PROPOSED REMEDIAL ACTION PLAN

Al Tech Specialty Steel
Operable Unit Number 01: Main Plant Area (MPA) &
Non-Landfill Portion of WMA
Operable Unit Number 04: Kromma Kill on the MPA and
Adjacent Upland Soils
State Superfund Project
Watervliet, Albany County
Site No. 401003
January 2019

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

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

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Watervliet, Albany County
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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment. The New York State Hazardous Waste Management Program (also known as the RCRA Program) requires corrective action for releases of hazardous waste and hazardous constituents to the environment. This facility is subject to both of these two programs and this document meets the RCRA program requirements for the draft Statement of Basis.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Parts 373 (RCRA) and 375 (State Superfund). This document serves as the RCRA Program draft Statement of Basis for the corrective action(s) completed at the site, as well as the State Superfund PRAP.

This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repository:

Watervliet Public Library
Attn: Librarian
1501 Broadway
Watervliet, NY 12189
Phone: (518) 274-4471

A public comment period has been set from:

January 3 to February 2, 2019

A public meeting is scheduled for the following date:

January 22, 2019 at 7:00 PM

Public meeting location:

Watervliet Senior Center
1501 Broadway
Watervliet, NY 12189

At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP.

Written comments may also be sent to:

Ruth Curley
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7016
ruth.curley@dec.ny.gov

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed remedy identified herein. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

Receive Site Citizen Participation Information By Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

LOCATION: The Al Tech Specialty Steel site lies in an industrial area in the town of Colonie, NY. The Al Tech Main Plant Area (MPA) spans the area between Lincoln Ave and Spring Street Road while the Al Tech Waste Management Area (WMA) is situated on a hillside along Spring Street Road. Other former industrial facilities are also located in the immediate vicinity including the former Delaware and Hudson Rail Yard and the former Adirondack Steel and Casting Corporation. Construction of a housing development to the west of the WMA was initiated in 2001.

SITE FEATURES: The MPA encompasses 68 acres and consists of eight large, empty and unused remaining buildings, roadways, concrete foundation slabs and former industrial waste disposal areas, which comprise the former manufacturing plant. Pioneer plant species are beginning to reclaim some portions of the property which have only a soil cover. The Kromma Kill flows along significant lengths of the north and the east sides of the MPA. The Hudson River is approximately one mile downstream from the MPA. Chain link fencing was installed around the entire MPA while the plant was in operation. The fencing has been maintained by the Department, however evidence of trespassing is readily apparent. Warning signs have been placed on the fencing around both the MPA and WMA stating that the property is a “Hazardous Area” and that trespassing is prohibited pursuant to the Environmental Conservation Law.

The WMA is comprised of 31 acres including a 12-acre Hazardous Waste Landfill. The remaining property contains wooded areas, former parking facilities and the unoccupied leachate storage building. Fencing is currently in-place on the eastern, southern, and western property boundaries and the Kromma Kill to the north. The landfill is surrounded entirely by chain link fencing and two locked gates. On the WMA, the Kromma Kill overlies the north and east boundaries with an unnamed tributary to the Kromma Kill originating on the south side of the landfill. Two unpaved roads are maintained to provide access to the landfill for inspection and maintenance. A second inactive hazardous waste disposal site, Former Bearoff Metallurgical, Site 401069, is adjacent to the south of the landfill.

CURRENT ZONING AND LAND USE: The MPA is zoned “Industrial” while the WMA is comprised of one area to the west zoned “Single Family Residential” and one area to the east zoned “Industrial.” The entire property is vacant of active commercial or industrial activities.

PAST USE OF THE SITE: The properties have been utilized solely for the production and activities associated with the production of stainless steel. Development of the property for this purpose began in 1910. Potential polluting activities from the manufacture of stainless steel include disposal of coal ash from early furnaces, storage and distribution of fuel oil, storage and use of various acids for pickling of steel products, use of PCB-containing electrical equipment such as transformers and capacitors on site, and generation of chromium-containing electric arc furnace (EAF) dust. To a lesser extent, paints, thinners, solvents, lubricants and other chemicals were used in the facility support activities such as equipment and vehicle maintenance as well as general facility maintenance.

While the facility was operating, several areas of the facility on both the MPA and WMA were the subjects of remedial actions taken under the Resource Conservation and Recovery (RCRA) program. Those remedial actions are detailed in the following paragraphs.

RCRA Facility Investigation (RFI): An extensive RFI was performed throughout the 1990s. The RFI identified various areas of concern (AOCs) at the facility. AOCs that were identified and are being, or have been, addressed under the State Superfund program, include the South Lagoon, transformer areas, and maintenance activities at the WMA. The following AOCs were addressed under RCRA:

Waste Acid Pits: Two in-ground, brick-lined pits were constructed in the central-eastern part of the MPA and were used to store spent sulfuric, hydrofluoric and nitric acids prior to on-site treatment. The pits leaked, consequently their use was discontinued. Sampling revealed that surrounding groundwater over an area of approximately one half-acre was contaminated with several heavy metals and exhibited low pH (acidic) characteristics. A groundwater recovery system was installed to pump groundwater to the on-site treatment plant. The system operated for approximately eight years, until groundwater data indicated recovery and treatment was no longer necessary. The wastewater treatment plant was decommissioned in 2004. Decommissioning included closure of the waste acid pits. Results from biannual groundwater monitoring indicate that pH has returned to neutral conditions and the metals concentrations have decreased to nearly background levels. Monitoring continues in this area to verify this trend.

The Hazardous Waste Landfill: This landfill formerly consisted of approximately 19 acres and was located in the western half of the WMA. A holding basin in the northwest part of the landfill received EAF dust, a federally listed hazardous waste (K061), from the 1970s to 1980, and the landfill also received lime stabilized waste pickle liquor sludge from 1972 to 1990. Leachate was collected in a surface impoundment at the southern end of the landfill from 1978 to 1988, and was treated at the facility's wastewater treatment plant. After 1988, the surface impoundment was replaced by two leachate collection tanks. Analysis of sludge and sediment samples taken from a stream adjacent to the landfill in 1990 failed the Toxicity Characteristic Leaching Protocol (TCLP) for chromium, indicating that it was a hazardous waste. Al Tech completed an Interim Remedial Measure (IRM) at the landfill under a 1992 Consent Order. The IRM work involved removing materials from the north face of the landfill, stabilizing the slope, and routing leachate to the wastewater treatment plant. From 2000 to 2003, a stainless steel metal reclamation project was completed to remove valuable metals from the landfill. The remaining waste materials were consolidated into a 12-acre area which is now known as the Hazardous Waste Landfill. From 2003 to 2004 the 12-acre Hazardous Waste Landfill was closed with a Department approved cap conforming to 6NYCRR Part 360 requirements.

A large petroleum spill (Spill ID 8800821) was also identified while the facility was actively producing stainless steel. The Department required Al Tech to install a petroleum recovery system to decrease the quantity of fuel oil present on-site. The oil was located ten feet below ground surface floating on the water table and covered approximately 15 acres. The recovery system was located approximately in the center of the MPA, was in operation for fifteen years and collected approximately 55,000 gallons of fuel oil that had been spilled from the fuel oil distribution lines. The automated recovery system was shut down once recovery of the petroleum became highly inefficient and because it was primarily collecting groundwater. The spill remains open and manual recovery and gauging occurs monthly.

Additional remedial actions completed at the site are presented in Section 6 of this document.

OPERABLE UNITS: The site is divided into four operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

Operable Unit 1 (OU 01) includes the entire MPA and the non-landfill portion of the WMA

Operable Unit 2 (OU 02) includes the 12-acre hazardous waste landfill and supporting infrastructure (roads and leachate collection building) located in the WMA.

Operable Unit 3 (OU 03) includes the on-site structures, which are located on the OU 01 Main Plant Area

Operable Unit 4 (OU 04) includes the Kromma Kill on the Main Plant Area (MPA) and adjacent upland soils

Operable Unit 5 (OU 05) includes the Kromma Kill Adjacent to the WMA, Off-Site to the Hudson River and the un-named Southern Boundary Stream

SITE GEOLOGY AND HYDROGEOLOGY: The site is mostly flat and is situated on layers of fill, alluvial sediments, clay till and bedrock (Snake Hill Shale). Bedrock is found between 1 to 42 feet below ground surface (bgs). There are two groundwater bearing zones, overburden and bedrock. The first continuous water-bearing zone can be as shallow as 5 feet bgs but typically is about 10 to 15 feet bgs. The groundwater flow direction in both zones is to the east towards the Hudson River.

Operable Unit (OU) Numbers 01 and 04 are the subject of this document.

A Record of Decision was issued previously for OU 02 and 03 in March 2018.

A separate remedial investigation and feasibility study for OU5 will be scoped and developed in the future.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

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

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers. The PRPs identified for this site contributed to a trust fund to address remediation at the property and those funds have been exhausted. No other PRPs have been or are expected to be identified.

Al Tech initially entered into a comprehensive Order on Consent (Index No. R4-1 467-9302) with the Department effective August 4, 1995. The Order established a prioritization schedule for implementing environmental remediation and construction activities at both facilities, and required the establishment of an Environmental Trust Fund (trust fund) to finance these activities. On December 31, 1997, Al Tech fi1ed a petition for reorganization under Title 11, Chapter 11 of the U.S. Bankruptcy Code. The trust fund was established on March 29, 1999. On July 30, 1999, the Bankruptcy Court approved a plan of reorganization (the plan) which organized RealCo to take title to certain real and personal property owned by Al Tech, and to undertake as its primary activity the environmental remediation required at the Watervliet and Dunkirk facilities.

On September 9, 1999 the Department entered into an Order on Consent with RealCo (Index No. A9-0393-9907) to conduct remedial activities at the site. RealCo was allowed to withdraw from the trust fund up to $2,500,000 over a period of five years for the cost of implementing the remedial, compliance and closure activities at both facilities. The five-year period expired on October 27, 2004. The order also stated that in the event the funds in the trust fund are insufficient to perform all of the activities required, the Department will seek to obtain funding from other State funds in an amount necessary to complete all actions the Department deems necessary.

Since 1999, various responsible parties (RealCo - $1,000,000; Allegheny Steel - $2,800,000; ALTX - $1,000,000; Dunkirk Specialty Steel - $1,000,000; and GATX - $8,650,000) contributed $13,650,000 into the trust fund. An additional $2,035,000 was deposited from the sale of RealCo assets and scrap metals. At the time that responsibility for investigation and remediation transferred from the RCRA program to the State Superfund program $15,685,000 had been spent from the trust fund with a balance $1,018,000. The balance remaining in the trust fund was transferred to the New York State General Fund in May 2016 recognizing that the final site remedy would need to be funded by the Superfund program.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

The following general activities are conducted during an RI:

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

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil
- sediment

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

For OU: 01

Chromium	Nickel
Lead	PCBs

For OU: 04

Lead	Chromium
PCBs	Nickel

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

- groundwater
- soil
- sediment
- surface water

6.2: Interim Remedial Measures

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

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

Operable Unit 01B - Petroleum Cutoff Wall: In addition to the petroleum recovery system discussed in Section 3, a cut-off wall was installed along the east edge of the property to prevent oil spilled from a leaky distribution network from entering the Kromma Kill. A membrane cutoff wall and light, non-aqueous phase liquid (LNAPL) recovery wells were installed in 2002. That system was designed to prevent additional petroleum LNAPL beneath the MPA from migrating to the Kromma Kill. Monitoring wells and recovery wells are routinely monitored and bailed to remove LNAPL from the property. The construction of this IRM is detailed in the "LNAPL Cutoff/Collection Trench Construction Completion Report, April 2001."

Operable Unit 01C – PCB-containing transformers removal – In 2005 to 2006 seven transformers containing varying concentrations of PCB dielectric fluid were removed from the site. Through completion of this IRM, approximately 2000 gallons of PCBs were prevented from being released to the environment.

Operable Unit 01D - Miscellaneous Waste Removal: In 2008 various small containers of waste left at the site were collected and disposed of off-site at a permitted facility. Types of waste included laboratory chemicals, bulk acids, compressed gas cylinders, and varieties of lubricating and fuel oils. In 2015, additional tanks were identified that contained various petroleum products, lubricants, acids, and contaminated water. The tanks were pumped out and the fluids reclaimed or disposed off-site.

Operable Unit 01E - South Lagoon Remediation: In 2011, 250 cubic yards of soil from a small (15’ x 20’ x 10’), bottomless oil/water separator were excavated and removed from the MPA due to high concentrations of PCBs. The area was backfilled with clean material to match surrounding grades. The remaining soils meet commercial soil clean up objectives and the imported fill complies with 6NYCRR Part 375 requirements for commercial use. Additional details of this IRM are contained in the “Excavation and Disposal of PCB Contaminated Soils in the South Lagoon Area, December 2011” Construction Completion Report.

Operable Unit 01G – Removal and disposal of PCB contaminated sediments/soil and the API oil/water Separator: A large oil/water separator was used for a short time to treat on-site storm water prior to discharge to the Kromma Kill. The storm water system collected very little oil and the separator was determined to be unnecessary. In 2017, the oil/water separator was cleaned and permanently removed from service. Water was pumped from all four bays and any remaining sediment was removed and properly disposed of off-site. A construction completion report was finalized in May 2018.

Operable Unit 01H – Spent pickling liquors (spent acids containing heavy metal impurities) were pumped into waste acid pits located outside the Pickle Room. The waste acid pits were comprised of two 8' x 15' x 15' deep sections constructed of acid brick and bituminous-coated concrete walls 24" thick with a usable capacity of 18,000 gallons. The pits were operated from 1951 through 1992. The concentrated acid caused a breakdown of the alkaline concrete mixture and, without periodic preventative maintenance, resulted in a heavy metal-containing acid release to the environment. Additionally, acids spilled in the Pickle House were directed to the waste acid pits. Waste from the pits discharged into the waste water treatment plant.

Throughout the IRM, 37.5 million gallons of groundwater was pumped from a one half-acre area adjacent to the Pickle House and piped to the on-site treatment plant. Pumping was discontinued in 2003 and the IRM was terminated in November 2004 after evaluation of groundwater monitoring data (documented in an October 2004 letter report from RealCo.) indicated that metals contamination in this portion of the site had been addressed.

Operable Unit 01I – Tank and Vault Product Removal: Contents of subsurface vaults and various tanks were emptied and then cleaned. The liquid wastes were transferred to DOT-approved containers, transported off-site and disposed of at permitted facilities. The wastes were primarily composed of:

- Approximately 8,000 gallons of oily fluids (petroleum and hydraulic) were recovered;

- Approximately 4,000 gallons of PCB-contaminated liquid and sludge; and
- 250 gallons of metal-contaminated hydrochloric acid.

The removal actions are detailed in a letter completion report dated November 2015.

6.3: Summary of Environmental Assessment

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

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OUs 01 and 04, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

Soil, groundwater, surface water and sediments were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Based upon investigations conducted to date, the primary contaminants of concern for OU1 (Main Plant Area) are metals and PCBs. OU2 (Waste Management Area) is a closed landfill that is being monitored and maintained. The primary contaminant associated with OU3 (On-Site Structures) is PCBs. Based on investigations conducted to date, the primary constituents of concern for OU4 (Kromma Kill) are lead and PCBs.

OU-1 Main Plant Area and the non-landfill portion of the WMA

Soil:
The primary constituents are chromium, nickel, lead and PCBs. The levels were compared to industrial SCOs. Surface soil (less than 3" deep) contains elevated metals and PCBs exceeding industrial soil cleanup objectives (SCOs) over widespread areas of OU-1. The highest concentration was 85,700 parts per million (ppm) for chromium (compared to the SCO of 6800 ppm) and 400 ppm for PCBs (compared to an SCO of 25 ppm).

Sub-surface soil also has generally the same contaminants over widespread areas of the main plant at similar elevated concentrations. In the deeper soil, nickel had the highest concentration (238,000 ppm compared to the industrial SCO of 10,000 ppm), and lead was also elevated (49,200 ppm compared to 3900 ppm SCO). The highest level of sub-surface PCBs was 68 ppm, compared to an SCO of 25 ppm.

In the southwest corner of the site, materials from waste piles may have fallen beyond the perimeter fence. During investigations, concentrations of PCBs in this material did not exceed the residential SCO of 1 ppm. Data does not indicate any other off-site migration of contaminants.

Groundwater:
Overburden and bedrock groundwater were sampled. The maximum concentration of chromium detected was 898 parts per billion (ppb), which exceeds the groundwater standard of 50 ppb.

PCBs (17 ppb max) exceeded the groundwater standard of 0.09 ppb. Light Non Aqueous Phase Liquid (LNAPL) was also found to be present on-site in a limited number of overburden wells (6 out of 54). Fuel oil #2 was found to be present in some wells, based on sampling for total petroleum hydrocarbons (TPH), with a max concentration of 2500 ppb TPH. The LNAPL varies in thickness (up to a maximum of 0.73 ft), and is present in sporadic locations.

Nickel is the only site-related contaminant detected in off-site groundwater at concentrations exceeding the GA standard (100 ppb). The nickel is located in the bedrock aquifer, and concentrations of nickel decreased from 2007 to the last sampling event in 2016 (from 3490 ppb to 520 ppb).

Surface Water:
Surface water, comprising of an un-named stream along the southern site border, was sampled. Chromium was detected in one of three surface water samples, but was below the NYS surface water quality standard.

Sediments:
Sediments on the southern side of the site were sampled. Three samples contained chromium (99.8 to 169 ppm), in excess of the Department's Screening and Assessment of Contaminated Sediments Class A (43 ppm) and Class C (110 ppm) guidance values. A Class C sediment has a high potential to be toxic to aquatic life, while levels below Class A values are considered to present a low risk to aquatic life.

During the RI, limited samples were collected from portions of the existing storm drain system. The samples represent materials that have collected in the storm drain manholes over the operating life of the facility. Elevated levels, in the range of 175,000 ppm nickel, 110,000 ppm chromium, and 26,200 ppm lead have been identified. During the pre-design for the site cover system, future actions regarding the stormwater collection system will be determined.

OU-2 WMA Post-Interim Remedial Measures:

The landfilled hazardous waste at the WMA remains capped to prevent exposure and off-site migration. The Department is implementing an interim site management plan (ISMP) which specifies what actions are necessary to maintain the landfill in a safe and effective manner and how those actions should be undertaken. In conformance with the ISMP, the following activities are undertaken regularly:

- on-going groundwater monitoring is performed to ensure that groundwater is not being adversely affected by the landfill;
- Inspections are performed on the landfill cap, fencing and roads;
- Landfill leachate is collected, stored and transported for treatment; and
- The Leachate Storage Building is maintained as necessary.

Monitoring data indicate that groundwater is not impacted by the landfill, although groundwater in one area of the property contains concentrations of site-related contaminants that periodically exceed groundwater standards.

OU-3 On-Site Structures

Soil: Many of the on-site structures have siding and roofing materials that are coated with a material containing PCBs and asbestos called Galbestos. The coating is deteriorating and separating from the sheet metal and falling to the ground, becoming a source of PCBs to the adjacent soils. Concentrations of the PCBs vary within the Galbestos but data indicate that soils immediately adjacent to the structures are more impacted than soils more distant from the PCB source material. Concentrations of PCBs in the coating range from less than one ppm to 89,000 ppm. Concentration of PCBs in the adjacent soils range from less than one ppm to 370 ppm. The industrial soil cleanup objective is 25 ppm. PCB concentrations greater than 50 ppm are considered a hazardous waste.

There is no off-site migration of contaminants related to the OU-3 on-site structures.

Since OU-3 is located exclusively within the Main Plant Area (OU-1), other media (soil, groundwater, surface water and sediments) and associated contaminant levels are described under OU-1 Main Plant Area.

OU-4 Kromma Kill on the MPA and Adjacent Upland Soils

Groundwater: Groundwater sampling adjacent to the Kromma Kill indicated one detection of PCBs (0.065 ppb), which is below the groundwater standard (0.09 ppb). Six pore water samples adjacent to Kromma Kill also showed one location with elevated lead and PCBs.

Soil: Soils adjacent to the Kromma Kill were investigated, and are described in the RI as part of the OU-1 Site-wide Soils. Generally, soils adjacent to the Kromma Kill contain lead at levels that are higher than lead levels seen at other site areas. It is believed that the soils adjacent to the Kromma Kill consist of fill that was placed during alterations to the Kromma Kill's flow path that occurred prior to site development, possibly associated with railroad operations. The fill contains lead concentrations up to 22,300 ppm; the industrial soil cleanup objective for lead is 3900 ppm, and the ecological soil cleanup objective is 63 ppm. PCBs are also present in these soils in small amounts. The maximum concentration was 10.3 ppm, compared to the industrial soil cleanup objective of 25 ppm, and an ecological soil cleanup objective of 1 ppm.

Surface Water: Kromma Kill surface water adjacent to the MPA was sampled in 2016 during the RI and no exceedances of Class D surface water standards were noted for metals, SVOCs or PCBs. A previous sample from 2014 indicated PCBs at 0.071 ppb versus a surface water standard of 0.000001 ppb. The Kromma Kill north of Spring Street, is routinely sampled for hexavalent chromium, and samples from 2010 contained hexavalent chromium (39 ppb), above the surface water standard of 16 ppb.

Sediments:
Sediments were sampled for VOCs, SVOCs, PCBs and metals. The primary contaminants in the sediments are metals and PCBs. Concentrations of chromium, lead, nickel and PCBs exceed the Class C Sediment Guidance Values. The highest concentration levels were lead (26,200 ppm), chromium (13,600 ppm), nickel (8,000 ppm) and PCB (9.9 ppm). The corresponding Class C

(highly contaminated) sediment levels are 130 ppm (lead,) 110 ppm (chromium) 49 ppm (nickel), and 1 ppm (PCBs). The Class A sediment guidance values are 36 ppm (lead), 43 ppm (chromium), 23 ppm nickel and 0.1 ppm (PCBs)

6.4: Summary of Human Exposure Pathways

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

The site is fenced which restricts public access; however, trespassing is occurring and persons who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not currently represent a concern. Environmental sampling indicates soil vapor intrusion is not a concern for off-site buildings. People using the creek for recreational purposes may come into direct contact with site-related contaminants both in surface water and shallow creek sediments.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Surface Water

RAOs for Public Health Protection

- Prevent ingestion of water impacted by contaminants
- Prevent contact or inhalation of contaminants from impacted water bodies
- Prevent surface water contamination which may result in fish advisories

RAOs for Environmental Protection

- Restore surface water to ambient water quality criteria for the contaminant of concern.
- Prevent impacts to biota from ingestion/direct contact with surface water causing toxicity or impacts from bioaccumulation through the aquatic food chain.

Sediment

RAOs for Public Health Protection

- Prevent direct contact with contaminated sediments.

RAOs for Environmental Protection

- Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of ambient water quality criteria.
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the aquatic food chain.
- Restore sediments to pre-release/background conditions to the extent feasible.

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

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

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

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

For OU 01: Main Plant and Non-Landfill portion of WMA, the proposed remedy is referred to as the PCB Contaminated Soil Excavation & Off-Site Disposal, Site-Wide Cover System and Long Term Groundwater Monitoring remedy.

The estimated present worth cost to implement the remedy is $ 13,700,000. The cost to construct the remedy is estimated to be $13,000,000 and the estimated average annual cost is $23,000.

The elements of the proposed remedy are as follows:

Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

1. Excavation

Excavation and off-site disposal of contaminant source areas, including:

- Soil and concrete containing PCBs in excess of 25 ppm;
- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soil with visual waste material or non-aqueous phase liquid (NAPL);

This includes areas in the vicinity of former transformers, building floors, transformer/machinery pads, and test pits in the scrap metal storage area. It is estimated that 6030 CY of soil will be excavated. Of that, 1540 CY of soil will exceed the TSCA threshold of 50 ppm for PCBs, and the remainder will be between 25 ppm and 50 ppm PCBs. If feasible, portions of the areas where

LNAPL is present may be excavated to shorten the duration of the LNAPL long-term monitoring and removal.

2. Backfill

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 3 to backfill the excavation to the extent that a sufficient volume of on-site soil is available and to establish the designed grades at the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

3. Cover System

A site cover will be required to allow for industrial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs. It is estimated that the site cover system for the MPA will cover approximately 60 acres.

4. Institutional Control

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

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

5. Site Management Plan

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

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

Institutional Controls: The environmental easement discussed in Paragraph 4 above.

Engineering Controls: The cover system discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater and surface water use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper one foot of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification;
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls; and
- Continued passive remediation of the on-site LNAPL plumes.

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

- monitoring of groundwater and surface water to assess the performance and effectiveness of the remedy; and
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

For OU 04: For the Kromma Kill on the MPA and Adjacent Upland Soils, the proposed remedy is referred to as the Contaminated Soil/Sediment Excavation, On-Site Stabilization & Disposal, Site Cover System and Long-term Monitoring remedy.

The estimated present worth cost to implement the remedy is $2,830,000. The cost to construct the remedy is estimated to be $2,830,000 and the estimated average annual cost is $0.

The elements of the proposed remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation of Soil and Sediment

Excavation and on-site treatment and disposal of contaminant source areas, as described below, including soils located along the Kromma Kill. These areas are comprised of fill material that contains lead in excess of the hazardous waste criteria, and that also contains PCBs, chromium and nickel. Approximately 4100 CY of soils are expected to be removed to an estimated depth of 10 feet. The soils and the contaminated sediment excavation areas are shown on Figure 3. Pre-design studies will be conducted to address soils on the eastern bank and more fully characterize soils below the mean high water (MHW) level. Soils below MHW level will be excavated to attain the ecological soil cleanup objectives. Above the MHW, remaining contaminated soils will be stabilized or covered to prevent impacts to the Kromma Kill.

Excavation and disposal of 6190 CY of Kromma Kill sediments containing contaminants greater than the Class A SGV is planned. These sediments will be excavated, stockpiled, and dewatered prior to disposal. It is estimated that approximately 1540 CY of sediment will be characterized as hazardous waste due to lead concentrations. The remaining 4650 CY of sediment will be disposed of on-site.

3. Ex-situ Stabilization; On-site disposal

Ex-situ stabilization will be implemented to treat soil and sediments along and within the Kromma Kill that contain metals above industrial soil cleanup objectives (including lead that in some cases, exceeds the TCLP limit of 5 ppm for hazardous waste disposal). An estimated 4100 CY of soils and 1540 CY of sediments will be treated to address lead contamination. Ex-situ stabilization is a process that mixes agents with contaminated soil to physically or chemically modify the material to allow it to meet remedial goals, allowing it to be placed back on-site. Under this process the contaminated soil will be excavated and mixed in a temporary mixing facility (i.e., pug mill, mixer, etc.) with solidifying or stabilizing agents to address lead concentrations that exceed industrial soil cleanup objectives. The treated soil will then be covered with a cover system described in element 5 to prevent direct exposure.

4. Backfill

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 5 to backfill the excavation to the extent that a sufficient volume of on-site soil is available and to establish the designed grades at the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

5. Cover System

A site cover will be required to allow for industrial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). For soils adjacent to surface water, above the mean high water level, remaining contaminated soils will be stabilized or covered to prevent impacts to the Kromma Kill. Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

6. Restoration of Dredged Areas

Stream bed bathymetry and topography will be restored with appropriate stream bed material. If present, submerged aquatic vegetation in the remediation area will also be restored. Sediment traps will be constructed at the base of on-site tributaries to the Kromma Kill. The design will include a monitoring plan for areas disturbed by the remedy and all activities will be consistent with the requirements of 6 NYCRR Part 608.

7. Institutional Control

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

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

8. Site Management Plan

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

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

Institutional Controls: The environmental easement discussed in Paragraph 7 above.

Engineering Controls: The cover system discussed in Paragraph 5 and the sediment trap in Paragraph 6 above.

This plan includes, but may not be limited to:

- o an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- o descriptions of the provisions of the environmental easement including any land use, and groundwater and surface water use restrictions;

- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

- monitoring of surface water and sediments (including sediment traps) to assess the performance and effectiveness of the remedy;

Exhibit A
OU-01 – Main Plant Area (MPA) &
Non-Landfill Portion of the Waste Management Area (WMA)

Nature and Extent of Contamination

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

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

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site and are impacting soil and groundwater.

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and Source areas were identified at the site include PCB Hot Spots, areas of LNAPL in groundwater, and soils located east of the leachate collection building on the north side of Spring Street.

PCB Hot Spots: The PCB hot spots are locations where the PCB concentration in soil exceeds 50 ppm. Hot spots are located in the scrap metal storage area at the south end of the site (2 locations) and near former transformer locations. In the scrap metal storage area, shallow test pits indicated several samples where PCBs exceed 50 ppm, with a maximum concentration of 366 ppm. The soil adjacent to former transformer locations indicated PCBs in shallow soil that exceed 50 ppm. Deeper soil contained lower concentrations of PCBs. The transformers were previously removed as part of an IRM described in Section 6.2. The total volume of soil > 50 ppm is estimated to be 1400 CY.

PCBs detected along building perimeters are associated with deteriorating Galbestos building materials from site buildings. PCBs detected in building floors are associated with unidentified former activities, likely including leaks from former site machinery or vandalism. As noted in the FS, these hot spot locations are smaller and about 10% of the volume of the scrap metal storage area and transformer area hot spots.

LNAPL: Light non-aqueous phase liquid (LNAPL) exists in several areas across the site. LNAPL is present in isolated areas in the Scrap Metal Storage Area Region, the Extrusion Region, and along Lincoln Avenue near the Kromma Kill in the Rolling Mill Region. Larger areas of LNAPL associated with the underground fuel distribution line are located in the Rolling Mill Region. The areas of LNAPL that are not near the fuel line may be indicative of what remains from formerly larger LNAPL areas that have partially attenuated, or may be due to other leaks/spills from trucks or machinery in parking lots or roadways at the site. It is possible that LNAPL may exist under site buildings that have not been investigated.

Soils: Debris piles north of the leachate collection building and soils east of the building contain metals in the top two feet that exceed industrial SCOs, particularly chromium and nickel. The maximum chromium level is 85,700 ppm and the maximum nickel level is 84,700 ppm. As described below, one well downgradient of these soils has elevated groundwater levels exceeding the Class GA groundwater standards for chromium and hexavalent chromium. These debris piles and contaminated soils are most likely related to past waste management practices.

The waste/source areas identified will be addressed in the remedy selection process.

Groundwater

An extensive groundwater characterization has taken place at the site. Seventy-one overburden on-site wells and 11 bedrock wells were installed and sampled during the course of the RI. Based on the extensive data, groundwater sampling on the Main Plant Area (MPA) was discontinued after 2016. During the last sampling event in 2016, 29 shallow and 8 bedrock wells were sampled in the MPA.

In the MPA, the most-common site-related metals detected in the groundwater are chromium, hexavalent chromium and nickel. Chromium and hexavalent chromium levels are highest in the Scrap Metal Storage Area, but only one well (MW-1) exceeds groundwater standards. The level of chromium is 300 ppb and the level of hexavalent chromium is 290 ppb, compared to a standard of 50 ppb for both. Nickel is found above groundwater standards at 230 ppb (GA standard of 100 ppb) in the center of the site (the Rolling Mill Region) and in bedrock well downgradient of the waste acid pits, near the east side of the site. The maximum level of nickel in bedrock wells is 520 ppb. Other metals found in site groundwater include barium and molybdenum.

As shown in Figure 2, LNAPL is present in groundwater in multiple, isolated areas. A portion of the LNAPL is believed to be related to an underground fuel distribution line in the center portion of the site and may be related to spills or other oils associated with manufacturing equipment. Fuel-related volatile organic compounds are found in limited quantities in a dissolved phase in some groundwater wells.

There is an area of chlorobenzenes in groundwater in the southeastern area of the site within the scrap metal storage area. Contaminated soils were identified by test pits, and removed from site in 2013. Concentrations of chlorobenzenes were reduced, but continue to exceed groundwater standards. Within the MPA, PCBs have been found in eight wells; two of these located in the scrap metal storage area have contained PCBs in multiple sampling events over multiple years. The highest level of PCB in groundwater is 17 ppb, which exceeds the groundwater standard of 0.09 ppb. However, this result is anomalous, since the other detectable PCBs in groundwater are in the range of 0.036 to 0.61 ppb. Removal of some PCB source material within this portion of the site has occurred, although there are some remaining source areas that will be addressed by the remedy. As described in the Feasibility Study (FS), the MPA is underlain by a clay layer that limits contaminant migration, and minimal groundwater contamination appears to have migrated off-site.

Inorganic compounds sodium, iron, manganese and magnesium are found in shallow and bedrock groundwater and are not related to site operations.

North of Spring Street, adjacent to the leachate collection building, groundwater monitoring routinely occurs as part of the interim site management of the hazardous waste landfill. One well east of the leachate collection building exceeds groundwater standards for chromium and hexavalent chromium. The levels in this well are 350 ppb for chromium and 340 ppb for hexavalent chromium. The Class GA standard for both is 50 ppb.

Table 1- Groundwater

Detected Constituents	Concentration Range Detected (ppb)	SCG (ppb)	Frequency Exceeding SCG
VOCs			
1,2,3-Trichlorobenzene	0.81 - 51	5	4/156
1,2,4-Trichlorobenzene	0.42 - 390	5	11/199
1,2-Dichlorobenzene	0.5 - 46	3	8/199
1,3-Dichlorobenzene	1 - 320	3	15/199
1,4-Dichlorobenzene	3 - 420	3	16/199
Acetone	5 - 89	50	1/143
Benzene	0.46 - 15	1	4/199
Chlorobenzene	0.99 - 410	5	13/199
Isopropylbenzene	0.86 - 8.2	5	6/199
Methyl Tertbutyl Ether	0.16 - 16	10	2/199
Propylbenzene	2 - 8.3	5	2/123
sec-Butylbenzene	0.69 - 5.7	5	1/123
Vinyl chloride	0.55 - 2	2	1/199
SVOCs			
1,2,4-Trichlorobenzene	120 - 190	5	2/65
1,2-Dichlorobenzene	24 - 24	3	2/65
1,3-Dichlorobenzene	190 - 220	3	2/65
1,4-Dichlorobenzene	260 - 320	3	2/65
2,4-Dimethylphenol	0.8 - 1	1	1/171
Bis(2-Ethylhexyl)phthalate	2 - 8.8	5	1/171
Nitrobenzene	1 - 1	0.4	1/171
Phenol	0.56 - 4.8	1	5/171
Total Metals			
Antimony	3.9 - 30	3	6/206
Arsenic	3.4 - 15500	25	4/267
Barium	12.2 - 7130	1000	37/273
Chromium	0.69 - 898	50	23/295
Chromium, Hexavalent	5.6 - 710	50	24/255
Iron	23 - 57900	300	99/203
Magnesium	30.9 - 136000	35000	35/203

Manganese	0.39 - 14400	300	139/234
Nickel	0.95 - 1650	100	13/289
Selenium	9 - 514	10	59/234
Sodium	1140 - 1900000	20000	182/203
Thallium	0.094 - 5.3	0.5	2/203
Dissolved Metals			
Barium	69 - 1400	1000	6/13
Iron	142 - 18700	300	3/10
Magnesium	700 - 36700	35000	2/10
Manganese	1.8 - 9000	300	4/13
Sodium	10800 - 187000	20000	7/10
Anions			
Fluoride	110 - 20000	1500	35/74
Nitrate as N	21 - 11000	10000	1/77
Sulfate	890 - 527000	250000	9/77
Pesticides/Herbicides			
Alpha-BHC	0.01 - 0.21	0.01	3/15
Beta-BHC	0.12 - 0.24	0.04	2/15
Delta-BHC	0.015 - 0.1	0.04	1/15
Gamma-BHC/Lindane	0.012 - 0.1	0.05	1/15
Total PCBs			
Aroclor-1242	0.043-0.15	0.09	2/240
Aroclor-1248	0.25	0.09	1/240
Aroclor-1254	0.036 - 0.29	0.09	8/240
Aroclor-1260	0.031 - 17	0.09	7/240
PCB (total)	0.036 - 17	0.09	18/240
Dissolved PCBs			
Aroclor-1254	0.18 - 0.18	0.09	1/3
Aroclor-1260	0.2 - 0.2	0.09	1/3
PCB (total)	0.18 - 0.2	0.09	2/3

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

The primary groundwater contaminants are metals, petroleum compounds in the form of LNAPL and PCBs. The primary groundwater contamination is associated with the former underground fuel distribution system, and metals suspended or dissolved within groundwater and PCBs.

Based on the findings of the RI, past site activities have resulted in the contamination of groundwater. The contamination is limited by a clay layer in part of the site and the groundwater contamination is not migrating off-site.

Soil

Soils were evaluated at the site using test pits, soil borings and surface sampling techniques. Soils were assessed in three different depths: surficial (0-2 inches), shallow sub-surface (0.2-2 feet) and sub-surface (greater than 2 feet). Samples were analyzed for VOCs, SVOCs, metals, PCBs, and pesticides.

In the Main Plant Area, the PCB hot spots are located in the scrap metal storage area, near former transformer locations and on concrete floors within some of the buildings. The highest PCB levels are found in the top foot of soil. The highest PCB concentration detected is 400 ppm. Deeper soil contained lower concentrations of PCBs. PCB transformers, and areas of higher PCB concentrations in soil and solids were previously removed by IRMs described in Section 6.2.

Metals have been detected at all soil sampling depths exceeding the industrial soil cleanup objective (SCO) at the Main Plant Area and across Spring Street in the area surrounding the leachate collection building. The results of the sampling are presented in the RI, the WMA Data Gap Report and the Scrap Metal Storage Area Data Gap Report. A summary table of exceedances is presented below.

Table 2 - SOIL

Detected Constituents	Concentration Range Detected (ppm)	Industrial SCG (ppm)	Frequency Exceeding SCG
SVOCs			
Benzo(a)anthracene	0.0073 - 21	11	1/249
Benzo(a)pyrene	0.0072 - 20	1.1	4/249
Benzo(b)fluoranthene	0.0057 - 24	11	1/249
Indeno(1,2,3-cd)pyrene	0.0065 - 12	11	1/249
Total Metals			
Arsenic	0.94 - 326	16	29/276
Chromium	7.1 - 85700	6800	60/297
Chromium, Trivalent	7.1 - 85671.4	6800	49/249
Lead	5.1 - 49200	3900	2/306
Manganese	88.2 - 14900	10000	4/284
Nickel	9.4 - 238000	10000	37/284
Zinc	4.2 - 10100	10000	1/284
Total PCBs			
Aroclor-1242	0.075 - 110	25	1/1008
Aroclor-1248	0.051 - 40.2	25	1/1008
Aroclor-1254	0.027 - 110	25	4/1008
Aroclor-1260	0.017 - 120	25	11/1008
Aroclor-1268	0.014 - 400	25	5/928
PCB (total)	0.014 - 400	25	25/1008

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Industrial Use, unless otherwise noted.

Based on the findings of the Remedial Investigation, past site operations have results in the contamination of soil exceeding the industrial SCO. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are PCBs and metals primarily chromium and nickel.

Surface Water

Surface water on the OU1 portion of the site (which excludes OU04, the Kromma Kill) is limited. An unnamed stream runs along the southern border of the site, and intermittently receives drainage from a wet area on site, depending on precipitation. The stream was sampled during the RI. Chromium was detected in one of three surface water samples, but was below the NYS surface water quality standard. The results indicate that contaminants in surface water at the site were mostly not detected, or if detected, were significantly below the SCGs.

Table 3 - Surface Water

Detected Constituents	Concentration Range Detected (ppb)[a]	Class D Standard or Guidance Value[b,c] (ppb)	Frequency Exceeding SCG
Total Metals			
Chromium	<0.64 -75.3	*	0/3

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b-SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6 NYCRR Part 703: Surface Water and Groundwater Quality Standards.
c- surface water standard for the metals noted with a * is calculated based on the hardness of the water.

No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

Sediment concentrations are compared to the Department's Screening and Assessment of Contaminated Sediment, June 2014. Sediments are segregated into 3 different classes: Class A (low risk to aquatic life), Class B (slight to moderate contamination), & Class C (highly contaminated and likely to pose a risk to aquatic life).

Sediments were sampled in the un-named stream on the southern property boundary. Chromium was detected in the sediments; however hexavalent chromium was not. The concentration range indicates chromium in sediments exceeds the Class B level (43 ppm) and the Class C level (110 ppm).

Table 4 - Sediments

Detected Constituents	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Frequency Exceeding SCG
Total Metals			
Chromium	99.8 - 169	43	3/3

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment;
b- SCG: The Department's Technical Guidance for Screening Contaminated Sediments. The Class B (slightly to moderately contaminated) level for freshwater sediment is shown.

Minor site-related sediment contamination was identified during the RI. Therefore, no remedial alternatives need to be evaluated for sediments.

Soil Vapor

Soil vapor was not evaluated at this site. The primary site contaminants are metals and PCBs, which are not volatile. In addition, there are no pathways at the site, due to the lack of either occupied buildings or heated, weather-tight buildings at the site. Therefore, no remedial alternatives need to be evaluated for soil vapor.

Exhibit A

OU-04 – Kromma Kill on the MPA and Adjacent Upland Soils

Nature and Extent of Contamination

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

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

Waste/Source Areas

As described in the RI report, waste/source materials were identified at this OU, and are impacting the upland soils.

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. A source area was identified on the west side of the Kromma Kill in the northeast corner of the Main Plant Area.

Analytical and field data indicate an area of contaminated fill along the west side of the Kromma Kill in the northeast corner of the site. The Kromma Kill channel in this area appears to have been man-made prior to development of the site. The fill material contains lead levels that exceed industrial SCGs and characteristic hazardous waste limits. These levels of lead are not found at other locations on-site. The extent of the lead-contaminated fill is limited, in that it does not extend west of the existing site roadway. Results are described in the Soil section below.

Groundwater

Groundwater from locations adjacent to the Kromma Kill was sampled for VOCs, SVOCs, PCBs and metals. Metals, including lead, chromium and nickel, are present in groundwater adjacent to the Kromma Kill, but below SCGs. One of ten groundwater samples contained PCBs, but below the groundwater standard. Sodium, iron and manganese exceeded the groundwater standard, but these contaminants are not site-related. A summary table is below.

Six pore water samples from the Kromma Kill sediments were collected to assist in evaluating sources of contamination to the Kromma Kill. One of the six contained PCBs and lead above the groundwater standard. The conclusion was that groundwater and pore water are not significantly contributing to contamination in the Kromma Kill. Pore water samples are not included in the table totals.

TABLE 5 - GROUNDWATER

Detected Constituents	Concentration Range Detected (ppb)	SCG (ppb)	Frequency Exceeding SCG
Total Metals			
Barium	130 - 1610	1000	4/13
Iron	3100 - 5300	300	2/2
Manganese	690 - 1300	300	3/3
Sodium	74200 - 80300	20000	2/2
Dissolved Metals			
Barium	814 - 1210	1000	3/5
Iron	7000 - 7000	300	1/1
Sodium	321000 - 321000	20000	1/1

At OU4, site-related groundwater contamination is limited. Removal of source materials is expected to result in improvements to groundwater conditions. Therefore, no remedial alternatives, other than long term monitoring, were evaluated for groundwater.

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

Soil

Soils on the west bank of the Kromma Kill in the MPA were investigated. Generally, these soils contain lead at levels that are higher than levels seen elsewhere on the site. The extent of these contaminated soils is limited to a narrow strip between the Kromma Kill and the site roadway in the northeast area of the MPA. The soils on the east side of the Kromma Kill in the MPA will be characterized during pre-design studies. It is believed that the soils adjacent to the Kromma Kill consists of fill that was placed during alterations to the Kromma Kill's flow path that occurred prior to site development. The fill contains lead up to 22,300 ppm in a sample taken 3-4 feet below grade. The industrial soil cleanup objective for lead is 3900 ppm. When analyzed for hazardous waste characteristics, three of five soil samples exceeded the TCLP criteria for lead (5 ppm). The maximum lead concentration for samples analyzed with the TCLP method was 246 ppm. Other contaminants include PCBs, chromium and nickel, though the levels are below industrial soil cleanup standards. Overall, the estimated amount of soil that will require management as hazardous waste due to lead concentration is 4100 CY.

TABLE 6 - SOIL

Detected Constituents	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Frequency Exceeding SCG
Total Metals			
Chromium	17.7 - 5250	800	3/5
Lead	8.1 - 22300	3900	2/18

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b -SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Industrial Use, unless otherwise noted.

Based on the findings of the Remedial Investigation, the presence of lead has resulted in the contamination of soil. The primary contaminant of concern, to be addressed by the remedy selection process, is lead.

Surface Water

In the Kromma Kill on the MPA and downstream locations, surface water samples were collected during the RI. The samples were collected to assess the surface water conditions on and off-site. Metals were not detected in Kromma Kill surface water samples above surface water criteria. PCBs were detected at one location in 2014, but were not detected in 2016. The results indicate that site-related contaminants in surface water at the MPA site were not detected, or were significantly below the Department's SCGs.

In the Kromma Kill north of Spring Street, metals were analyzed. Chromium was sampled and detected in 2 of 9 samples, below surface water standards. Hexavalent chromium was sampled and was not detected in the Kromma Kill in 2017. The Kromma Kill north of Spring Street is routinely sampled as part of the OU-02 monitoring program, and the three hexavalent chromium exceedances shown in the table below were all collected during a 2010 sampling event.

Table 7 - Surface Water

Detected Constituents	Concentration Range Detected (ppb)[a]	Standard or Guidance Value[b] (ppb)	Frequency Exceeding SCG[b]
Total Metals			
Chromium, Hexavalent	35 - 39	16	3/54
Iron	71 - 9800	300	6/21
Dissolved Metals			
Iron	14.9 - 514	300	1/42
Thallium	23 - 23	20	1/38

Pesticides/Herbicides			
4,4'-DDD	0.011 - 0.011	0.00008	1/7
4,4'-DDE	0.012 - 0.12	0.000007	2/7
4,4'-DDT	0.011 - 0.011	0.00001	2/7
Delta-BHC	0.013 - 0.014	0.008	3/7
Total PCBs			
Aroclor-1254	0.071 - 0.071	0.000001	1/21
PCB (total)	0.071 - 0.071	0.000001	1/21

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b-SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6 NYCRR Part 703: Surface Water and Groundwater Quality Standards.

No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

The Kromma Kill runs along the north and east perimeter of the closed landfill, which is located north of Spring Street. It crosses under Spring Street and travels southeast, then turns south and continues along the site border until it turns east through a culvert and passes under the adjacent road (Lincoln Ave).

During the RI, Kromma Kill sediments were sampled in two areas: (1) along the stream north of Spring Street, and (2) within the Main Plant Area, from where it crosses under Spring Street, to the area where the Kromma Kill emerges on the east side of Lincoln Ave (approximately 1000 feet).

Sediment concentrations are compared to the Sediment Guidance Values (SGVs) established in the Department's Screening and Assessment of Contaminated Sediment, June 2014. Sediments are segregated into 3 different classes: Class A (no appreciable contamination), Class B (moderate contamination), & Class C (high contamination). Class C is considered to be highly contaminated and likely to pose a risk to aquatic life.

In the Kromma Kill north of Spring Street, metal contamination in sediment is present above Class C levels. The Class C SGV for chromium is 110 ppm and for nickel is 49 ppm. The highest chromium concentration was 424 ppm and the highest nickel concentration was 320 ppm. Although these levels exceed Class C levels, the chromium and nickel values are significantly lower than those found in sediments within the Kromma Kill in the Main Plant Area (MPA).

In the Kromma Kill south of Spring Street and along the northeast corner of the Main Plant Area, sediments were sampled for VOCs, SVOCs, PCBs and metals. The primary contaminants in the sediments are metals and PCBs. Concentrations of chromium, lead, nickel and PCB exceed the Class C SGVs. The highest levels were chromium (13,600 ppm), lead (26,200 ppm), nickel (8,000 ppm) and PCB (9.9 ppm). The Class C levels for these contaminants are 110, 130, 49, and 1 ppm respectively. When analyzed for hazardous waste characteristics, two of three sediment samples exceeded the criteria for TCLP lead (5 ppm).

Table 8 - Sediment

Detected Constituents	Concentration Range Detected (ppm)	SCG (ppm)	Frequency Exceeding SCG
Total Metals			
Arsenic	3.9 - 20.3	10	8/15
Cadmium	0.08 - 2	1	1/15
Chromium	12.3 - 13600	43	14/15
Copper	14 - 642	32	11/15
Lead	13.1 - 26200	36	25/35
Mercury	0.012 - 1.2	0.2	2/15
Nickel	17.8 - 8000	23	14/15
Silver	0.11 - 4.4	1	1/15
Zinc	45.1 - 215	120	3/15
PCBs			
Aroclor-1016	0.56 - 0.56	0.1	1/15
Aroclor-1254	0.2 - 6.9	0.1	3/15
Aroclor-1260	0.13 - 3	0.1	3/15
PCB (total)	0.33 - 9.9	0.1	4/15

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment;
b - SCG: The Department=s ATechnical Guidance for Screening Contaminated Sediments.@ The Class B (slightly to moderately contaminated) level for freshwater sediment is shown. For SVOCs, the Class B criteria for total PAH (polyaromatic hydrocarbons) is shown.

Based on the findings of the Remedial Investigation, the presence of metals in the adjacent site soils has resulted in the contamination of sediment in the Kromma Kill. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of sediment to be addressed by the remedy selection process are lead and PCBs. Chromium, nickel, and copper are also contaminants in the sediments and will be removed by the remedy.

Exhibit B

Description of Remedial Alternatives for OU-01 & OU-04 Combined

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

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 6.2 This alternative leaves the site in its present condition and does not provide any additional protection of the environment. The site would not be suitable for future use and would remain on the Registry of Inactive Hazardous Waste Disposal Sites.

Alternative 2: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include: site-wide excavation of PCB and metals impacted soils, removal of asphalt access roads and concrete-surfaced areas, and excavation of lead contaminated sediments in the Kromma Kill. The remedy includes costs for dewatering excavations during soil removal and treatment of stormwater & groundwater from those excavations as needed to meet discharge/disposal criteria. The Kromma Kill will be diverted during sediment excavation. Water from sediment removal will also be treated on-site. All soils and sediments will be disposed of off-site. Upon removal of all contaminated soil, crusher run gravel will be used as backfill and as a final surface at the site. The remedy will not rely on institutional or engineering controls to prevent future exposure. There is no Site Management, no restrictions, and no periodic review. This remedy will have no annual cost, only the capital cost.

Capital Cost: $97,900,000

Alternative 3: PCB Contaminated Soil Excavation and Off-Site Disposal, On-site Stabilization & On-Site Disposal of other Contaminated Soils, Site-Wide Cover System and Long Term Groundwater Monitoring

This alternative would include a remedial design, excavation of source areas that exceed 50 ppm PCBs, excavation of other metals contaminated soils and sediments on-site, stabilization of those soils and sediments as necessary and re-use of the soils/sediments as backfill on-site. Under this alternative, approximately 1540 cubic yards (CY) of PCB-contaminated material would be shipped off-site for disposal. Approximately 4100 CY of soil and 1540 CY sediment would be stabilized and used on-site. Approximately 4650 CY of sediments would be dewatered (not stabilized) and used on-site. A site cover system consisting of crusher run gravel would be placed over the site, preferably during site redevelopment over a period of years. Access will be restricted in areas of the site where a site cover has not been completed. Site-contaminated groundwater, which is not leaving site, would be monitored to ensure that it remains on-site. Institutional and engineering controls include a site easement to restrict the site's use and a site management plan to list the monitoring and periodic reporting requirements. Each element is described below:

1.Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Excavation and off-site disposal of contaminant source areas which are defined as soil and concrete containing PCBs in excess of 50 ppm. This includes areas in the vicinity of former transformers, building floors, transformer/machinery pads, and test pits in the scrap metal storage area in the southern part of the site. It is estimated that 1540 CY of soil will exceed the TSCA threshold of 50 ppm PCB. Debris piles north of the leachate collection building and soils east of the building which contain metals in the top two feet that exceed industrial SCOs will also be addressed.

Excavation, followed by on-site treatment and disposal under remedial element 5, of 4100 CY of soils located along the Kromma Kill. These soils are comprised of fill material that contains lead in excess of the hazardous waste criteria, and that also contains PCBs, chromium and nickel. Pre-design studies will be conducted to address soils on the eastern Kromma Kill bank and more fully characterize soils below the mean high water (MHW) level. Soils below MHW level will be excavated to attain the ecological soil cleanup objectives. Above the MHW, remaining contaminated soils will be stabilized or covered to prevent impacts to the Kromma Kill.

Excavation and disposal of 6190 CY of sediments exceeding the Class A sediment SGVs from the Kromma Kill, located adjacent to the MPA. The sediments contain metals and PCBs. Approximately 1540 CY of these sediments will require stabilization under remedial element 5.
If feasible, portions of the areas where LNAPL is present, may be excavated to shorten the duration of LNAPL long-term monitoring and removal.

3. Backfill

On-site soil which does not exceed the industrial soil cleanup objectives may be used below the cover system described in remedy element 4 to backfill the excavation to the extent that a sufficient volume of on-site soil is available and to establish the designed grades at the site.

4. Cover System

A site cover will be required in the MPA to allow for industrial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

5. Ex-situ Stabilization; On-site disposal

Ex-situ stabilization will be implemented to treat soil and sediments along and within the Kromma Kill that contains metals above industrial soil cleanup objectives (including lead that in some cases exceeds the TCLP limit of 5 ppm for characteristic hazardous waste). It is estimated that 4100 CY soil and 1540 CY sediments of excavated material will require stabilization to address lead within the sediments. The soils extend approximately 10 feet below grade. The contaminated soils and sediment area is shown on Figure 3. Ex-situ stabilization is a process that mixes agents with contaminated soil to physically or chemically modify the material to allow it to meet remedial goals, allowing it to be placed back on-site. Under this process the contaminated soil will be excavated and mixed in a temporary mixing facility (i.e., pug mill, mixer, etc.) with solidifying or stabilizing agents to address lead concentrations that exceed industrial soil cleanup objectives. The treated soil and treated sediments will then be placed under a cover system as described in element 4 to prevent direct exposure.

6. Institutional Control

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

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

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

- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH

- require compliance with the Department approved Site Management Plan.

7. Site Management Plan

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

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

   Institutional Controls: The environmental easement discussed in Paragraph 6 above.

   Engineering Controls: The site cover system discussed in Paragraph 4, and due to requirements for low-occupancy areas, fencing will be maintained adjacent to public roads to discourage public access.

   This plan includes, but may not be limited to:

   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater and surface water use restrictions;
   - a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
   - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs)
   - provisions for the management and inspection of the identified engineering controls;
   - maintaining site access controls and Department notification; the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls; and
   - continued passive remediation of the on-site LNAPL plumes.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of groundwater to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the Department; and
   - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Present Worth: *$15,000,000*
Capital Cost: *$14,300,000*
Annual Costs: *$21,700*

Alternative 4: Off-Site Disposal, Site Cover System, and Long Term Groundwater Monitoring

This alternative would include a more extensive excavation of PCB contaminated soils on-site that exceed 25 ppm (corresponding to the industrial soil cleanup objective) and removal of other site contaminants and sediments that exceed industrial soil cleanup objectives with off-site disposal. Under this alternative, approximately 6030 cubic yards (CY) of PCB-contaminated material would be shipped off-site for disposal as either hazardous waste or non-hazardous waste. Approximately 4100 CY of soil and 1540 CY sediment would be sent off-site for disposal as hazardous waste due to metals. Approximately 4650 CY sediments would be dewatered and shipped off-site as non-hazardous waste.

The remaining remedial elements including a site cover system and actions to address groundwater through long term monitoring, institutional controls and site management plan are the same as Alternative 3, with the exception of remedial element 5 (ex situ stabilization of lead-contaminated soil).

Present Worth: *$20,700,000*
Capital Cost: *$20,000,000*
Annual Costs: *$23,000*

Alternative 5: Off-Site Disposal, Site Cover System, LNAPL Extraction, and Long Term Groundwater Monitoring

This alternative would include a more extensive excavation of PCB contaminated soils on-site that exceed 25 ppm (corresponding to the industrial soil cleanup objective) and removal of other site contaminants and sediments that exceed industrial soil cleanup objectives with off-site disposal. Under this alternative, the same amounts and disposal paths described for Alternative 4 are used.

The remaining remedial elements including a site cover system and actions to address groundwater through long term monitoring, institutional controls and site management plan are the same as Alternative 3, with the exception of remedial element 5 (ex situ stabilization of lead-contaminated soil). However, this alternative uses multi-phase groundwater extraction and treatment to address the LNAPL. A brief description is below.

Groundwater Extraction & Treatment

Groundwater extraction and treatment will be implemented to remove LNAPL and associated dissolved phase petroleum from groundwater. The groundwater extraction system will have localized extraction points, then the LNAPL and groundwater would be separated. The extraction system will create a depression of the water table so that contaminated groundwater is directed toward the extraction wells within the plume area. Groundwater will be extracted from the subsurface from the area of the groundwater contaminant plume via collection trenches designed to capture the vertical fluctuation of the groundwater table. Further details of the extraction system will be determined during the remedial design. The extraction system will be designed to minimize the drawdown of the water table in order to reduce smearing of non-aqueous phase liquid in the area of drawdown.

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

The extracted groundwater will be passed through an oil/water separator to remove non-aqueous phase liquids, which would be disposed of off-site, and the remaining groundwater that may contain dissolved phase petroleum, would be treated using air stripping or granular activated carbon.

Air Stripping

Air stripping will be implemented ex-situ to remove volatile contaminants from extracted groundwater. The groundwater will be contacted with an air stream to volatilize contaminants from groundwater to air. The extracted air stream containing the volatile contaminants will be treated prior to discharge to the atmosphere using granular activated carbon. Following treatment, the groundwater will be tested for contaminants prior to being discharged to the Kromma Kill or disposed of off-site.

Liquid Phase Adsorption using GAC

Granular active carbon (GAC) will be used to remove dissolved contaminants from extracted groundwater by adsorption. The GAC system will consist of one or more vessels filled with carbon connected in series and/or parallel. Following treatment, the groundwater will be tested for contaminants prior to being discharged to the Kromma Kill or disposed of off-site.

The remaining remedial elements including actions to address site-wide groundwater containing other contaminants through institutional controls and site management plan are the same as Alternative 3, with the exception of remedial element 5 (ex situ stabilization of lead-contaminated soil).

Present Worth: *$24,400,000*
Capital Cost: *$22,600,000*
Annual Costs: *$61,300*

Exhibit C
Remedial Alternative Costs

Alternative Number	Remedial Alternatives	Capital Cost ($)	Annual Cost ($)	Total Present Worth ($)
1	No Action	0	0	0
2	Return to Pre-Disposal Conditions OU 1 OU 4	91,000,000 6,920,000	0 0	97,920,000
3	Off-Site PCB Disposal over 50 ppm; Soil & Sediment Excavation, Stabilization and On-Site Disposal; Site Cover System; Site Management; and Institutional Controls OU 1 OU 4	11,500,000 2,830,000	21,700 0	15,000,000
4	Off-Site PCB Disposal over 25 ppm; Soil & Sediment Excavation and Off-Site Disposal; Site Cover System; Site Management; and Institutional Controls OU 1 OU 4	13,000,000 6,920,000	23,000 0	20,700,000
5	Off-Site PCB Disposal over 25 ppm, Soil & Sediment Excavation and Off-Site Disposal; Site Cover System; LNAPL Removal & Treatment; Site Management; and Institutional Controls OU 1 OU 4	15,700,000 6,920,000	61,300 0	24,400,000
Proposed Alternative	Off-Site PCB Disposal over 25 ppm; Soil & Sediment Excavation, Stabilization and On-Site Disposal; Site Cover System; Site Management; and Institutional Controls OU 1 OU 4	13,000,000 2,830,000	23,000 0	16,600,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 3, PCB Contaminated Soil Excavation & Off-Site Disposal, On-site Stabilization & On-Site Disposal of other Contaminated Soils and Sediments, Site-Wide Cover System and Long Term Groundwater Monitoring as the remedy for this site. However, the Department is proposing to expand the PCB contaminated soil removal to be consistent with Alternative 4 and remove all PCB-contaminated soil exceeding 25 ppm. The other elements of Alternative 3 would be implemented as described. The modified Alternative 3 would achieve the remediation goals for the site by removing all PCB-contaminated soil greater than 25 ppm for off-site disposal, consolidating and stabilizing of lead-containing soil and dewatered sediments under a site cover system. Groundwater containing LNAPL and metals will be monitored for improvement as the source areas on-site are addressed. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 3.

Basis for Selection

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

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

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

The proposed remedy Alternative 3 would satisfy this criterion by removing the PCB-contaminated soils and concrete greater than 50 ppm from hot spots across the site. The upland soils associated with the Kromma Kill and sediments within the Kromma Kill that contain elevated lead concentrations and lead levels that exceed hazardous waste limits would be excavated, treated to stabilize the lead, disposed of on-site and managed in a consolidation area subject to institutional controls and long-term management. The LNAPL and groundwater within the Main Plant area that exceeds groundwater standards for hexavalent chromium would continue to be monitored. Institutional controls and site management would assure long term maintenance of the site cover system and monitoring locations. Alternative 1 (No Action) does not provide any additional protection to public health and the environment and will not be evaluated further. Alternative 2 would address all soils above the unrestricted soil cleanup objectives for all parameters, and address groundwater through monitoring. Since groundwater is not being used and not migrating from the site, long term management of groundwater is acceptable. Alternatives 4 and 5 both include removal of PCB-containing soils and concrete above 25 ppm, which is a more conservative level of protection, and would utilize off-site disposal for the soils and sediments that are excavated from the site.

Other than Alternative 1, each of the proposed alternatives will result in overall protection of public health and the environment.

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

Alternative 3 complies with SCGs to the extent practicable. It removes PCB-contaminated soil from the site that exceeds the regulatory threshold for designation as a hazardous waste and complies with the restricted industrial use soil cleanup objectives at the surface through construction of a cover system. It also creates the conditions necessary to restore groundwater quality to the extent practicable.

Under Alternative 2, all on-site soil would meet unrestricted use criteria. Alternatives 3, 4 and 5 will comply with site specific and chemical specific SCGs as they will leave soils with PCB concentrations less than 50 ppm below a soil cap, and Alternatives 3, 4 and 5 include long term monitoring of groundwater.

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

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

Alternatives 3, 4 and 5, although protective of human health and the environment, will leave impacted soils in place below a cover system. The cover system will require periodic inspections to ensure that it remains effective and may require maintenance in the future to maintain long-term effectiveness and permanence, and land use restrictions will be required. Alternative 2 ranks the highest for long-term effectiveness because all site-wide impacted soils will be excavated and transported off-site for disposal, and will not require prolonged inspection or maintenance in the long term.

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

Toxicity, mobility and volume will be reduced through a combination of excavation, capping and long term monitoring for Alternatives 2 through 5, and multi-phase extraction for Alternative 5. All alternatives will remove the highest levels of PCB-contaminated soil and contaminated soils and sediments. However, alternatives 4 and 5 result in additional PCB containing materials (between 25 and 50 ppm) being removed and disposed off-site. Alternative 2 will most effectively reduce the toxicity, mobility and volume of site contamination through excavation to pre-disposal conditions and off-site disposal.

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

objectives is also estimated and compared against the other alternatives.

There is potential for short-term adverse impacts and risks upon the community, the workers, and the environment during the excavation, construction and implementation of Alternatives 2 through 5, although engineering controls will be used, and health and safety plans will be prepared and followed. Alternative 2 ranks lowest with regards to short term impacts for this criterion, based on the duration of the remedy implementation and the more extensive scope of the intrusive excavation. Alternatives 5 and 4 rank second and third for short term effectiveness.

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

Alternatives 3 through 5 require constructing a site-wide cover system. Cover systems can be implemented fairly easily; however, require predesign investigations, a detailed design, and several work plans throughout the process. Alternative 2 will involve excavation and disposal of a large quantity of contaminated soils, and is rated as the most difficult to implement for the Alternatives. Although Alternative 2 can be implemented, it requires the installation of sheet pile walls, dewatering of the excavation area, and treatment of water prior to discharge which can be difficult, and requires much coordination for significant traffic challenges due do off-site disposal of soil.

Alternative 4 presents the fewest technical issues due to the shorter duration of construction. It does not include on-site stabilization of soil and sediment to be re-used on-site or the installation of a multi-phased extraction system. Therefore, Alternative 4 ranks highest for implementability. Additionally, removal of PCBs to less than 25 ppm is a self-implementing remedy for low occupancy areas (such as industrial sites) under EPA requirements, whereas additional EPA requirements must be implemented if PCB concentrations between 25 and 50 ppm remain on-site.

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

All the alternatives require significant expenditures. Alternative 2 is four to five times the cost of the other three options, primarily based on the amount of soil for off-site disposal. Alternatives 3 and 4 are similar in cost and Alternative 5 is slightly more expensive due to active remediation of the onsite groundwater. Alternatives 3, 4 and 5 require on-going costs for monitoring and maintaining the site. Alternative 5 is the costliest, due to the required treatment rather than simple monitoring.

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

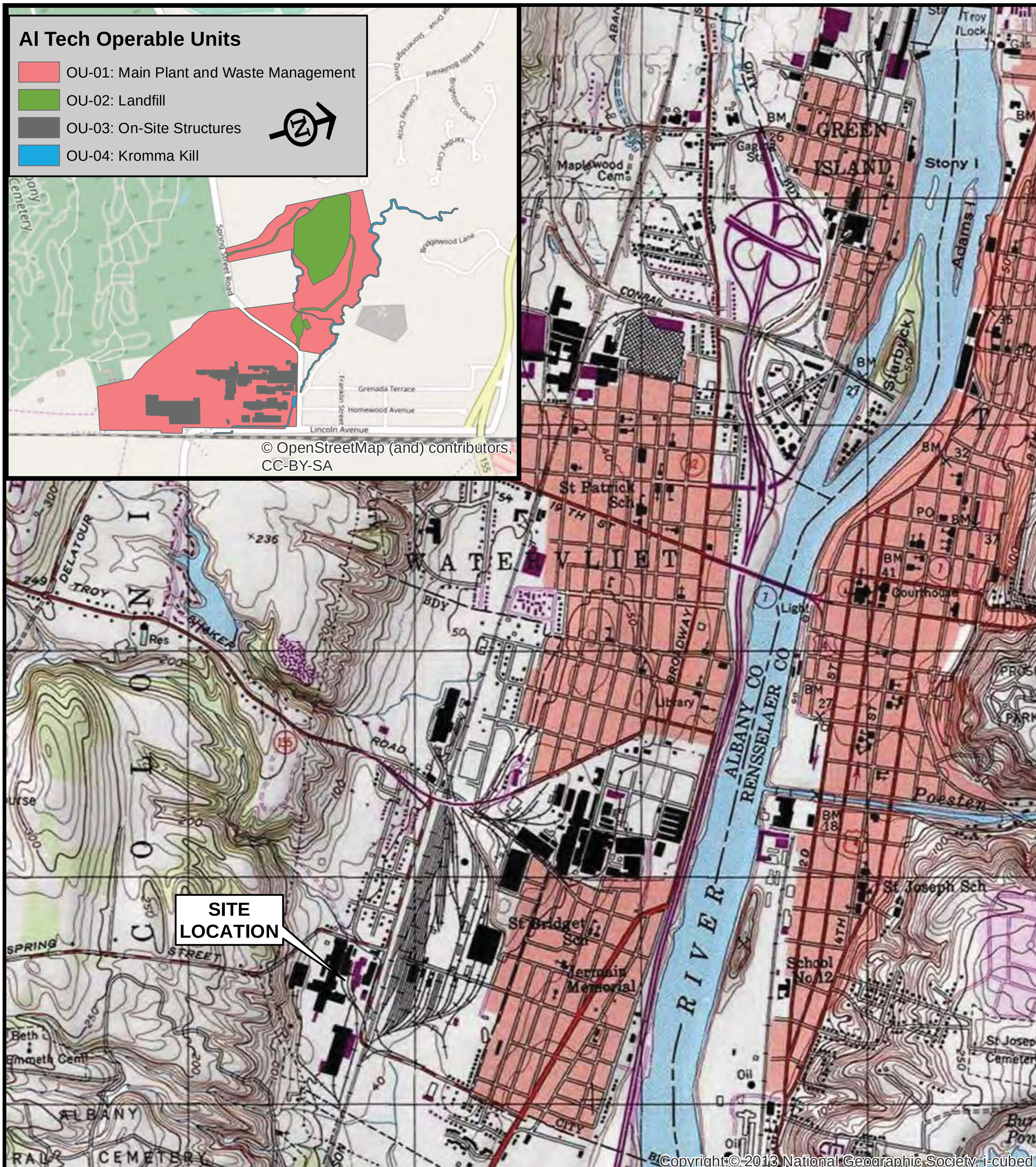
the site and its surroundings in the selection of the soil remedy.

Alternative 2 (return to pre-disposal conditions) is most desirable, since the land could be released for any type of development. Alternative 3 allows at least some contaminated soil to remain on the property under a cover system whereas Alternatives 4 and 5 would dispose of additional contaminated material off-site, rather than it remaining on-site. Alternatives 3, 4 and 5 all result in the site soil meeting the soil cleanup objectives for industrial use, the applicable zoning for the property.

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

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative 3, modified to remove all PCBs between 25 and 50 ppm, is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.



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Feet

Figure 1

Site Location Map

Al Tech Specialty Steel
Town of Colonie
Albany County
Site No. 401003

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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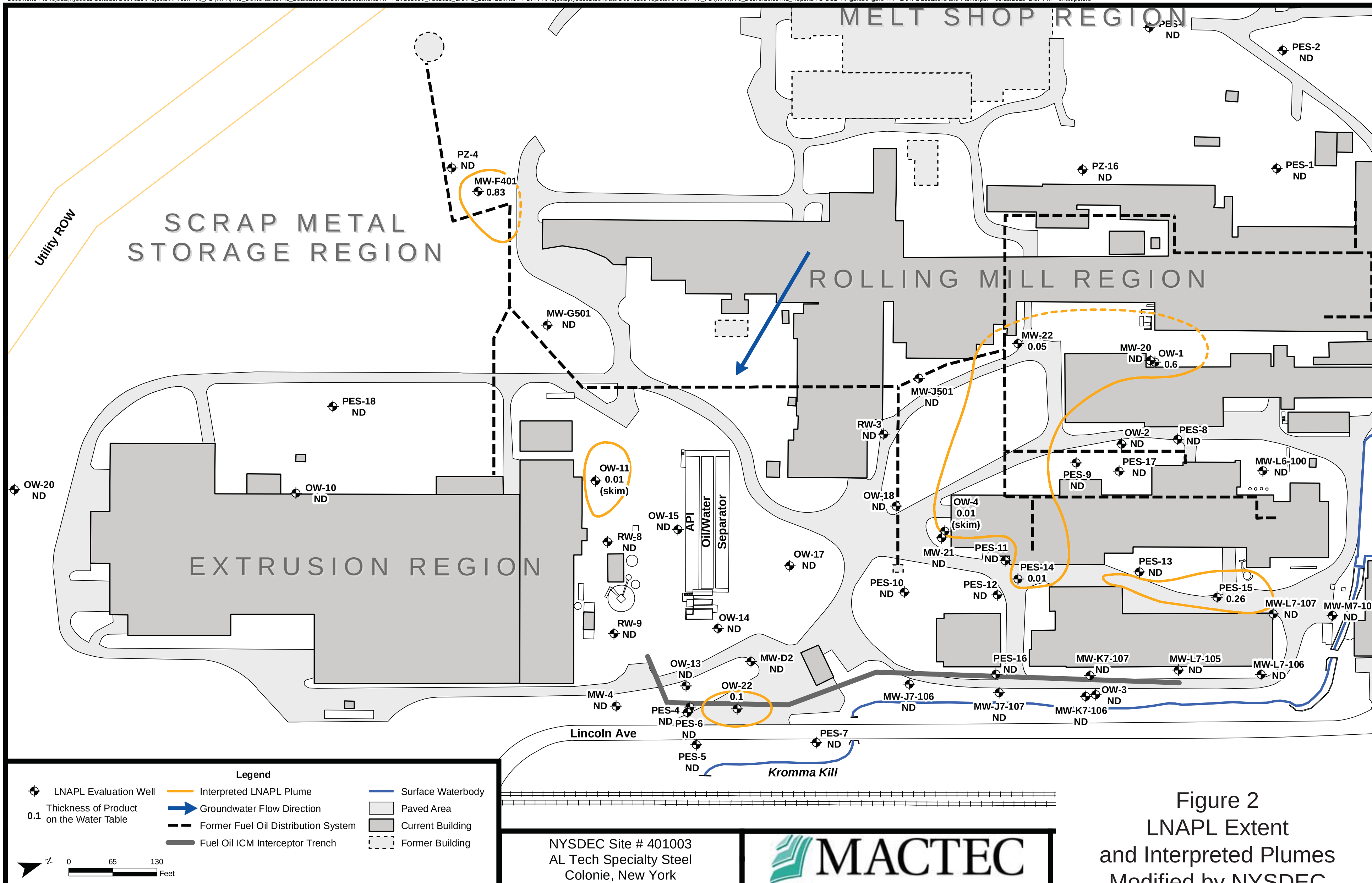

NYSDEC Site # 401003
AL Tech Specialty Steel
Colonie, New York

MACTEC

Figure 2
LNAPL Extent
and Interpreted Plumes
Modified by NYSDEC

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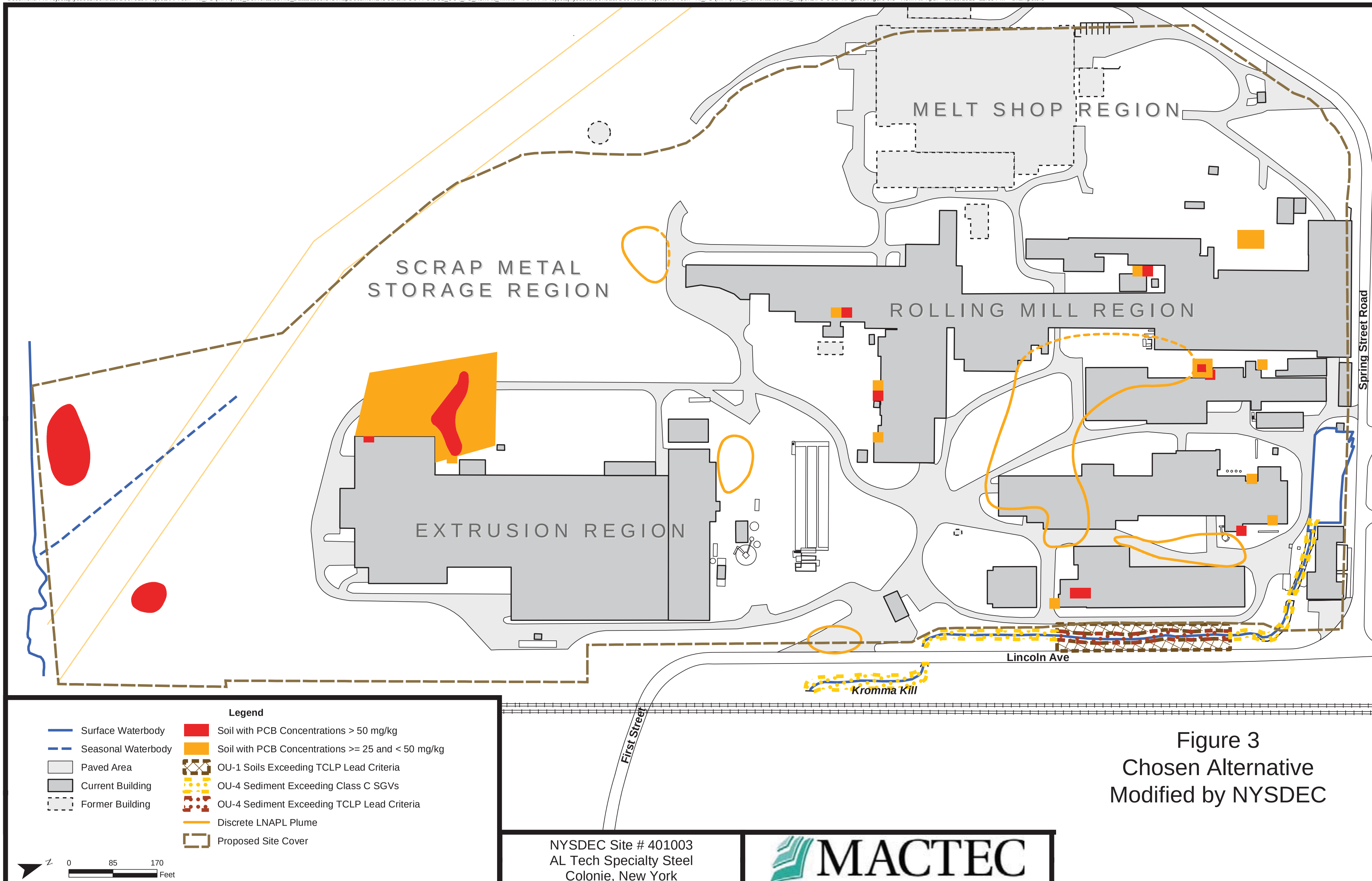

NYSDEC Site # 401003
AL Tech Specialty Steel
Colonie, New York

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Figure 3
Chosen Alternative
Modified by NYSDEC

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Notes:
1. OU-01 encompasses the entire area denoted by the property line excluding the landfilll. The area encompassed by the Unnamed tributary is associated with the Bearoff Property.
2. Soil Sample Criteria:
SCOs - 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives, 2006
CP-51 - NYS Soil Cleanup Guidance Policy CP-51, 2010.
TSCA- Toxic Substance Control Act (Environmental Protection Agency regulated materials), 1976.

AL Tech Specialty Steel WMA
NYSDEC Site # 401003
Colonie, New York

MACTEC

Soil Contamination exceeding Industrial SCO
Depths 0-1 feet
Project 3617157374