the demolition and removal of the existing concrete slab floor and foundation supports, the excavation of contaminated, unsaturated soil, off-site transportation of that soil, disposal of the excavated material and restoration with a clean fill.

So our basis for the selection of excavation is that it permanently removes the contaminated soil. It's a relatively short remediation timeframe and it provides the best balance of tradeoffs compared to the other alternatives with respect to the balancing criteria. Again, Alternative 3 would cost $2,414,000.

So our next steps are -- we are accepting any written comments on this proposed plan through August 28th and after that, EPA will prepare a Record of Decision, which formalizes the selection of the remedy and takes and records any comments received through the public comment period, as well as any verbal comments we may receive tonight.

You can address any written comments to this address here. I'll leave it up on the screen in case anyone wants to write it down at the end. You can also email me at this address. All of this presentation and all of the site documents can be found online on the

site's webpage or they are available at the Olean Public Library or the EPA record center. Now we have time for any questions.

MICHAEL BASILE: Thank you very much, Maeve. At this time, we will entertain questions and once again, I was just going to call upon you. I would just ask you to identify yourself, spell your name, your first and last name, and give your address so we can have the stenographer, Carmen, put that into public record. Any questions at this time about the presentation? Yes, sir?

RICHARD WEBER: I've got three questions.

MICHAEL BASILE: Okay.

RICHARD WEBER: Richard Paul Weber, FOIA Exemption 6 Olean, New York. My questions are: There's two sites. You've got to talking about this site, but they also tore the building down on the corner of Seneca and Line Street, which also had chemicals underneath it,

but that has just weeded over. They left it there, left the fence up. That's not being touched and AVX, per se, is in the Town of Olean, not Olean. You're addressing everything to Olean, New York and there ain't nobody here from Olean, not a mayor, not an alderman, not a town supervisor, not a legislator. There's nobody here but neighbors and the AVX and the county and you people from the EPA and the stenographer. There's nobody here higher than us three here. Olean Tile was another one that was part of this deal, but never -- they never slapped their hands. They did the same thing. They were using the same chemicals we were at AVX.

And the third question is: Will we be told which alternative you're going to do? Will they tell us prior to doing it or will they just tear the building down or tear the ground up and not tell anybody? Are they going to notify us? The other thing is: On this one second

page, it said it was an oversight in 1981 and 1983. I was there in 1981 and '83. I seen them pour the chemicals down in the ground underneath the box crusher in the back of the plant. They did it for 20 years. They put the PCE in the ground, but they couldn't get rid of it. Now it leaked into the Aquifer and this second page, it makes no sense. You're saying it's contaminated from the Haskell Creek, to the Olean Creek to the Allegany River. Well, hell bell. My house is on the corner of Clark and Seneca. Are you telling me that if I want to sell my house, I'm going to have to tell somebody that my ground underneath is contaminated, the water is contaminated under my house? I just don't understand this second page. I really don't understand it and if somebody can explain it to me, go ahead. I mean, it doesn't -- an oversight? There was no such thing as an oversight. They did it on purpose and there's a lot of people dying right now. I've got

cancer. I've had cancer, but there's a lot of people that I know personally from AVX that are dying daily from cancer. I hate to tell you where that came from. TCE is the worst carcinogenic in the world. So those are my questions. I don't understand that second page.

MICHAEL BASILE: Well, I can answer your question about the elected officials. At every one of our Superfund sites including this site, we have an elected officials listing. We send everything electronically to the mayor, supervisor. We send it out to the state representatives, including the state assemblymen, the state senator, as well as our federal counterparts, Senator Schumer and Senator Gillibrand's office. At many of our meetings, they do send representatives to the meetings. This meeting, just like the one that we held last year, they receive and they receive complimentary information about this meeting, the agenda, as well as the

community update so they're well aware of the meeting, okay?

RICHARD WEBER: Okay. I just don't understand. Believe me, I'm going to confront every one of them. I know them all.

MAEVE WURTZ: To address one of your other comments, so, this is our community notification of our proposed cleanup plan, which is the excavation. So everyone has 30 days, starting when we released this plan last week, to review the plan, have any comments, tell us how we can do it better from your point of view and then, on August 28th, that public comment period closes and after that, we review everything that we've gotten and finalize the decision and at that point, when the recorded decision is published, that is our notification of what our plan is to do with the cleanup.

RICHARD WEBER: Okay. Thank you.

PETE MANNINO: I'm sorry. There were -- I believe there were a couple

more points to your questions and comments. On the oversight piece, I believe, unless there was an error, the oversight pertains to EPA's overseeing the work that the responsible parties did at the three source areas. The fourth source area, Loohn's, was done under -- by the federal government and so the federal government wouldn't oversee itself, but at the former KAVX at Alcas and at McGraw, work that was done by the what we call, "potentially responsible parties," PRPs, was overseen by the federal government so I believe that's the context of oversight there.

With respect to your point about Olean Tile and the other location, I believe Olean Tile was one of the -- it predates me -- it goes back to the early '80s -- but of the original 13 or 15 potential source areas that were evaluated either by New York State DEC or EPA. And of those facilities, we identified the four that Maeve described earlier as being sources of the

groundwater contamination at the site. So I believe it was one of our -- not the last public meeting, but maybe with respect to the OU2 amended ROD where some community members identified other potential source areas where chemicals were used and we were not able to find any records of disposal or releases at those locations. So please, if you are aware of disposal or other potential known source areas, provide us the information. We will continue to follow up because, you know, this is the data as we know it as a snapshot today, but there's been a long history of looking at other potential --

RICHARD WEBER: They did. They buried tile and chemicals and everything in the back of their lot where they're building Tim Horton's right now.

PETE MANNINO: So keep in mind, ceramic tile typically wouldn't be a hazardous waste. Some of the adhesives and glues that are associated with the tile industry could potentially have

hazardous substances to it, but how ceramic tile itself would not likely generate health hazards when --

RICHARD WEBER: Where they're going to dig and where they're going to take out in the back of that plant, going towards Cooper from that direction, there was a city dump --

PETE MANNINO: Yes.

RICHARD WEBER: -- in there for 34 years. They dumped everything but the kitchen sink in there and --

PETE MANNINO: Yes, so -- but --

RICHARD WEBER: -- and it burnt for years. It got on fire and never -- they could never put it out. It took them years to get the thing to go out so that's another thing. When you start digging, are you going to draw some of that crap from down there?

PETE MANNINO: So two points. One: The names of the various dumps in that area, I can't remember off the top of my head, but I believe there was at least two that were previously looked at so

that is something that was looked at in the past. We didn't find -- based on the groundwater data, soil data that was collected, we didn't find any evidence of hazardous waste contamination at those locations.

Again, if you're aware of specific disposal activities, please share that and we will, to the extent that we can, follow up. Work continues. By no means is today the end of EPA's or New York State's investigation of the Olean well-field Superfund site. With respect to digging, this is a soil excavation that we'd be doing at the KAVX property, right? I believe the excavation would go down to, basically, the water table, which I -- we have an elevation. I think it's probably just, like, 10 to 12, 13 feet. Somewhere thereabout 18, just throwing a ballpark up -- or out. Yes, go ahead.

NORM DEGROFF: Where I am, I'm almost the same level as AVX. I just had a well put in five or six years ago.

PETE MANNINO: Okay.
NORM DEGROFF: And he found water at 50 feet. So he -- yeah.
PETE MANNINO: Okay. 50 feet --
NORM DEGROFF: 50 feet -- yeah.
PETE MANNINO: Okay.
NORM DEGROFF: So that's the water table.
PETE MANNINO: At -- where we are for the KAVX property, water table is not at 50 feet.
NORM DEGROFF: They're a tad lower, but you know, just the same.
PETE MANNINO: Right. We had a lot of soil borings that have been done, a lot of groundwater monitoring wells that have been done. We have -- there's some fluctuations within a couple of feet, but not to the order of magnitude of, you know, 10, 20, 30 feet so -- for where we are at the KAVX property. So that scope of work, you know, wouldn't draw in water from the city Aquifer or, you know, from any kind of significant distances. So any water that comes into

the hole would be managed. I think the current conceptual design would be that that water would be captured, it would be sent through the existing treatment plant that was constructed at the KAVX property, I believe that work was completed around last year, and then discharged to the City of Olean's treatment work system. So it's periodically sampled to make sure that it meets all the discharge requirements.

So there again, the EPA doing oversight, if the PRP is performing the work and ensuring that all the standards are being met, we would have air monitoring to ensure that dust does not pose a hazard to the nearby residents and safety measures for all the workers, trucks entering, leaving. All of the best management practices will be in place and that all gets flushed out once we're in the remedial design phase. After the Record of Decision, we'll get into design. We develop the specifications of exactly how the work

is going to be done, and then there's the actual performance of the work.

NORM DEGROFF: I did request that my soil got tested, because on the screen -- if you want to bring that one back up where it shows the worst two spots in pink. I'm going to get up. Now where's the building? The yellow?

MAEVE WURTZ: Yep.

NORM DEGROFF: I'm right here. That's why I want to check. I'm probably 200 feet, not even, from the fence. Probably 100 feet so that's why I want that done. Can we do it?

MAEVE WURTZ: Yeah, we would recommend contacting your local health department to see if they could do the testing.

NORM DEGROFF: You would do it or me?

MAEVE WURTZ: The health department.

NORM DEGROFF: Who would contact them?

MAEVE WURTZ: Yeah, you can reach

out to them to see if they can do it. If they can't do it, they'll either be in contact with us or let you know that. You can always give me a call or email --

NORM DEGROFF: I'll remind you.

MAEVE WURTZ: -- if nothing's happening yet if you are looking to get things done and things aren't getting done.

NORM DEGROFF: I have a feeling if I call them they'll just say I've got to refer to you.

PETE MANNINO: We'll work together. We'll make sure that you're not ping-ponged back and forth. The county representative is here, but if you don't mind for a second, I just want to get clarification: Are you looking to have your groundwater or soil tested?

NORM DEGROFF: I'd like both. Well, well water.

PETE MANNINO: Right. That's what I meant.

NORM DEGROFF: That's probably

down, like I said, at least at 50-something feet they found water, but it was too sandy and they kept going.

BOB RING: Do you mind if I say something?

PETE MANNINO: Yeah, go right ahead and then I have something I'd like to add about groundwater quality and groundwater flow direction just to address the point entirely.

BOB RING: That was going to be my question. Bob Ring, I'm the environmental health director with Cattaraugus County. So I think the difference between the water that they're encountering at, like, 9 or 10 feet deep, it's -- you know, a lot of that comes from the surface and the surface water that's getting down in. You know, when the well driller -- they're looking for clean water, drinking water and we consider Aquifer to have 50-foot graders. There's no influence from the surface water because there's so many layers of clay and other

things so -- if the minimums of casing and depth for a well nowadays, but going to 50 is a really good idea. We figure your drinking water is not under the influence of anything that's at the surface. Feel free to reach out to me with regards to well testing, but as far as the drinking water we'll get involved and make any recommendations if needed.

NORM DEGROFF: So you're the county health director?

BOB RING: Yes.

NORM DEGROFF: What's your name?

BOB RING: Bob Ring.

NORM DEGROFF: Ring.

PETE MANNINO: I would just like to add, the city Aquifer, which is typically what is called the Aquifer where producing water for the drinking water supply wells. That is contaminated and that is why, back in the '80s, the three supply wells in the area, treatment was added to them. The 18M -- it's been a while -- 17 and it's another well there. So just because

you're in the city Aquifer does not mean that there are impacts from the site.

When it comes to KAVX, groundwater flow in this area is generally from north to south, right? So from where the KAVX property is down towards the river. You are what we would call upgradient of KAVX so you can't expect to see influences from KAVX groundwater on your property across the street.

However, there are other sources of groundwater contamination at the site and, you know, I would suggest sampling your well and coordinating with the county to have that done.

NORM DEGROFF: Because it said somewhere in the literature that the groundwater and the ground was all contaminated in that area. I'm assuming it would go towards me even though I'm a tad higher.

PETE MANNINO: Yeah, so groundwater -- I mean --

NORM DEGROFF: Contamination, it said, is in the soil under all the -- it

said under residences.

PETE MANNINO: No, because soil contamination on the KAVX property is really, generally to the south, right? So the AVX manufacturing plant, when it was expanded -- and I forget the timeframes. So the area that we're addressing now, at one point, the structure was enlarged and covered up part of the area that needed to be addressed. So the original estimation that was done that's shown in the shaded area, that began in the late '90s, I believe it was, and they couldn't go further to the north because the building was there, right? Most of the contamination is in that southerly direction and goes all the way down to, you know, the -- we've sampled all the way down to the railroad tracks and then sampling done as part of the Operable Unit 4 on the southern side of the railroad tracks didn't show any soil contamination.

NORM DEGROFF: It did or did not?

PETE MANNINO: It did not in the unsaturated zone. In the saturated zone, within the water table, there were some points. Let me correct myself. I believe there may have been one or two samples in the unsaturated zone that showed some contamination, but --

RICHARD WEBER: I got -- I was told there's a real thing here. The TCE that we're talking about --

PETE MANNINO: Yes.

RICHARD WEBER: -- was used at Cooper.

PETE MANNINO: Yes.

RICHARD WEBER: It was used at Loohn's.

PETE MANNINO: Yes.

RICHARD WEBER: It was used at Alcas.

PETE MANNINO: Yes.

RICHARD WEBER: It was used at AVX and it was used at the tile plant. They all dumped it out their backdoors. They didn't know what to do with it. AVX out it in the ground. Okay, it leaked. Now

it's in everything. Now, if you're saying that AVX is the only place to get the TCE --

PETE MANNINO: No, I did not say that.

RICHARD WEBER: -- that's wrong because now you're saying the contamination -- because this says right here, "The contamination is from the Haskell Road to the Olean Creek to the Allegany River." That means the ground underneath my house may have TCE in it because not only AVX, it could be from Alcas, it could be from the tile plant, it could be from Cooper, it could be from Loohn's. So the entire area is contaminated. That's probably why the city doesn't even want to come here because they don't know what to do either.

PETE MANNINO: So just so we're clear, that statement in that community update, that flyer, pertains to groundwater contamination and not soil, okay? What I was saying before, with

respect to soil contamination, right? I'm just going to go up here for a second. When you look at all the data that's been collected, and over the years there's been a significant amount of data, when dealing with soil contamination related to the KAVX property, that soil contamination is to the south, right? There isn't going to be a need for a clean up on the northern side of the property, right? And so with respect to your specific comment regarding soil contamination, right, we didn't see it to the north of the property and it's unlikely to be on your property, right?

NORM DEGROFF: It would be nice to know, though.

PETE MANNINO: I'm sorry?

RICHARD WEBER: It would be good to know.

PETE MANNINO: I understand and I recognize the comment, and I just -- I'm not in a position to say yes or no that we would sample your -- collect a soil

sample. I just -- I want to make sure you understand or recognize the current conditions at the KAVX property, right? The soil digging is in the back in the rear and not in the front, okay? That's just -- based on all the data that's been collected, the contamination is down here, not in the front, okay?

RICHARD WEBER: I understand.

PETE MANNINO: And again, you make a valid point. You still would feel more comfortable knowing specifically based on a soil sample collected on your property. I recognize that.

NORM DEGROFF: He's talking about Loohn's. That got cleaned out, didn't it?

PETE MANNINO: Loohn's in --

NORM DEGROFF: They dug that out.

PETE MANNINO: -- in the timeframe --

NORM DEGROFF: 30 years ago?

PETE MANNINO: It's been a while. I believe it was in the '90s, late '90s. EPA used federal funds with a 10 percent

contribution from New York State and we performed a soil excavation and we continued to monitor the groundwater quality in that area and we are still seeing exceedances of certain VOCs in certain groundwater-monitored wells in that property and I believe the next sampling of that is going to be happening sometime this month for the Loohn's property. And the city Aquifer, which we were talking about earlier, gets sampled periodically by the PRP groups and we receive that data.

Before I forget, I believe there was one more part of your original comment with respect to notifications when you go to sell -- if and when you go to sell your property and all I can say about that is when that time comes, you should coordinate with your realtor and understand the New York State laws with respect to notifications so -- but again, it's groundwater contamination and not soil contamination on the property.

NORM DEGROFF: One other point --
PETE MANNINO: Yeah.
NORM DEGROFF: And maybe you would know, but the waterline of the city would run out Seneca Avenue, but it stopped halfway down, right about eastern end of the AVX property. Why didn't it go further?
PETE MANNINO: I don't know the whole history of it as far as the waterline going through the town.
NORM DEGROFF: The place where they used to unload the trucks by the road, there were some bikes there they used to come in here to wait and they would punch stuff into the plant. Right roughly there is where that line is. It was just towards the eastern end of the -- or whatever it is.
PETE MANNINO: Anyway, if you do want to consider expense and --
NORM DEGROFF: Actually, it really --
PETE MANNINO: -- you would talk to your town representative about it to get

the ball rolling.

NORM DEGROFF: What was that?

BOB RING: Talk to your town representative. You know, they would have the initiation, you know in sense to the water district, we can certainly help, you know, there might be State funding available for property if that's something that you wanted. You also have the ability to fund it yourself if you're 200 feet away.

NORM DEGROFF: I'm about -- my property is probably about 100 to 150 feet from the AVX property. That's why I'm concerned about it. I can look straight up to where the plant was.

BOB RING: If we can get a copy of this presentation, they listed, you know, all the chemicals that would be -- you know, that you would want to test for so that might be a better place to start.

NORM DEGROFF: I just want the ground tested and the water tested, basically.

BOB RING: I don't know if the state will fund the testing, but there are plenty of labs in the area that will sample.

RICHARD WEBER: How about him? How about Stan and I? We live inside of the city. We are --

BOB RING: So the city --

RICHARD WEBER: We're all on the same waterline.

BOB RING: So they're required to do regular testing that's all available in their annual water quality report.

RICHARD WEBER: The water testing, would we have to pay for that?

PETE MANNINO: No. If you are on city water, then the water that you receive from the tap is required to meet all federal and state standards and the water distributor has their periodic sampling, whether it's quarterly, semi-annual or annually that can be made available to show you what is being distributed.

NORM DEGROFF: I'll just wait to

see what the water in the well tests out to be and we'll go from there. If it shows it's okay, then we'll just leave it. I just put that in. It cost me quite a bit of money. At one time, in the 90s, we had a lot of rain. I could see rainbows in the water in the backyard. You know what I'm talking about?

PETE MANNINO: Yeah, that could just -- and again, not knowing the composition, that could just be organic material from your yard and not related to anything else.

NORM DEGROFF: Just saying.

PETE MANNINO: Yeah, no, yeah.

STANLEY WESLEY: My name is Stanley Wesley, I live Olean, New York. You're talking about groundwater and along the railroad tracks and that, there's two little -- there's a creek that follows down and dumps in and goes under. Is there any chance of getting those cleaned out so the water moves faster? And -- do you

know what I'm saying? Because --

PETE MANNINO: Yeah, so that you would have to speak to your local representatives, local government to see what they can do and maybe they can solve that, but that is outside of our purview. We wouldn't clean out creeks or water bodies.

STANLEY WESLEY: And I was curious; you put the big ditch back in by the tracks, have you been -- I take it you would want the body of water, has that made any difference since you put it in for your sampling or that? Is the sampling improving?

PETE MANNINO: So are you talking about the ditch in the back where the fields -- from the water from the former operations at the plant gets discharged to --

STANLEY WESLEY: Yeah. No, I put the trench in across that, following the railroad tracks, basically, and that. I believe you were going to fill it with organic and I think there was some kind

of mud you would use.

PETE MANNINO: Oh, my apologies. So you're talking about the hydraulic trench that was installed along the KAVX properties as part of what we call the OU2 Record of Decision. Yes, so the hydraulic trench was installed. I believe that work was completed in the -- about a year ago. We are receiving data from KAVX with respect to the treated water after it gets pulled out, it goes to the treatment plant and then it gets discharged. So where, you know, construction is complete, we're monitoring the data that's collected and that's going to be a system that operates for quite some time.

STANLEY WESLEY: I was just wondering if you had any facts, you know, or figures saying, "Oh, it was here and now it's down here. It's actually doing it's job," or anything?

PETE MANNINO: So I don't have any data off the top of my head that I can share with you.

STANLEY WESLEY: That's fine.

PETE MANNINO: What we typically do is after a system like that is constructed, we monitor the data for a year, monitor the operation and then make a decision of whether or not the system is operating and functioning as it was intended, and then it goes to the next phase of work, which is basically, you know, long term operation and maintenance, but that's just us moving the project from, you know, one phase to the next phase.

STANLEY WESLEY: I was just wondering.

PETE MANNINO: Yeah.

STANLEY WESLEY: I was curious. I mean, I walked down there and watched them digging it and it was a deep hole.

PETE MANNINO: Yep.

STANLEY WESLEY: And I have one other question. It's off of AVX, though. It's not that, but you were doing Alcas and you had that new O3 box underneath it?

PETE MANNINO: Yeah.

STANLEY WESLEY: Now, there was a canal that ran in the back of Alcas -- it ran back from Alcas and basically, the railroad tracks followed the canal. Now when I was a child, I lived on Grossman Avenue and AVX -- or not -- excuse me. Alcas dumped all kinds of stuff in that canal. When we were kids, we used to crawl in that stuff looking for knives and that -- I don't know if you guys are thinking of testing there or have tested that canal to see what's in there and if it's worth removing or no.

PETE MANNINO: So I am not familiar with the use of the canal when it comes to the Alcas property, but after the meeting, maybe we can pull up a figure and you can kind of show us exactly the area that you're talking about. That would be helpful, but what I can tell you now, you know, as it relates to this meeting is that, you know, there's been extensive sampling done on the Alcas

property. We identified the areas that there was soil contamination and there was some in-situ treatment technologies used to address that contamination. There's some groundwater contamination, not soil, that is still being addressed and some of that is on the Alcas property and some of that is on the adjoining parcels; we can call them Parcel B or Operable Unit 3 and that work there for the in-situ treatment and the groundwater is -- either has begun or is scheduled to begin again at some point.

MAEVE WURTZ: Yeah, it's scheduled for the next few months.

PETE MANNINO: Next few months, yeah. Definitely, I'd like to talk to you offline after this meeting and maybe talk a figure so you'd just kind of point me to the area, and then we can go back and kind of take a closer look at what data, if any, was collected in that area.

NORM DEGROFF: The old city map

where the Shawmut Railroad came through there over on the same side as the canal.

PETE MANNINO: Okay.

STANLEY WESLEY: The canal would be on the southern side. When they built the Reading Railroad, they built it on the side of the canal. I lived on -- I live in Grossman Avenue, right in the back of it, basically.

NORM DEGROFF: I think that's all filled in now.

STANLEY WESLEY: It's all filled in, but I mean, you know, like I said, when we were kids, we used to crawl around in the stuff looking for knives and that and then there's that and, you know, there's a backdoor there and stuff came out and it went in the canal.

NORM DEGROFF: It's pretty much behind the building.

STANLEY WESLEY: Yes, as a matter of fact, some of their new buildings would be on top of that canal.

NORM DEGROFF: Right up to it. I

mean, they kind of built around it earlier at one time on an angle.

STANLEY WESLEY: Those are all the questions I have. Thank you.

MICHAEL BASILE: Does anyone else have a question?

NORM DEGROFF: One more.

MICHAEL BASILE: Yes, sir?

NORM DEGROFF: On the 28th, you're going to decide how to take care of the AVX; is that what you're saying?

PETE MANNINO: No.

NORM DEGROFF: Or after the 28th?

MAEVE WURTZ: Yes.

PETE MANNINO: Yes.

MAEVE WURTZ: Yeah, right, that's the end of the public comment period so then we finalize our cleanup plan and release the Record of Decision.

NORM DEGROFF: And it's most likely Number 3, right?

MAEVE WURTZ: That's EPA's preferred alternative, yes.

PETE MANNINO: We have to wait and see -- for the public commentaries to

end to see what the totality of the comments are and use that in our decision-making process to see whether or not the selected -- the preferred alternative that Maeve presented will actually be the selected remedy or if there's any modifications based on public comment.

RICHARD WEBER: Will there be another meeting before they start this?

PETE MANNINO: No.

MICHAEL BASILE: Once the comments close, as Pete indicated on August 28th, we will review all the comments and then we'll issue a Record of Decision. That Record of Decision will most likely be signed by the 30th of September and we will have a press-release that will go out that will explain to the public that the Record of Decision has now been signed.

RICHARD WEBER: Thank you.

PETE MANNINO: We will also place a copy of that Record of Decision on the website that Maeve has there and this is

also on community updates and so you can check there and before any construction starts, we would also announce the start of construction.

MICHAEL BASILE: Thank you for taking the time. If you have any other questions, we will be here for a while and we hope you have a great remainder of your summer and remember: The deadline for public comments is August 28th. Have a great evening.

MAEVE WURTZ: Thanks, everyone.

(Proceedings concluded.)

CERTIFICATION:

I hereby certify that the proceedings and evidence are contained fully and accurately in the notes taken by me on the above cause and that this is a correct transcript of the same to the best of my ability.

_____

CARMEN A. NASCA

ATTACHMENT D

WRITTEN COMMENTS

From: Patrick Vecchio [redacted]
Date: July 27, 2023 at 9:36:36 PM EDT
To: "Basile, Michael" <Basile.Michael@epa.gov>
Subject: Olean well field Superfund

Good evening, Mike.

In looking at the EPA website about the Olean Well Field Superfund site, I found this sentence in the "site background":

The Allegheny River and two of its tributaries, the Olean and Haskell creeks, flow through the site.

The map on the website, though, does not show the Haskell Creek within the boundaries of OU1. This is of interest to me because I live between the map's eastern boundary for OU1 and the Haskell Creek. Haskell Creek is perhaps a quarter mile from my house.

It seems to me that either the sentence in the site background or the map boundary is incorrect, which leads me to ask this question: Is it possible my private water well is drawing water that has been polluted by the PRPs? If the answer is "yes," then what should I do? The well is my sole source of water.

Thank you for your attention to my question.

Patrick Vecchio

[redacted]