RECORD OF DECISION

Former Facility and Groundwater Portion of the
General Motors – Inland Fisher Guide Subsite
of the Onondaga Lake Superfund Site

Town of Salina, Onondaga County, New York

New York State Department of Environmental Conservation
and

692977

United States Environmental Protection Agency
Region II
September 2023

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Former Facility and Groundwater Portion of the General Motors – Inland Fisher Guide Subsite of the Onondaga Lake Superfund Site
Town of Salina, Onondaga County, New York

New York State Superfund Identification Number: HW734057
New York State Operable Unit: 1

Federal Superfund Site Identification Number: NYD986913580
Federal Operable Unit: 26

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the New York State Department of Environmental Conservation (NYSDEC) and U.S. Environmental Protection Agency's (EPA's) selection of a remedy for the former facility and associated groundwater portion of the General Motors Inland Fisher Guide subsite (Subsite) of the Onondaga Lake Superfund site, chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP). This decision document explains the factual and legal basis for the selection of a remedy to address the contaminated soil/fill materials and shallow and intermediate groundwater associated with this Subsite. The attached index (see Appendix III) identifies the items that comprise the Administrative Record upon which the selected remedy is based.

The New York State Department of Health (NYSDOH) was consulted on the proposed remedy in accordance with CERCLA Section 121(f), 42 U.S.C. § 9621(f), and it concurs with the selected remedy.

ASSESSMENT OF THE SITE

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

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy includes the following components:

- Three areas where high concentrations of residual volatile organic compound (VOC) contamination exist in saturated soil will be addressed using *in-situ* treatment. These three areas contain contaminants at concentrations greater than 10,000 parts per million (ppm) and represent continuing sources of groundwater contamination. Specifically, these areas include the Former Thinner Tanks Area, where non-chlorinated VOC residual contamination remains, and areas beneath and northeast of the former manufacturing building where residual chlorinated VOC contamination remains. As part of the remedial design (RD), pre-design investigations will be performed in each of these areas to determine the volumes requiring treatment and the most effective type of *in-situ* treatment(s).
- Installation of deep groundwater extraction wells along the northern perimeter of the facility property. Contaminated groundwater that has migrated from the source areas identified above will be extracted from these wells to prevent off-property migration. Following extraction, the contaminated groundwater will be treated at the existing State Pollution Discharge Elimination System (SPDES)[1] water treatment system (using filtration and granulated activated carbon) prior to being discharged to Ley Creek. The groundwater extraction system will be designed with a capture zone sufficient to address the areal and vertical extent of the groundwater contamination. During the RD, a study will be performed to determine the extraction well location placement, the groundwater pumping rates, and the drawdown levels necessary to achieve optimal capture. To evaluate the effectiveness of the extraction system, a groundwater monitoring program will be implemented as part of this remedy.
- An estimated 38 cubic yards of unsaturated surface soil will be excavated and disposed of off-site at a licensed disposal facility. The soils requiring excavation are those that contain contaminants at concentrations greater than the Industrial Use soil cleanup objectives (SCOs) for polycyclic aromatic hydrocarbons and polychlorinated biphenyls and are located in areas not currently addressed by an approved Interim Remedial Measure (IRM)[2] or covered and isolated by facility paved surfaces (roadways or parking lots) or the former manufacturing building. Following confirmatory soil sampling to demonstrate that the SCOs have been achieved, the excavated areas will be restored to grade with clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d).
- The existing sub-slab depressurization system (SSDS) beneath the former manufacturing building includes two sub-slab vapor extraction systems that withdraw air at a rate of approximately 195 cubic feet per minute for System 1 and 94 cubic feet per minute for System 2. An evaluation of the SSDS will be performed during the RD to determine whether enhancements to the system could further improve the removal of elevated VOCs in the unsaturated soil beneath the

[1] SPDES is a permit program that regulates the discharge of water from point sources into the waters of the State of New York.

[2] An IRM is a New York State law term for an environmental response that is synonymous with the CERCLA environmental response term “removal action.” The use of the term “IRM” in this document is used solely for consistency with underlying documents, but references actions that are in fact removal actions under CERCLA.

former manufacturing building. Data will be collected to determine if the existing SSDS can be upgraded to not only continue to prevent sub-slab vapors from entering the former manufacturing building, but also to enhance the removal of chlorinated VOC contamination present in the vadose zone soil beneath the building.

- As part of long-term groundwater quality monitoring, data will be collected in the shallow and deep groundwater throughout this portion of the Subsite to assess the contaminants of concern (COC) concentrations and natural attenuation. Following the operation of the perimeter groundwater extraction and treatment system for a period up to five years, an evaluation will be performed to determine whether the system is effectively reducing COC concentrations in the off-property groundwater. If it is determined that continued groundwater extraction at the facility property perimeter alone will not achieve the remediation goals for the off-property groundwater within a reasonable timeframe, then off-property *in-situ* treatment techniques and extraction and treatment will be considered and incorporated into the remedy as determined to be appropriate.
- The evaluations of the SSDS and perimeter extraction system and the implementation of any of the associated alternative remedies will be documented via an Explanation of Significant Differences (ESD).
- As part of a long-term monitoring program, shallow and deep groundwater samples will be collected from monitoring wells throughout this portion of the Subsite to evaluate the performance of the groundwater extraction and treatment system, as well as the effectiveness of the *in-situ* treatment in the three residual source areas where high concentrations of site contaminants remain. The details of the monitoring program will be developed as part of the RD/remedial action (RA) and outlined in a Monitoring Plan.
- The remedy will also include an Institutional Control (IC) in the form of the existing environmental easement for the controlled property which will achieve the following:
    1. require the submission of a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
    2. restrict the use and development of the former facility property to industrial use as defined by Part 375-1.8(g), subject to local zoning laws;
    3. restrict the use of groundwater as a source of potable or process water without appropriate treatment as determined by the NYSDOH or the Onondaga County Health Department; and
    4. require compliance with the approved Site Management Plan (SMP).
- An SMP will be required that includes the following components:
    1. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the portion of the Subsite and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
        - an excavation plan that details the provisions for management of future excavations in areas of remaining contamination;

        - a provision for further investigation and remediation should large-scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited (beneath the 800,000 square foot former manufacturing building) or unavailable will be immediately and thoroughly investigated pursuant to an approved plan. Based on the investigation results and a determination of the need for possible additional RAs, a remedy modification will be developed for the portion of the Subsite, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation activities will continue through this process. Any necessary future remediation will be completed prior to, or in association with, redevelopment. This includes the former manufacturing building;
        - descriptions of the provisions of the environmental easement including any land use or groundwater use restriction;
        - provisions for the management and inspection of the identified engineering controls;
        - maintain site access controls and notification; and
        - steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
    2. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan will include, but may not be limited to the following:
        - monitoring of groundwater to assess the performance and effectiveness of the remedy;
        - a schedule of monitoring and frequency of submittals; and
        - monitoring for vapor intrusion for any buildings on the facility property, as may be required by the Institutional and Engineering Control Plan described above.
    3. An Operation & Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting regarding any mechanical or physical components of the remedy. The plan includes, but is not limited to, the following:
        - procedures for operating and maintaining the remedy;
        - compliance monitoring of treatment systems to ensure proper O&M, as well as providing the data for any necessary permit or permit equivalent reporting;
        - maintaining site access controls and required notification; and
        - provide access to the site and O&M records.
- Long-term O&M will be performed for the above-noted RAs, as well as for the previously implemented IRMs, including the Former Landfill IRM, Surface Impoundment Cover #1 IRM, Former Thinner Tanks Groundwater Recovery System IRM, SPDES Treatment System IRM, and the Vapor Intrusion Mitigation IRM (*i.e.,* SSDS).
- Maintenance activities and performance monitoring will be conducted to ensure

that the remedial elements and IRMs are operating effectively and efficiently and to identify the need to implement corrective action(s). Corrective actions for the IRM covers, as well as the existing paved surfaces (*i.e.,* roadways or parking lots) and the former manufacturing building that currently serve as a cover for impacted shallow soils, may consist of repair in areas of disturbance or re-application of vegetation in areas of non-survival.

- Green remediation techniques, as detailed in NYSDEC's Green Remediation Program Policy-DER-31,[3] and EPA Region 2's Clean and Green Policy[4] will be considered during the implementation of the selected remedy to reduce short-term environmental impacts. Green remediation best practices such as the following may be considered:
    1. Use of renewable energy and/or purchase of renewable energy credits to power energy needs during construction and/or O&M of the remedy;
    2. Reduction in vehicle idling, including both on- and off-road vehicles and construction equipment during construction and/or O&M of the remedy;
    3. Design of cover systems, to the extent possible, to be usable for alternate uses, require minimal maintenance (*e.g.,* less mowing), and/or be integrated with the planned use of the property;
    4. Beneficial reuse of material that will otherwise be considered a waste, and
    5. Use of ultra-low sulfur diesel.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1- Statutory Requirements

The selected remedy meets the requirements for RAs set forth in CERCLA in Section 121, 42 U.S.C. § 9621, because, as implemented, it will: 1) protect human health and the environment; 2) meet a level of standard of control of the hazardous substances, pollutants, and contaminants which at least attains the legally applicable or relevant and appropriate requirements under the federal and State laws; 3) be cost-effective, and 4) utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Part 2- Statutory Preference for Treatment

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or provide a justification for not satisfying the preference). Under the selected remedy, VOCs in the groundwater will be subjected to both extraction and treatment at the SPDES treatment plant and *in-situ* treatment by injecting an amendment(s), thereby reducing their volume, toxicity, and mobility. In addition, the

[3] See http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

[4] See http://epa.gov/region2/superfund/green_remediation

SSDS may be upgraded to enhance the removal of chlorinated VOC contamination present in the vadose zone soil beneath the former manufacturing building, thereby reducing their volume, toxicity, and mobility. Therefore, the selected remedy satisfies the statutory preference for treatment as a principal element of the remedy.

Part 3- Five-Year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the RA and at five-year intervals thereafter until levels that allow for unlimited use and unrestricted exposure are attained to ensure that the remedy is, or will be, protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

The ROD contains the remedy selection information noted below. More details may be found in the Administrative Record file for this Subsite.

- COCs and their respective concentrations (see ROD, pages 8-13 and Tables 1 and 2 in Appendix II);
- Baseline risk represented by the COCs (see ROD, pages 14-20);
- Cleanup levels established for COCs and the basis for these levels (see ROD, page 30 and Tables 1 and 2 in Appendix II);
- Manner of addressing source materials constituting principal threats (see ROD, page 37);
- Potential land and groundwater use that will be available at this Subsite as a result of the selected remedy (see ROD, page 14);
- Estimated capital, annual operation and maintenance, and present-worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see ROD, page 42 and Table 5 in Appendix II); and
- Key factors used in selecting the remedy (*i.e.*, how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) (see ROD, pages 36-38).

AUTHORIZING SIGNATURES

Andrew Guglielmi

9/28/2023

Andrew O. Guglielmi, Director
Division of Environmental Remediation
NYSDEC

Date

Pat Evangelista

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September 28, 2023

Pat Evangelista, Director
Superfund and Emergency Management Division
EPA, Region 2

Date

DECISION SUMMARY

Former Facility and Groundwater Portion of the
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New York State Department of Environmental Conservation
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Table of Contents

SUBSITE NAME, LOCATION, AND DESCRIPTION

The General Motors – Inland Fisher Guide (GM--IFG) subsite (Subsite) of the Onondaga Lake Superfund site is located in the Town of Salina, Onondaga County, New York. The Subsite consists of two operable units (OUs) -- one being the former plant property and groundwater, which is referred to by the US Environmental Protection Agency (EPA) as OU26 and by the New York State Department of Environmental Conservation (NYSDEC) as OU1[1] of the Subsite, and the other being approximately 9,200 linear feet of Ley Creek between Townline Road and the Route 11 bridge, including the adjacent floodplains, which is referred to by EPA as OU9 and by NYSDEC as OU2 of the Subsite. The focus of this Record of Decision (ROD) is OU1.

The former GM-IFG property comprises approximately 78.46 acres that includes the 800,000 square foot former manufacturing building located at 1 General Motors Drive (collectively, the facility). See Figure 1, Site Location, in Appendix I.

SUBSITE HISTORY

The GM--IFG facility began operations in 1952 as GM's Brown-Lipe-Chapin Division. Facility operations included metal die casting; nickel, chromium, and copper cyanide electroplating; stamping; polishing; buffing; painting; and machining. In 1961, Brown-Lipe-Chapin merged with another GM division, Ternstedt, and in 1968 became part of GM's Fisher Body Division. During the early 1960s, injection molding operations were added to the metal operations. Metal finishing and diecasting were subsequently reduced and replaced by plastic injection molding by the early 1970's. The facility operated as the Fisher Body Division until 1984, when it became the Fisher Guide Division. The facility then operated as GM's IFG Division from 1989 until it ceased manufacturing operations in 1993. After the cessation of manufacturing operations, the facility was reassigned to GM's North American Operations Property Management Group, later re-designated the Worldwide Facilities Group.

On June 23, 1989, the Onondaga Lake site was added to the New York State Registry of Inactive Hazardous Waste Disposal Sites. On December 16, 1994, Onondaga Lake, its tributaries, and the upland source area sites which have contributed or are contributing contamination to the lake (subsites) were added to the EPA's National Priorities List (NPL). This NPL listing means that the Lake system is among the nation's highest priorities for remedial evaluation and response under the federal Superfund law for sites where there has been a release of hazardous substances, pollutants, or contaminants as defined under the Comprehensive Environmental Response,

[1] Henceforth, the former facility and groundwater portion of the Subsite will be referred to as OU1.

Compensation, and Liability Act, as amended, 42 U.S.C. §9601 *et seq*. (CERCLA or Superfund).

In 1997, GM and NYSDEC entered into an Administrative Order on Consent in which GM agreed to conduct a remedial investigation and feasibility study (RI/FS) for both OUs of the Subsite. At that time, GM also implemented a facility cleanup program to decontaminate surfaces and decommission unneeded systems. GM redeveloped the facility, starting in 2000, as commercial/light industrial multi-tenant spaces; use of these spaces continues today.

Following GM's filing for bankruptcy in 2009, an RI/FS Order on Consent was executed between the Revitalizing Auto Communities Environmental Response (RACER Trust) Trust[2] and NYSDEC in 2015. That Order requires the RACER Trust to conduct an RI/FS and risk assessments for OU1. The Subsite was classified by NYSDEC as a Class 2 Site in the New York State Registry of Inactive Hazardous Waste Disposal Sites (a Class 2 site represents a signification threat to public health or the environment; action is required).

A remedy was selected for OU2 in March 2015; however, based on a significant increase in the estimated overall volume of soil requiring remediation in the OU2 area and the associated cost of addressing it, after considering alternatives to the selected remedy, two separate Explanations of Significant Differences (ESDs) were issued by EPA and NYSDEC in September 2022 and April 2023, memorializing and reaffirming the remedial approach notwithstanding the increased volume and cost. The design of the OU2 remedy is currently underway and it is anticipated that it will be completed in late 2023.

Interim Remedial Measures

Various Interim Remedial Measure (IRMs)[3] have been implemented at OU1, commencing in the early 1980s. The purpose of the IRMs, which are described below, was, primarily to prevent migration and immediate human health and environmental exposure. The IRMs included the following:

- Oil/Water Collection Sump System – In the 1980s, oil containing polychlorinated biphenyls (PCBs) was discovered in the facility's discharge to Ley Creek and within the underground storm sewer system beneath the former manufacturing building. The storm sewers beneath the former manufacturing building were decommissioned and

[2] The RACER Trust was created by a U.S. Bankruptcy Court to clean up and position for redevelopment former GM properties.

[3] An IRM is a New York State law term for an environmental response that is synonymous with the CERCLA environmental response term "removal action." The use of the term "IRM" in this document is used solely for consistency with underlying documents, but it references actions that are in fact removal actions under CERCLA.

collection pumps were installed at locations where the sewers formerly exited the building. These sumps collected residual oil/water present within the sewer lines.

- Storm Sewer Rehabilitation – GM rehabilitated select storm sewers located outside the facility buildings. The effort included cleaning the sewer lines and abandonment and repair/replacement of some storm sewer sections on the west side of the facility. This work was completed in 2001.
- Former Thinner Tanks Area Groundwater Recovery System – Following a spill in the conveyance piping of three underground storage tanks in 1987, GM installed a groundwater collection system to collect shallow overburden groundwater with elevated concentrations of toluene, ethylbenzene, and xylenes in the Former Thinner Tanks Area. The recovery system consists of two groundwater collection trenches. The collected groundwater is piped to the facility stormwater treatment system and treated using filtration and granulated activated carbon prior to discharge to Ley Creek under a State Pollution Discharge Elimination System (SPDES)[4] permit. To assess the effectiveness of this IRM, the RACER Trust implements an annual monitoring program including the collection and laboratory analysis of groundwater samples from eight monitoring wells for toluene, ethylbenzene, and xylene.
- Former Landfill IRM – An industrial landfill located at the facility contains chromium and PCB-contaminated material. Areas within the landfill with high concentrations of contaminants were excavated and transported off-site for disposal at a licensed facility and the landfill was capped in 2004. The RACER Trust maintains the landfill integrity by performing operation and maintenance (O&M) activities, including inspections and repairs, as needed, and mowing the vegetative cover.
- Former Drainage Swale IRM – GM used a drainage swale in the 1950s-60s as a conduit for the discharge of liquid process waste to Ley Creek. The swale was subsequently filled in, but highly contaminated soil remained. This IRM involved the removal of the contaminated soil from the former drainage swale in 2004. As part of this IRM, GM removed over 26,000 tons of soil containing PCBs from this area of the facility. Soils with PCB concentrations less than 50 parts per million (ppm) were placed in the landfill (described above) before it was capped. Soils with PCB concentrations greater than 50 ppm were transported off-site for disposal at a licensed facility.
- Surface Impoundment #1 closure – In 1989, GM closed and covered Surface Impoundment #1 with a clay and soil cover consistent with Resource Conservation and Recovery Act requirements, and this area was subsequently paved. The cover in this area limits infiltration and prevents direct contact with subsurface soil in this area. To evaluate the effectiveness of this IRM, the RACER Trust conducts annual monitoring of two downgradient wells for the presence of volatile organic compounds (VOCs) and PCBs.

[4] SPDES is a permit program that regulates discharges into the waters of the State of New York.

- SPDES Treatment System IRM – The purpose of this IRM was to stop the intermittent discharge of PCBs and other contaminants originating from OU1 to Ley Creek during storm events. This IRM involved GM's construction of a retention basin and associated water treatment system that was completed in 2003. This retention basin collects surface water runoff that accumulates on the GM-IFG property in the storm sewers or abandoned process sewers. The basin water is treated by the RACER Trust at the treatment plant prior to discharge to Ley Creek. As part of this IRM, vegetated soil covers were placed over the Soil Staging Area and the Soil Consolidation Area.
- Vapor Intrusion Mitigation IRM – In 2011, the RACER Trust completed the installation of two sub-slab depressurization systems beneath the facility's concrete slab to prevent the migration of soil vapors containing VOCs into the building. Since operation began, the RACER Trust has performed routine O&M of the system and periodic air monitoring.
- Redevelopment IRMs – Multiple IRMs have been performed over the years to facilitate the redevelopment of the facility. These IRMs include the removal of soil and surface paving at the former temporary hazardous waste storage area located west of the Mold Storage building, removal of surface soil containing high concentrations of site contaminants south of the former Industrial Wastewater Treatment Plant (IWTP), demolition of the IWTP clarifiers, construction of two truck loading docks, and regrading at the former CDM Outdoor Storage Area.
- Decommissioning Activities IRM – Following a facility assessment, decommissioning activities were performed in the early 2000s that consisted of cleaning the floors (and applying epoxy floor coating in some areas) and above-ground surfaces, cleaning and dismantling various process systems, and removing residue from facility sumps and drains. The demolition of the IWTP on the facility's south side was completed in 2006.

As described above, many of these IRMs have addressed and/or continue to address potential risks identified in media at OU1 through removal, control, and/or treatment. It should also be noted that as part of a property transfer in 2020, an environmental easement under Article 71, Title 36 of New York State Environmental Conservation Law was conveyed and recorded for the facility property. This environmental easement provides controls to restrict future activities at the property, such as limiting land use to industrial uses and prohibiting the use of groundwater.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI and FS reports and a Proposed Plan proposing EPA and NYSDEC's preferred remedial alternative were released to the public for comment on July 28, 2023. These documents were made available to the public via NYSDEC's website and at information repositories maintained at the Solvay Library, the Onondaga County Public Library,

Atlantic States Legal Foundation, and the NYSDEC Region 7 office, all located in Syracuse, New York, and the NYSDEC Division of Environmental Remediation office, located in Albany, New York. A NYSDEC listserv announcement notifying the public of the availability for the above-referenced documents, the comment period commencement and completion dates, and the date of an open house and public meeting was issued on July 28, 2023. A notice providing the same information was published in the *Syracuse Post-Standard* on July 30, 2023. The public comment period went from July 28, 2023 to August 27, 2023.

On August 16, 2023, NYSDEC and EPA held an open house and a public meeting at the Salina Town Hall in Salina, New York to inform local officials and interested citizens about the Superfund process, to present the Proposed Plan for this Subsite, including the preferred remedy, respond to questions, and accept comments. There was one member of the public in attendance. Responses to the questions and comments received at the public meeting and to comments submitted in writing during the public comment period are included in the Responsiveness Summary (see Appendix V).

The Onondaga Nation reviewed the draft RI and FS reports and draft Proposed Plan, and NYSDEC and EPA communicated with representatives of the Onondaga Nation regarding these documents. NYSDEC and EPA will continue consultation with the Onondaga Nation and provide documents for its review throughout the design, construction, and long-term management phases of the remedy.

SCOPE AND ROLE OF OPERABLE UNIT

As was noted above, Superfund sites are often divided into OUs for managing site-wide response actions. NYSDEC and EPA have, to date, organized the work for the Onondaga Lake NPL site into 11 subsites. These subsites, which are managed as OUs of the Onondaga Lake NPL site, include:

1. General Motors – Inland Fisher Guide (NYSDEC site code 734057);
2. LCP Bridge Street (NYSDEC site code 734049);
3. Ley Creek PCB Dredgings (NYSDEC site code 734044);
4. Lower Ley Creek (NYSDEC site code 734123);
5. Niagara-Mohawk Hiawatha Blvd (NYSDEC site code 734059);
6. Onondaga Lake Bottom (which includes Geddes Brook/Ninemile Creek as an OU) (NYSDEC site code 734030);
7. Salina Landfill (NYSDEC site code 734036);
8. Semet Residue Ponds (NYSDEC site code 734008);
9. Wastebeds 1-8 (NYSDEC site code 734081);
10. Wastebed B/Harbor Brook (NYSDEC site code 734075); and
11. Willis Avenue (NYSDEC site code 734072).

Remedial actions (RAs) have been fully implemented at the Semet Residue Ponds, Wastebeds 1-8 OU1, Wastebed B/Harbor Brook OU1, Geddes Brook/Ninemile Creek, Niagara-Mohawk Hiawatha Boulevard, LCP Bridge Street, Ley Creek PCB Dredgings, Onondaga Lake Bottom, and Salina Landfill subsites. These subsites are undergoing long-term site management. Remedial activities for portions of the Wastebeds 1-8, GM-IFG, and Wastebed B/Harbor Brook subsites have been completed or are in progress. The Lower Ley Creek and Willis Avenue subsites are in the RD phase.

The 2015 ROD for OU2 called for, among other things, excavation of approximately 9,600 cubic yards (CY) of contaminated upper Ley Creek channel sediments and approximately 2,900 CY of adjacent contaminated floodplain soil/dredged materials in the reach from Townline Road to the Route 11 bridge. The remedy also included excavating contaminated soils/sediments in an adjacent wetland called the National Grid Wetland and roadway shoulders near the facility and on the northern side of Factory Avenue in the vicinity of LeMoyne Avenue. In 2016, the RACER Trust excavated and disposed of at a licensed facility contaminated floodplain soil from residential properties (located adjacent to the creek) and in 2017, performed the remediation of the Factory Avenue and National Grid Wetland soils. Based on the results of pre-RD investigation sampling, it was determined that the ROD-estimated volume of contaminated soil/dredged materials requiring excavation and off-site disposal increased from approximately 15,000 CY to approximately 142,500 CY. This new information prompted NYSDEC and EPA to reevaluate the remedy selected in the ROD and explore other possible remedial alternatives. In September 2022, EPA affirmed the 2015 remedy, as memorialized in an ESD, to reflect that notwithstanding the increased soil volumes at LCDM and the associated remedial costs, based on the current and reasonably anticipated future land use, the clean-up approach remains unchanged. In the ESD, NYSDEC and EPA chose not to address a specific portion of OU2 that contains mature tree growth (hereinafter referred to as the “forested area”) that is located mostly to the north of Ley Creek toward the Townline Road end of the reach of Ley Creek, between Townline Road and Route 11. The forested area was not addressed in the ESD because, at that time, an alternative *in-situ* remedial approach was being evaluated for this area. Following the completion of the evaluation, EPA and NYSDEC concluded that it is unlikely that the *in-situ* treatment would be an effective remedy in the forested area. Therefore, the soil remedy selected in the ROD remains the most suitable approach for addressing the forested area, notwithstanding the increased soil volumes and associated remedial costs. This decision was documented in an April 2023 ESD. The design of the sediment and soil remedy is currently underway; it is anticipated that it will be completed in late 2023.

The scope of the action for OU1, the subject of this ROD, is to incorporate actions undertaken as IRMs as final actions, address the contaminated soil/fill material and shallow and deep groundwater not addressed under the IRMs discussed above, and implement additional actions where needed. NYSDEC and EPA expect this remedy to

be a final, comprehensive remedy for OU1.

SUMMARY OF SUBSITE CHARACTERISTICS

The RI activities that were conducted at OU1 included geological and hydrogeological investigations, an ecological assessment, and the collection of samples from the shallow soil (top two feet of soil), subsurface soil (below two feet), groundwater, and soil vapor.

Based upon the results of the RI, the primary contaminants of concern (COCs) include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs).

To evaluate the nature and extent of contamination at OU1, the RI included the collection and laboratory analysis of soil and groundwater samples from several areas at the facility. Also, as documented in the RI, various investigations spanning many years included analysis of soil, soil vapor, groundwater, and indoor air. As shown on Figure 2 in Appendix I, for purposes of NYSDEC and EPA management, the facility is divided into six areas plus the former manufacturing building. These areas are the Northern, Northeast, Southeast, former IWTP, Southwest, and Former Thinner Tanks Areas. Based on Title 6 New York Code of Rules and Regulations (6 NYCRR) Part 375 soil cleanup objectives (SCOs) for Industrial Use, Protection of Groundwater, New York State Class GA groundwater standards, and New York State's Guidance for Evaluating Soil Vapor Intrusion, conditions at OU1 were evaluated. Tables 1 and 2 in Appendix II, summarize the exceedances of SCOs in surface and subsurface soil/fill material for OU1. The results of the RI are summarized below.

Site Geology and Hydrogeology

The local geology for OU1 consists of fill, glaciolacustrine deposits, and lodgment till underlain by red shale bedrock. Beneath the facility, the thickness of the glaciolacustrine unit increases toward the facility's northern boundary. The glaciolacustrine deposit has three units: the upper unit (silt and fine-grained sand); the middle unit (silt and clay); and the lower unit (silt and fine-grained sand).

OU1 has two distinct groundwater zones, a shallow groundwater zone (at a depth of approximately 1 foot to 15 feet [ft] below ground surface [bgs]) within the fill layer and the upper glaciolacustrine unit and a deep groundwater zone (at a depth of approximately 20 to 45 ft bgs) within the lower glaciolacustrine unit and the sand and gravel layer.

Between the two groundwater zones is the middle glaciolacustrine layer, which acts as a low permeability zone that separates the shallow and deep groundwater zones. This low permeability glaciolacustrine layer extends from near the northern edge of the former manufacturing building to the northern portion of the facility. The deep and shallow

groundwater zones are connected in the vicinity of the building where the glaciolacustrine layer is absent. Shallow and deep groundwater generally flow in a northeast direction across the facility toward Ley Creek.

Soil

The sampling activities and associated results from various investigations conducted facility-wide indicate that surface and subsurface soils in certain locations on OU1 contained PCBs, VOCs, semi-volatile organic compounds (SVOCs), and site-related metals (*i.e.*, arsenic, chromium, copper, nickel, and zinc) exceeding New York State Standards, Criteria, and Guidance (SCGs). Figure 3 in Appendix I, shows the sample locations where there are exceedances of SCOs in the surface and subsurface soil. Table 1 and Table 2 in Appendix II, summarize the detected concentrations and frequency of SCO exceedances for surface and subsurface soil, respectively.

Surface Soil

PCBs were detected above their Part 375 Industrial Use SCO (25 ppm) in the Northern Property Area at a maximum concentration of 37 ppm.

SVOCs were detected above the Part 375 Industrial Use SCOs in the Former Thinner Tanks Area and Northern Property Area. Specifically, in the Former Thinner Tanks Area, benzo(a)pyrene (SCO of 1.1 ppm), chrysene (SCO of 110 ppm), and fluoranthene (SCO of 1,000 ppm) were detected at maximum concentrations of 300 ppm, 380 ppm, and 1,200 ppm, respectively. In the Northern Property Area, benzo(a)anthracene (SCO of 11 ppm), and benzo(a)pyrene were detected at maximum concentrations of 1.8 ppm, and 1.7 ppm respectively.

In the Southeast Property Area, arsenic was detected above the Part 375 Industrial Use SCO (16 ppm) at a maximum concentration of 92.8 ppm (at depths greater than 2-feet bgs).

Subsurface Soil

PCBs were detected in subsurface soil in different areas of the facility at concentrations above Part 375 Protection of Groundwater SCO (3.2 ppm). Specifically, PCBs were detected in the northeast area at a maximum concentration of 24 ppm, in the IWTP area at a maximum concentration of 190 ppm, beneath the former manufacturing building at a maximum concentration of 4,300 ppm, in the Northern Property Area at maximum concentration of 79 ppm beneath the landfill. Field screening using ultraviolet irradiation suggested that Non-Aqueous Phase Liquid (NAPL) may be present in three soil sample locations along an abandoned sewer under the former manufacturing building. The area beneath the building may represent a potential source area for PCBs.

VOCs detected above Part 375 Protection of Groundwater SCOs were limited to toluene (SCO of 0.7 ppm), xylene (SCO of 1.6 ppm), ethylbenzene (SCO of 1 ppm), methylene chloride (SCO of 0.05 ppm), trichloroethene (TCE; SCO of 0.47 ppm), cis-1,2-dichloroethene (cis-1,2-DCE; SCO of 0.25 ppm), and vinyl chloride (SCO of 0.02 ppm), across the facility. Specifically, toluene, xylene, and ethylbenzene were detected respectively at maximum concentrations of 720 ppm, 317 ppm, and 61 ppm in subsurface soil samples collected from the Former Thinner Tanks Area. Methylene chloride, ethyl benzene, toluene, xylene, cis-1,2-DCE, and vinyl chloride were detected respectively at maximum concentrations of 0.14 ppm, 11 ppm, 110 ppm, 110 ppm, 0.45 ppm, and 0.12 ppm in the northern property area. TCE was detected at a maximum concentration of 1.5 ppm in the northeast property area. Methylene chloride, TCE, cis-1,2-DCE, and vinyl chloride were detected at a maximum concentration of 7.8 ppm, 9,800 ppm, 5.1 ppm, and 7.8 ppm, respectively, beneath the former manufacturing building at depths ranging from 0.5 ft to 15 ft below the concrete slab, generally in the center of the building in the vicinity of the former paint room.

SVOCs were detected above the Part 375 Protection of Groundwater SCOs in subsurface soil beneath the transformer/switch area located in the Former Thinner Tanks Area, former landfill in the Northern Property Area, and in the Northeast Property Area. Benzo(a)anthracene (SCO of 1 ppm), benzo(a)pyrene (SCO of 22 ppm), and benzo(b)fluoranthene (SCO of 1.7), were detected respectively at maximum concentrations of 150 ppm, 110 ppm, and 140 ppm, in the Former Thinner Tanks Area. P-Cresol (SCO of 0.33 ppm) was found at a maximum concentration of 3.9 ppm in the Northern Property Area. Benzo(a)anthracene, benzo(b)fluoranthene, and chrysene (SCO of 1 ppm) were detected at maximum concentrations of 9.3 ppm, 16 ppm, and 11 ppm, respectively, in the Northeast Property Area.

Site-related metals (*i.e.*, arsenic, chromium, copper, lead, nickel, zinc, and cyanide) were detected above the Part 375 Protection of Groundwater SCOs in limited areas in subsurface soil near the Northern, Northeast, Southeast, Southwest, IWTP Property Areas, and beneath the former manufacturing building. Specifically, arsenic (SCO of 16 ppm), chromium (SCO of 19 ppm), copper (SCO of 1,720 ppm), lead (SCO of 450 ppm), nickel (SCO of 130 ppm), and zinc (SCO of 2,480 ppm) were detected respectively at a maximum concentration of 65 ppm, 17,200 ppm, 3,920 ppm, 7,940 ppm, 243 ppm, and 53,300 ppm in the Northern Property Area beneath the landfill IRM cover. Arsenic was detected at a maximum concentration of 16.3 ppm in the Northeast Property Area. Arsenic was detected at a maximum concentration of 16.4 ppm in the Southeast Property Area. Chromium was at maximum concentrations of 1,220 ppm the Southwest Property Area. Chromium was detected at a maximum concentration of 44 ppm in the IWTP Property Area. Chromium, cyanide (SCO of 40 ppm), and nickel were detected respectively at a maximum concentration of 120 ppm, 247 ppm, and 4,000 ppm beneath the former manufacturing building.

The majority of subsurface soil locations identified as having COCs at concentrations exceeding SCOs are located beneath the covers/caps within the Former Landfill, Soil Staging Area, or Soil Consolidation Area and were previously addressed by the IRMs.

Groundwater

The groundwater analytical results indicate that the shallow overburden groundwater contains VOCs and PCBs at concentrations exceeding SCGs and the deep overburden groundwater contains VOCs, SVOCs, and metals at concentrations exceeding SCGs.

Shallow Groundwater Zone

PCBs were detected above New York State Class GA groundwater standard (0.09 parts per billion [ppb]) in groundwater samples collected from monitoring wells (OBG-6S and OBG-7S on Figure 4 in Appendix I) located in the Northeast Property Area at a maximum concentration of 0.72 ppb. An elevated concentration of PCBs was detected in groundwater immediately north of the former manufacturing building at a maximum concentration of 55 ppb in the vicinity of a closed surface impoundment (MW-2S on Figure 4 in Appendix I). Otherwise, PCBs are present at concentrations marginally above New York State Class GA groundwater standard in a few localized areas in the shallow overburden groundwater zone.

Chlorinated VOCs, consisting mainly of TCE (SCG of 5 ppb), cis-1,2-DCE (SCG of 5 ppb), and vinyl chloride (SCG of 2 ppb) were detected in facility groundwater at maximum concentrations of 25,000 ppb, 4,700 ppb, 23 ppb, respectively, in samples collected from beneath the former manufacturing building (see Figure 4 in Appendix I). Field screening techniques suggest that VOC NAPL may exist beneath the former manufacturing building and may be a continuing source for groundwater contamination. The TCE detected may be associated with the former TCE storage area/IWTP previously located south of the former manufacturing building and possible solvent storage and usage within the former manufacturing building. Figure 4 in Appendix I, provides site-wide shallow groundwater sample results for VOCs. As shown on Figure 4 in Appendix I, the possible VOC NAPL beneath the building has not resulted in a shallow overburden groundwater plume north of the former manufacturing building.

Non-chlorinated VOCs, including toluene, ethylbenzene, and xylene, are present in the shallow groundwater zone in the Former Thinner Tanks Area at concentrations above the SCG of 5 ppb for these compounds. Specifically, the 2021 annual groundwater sampling detected these constituents at maximum concentrations of 3,400 ppb, 39,000 ppb, and 190,000 ppb, respectively. While NAPL is suspected to be present in the Former Thinner Tanks Area based on these groundwater concentrations, this groundwater is contained by the two recovery trenches and is not migrating off-property.

Arsenic was detected above the groundwater SCG in the Northern Property Area and Chromium was detected above the groundwater SCG beneath the former manufacturing building. In addition, other non-site-related metals, including iron, magnesium, manganese, and sodium, were also detected at concentrations above groundwater SCGs.

Deep Groundwater Zone

PCBs (*i.e.,* Aroclor 1242) were detected above New York State Class GA groundwater standard (0.09 ppb) in the Northern Property Area at a maximum concentration of 0.18 ppb (monitoring well OBG-W6DR on Figure 5 in Appendix I).

TCE, cis-1,2-DCE, and vinyl chloride were detected in the deep overburden groundwater at concentrations exceeding SCGs immediately north of the former manufacturing building, in the Northern Property Area, and off-property beneath the Ley Creek floodplain area (see Figure 5 in Appendix I). North of the former manufacturing building and in the Northern Property Area, TCE, cis-1,2-DCE, and vinyl chloride were detected in the deep overburden groundwater at maximum concentrations of 170,000 ppb, 11,000 ppb and 120 ppb, respectively, compared to their respective groundwater standards of 5 ppb for TCE and cis-1,2-DCE and 2 ppb for vinyl chloride.

Off-property, TCE, cis-1,2-DCE, and vinyl chloride were detected at maximum concentrations of 3,500 ppb, 570 ppb and 140 ppb, respectively in monitoring wells located approximately 200 ft. north of the property. NAPL source material may be present at areas between the northern extent of the former manufacturing building and the northern facility perimeter based upon the suspected movement of the TCE plume along the top of the till and the concentrations of TCE detected in deep groundwater. Figure 5 in Appendix I, provides site-wide deep groundwater zone sample results for VOCs.

SVOCs and site-related metals were not detected above SCGs in the deep groundwater.

Soil Vapor

As part of the June 16, 2010 Vapor Intrusion Mitigation IRM, sub-slab vapor and indoor air samples were collected. The investigation identified elevated levels of chlorinated VOCs above air guidelines and other criteria referenced in the State's Guidance for Evaluating Soil Vapor Intrusion (New York State Department of Health [NYSDOH], 2006 w/ updates). Evaluation of the data resulted in the installation of an SSDS to address the soil vapor intrusion. The sub-slab and indoor air sampling results are summarized below.

Sub-Slab

1,1,1-Trichloroethane (1,1,1-TCA), Tetrachloroethene (PCE), TCE, and cis-1,2-DCE were detected in the sub-slab vapor samples at concentrations exceeding NYSDOH guidance values beneath the former manufacturing building at maximum concentrations of 1,400 micrograms per cubic meter (µg/m^3), 2,800 µg/m^3, 1,900,000 µg/m^3, and 270 µg/m^3, respectively.

Indoor Air

PCE, TCE and cis-1,2-DCE were detected in the indoor air at concentrations exceeding NYSDOH guidance values at maximum concentrations of 540 µg/m^3, 130 µg/m^3, and 0.23 µg/m^3, respectively.

Suspected Nonaqueous Phase Liquids

Chlorinated VOC NAPLs may be present in some areas of the facility property based on the elevated concentrations (TCE at 25,000 ppb) that were detected in the shallow groundwater beneath the former manufacturing building and in the deep groundwater near the property boundary (TCE at 160,000 ppb). Chlorinated VOC NAPLs, if present beneath the former manufacturing building, would be expected to flow along the till down into the deep groundwater unit. In fact, and as described above, analytical results from the shallow overburden groundwater north of the former manufacturing building show that the VOC NAPL under the building has not resulted in a shallow overburden groundwater plume.

Suspected PCB NAPL may be present underneath the former manufacturing building as a result of past releases of PCB-containing hydraulic fluid to sumps and to leaking process sewers during the manufacturing processes.

A past leak from the underground paint thinner storage tanks/piping in the Former Thinner Tanks Area is a potential source of non-chlorinated VOC NAPL that may be present in this area. As part of the Thinner Tanks System Area Groundwater Recovery IRM, GM installed two groundwater collection trenches and associated piping to collect and treat the contaminated groundwater. While the IRM has contained the plume, there may be a source (*e.g.*, NAPL) that remains based on contaminant levels in groundwater in this area (including concentrations of total xylenes greater than 100,000 ppb since 1999).

Conclusions

Based on the results of the various iterations of the RI from 2010 through 2022 and prior investigations, the contamination at OU1 is summarized as follows:

- Approximately 2,580 CY of soil has been identified as exceeding the Industrial Use SCOs and/or the Protection of Groundwater SCOs for PCBs and VOCs. All but approximately 340 CY of this material is currently covered as part of completed IRMs or located below the building. Of the material not covered by IRMs, approximately 241 CY is covered by paving (roadways or parking lots). Of the remaining uncovered soil exhibiting concentrations greater than the Protection of Groundwater SCO, approximately 15 CY are located in the top 1 ft and 84 CY are at depths greater than 1 ft. Approximately 38 CY of material is to be removed in the surface soil and 1500 CY of material is to be removed in the surface and subsurface soil with the assumption of over excavation of 10 ft for locations shallower than 5ft and extended 20 ft for locations between 5 and 15 ft bgs.
- Three residual source areas may exist at the facility: potential non-chlorinated VOC NAPL in shallow overburden soil within the Former Thinner Tanks Area; potential chlorinated VOC NAPL and PCB NAPL in shallow/deep overburden soil beneath the former manufacturing building; and potential chlorinated VOC NAPL in deep overburden soil within the Northeast Property Area. From calculations based on the groundwater data, the Former Thinner Tanks Area VOC residual source area is approximately 35,800 sf by 10 ft thick, the former manufacturing building VOC residual source area is approximately 115,100 sf by 10 ft thick, and the VOC residual source in the Northeast Property Area is approximately 56,200 sf by 1-ft thick.
- Shallow and deep groundwater is contaminated with chlorinated VOCs and PCBs, and there are high concentrations of toluene, ethylbenzene, and xylene in the Former Thinner Tanks Area. Specifically:

    - VOC NAPL is potentially located under the former manufacturing building but has not resulted in a shallow overburden groundwater plume.
    - In general, PCBs are present at concentrations above New York State Class GA groundwater standards in a few localized areas in the shallow overburden groundwater zone (PCBs up to 55 ppb as compared to the groundwater standard of 0.09 ppb) and in one location in the deep overburden groundwater zone. Given that most of the PCB detections were associated with PCBs observed in subsurface soils, the groundwater detections are likely indicative of localized conditions.
    - Chlorinated VOCs were detected at elevated concentrations (TCE up to 25,000 ppb as compared to the groundwater standard of 5 ppb) in the shallow overburden groundwater beneath the former manufacturing building.
    - Chlorinated VOCs were detected at elevated concentrations (TCE up to 170,000 ppb as compared to the groundwater standard of 5 ppb) in the deep overburden groundwater north of the former manufacturing building and off-property beneath the Ley Creek floodplain area.

- Toluene, ethylbenzene, and xylene contamination in the shallow overburden groundwater are contained by operation of the Former Thinner Tanks Area Groundwater Recovery System.

Contamination Fate and Transport

The COCs that were detected in the soil and groundwater at OU1 are consistent with the operation of a large automotive manufacturing facility for more than 40 years. The location of the COCs and their mass distribution correlate reasonably well to the location of the process and disposal areas of the former plant, releases to sumps and leaking process sewers during the manufacturing processes, and leaks from the underground paint thinner storage tanks/piping in the Former Thinner Tanks Area.

CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Land Use

OU1 is zoned for industrial use and is bounded by commercial and industrial properties. The current and reasonably-anticipated future land uses for this Subsite is industrial. Currently, the former manufacturing building is occupied by a variety of tenants performing light industrial activities.

SUMMARY OF SUBSITE RISKS

As part of the RI, baseline quantitative risk assessments were conducted for this Subsite to estimate the risks to human health and the environment (under current and anticipated future land uses). Baseline risk assessments, consisting of a baseline human health risk assessment (BHHRA), which evaluates potential risks to people, and a fish and wildlife impact analysis (FWIA), which evaluates potential risks to the environment, analyze the potential for adverse effects caused by hazardous substance releases from a site assuming no further action to control or mitigate exposure to these hazardous substances are taken.

Human Health Risk Assessment

A BHHRA was conducted to estimate current and future effects of contaminants on human health. A BHHRA is an analysis of the potential adverse human health effects caused by hazardous substance exposure in the absence of any actions to control or mitigate these exposures under current and future site uses. If it is determined that an unacceptable risk exists, the BHHRA provides the basis for taking an action and identifies the contaminants and exposure pathways that need to be addressed through implementation of a remedial action. This section of the ROD summarizes the results of the BHHRA for OU1.

A four-step process is utilized for assessing site-related human health risks for

reasonable maximum exposure scenarios, as follows:

Hazard Identification – uses the analytical data collected to identify the contaminants of potential concern (COPCs) for each medium, with consideration of a number of factors explained below.

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

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

Risk Characterization – summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations that exceed acceptable levels, defined in the NCP as an excess lifetime cancer risk greater than 1 x 10^{-6} to 1 x 10^{-4} or a Hazard Index greater than 1.0 (discussed in more detail, below); contaminants at these concentrations are considered COCs and are typically those that will require remediation at a site. Also included in this section is a discussion of the uncertainties associated with these risks.

Hazard Identification

In this step, analytical data collected during the RI is used to identify COPCs in the contaminated media (*e.g.*, surface and subsurface soil, groundwater, indoor and outdoor air) at a site based on factors such as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, and concentrations of the contaminants, as well as their mobility and persistence.

Exposure Assessment

OU1 is zoned industrial and exposure scenarios were developed based on this current and likely future land use. The BHHRA considered exposure to soil, outdoor air (via dusts) and groundwater through several current and future exposure scenarios. Receptors and pathways that were evaluated included the following: exposure to surface soil and outdoor air by older children and adult trespassers as well as industrial workers and construction workers; and exposure to shallow groundwater by construction workers; and exposures to groundwater used as drinking water by future child and adult residents.

Exposure scenarios were developed for these populations and considered exposure through incidental ingestion and inhalation of and dermal contact with surface and, subsurface soil, and ingestion of groundwater as a hypothetical drinking water source in the future. Human health risks associated with the ingestion of groundwater are based

on groundwater data from the RI. Risks from exposure to volatile contaminants within indoor air via vapor intrusion were also evaluated in the BHHRA.

As referenced above, however, the vapor mitigation system as installed, operated, and maintained by the RACER Trust continues to prevent vapor intrusion from the soil and groundwater beneath the former manufacturing building into the building's indoor air.

The BHHRA included a recommendation that, based on the vapor intrusion screening presented in the BHHRA, a vapor intrusion evaluation should be conducted if any buildings (new or existing) will be occupied on the facility property. The vapor intrusion screening identified chemicals with a potential to migrate to indoor air, based on factors such as the chemical- specific vapor pressure. Because these factors apply to chemicals present in media such as soil, fill material, and groundwater, all media with these chemicals have the potential for future vapor intrusion concerns. A full discussion of the BHHRA evaluation and conclusions is presented in the BHHRA Report (Appendix I of the RI report).

Toxicity Assessment

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

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards because of exposure to site chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of any site-related chemicals would be additive. Thus, cancer and noncancer risks associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Toxicity data for the human health risk assessment were taken from the Integrated Risk Information System database, the Provisional Peer Reviewed Toxicity Database, or another source that is identified as an appropriate reference for toxicity values consistent with EPA's directive on toxicity values.

Risk Characterization

This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of Subsite risks. Exposures were evaluated based

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

Risk = LADD x SF

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

The likelihood of an individual developing cancer is expressed as a probability that is usually expressed in scientific notation (such as 1×10^{-4}). For example, a 1×10^{-4} cancer risk equates to a "one-in-ten-thousand excess cancer risk;" or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions described in the exposure assessment. Current Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk).

For noncancer health effects, a hazard index (HI) is calculated. The HI is determined based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) that are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical ingested from contaminated drinking water) is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is determined by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as shown below.

HQ = Intake/RfD

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

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

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

The principle concept for a noncancer HI is that a "threshold level" (measured as an HI of less than 1.0) exists below which noncancer health effects are not expected to occur. The HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1 indicates that the potential exists for non-carcinogenic health effects to occur as a result of site-related exposures, with the potential for health effects increasing as the HI increases. When the HI calculated for all chemicals for a specific population exceeds 1, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of 1 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

At this Subsite, the cancer risks and noncancer hazards were estimated for each of the exposure areas/media and the risk was evaluated for the specific populations identified in each unit under current and reasonably-anticipated future use. A summary of the cancer risks and noncancer hazards above threshold levels for each population in each of the areas of OU1, along with the chemicals that contribute the most to the risk or hazard, or COCs, can be found in Tables 11 and 12 in Appendix II.

Total cancer risk for the adult trespasser, industrial worker and construction worker exceeded EPA's 10^{-4} – 10^{-6} risk range, primarily driven by exposure to polycyclic aromatic hydrocarbons (PAHs) (particularly benzo(a)pyrene) in surface soil. Noncancer hazard for the industrial worker and construction worker also exceeded the threshold of 1 due primarily to PCBs in surface soil. For the construction worker, exposure to ethylbenzene in groundwater also contributed to elevated hazard. Furthermore, hypothetical future residential exposure to groundwater as potable water resulted in elevated cancer risk and noncancer hazards. These estimates were driven by exposure to ethylbenzene, TCE, cis-1,2-DCE, xylenes, vinyl chloride, arsenic, chromium, and PCBs in groundwater. A summary of the cancer risks and noncancer hazards above threshold levels for each population in each of the OU26 areas, along with the COCs that contribute the most to the risk or hazard can be found in the Facility Risk and Hazard Summary table of the BHHRA.

The BHHRA included a recommendation that based on the vapor intrusion screening presented in the BHHRA, a vapor intrusion evaluation should be conducted if buildings that will be occupied are constructed at this Subsite. The vapor intrusion screening identified chemicals with a potential to migrate to indoor air, based on factors such as the chemical-specific vapor pressure. Because these factors apply to chemicals present

in media such as soil, fill material, and groundwater, all media with these chemicals have the potential for future vapor intrusion concerns. Based on the vapor intrusion evaluation, measures may be included in the design and construction of buildings at this Subsite to mitigate the potential for exposure to constituents that may be present in soil vapor. Such measures may include an active sub-slab depressurization system, use of a vapor barrier or the installation of a venting system.

Uncertainty in the Risk Assessment

The process of evaluating human health cancer risks and noncancer health hazards involves multiple steps. Inherent in each step of the process are uncertainties that ultimately affect the final risks and hazards. Important site-specific sources of uncertainty are identified for each of the steps in the four-step risk process below.

Uncertainties in Hazard Identification

Uncertainty is always involved in the estimation of chemical concentrations. Errors in the analytical data may stem from errors inherent in sampling and/or laboratory procedures. While the datasets for this Subsite are robust, because environmental samples are variable, the potential exists that these datasets might not accurately represent reasonable maximum concentrations. There is a low potential that the risks may be overestimated or underestimated.

Uncertainties in Exposure Assessment

There are two major areas of uncertainty associated with exposure parameter estimation. The first relates to the estimation of exposure point concentrations (EPCs). The second relates to parameter values used to estimate chemical intake (*e.g.,* ingestion rate, exposure frequency). The estimates of the EPCs are influenced on how likely the dataset fully characterizes the contamination at OU1. These datasets are robust, so the potential for overestimating or underestimating risk is low. Many of the exposure parameters used in the BHHRA are based on best professional judgement. There is a low potential that the risks may be overestimated or underestimated*.*

Uncertainties in Toxicity Assessment

A potentially large source of uncertainty is inherent in the derivation of the EPA toxicity criteria (*i.e.,* RfDs, RfCs, SFs, IURs). Although these toxicity criteria have been extensively reviewed and peer-reviewed, there is a medium potential that uncertainty factors applied during their derivation may result in overestimation or underestimation of risk. Additionally, there are many contaminants for which no toxicity values are available and therefore they are not quantitatively evaluated in the BHHRA. There is high potential for underestimation because of this lack of toxicity information.

Uncertainties in Risk Characterization

When all of the uncertainties from each of the previous three steps are added, uncertainties are compounded. Because it is unknown whether many of the uncertainties result in an overestimation or underestimation of risk, the overall impact of these uncertainties is unquantifiable. However, some of the uncertainties, such as the lack of toxicity information, will likely result in an overall underestimation of risk.

Ecological Risk Assessment

The industrialized nature of OU1 (*i.e.*, presence of buildings, paved surfaces, and stormwater management facilities) minimizes its value as fauna habitat. The undeveloped portions of OU1 consist primarily of turf grass that is periodically mowed, minimizing its availability and suitability for wildlife use, such as nesting and foraging. The grassed habitats of OU1 range in value to wildlife in relation to their sizes and locations. Grassed areas surrounding facility-related structures are not likely frequently used by wildlife. Larger open lawns provide invertebrate and vegetative food sources for a limited number of small mammals and birds, such as mice, voles, American robin, and killdeer that may forage there. Waterfowl, reptiles, and small mammals may forage and/or rest in the grass areas adjacent to the retention basin, and bats may forage on insects flying above the basin. However, given the limited habitat and utilization by area wildlife, the conclusion contained in the FWIA is that site-related impacts to ecological receptors are minimal within OU1. A full discussion of the FWIA evaluation and conclusions is presented in the FWIA Report (Appendix J of the RI report)

Summary of Human Health and Ecological Risks

The results of the human health risk assessment indicate that the contaminated soil, indoor air, and groundwater present current and/or potential future exposure risks. Based on the industrial nature of OU1 and its limited habitat available for area wildlife, the ecological risk assessment indicates that site-related impacts to ecological receptors is minimal. Many of the risks to human health associated with contaminated soil have been mitigated, in part, by the implemented IRMs. While potential ecological and human health risks have been mitigated by OU1 IRMs, long-term O&M will be necessary to maintain protectiveness. Also, as noted above, ICs in the form of an environmental easement have been recorded for the property controlling and limiting site use and prohibiting groundwater use in its current state.

Basis for Action

The response action selected in this ROD is necessary to protect public health and the environment from actual or threatened releases of hazardous substances.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as Applicable or Relevant and Appropriate Requirements (ARARs), To-Be-Considered guidance, and site-specific risk-based levels established using the risk assessments.

The following RAOs have been established for OU1:

- Prevent ingestion/direct contact with contaminated soil/fill material.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminants in soil/fill material.
- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Restore groundwater to levels that meet state and federal standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.
- Prevent the discharge of contaminants to surface water and sediment in Ley Creek.
- Prevent contaminants in soil/fill material from impacting groundwater above drinking water standards.

NYSDEC's SCOs have been identified as remediation goals for soil to attain these RAOs. SCOs are risk-based criteria that have been developed by New York State following methods consistent with EPA's methods/protocols/guidance, and they are set at levels consistent with EPA's acceptable levels of risk that are protective of human health, ecological exposure, or the groundwater depending upon the existing and anticipated future use of OU1. The land use of OU1 has historically been industrial, and current and anticipated future uses can be reasonably expected to remain industrial. Groundwater remedial goals are the lower of the federal Maximum Contaminant Levels (MCLs) and the New York State Ambient Water Quality Standards. The lower, more stringent of the New York State Guidance Values and EPA's Vapor Intrusion Screening Levels will be used to evaluate future potential for vapor intrusion.

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA Section 121(b)(1), 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous

substances, pollutants, and contaminants at a site. CERCLA Section 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains ARARs under federal and state laws unless a waiver can be justified pursuant to CERCLA Section 121(d)(4), 42 U.S.C. § 9621(d)(4).

Based on anticipated future use of OU1, expectations of the reasonably anticipated land use, as described above, were considered in the FS to facilitate the development and evaluation of remedial alternatives. Given current zoning and the present and historical use of the property, the reasonably anticipated land use is to remain an industrially zoned property.

All the alternatives, other than Alternative 1, No Further Action, include the long-term site management of the IRMs. The long-term site management would include maintenance activities and performance monitoring to ensure that the IRMs are operating effectively and efficiently and to identify any needed corrective measure(s) specific to the IRMs. Corrective measures for the IRM cover systems, such as the existing paved surfaces (*i.e.*, roadways or parking lots) and the former manufacturing building that currently serve as a cover for impacted shallow soils, may consist of repair in areas of disturbance or re-application of vegetation in areas of non-survival.

As discussed in more detail in Alternative 2 below, each active remedial alternative (Alternatives 2 through 5) includes the following common components:

Environmental Easement: An existing environmental easement shall be maintained and enforced, if necessary. It requires land use and groundwater use restrictions for the facility. Land use restrictions restrict activities that could result in unacceptable exposure to contaminated soil. Groundwater use restrictions preclude the use of groundwater without prior notification and approval from NYSDEC. The existing environmental easement also includes requirements that necessary engineering controls be operated, maintained, and monitored to provide protectiveness to human health and the environment.

Site Management Plan: A Site Management Plan (SMP) would guide future activities at the facility by addressing use restrictions and by developing the following requirements: periodic reviews; operation and maintenance of engineering controls; and groundwater monitoring. The periodic site management reviews would focus on evaluating the on-site conditions regarding the continuing protection of human health and the environment as evidenced by information such as groundwater monitoring and documentation of field inspections.

Soil Management Plan: A soil management plan would be implemented to outline the implementation of engineering and institutional controls for the handling and

management of soil during remedial, maintenance, or site redevelopment activities. The soil management plan would detail the implementation of on-site consolidation (temporary or permanent), off-site disposal, soil characterization procedures, and hot spot excavation.

Shallow and Deep Groundwater Monitoring: *A* monitoring program for shallow and deep groundwater and/or adjacent surface water would be performed to determine effectiveness of the implemented remedy.

Excavation and Off-Site Disposal of Soil: Excavation would be conducted to remove contaminated surface and/or subsurface soil as required under the respective alternative. Excavated soils would be disposed of at an offsite permitted facility.

The remedial alternatives are as follows:

Alternative 1 - No Further Action

The Superfund program requires that the "no further action" alternative be considered as a baseline for comparison with the other alternatives. The no further action remedial alternative would not include any additional remedial measures to address the soil and groundwater contamination at OU1.

As this alternative does not involve further actions, there are no estimated capital, annual, and present-worth costs. The costs of this alternative are as follows:

Capital Cost:	$0
Annual O&M Cost:	$0
Present-Worth Cost:	$0

Alternative 2 – Perimeter and Targeted Shallow Groundwater Collection and Treatment, Perimeter and Targeted Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal

Alternative 2 would include the construction of a perimeter shallow groundwater collection trench (approximately 1,800 ft in length and 15 ft deep) and the installation of deep groundwater extraction wells (approximately 35 ft deep) along the northern perimeter of the facility property. These two systems would be used to collect contaminated groundwater and prevent further off-property migration. This alternative would also include targeted deep groundwater extraction to address the contamination beneath and immediately northeast of the former manufacturing building, and an enhancement and expansion of the Former Thinner Tanks Area Groundwater Recovery

System to target the shallow groundwater contamination in that area. All collected groundwater would be treated at the current SPDES treatment system to meet discharge criteria prior to being discharged to Ley Creek. Groundwater monitoring would be performed to evaluate the effectiveness of the groundwater extraction systems.

This alternative would also include the excavation and off-site disposal of unsaturated surface soil exhibiting contaminant concentrations of PAHs and PCBs greater than the Industrial Use SCOs for those substances in areas not currently addressed by an approved IRM or covered by facility paved surfaces (roadways or parking lots) or the former manufacturing building. The approximate volume of material associated with this excavation is estimated to be 38 CY. The excavated areas would be restored to grade with certified clean fill following confirmatory sampling.

The enhancement to the Former Thinner Tanks Area Groundwater Recovery System would include the installation of a flow meter with a totalizer on each of the two existing collection trenches to monitor effluent withdrawn from each trench and conveyed to the SPDES treatment system. The Former Thinner Tanks Area Groundwater Recovery System would be expanded with the installation of an additional collection trench or groundwater extraction wells to help increase the removal of VOC mass (*i.e.,* xylene, ethylbenzene, and toluene) and to restore groundwater quality in this area. While the FS cost estimate assumes that two wells would be installed, the appropriate method for extracting the groundwater would be determined during the RD.

During the RD, studies would be performed to determine the well placement, pumping rates, and drawdown levels that would allow for optimal capture for the three groundwater extraction systems (located in the perimeter shallow, perimeter deep, and the targeted deep area northeast of the former manufacturing building).

This alternative would also include an evaluation of the existing SSDS during the RD to determine whether enhancements to the system could effectively improve the removal of elevated VOCs in the unsaturated soil beneath the former manufacturing building.

As part of the long-term groundwater quality monitoring, COC concentration and natural attenuation data would be collected from the shallow and deep groundwater throughout OU1. Following the operation of the new perimeter groundwater extraction system for a period up to five years, an evaluation would be performed to determine whether the system is effectively reducing or attenuating COC concentrations in off-property groundwater. If it is determined that continued groundwater extraction at the property perimeter alone would not achieve the remediation goals for the off-property groundwater within a reasonable timeframe, then off-property *in-situ* treatment and/or extraction and treatment would be considered and may be incorporated into the remedy as determined to be appropriate.

The evaluations of the SSDS, targeted groundwater extraction system, and perimeter extraction system would be documented, and the implementation of any of these additional remedial components (*e.g.*, SSDS enhancement and off-property groundwater treatment) would be documented in an ESD.

Monitoring the enforcement, as necessary, of the existing environmental easement for the property which achieves the following:

- require the submission of a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- restrict the use and development of the property to industrial use as defined by Part 375-1.8(g), subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water without appropriate treatment as determined by the NYSDOH or the Onondaga County Health Department; and
- require compliance with the approved SMP.

Under this alternative, a SMP would be required that will include the following components:

1) 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:
   - an excavation plan that details the provisions for management of future excavations in areas of remaining contamination;
   - a provision for further investigation and remediation should large-scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable would be investigated pursuant to an approved plan. Based upon the investigation results and a determination of the need for possible additional response activities, a remedy modification would be developed for OU1, including removal and/or treatment of any source areas, to the extent feasible. Citizen Participation Plan activities would continue through this process. It is anticipated that any necessary remediation would be completed prior to, or in association with, redevelopment. This includes the former manufacturing building;
   - descriptions of the provisions of the environmental easement including any land and groundwater use restrictions;
   - provisions for the management and inspection of the identified engineering controls;
   - plans to maintain site access controls and notification requirements; and

- Identification of steps necessary for the periodic reviews and certifications of the institutional and/or engineering controls.

2) A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to, the following:
   - monitoring of groundwater to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals;
   - monitoring for vapor intrusion for any buildings on the facility property, as may be required by the Institutional and Engineering Control Plan described above.

3) An O&M Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan would include, but not be limited to, the following:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M, as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and required notifications; and
   - provide access to the site and O&M records.

Because this alternative would result in contaminants remaining above levels that would otherwise allow for unrestricted use and unlimited exposure, CERCLA requires that OU1 be reviewed at least once every five years. A conceptual depiction of Alternative 2 is presented in Figure 6 in Appendix I.

The estimated construction time for this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$5,560,000
Annual O&M Cost:	$264,000
Present-Worth Cost:	$8,990,000

Alternative 3 – Targeted Shallow Groundwater Collection and Treatment, Perimeter and Targeted Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal

Alternative 3 is similar to Alternative 2, except there would be no shallow groundwater trench installed at the property perimeter. Enhancement and expansion of the Former Thinner Tanks Area Groundwater Recovery System to target the shallow groundwater contamination in that area would, however, be retained in this Alternative. Alternative 3 would rely on a deep groundwater extraction and treatment system at the property perimeter combined with a targeted deep groundwater extraction system to address the contamination in the areas beneath and immediately northeast of the manufacturing

building. A conceptual depiction of Alternative 3 is presented in Figure 7 in Appendix I.

The estimated construction time of this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$3,890,000
Annual O&M Costs:	$266,000
Present-Worth Cost:	$7,340,000

Alternative 4 – *In-Situ* Treatment of Residual Source Areas, Perimeter Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal

Alternative 4 is similar to Alternative 2, except there would be no shallow groundwater collection trench installed at the property perimeter and no expansion of the Former Thinner Tanks Groundwater Recovery System. Instead, *in-situ* treatment would be employed rather than groundwater extraction and treatment to significantly reduce contaminant concentrations in the residual source areas (the Former Thinner Tanks Area, northeast of the manufacturing building, and beneath the former manufacturing building). *In-situ* treatment would involve injecting amendment(s) using horizontal drilling techniques to promote contaminant degradation in the area beneath the building. Injection points would be positioned at the perimeter of the manufacturing building and extended horizontally to target the contamination beneath the building. A conceptual depiction of Alternative 4 is presented in Figure 8 in Appendix I.

The estimated construction time of this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$18,600,000
Annual O&M Costs:	$264,000
Present-Worth Cost:	$22,200,000

Alternative 5 – *In-Situ* Treatment of Residual Source Areas, Perimeter Shallow Groundwater Collection and Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal

Alternative 5 includes the same elements as Alternative 4, except that instead of using horizontal *in-situ* injection techniques at the building perimeter to address contaminants present beneath the building, vertical injection techniques would be used to address the

contaminants present beneath the building. As such, Alternative 5 would require drilling through the former manufacturing building floor. In addition, a shallow groundwater collection trench at the property perimeter would be installed as described under Alternative 2.

Alternative 5 would also include the excavation and off-site disposal of surface and subsurface soil exhibiting concentrations greater than the Industrial Use SCOs, including areas currently covered by an approved IRM, or paved surfaces (roadways or parking lots). The approximate total volume of material associated with this excavation would be 1,500 CY. The excavated areas would be restored to grade with certified clean fill following confirmatory sampling. A conceptual depiction of Alternative 5 is presented in Figure 9 in Appendix I.

The estimated construction time of this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$22,600,000
Annual O&M Costs:	$259,200
Present-Worth Cost:	$26,000,000

COMPARATIVE ANALYSIS OF ALTERNATIVES

The detailed analysis required under the NCP consists of an assessment of the individual alternatives against each of the nine evaluation criteria (see below) and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The first two criteria are known as "threshold criteria" because they are the minimum requirements that an alternative must meet to be eligible for selection as a remedy. The next five criteria, criteria 3 through 7, are known as "primary balancing criteria." These criteria are applied as factors between response measures so that the best option will be chosen given site-specific data and conditions. The final two criteria, criteria 8 and 9, are known as "modifying criteria." Community and support agency acceptance are factors that are assessed by reviewing comments received during the public comment period, including any new information that might be made available after publication of the proposed plan that significantly changes basic features of the remedy with respect to scope, performance, or cost.

The nine evaluation criteria are:

1. Overall protection of human health and the environment in which it is determined whether an alternative eliminates, reduces, or controls threats to public health and the environment through the implementation of remedial measures such as institutional controls, engineering controls, or treatment.
2. Compliance with ARARs in which it is evaluated whether the alternative would meet all of the applicable or relevant and appropriate requirements of federal and state environmental statutes and other requirements that pertain to this Subsite or provide grounds for invoking a waiver.
3. Long-term effectiveness and permanence is considered in the context of the ability of an alternative to maintain protection of human health and the environment over time.
4. Reduction of toxicity, mobility, or volume through treatment is the criterion by which an alternative's anticipated performance related to treatment technologies that an alternative may employ is gauged.
5. Short-term effectiveness is considered in the context of the duration needed to implement an alternative and the risks that the alternative may pose to workers, residents, and the environment during implementation.
6. Implementability is the technical and administrative feasibility of implementing the alternative, including the availability of materials and services.
7. Cost includes estimated capital and annual operation and maintenance costs, as well as present-worth costs. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
8. State acceptance is whether, based on its review of the RI/FS reports and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the selected response measure.
9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports.

A comparative analysis of these alternatives based upon the evaluation criteria noted above follows.

Overall Protection of Human Health and the Environment

Alternative 1 would not be protective of human health and the environment because it would not address contaminated soil or groundwater. Alternatives 2 through 5 would be protective of human health and the environment because each of these alternatives would rely upon remedial strategies and/or treatment technologies capable of eliminating exposure to contaminated soil and groundwater. The existing ICs under Alternatives 2 through 5 would provide additional protection of public health.

Compliance with ARARS

Alternative 1 would not provide for any direct remediation of groundwater and would, therefore, not achieve chemical-specific ARARs for groundwater within a reasonable timeframe. Alternatives 2 through 5 would be more effective in reducing groundwater contaminant concentrations below MCLs because each option includes active remediation of the contaminated groundwater.

There are no ARARs that were identified for Alternative 1 because it is a no action alternative. With regard to location-specific ARARs for Alternatives 2 through 5, they would be conducted in a manner consistent with federal and state freshwater wetlands and floodplain requirements. Existing ICs would be monitored and enforced under Alternatives 2 through 5 in general conformance with NYSDEC's DER-33 guidance. Additionally, continued maintenance of cover systems included as part of Alternatives 2 through 5 (including existing cover systems) would prevent erosion and exposure to contaminated soil. Cover systems would be implemented in general conformance with NYSDEC's DER-10 guidance. Procedures would be implemented to adhere to the location-specific ARARs and other requirements related to federal and state cultural, archeological, and historical resources requirements. The need for a scope of cultural resources survey, as required by the National Historic Preservation Act, would be evaluated during the RD. With respect to action-specific ARARs, proposed cover systems and excavation activities would be conducted consistent with applicable standards; earth moving/excavation activities would be conducted consistent with air quality standards; transportation and disposal activities would be conducted in accordance with applicable state and federal requirements by licensed and permitted haulers.

Compliance with action-specific ARARs related to hazardous waste management requirements for treatment residuals and SPDES requirements for treated water discharged to Ley Creek would be addressed in Alternatives 2 through 5 during the continued operation of the Former Thinner Tanks Area shallow groundwater collection and SPDES Treatment System IRM. Action-specific ARARs related to subsurface injection of chemical oxidation amendments under Alternatives 4 and 5 would be met during remedy implementation.

The chemical-specific ARARs in the water-column for PCBs (New York State Class GA groundwater standard of 0.09 ppb), for VOCs (TCE SCG of 5 ppb, cis-1,2-DCE SCG of 5 ppb, and vinyl chloride SCG of 2 ppb), and non-chlorinated VOCs, including toluene, ethylbenzene, and xylene SCGs of 5 ppb, would be met under Alternatives 2-5.
The provisions of ECL Section 27-1318, Institutional and Engineering Controls, is applicable to the environmental easement under Alternatives 2 through 5.

Long-Term Effectiveness and Permanence

Alternative 1 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants in the soil and groundwater and would allow for the continued release of contaminants from the soil to the groundwater and the continued migration of contaminated groundwater.

Alternatives 2 through 5 would be effective in the long term and would provide permanent remediation by removing the contaminated soil and treating/disposing of the contaminated soil at a licensed disposal facility. Alternatives 2 and 3 would be effective in the long term because there would be continuous extraction and treatment of the source material in the groundwater. Alternatives 4 and 5 would be more effective at removing the source material in the groundwater than Alternatives 2 and 3 because Alternatives 4 and 5 include the application of *in-situ* treatment techniques. Use of *in-situ* techniques under Alternative 4 and 5 would also reduce the need to continuously operate groundwater extraction and treatment systems. Alternatives 4 and 5 with the use of *in-situ* treatment techniques would also be more effective than Alternatives 2 and 3 at removing contamination beneath the former manufacturing building.

By actively addressing contamination, Alternatives 2 through 5 would maintain reliable protection of human health and the environment over time. Under Alternatives 2 through 5, the groundwater treatment residues would have to be appropriately handled by the on-site SPDES Treatment Facility. Alternative 1 would not generate such treatment residual because it does not involve active remediation. Alternative 4 would generate the least amount of greenhouse gases in the long term because there would only be the perimeter deep groundwater extraction and treatment system operating as part of OU1 management compared to the other alternatives with multiple extraction and treatment systems, thereby decreasing the use of energy and the production of greenhouse gas emissions. The long-term performance of Alternatives 2 through 5 could be at risk during severe storms/weather events and associated flooding. Potential flooding-related threats to the *in-situ* treatment injection and groundwater extraction and treatment systems would need to be evaluated during the RD to ensure adequate resiliency to the potential effects of climate change.

Reduction in Toxicity, Mobility, or Volume Through Treatment

There would be no reduction in toxicity, mobility, or volume under Alternative 1. Alternatives 2 through 5 would afford similar reductions in toxicity, mobility, and volume through the collection and treatment of contaminated groundwater, thereby satisfying CERCLA's preference for treatment. Alternatives 4 and 5, would rely upon *in-situ* treatment techniques to address the contamination in certain portions of the groundwater.

In-situ treatment, a remedial element included in Alternatives 4 and 5 would address

contaminants in areas where high concentrations of site contaminants, and potentially NAPL, which constitutes a principal threat waste, exist. *In-situ* treatment relies on a chemical reaction or biological processes to permanently destroy VOC contamination. Therefore, it would effectively reduce the toxicity, mobility, and volume of the site contamination and directly treat principal threat waste if it is present.

Short-Term Effectiveness

Alternative 1 does not include any physical construction measures in any areas of contamination, thus it would not present any potential adverse impacts to remediation workers or the community as a result of its implementation.

There could be potential adverse impacts to remediation workers and nearby employees and visitors at the former manufacturing building under Alternatives 2 through 5 through dermal contact, incidental ingestion, and inhalation related to the removal, handling, and processing of contaminated groundwater and soil. Noise from the soil excavation work associated with these alternatives could present some limited adverse impacts to remediation workers and nearby employees. In addition, soil and groundwater sampling activities would pose some risk. The risks to remediation workers and nearby employees under all of the action alternatives could, however, be mitigated by following appropriate health and safety protocols, exercising standard construction and engineering practices, and utilizing proper protective equipment.

Potential environmental impacts related to dust, volatile emission, and surface runoff would be mitigated through appropriate control measures and adherence to a Community Air Monitoring Plan.[5]

There is an environmental footprint inherent in implementation of each of Alternatives 2 through 5 as it relates to construction and long-term operation. The implementation installation and long-term use of a shallow groundwater collection trench included in Alternatives 2 and 5 would result in greater direct emissions and fuel consumption needed for construction equipment, transporting necessary material, and long-term extraction and treatment of groundwater from the shallow groundwater collection trench as compared to the other action alternatives. Under Alternatives 4 and 5, *in-situ* treatment would have higher initial, up-front greenhouse gas emissions than Alternatives 2 and 3 as a result of the use of heavy construction equipment needed for drilling and introducing *in-situ* amendments. However, the emissions would decrease in the long-term and ultimately produce the least greenhouse gas emissions. Alternatives 2, 3, 4, and 5 would be able to utilize the existing SPDES treatment system. Specifically, instead of constructing a new treatment plant, these Alternatives would be able to upgrade and

[5] The purpose of a Community Air Monitoring Plan is to provide protection to potential receptors (*i.e.,* remediation workers, tenants, and visitors) from potential airborne contaminant releases as a result of remedial work activities performed at the site.

retrofit the existing treatment system to accommodate the additional volume of extracted groundwater. Green remediation techniques would be considered to help minimize the environmental footprint related to the implementation of the remedial alternatives.

For all the action alternatives, there is a potential for stormwater runoff and erosion during construction and excavation activities that would have to be properly managed to prevent or minimize any adverse impacts. For these alternatives, appropriate measures would have to be taken during excavation activities to prevent transport of fugitive dust and exposure of remediation workers and employees at the former manufacturing building and surrounding community.

Alternatives 2 through 5 would address exposure-related RAOs upon implementation. Alternatives 2 through 5 are expected to address the off-property migration RAO within approximately one year of implementation of the remedies. Alternative 1 would not address the RAO associated with adult trespassers or groundwater use.

The former manufacturing building is currently being utilized by tenants conducting commercial and light industrial activities. Out of Alternatives 2 through 5, Alternative 5 would be the most disruptive to these businesses, as it would likely necessitate intrusive actions within the building to treat the underlying contamination. It is estimated that Alternatives 2 through 5 would require one year to implement.

Although it would likely take greater than 30 years to attain groundwater standards for each of the alternatives, Alternatives 4 and 5, which include the use of *in-situ* and traditional groundwater treatment to address areas with elevated VOC concentrations, would likely achieve the groundwater standards in the shortest amount of time relative to the other alternatives. Alternative 4 would achieve groundwater standards with less disruption to the businesses than Alternative 5.

Implementability

Alternative 1 would be the easiest alternative to implement, as there are no activities to undertake. Soil excavation would be readily implementable under Alternatives 2 through 5.

Construction of the shallow perimeter trench under Alternatives 2 and 5 would require excavation in the vicinity of utilities, including a National Grid high pressure gas line that runs the length of the property border along Factory Ave; National Grid overhead power lines along the property line along Factory Avenue; National Grid overhead high voltage power lines that traverse Factory Avenue from the former landfill at the facility; an Onondaga County sanitary sewer located on the southern shoulder of Factory Avenue; and the former landfill (and associated low permeability membrane). Construction in the vicinity of the above-noted obstacles and utilities would require offsets and are likely to

require measures to protect workers and the utilities during construction activities. These measures would not be necessary under Alternative 3 and 4, which do not include the installation of the shallow groundwater collection system. Installation of the groundwater extraction wells under Alternatives 2 through 5 would require measures to protect workers and the utilities during construction activities.

In-situ treatment, a remedial element of Alternatives 4 and 5, would require a treatability study. Subsurface soil conditions and the presence of underground utilities would need to be evaluated as they might interfere with the injection of reagents.

The former manufacturing building is currently being utilized by tenants conducting commercial and light industrial activities. Implementation of Alternative 5, which would necessitate intrusive actions within the building to treat the underlying contamination, would be more difficult to implement than Alternatives 2, 3, and 4.

Each alternative would require coordination among EPA, NYSDEC, Onondaga County, the Town of Salina, and the current manufacturing building's tenants.

Off-site facilities for treatment, storage, and disposal of treatment residuals and excavated soil would be readily available for each alternative. The necessary equipment, specialists, and materials would be readily available.

Cost

The estimated present-worth costs were calculated using a discount rate of seven percent and a thirty-year time interval for the post-construction monitoring and maintenance period. (Although O&M would continue as needed beyond the 30-year period, this is the typical period used when estimating costs for a comparative analysis.)

The estimated capital, annual O&M, and present-worth costs using a 7% discount factor for each of the alternatives are presented in the table below.

Alternatives	Capital Cost	Annual O&M Cost	Total Present Worth Cost
1 – No Further Action	$0	$0	$0
2 – Perimeter and Targeted Shallow Groundwater Collection; Perimeter and Targeted Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal	$5.6 million	$264,000	$8.99 million

3 – Targeted Shallow Groundwater Collection; Perimeter and Targeted Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal	$3.89 million	$266,000	$7.34 million
4 – *In-Situ* Treatment of Residual Source Areas; Perimeter Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal	$18.6 million	$264,000	$22.2 million
5 – *In-Situ* Treatment of Residual Source Areas; Perimeter Shallow Groundwater Collection and Treatment; Perimeter Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal	$22.6 million	$259,000	$26 million

State Acceptance

NYSDEC is the lead agency for OU1. EPA has determined that the selected remedy meets the requirements for a RA as set forth in CERCLA Section 121, 42 U.S.C. § 9621. As such, for the purpose of satisfying this remedy selection criterion of the NCP, NYSDEC, on behalf of New York State, supports the selected remedy. NYSDOH also supports the selection of this remedy; its letter of concurrence is attached (see Appendix IV).

Community Acceptance

Minimal feedback was received from the community during the public comment period. The comments received from the single commenter were in support of efforts to minimize disruptions to building tenants and to encourage coordination with the property owner. The comments that were received during the public comment period are summarized and addressed in the Responsiveness Summary, which is attached as Appendix V.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site, wherever practicable (NCP Section 300.430 (a)(1)(iii)(A)). The principal threat concept is applied to the characterization of source materials at a

Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or will present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of alternatives, using those remedy-selection criteria that are described above. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

PCB NAPL may be present beneath the former manufacturing building due to past releases of PCB-containing hydraulic fluid to sumps and to leaking process sewers during the manufacturing processes. Chlorinated VOC NAPL may also be present beneath and north of the manufacturing building, emanating from the center of the building in the vicinity of a former paint room.

A past leak from the underground paint thinner storage tanks/piping in the Former Thinner Tanks Area is a potential source of non-chlorinated VOC NAPL that may be present in this area. As part of the Thinner Tanks System Area Groundwater Recovery IRM, GM installed two groundwater collection trenches and associated piping to collect and treat the contaminated groundwater. While the IRM has contained the plume, there may be a source (*e.g.*, NAPL) that remains based on contaminant levels in groundwater in this area.

Because the noted NAPL is highly toxic, cannot be reliably contained, and will present a significant risk to human health or the environment should exposure occur, it constitutes a principal threat waste.

SELECTED REMEDY

Summary of the Rationale for the Selected Remedy

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, NYSDEC and EPA have determined that Alternative 4 - *In-Situ* Treatment of Residual Source Areas; Perimeter Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal, best satisfies the requirements of CERCLA Section 121, 42 U.S.C. § 9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, set forth at 40 CFR § 300.430(e)(9).

Alternative 1 does not satisfy the threshold criteria because it does not provide protection

of human health or the environment or provide a means to attain ARARs. Alternative 3 is similar to Alternative 2, except there would be no shallow groundwater collection trench installed along the northern perimeter of the facility property (only a deep groundwater extraction and treatment system).

Alternative 4 is similar to Alternative 2, except there would be no shallow groundwater collection trench installed at the property perimeter, no expansion of the Former Thinner Tanks Groundwater Recovery System, and *in-situ* treatment techniques would be employed instead of groundwater extraction and treatment to address residual contamination in the Former Thinner Tanks Area, northeast of and beneath the former manufacturing building. Because the shallow groundwater contamination on the property is primarily located in the Former Thinner Tanks Area and would be addressed through in-situ treatment, and as discussed above in the “Site Geology and Hydrogeology” section, the shallow groundwater contamination that is present outside of the Former Thinner Tanks Area is limited, shallow groundwater treatment at the property perimeter is not essential for the remedy to be effective.

Alternative 5 is similar to Alternative 4, except Alternative 5 would use traditional vertical well installation for the *in-situ* treatment remedy instead of horizontal wells and Alternative 5 would also include the installation of a shallow groundwater collection trench at the facility perimeter and soil removal beneath the cover systems and paved areas (parking lots and roads).

While approximately $1.65 million more expensive than Alternative 3, Alternative 2 would directly address contaminated shallow groundwater along the northern perimeter of the facility property, whereas Alternative 3 would not. Alternatives 4 and 5 are more costly ($22,200,000 and $26,000,000, respectively) than Alternative 2 ($8,990,000), but both Alternatives would be more effective than Alternative 2 in addressing the three residual source areas.

Alternative 4 includes active treatment of three separate residual source areas with *in-situ* treatment, therefore it does not include a shallow groundwater collection trench at the property perimeter to address the low concentrations of shallow groundwater contamination outside of the source areas. As stated above, the perimeter shallow groundwater trench would not necessarily add to the effectiveness of the remedy, given that the primary source of shallow groundwater contamination will be actively treated the Former Thinner Tanks Area and there is a limited presence of contamination in the shallow groundwater outside of the source areas. Alternatives 4 and 5 would be equally effective in addressing the residual source areas where NAPL, which constituents a principal threat waste, may be present under the former manufacturing building. However, Alternative 5 would be more disruptive to the tenants because installing traditional vertical wells for the *in-situ* treatment would require drilling through the building concrete floor within tenant-occupied spaces inside of the former manufacturing building.

Alternative 4 would rely on horizontal wells/directional drilling outside of the building footprint for the *in-situ* treatment. In summary, both Alternatives 4 and 5 would be more protective and significantly more costly than Alternatives 2 and 3. In comparing Alternative 4 and 5, however Alternative 4 would be less disruptive to building occupants and would cost approximately $3.8 million less than Alternative 5.

Based on information currently available, NYSDEC and EPA believe that Alternative 4 is the most appropriate alternative to address contamination at OU1. The selected remedy meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. NYSDEC and EPA expect the selected remedy to satisfy the following statutory requirements of CERCLA Section 121(b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element (or justify not meeting the preference).

NYSDEC and EPA agree that the selected remedy is protective of human health and the environment; can be readily constructed and operated, presents minimal potential short-term impacts to workers and the community, and is cost-effective. The selected remedy utilizes permanent solutions, alternative treatment technologies, and resource-recovery technologies to the maximum extent practicable.

Description of the Selected Remedy

The selected remedy, Alternative 4, includes the following components:

- Three areas where high concentrations of residual VOC contamination exist in saturated soil will be addressed using *in-situ* treatment. These three areas contain contaminants at concentrations greater than 10,000 ppm and represent continuing sources of groundwater contamination. Specifically, these areas include the Former Thinner Tanks Area, where non-chlorinated VOC residual contamination remains, and areas beneath and northeast of the former manufacturing building where residual chlorinated VOC contamination remains. As part of the RD, pre-design investigations will be performed in each of these areas to determine the volumes requiring treatment and the most-effective type of *in-situ* treatment(s).
- Installation of deep groundwater extraction wells along the northern perimeter of the facility property. Contaminated groundwater that has migrated from the source areas identified above will be extracted from these wells to prevent off-property migration. Following extraction, the contaminated groundwater will be treated at the existing SPDES water treatment system (using filtration and granulated activated carbon) prior to being discharged to Ley Creek. The groundwater

extraction system will be designed with a capture zone sufficient to address the areal and vertical extent of the groundwater contamination. During the RD, a study will be performed to determine the extraction well placement, the groundwater pumping rates, and the drawdown levels necessary to achieve optimal capture. To evaluate the effectiveness of the extraction system, a groundwater monitoring program will be implemented as part of this remedy.

- An estimated 38 CY of unsaturated surface soil will be excavated and disposed of off-site at a licensed disposal facility. The soils requiring excavation are those that contain contaminants at concentrations greater than the Industrial Use SCOs for PAHs and PCBs and are located in areas not currently addressed by an approved Interim Remedial Measure (IRM) or covered and isolated by facility paved surfaces (roadways or parking lots) or the former manufacturing building. Following confirmatory soil sampling to demonstrate that the SCOs have been achieved, the excavated areas will be restored to grade with clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d).
- The existing SSDS beneath the former manufacturing building includes two sub-slab vapor extraction systems that withdraw air at a rate of approximately 195 cubic feet per minute for System 1 and 94 cubic feet per minute for System 2. An evaluation of the SSDS will be performed during the RD to determine whether enhancements to the system could further improve the removal of elevated VOCs in the unsaturated soil beneath the former manufacturing building. Data will be collected to determine if the existing SSDS can be upgraded to not only continue to prevent sub-slab vapors from entering the former manufacturing building, but to enhance the removal of chlorinated VOC contamination present in the vadose zone soil beneath the building.
- As part of the long-term groundwater quality monitoring, data will be collected in the shallow and deep groundwater throughout this portion of the Subsite related to COC concentration and natural attenuation. Following the operation of the perimeter groundwater extraction and treatment system for a period up to five years, an evaluation will be performed to determine whether the system is effectively reducing COC concentrations in the off-property groundwater. If it is determined that continued groundwater extraction at the facility property perimeter alone will not achieve the remediation goals for the off-property groundwater within a reasonable timeframe, then off-property *in-situ* treatment techniques and extraction and treatment will be considered and incorporated into the remedy as determined to be appropriate.
- The evaluations of the SSDS and perimeter extraction system and the implementation of any of the associated alternative remedies will be documented via an ESD.
- As part of a long-term monitoring program, shallow and deep groundwater samples will be collected from monitoring wells throughout this portion of the Subsite to evaluate the performance of the groundwater extraction and treatment system, as well as the effectiveness of the *in-situ* treatment in the three residual

source areas where high concentrations of site contaminants remain. The details of the monitoring program will be developed as part of the RD/remedial action and outlined in a Monitoring Plan.

- The remedy will also include the imposition of an IC in the form of the existing environmental easement for the controlled property which will achieve the following:
    1. require the submission of a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
    2. restrict the use and development of the former facility property to industrial use as defined by Part 375-1.8(g), subject to local zoning laws;
    3. restrict the use of groundwater as a source of potable or process water without appropriate treatment as determined by the NYSDOH or the Onondaga County Health Department; and
    4. require compliance with the approved SMP.
- A SMP will be required that includes the following components:
    1. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the portion of the Subsite and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
        - an excavation plan that details the provisions for management of future excavations in areas of remaining contamination;
        - a provision for further investigation and remediation should large-scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited (beneath the 800,000 sf former manufacturing building) or unavailable will be immediately and thoroughly investigated pursuant to an approved plan. Based on the investigation results and a determination of the need for possible additional remedial actions, a remedy modification will be developed for the portion of the Subsite, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation activities will continue through this process. Any necessary future remediation will be completed prior to, or in association with, redevelopment. This includes the former manufacturing building;
        - descriptions of the provisions of the environmental easement including any land use or groundwater use restriction;
        - provisions for the management and inspection of the identified engineering controls;
        - maintain site access controls and notification; and
        - steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan will include, but may not be limited to the following:
    - monitoring of groundwater to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals; and
    - monitoring for vapor intrusion for any buildings on the facility property, as may be required by the Institutional and Engineering Control Plan described above.
3. An O&M Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting regarding any mechanical or physical components of the remedy. The plan includes, but is not limited to the following:
    - procedures for operating and maintaining the remedy;
    - compliance monitoring of treatment systems to ensure proper O&M, as well as providing the data for any necessary permit or permit equivalent reporting;
    - maintaining site access controls and required notification; and
    - provide access to the site and O&M records.

- Long-term O&M will be performed for the above-noted remedial actions as well as for the previously implemented IRMs, including the Former Landfill IRM; Surface Impoundment Cover #1 IRM; Former Thinner Tanks Groundwater Recovery System IRM; SPDES Treatment System IRM; and the Vapor Intrusion Mitigation IRM (*i.e.*, sub-slab depressurization system).
- Maintenance activities and performance monitoring will be conducted to ensure that the remedial elements and IRMs are operating effectively and efficiently and to identify the need to implement corrective action(s). Corrective actions for the IRM covers, as well as the existing paved surfaces (*i.e.*, roadways or parking lots) and the former manufacturing building that currently serve as a cover for impacted shallow soils, may consist of repair in areas of disturbance or re-application of vegetation in areas of non-survival.
- Because this alternative will result in contaminants remaining above levels that allow for unrestricted use and exposure, CERCLA requires that OU1 be reviewed at least once every five years.
- Green remediation techniques, as detailed in NYSDEC's Green Remediation Program Policy-DER-31[6] and EPA Region 2's Clean and Green Policy will be considered during the implementation of the selected remedy to reduce short-term environmental impacts. Green remediation best practices such as the following may be considered:
    1. Use of renewable energy and/or purchase of renewable energy credits to power energy needs during construction and/or O&M of the remedy.

[6] See http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

2. Reduction in vehicle idling, including both on and off-road vehicles and construction equipment during construction and/or O&M of the remedy.
3. Design of cover systems, to the extent possible, to be usable for alternate uses, require minimal maintenance (*e.g.,* less mowing), and/or be integrated with the planned use of the property.
4. Beneficial reuse of material that will otherwise be considered a waste.
5. Use of ultra-low sulfur diesel.

Summary of the Estimated Remedy Costs

The estimated capital cost of the selected remedy is $18.6 million, the annual O&M is $264,000, and the total present-worth cost (using a 7% discount rate) is $22.2 million. Table 5 in Appendix II provides the basis for the cost estimates for the selected remedy.

It should be noted that these cost estimates are expected to be within +50 to -30 percent of the actual project cost. These cost estimates are based on the best available information regarding the anticipated scope of the selected remedy. Changes to the cost estimate can occur as a result of new information and data collected during the design of the remedy.

Expected Outcomes of the Selected Remedy

Based on the industrial nature of OU1 and its limited habitat available for area wildlife, the ecological risk assessment indicates that site-related impacts to ecological receptors is minimal. The results of the HHRA indicate that the contaminated soil, indoor air, and groundwater present current and/or potential future unacceptable exposure risk. While some of the risks associated with contaminated soil have been mitigated in part by the previously implemented IRMs, the calculated risks are still considered to be valid as the IRM components relating to placement of clean cover materials did not address all Subsite areas and are not necessarily final actions. The selected remedy will mitigate these remaining risks. In addition, it is anticipated that the remedy will result in the restoration of shallow and deep groundwater at this subsite by *in-situ* treatment.

Under the selected remedy, potential risks to human health and the environment will be reduced to acceptable levels. Remediation goals for the COCs are presented in Tables 1 and 2 in Appendix II. Remediation goals for surface soil will be met following construction and implementation of appropriate institutional controls (*e.g.,* approximately one year following the start of construction). Additionally, the groundwater portion of the remedy is expected to restore groundwater to its designated use as a New York State Class GA drinking water source.

STATUTORY DETERMINATIONS

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site.

For the reasons discussed below, NYSDEC and EPA have determined that the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The results of the risk assessment indicate that, if no action is taken, OU1 poses an unacceptable human health risk.

The selected remedy will reduce exposure levels to protective levels or to within EPA's generally acceptable risk range of 10^{-4} to 10^{-6} for carcinogenic risk and below the HI of 1 for noncarcinogens. The implementation of the selected remedy will not pose unacceptable short-term risks or cross-media impacts that cannot be mitigated. The selected remedy will be protective of human health and the environment in that the construction of cover systems over contaminated soil will preclude potential human and ecological exposure to contamination in soil. Combined with institutional controls, the selected remedy will provide protectiveness of human health and the environment over both the short- and long-term. Additionally, the groundwater portion of the remedy is expected to restore groundwater to its designated use as a New York State Class GA drinking water source.

Compliance with ARARs and Other Environmental Criteria

The selected remedy will comply with the location-, chemical- and action-specific ARARs identified. The ARARs, TBCs, and other guidelines for the selected remedy are provided in Table 3 of Appendix II.

Cost-Effectiveness

A cost-effective remedy is one whose costs are proportional to its overall effectiveness (NCP Section 300.430(f)(1)(ii)(D)). Overall effectiveness is based on the evaluations of the following: long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. Based on the comparison of overall effectiveness (discussed above) to cost, the selected remedy meets the

statutory requirement that Superfund remedies be cost-effective.

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital and annual O&M costs were estimated and used to develop present-worth costs. In the present-worth cost analysis, annual O&M costs were calculated for the estimated life of the alternatives and related monitoring using a seven percent discount rate and a 30-year interval. The estimated capital, annual O&M, and total present-worth costs for the selected remedy are $18.6 million, $264,000; and $22.2 million, respectively. The estimated cost for the selected remedy is higher when compared to Alternative 2 and 3 because *in-situ* treatment cost estimates are higher but would be more effective at reducing toxicity, mobility and volume in the short term. While Alternative 5 would also address the groundwater through *in-situ* treatment, it might be more disruptive to the occupying tenants of the building and would be least cost-effective means of achieving remedial action objectives identified for this subsite.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy provides the best balance of tradeoffs among the alternatives with respect to the balancing criteria set forth in NCP Section 300.430(f)(1)(i)(B), such that it represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at this Subsite.

The soil component of the selected remedy will permanently address the contaminated surface soil in areas not currently addressed by the IRMs or covered by facility paved surfaces or the former manufacturing building by employing off-site treatment/disposal.

With regard to the contaminated groundwater, the selected remedy will provide a permanent solution and employ a treatment technology to reduce the toxicity, mobility, and volume of the contaminants in the groundwater. Specifically, contaminated groundwater in the deep aquifer will be addressed via extraction wells installed along the northern perimeter of the facility property and treatment at the on-site SPDES treatment plant. VOC contaminated groundwater in the Former Thinner Tanks Area and beneath and northeast of the former manufacturing building will be addressed by *in-situ* treatment. The SSDS may be upgraded to enhance the removal of chlorinated VOC contamination present in the vadose zone soil beneath the former manufacturing building.

The continued O&M of the prior IRMs as required under the selected remedy will provide long-term effectiveness and permanence while addressing groundwater impacts. Implementation of an engineered cover system and ICs under the selected remedy will provide adequate and reliable means of controlling erosion of, exposure to, and direct contact with contaminated soil/fill material.

Preference for Treatment as a Principal Element

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or justify not satisfying the preference). Under the selected remedy, VOCs in the groundwater will be subjected to both extraction and treatment at the SPDES treatment plant and *in-situ* treatment by injecting an amendment(s), thereby reducing their volume, toxicity, and mobility. In addition, the SSDS may be upgraded to enhance the removal of chlorinated VOC contamination present in the vadose zone soil beneath the former manufacturing building, thereby reducing their volume, toxicity, and mobility. Therefore, the selected remedy satisfies the statutory preference for treatment as a principal element of the remedy.

Five-Year Review Requirements

The selected remedy, once fully implemented, will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that would otherwise allow for unlimited use and unrestricted exposure. Consequently, a statutory review will be conducted within five years after initiation of the RA, and at five-year intervals thereafter, to ensure that the remedy is, or will be, protective of human health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

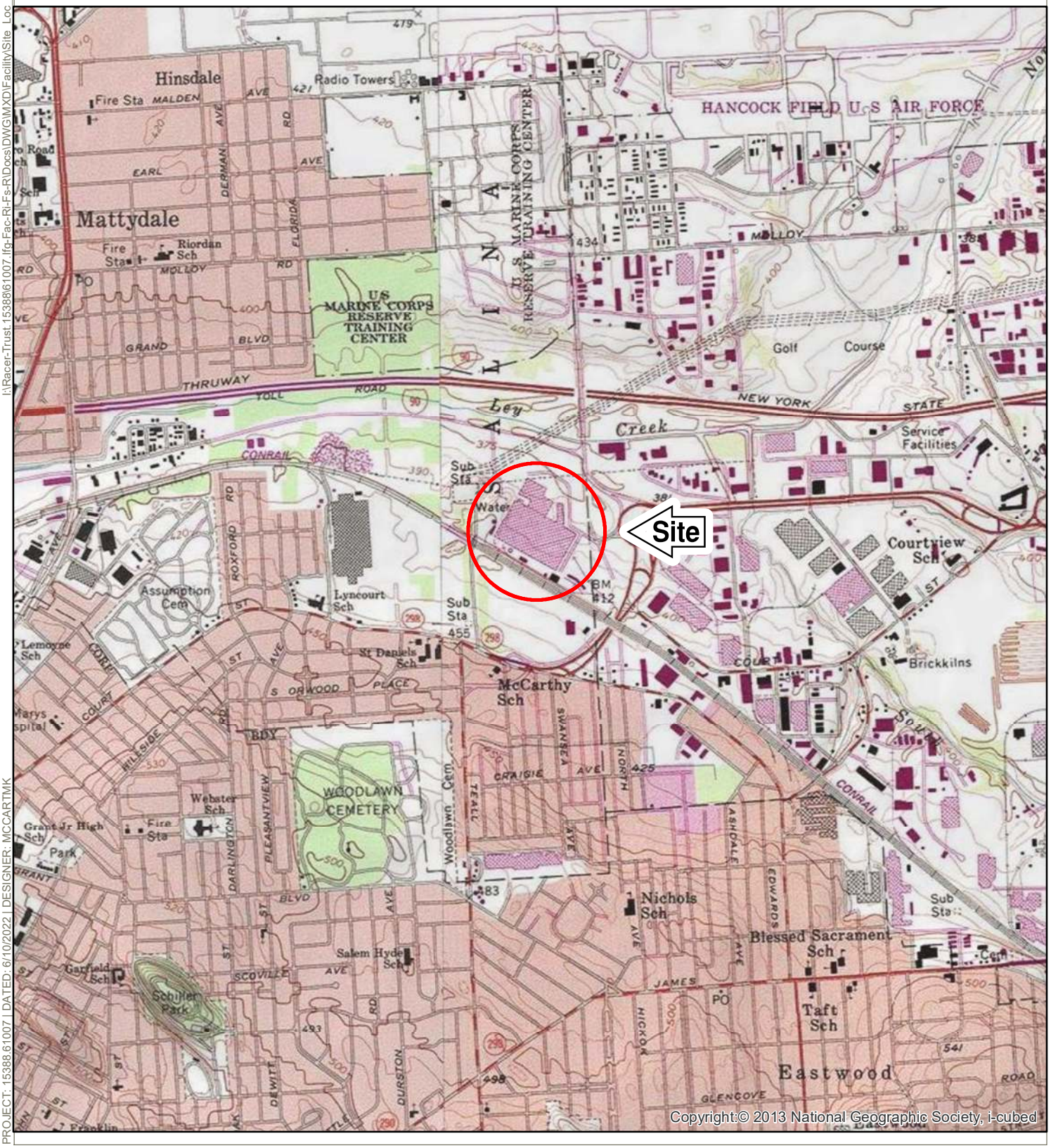
The Proposed Plan, released for public comment on July 27, 2023, identified Alternative 4, *In-Situ* Treatment of Residual Source Areas, Perimeter Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal, as the preferred alternative for OU1. Based upon its review of the written and verbal comments submitted during the public comment period, EPA and NYSDEC have determined that no significant changes to the proposed remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX I

FIGURES

FIGURE 1



KEY MAP

RACER TRUST
GM - IFG OU1
SYRACUSE, NEW YORK

SITE LOCATION

1940101904
JUNE 2022

0 1,000 2,000 4,000
Feet

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

FIGURE 2

N

LEGEND

PROPERTY AREA LIMITS

RACER TRUST
FORMER IFG FACILITY
SYRACUSE, NEW YORK

PROPERTY AREAS OF THE FORMER GM-OU1 SITE

0 100 200 400 600 Feet

1940101904
JANUARY 2023

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

FIGURE 3

N

LEGEND

- APPROXIMATE LIMITS OF LANDFILL
- APPROXIMATE LIMITS OF SOIL STAGING AREA
- PROPERTY AREA

SAMPLE LOCATION WITH EXCEEDANCE

- SUBSURFACE SAMPLE > IND/PROT. GW SCO
- SURFACE SAMPLE > IND/PROT. GW SCO

RACER TRUST
GM - IFG OU1
SYRACUSE, NEW YORK

LOCATIONS GREATER THAN SCOs

0 100 200 400 600
Feet

1940101904
JUNE 2022

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

I:\Racer Trust\15088.71590 Fmr Ilp Fac-Fs Docs\DWG\MXD\2020\Qtr_DataBox

PROJECT: 15088.71590 | DATED: 7/26/2021 | DESIGNER: VELOCY

OBG-27S	10/31/2006	8/24/2011	8/3/2016
PARAMETER	RESULTS		
Acetone	5 UJ	5 U	**330**
Chloromethane	2 UJ	0.75 J	0.5 U

MW-8	8/3/2016
PARAMETER	RESULTS
No Detections	

OBG-5	11/10/1999
PARAMETER	RESULTS
Methylene Chloride	8 NJ
Toluene	2 NJ

OBG-26S	10/31/2006	8/24/2011	8/2/2016	4/11/2019
PARAMETER	RESULTS			
Acetone	5 UJ	**260**	5.0 U	3.1 J
Vinyl Chloride	**4 J**	**30**	0.57	1 U

OBG-3	11/10/1999	8/2/2016
PARAMETER	RESULTS	
Acetone	---	8.0

OBG-25S	11/1/2006	8/25/2011	8/2/2016	4/9/2019
PARAMETER	RESULTS			
2-Butanone	3 J	5.0 U	5.0 U	10.0 U
Acetone	16 J	5.0 U	10	3.7 J

MW-12	10/31/2006	8/3/2016
PARAMETER	RESULT	
No Detections		

MW-13	10/31/2006	8/3/2016
PARAMETER	RESULT	
No Detections		

OBG-7A	11/9/1999
PARAMETER	RESULTS
No Detections	

OBG-WSSR	10/24/2006	4/10/2019
PARAMETER	RESULTS	
Acetone	5 U	10 U
cis-1,2-Dichloroethene	**9**	1 U
Trichloroethene	**65**	1 U
Vinyl Chloride	**4**	1 U

OBG-23S	10/24/2006
PARAMETER	RESULTS
Trichloroethene	1 J

OBG-9SR	10/25/2006	4/11/2019
PARAMETER	RESULTS	
Benzene	**2**	5.7 U

OBG-8SR	10/27/2006
PARAMETER	RESULTS
Chlorobenzene	2
cis-1,2-Dichloroethene	1 J

W-1S	11/10/1999	11/10/1999
PARAMETER	RESULTS	
No Detections		

OBG-24S	10/23/2006
PARAMETER	RESULTS
No Detections	

MWI-1	8/18/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	2
Trichloroethene	3
Vinyl Chloride	6

OBG-15	11/11/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	**36**
Methylene Chloride	**11 NJ**
Trichloroethene	**230**

OBG-11	11/8/1999
PARAMETER	RESULTS
No Detections	

OBG-12	11/8/1999
PARAMETER	RESULTS
No Detections	

OBG-13	11/4/1999
PARAMETER	RESULTS
Chloroform	4 NJ

MWI-2	8/18/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	**47**
Trichloroethene	**13**

MWI-3	8/18/1999	6/21/2000	11/3/2006
PARAMETER	RESULTS		
1,1-Dichloroethene	1000 U	500 U	**3**
cis-1,2-Dichloroethene	**4700**	**3500**	**1100**
trans-1,2-Dichloroethene	1000 U	500 U	**15**
Trichloroethene	**25000**	**21000**	**5700**
Vinyl Chloride	1000 U	500 U	**23**

WT-3R	8/18/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	2
Trichloroethene	**20**

OBG-75	11/4/1999	10/27/2006	4/10/2019
PARAMETER	RESULTS		
Acetone	---	5 U	4.1 J

OBG-2	11/10/1999	10/30/2006	8/24/2011	8/2/2016
PARAMETER	RESULTS			
Acetone	---	5 UJ	**19**	**31**
Trichloroethene	1 U	2 U	0.5 U	2.8

OBG-1	10/30/2006	8/16/2011	8/2/2016
PARAMETER	RESULTS		
Acetone	5 UJ	21 J	5 U

MW-25	1995	3/20/1996	June 1996 to September 1996	3/17/1997	6/12/1997	1997 to 1999	11/8/1999	2000 to 2006
PARAMETER	RESULTS							
Trichloroethene	No detection	**660***	No Detections	1	**5000***	No Detections	2	No Detection

OBG-65	11/3/1999	10/26/2006	4/10/2019
PARAMETER	RESULTS		
Acetone	---	5 U	3.7 J

OBG-10S	11/8/1999	10/23/2006
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	**15**	2 U

MW-15	1995 to 1996	3/17/1997	June 1997 to 1999	6/2/2000	4/11/2001	4/11/2002	2003 to 2006	5/8/2007	2008 to 2009	6/23/2010
PARAMETER	RESULTS									
cis-1,2-Dichloroethene	No Detections	---	No Detections	---	No Detections	---	No Detections	1 U	No Detections	0.19 J
Ethylbenzene		1 U		5 U		**8**		1 U		0.5 U
Trichloroethene	No Detections	1	No Detections	**110**	No Detections	1 U	No Detections	1 U	No Detections	0.5 U
Xylenes (total)		3 U		15 U		**38**		3.7		1 U

W-11S	11/8/1999	10/25/2006
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	**380**	2 U
trans-1,2-Dichloroethene	**57**	2 U

P-2	11/8/1999
PARAMETER	RESULTS
No Detections	

U-1S	11/3/1999	10/9/2003
PARAMETER	RESULTS	
Ethylbenzene	4 NJ	--
Xylenes (total)	**31 NJ**	0.5 U

- MONITORING WELL
- MONITORING WELL STATUS UNKNOWN OR ABANDONED

Total CVOC* Concentrations (ug/L)

- 0 - 10
- >10 - 100
- >100 - 1000
- >1000

Total CVOCs - 1,1-DCA, 1,1-DCE, cis-1,2-DCE (total), TCE, and VC

* - Color coding within data boxes refers to individual constituents

OBG-26S - Based on last sampling result

LOCATION ID

RESULTS IN ug/L

OBG-23D	10/24/2006
PARAMETER	RESULTS
1,1-Dichloroethene	**12**
Benzene	**1**
cis-1,2-Dichloroethene	**3700**
trans-1,2-Dichloroethene	**10**
Trichloroethene	**1600**
Vinyl Chloride	**1300**

BOLD RESULTS REPRESENT AN EXCEEDANCE

Chemical Name - VOCs	Class GA
1,1-Dichloroethane	5
1,1-Dichloroethene	5
1,2-Dichloroethane	0.6
2-Butanone	50 (G)
Acetone	50 (G)
Benzene	1
Bromodichloromethane	50 (G)
Chlorobenzene	5
Chloroform	7
cis-1,2-Dichloroethene	5
Ethylbenzene	5
Isopropylbenzene	5
Methylene Chloride	5
Toluene	5
trans-1,2-Dichloroethene	5
Trichloroethene	5
Vinyl Chloride	2
Xylenes (total)	5

Notes

"---" - Indicated compound not analyzed for.
" * " - Blind Duplicate
"B" - Compound found in associated blank
"D" - Diluted Sample
"U" - Not Detected.
"L" – Acceptable value, biased low
"J" - Indicates the compound was detected but below the reporting limit. The reported concentration is estimated.
"N" – Tentatively Identified
"G" – Guidance Value
Bold – Exceeds GW Class GA
- New York State Department of Environmental Conservation, Technical and Operational Guidance Series (TOGS) 1.1.1, Class GA Standards and Guidance Values, Revised June 1998.
- Routine annual monitoring results for Thinner Wells (T-13, T-15, T-21, T-24, T-26, T-29, T-33B) are not included on this figure.

0 100 200 Feet

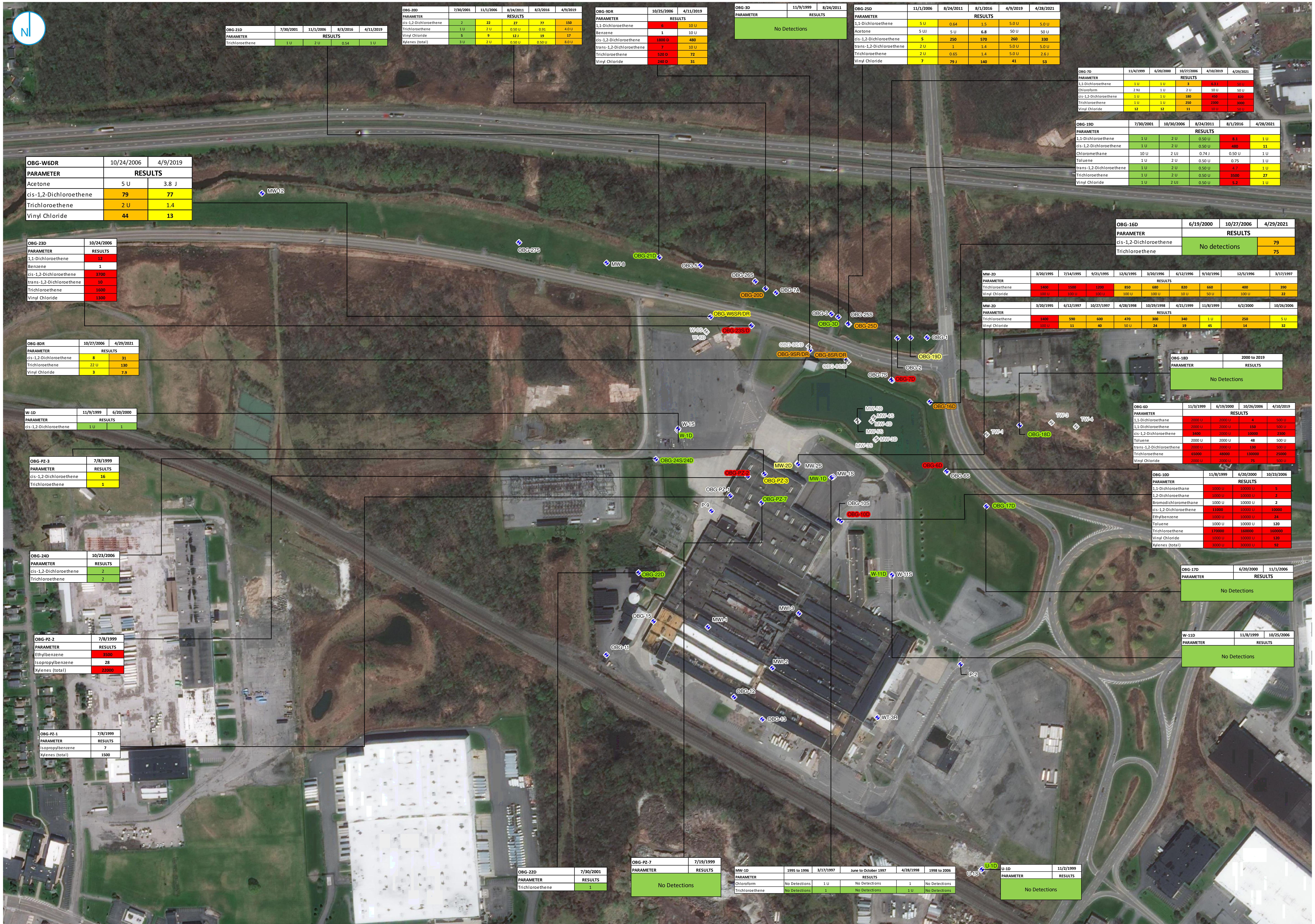
SITE-WIDE SHALLOW AREA HISTORIC GROUNDWATER SAMPLE RESULTS VOCS

RACER TRUST
NYSDEC Site # 7-34-057
Operable Unit 1
SYRACUSE, NEW YORK

FIGURE 04

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL



OBG-21D	7/30/2001	11/1/2006	8/3/2016	4/11/2019
PARAMETER	RESULTS			
Trichloroethene	1 U	2 U	0.54	1 U

OBG-20D	7/30/2001	11/1/2006	8/24/2011	8/2/2016	4/9/2019
PARAMETER	RESULTS				
cis-1,2-Dichloroethene	2	**22**	**27**	**77**	**150**
Trichloroethene	1 U	2 U	0.50 U	0.91	4.0 U
Vinyl Chloride	**5**	**9**	**12 J**	**19**	**17**
Xylenes (total)	3 U	2 U	0.50 U	0.50 U	8.0 U

OBG-9DR	10/25/2006	4/11/2019
PARAMETER	RESULTS	
1,1-Dichloroethene	**6**	10 U
Benzene	**1**	10 U
cis-1,2-Dichloroethene	**1800 D**	**480**
trans-1,2-Dichloroethene	**7**	10 U
Trichloroethene	**520 D**	**72**
Vinyl Chloride	**240 D**	**31**

OBG-3D	11/9/1999	8/24/2011
PARAMETER	RESULTS	
No Detections		

OBG-25D	11/1/2006	8/24/2011	8/1/2016	4/9/2019	4/28/2021
PARAMETER	RESULTS				
1,1-Dichloroethene	5 U	0.64	1.5	5.0 U	5.0 U
Acetone	5 UJ	5 U	6.8	50 U	50 U
cis-1,2-Dichloroethene	**5**	**250**	**570**	**260**	**330**
trans-1,2-Dichloroethene	2 U	1	1.4	5.0 U	5.0 U
Trichloroethene	2 U	0.65	1.4	5.0 U	2.6 J
Vinyl Chloride	**7**	**79 J**	**140**	**41**	**53**

OBG-7D	11/4/1999	6/20/2000	10/27/2006	4/10/2019	4/29/2021
PARAMETER	RESULTS				
1,1-Dichloroethene	1 U	1 U	**3**	**6.3 J**	50 U
Chloroform	2 NJ	1 U	2 U	10 U	50 U
cis-1,2-Dichloroethene	1 U	1 U	**180**	**450**	**820**
Trichloroethene	1 U	1 U	**250**	**2300**	**3000**
Vinyl Chloride	**12**	**12**	**11**	10 U	50 U

OBG-19D	7/30/2001	10/30/2006	8/24/2011	8/1/2016	4/28/2021
PARAMETER	RESULTS				
1,1-Dichloroethene	1 U	2 U	0.50 U	**8.1**	1 U
cis-1,2-Dichloroethene	1 U	2 U	0.50 U	**480**	**11**
Chloromethane	10 U	2 UJ	0.74 J	0.50 U	1 U
Toluene	1 U	2 U	0.50 U	0.75	1 U
trans-1,2-Dichloroethene	1 U	2 U	0.50 U	4.7	1 U
Trichloroethene	1 U	2 U	0.50 U	**3500**	**27**
Vinyl Chloride	1 U	2 UJ	0.50 U	**5.2**	1 U

OBG-W6DR	10/24/2006	4/9/2019
PARAMETER	RESULTS	
Acetone	5 U	3.8 J
cis-1,2-Dichloroethene	**79**	**77**
Trichloroethene	2 U	1.4
Vinyl Chloride	**44**	**13**

OBG-16D	6/19/2000	10/27/2006	4/29/2021
PARAMETER	RESULTS		
cis-1,2-Dichloroethene	No detections		**79**
Trichloroethene			**75**

OBG-23D	10/24/2006
PARAMETER	RESULTS
1,1-Dichloroethene	**12**
Benzene	**1**
cis-1,2-Dichloroethene	**3700**
trans-1,2-Dichloroethene	**10**
Trichloroethene	**1600**
Vinyl Chloride	**1300**

MW-2D	3/20/1995	7/14/1995	9/21/1995	12/6/1995	3/20/1996	6/12/1996	9/10/1996	12/5/1996	3/17/1997
PARAMETER	RESULTS								
Trichloroethene	**1400**	**1500**	**1200**	**850**	**680**	**820**	**660**	**400**	**390**
Vinyl Chloride	100 U	100 U	100 U	100 U	100 U	10 U	50 U	100 U	**22**

MW-2D	3/20/1995	6/12/1997	10/27/1997	4/28/1998	10/29/1998	4/21/1999	11/8/1999	6/2/2000	10/26/2006
PARAMETER	RESULTS								
Trichloroethene	**1400**	**590**	**600**	**470**	**300**	**340**	1 U	**250**	5 U
Vinyl Chloride	100 U	**11**	**40**	50 U	**24**	**19**	**45**	**14**	**32**

OBG-8DR	10/27/2006	4/29/2021
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	**8**	**31**
Trichloroethene	22 U	**130**
Vinyl Chloride	**3**	**7.9**

OBG-18D	2000 to 2019
PARAMETER	RESULTS
No Detections	

OBG-6D	11/3/1999	6/19/2000	10/26/2006	4/10/2019
PARAMETER	RESULTS			
1,1-Dichloroethane	2000 U	2000 U	4	500 U
1,1-Dichloroethene	2000 U	2000 U	**150**	500 U
cis-1,2-Dichloroethene	**3400**	2000 U	**10000**	**2300**
Toluene	2000 U	2000 U	48	500 U
trans-1,2-Dichloroethene	2000 U	2000 U	**130**	500 U
Trichloroethene	**65000**	**48000**	**130000**	**25000**
Vinyl Chloride	2000 U	2000 U	**75**	500 U

W-1D	11/9/1999	6/20/2000
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	1 U	1

OBG-PZ-3	7/8/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	**16**
Trichloroethene	**1**

OBG-10D	11/8/1999	6/20/2000	10/23/2006
PARAMETER	RESULTS		
1,1-Dichloroethane	1000 U	10000 U	**5**
1,2-Dichloroethane	1000 U	10000 U	**2**
Bromodichloromethane	1000 U	10000 U	**2**
cis-1,2-Dichloroethene	**11000**	10000 U	**10000**
Ethylbenzene	1000 U	10000 U	**24**
Toluene	1000 U	10000 U	**120**
Trichloroethene	**170000**	**160000**	**160000**
Vinyl Chloride	1000 U	10000 U	**120**
Xylenes (total)	3000 U	30000 U	**92**

OBG-24D	10/23/2006
PARAMETER	RESULTS
cis-1,2-Dichloroethene	2
Trichloroethene	2

OBG-17D	6/20/2000	11/1/2006
PARAMETER	RESULTS	
No Detections		

OBG-PZ-2	7/8/1999
PARAMETER	RESULTS
Ethylbenzene	**3500**
Isopropylbenzene	**28**
Xylenes (total)	**22000**

W-11D	11/8/1999	10/25/2006
PARAMETER	RESULTS	
No Detections		

OBG-PZ-1	7/8/1999
PARAMETER	RESULTS
Isopropylbenzene	**7**
Xylenes (total)	**1500**

OBG-22D	7/30/2001
PARAMETER	RESULTS
Trichloroethene	1

OBG-PZ-7	7/19/1999
PARAMETER	RESULTS
No Detections	

MW-1D	1995 to 1996	3/17/1997	June to October 1997	4/28/1998	1998 to 2006
PARAMETER	RESULTS				
Chloroform	No Detections	1 U	No Detections	1	No Detections
Trichloroethene	No Detections	1	No Detections	1 U	No Detections

U-1D	11/2/1999
PARAMETER	RESULTS
No Detections	

MONITORING WELL

MONITORING WELL STATUS UNKNOWN OR ABANDONED

Total CVOC* Concentrations (ug/L)
0 - 10
>10 - 100
>100 - 1000
>1000

Total CVOCs - 1,1-DCA, 1,1-DCE, cis-1,2-DCE (total), TCE, and VC

* - Color coding within data boxes referes to individual constituents

OBG-19D - Based on last sampling result

LOCATION ID

RESULTS IN ug/L

OBG-23D	10/24/2006
PARAMETER	RESULTS
1,1-Dichloroethene	**12**
Benzene	**1**
cis-1,2-Dichloroethene	**3700**
trans-1,2-Dichloroethene	**10**
Trichloroethene	**1600**
Vinyl Chloride	**1300**

BOLD RESULTS REPRESENT AN EXCEEDANCE

Chemical Name - VOCs	Class GA
1,1-Dichloroethane	5
1,1-Dichloroethene	5
1,2-Dichloroethane	0.6
2-Butanone	50 (G)
Acetone	50 (G)
Benzene	1
Bromodichloromethane	50 (G)
Chlorobenzene	5
Chloroform	7
cis-1,2-Dichloroethene	5
Ethylbenzene	5
Isopropylbenzene	5
Methylene Chloride	5
Toluene	5
trans-1,2-Dichloroethene	5
Trichloroethene	5
Vinyl Chloride	2
Xylenes (total)	5

Notes

"---" - Indicated compound not analyzed for.
" * " - Blind Duplicate
"B" - Compound found in associated blank
"D" - Diluted Sample
"U" - Not Detected.
"L" – Acceptable value, biased low
"J" - Indicates the compound was detected but below the reporting limit. The reported concentration is estimated.
"N" – Tentatively Identified
"G" – Guidance Value
Bold – Exceeds GW Class GA
- New York State Department of Environmental Conservation, Technical and Operational Guidance Series (TOGS) 1.1.1, Class GA Standards and Guidance Values, Revised June 1998.
- Routine annual monitoring results for Thinner Wells (T-13, T-15, T-21, T-24, T-26, T-29, T-33B) are not included on this figure.

0 100 200 Feet

SITE-WIDE DEEP AREA HISTORIC GROUNDWATER SAMPLE RESULTS VOCS

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NYSDEC Site # 7-34-057
Operable Unit 1
SYRACUSE, NEW YORK

FIGURE 05

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

PROJECT: 15388.71590 | DATED: 7/26/2021 | DESIGNER: VELIZCY

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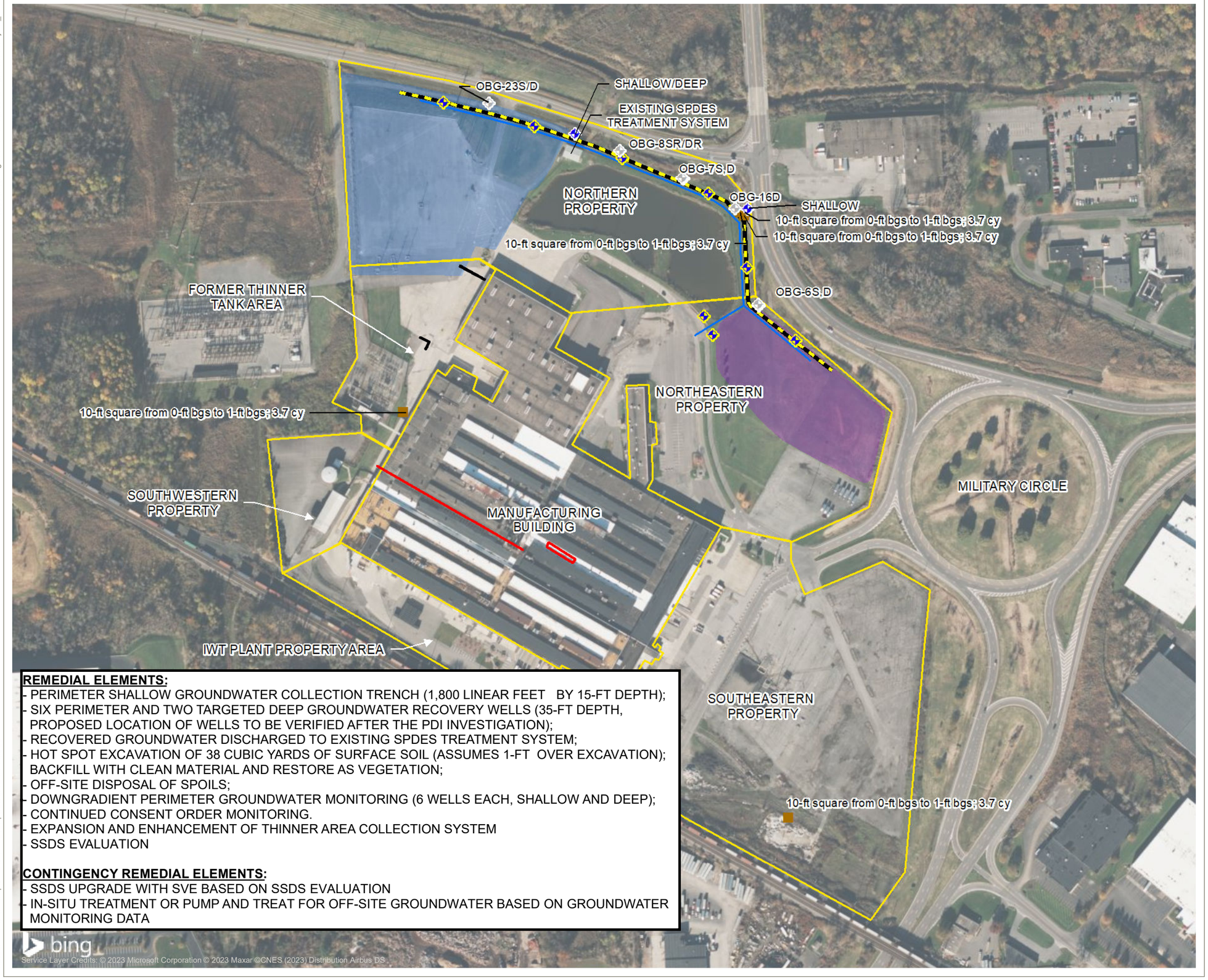

REMEDIAL ELEMENTS:
- PERIMETER SHALLOW GROUNDWATER COLLECTION TRENCH (1,800 LINEAR FEET BY 15-FT DEPTH);
- SIX PERIMETER AND TWO TARGETED DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER DISCHARGED TO EXISTING SPDES TREATMENT SYSTEM;
- HOT SPOT EXCAVATION OF 38 CUBIC YARDS OF SURFACE SOIL (ASSUMES 1-FT OVER EXCAVATION); BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- CONTINUED CONSENT ORDER MONITORING.
- EXPANSION AND ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:
- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

N

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- DEEP GROUNDWATER DISCHARGE PIPING
- PROPOSED SHALLOW GROUNDWATER RECOVERY TRENCH
- PROPOSED EXCAVATION AREA
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- PROPERTY AREA LIMITS

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SYRACUSE, NEW YORK

ALTERNATIVE 2

0 100 200 400 600 Feet

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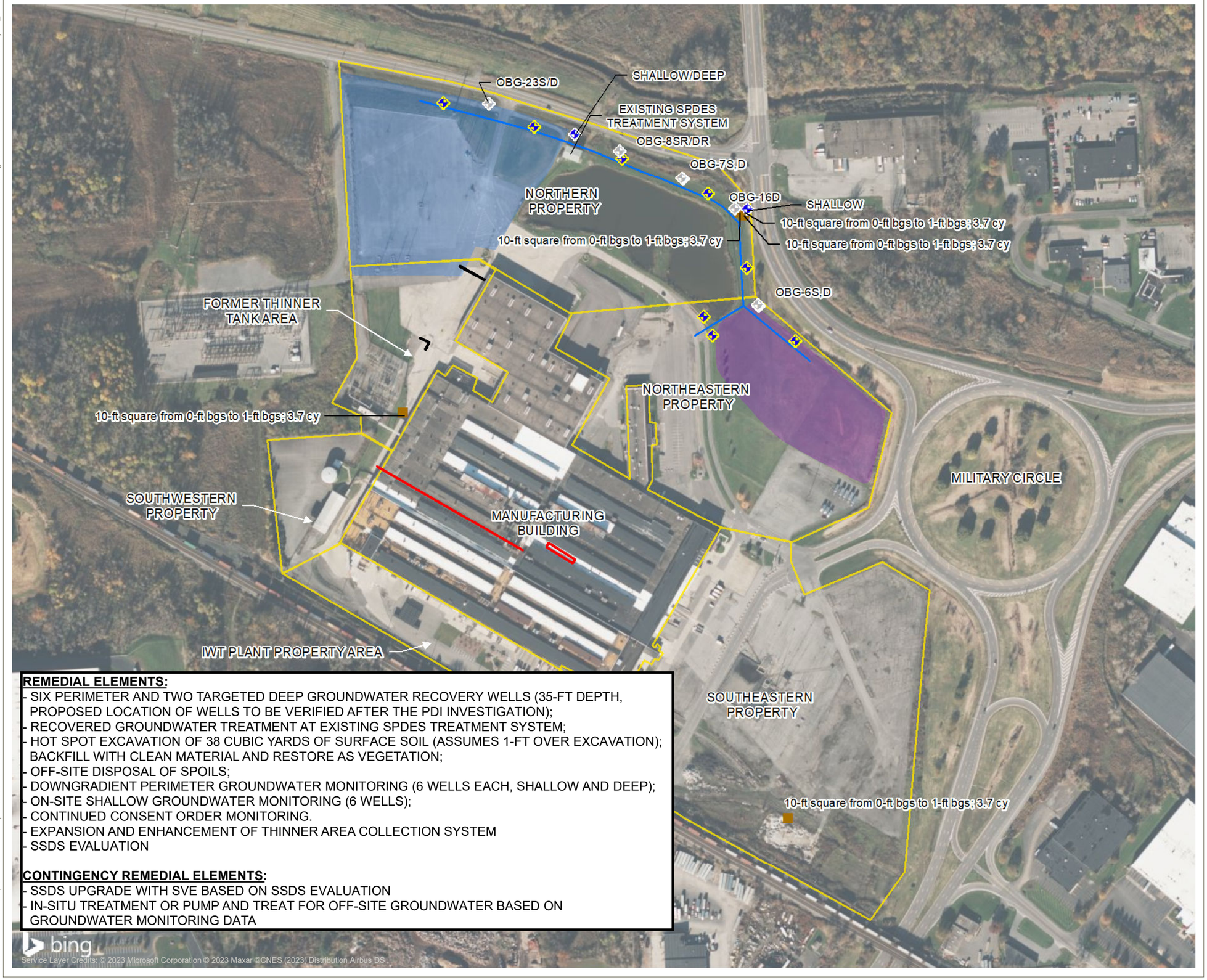
MAY 2023

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL



REMEDIAL ELEMENTS:
- SIX PERIMETER AND TWO TARGETED DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER TREATMENT AT EXISTING SPDES TREATMENT SYSTEM;
- HOT SPOT EXCAVATION OF 38 CUBIC YARDS OF SURFACE SOIL (ASSUMES 1-FT OVER EXCAVATION); BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- ON-SITE SHALLOW GROUNDWATER MONITORING (6 WELLS);
- CONTINUED CONSENT ORDER MONITORING.
- EXPANSION AND ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:
- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- DEEP GROUNDWATER DISCHARGE PIPING
- PROPOSED EXCAVATION AREA
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- PROPERTY AREA LIMITS

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ALTERNATIVE 3

0 100 200 400 600 Feet

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FIGURE 8

OBG-23S/D
SHALLOW/DEEP
EXISTING SPDES TREATMENT SYSTEM
OBG-8SR/DR
OBG-7S,D
OBG-16D
SHALLOW
NORTHERN PROPERTY
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
FORMER THINNER TANK AREA
OBG-6S,D
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
NORTHEASTERN PROPERTY
SOUTHWESTERN PROPERTY
MANUFACTURING BUILDING
MILITARY CIRCLE
IWT PLANT PROPERTY AREA
SOUTHEASTERN PROPERTY
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
bing
Service Layer Credits: © 2023 Microsoft Corporation © 2023 Maxar ©CNES (2023) Distribution Airbus DS

REMEDIAL ELEMENTS:
- SIX PERIMETER DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER TREATMENT AT EXISTING SPDES TREATMENT SYSTEM;
- IN SITU TREATMENT OF ELEVATED CHLORINATED AND NON-CHLORINATED VOCS;
- HOT SPOT EXCAVATION OF 38 CUBIC YARDS OF SURFACE SOIL (ASSUMES 1-FT OVER EXCAVATION); BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- ON-SITE SHALLOW GROUNDWATER MONITORING (6 WELLS)
- CONTINUED CONSENT ORDER MONITORING.
- ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:
- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

N

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- DEEP GROUNDWATER DISCHARGE PIPING
- PROPOSED EXCAVATION AREA
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- ELEVATED CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- ELEVATED NON-CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- PROPERTY AREA LIMITS

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SYRACUSE, NEW YORK

ALTERNATIVE 4

0 100 200 400 600 Feet

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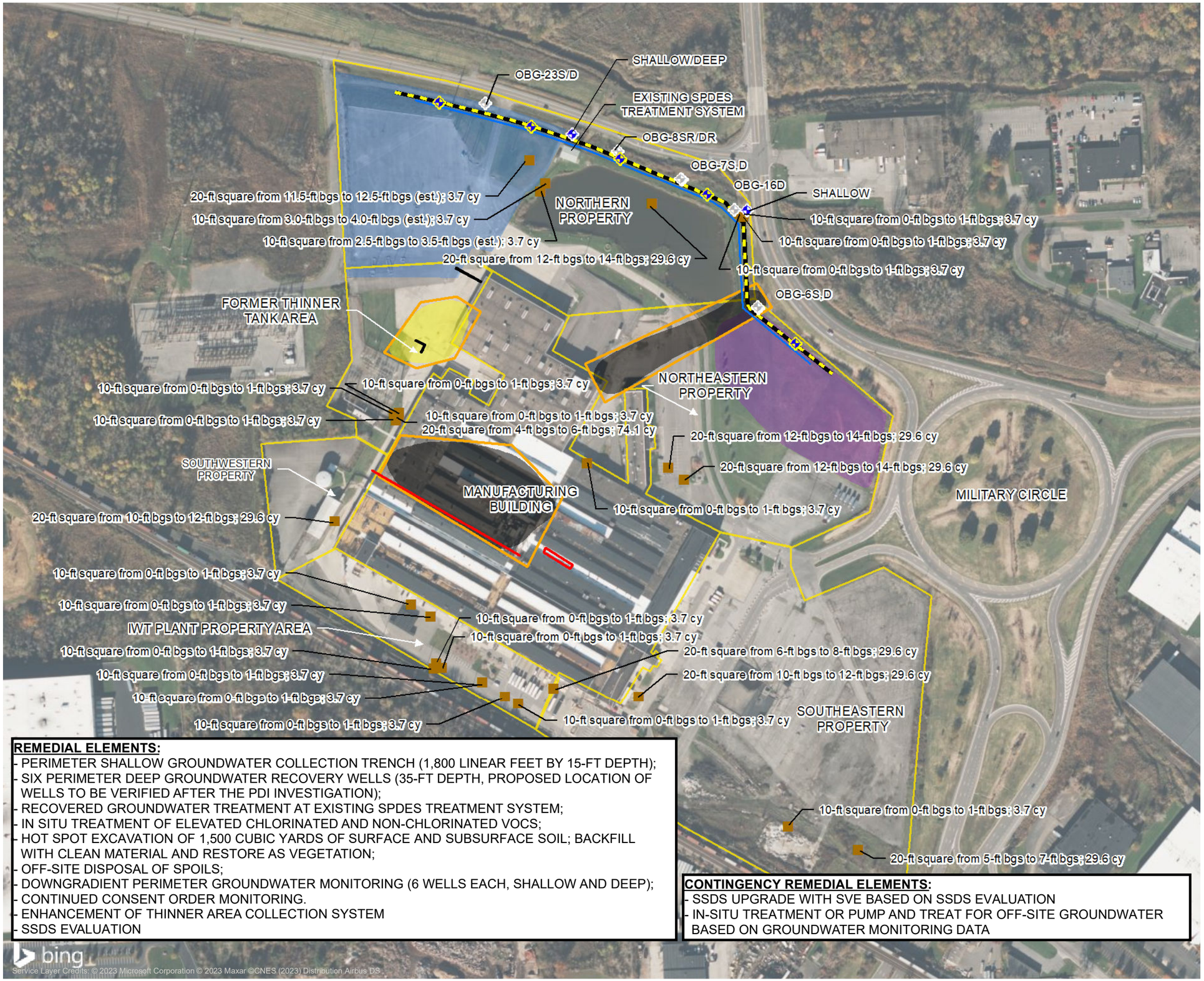

REMEDIAL ELEMENTS:

- PERIMETER SHALLOW GROUNDWATER COLLECTION TRENCH (1,800 LINEAR FEET BY 15-FT DEPTH);
- SIX PERIMETER DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER TREATMENT AT EXISTING SPDES TREATMENT SYSTEM;
- IN SITU TREATMENT OF ELEVATED CHLORINATED AND NON-CHLORINATED VOCS;
- HOT SPOT EXCAVATION OF 1,500 CUBIC YARDS OF SURFACE AND SUBSURFACE SOIL; BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- CONTINUED CONSENT ORDER MONITORING.
- ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:

- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

N

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- PROPOSED EXCAVATION AREA
- PROPOSED SHALLOW GROUNDWATER RECOVERY TRENCH
- DEEP GROUNDWATER DISCHARGE PIPING
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- ELEVATED CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- ELEVATED NON-CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- PROPERTY AREA LIMITS

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ALTERNATIVE 5

0 100 200 400 600 Feet

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MAY 2023

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OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX II

TABLES

Table 1
GM Former Inland Fisher Guide Facility
Surface Soils 0-2 Feet (13 June 1985 - 31 December 2009)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Industrial SCOs	Number of Industrial SCO Exceedances
Volatile Organic Compounds (mg/kg)										
Cis-1,2-Dichloroethylene	43	1	0.34	0.34	0.25	1	500	0	1000	0
TRICHLOROETHYLENE (TCE)	45	5	0.02	46	0.47	2	200	0	400	0
Semivolatile Organic Compounds (mg/kg)										
Acenaphthene	58	16	0.04	40	20	1	500	0	1000	0
Anthracene	58	28	0.041	230	100	1	500	0	1000	0
Benzo[a]anthracene	57	49	0.057	350	1	11	5.6	8	11	5
Benzo[a]pyrene	56	47	0.046	300	1	14	1	14	1.1	12
Benzo[b]fluoranthene	57	53	0.039	360	1	16	5.6	9	11	8
Benzo[g,h,i]perylene	54	39	0.043	310	100	1	500	0	1000	0
Benzo[k]fluoranthene	57	45	0.039	120	0.8	11	56	1	110	1
Chrysene	58	53	0.042	380	1	10	56	1	110	1
Dibenzo[a,h]Anthracene	44	11	0.077	39	0.33	5	0.56	4	1.1	3
Dibenzofuran	58	16	0.039	21	7	1	350	0	1000	0
Fluoranthene	58	57	0.04	1200	100	1	500	1	1000	1
Fluorene	58	17	0.039	65	30	1	500	0	1000	0
Indeno[1,2,3-cd]pyrene	54	40	0.038	190	0.5	14	5.6	4	11	2
Phenanthrene	58	51	0.04	670	100	1	500	1	1000	0
Pyrene	58	57	0.043	1000	100	1	500	1	1000	0
PCBs (mg/kg)										
Aroclor-1242	142	1	1.9	1.9	0.1	1	1	1	25	0
Aroclor-1248	142	95	0.002	54	0.1	90	1	71	25	5
Aroclor-1254	44	10	0.03	8	0.1	9	1	2	25	0
Aroclor-1260	142	0	0	0	0.1	0	1	0	25	0
Polychlorinated biphenyls	142	105	0.002	54	0.1	100	1	74	25	5
Metals (mg/kg)										
Arsenic	61	61	1.7	92.8	13	6	16	2	16	2
Chromium	64	64	6.5	1220	30	18	1500	0	6800	0
Copper	64	64	5.4	323	50	4	270	1	10000	0
Nickel	32	32	8.3	4000	30	12	310	1	10000	0
Zinc	61	61	13.2	892	109	15	10000	0	10000	0

NOTES
This table presents (1) soil data from 13 June 1985 - 31 December 2009, (2) the detected concentration data only, and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial, and Restricted-Industrial SCOs.
NC = No criteria available.
SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

Table 2
GM Former Inland Fisher Guide Facility
Soils >2 Feet (13 June 1985 - 31 December 2009)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Industrial SCOs	Number of Industrial SCO Exceedances
Volatile Organic Compounds (mg/kg)										
ACETONE	50	28	0.005	0.1	0.05	1	500	0	1000	0
Cis-1,2-Dichloroethylene	134	51	0.001	11	0.25	11	500	0	1000	0
ETHYLBENZENE	238	55	0.0008	61	1	27	390	0	780	0
METHYLENE CHLORIDE	149	55	0.001	7.8	0.05	8	500	0	1000	0
TOLUENE	239	74	0.001	720	0.7	16	500	1	1000	0
TRICHLOROETHYLENE (TCE)	148	80	0.001	9800	0.47	37	200	2	400	2
VINYL CHLORIDE	149	8	0.002	0.12	0.02	3	13	0	27	0
Xylenes (total)	238	61	0.002	330	0.26	40	500	0	1000	0
Semivolatile Organic Compounds (mg/kg)										
2-Methylphenol	86	5	0.1	0.44	0.33	1	500	0	1000	0
3&4-Methylphenol	86	11	0.043	3.9	0.33	7	500	0	1000	0
Acenaphthene	87	5	0.058	21	20	1	500	0	1000	0
Anthracene	87	6	0.043	170	100	1	500	0	1000	0
Benzo[a]anthracene	87	11	0.036	150	1	1	5.6	1	11	1
Benzo[a]pyrene	87	9	0.035	110	1	1	1	1	1.1	1
Benzo[b]fluoranthene	87	11	0.047	140	1	1	5.6	1	11	1
Benzo[g,h,i]perylene	87	4	0.039	130	100	1	500	0	1000	0
Benzo[k]fluoranthene	87	5	0.039	59	0.8	1	56	1	110	0
Chrysene	87	12	0.046	170	1	1	56	1	110	1
Dibenzo[a,h]Anthracene	87	2	0.18	65	0.33	1	0.56	1	1.1	1
Dibenzofuran	87	6	0.066	12	7	1	350	0	1000	0
Fluoranthene	87	14	0.038	560	100	1	500	1	1000	0
Fluorene	87	4	0.052	37	30	1	500	0	1000	0
Indeno[1,2,3-cd]pyrene	87	3	0.28	76	0.5	1	5.6	1	11	1
Phenanthrene	87	18	0.037	450	100	1	500	0	1000	0
Pyrene	87	18	0.04	480	100	1	500	0	1000	0
PCBs (mg/kg)										
Aroclor-1016	264	1	0.48	0.48	0.1	1	1	0	25	0
Aroclor-1242	264	7	0.04	1400	0.1	5	1	5	25	3
Aroclor-1248	265	139	0.002	4300	0.1	111	1	70	25	19
Aroclor-1254	168	5	0.027	99	0.1	3	1	2	25	2
Aroclor-1260	264	3	0.027	1.6	0.1	1	1	1	25	0
Polychlorinated biphenyls	274	152	0.002	4300	0.1	120	1	77	25	23
Metals (mg/kg)										
Arsenic	111	115	1.6	65.7	13	11	16	8	16	8
Chromium	117	122	3.1	17200	30	28	1500	6	6800	2
Copper	112	117	4.8	23200	50	25	270	17	10000	1
Cyanide (total)	85	20	0.68	614	27	8	27	8	10000	0
Lead	111	116	2.8	291	63	6	1000	0	3900	0
Nickel	114	119	5	14400	30	30	310	13	10000	1
Zinc	102	107	11.2	53300	109	19	10000	2	10000	2

NOTES

This table presents (1) soil data from 13 June 1985 - 31 December 2009, (2) the detected concentration data only, and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial, and Restricted-Industrial SCOs.

NC = No criteria available.

SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

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Table 3: Evaluation of Potential ARARs

Medium/Location/ Action	Citation	Requirements	Comments	Potential ARAR	Alt(s)
Potential Chemical-Specific ARARs					
Groundwater	6 New York Codes, Rules and Regulations (NYCRR) 703 - Class GA groundwater quality standards	Requires that fresh groundwaters of the state must attain Class GA standards.	Potentially applicable to facility groundwater.	Yes	All
	NYSDEC TOGS 1.1.1 - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations	This Technical and Operational Guidance Series (TOGS) presents New York State Department of Environmental Conservation (NYSDEC) Division of Water ambient water quality standards and guidance values and groundwater effluent limitations. The authority for these values is derived from Article 17 of the Environmental Conservation law and 6 NYCRR Parts 700-706, Water Quality.	Potentially applicable to facility groundwater.	Yes	All
Soil	6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives	Provides guidance for soil cleanup objectives for various property uses.	Industrial Use soil cleanup objectives potentially applicable to facility soil, based on current and reasonable future property use.	Yes	All
	NYSDEC Commissioner's Policy - Soil Cleanup Guidance	Guidance that provides recommended soil cleanup levels.	Potentially applicable to facility soil.	Yes	All
Indoor air	NYSDOH - Guidance for Evaluating Soil Vapor Intrusion	Provides action levels for mitigation of indoor air influences.	Potentially applicable for on-site buildings. Indoor air is being addressed as an Interim Remedial Measure (IRM), separate from this Revised Remedial Investigation/Feasibility Study. Continued O&M of the sub-slab depressurization system IRM is a component for all active alternatives.	Yes	All
Potential Location-Specific ARARs					
Wetlands	6 NYCRR 663 - Freshwater wetland permit requirements	Actions occurring in a designated freshwater wetland (within 100 ft) must be approved by NYSDEC or its designee. Activities occurring adjacent to freshwater wetlands must: be compatible with preservation, protection, and conservation of wetlands and benefits; result in no more than insubstantial degradation to or loss of any part of the wetland; and be compatible with public health and welfare.	Potentially applicable based on available mapping which shows State-mapped wetlands within 100 ft of the facility (O'Brien and Gere 2010). The wetland in closest proximity to the facility is State-mapped wetland SYE 6, which occurs north and south of the NYS Thruway, north and south side of Factory Avenue, and east and west of Townline Road.	Yes	2, 3, 4, 5, and 6

Table 3: Evaluation of Potential ARARs

Medium/Location/ Action	Citation	Requirements	Comments	Potential ARAR	Alt(s)
	Executive Order (EO) 11990 - Protection of Wetlands	Activities occurring in wetlands must avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. The procedures also require the United States Environmental Protection Agency (USEPA) to avoid direct or indirect support of new construction in wetlands wherever there are practicable alternatives or minimize potential harm to wetlands when there are no practicable alternatives.	Not applicable based on available mapping which does not show National Wetlands Inventory (NWI) habitat within 100 ft of the facility (O'Brien and Gere 2010).	No	None
Wetlands	USEPA Office of Solid Waste and Emergency Response (OSWER) Directive 9280.0-02 (August 1985) - Policy on Floodplains and Wetlands Assessments for CERCLA Actions	Superfund actions must meet the requirements of EO 11990 (Protection of Wetlands) and EO 11988 (Floodplain Management).	Not applicable as this directive relates to EO 11990 (Protection of Wetlands). Not applicable based on available mapping which does not show NWI habitat within 100 ft of the facility (O'Brien and Gere 2010).	No	None
100-year flood plain	6 NYCRR 373-2.2 - Location standards for hazardous waste treatment, storage, and disposal facilities -100-yr floodplain	Hazardous waste treatment, storage, or disposal facilities located in a 100-yr floodplain must be designed, constructed, operated and maintained to prevent washout of hazardous waste during a 100-yr flood.	Potentially applicable. Northern facility boundary is located within the 100-year floodplain.	Yes	All
	Executive Order 11988 - Floodplain Management	USEPA is required to conduct activities to avoid, to the extent possible, the long- and short- term adverse impacts associated with the occupation or modification of floodplains. The procedures also require USEPA to avoid direct or indirect support of floodplain development wherever there are practicable alternatives and minimize potential harm to floodplains when there are no practicable alternatives.	Potentially applicable. Northern facility boundary is located within the 100-year floodplain.	Yes	2, 3, 4, 5, and 6
	USEPA OSWER Directive 9280.0-02 (August 1985) - Policy on Floodplains and Wetlands Assessments for CERCLA Actions	Superfund actions must meet the requirements of EO 11990 (Protection of Wetlands) and EO 11988 (Floodplain Management).	Potentially applicable as this directive relates to EO 11988 (Floodplain Management). Northern facility boundary is located within the 100-year floodplain.	Yes	2, 3, 4, 5, and 6
Within 61 meters (200 ft) of a fault displaced in Holocene time	40 Code of Federal Regulations (CFR) Part 264.18	New treatment, storage, or disposal of hazardous waste is not allowed.	Not applicable. Facility is not located within 200 ft of a fault displaced in Holocene time, as listed in 40 CFR 264 Appendix VI.	No	None

Table 3: Evaluation of Potential ARARs

Medium/Location/ Action	Citation	Requirements	Comments	Potential ARAR	Alt(s)
River or stream	16 USC 661 - Fish and Wildlife Coordination Act	Requires protection of fish and wildlife in a stream when performing activities that modify a stream or river.	Not applicable. Modifications to Ley Creek are not anticipated during remedial activities.	No	None
Habitat of an endangered or threatened species	6 NYCRR 182	Provides requirements to minimize damage to habitat of an endangered species.	Not applicable, as no endangered or threatened species or their habitat were found at the facility	No	None
	Endangered Species Act	Provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction.	Not applicable, as no endangered or threatened species or their habitat were found at the facility.	No	None
Historical property or district	National Historic Preservation Act	Remedial actions are required to account for the effects of remedial activities on any historic properties included on or eligible for inclusion on the National Register of Historic Places.	Not applicable, as the facility is not identified as a historic property.	No	None
Potential Action-Specific ARARs					
Construction in a floodplain	6 NYCRR 500 - Floodplain management regulations development permits	Hazardous waste treatment, storage, or disposal facilities located in a 100-yr floodplain must be designed, constructed, operated and maintained to prevent washout of hazardous waste during a 100-yr flood.	Potentially applicable. Northern facility boundary is located within the 100-year floodplain.	Yes	All
Treatment actions	6 NYCRR 373 - Hazardous waste management facilities	Provides requirements for managing hazardous wastes.	Potentially applicable to extracted groundwater and excavated soil.	Yes	All
General excavation	6 NYCRR 257-3 - Air Quality Standards	Provide limitations for generation of constituents including particulate matter.	Not applicable because dust emissions would not be from a point source. May be useful for consideration during dust generating activities such as earth moving, grading and excavation of soil.	Yes	2, 3, 4, 5, and 6
	40 CFR 50.1 through 50.12 - National Ambient Air Quality Standards.	Provides air quality standards for pollutants considered harmful to public health and the environment. The six principle pollutants include carbon monoxide, lead, nitrogen dioxide, particulates, ozone, and sulfur oxides.	Potentially applicable during dust generating activities such as earth moving, grading, and excavation of soil.	Yes	2, 3, 4, 5, and 6
Generation and disposal of hazardous material and treatment residuals	6 NYCRR 360 - Solid Waste Management Facilities	Provides requirements for management of solid wastes, including disposal and closure of disposal facilities.	Potentially applicable. Treatment residuals would require management.	Yes	All

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Table 3: Evaluation of Potential ARARs

Medium/Location/ Action	Citation	Requirements	Comments	Potential ARAR	Alt(s)
Land disposal	6 NYCRR 376 - Land disposal restrictions	Provides treatment standards to be met prior to land disposal of hazardous wastes.	Potentially applicable.	Yes	2, 3, 4, 5, and 6
Construction	29 CFR Part 1910 - Occupational Safety and Health Standards - Hazardous Waste Operations and Emergency Response	Remedial activities must be in accordance with applicable OSHA requirements.	Applicable for construction phase of remediation	Yes	2, 3, 4, 5, and 6
	29 CFR Part 1926 - Safety and Health Regulations for Construction	Remedial construction activities must be in accordance with applicable OSHA requirements.	Applicable for construction phase of remediation	Yes	2, 3, 4, 5, and 6
Transportation	6 NYCRR 364 - Waste Transporter Permits	Hazardous waste transport must be conducted by a hauler permitted under 6 NYCRR 364.	Potentially applicable.	Yes	All
	6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities	Substantive hazardous waste generator and transportation requirements must be met when hazardous waste is generated for disposal. Generator requirements include obtaining an USEPA Identification Number and manifesting hazardous waste for disposal.	Potentially applicable.	Yes	All
	49 CFR 172-174 and 177-179 - Department of Transportation (DOT) Regulations	Hazardous waste transport to off-site disposal facilities must be conducted in accordance with applicable DOT requirements	Potentially applicable.	Yes	All
Discharge to surface water and injection to groundwater	6 NYCRR 750 through 758 - State Pollutant Discharge Elimination System (SPDES) Regulations	Substantive requirements associated with discharge to a water body (limitations and monitoring requirements) would be set by NYSDEC.	Applicable to treated groundwater discharge to Ley Creek and injection of in situ treatment amendments.	Yes	All
Injection to groundwater	40 CFR 144 - Underground Injection Control (UIC) Program	Permit not required for Class V wells, which are approved by rule under federal UIC program. Substantial compliance with Class V permit requirements must be demonstrated.	Applicable for injection of in situ treatment amendments.	Yes	4, 5, and 6
Generation of air emissions	NYS Air Guide 1	Provides annual guideline concentrations (AGLs) and short-term guideline concentrations (SGCs) for specific chemicals. These are property boundary limitations that would result in no adverse health effects.	Potentially applicable.	Yes	2, 3, 4, 5, and 6

Table 3: Evaluation of Potential ARARs

Medium/Location/ Action	Citation	Requirements	Comments	Potential ARAR	Alt(s)
	NYS TAGM 4031 - Dust Suppressing and Particle Monitoring at Inactive Hazardous Waste Disposal Sites	Provides limitations on dust emissions.	Potentially applicable.	Yes	2, 3, 4, 5, and 6
Construction storm water management	NYSDEC General permit for storm water discharges associated with construction activities. Pursuant to Article 17 Titles 7 and 8 and Article 70 of the Environmental Conservation Law.	The regulation prohibits discharge of materials other than storm water and all discharges that contain a hazardous substance in excess of reportable quantities established by 40 CFR 117.3 or 40 CFR 302.4, unless a separate NPDES permit has been issued to regulate those discharges. A permit must be acquired if activities involve disturbance of 5 acres or more. If the project is covered under the general permit, the following are required: development and implementation of a storm water pollution prevention plan; development and implementation of a monitoring program; all records must be retained for a period of at least 3 years after construction is complete.	Potentially applicable.	Yes	2, 3, 4, 5, and 6

Notes:

AGL – Annual Guideline Concentrations
ARAR – Applicable or Relevant and Appropriate Requirements
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
CFR – Code of Federal Regulations
DOT – Department of Transportation
EO – Executive Order
IRM – Interim Remedial Measure
NPDES – National Pollutant Discharge Elimination System
NYCRR – New York Codes, Rules and Regulations
NYSDEC - New York State Department of Environmental Conservation
NYSDOH – New York State Department of Health
NWI – National Wetlands Inventory
OSHA – Occupational Safety and Health Administration
OSWER - Office of Solid Waste and Emergency Response
SGC – Short-term Guideline Concentrations
SPDES – State Pollutant Discharge Elimination System
TAGM – Technical and Administrative Guidance Memorandum
TOGS - Technical and Operational Guidance Series
UIC – Underground Injection Control
USEPA – United State Environmental Protection Agency

Table 4: Facility Risk and Hazard Summary						
Timeframe	**Receptor**	**Exposure Medium**	**Cancer Risk**		**Non-Cancer Hazards**	
			Reasonable Maximum Exposure	**Central Tendency**	**Reasonable Maximum Exposure**	**Central Tendency**
Current	Older Child Trespasser	Surface Soil	1.E-04	5.E-05	4.E-01	1.E-01
		Outdoor Air	1.E-08	1.E-08	5.E-03	4.E-03
		All Media	1.E-04	5.E-05	4.E-01	1.E-01
Current	Adult Trespasser	Surface Soil	2.E-04	2.E-05	3.E-01	9.E-02
		Outdoor Air	7.E-08	2.E-08	5.E-03	4.E-03
		All Media	2.E-04	5.E-05	3.E-01	1.E-01
Current	Industrial Worker	Surface Soil	1.E-03	2.E-04	2	1
		Outdoor Air	4.E-07	1.E-07	3.E-02	3.E-02
		All Media	1.E-03	2.E-04	2	1
Current	Construction Worker	Surface and Subsurface Soil	1.E-04	1.E-04	30	30
		Outdoor Air	2.E-05	2.E-05	8	8
		Shallow Groundwater	4.E-05	2.E-05	4	2
		All Media	2.E-04	1.E-04	40	40
Future	Older Child Trespasser	Surface Soil	2.E-05	7.E-06	1.E-01	4.E-02
		Outdoor Air	3.E-08	2.E-08	7.E-03	5.E-03
		All Media	2.E-05	7.E-06	1.E-01	4.E-02
Future	Adult Trespasser	Surface Soil	4.E-05	3.E-06	9.E-02	3.E-02
		Outdoor Air	1.E-07	3.E-08	4.E-02	5.E-03
		All Media	4.E-05	3.E-06	1.E-01	1.E-01
Future	Industrial Worker	Surface Soil	2.E-04	3.E-05	6.E-01	3.E-02
		Outdoor Air	6.E-07	2.E-07	4.E-02	4.E-02
		All Media	2.E-04	3.E-05	7.E-01	3.E-01
Future	Construction Worker	Surface and Subsurface Soil	4.E-05	2.E-05	20	8
		Outdoor Air	4.E-05	6.E-06	7	7
		Shallow Groundwater	4.E-05	2.E-05	4	2
		All Media	1.E-04	4.E-05	30	20

Notes:

1. Surface Soil is defined as the top 2 feet.
2. Chemicals that exceed a 1 E-04 cancer risk or a hazard index of 1 are typically those that will require remedial action at a site.

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ENVIRONMENT & HEALTH

Table 5
GM - IFG OU1 PRAP
Alternative 4

Perimeter deep groundwater extraction and treatment, in situ treatment, and surface soil excavation and off-site disposal

			Proposed Alternative		Contingency Alternative		
	UNIT	UNIT COST	QTY	TOTAL COST	QTY	TOTAL COST	Notes
DIRECT CAPITAL CONSTRUCTION COSTS - 2010 Dollars							2010 Dollars
General Conditions, Surveys, & Permits	mo	$2,080	37	$76,960	41	$85,280	Trailer, electrical and maintenance
Surveys, & Permits	ls	$6,000	1	$6,000	1	$6,000	Applies to entire site
Erosion Control	lf	$2	2,000	$4,000	2,000	$4,000	Double layer silt fence and hay bales
Deed restriction	LS	$20,000	1	$20,000	1	$20,000	Restricts groundwater uses
Pre-Design Investigation (Perimeter Extraction System)							
Treatment process evaluation; groundwater sampling	ea	$1,125	8	$9,000	8	$9,000	Assumes VOC, metals, pH, alkalinity and hardness analyses
Pumping test Investigation	LS	$71,000	1	$71,000	1	$71,000	2 wells/6 piezometers to 40-ft; inc. 2 72-hr pump test
Perimeter Collection System							*Assumes discharge to SPDES Treatment System*
Deep GW Wells							
Install 4-inch diameter recovery well to 35-ft	ea	$23,000	6	$138,000	6	$138,000	Inc. casing, screen, development, manhole and pump
Discharge Piping (common header)	lf	$50	1,650	$82,500	1,650	$82,500	4-ft wide; 4-inch solid pipe; Inc discharge connection
Discharge Piping connection vault	ea	$2,500	6	$15,000	6	$15,000	4-ft dia manhole, 4-ft depth valve and fittings
Electrical Service; conduit	lf	$45	1,650	$74,250	1,650	$74,250	Excavation, backfill, conduit, hand holes and cable.
Valve Vault with connection to SPDES wet well	ea	$5,000	1	$5,000	1	$5,000	6-ft dia; 6-ft deep; inc. valves on connection piping
Electrical Connection	ls	$10,000	1	$10,000	1	$10,000	Assumes connection to SPDES building panel
Install Monitoring Wells - Shallow	ea	$1,400	2	$2,800	2	$2,800	2-inch diameter; screened from 5 to 15-ft bgs
Install Monitoring Wells - Deep	ea	$3,200	1	$3,200	1	$3,200	2-inch diameter; screened from 25 to 35-ft bgs
Thinner Collection System Enhancement							
Flow Meters	ea	$849	2	$1,698	2	$1,698	Totalizer, flow readout, battery power, paddle wheel with bronze housing
Valves and fittings	ls	$400	1	$400	1	$400	4 ball valves and carbon steel fittings
Installation	ls	$1,700	1	$1,700	1	$1,700	Assumes 2 days labor
Hot Spot Excavation and Off-Site Disposal							
Excavate hot-spot material	cy	$15	38	$570	38	$570	Assumes 1-ft over-excavation
Off-site disposal of excavated material	cy	$75	38	$2,850	38	$2,850	Trucking and disposal fee as non-hazardous
Place indicator layer	sf	$0.30	500	$150	500	$150	Geotextile
Backfill excavations	cy	$35	38	$1,330	38	$1,330	
Confirmation Sampling	ea	$300	25	$7,500	25	$7,500	1 sample each wall and floor (5 per exc.)
Restoration - Asphalt Concrete	sf	$5	100	$500	100	$500	Assumes 6-inch thickness
Restoration - Topsoil and Seeding	sf	$0.12	400	$48	400	$48	6-inch depth over impacted area
Residual Source Area Treatment (Thinner Area and Northeast Area)							
Bench-Scale Treatability Study (Pre-design)	ls	$50,000	1	$50,000	1	$50,000	
Install injection well points (15-ft depth)	ea	$315	1,432	$451,080	1,432	$451,080	5-ft grid; 1-inch diameter PVC; assumes 10-ft of screen
Install injection well points (35-ft depth)	ea	$735	2,248	$1,652,280	2,248	$1,652,280	5-ft grid; 1-inch diameter PVC; assumes 10-ft of screen
Inject Chemical oxidant	cy	$57	54,889	$3,136,508	54,889	$3,136,508	Volume reflectes 2 rounds of injection
Post-Injection Monitoring (existing wells)	ea	$700	24	$16,800	24	$16,800	Monthly for 6 wells; to 12 mos beyond 2nd injection
TOTAL DIRECT CAPITAL COST (2010 Dollars)				**$5,841,124**		**$5,849,444**	2010 Dollars
Escalation Rate		47%					Based on ENR CCI Oct 2010 to June 2022
ESCALATED DIRECT CAPITAL COST				**$8,583,918**		**$8,596,145**	2022 Dollars

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ENVIRONMENT & HEALTH

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			Proposed Alternative		Contingency Alternative		
	UNIT	UNIT COST	QTY	TOTAL COST	QTY	TOTAL COST	Notes
DIRECT CAPITAL CONSTRUCTION COSTS - 2021 DOLLARS							2021 Dollars
Pre-Design Investigation (ISCO under Building)							Adapted from June 2022 FS Costs
Structure and Process Sewer Evaluation	ls	$4,000	1	$4,000	1	$4,000	Evaluate available record drawings of foundation and slab construction and sub-slab utilities
Subsurface VOC delineation							
Work Plan	ls	$5,000	1	$5,000	1	$5,000	Letter WP
MIP-HTP Borings and Soil Borings	ls	$25,500	1	$25,500	1	$25,500	Track mounted Geoprobe rig and MIHPt system; 10 soil borings and 20 MIP borings to approx. 15 ft bgs
Soil and Groundwater Sampling	ls	$14,000	1	$14,000	1	$14,000	20 soil samples (VOCS, TOC, % moisture), 10 groundwater samples (VOCs)
Survey	ls	$1,700	1	$1,700	1	$1,700	
Investigation Derived Wastes							
Characterization	ls	$1,100	1	$1,100	1	$1,100	Sample collection and analysis of 1 soil sample
Transportation and Disposal	ls	$1,500	1	$1,500	1	$1,500	8 drums
Reporting	ls	$7,500	1	$7,500	1	$7,500	
SSDS System Enhancement Evaluation	ls	$35,000	1	$35,000	1	$35,000	*Identify whether enhancements to the SSDS system could effectively improve VOC source removal in the unsaturated soil beneath the former manufacturing building*
Pre-Design Investigation (SSDS Upgrade)							Adapted from June 2022 FS Costs
Structure and Process Sewer Evaluation	ls	$4,000	--	--	1	$4,000	Evaluate available record drawings of foundation and slab construction and sub-slab utilities
Subsurface VOC delineation							
Work Plan	ls	$5,000	--	--	1	$5,000	Letter WP
MIP-HTP Borings and Soil Borings	ls	$25,500	--	--	1	$25,500	Track mounted Geoprobe rig and MIHPt system; 10 soil borings and 20 MIP borings to approx. 15 ft bgs
Soil and Groundwater Sampling	ls	$14,000	--	--	1	$14,000	20 soil samples (VOCS, TOC, % moisture), 10 groundwater samples (VOCs)
Survey	ls	$1,700	--	--	1	$1,700	
Investigation Derived Wastes							
Characterization	ls	$1,100	--	--	1	$1,100	Sample collection and analysis of 1 soil sample
Transportation and Disposal	ls	$1,000	--	--	1	$1,000	5 drums
Reporting	ls	$7,500	--	--	1	$7,500	
MNA Evaluation (Off-property Groundwater)	ls	$30,000	1	$30,000	1	$30,000	*Identify whether natural attenuation is suitable to address off-property groundwater contamination (following operation of perimeter groundwater extraction system for a period up to five years)*
Technology Evaluation - GW Extraction and Treatment or In Situ Treatment	ls	$40,000	--	--	1	$40,000	In situ treatment assumed selected technology for cost purposes
Pre-Design Investigation (Off-Property Groundwater)							Adapted from June 2022 FS Costs
Subsurface VOC delineation							
Work Plan	ls	$5,000	--	--	1	$5,000	Letter WP
MIP-HTP Borings and Soil Borings	ls	$50,000	--	--	1	$50,000	Track mounted Geoprobe rig and MIHPt system; 5 soil borings and 11 MIP borings to approx. 25-35 ft bgs
Soil and Groundwater Sampling	ls	$14,000	--	--	1	$14,000	5 soil samples (VOCS, TOC, % moisture), 5 groundwater samples (VOCs)
Survey	ls	$1,800	--	--	1	$1,800	
Investigation Derived Wastes							
Characterization	ls	$1,100	--	--	1	$1,100	Sample collection and analysis of 1 soil sample
Transportation and Disposal	ls	$1,500	--	--	1	$1,500	8 drums
Reporting	ls	$7,500	--	--	1	$7,500	
TOTAL DIRECT CAPITAL COST (2021 DOLLARS)				**$125,300**		**$306,000**	2021 Dollars
Escalation Rate		8%					Based on ENR CCI June 2021 to June 2022
ESCALATED DIRECT CAPITAL COST				**$135,624**		**$331,214**	2022 Dollars

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Alternative 4

ENVIRONMENT & HEALTH

Perimeter deep groundwater extraction and treatment, in situ treatment, and surface soil excavation and off-site disposal

			Proposed Alternative		Contingency Alternative		
	UNIT	UNIT COST	QTY	TOTAL COST	QTY	TOTAL COST	Notes
DIRECT CAPITAL CONSTRUCTION COSTS - 2022 DOLLARS							
Residual Source Area Treatment (assumes "hot zone" 25% of total currently identified area)							
Bench-Scale Treatability Study (Pre-design)	ls	$50,000	1	$50,000	1	$50,000	
Install injection well via directional drill - 15-ft depth	ea	$185,000	10	$1,850,000	10	$1,850,000	4-inch perf. PVC, 500 LF installed via directional boring. Adapted from 2010 Quote, Escalated based on ENR CCI Oct 2010 to August 2022.
Chemical oxidant (including injection)	cy	$84	9,722	$816,648	9,722	$816,648	Adapted from PRAP Alt 6 under building, Rnd 1: 100% inj; Rnd 2 = 75% inj
Post-Injection Monitoring Wells	ls	$19,000	1	$19,000	1	$19,000	5 wells.
Off-Property Groundwater Implementation							
Groundwater Treatment (downgradient of OBG-23D)							
***In Situ* Treatment (ISCO)**							
Bench-Scale Treatability Study (Pre-design)	ls	$50,000	--	--	1	$50,000	For both OBG-23D and OBG-6D/7D areas
Install injection well points (35-ft depth)	ea	$735	--	--	60	$44,100	Transect layout (60 points); 1-inch diameter PVC; assumes 10-ft of screen
Chemical oxidant (including injection)	cy	$84	--	--	6,179	$519,036	Adapted from 2022 FS Alt 5 (1/4 volume for NE area); Rnd 1: 100% inj; Rnd 2 = 75% in; unit price updated.
Groundwater Treatment (downgradient of OBG-6D/7D)							
***In Situ* Treatment (ISCO)**							
Install injection well points (35-ft depth)	ea	$735	--	--	60	$44,100	transect layout (60 points); 1-inch diameter PVC; assumes 10-ft of screen
Chemical oxidant (including injection)	cy	$84	--	--	6,179	$519,036	Adapted from 2022 FS Alt 5 (1/4 volume for NE area); Rnd 1: 100% inj; Rnd 2 = 75% in; unit price updated.
SSDS Enhancement (Soil Vapor Extraction (SVE))							
Horizontal SVE piping	ls	$185,000	--	--	1	$185,000	4-inch perf. PVC, 500 LF installed via directional boring. Adapted from 2010 Quote, Escalated based on ENR CCI Oct 2010 to August 2022.
Off-gas Treatment System	ls	$145,000	--	--	1	$145,000	Package system: 350 SCFM at 50" WC, knockout tank, and 2 1000lb carbon units.
Installation (Electrical, Piping, Rigging, Startup)	ls	$105,000	--	--	1	$105,000	
Modeling	ls	$4,000	--	--	1	$4,000	Screening level modeling, assuming carbon off-gas treatment.
Permit	ls	$6,000	--	--	1	$6,000	
TOTAL DIRECT CAPITAL COST (2022 DOLLARS)				**$11,455,191**		**$13,284,279**	Escalated 2010 and 2021 Dollars to June 2022 and 2022 Dollars
Engineering/Design/Oversight		15%		$1,718,279		$1,992,642	
Legal		5%		$572,760		$664,214	
Contingency		20%		$2,291,038		$2,656,856	
TOTAL ALTERNATIVE CAPITAL COST (escalated and rounded)				**$16,037,300**		**$18,598,000**	2022 Dollars
OPERATION AND MAINTENANCE COSTS							
Annual Costs (Years 1-3)							
Post-injection groundwater monitoring (on-property)	ls	$50,000	1	$50,000	1	$50,000	5 wells, baseline CSIA, analytical (VOCs, TOC, ethenes, inorganics) 4 rounds per year, reporting.
Post-injection groundwater monitoring (off-property)	ls	$50,000	--	--	1	$50,000	5 wells, baseline CSIA, analytical (VOCs, TOC, ethenes, inorganics) 4 rounds per year, reporting.
Annual Costs (Years 1-30)							
Perimeter Collection Monitoring							
Downgradient well groundwater monitoring and labor	ea	$900	12	$10,800	12	$10,800	6 Shallow and 6 Deep wells for VOC/PCB; 4 hr labor per well
Well/Pump Maintenance	ea	$1,200	8	$9,600	8	$9,600	8 recovery wells
Shallow Groundwater Monitoring							
Onsite well groundwater monitoring and labor	ea	$900	6	$5,400	6	$5,400	6 Shallow wells for VOC/PCB; 4 hr labor per well
SPDES IRM/Consent Order Monitoring							
Includes the following:	LS	$145,000	1	$145,000	1	$145,000	based on average 5-year costs incurred years 2014-2018 and 2022 annual budget for power
Annual Monitoring/Inspection, labor and analytical; SPDES system sampling, inspection and operational maintenance							
Thinner Area and Surf Imp #1 Wells - Sampling, Labor and Analytical; Annual; 8 VOCs and 1 PCB							
Thinner System and Sump Inspection; Weekly Control Inspection; Bi-monthly sumps inspection							
Treatment system power							direct bill for power from SIP to RACER
SSDS IRM Operation and Maintenance							
Includes the following:	LS	$32,400	1	$32,400	1	$32,400	based on average 5-year costs incurred years 2014-2018 and 2022 budget for power
Monitoring/Inspection for VI Systems 1 and 2; Weekly labor and reporting							
Labor, Materials and analytical (as needed); Repair/replacement; VOCs sampling 3x per 5 years approx.							
SSDS power							direct bill for power from SIP to RACER

RAMBOLL

ENVIRONMENT & HEALTH

Table 5
GM - IFG OU1 PRAP
Alternative 4

Perimeter deep groundwater extraction and treatment, in situ treatment, and surface soil excavation and off-site disposal

			Proposed Alternative		Contingency Alternative		
	UNIT	UNIT COST	QTY	TOTAL COST	QTY	TOTAL COST	Notes
Other							
Site Mowing	ea	$3,000	2	$6,000	2	$6,000	2x annually
Landfill O&M - Cover Inspections/Reporting	LS	$6,000	1	$6,000	1	$6,000	Annual
Pump Power	KWH	$0.15	26,000	$3,900	26,000	$3,900	Assumes 8 0.5 HP pumps at 80% eff.
SVE Operation and Maintenance							
Includes the following:	ls	$32,400.00	--	--	1	$32,400	based on current SSDS system O&M
Monitoring/Inspection for Contingency SVE (System 3); Weekly labor and reporting							
Labor, Materials and analytical (as needed); Repair/replacement;							
SVE power							
Off-gas treatment	ls	$12,000	--	--	1	$12,000	2000 lbs vapor phase activated carbon/yr at $3.5/lb to replace and $5K in labor
TOTAL ANNUAL O&M COST (Updated 2022)				**$219,100**		**$263,500**	
Periodic Costs (Years 5, 10, 15, 20, 25, 30))							
5-yr reviews	ea	$5,000	1	$5,000	1	$5,000	
Periodic Costs (Years 10, 20, 30)							
Well rehab	ea	$2,500	2	$5,000	2	$5,000	Surge/pump wells every 10 years
Pump Replacement	ea	$2,100	2	$4,200	2	$4,200	Submersible well pumps
PRESENT WORTH ANALYSIS (YEARS 1-30)		**Discount**					
Cost Type		**Factor (7%)**	**Cost Per Yr**	**Present Value**	**Cost Per Yr**	**Present Value**	
Capital Cost - Year 0		1.000	$16,037,300	$16,037,300	$18,598,000	$18,598,000	
Annual O&M - Years 1-3		2.624	$50,000	$131,200	$100,000	$262,400	
Annual O&M - Years 1-30		12.4081	$219,100	$2,718,600	$263,500	$3,269,500	
Periodic Costs - Years 5, 10, 15, 20, 25, 30		2.1577	$5,000	$10,800	$5,000	$10,800	
Periodic Costs - Years 10, 20, 30		0.8981	$9,200	$8,300	$9,200	$8,300	
TOTAL PROJECT PRESENT WORTH (escalated and rounded)				**$18,906,000**		**$22,149,000**	

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX III

ADMINISTRATIVE RECORD INDEX

Administrative Record Index
Operable Unit 1 of the General Motors – Inland Fisher Guide

(New York State Inactive Hazardous Waste Disposal Site #7-34-057)

RI/FS Activities	Documents
Pre-Remedial Investigation Information	Citizen Participation Plan for the Onondaga Lake National Priority List Site (January 1996) Preliminary Remedial Investigation/Feasibility Study Report Former IFG Facility and Ley Creek Deferred Media (October 1997)
Remedial Investigation/Feasibility Study Work Plans	Final Supplemental RI/FS Work Plan Former IFG Facility and Ley Creek Deferred Media (October 1999) Human Health Risk Assessment Approach Former IFG Facility and Ley Creek Deferred Media (October 1999) Baseline Ecological Risk Assessment Former IFG Facility and Ley Creek Deferred Media (June 2001) Supplemental Remedial Investigation – Additional Sampling Work Plan (May 2003) Final Vapor Intrusion Investigation Work Plan (February 2006) Revised Additional Groundwater Evaluation Work plan (July 2006) Vapor Intrusion Investigation Work Plan – Additional Sampling (November 2007) Supplemental Remedial Investigation – Site Surface Soil Sampling Work Plan (September 2008) Former Syracuse IFG Facility and Deferred Media – OU 1 Groundwater Sampling Work Plan (December 2020)
Remedial Investigation Reports	Supplemental Remedial Investigation Former IFG Facility and Ley Creek Deferred Media (April 2000)

	Revised Remedial Investigation/Feasibility Study (October 2010) Human Health Risk Assessment (October 2010) Fish and Wildlife Impact Analysis (May 2013) Revised Remedial Investigation Report (March 2017) OU 1 Groundwater Summary Report (August 2021)
Feasibility Study Report	GM-IFG-OU1 Feasibility Study Report (June 2022) GM-IFG-OU1 Contingency Remedy and Revised Feasibility Cost (August 2022)
Proposed Plan Released Start of Public Comment Period	Proposed Plan and Listserv Notice (July 28, 2023) Notice of Public Meeting and Opportunity to Comment (July 28, 2023)
Public Meetings Held	Documentation and Transcript of August 16, 2023 Public Meeting (Attached to the Record of Decision as Appendix V-d) Written Comments on Proposed Plan (Attached to the Record of Decision as Appendix V-e)
Record of Decision Issued	Operable Unit 1 of the General Motors – Inland Fisher Guide Record of Decision and Responses to Comments (Responsiveness Summary) (September 2023)
Enforcement Documents	Administrative Order on Consent (September 1997) Administrative Order on Consent RI/FS Addendum (November 1999) Administrative Order on Consent (September 2015) Environmental Easement (September 2020)

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX IV

NEW YORK STATE DEPARTMENT OF HEALTH LETTER OF CONCURRENCE

NEW YORK STATE | Department of Health

KATHY HOCHUL
Governor

JAMES V. McDONALD, M.D., M.P.H.
Commissioner

MEGAN E. BALDWIN
Acting Executive Deputy Commissioner

July 26, 2023

Andrew Guglielmi, Director
Division of Environmental Remediation
NYS Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Re: **Proposed Plan – Operable Unit 1**
General Motors – Fisher Guide
Site #734057
Salina (T), Onondaga County

Dear Andrew Guglielmi,

We reviewed the New York State Department of Environmental Conservation and United States Environmental Protection Agency's July 2023 *Proposed Plan* for the referenced site to determine whether the proposed remedy is protective of public health. Based on that review, I understand that on-site soil and groundwater is contaminated with volatile organic compounds (VOCs), semivolatile organic compounds, metals, and polychlorinated biphenyls above applicable standards, criteria, and guidance. Soil vapor is contaminated with VOCs. Chlorinated VOC non-aqueous phase liquids are suspected on-site as well. Human exposures to contamination at this site will be addressed by the proposed remedy as outlined below.

- Soil: Soils that exceed 6 NYCRR Part 375 Industrial Soil Cleanup Objectives in areas not currently addressed by an approved Interim Remedial Measure or covered by paved surfaces or building footprint will be excavated and removed from the site. Following confirmatory soil sampling, the excavated areas will be backfilled with clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d). A site management plan will be put in place and future excavations at the site will conducted in accordance with an approved excavation plan to properly manage human exposures to remaining contaminated soil.

- Groundwater: Three residual source areas where VOC contamination exists (i.e., Former Thinner Tanks Area and beneath and northeast of the former manufacturing building) will be addressed using in-situ treatment technologies. Contaminated groundwater will be collected from the deeper zone along the northern perimeter of the facility property and treated prior to being discharged to Ley Creek. Use of groundwater at the site, without appropriate water quality treatment, will be restricted by an environmental easement placed on the site.

- Soil Vapor: The site's existing sub-slab depressurization systems will be evaluated to determine if enhancements to the system could effectively improve the removal of elevated VOCs in unsaturated soil beneath the former manufacturing building. In addition, a soil vapor intrusion evaluation will be completed, and appropriate actions implemented, for any buildings developed on the site.

Periodic reviews will be completed to certify that these elements of the remedy are being implemented and remain effective. Based on this information, I believe this remedy is protective of public health and concur with the *Proposed Plan*. If you have any questions, please contact Scarlett Messier-McLaughlin at (518) 402-7874.

Sincerely,

Christine N. Vooris, P.E., Director
Bureau of Environmental Exposure Investigation

ec: K. Malone / W. Kuehner / S. Messier-McLaughlin / M. Sergott / e-File
J. Strepelis - NYSDOH CRO
L. Letteney - OCHD
D. Harrington / J. Pelton / J. Luo - NYSDEC Central Office
G. Priscott - NYSDEC Region 7

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
FOR THE
RECORD OF DECISION
FORMER FACILITY AND GROUNDWATER PORTION OF THE
GENERAL MOTORS – INLAND FISHER GUIDE
SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
TOWN OF SALINA, ONONDAGA COUNTY, NEW YORK

INTRODUCTION

This Responsiveness Summary provides a summary of the public's comments and concerns received during the public comment period related to the former facility and groundwater portion of the General Motors – Inland Fisher Guide Subsite (Subsite) of the Onondaga Lake Superfund Site Proposed Plan and provides the New York State Department of Environmental Conservation (NYSDEC) and U.S. Environmental Protection Agency's (EPA's) responses to those comments and concerns. All comments summarized in this document have been considered in NYSDEC and EPA's final decision in the selection of a remedy to address the contamination at the noted portion of the Subsite.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

From 1990 through 2015, General Motors (GM) and the Revitalizing Auto Communities Environmental Response Trust (RACER Trust)[1] (following GM's bankruptcy in 2009), conducted field investigations at the Subsite under NYSDEC's oversight. This effort culminated in the completion of a remedial investigation (RI)[2]/feasibility study (FS)[3] in 2022. RI/FS reports and a Proposed Plan,[4] which identified NYSDEC and EPA's preferred remedy for the former facility and groundwater portion of the Subsite and the basis for that preference, were released to the public for comment on July 28, 2023. These documents were made available to the public on NYSDEC's website, https://www.dec.ny.gov/data/DecDocs/734057/, and at information repositories maintained at Atlantic States Legal Foundation, 658 West Onondaga Street, Syracuse, New York; NYSDEC, Division of Environmental Remediation, 625 Broadway, Albany, New York and NYSDEC Region 7, 5786 Widewaters Parkway, Syracuse, New York. A NYSDEC listserv bulletin notifying the public of the availability for the above-referenced documents, the comment period commencement and completion dates, and the date of the planned public meeting was issued on July 28, 2023. A notice providing the same

[1] RACER Trust was created by a U.S. Bankruptcy Court to clean up and position for redevelopment former GM properties.
[2] An RI determines the nature and extent of the contamination at a site and evaluates the associated human health and ecological risks.
[3] An FS identifies and evaluates remedial alternatives to address the contamination.
[4] A Proposed Plan describes the remedial alternatives considered for a site and identifies the preferred remedy with the rationale for this preference.

information was published in *The Syracuse Post-Standard* on July 30, 2023. The public comment period ended on August 27, 2023.

On August 16, 2023, NYSDEC held an open house and conducted a public meeting at the Salina Town Hall Court Room to inform local officials and interested citizens about the Superfund process, present the Proposed Plan, and respond to questions and comments from the public. One person attended the public meeting.

SUMMARY OF COMMENTS AND RESPONSES

Comments were received at the public meeting and in writing from the owner of the former facility, Mr. Robert Lieberman. Mr. Lieberman's written comments were received via an August 25, 2023 letter.

The transcript from the public meeting can be found in Appendix V-d.

The written comments submitted during the public comment period can be found in Appendix V-e.

A summary of the comments provided at the public meeting and comments that were received during the public comment period, as well as NYSDEC and EPA's responses to them, are provided below.

Communication

Comment #1: Mr. Lieberman asked for continuous, open communications with NYSDEC, EPA, and RACER regarding the plans for remediation of the former facility and groundwater portion of the Subsite.

Response #1: All work on the property will be coordinated with the property owner. Future work plans and design documents related to the former facility and groundwater portion of the Subsite will be provided to the property owner.

It should be noted that while the RACER Trust will continue to maintain the Interim Remedial Measure (IRMs)[5] and will perform the operation and maintenance (O&M) related to the remedy that will be implemented, RACER Trust will not actively participate with the remedial design (RD) and remedial action (RA).

[5] An IRM is a New York State law term for an environmental response that is synonymous with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §9601 *et seq.* (CERCLA, more commonly known as Superfund) environmental response term "removal action." The use of the term "IRM" in this document is used solely for consistency with underlying documents, but references actions that are in fact removal actions under CERCLA.

Remedial Action

Comment #2: Mr. Lieberman stated that the GM-IFG-OU1 property is 78.46 acres and that the 65 acres included in the Proposed Plan only account for the parcel located in the Town of Salina and does not include the parcel located in the Town of DeWitt.

Response #2: The site acreage will be corrected and updated in all future document submittals.

Comment #3: Mr. Lieberman asked for clarification of the volume that would be excavated under the selected remedy (Alternative 4) because one portion of the Proposed Plan indicated that approximately 1,500 cubic yards (CY) of contaminated soils would be excavated and another section of the Proposed Plan indicated that approximately 38 CY of unsaturated soil would be excavated.

Response #3: Under the selected remedy, approximately 38 CY of contaminated soil will be excavated. Contaminated soils that are located under cover systems or pavement will not be excavated under the selected remedy. The reference to 1,500 CY of contaminated soil in the Proposed Plan comprises contaminated materials located under cover systems and paved surfaces. The excavation of this 1,500 CY of soil is part of Remedial Alternative 5 in the Proposed Plan; this alternative was not selected.

Comment #4: Mr. Lieberman asked for clarification as to how excavated soils will be handled under the selected remedy. He also inquired as to how exposure to on-property tenants and visitors will be prevented and how contaminated surface water runoff will be controlled. He also requested that soil excavation work be performed at a time that will minimize impacts to tenants, visitors, and overall use of the property.

Response #4: Soil excavation, stockpiling, and transportation details will be provided in the future design documents. These documents will detail the excavation areas, volumes, process for handling and staging contaminated soil, backfilling the excavation, site restoration, air monitoring, and the project schedule. Potential impacts related to dust, volatile emission, and contaminated surface runoff will be mitigated through appropriate control measures and adherence to a Community Air Monitoring Plan (CAMP).[6] NYSDEC will work with the property owner to minimize the disturbance to the tenants' business operations.

[6] The purpose of a CAMP is to provide protection to potential receptors (*i.e.,* remediation workers, tenants, and visitors) from potential airborne contaminant releases as a result of remedial work activities performed at the site.

Comment #5: Mr. Lieberman noted that the selected remedy includes the installation of horizontal wells for the injection of amendments, which will necessitate using directional drilling beneath the former manufacturing building, but few details are provided. To fully understand the potential impacts to business operations, he asked that additional details be provided.

Response #5: Pre-RD activities will be necessary to determine the need for horizontal directional drilling beneath the former manufacturing building and, if needed, the actual installation of the horizontal injection wells will need to be designed. Specifically, the RD will determine the total number, depths, lengths, spacing, etc. between the horizontally-drilled injection wells. The RD will include a geotechnical evaluation to determine the subsurface conditions beneath the building and to prevent disturbances to the building foundation, utilities, and other subsurface features.

Potential Adverse Impacts

Comment #6: Mr. Lieberman asked that the full scope of "potential adverse impacts" to the property, tenants, and visitors to the property associated with the selected remedy be identified. Additionally, he asked that the steps that will be taken to mitigate the potential impacts be identified.

Response #6: Because potential adverse impacts could occur to remediation workers and tenants and visitors during the on-property remediation, a site-specific Health and Safety Plan (HASP) will be prepared. A HASP, which is a requirement of the federal Occupational Safety and Health Administration, outlines the safety measures and procedures that will be implemented by remediation workers. In addition, a CAMP will be prepared (see Response #4) to ensure that the public living and working near the property, as well as employees or visitors on the property, are protected from exposure to site contaminants during investigatory, RA, and O&M activities.

Comment #7: Mr. Lieberman noted that the Proposed Plan contained a general discussion as to how the selected remedy will include the collection and treatment of contaminated groundwater, but provided few details. He noted that during times of heavy rainfall, the existing stormwater collection basin that was installed as part of an IRM nearly overflows and has resulted in on-property flooding that could be exacerbated with the increased flow attributable to the groundwater collection and treatment system component of the selected remedy. He inquired as to how the existing water treatment system will be modified to accommodate the additional capacity associated with the collection of the contaminated groundwater.

Response #7: The stormwater collection basin that is referenced collects all the water that accumulates in the storm sewers or abandoned process sewers on the former facility property. The basin water is then intermittently pumped and sent to the on-property

treatment plant prior to being discharged to Ley Creek. As part of the selected remedy, deep groundwater extraction wells will be installed along the northern perimeter of the property. These wells will be used to pump water through underground piping directly into a sump for the existing water treatment system, not into the noted stormwater collection basin. Based on initial pumping tests completed during the RI, groundwater withdrawal from the deep extraction wells is expected to be fairly low and the volume of water requiring treatment is not expected to adversely impact the stormwater collection basin. However, the deep groundwater extraction system and the associated impact on the stormwater collection basin will be evaluated as part of the RD.

Comment #8: Mr. Lieberman inquired as to whether the existing Environmental Easement will be modified and, if so, asked that NYSDEC provide information as to the anticipated changes and how it may impact use/operations (*i.e.,* tenant restrictions or notifications) of the property.

Response #8: Under the selected remedy, the existing Environmental Easement will not need to be modified.

Comment #9: Mr. Lieberman asked for information regarding the anticipated contents of the Site Management Plan (SMP), including how it may impact use/operations of the property.

Response #9: The SMP will include an Institutional and Engineering Control Plan, a provision for the periodic certification of the institutional control and engineering controls, and a Site Monitoring Plan and Operation & Maintenance Plan. Because contamination will remain on-site, the SMP will be in place in perpetuity. It is not expected that actions required as part of the SMP will impact use/operations of the property. It should be noted that many of these activities already occur on the property under an Interim SMP.

Restoration of the Property

Comment #10: Mr. Lieberman asked for an assurance that following the completion of the RA, the property will be restored at no cost to the property owner.

Response #10: The RD will detail how the construction contractors will restore the property. Site restoration will be performed as part of the RA and will be funded as part of that effort.

Schedule

Comment #11: Mr. Lieberman asked who will be implementing the RD and RA, what contractors will be involved, and about the RD and RA timeframes. He also asked when

NYSDEC and EPA anticipate sharing documents related to design and implementation of the remedy.

Response #11: Shortly after the selection of the remedy in a Record of Decision, NYSDEC will issue a work assignment to a NYSDEC standby engineering contractor to perform the necessary pre-RD work and the RD. These contractors have not yet been identified. It is anticipated that the work assignment will be issued late in 2023 and that the pre-RD and RD work will be completed in late 2024/early 2025. Following the completion of the RD, an RA construction contractor will be selected. It is anticipated that the RA construction will take a year to complete. As was noted in Response #1, RACER Trust will continue to maintain the IRMs and will perform the O&M related to the remedy that will be implemented.

As was noted in Response #1, future work plans and design documents related to the former facility and groundwater portion of the Subsite will be provided to the property owner.

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-a

JULY 28, 2023 PROPOSED PLAN

General Motors – Inland Fisher Guide Site Operable Unit 1 Site Code: 734057

Subsite of the Onondaga Lake Superfund Site

Towns of Salina and DeWitt, Onondaga County, New York

NEW YORK STATE | Department of Environmental Conservation

July 28, 2023

EPA Region 2

PURPOSE OF THIS DOCUMENT & SUMMARY OF PREFERRED CLEANUP PLAN

This Proposed Plan describes the remedial alternatives considered for the contaminated soil/fill material, groundwater, and soil vapor at Operable Unit (OU) 1, the former plant property and groundwater portion of the General Motors – Inland Fisher Guide (GM-IFG) subsite (Subsite), which is part of the Onondaga Lake Superfund site, and identifies the preferred remedial alternative with the rationale for this preference.

This Proposed Plan was developed by the New York State Department of Environmental Conservation (NYSDEC) and the U.S. Environmental Protection Agency (EPA) in consultation with the New York State Department of Health (NYSDOH). NYSDEC and EPA are issuing this Proposed Plan as part of their public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The nature and extent of the contamination at OU1 is described in the *Remedial Investigation General Motors Inland Fisher Guide Operable Unit 1* (RI) and the remedial alternatives summarized in this Proposed Plan are described in the *General Motors Inland Fisher Guide Operable Unit 1 Feasibility Study Report* (FS), contained in the Administrative Record file for OU1. NYSDEC and EPA encourage the public to review these documents to gain a more comprehensive understanding of the Subsite and the Superfund activities that have been conducted in connection with OU1.

This Proposed Plan is being provided as a supplement to the reports listed above to inform the public of NYSDEC and EPA's preferred remedy and to solicit public comments pertaining to all the remedial alternatives evaluated, including the preferred remedy.

NYSDEC and EPA's preferred remedy includes a combination of removal and off-site disposal of soils that exceed 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) for industrial use, in-situ treatment to address residual source areas (i.e., Former Thinner Tanks Area and beneath and northeast of the former manufacturing building), groundwater collection and treatment along the northern perimeter of the former GM-IFG facility property, evaluation of the sub-slab depressurization system (SSDS) to determine if it can be supplemented with a soil vapor extraction (SVE) system to enhance removal of source material in soil beneath the former manufacturing building, treatment of the contaminated groundwater that is collected by the existing State Pollution Discharge Elimination System (SPDES) treatment system prior to being discharged to Ley Creek, development of a Site Management Plan (SMP), implementation of institutional controls (ICs), and long-term operation and maintenance (O&M) of these actions and previously-performed cleanup actions identified as Interim Remedial Measures (IRMs).[1]

The remedy described in this Proposed Plan is the preferred remedy for OU1. Changes to the preferred remedy, or a change from the preferred remedy to another remedy, may be made if public comments or additional data indicate that such a change will result in a more appropriate and effective remedial action. The final decision regarding the selection of a remedy will be made after NYSDEC and EPA have taken into consideration all public comments. NYSDEC and EPA are soliciting public comment on all the alternatives presented in this Proposed Plan and in the detailed analysis section of the FS report because NYSDEC and EPA may ultimately select a remedy other than the preferred remedy.

[1] An IRM is a New York State law term for an environmental response that is synonymous with the CERCLA environmental response term "removal action." The use of the term "IRM" in this document is used solely for consistency with underlying documents, but references actions that are in fact removal actions under CERCLA.

Community Role in the Selection Process

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

As noted above, an open house and a public meeting will be held during the comment period. At the public meeting, NYSDEC will present the conclusions of the RI and FS, elaborate further on the rationale for recommending the preferred remedy, and receive public comments.

The open house will be less formal and will provide the public a chance to receive printed information and discuss the cleanup options with NYSDEC and EPA representatives on a one-on-one basis.

Comments received at the public meeting and in writing during the comment period will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document that formalizes the selection of the remedy. Written comments on this Proposed Plan should be addressed to:

Jacky Luo
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7013
E-mail: jacky.luo@dec.ny.gov

MARK YOUR CALENDAR

Public comment period on the Proposed Plan: ***July 28, 2023 – August 27, 2023***

Open House: *5:00-6:00 PM on Wednesday, August 16, 2023*

Public Meeting: *6:00 PM on Wednesday, August 16, 2023*

Location: *Town of Salina Town Hall, 201 School Road, Liverpool, New York 13088*

INFORMATION REPOSITORIES

The administrative record file, which contains copies of the Proposed Plan and supporting documentation, are available online through the DECinfo Locator at: https://www.dec.ny.gov/data/DecDocs/734057/ and at the following locations:

Onondaga County Public LibrarySyracuse Branch at the Galleries
447 South Salina Street
Syracuse, NY 13204
315-435-1800

Salina Library
100 Belmont Street
Mattydale, NY 13211
315-454-4524

Atlantic States Legal Foundation
658 West Onondaga Street
Syracuse, NY 13204
315-475-1170

New York State Department of EnvironmentalConservation
5786 Widewaters Parkway
Syracuse, NY 13214-1867
315-426-7400

New York State Department of EnvironmentalConservation
Attn.: Jacky Luo
625 Broadway
Albany, NY 12233-7013
518-402-9676
E-mail: jacky.luo@dec.ny.gov

SUBSITE BACKGROUND

On June 23, 1989, the Onondaga Lake site was added to the New York State Registry of Inactive Hazardous Waste Disposal Sites. On December 16, 1994, Onondaga Lake, its tributaries and the upland hazardous waste sites which have contributed or are contributing contamination to the lake (subsites) were added to EPA's National Priorities List (NPL). This NPL listing means that the lake system is among the nation's highest priorities for remedial evaluation and response under the federal Superfund law for sites where there has been a release of hazardous substances, pollutants, or contaminants.

In 1997, General Motors Corporation (GM), the facility's owner at the time, and NYSDEC entered into an Administrative Order on Consent to conduct an RI/FS for the Subsite (NYSDEC site code 734057). Following GM's filing for bankruptcy in 2009, an RI/FS Order on Consent was executed between the Revitalizing Auto Communities Environmental Response Trust[2] (RACER) and NYSDEC in 2015. The Order requires RACER to conduct an RI/FS and risk assessments for the Subsite. The Subsite was classified by NYSDEC as a Class 2 Site in the New York State Registry of Inactive Hazardous Waste Disposal Sites (a Class 2 site represents a signification threat to public health or the environment; action is required). The Subsite includes two OUs. OU1, which is the focus of this Proposed Plan, addresses the former GM-IFG facility property soil and soil vapor and on- and off-property contaminated groundwater; OU2 addresses off-property contaminated sediments and floodplain soils. A remedy was selected for OU2 in March 2015; however, based on a significant increase in the overall volume of soil requiring remediation in the OU2 area, and the associated cost, after considering alternatives to the selected remedy, two separate Explanations of Significant Differences (ESDs) were issued by EPA and NYSDEC in September 2022 and April 2023 memorializing the increased volume and cost. The design of the OU2 remedy is currently underway; it is anticipated that it will be completed in late 2023.

OU1 Description and History

Location: The former GM-IFG property comprises approximately 65 acres that include the 800,000 square foot (sf) former GM manufacturing building located at 1 General Motors Drive in the Towns of Salina and Dewitt, Onondaga County, New York (collectively, facility). See Figure 1, Site Location.

Features: Various paved parking lots and green spaces are present at the facility. These areas surround the former manufacturing building and related outbuildings. The facility is bounded to the south by CSX railroad tracks, a wood pallet recycling facility, and an automobile dealership; to the east and northeast by Military Circle (formerly GM Circle) and Townline Road; to the west by a National Grid (formerly Niagara Mohawk Power Corporation) electrical transfer station and the state regulated wetland SYE-6; and to the north by Factory Avenue and the Ley Creek PCB Dredging subsite (NYSDEC site code; 734044). Many of these features can be seen on Figure 2, Property Areas of the Former GM-OU1 Site.

Geology and Hydrogeology: The local geology for the Subsite consists of fill, glaciolacustrine deposits, and lodgment till underlain by red shale bedrock. Beneath the facility, the thickness of the glaciolacustrine unit increases toward the facility's northern boundary. The glaciolacustrine deposit has three units: the upper unit (silt and fine-grained sand); the middle unit (silt and clay); and the lower unit (silt and fine-grained sand).

The Subsite has two distinct groundwater zones:

- A shallow groundwater zone (at a depth of approximately 1 foot to 15 feet [ft] below ground surface [bgs]) within the fill layer and the upper glaciolacustrine unit; and
- A deep groundwater zone (at a depth of approximately 20 to 45 ft bgs) within the lower glaciolacustrine unit and the sand and gravel layer.

Between the two groundwater zones is the middle glaciolacustrine layer, which acts as a low permeability zone that separates the shallow and deep groundwater zones. This low permeability glaciolacustrine layer extends from near the northern edge of the former manufacturing building to the northern portion of the facility. The deep and shallow groundwater zones are connected in the vicinity of the building where the glaciolacustrine layer is absent. Shallow and deep groundwater generally flow in a northeast direction across the facility toward Ley Creek.

History of the GM-IFG Facility: GM built the facility to manufacture metal automotive trim components such as bumpers, grills, wheel disks, and hubcaps. The facility began operations in 1952 as GM's Brown-Lipe-Chapin Division. Facility operations included metal die casting; nickel, chromium, and copper cyanide electroplating; stamping; polishing; buffing; painting; and machining. In 1961, Brown-Lipe-Chapin merged with another GM division, Ternstedt, and in 1968 became part of GM's Fisher Body Division. During the early 1960s, injection molding operations were added to the metal operations. Metal finishing and

[2] RACER was created by a U.S. Bankruptcy Court to clean up and position for redevelopment former GM properties.

diecasting were subsequently reduced and replaced by plastic injection molding by the early 1970's. The facility operated as the Fisher Body Division until 1984, when it became the Fisher Guide Division. The facility then operated as GM's IFG Division from 1989 until it ceased manufacturing operations in 1993. After the cessation of manufacturing operations, the facility was reassigned to GM's North American Operations Property Management Group, later re-designated the Worldwide Facilities Group. Beginning in 1997, GM implemented a facility cleanup program to decontaminate surfaces and decommission unneeded systems. GM redeveloped the facility, starting in 2000, as commercial/light industrial multi-tenant spaces; use of these spaces continues today. In 2009, GM filed for bankruptcy and, soon after, RACER took over the ownership and remediation activities of the facility.

Interim Remedial Measures: IRMs are activities to address both emergency and nonemergency site conditions, which can be undertaken without extensive investigation and evaluation, to prevent, mitigate, or remedy environmental damage or the consequences of environmental damage attributable to a site before a final remedy is selected. Many IRMs have already been completed at the facility. Based on the operational history and compounds identified, several components of the IRMs address media of concern at the facility, including the Former Thinner Tanks Area Groundwater IRM, the low permeability landfill cover installed as part of the Former Landfill IRM, facility stormwater treatment, and the Soil Staging Area and Soil Consolidation Area soil covers installed as part of the SPDES Treatment System IRM, the former manufacturing building Sub-Slab Depressurization System/Vapor Intrusion Mitigation IRM, soil removals completed as part of the Drainage Swale IRM and various Redevelopment IRMs, and closure of Surface Impoundment #1. The IRMs, all of which have been performing as designed and constructed, are described in more detail below:

- Oil/Water Collection Sump System – In the 1980s, oil containing polychlorinated biphenyls (PCBs) was discovered in the facility's discharge to Ley Creek and within the underground storm sewer system beneath the former manufacturing building. The storm sewers beneath the former manufacturing building were decommissioned and collection pumps were installed at locations where the sewers formerly exited the building. These sumps collected residual oil/water present within the sewer lines.
- Storm Sewer Rehabilitation – GM rehabilitated select storm sewers located outside the facility buildings. The effort included cleaning the sewer lines and abandonment and repair/replacement of some storm sewer sections on the west side of the facility. This work was completed in 2001.
- Former Thinner Tanks Area Groundwater Recovery System – Following a spill in the conveyance piping of three underground storage tanks in 1987, GM installed a groundwater collection system to collect shallow overburden groundwater with elevated concentrations of toluene, ethylbenzene, and xylenes in the Former Thinner Tanks Area. The recovery system consists of two groundwater collection trenches. The collected groundwater is piped to the facility stormwater treatment system and treated using filtration and granulated activated carbon prior to discharge to Ley Creek under a SPDES permit. To assess the effectiveness of this IRM, RACER implements an annual monitoring program including the collection and laboratory analysis of groundwater samples from eight monitoring wells for toluene, ethylbenzene, and xylene.
- Former Landfill IRM – An industrial landfill located at the facility contains chromium and PCB-contaminated material. Areas within the landfill with high concentrations of contaminants were excavated and transported off-site for disposal at a licensed facility and the landfill was capped in 2004. RACER maintains the landfill integrity by performing operation and maintenance (O&M) activities, including inspections and repairs, as needed, and mowing the vegetative cover.
- Former Drainage Swale IRM – GM used a drainage swale in the 1950s-60s as a conduit for the discharge of liquid process waste to Ley Creek. The swale was subsequently filled in, but highly contaminated soil remained. This IRM involved the removal of the contaminated soil from the former drainage swale in 2004. As part of this IRM, GM removed over 26,000 tons of soil containing PCBs from this area of the facility. Soils with PCB concentrations less than 50 parts per million (ppm) were placed in the landfill (described above) before it was capped. Soils with PCB concentrations greater than 50 ppm were transported off-site for disposal at a licensed facility.
- Surface Impoundment #1 closure – In 1989, GM closed and covered Surface Impoundment #1 with a clay and soil cover consistent with Resource Conservation and Recovery Act requirements and this area was subsequently paved. The cover in this area limits infiltration and prevents direct contact with subsurface soil in this area. To evaluate the effectiveness of this IRM, RACER conducts annual monitoring of two wells for volatile organic compounds (VOCs) and PCBs.
- SPDES Treatment System IRM – The purpose of this IRM was to stop the intermittent discharge of PCBs and other contaminants originating from the Subsite to Ley Creek during storm events. This IRM involved GM's construction of a retention basin and associated water treatment system that was completed in 2003. This retention basin collects surface water runoff that accumulates on the GM-IFG property in the storm sewers or abandoned process sewers. The basin water is treated by RACER at the treatment plant prior to discharge to Ley Creek. As part of this IRM, vegetated soil covers were placed over the Soil Staging Area and the Soil Consolidation Area.

- Vapor Intrusion Mitigation IRM – In 2011, RACER completed the installation of two sub-slab depressurization systems beneath the facility's concrete slab to prevent the migration of soil vapors containing VOCs into the building. Since operation began, RACER has performed routine O&M of the system and periodic air monitoring.
- Redevelopment IRMs – Multiple IRMs have been performed over the years to facilitate the redevelopment of the facility. These IRMs include the removal of soil and surface paving at the former temporary hazardous waste storage area located west of the Mold Storage building, removal of surface soil containing high concentrations of site contaminants south of the former Industrial Wastewater Treatment Plant (IWTP), demolition of the IWTP clarifiers, construction of two truck loading docks, and regrading at the former CDM Outdoor Storage Area.
- Decommissioning Activities IRM – Following a facility assessment, decommissioning activities were performed in the early 2000s that consisted of cleaning the floors (and applying epoxy floor coating in some areas) and aboveground surfaces, cleaning and dismantling various process systems, and removing residue from facility sumps and drains. The demolition of the IWTP on the facility's south side was completed in 2006.

As described above, many of these IRMs have and continue to address potential risks identified in media at the Subsite through removal, control, and/or treatment. It should also be noted that as part of a property transfer in 2020, an environmental easement under Article 71, Title 36 of New York State Environmental Conservation Law (ECL) was recorded for the property. This environmental easement controls future activities at the property, limits land use to industrial, and prohibits the use of groundwater.

Current Zoning and Land Use: The facility is located in an area zoned for industrial use in the Town of Salina; a small portion of the facility (entrance gate area and a portion of the parking lot) is located in the Town of DeWitt. Currently, the former manufacturing building is occupied by a variety of tenants performing commercial and light industrial activities. The area surrounding the facility can generally be characterized as commercial/industrial. The general area is characterized by a high degree of industrial activity, as evidenced by the presence of past/current manufacturing facilities. Numerous small industrial businesses are present along Factory Avenue and Route 298. Syracuse International Airport-Hancock Field is located approximately 1.5 miles north of the facility.

RESULTS OF THE REMEDIAL INVESTIGATION

To evaluate the nature and extent of contamination at the Subsite, the RI included the collection and laboratory analysis of soil and groundwater samples from several areas at the facility. Also, as documented in the RI, investigations spanned many years and included analysis of soil, soil vapor, groundwater, and indoor air. As shown on Figure 2, for purposes of NYSDEC and EPA management, the facility is divided into six areas plus the former manufacturing building. These areas are the Northern, Northeast, Southeast, former IWTP, Southwest, and Former Thinner Tanks Areas. Based on a comparison to Title 6 New York Code of Rules and Regulations (6 NYCRR) Part 375 soil cleanup objectives (SCOs) for Industrial Use, Protection of Groundwater, New York State Class GA groundwater standards, and New York State's Guidance for Evaluating Soil Vapor Intrusion the following was concluded:

Soil

The sampling activities and associated results from various investigations conducted facility-wide indicate that surface and subsurface soils in certain locations on the site contained PCBs, VOCs, semi-volatile organic compounds (SVOCs) and site-related metals (*i.e.,* arsenic, chromium, copper, nickel, and zinc) exceeding Standards, Criteria, and Guidance (SCGs). Figure 3 shows the sample locations where there are exceedances of SCOs in the surface and subsurface soil. Table 1 and Table 2 summarize the detected concentrations and frequency of SCO exceedances for surface and subsurface soil, respectively.

Surface Soil

PCBs were detected above their Part 375 Industrial Use SCO (25 ppm) in the Northern Property Area at maximum concentrations 37 ppm.

SVOCs were detected above the Part 375 Industrial Use SCOs in the Former Thinner Tanks Area and Northern Property Area. Specifically, in the Former Thinner Tanks Area, benzo(a)pyrene (SCO of 1.1 ppm), chrysene (SCO of 110 ppm), and fluoranthene (SCO of 1,000 ppm) were detected at maximum concentrations of 300 ppm, 380 ppm, and 1,200 ppm, respectively. In the Northern Property Area, benzo(a)anthracene (SCO of 11 ppm), and benzo(a)pyrene were detected at maximum concentrations of 1.8 ppm, and 1.7 ppm respectively.

In the Southeast Property Area, arsenic was detected above the Part 375 Industrial Use SCO (16 ppm) at a maximum concentration of 92.8 ppm.

Subsurface Soil

PCBs were detected in subsurface soil in different areas of the facility at concentrations above Part 375 Protection of Groundwater SCO (3.2 ppm). Specifically, PCBs were detected in the northeast area at a maximum concentration of 24 ppm, in the IWTP area at a maximum concentration of 190 ppm, beneath the former manufacturing building at a maximum concentration of 4,300 ppm, in the Northern Property Area at maximum concentration of 79 ppm beneath the landfill. Field screening using ultraviolet irradiation suggested that Non-Aqueous Phase Liquid (NAPL) may be present in three soil sample locations along an abandoned sewer under the former manufacturing building. The area beneath the building may represent a potential source area for PCBs.

VOCs detected above Part 375 Protection of Groundwater SCOs were limited to toluene (SCO of 0.7 ppm), xylene (SCO of 1.6 ppm), ethylbenzene (SCO of 1 ppm), methylene chloride (SCO of 0.05 ppm), trichloroethene ((TCE) (SCO of 0.47 ppm)), cis-1,2-dichloroethene ((cis-1,2-DCE) (SCO of 0.25 ppm)), and vinyl chloride (SCO of 0.02 ppm), across the facility. Specifically, toluene, xylene, and ethylbenzene were detected respectively at maximum concentrations of 720 ppm, 317 ppm, and 61 ppm in subsurface soil samples collected from the Former Thinner Tanks Area. Methylene chloride, ethyl benzene, toluene, xylene, cis-1,2-DCE, and vinyl chloride were detected respectively at maximum concentrations of 0.14 ppm, 11 ppm, 110 ppm, 110 ppm, 0.45 ppm, and 0.12 ppm in the northern property area. TCE was detected at a maximum concentration of 1.5 ppm in the northeast property area. Methylene chloride, TCE, cis-1,2-DCE, and vinyl chloride were detected at a maximum concentration of 7.8 ppm, 9,800 ppm, 5.1 ppm, and 7.8 ppm, respectively, beneath the former manufacturing building at depths ranging from 0.5 ft to 15 ft below the concrete slab, generally in the center of the building in the vicinity of the former paint room.

SVOCs were detected above the Part 375 Protection of Groundwater SCOs in subsurface soil beneath the transformer/switch area located in the Former Thinner Tanks Area, former landfill in the Northern Property Area, and in the Northeast Property Area. Benzo(a)anthracene (SCO of 1 ppm), benzo(a)pyrene (SCO of 22 ppm), and benzo(b)fluoranthene (SCO of 1.7), were detected respectively at maximum concentrations of 150 ppm, 110 ppm, and 140 ppm, in the Former Thinner Tanks Area. P-Cresol (SCO of 0.33 ppm) was found at a maximum concentration of 3.9 ppm in the Northern Property Area. Benzo(a)anthracene, benzo(b)fluoranthene, and chrysene (SCO of 1 ppm) were detected at maximum concentrations of 9.3 ppm, 16 ppm, and 11 ppm, respectively, in the Northeast Property Area.

Site-related metals (*i.e.,* arsenic, chromium, copper, lead, nickel, zinc, and cyanide) were detected above the Part 375 Protection of Groundwater SCOs in limited areas in subsurface soil near the Northern, Northeast, Southeast, Southwest, IWTP Property Areas, and beneath the former manufacturing building. Specifically, arsenic (SCO of 16 ppm), chromium (SCO of 19 ppm), copper (SCO of 1,720 ppm), lead (SCO of 450 ppm), nickel (SCO of 130 ppm), and zinc (SCO of 2,480 ppm) were detected respectively at a maximum concentration of 65 ppm, 17,200 ppm, 3,920 ppm, 7,940 ppm, 243 ppm, and 53,300 ppm in the Northern Property Area beneath the landfill IRM cover. Arsenic was detected at a maximum concentration of 16.3 ppm in the Northeast Property Area. Arsenic was detected at a maximum concentration of 16.4 ppm in the Southeast Property Area. Chromium was at maximum concentrations of 1,220 ppm the Southwest Property Area. Chromium was detected at a maximum concentration of 44 ppm in the IWTP Property Area. Chromium, cyanide (SCO of 40 ppm), and nickel were detected respectively at a maximum concentration of 120 ppm, 247 ppm, and 4,000 ppm beneath the former manufacturing building.

The majority of subsurface soil locations identified as having site contaminants at concentrations exceeding SCOs are located beneath covers/caps within the Former Landfill, Soil Staging Area, or Soil Consolidation Area and were previously addressed by the earlier IRMs (discussed above).

Groundwater

The groundwater analytical results indicate that the shallow overburden groundwater contains VOCs and PCBs at concentrations exceeding SCGs and the deep overburden groundwater contains VOCs, SVOCs, and metals at concentrations exceeding SCGs.

Shallow Groundwater Zone

PCBs were detected above New York State Class GA groundwater standard (0.09 parts per billion [ppb]) in groundwater samples collected from monitoring wells located in the Northeast Property Area at a maximum concentration of 0.72 ppb. An elevated concentration of PCBs was detected in groundwater immediately north of the former manufacturing building at a maximum concentration of 55 ppb in the vicinity of a closed surface impoundment. Otherwise, PCBs are present at concentrations marginally above New York State Class GA groundwater standard in a few localized areas in the shallow overburden groundwater zone.

Chlorinated VOCs, consisting mainly of TCE (SCG of 5 ppb), cis-1,2-DCE (SCG of 5 ppb), and vinyl chloride (SCG of 2 ppb) were detected in facility groundwater at maximum concentrations of 25,000 ppb, 4,700 ppb, 23 ppb, respectively, in samples collected from beneath the former manufacturing building (see Figure 4). Field screening techniques suggest that residual VOC NAPL may exist beneath the former manufacturing building and may be a continuing source for groundwater contamination. The TCE detected may be associated with the former TCE storage area/IWTP previously located south of the former manufacturing building and possible solvent storage and usage within the former manufacturing building. Figure 4 provides site-wide shallow groundwater sample results for VOCs. As shown on Figure 4, the possible residual VOC NAPL beneath the building has not resulted in a shallow overburden groundwater plume north of the former manufacturing building.

Non-chlorinated VOCs, including toluene, ethylbenzene, and xylene, are present in the shallow groundwater zone in the Former Thinner Tanks Area at concentrations above the SCG of 5 ppb for these compounds. Specifically, the 2021 annual groundwater sampling detected these constituents at maximum concentrations of 3,400 ppb, 39,000 ppb, and 190,000 ppb, respectively. While residual NAPL is suspected to be present in the Former Thinner Tanks Area based on these groundwater concentrations, this groundwater is contained by the two recovery trenches and is not migrating off-property.

Arsenic was detected above the groundwater SCG in the Northern Property Area and Chromium was detected above the groundwater SCG beneath the former manufacturing building. In addition, other non-site-related metals, including iron, magnesium, manganese, and sodium, were also detected at concentrations above groundwater SCGs.

Deep Groundwater Zone

PCBs (*i.e.,* Aroclor 1242) were detected above New York State Class GA groundwater standard (0.09 ppb) in the Northeast Property Area at a maximum concentration of 0.18 ppb.

TCE, cis-1,2-DCE, and vinyl chloride were detected in the deep overburden groundwater at concentrations exceeding SCGs immediately north of the former manufacturing building, in the Northern Property Area, and off-property beneath the Ley Creek floodplain area (see Figure 5). North of the former manufacturing building and in the Northern Property Area, TCE, cis-1,2-DCE, and vinyl chloride were detected in the deep overburden groundwater at maximum concentrations of 170,000 ppb, 11,000 ppb and 120 ppb, respectively, compared to their respective groundwater standards of 5 ppb for TCE and cis-1,2-DCE and 2 ppb for vinyl chloride.

Off-property, TCE, cis-1,2-DCE, and vinyl chloride were detected at maximum concentrations of 3,500 ppb, 570 ppb and 140 ppb, respectively in monitoring wells located approximately 200 ft. north of the property. NAPL source material may be present at areas between the northern extent of the former manufacturing building and the northern facility perimeter based upon the suspected movement of the TCE plume along the top of the till and the concentrations of TCE detected in deep groundwater. Figure 5 provides site-wide deep groundwater zone sample results for VOCs.

SVOCs and site-related metals were not detected above SCGs in the deep groundwater.

Soil Vapor

As part of the June 16, 2010 Vapor Intrusion Mitigation IRM, sub-slab vapor and indoor air samples were collected. The investigation identified elevated levels of chlorinated VOCs above air guidelines and other criteria referenced in the State's Guidance for Evaluating Soil Vapor Intrusion (NYSDOH, 2006 w/ updates). The data required the installation of an SSDS to address the soil vapor intrusion. The sub-slab and indoor air sampling results are summarized below:

Sub-Slab

1,1,1-Trichloroethane (1,1,1-TCA), Tetrachloroethene (PCE), TCE, and cis-1,2-DCE were detected in the sub-slab vapor samples at concentrations exceeding NYSDOH guidance beneath the former manufacturing building at maximum concentrations of 1,400 micrograms per cubic meter (µg/m^3), 2,800 µg/m^3, 1,900,000 µg/m^3, and 270 µg/m^3, respectively.

Indoor Air

PCE, TCE and cis-1,2-DCE were detected in the indoor air at concentrations exceeding NYSDOH guidance at maximum concentrations of 540 µg/m^3, 130 µg/m^3, and 0.23 µg/m^3, respectively.

Suspected Nonaqueous Phase Liquids

Chlorinated VOC NAPLs may be present in some areas of the facility property based on the elevated concentrations (TCE at 25,000 ppb) that were detected in the shallow groundwater beneath the former manufacturing building and in the deep

groundwater near the property boundary (TCE at 160,000 ppb). Chlorinated VOC NAPLs, if present beneath the former manufacturing building, would be expected to flow along the till down into the deep groundwater unit. In fact, and as described above, analytical results from the shallow overburden groundwater north of the former manufacturing building show that the residual VOC NAPL under the building has not resulted in a shallow overburden groundwater plume.

Suspected PCB NAPL may be present underneath the former manufacturing building due to past releases of PCB-containing hydraulic fluid to sumps and to leaking process sewers during the manufacturing processes.

A past leak from the underground paint thinner storage tanks/piping in the Former Thinner Tanks Area is a potential source of non-chlorinated VOC NAPL that may be present in this area. As part of the Thinner Tanks System Area Groundwater Recovery IRM, GM installed two groundwater collection trenches and associated piping to collect and treat the contaminated groundwater. While the IRM has contained the plume, there may be a residual source (*e.g.,* NAPL) that remains based on contaminant levels in groundwater in this area (including concentrations of total xylenes greater than 100,000 ppb since 1999).

If present, chlorinated NAPLs would be a principal threat waste (for an explanation of a principal threat waste, see the textbox, "What is a Principal Threat?" below). It should be noted that actual VOC-related NAPL was not observed during the RI. While PCB-related NAPL was observed during field screening, widespread PCB contamination in groundwater was not observed during the RI. These areas are discussed in detail in the RI and FS reports.

"What is a Principal Threat?"

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a Site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to ground water, surface water, or air, or acts as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material; however, NAPLs in groundwater may be viewed as source material.

Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of the alternatives using the nine remedy selection criteria. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

Natural Attenuation

In 2001, GM conducted a preliminary evaluation of natural attenuation at the facility as part of a supplemental RI. The evaluation analyzed for VOCs, dissolved oxygen, oxidation-reduction potential, dissolved light hydrocarbons (*i.e.,* methane, ethane, and ethene), dissolved carbon dioxide gas, volatile fatty acids, sulfide, sulfate, nitrate, nitrite, and total iron in seven deep wells. This evaluation found that limited natural attenuation processes were evident in the groundwater and TCE daughter products, such as cis-1,2-DCE and vinyl chloride, were observed.

Remedial Investigation Conclusions

Based on the results of the various iterations of the RI from 2010 through 2022 and prior investigations, the contamination at OU1 is summarized as follows:

- Approximately 2,580 cubic yards (CY) of soil has been identified as exceeding the Industrial Use SCOs and/or the Protection of Groundwater SCOs for PCBs and VOCs. All but approximately 340 CY of this material is currently covered as part of completed IRMs or located below the building. Of the material not covered by IRMs, approximately 241 CY is covered by paving (roadways or parking lots). Of the remaining uncovered soil exhibiting concentrations greater than the Protection of Groundwater SCO, approximately 15 CY are located in the top 1 ft and 84 CY are at depths greater than 1 ft. Approximately 38 CY of material is to be removed in the surface soil and 1500 CY of material is to be removed in the surface and subsurface soil with the assumption of over excavation of 10 ft for locations shallower than 5ft and extended 20 ft for locations between 5 and 15 ft bgs.
- Three residual source areas may exist at the facility: potential residual non-chlorinated VOC NAPL in shallow overburden soil within the Former Thinner Tanks Area; potential residual chlorinated VOC NAPL and PCB NAPL in shallow/deep overburden soil beneath the former manufacturing building; and potential residual chlorinated VOC NAPL in deep overburden soil within the Northeast Property Area. From calculations based on the groundwater data, the Former Thinner

Tanks Area VOC residual source area is approximately 35,800 sf by 10 ft thick, the former manufacturing building VOC residual source area is approximately 115,100 sf by 10 ft thick, and the VOC residual source in the Northeast Property Area is approximately 56,200 sf by 1-ft thick.

- Shallow and deep groundwater is contaminated with chlorinated VOCs and PCBs and there are high concentrations of toluene, ethylbenzene, and xylene in the Former Thinner Tanks Area. Specifically:

    - Residual VOC NAPL is potentially located under the former manufacturing building but has not resulted in a shallow overburden groundwater plume.
    - In general, PCBs are present at concentrations above New York State Class GA groundwater standards in a few localized areas in the shallow overburden groundwater zone (PCBs up to 55 ppb as compared to the groundwater standard of 0.09 ppb) and in one location in the deep overburden groundwater zone. Given that most of the PCB detections were associated with PCBs observed in subsurface soils, the groundwater detections are likely indicative of localized conditions.
    - Chlorinated VOCs were detected at elevated concentrations (TCE up to 25,000 ppb as compared to the groundwater standard of 5 ppb) in the shallow overburden groundwater beneath the former manufacturing building.
    - Chlorinated VOCs were detected at elevated concentrations (TCE up to 170,000 ppb as compared to the groundwater standard of 5 ppb) in the deep overburden groundwater north of the former manufacturing building and off-property beneath the Ley Creek floodplain area.
    - Toluene, ethylbenzene, and xylene contamination in the shallow overburden groundwater are contained by operation of the Former Thinner Tanks Area Groundwater Recovery System.

SCOPE OF ACTION

As part of the cleanup of the Onondaga Lake NPL site, the following subsites are being addressed:

- General Motors – Inland Fisher Guide (the subject of this Proposed Plan) (site code 734057);
- Geddes Brook/Ninemile Creek (site code 734030);
- LCP Bridge Street (site code 734049);
- Ley Creek PCB Dredgings (site code 734044);
- Lower Ley Creek (site code 734123);
- Niagara-Mohawk Hiawatha Blvd (site code 734059);
- Onondaga Lake Bottom (which includes Geddes Brook/Ninemile Creek as an OU) (site code 734030);
- Salina Landfill (site code 734036);
- Semet Residue Ponds (site code 734008);
- Wastebeds 1-8 (site code 734081);
- Wastebed B/Harbor Brook (site code 734075); and
- Willis Avenue (site code 734072).

Remedial actions have been fully implemented at the Semet Residue Ponds, Wastebeds 1-8 OU1, Wastebed B/Harbor Brook OU1, Geddes Brook/Ninemile Creek, Niagara-Mohawk Hiawatha Boulevard, LCP Bridge Street, Ley Creek PCB Dredgings, Onondaga Lake Bottom, and Salina Landfill subsites. These subsites are undergoing long-term site management. Remedial activities for portions of the Wastebeds 1-8, GM-IFG, and Wastebed B/Harbor Brook subsites have been completed or are in progress. The Lower Ley Creek and Willis Avenue subsites are in the Remedial Design (RD) phase.

The scope of the action for OU1 of this Subsite is to incorporate actions undertaken as IRMs as final actions, address the contaminated soil/fill material and shallow and deep groundwater not addressed under the IRMs discussed above, and implement additional actions where needed. NYSDEC and EPA expect this remedy to be a final, comprehensive remedy for OU1.

The 2015 ROD for OU2 of this Subsite called for, among other things, excavation of approximately 9,600 CY of contaminated upper Ley Creek channel sediments and approximately 2,900 CY of adjacent contaminated floodplain soil/dredged materials in the reach from Townline Road to the Route 11 bridge. The remedy also included excavating contaminated soils/sediments in an adjacent wetland called the National Grid Wetland and roadway shoulders near the facility and on the northern side of Factory Avenue in the vicinity of LeMoyne Avenue. In 2016, RACER excavated and disposed of at a licensed facility contaminated floodplain soil from residential properties (located adjacent to the creek) and in 2017 performed the remediation of the Factory Avenue and National Grid Wetland soils. Based on the results of pre-RD investigation (PDI) sampling, it was determined that the ROD-estimated volume of contaminated soil/dredged materials requiring excavation and off-site disposal increased from approximately 15,000 CY to approximately 142,500 CY. In September 2022, an ESD was issued by EPA and NYSDEC regarding OU2 of this Subsite. The modified soil remedy includes the excavation and off-site disposal of floodplain soils exhibiting contaminant concentrations greater than restricted SCOs and is adjusted to reflect increased soil volumes and

associated remedial costs, consistent with current and reasonably anticipated future land use. This modification did not address a 13.9-acre forested area because, at that time, an alternative in-situ remedial approach was being evaluated for this area. Following the completion of the evaluation, EPA and NYSDEC concluded that it is unlikely that the in-situ treatment would be an effective remedy in the forested area. Therefore, the soil remedy selected in the ROD remains the most suitable approach for addressing the forested area, notwithstanding the increased soil volumes and associated remedial costs. This decision was documented in an April 2023 ESD. The design of the sediment and soil remedy is currently underway; it is anticipated that it will be completed in late 2023.

Summary of Quantitative Subsite OU1 Risk Assessments

As part of the original 2010 RI and in subsequent iterations of the RI, baseline quantitative risk assessments were conducted for OU1 to estimate the potential risks to human health and the environment (see the "What is Human Health Risk and How is it Calculated?" and "What is Ecological Risk and How is it Calculated?" textboxes below). The baseline risk assessments consisted of a human health risk assessment (HHRA), which evaluated potential risks to humans, and a fish and wildlife impact analysis (FWIA), which evaluated potential risks to ecological receptors, analyzed the potential for adverse effects caused by hazardous substance releases assuming no further actions to control or mitigate exposure to these hazardous substances are taken.

Human Health Risk Assessment

OU1 is zoned industrial and exposure scenarios were developed based on this current and likely future land use. The baseline HHRA considered exposure to soil, outdoor air (via dusts) and groundwater through several current and future exposure scenarios. Receptors and pathways that were evaluated included the following: exposure to surface soil and outdoor air by older children and adult trespassers as well as industrial workers and construction workers; and exposure to shallow groundwater by construction workers; and exposures to groundwater used as drinking water by future child and adult residents.

Exposure scenarios were developed for these populations and considered exposure through incidental ingestion and inhalation of and dermal contact with surface and, subsurface soil, and ingestion of groundwater as a hypothetical drinking water source in the future. Human health risks associated with the ingestion of groundwater are based on groundwater data from the RI. Risks from exposure to volatile contaminants within indoor air via vapor intrusion were also evaluated in the HHRA.

Total cancer risk for the adult trespasser, industrial worker and construction worker exceeded the 10^{-4} – 10^{-6} risk range (see the *Risk Characterization* discussion in the "What is Human Health Risk and How is it Calculated?" textbox, below), primarily driven by exposure to polycyclic aromatic hydrocarbons (particularly benzo(a)pyrene) in surface soil. Noncancer hazard for the industrial worker and construction worker also exceeded the threshold of 1 due primarily to PCBs in surface soil. For the construction worker, exposure to ethylbenzene in groundwater also contributed to elevated hazard. Furthermore, hypothetical future residential exposure to groundwater as potable water resulted in elevated cancer risk and noncancer hazards. These estimates were driven by exposure to ethylbenzene, TCE, cis-1,2-DCE, xylenes, vinyl chloride, arsenic, chromium, and PCBs in groundwater. A summary of the cancer risks and noncancer hazards above threshold levels for each population in each of the OU1 areas, along with the contaminants of concern (COCs) that contribute the most to the risk or hazard can be found in the Facility Risk and Hazard Summary table of the HHRA.

As referenced above, however, the vapor mitigation system as installed, operated, and maintained by RACER continues to prevent vapor intrusion from the soil and groundwater beneath the former manufacturing building into the building's indoor air.

The HHRA included a recommendation that, based on the vapor intrusion screening presented in the HHRA, a vapor intrusion evaluation should be conducted if any buildings (new or existing) will be occupied on the facility property. The vapor intrusion screening identified chemicals with a potential to migrate to indoor air, based on factors such as the chemical- specific vapor pressure. Because these factors apply to chemicals present in media such as soil, fill material, and groundwater, all media with these chemicals have the potential for future vapor intrusion concerns. A full discussion of the HHRA evaluation and conclusions is presented in the HHRA Report (Appendix I of RI report).

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED?

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

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

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

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

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

Ecological Risk Assessment

The industrialized nature of OU1 (*i.e.,* presence of buildings, paved surfaces, and stormwater management facilities) minimizes its value as fauna habitat. The undeveloped portions of OU1 consist primarily of turf grass that is periodically mowed, minimizing its availability and suitability for wildlife use, such as nesting and foraging. The grassed habitats of OU1 range in value to wildlife in relation to their sizes and locations. Grassed areas surrounding facility-related structures are not likely frequently used by wildlife. Larger open lawns provide invertebrate and vegetative food sources for a limited number of small mammals and birds, such as mice, voles, American robin, and killdeer that may forage there. Waterfowl, reptiles, and small mammals may forage and/or rest in the grass areas adjacent to the retention basin and bats may forage on insects flying above the basin. However, given the limited habitat and utilization by area wildlife, the FWIA concludes that site-related impacts to ecological receptors are minimal within OU1. A full discussion of the FWIA evaluation and conclusions is presented in the FWIA Report (Appendix J of RI report)

WHAT IS ECOLOGICAL RISK AND HOW IS IT CALCULATED?

A Superfund baseline ecological risk assessment is an analysis of the potential adverse health effects to biota caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future land and resource uses. The process used for assessing site-related ecological risks includes:

Problem Formulation: In this step, the contaminants of potential ecological concern (COPECs) at the site are identified. Assessment endpoints are defined to determine what ecological entities are important to protect. Then, the specific attributes of the entities that are potentially at risk and important to protect are determined. This provides a basis for measurement in the risk assessment. Once assessment endpoints are chosen, a conceptual model is developed to provide a visual representation of hypothesized relationships between ecological entities (receptors) and the stressors to which they may be exposed.

Exposure Assessment: In this step, a quantitative evaluation is made of what plants and animals are exposed to and to what degree they are exposed. This estimation of exposure point concentrations includes various parameters to determine the levels of exposure to a chemical contaminant by a selected plant or animal (receptor), such as area use (how much of the site an animal typically uses during normal activities); food ingestion rate (how much food is consumed by an animal over a period of time); bioaccumulation rates (the process by which chemicals are taken up by a plant or animal either directly from exposure to contaminated soil, sediment or water, or by eating contaminated food); bioavailability (how easily a plant or animal can take up a contaminant from the environment); and life stage (*e.g.,* juvenile, adult).

Ecological Effects Assessment: In this step, literature reviews, field studies or toxicity tests are conducted to describe the relationship between chemical contaminant concentrations and their effects on ecological receptors, on a media-, receptor- and chemical-specific basis. To provide upper and lower bound estimates of risk, toxicological benchmarks are identified to describe the level of contamination below which adverse effects are unlikely to occur and the level of contamination at which adverse effects are more likely to occur.

Risk Characterization: In this step, the results of the previous steps are used to estimate the risk posed to ecological receptors. Individual risk estimates for a given receptor for each chemical are calculated as a hazard quotient (HQ), which is the ratio of contaminant concentration to a given toxicological benchmark. In general, an HQ above 1 indicates the potential for unacceptable risk. The risk is described, including the overall degree of confidence in the risk estimates, summarizing uncertainties, citing evidence supporting the risk estimates and interpreting the adversity of ecological effects.

Summary of Human Health and Ecological Risks

The results of the human health risk assessment indicate that the contaminated soil, indoor air, and groundwater present current and/or potential future exposure risks. Based on the industrial nature of OU1 and its limited habitat available for area wildlife, the ecological risk assessment indicates that site-related impacts to ecological receptors is minimal. Many of the risks to human health associated with contaminated soil have been mitigated, in part, by the implemented IRMs. While potential ecological and human health risks have been mitigated by OU1 IRMs, long-term O&M will be necessary to maintain protectiveness. Also, as noted above, ICs in the form of an environmental easement have been recorded for the property controlling and limiting site use and prohibiting groundwater use in its current state.

Based upon the results of the RI and the risk assessments, NYSDEC and EPA have determined that actual or threatened releases of hazardous substances at or from OU1, if not addressed by the preferred remedy or one of the other active measures considered, may present a current or potential threat to human health and the environment.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as Applicable or Relevant and Appropriate Requirements (ARARs), To-Be-Considered guidance, and site-specific risk-based levels established using the risk assessments.

The following RAOs have been established for OU1:

- Prevent ingestion/direct contact with contaminated soil/fill material.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminants in soil/fill material.
- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Restore groundwater to levels that meet state and federal standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.
- Prevent the discharge of contaminants to surface water and sediment in Ley Creek.
- Prevent contaminants in soil/fill material from impacting groundwater above drinking water standards.

NYSDEC's SCOs have been identified as remediation goals for soil to attain these RAOs. SCOs are risk-based criteria that have been developed by New York State following methods consistent with EPA's methods/protocols/guidance and they are set at levels consistent with EPA's acceptable levels of risk that are protective of human health, ecological exposure, or the groundwater depending upon the existing and anticipated future use of the Subsite. The land use of the Subsite has historically been industrial, and current and anticipated future uses can be reasonably expected to remain industrial. Groundwater remedial goals are the lower of the federal Maximum Contaminant Levels (MCLs) and the New York State Ambient Water Quality Standards. The lower of the New York State Guidance Values and EPA's Vapor Intrusion Screening Levels will be used to evaluate future potential for vapor intrusion.

SUMMARY OF REMEDIAL ALTERNATIVES

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

Based on anticipated future development at OU1, expectations of the reasonably anticipated land use, as described above, were considered in the FS to facilitate the development and evaluation of remedial alternatives. Given current zoning and the present and historical use of the property, the reasonably anticipated land use is to remain an industrially zoned property.

All the alternatives, other than Alternative 1, No Further Action, include the long-term site management of the IRMs.[3] The long-term site management would include maintenance activities and performance monitoring to ensure that the IRMs are operating effectively and efficiently and to identify the need to implement corrective action(s) specific to the IRMs. Corrective actions for the IRM covers, as well as the existing paved surfaces (*i.e.,* roadways or parking lots) and the former manufacturing building that currently serve as a cover for impacted shallow soils, may consist of repair in areas of disturbance or re-application of vegetation in areas of non-survival.

Each active remedial alternative (Alternatives 2 through 5 below) includes the following common components:

Environmental Easement: An existing environmental easement would be maintained that requires land use and groundwater use restrictions for the facility. Land use restrictions would restrict activities that could result in unacceptable exposure to contaminated soil. Groundwater use restrictions would preclude the use of groundwater without prior notification and approval

[3] The annual site management cost estimates are included in the cost estimates for each of the alternatives.

from NYSDEC. The existing environmental easement also includes requirements that necessary engineering controls be operated, maintained, and monitored to provide protectiveness to human health and the environment.

Site Management Plan: A SMP would guide future activities at the facility by addressing use restrictions and by developing requirements for periodic reviews; operation, maintenance, and monitoring of engineering controls; and groundwater monitoring. The periodic site management reviews would focus on evaluating the on-site conditions regarding the continuing protection of human health and the environment as evidenced by information such as groundwater monitoring and documentation of field inspections.

Soil Management Plan: A soil management plan would be implemented to outline the implementation of engineering and institutional controls for the handling and management of soil during remedial, maintenance, or site redevelopment activities. The soil management plan would detail the implementation of on-site consolidation (temporary or permanent), off-site disposal, soil characterization procedures, and hot spot excavation.

Shallow and Deep Groundwater Monitoring: *A* monitoring program for shallow and deep groundwater and/or adjacent surface water would be performed to determine effectiveness of the implemented remedy.

Excavation and Off-Site Disposal of Soil: Excavation would be conducted to remove contaminated surface and/or subsurface soil that would be required by the alternative. Excavated soils would be disposed of at an offsite permitted facility.

The remedial alternatives are as follows:

Alternative 1 – No Further Action

The Superfund program requires that the "no action" alternative be considered as a baseline for comparison with the other alternatives. The no further action remedial alternative would not include any additional remedial measures to address the soil and groundwater contamination at OU1.

As this alternative does not involve further actions, there are no estimated capital, annual, and present-worth costs. The costs of this alternative are as follows

Capital Cost:	$0
Annual O&M Cost:	$0
Present-Worth Cost:	$0

Alternative 2 – Perimeter and Targeted Shallow Groundwater Collection and Treatment, Perimeter and Targeted Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal

This alternative would include the construction of a perimeter shallow groundwater collection trench (approximately 1,800 ft in length and 15 ft deep) and the installation of deep groundwater extraction wells (approximately 35 ft deep) along the northern perimeter of the facility property. These two systems would collect contaminated groundwater and prevent further off-property migration. This alternative would also include targeted deep groundwater extraction to address the contamination beneath and immediately northeast of the former manufacturing building, excavation and off-site disposal of contaminated soil, restoration of the excavated areas with clean fill, and an enhancement and expansion of the Former Thinner Tanks Area Groundwater Recovery System to target the shallow groundwater contamination in that area. All collected groundwater would be treated at the current SPDES treatment system to meet discharge criteria prior to being discharged to Ley Creek. Groundwater monitoring would be performed to evaluate the effectiveness of the groundwater extraction systems.

This alternative would also include the excavation and off-site disposal of unsaturated surface soil exhibiting contaminant concentrations greater than the Industrial Use SCOs in areas not currently addressed by an approved IRM or covered by facility paved surfaces (roadways or parking lots) or the former manufacturing building. The approximate volume of material associated with this excavation would be 38 CY. The excavated areas would be restored to grade with certified clean fill following confirmatory sampling.

The enhancement to the Former Thinner Tanks Area Groundwater Recovery System would include the installation of a flow meter with a totalizer on each of the two existing collection trenches to monitor effluent withdrawn from each trench and conveyed to the SPDES treatment system. The Former Thinner Tanks Area Groundwater Recovery System would be expanded with the installation of an additional collection trench or groundwater extraction wells to help increase the removal of VOC (*i.e.,* xylene, ethylbenzene, and toluene) mass and to restore groundwater quality in this area. While the FS cost estimate assumes that two wells would be installed, the appropriate method for extracting the groundwater would be determined during the RD.

During the RD, studies would be performed to determine the well placement, pumping rates, and drawdown levels that would allow for optimal capture for the three groundwater extraction systems (perimeter shallow, perimeter deep, and the targeted deep northeast of the former manufacturing building).

This alternative would also include an evaluation of the existing SSDS during the RD to determine whether enhancements to the system could effectively improve the removal of elevated VOCs in the unsaturated soil beneath the former manufacturing building.

As part of the long-term groundwater quality monitoring, COC concentration and natural attenuation data would be collected from the shallow and deep groundwater throughout the Subsite. Following the operation of the new perimeter groundwater extraction system for a period up to five years, an evaluation would be performed to determine whether the system is effectively reducing COC concentrations in off-property groundwater. If it is determined that continued groundwater extraction at the property perimeter alone would not achieve the remediation goals for the off-property groundwater within a reasonable timeframe, then off-property in-situ treatment and/or extraction and treatment would be considered and incorporated into the remedy as determined to be appropriate.

The evaluations of the SSDS, targeted groundwater extraction system, and perimeter extraction system would be documented and the implementation of any of the contingent remedies (e.g., SSDS enhancement and off-property groundwater treatment) would be documented via an ESD.

Imposition of an IC in the form of the existing environmental easement for the controlled property which would:

- require the submission of a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- restrict the use and development of the property to industrial use as defined by Part 375-1.8(g), subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water without appropriate treatment as determined by the NYSDOH or the Onondaga County Health Department; and
- require compliance with the approved SMP.

Under this alternative, a SMP would be required that would include the following components:

1) 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:
   - an excavation plan that details the provisions for management of future excavations in areas of remaining contamination;
   - a provision for further investigation and remediation should large-scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable would be immediately and thoroughly investigated pursuant to an approved plan. Based on the investigation results and a determination of the need for a remedy, a Remedial Action Work Plan (RAWP) would be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities would continue through this process. Any necessary remediation would be completed prior to, or in association with, redevelopment. This includes the former manufacturing building;
   - descriptions of the provisions of the environmental easement including any land use and groundwater use restriction;
   - provisions for the management and inspection of the identified engineering controls;
   - maintain site access controls and notification; and
   - steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2) 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;
   - monitoring for vapor intrusion for any buildings on the facility property, as may be required by the Institutional and Engineering Control Plan described above.

3) An O&M Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - procedures for operating and maintaining the remedy;

- compliance monitoring of treatment systems to ensure proper O&M, as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and required notification; and
- provide access to the site and O&M records.

Because this alternative would result in contaminants remaining above levels that would otherwise allow for unrestricted use and unlimited exposure, CERCLA requires that the Subsite be reviewed at least once every five years. A conceptual depiction of Alternative 2 is presented in Figure 6.

The estimated construction time for this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$5,560,000
Annual O&M Cost:	$264,000
Present-Worth Cost:	$8,990,000

Alternative 3 –Targeted Shallow Groundwater Collection and Treatment, Perimeter and Targeted Deep Groundwater Extraction and Treatment and Soil Excavation with Off-Site Disposal

Alternative 3 is similar to Alternative 2, except there would be no shallow groundwater trench installed at the property perimeter. Alternative 3 would rely on a deep groundwater extraction and treatment system at the property perimeter combined with a targeted deep groundwater extraction system to address the contamination in the areas beneath and immediately northeast of the manufacturing building combined with the enhancements to the Former Thinner Tanks Area Groundwater Recovery System to target shallow groundwater in this area. A conceptual depiction of Alternative 3 is presented in Figure 7.

The estimated construction time of this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$3,890,000
Annual O&M Costs:	$266,000
Present-Worth Cost:	$7,340,000

Alternative 4 – *In-Situ* Treatment of Residual Source Areas, Perimeter Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal

Alternative 4 is similar to Alternative 2, except there would be no shallow groundwater collection trench installed at the property perimeter, no expansion of the Former Thinner Tanks Groundwater Recovery System, and in-situ treatment would be employed instead of groundwater extraction and treatment to significantly reduce contaminant concentrations in the residual source areas (the Former Thinner Tanks Area, northeast of the manufacturing building, and beneath the former manufacturing building). In-situ treatment would involve injecting amendment(s) using horizontal drilling techniques to promote contaminant degradation in the residual source area present beneath the building. Injection points would be positioned at the perimeter of the manufacturing building and extended horizontally to target the contamination beneath the building. A conceptual depiction of Alternative 4 is presented in Figure 8.

The estimated construction time of this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$18,600,000
Annual O&M Costs:	$264,000

Present-Worth Cost:	$22,200,000

Alternative 5 -- *In-Situ* Treatment of Residual Source Areas, Perimeter Shallow Groundwater Collection and Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal

Alternative 5 includes the same elements as Alternative 4, except, instead of using horizontal in-situ injection techniques at the building perimeter to address site contaminants present beneath the building, vertical injection techniques would be used to address the site contaminants present beneath the building. As such, Alternative 5 would require drilling through the former manufacturing building floor. In addition, a shallow groundwater collection trench at the property perimeter would be installed as described under Alternative 2.

Alternative 5 would also include the excavation and off-site disposal of surface and subsurface soil exhibiting concentrations greater than the Industrial Use SCOs, including areas currently covered by an approved IRM, or paved surfaces (roadways or parking lots). The approximate total volume of material associated with this excavation would be 1,500 CY. The excavated areas would be restored to grade with certified clean fill following confirmatory sampling. A conceptual depiction of Alternative 5 is presented in Figure 9.

The estimated construction time of this alternative is one year.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$22,600,000
Annual O&M Costs:	$259,200
Present-Worth Cost:	$26,000,000

COMPARATIVE ANALYSIS OF ALTERNATIVES

The detailed analysis of alternatives consists of an assessment of the individual alternatives against each of the nine evaluation criteria (see box below) set forth in the NCP and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

A comparative analysis of these alternatives based upon the evaluation criteria noted below follows.

NINE EVALUATION CRITERIA FOR FEDERAL SUPERFUND REMEDIAL ALTERNATIVES
Overall protection of human health and the environment means a determination of whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
Compliance with ARARs means an evaluation whether the alternative would meet all the applicable or relevant and appropriate requirements of federal and state environmental statutes and other requirements that pertain to the site or provide grounds for invoking a waiver.
Long-term effectiveness and permanence means the ability of an alternative to maintain protection of human health and the environment over time.
Reduction of toxicity, mobility, or volume through treatment means the anticipated performance of the treatment technologies an alternative may employ.
Short-term effectiveness means the period of time needed to implement an alternative and the risks the alternative may pose to workers, residents, and the environment during implementation.
Implementability means the technical and administrative feasibility of implementing the alternative, including the availability of materials and services.
Cost means the estimated capital and annual O&M costs, as well as present-worth costs. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

State acceptance means whether NYSDOH (the support agency for NYSDEC) concurs with, opposes, or has no comments on the preferred remedy.
Community acceptance will be assessed in the ROD and refers to the public's general response to the alternatives described in this Proposed Plan and the RI/FS reports. Comments received on the Proposed Plan are an important indicator of community acceptance.

Overall Protection of Human Health and the Environment

Alternative 1 would not be protective of human health and the environment because it would not address contaminated soil or groundwater. Alternatives 2 through 5 would be protective of human health and the environment because each of these alternatives would rely upon remedial strategies and/or treatment technologies capable of eliminating exposure to contaminated soil and groundwater. The ICs under Alternatives 2 through 5 would provide protection of public health.

Compliance with Applicable or Relevant and Appropriate Requirements

SCOs are identified in 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6, effective December 14, 2006.

Because the contaminated soils would not be addressed under Alternative 1, this alternative would not achieve the cleanup objectives for soil. Alternatives 2 through 5 would provide active measures for meeting the SCOs. Because Alternatives 2 through 5 would involve the excavation of contaminated soils, these alternatives would require compliance with fugitive dust and volatile organic compound emission requirements in accordance with an approved Community Air Monitoring Plan (CAMP).

EPA and NYSDOH have promulgated health-based protective MCLs (40 CFR Part 141, and 10NYCRR, Chapter 1), which are enforceable standards for various drinking water contaminants (chemical-specific ARARs). Although the groundwater at the Subsite is not presently being utilized as a potable water source, achieving groundwater MCLs is an applicable standard.

Alternative 1 would not provide for any direct remediation of groundwater and would, therefore, not achieve chemical-specific ARARs for groundwater. Alternatives 2 through 5 would be more effective in reducing groundwater contaminant concentrations below MCLs because each option includes active remediation of the contaminated groundwater.

There are no action or location-specific ARARs that were identified for Alternative 1. With regard to location-specific ARARs for Alternatives 2 through 5, they would be conducted in a manner consistent with federal and state freshwater wetlands and floodplain requirements. ICs would be implemented under Alternatives 2 through 5 in general conformance with NYSDEC's DER-33 guidance. Additionally, continued maintenance of cover systems included as part of Alternatives 2 through 5 (and existing cover systems) would prevent erosion and exposure to contaminated soil. Cover systems would be implemented in general conformance with NYSDEC's DER-10 guidance. Procedures would be implemented to adhere to the location-specific ARARs related to federal and state requirements for cultural, archeological, and historical resources. The need for a scope of cultural resources survey, as required by the National Historic Preservation Act, would be evaluated during the RD. With respect to action-specific ARARs, proposed cover systems and excavation activities would be conducted consistent with applicable standards; earth moving/excavation activities would be conducted consistent with air quality standards; transportation and disposal activities would be conducted in accordance with applicable state and federal requirements by licensed and permitted haulers.

Compliance with action-specific ARARs related to hazardous waste management requirements for treatment residuals and SPDES requirements for treated water discharged to Ley Creek would be addressed in Alternatives 2 through 5 during the continued operation of the Former Thinner Tanks Area shallow groundwater collection and SPDES Treatment System IRM. Action-specific ARARs related to subsurface injection of chemical oxidation amendments under Alternatives 4 and 5 would be met during remedy implementation.

The provisions of ECL Section 27-1318, Institutional and Engineering Controls, is applicable to the environmental easement under Alternatives 2 through 5.

Long-Term Effectiveness and Permanence

Alternative 1 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants in the soil and groundwater and would allow for the continued release of contaminants from the soil to the groundwater and the continued migration of contaminated groundwater.

Alternatives 2 through 5 would be effective in the long term and would provide permanent remediation by removing the contaminated soil and treating/disposing of the contaminated soil at a licensed disposal facility. Alternatives 2 and 3 would be effective in the long term because there would be continuous extraction and treatment of the source material in the groundwater. Alternatives 4 and 5 would be more effective at removing the source material in the groundwater than Alternatives 2 and 3 through the application of in-situ treatment techniques. Use of in-situ techniques under Alternative 4 and 5 would also reduce the need to continuously operate groundwater extraction and treatment systems. Alternatives 4 and 5 would also be more effective than Alternatives 2 and 3 at removing contamination beneath the former manufacturing building through the use of in-situ treatment techniques. By actively addressing site contamination, Alternatives 2 through 5 would maintain reliable protection of human health and the environment over time. Under Alternatives 2 through 5, the groundwater treatment residues would have to be appropriately handled by the on-site SPDES Treatment Facility. Alternative 1 would not generate such treatment residual. Alternative 4 would generate the least amount of greenhouse gases in the long term because there would only be the perimeter deep groundwater extraction and treatment system operating as part of site management compared to the other alternatives with multiple extraction and treatment systems; thereby increasing the use of energy and the production of greenhouse gas emissions. The long-term performance of Alternatives 2 through 5 could be at risk during severe storms/weather events and associated flooding. Potential flooding-related threats to the in-situ treatment injection and groundwater extraction and treatment systems would need to be evaluated during the RD to ensure adequate resiliency to the potential effects of climate change.

Reduction in Toxicity, Mobility, or Volume Through Treatment

There would be no reduction in toxicity, mobility, or volume under Alternative 1. Alternatives 2 through 5 would afford similar reductions in toxicity, mobility, and volume through the collection and treatment of contaminated groundwater, thereby satisfying CERCLA's preference for treatment. Alternatives 4 and 5, and possibly Alternatives 2 and 3 (should contingencies be needed), would rely upon in-situ treatment techniques to address the contamination in certain portions of the groundwater.

In-situ treatment, a remedial element included in Alternatives 4 and 5 and a possible treatment technology under Alternatives 2 and 3, would address contaminants in areas where high concentrations of site contaminants exist. In-situ treatment relies on a chemical reaction or biological processes to permanently destroy VOC contamination. Therefore, it would effectively reduce the toxicity, mobility, and volume of the site contamination.

Short-Term Effectiveness

Because Alternative 1 does not include any physical construction measures in any areas of contamination, it would not present any potential adverse impacts to remediation workers or the community as a result of its implementation.

There could be potential adverse impacts to remediation workers and nearby employees and visitors at the former manufacturing building under Alternatives 2 through 5 through dermal contact, incidental ingestion, and inhalation related to the removal, handling, and processing of contaminated groundwater and soil. Noise from the soil excavation work associated with these alternatives could present some limited adverse impacts to remediation workers and nearby employees. In addition, soil and groundwater sampling activities would pose some risk. The risks to remediation workers and nearby employees under all of the action alternatives could, however, be mitigated by following appropriate health and safety protocols, exercising standard construction and engineering practices, and utilizing proper protective equipment.

Potential environmental impacts related to dust, volatile emission, and surface runoff would be mitigated through appropriate control measures and adherence to a CAMP.

Implementation of Alternative 1 would result in the smallest environmental footprint, as no remediation would be performed. There is an environmental footprint inherent in implementation of each of the action alternatives as it relates to construction and long-term operation. The implementation installation and long-term use of a shallow groundwater collection trench included in Alternatives 2 and 5 would result in greater direct emissions and fuel consumption needed for construction equipment, transporting necessary material, and long-term extraction and treatment of groundwater from the shallow groundwater collection trench as compared to the other action alternatives. Under Alternatives 4 and 5, in-situ treatment would have higher initial greenhouse gas emissions than Alternatives 2 and 3, due to the use of heavy construction equipment needed for drilling and introducing in-situ amendments. Alternatives 2, 3, 4, and 5 would be able to utilize the existing SPDES treatment system. Specifically, instead of constructing a new treatment plant, these Alternatives would be able to upgrade and retrofit the existing treatment system to accommodate the additional volume of extracted groundwater. Green remediation techniques would be considered to help minimize the environmental footprint related to the implementation of the remedial alternatives.

For all the action alternatives, there is a potential for stormwater runoff and erosion during construction and excavation activities that would have to be properly managed to prevent or minimize any adverse impacts. For these alternatives, appropriate measures would have to be taken during excavation activities to prevent transport of fugitive dust and exposure of remediation workers and employees at the former manufacturing building and surrounding community.

Alternatives 2 through 5 would address exposure-related RAOs upon implementation. Alternatives 2 through 5 are expected to address the off-property migration RAO within approximately one year of implementation of the remedies. Alternative 1 would not address the RAO associated with adult trespassers or groundwater use.

The former manufacturing building is currently being utilized by tenants conducting commercial and light industrial activities. Out of Alternatives 2 through 5, Alternative 5, would be the most disruptive to these businesses, as it would likely necessitate intrusive actions within the building to treat the underlying contamination.

Because no actions would be performed under Alternative 1, there would be no implementation time. It is estimated that Alternatives 2 through 5 would require one year to implement.

Although it would likely take greater than 30 years to attain groundwater standards for each of the alternatives, Alternatives 4 and 5, which include the use of in-situ treatment to address areas with elevated VOC concentrations combined with groundwater extraction and treatment, would likely achieve the groundwater standards in the shortest amount of time relative to the other alternatives. Alternative 4 would achieve groundwater standards with less disruption to the businesses than Alternative 5.

Implementability

Alternative 1 would be the easiest alternative to implement, as there are no activities to undertake. Soil excavation would be readily implementable under Alternatives 2 through 5.

Construction of the shallow perimeter trench under Alternatives 2 and 5 would require excavation in the vicinity of utilities, including a National Grid high pressure gas line that runs the length of the property border along Factory Ave; National Grid overhead power lines along the property line along Factory Avenue; National Grid overhead high voltage power lines that traverse Factory Avenue from the former landfill at the facility; an Onondaga County sanitary sewer located on the southern shoulder of Factory Avenue; and the former landfill (and associated low permeability membrane). Construction in the vicinity of the above-noted utilities would require offsets and are likely to require measures to protect workers and the utilities during construction activities. These measures would not be necessary under Alternative 3 and 4, which do not include the installation of the shallow groundwater collection system. Installation of the extraction wells associated with the perimeter deep groundwater extraction system under Alternatives 2 through 5, would, to a lesser extent, require measures to protect workers and the utilities during construction activities, as compared to the construction of the shallow groundwater perimeter extraction system included under Alternatives 2 and 5.

In-situ treatment, a remedial element of Alternatives 4 and 5, and a possible treatment technology under Alternatives 2 and 3, would require a treatability study. Subsurface soil conditions and the presence of underground utilities would need to be evaluated as they might interfere with the injection of reagents.

The former manufacturing building is currently being utilized by tenants conducting commercial and light industrial activities. Implementation of Alternative 5, which would necessitate intrusive actions within the building to treat the underlying contamination, would be more difficult to implement than Alternatives 2, 3, and 4.

Each alternative would require coordination with EPA, NYSDEC, Onondaga County, the Town of Salina, the Town of DeWitt, and the former manufacturing building's tenants.

Off-site facilities for treatment, storage, and disposal of treatment residuals and excavated soil would be readily available for each alternative. The necessary equipment, specialists, and materials would be readily available.

Cost

The estimated present-worth costs were calculated using a discount rate of seven percent and a 30-year[4] time interval for the post-construction monitoring and maintenance period.

The estimated capital, annual O&M, and present-worth costs using a 7% discount factor for each of the alternatives are presented in the table below.

Alternatives	Capital	Annual O&M	Total Present Worth
1 – No Further Action	$0	$0	$0
2 – Perimeter and Targeted Shallow Groundwater Collection; Perimeter and Targeted Deep Groundwater Extraction and Treatment; and Soil Excavation and Disposal	$5,560,000	$264,000	$8,990,000
3 – Targeted Shallow Groundwater Collection; Perimeter and Targeted Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal	$3,890,000	$266,000	$7,340,000
4 – In-Situ Treatment of Residual Source Areas; Perimeter Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal	$18,600,000	$264,000	$22,200,000
5 – In-Situ Treatment of Residual Source Areas; Perimeter Shallow Groundwater Collection and Treatment; Perimeter Deep Groundwater Extraction and Treatment; Soil Excavation and Disposal	$22,600,000	$259,000	$26,000,000

Support Agency Acceptance

NYSDOH has reviewed this Proposed Plan and concurs with the preferred alternative.

Community Acceptance

Community acceptance of the preferred alternative will be addressed in the ROD following review of the public comments received on this Proposed Plan.

PREFERRED ALTERNATIVE

Based upon an evaluation of the various alternatives, NYSDEC and EPA recommend Alternative 4 – *In-Situ* Treatment of Three Residual Source Areas, Perimeter Deep Groundwater Extraction and Treatment, and Soil Excavation with Off-Site Disposal, as the preferred alternative. The components of the proposed remedy are described below. A conceptual depiction of the preferred alternative is presented in Figure 8.

Under this alternative, three areas where high concentrations of residual VOC contamination exist would be addressed using in-situ treatment. These three areas contain contaminants at concentrations greater than 10,000 ppm and represent continuing sources of groundwater contamination. Specifically, these areas include the Former Thinner Tanks Area, where non-chlorinated VOC residual contamination remains, and areas beneath and northeast of the former manufacturing building where residual chlorinated VOC contamination remains. As part of the RD, pre-design investigations will be performed in each of these areas to determine the volumes requiring treatment and the most-effective type of in-situ treatment(s).

[4] Although O&M would continue as needed beyond the 30-year period, 30 years is the typical period used when estimating costs for a comparative analysis.

This alternative would also include the installation of deep (approximately 20 to 35 feet beneath the ground surface; the exact depth intervals would be determined during the RD) extraction wells along the northern perimeter of the facility property. These extraction wells would be designed to collect contaminated groundwater that has migrated from the source areas identified above and to prevent off-property migration. Following extraction, the contaminated groundwater would be treated at the existing SPDES water treatment system (using filtration and granulated activated carbon) prior to being discharged to Ley Creek. The groundwater extraction system would be designed with a capture zone sufficient to address the areal and vertical extent of the contamination. During the RD, a study would be performed to determine the extraction well placement, groundwater pumping rates, and drawdown levels necessary to achieve optimal capture. To evaluate the effectiveness of the extraction system, a groundwater monitoring program would be implemented as part of this remedy.

Approximately 38 CY of unsaturated surface soil would be excavated and disposed of off-site at a licensed disposal facility. The soils requiring excavation contain contaminants at concentrations greater than the Industrial Use SCOs and are located in areas not currently addressed by an approved IRM or covered by facility paved surfaces (roadways or parking lots) or the former manufacturing building. Following confirmatory soil sampling to demonstrate that the SCOs have been achieved, the excavated areas would be restored to grade with clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d).

The existing SSDS beneath the former manufacturing building includes two sub-slab vapor extraction systems that withdraw air at a rate of approximately 195 cubic feet per minute for System 1 and 94 cubic feet per minute for System 2. An evaluation of the SSDS would be performed during the RD to determine whether enhancements to the system could further improve the removal of elevated VOCs in the unsaturated soil beneath the former manufacturing building. Data would be collected to determine if the existing SSDS can be upgraded to not only continue to prevent sub-slab vapors from entering the former manufacturing building, but to enhance the removal of chlorinated VOC contamination present in the vadose zone soil beneath the building.

As part of a long-term monitoring program, shallow and deep groundwater samples would be collected from monitoring wells throughout the Subsite to evaluate the performance of the groundwater extraction and treatment system, and the effectiveness of the in-situ treatment in the three residual source areas where high concentrations of site contaminants exist. The details of the monitoring program would be developed as part of the RD/Remedial Action and outlined in a Monitoring Plan.

The remedy would also include the imposition of an IC in the form of the existing environmental easement for the controlled property which would:

- require the submission of a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- restrict the use and development of the property to industrial use as defined by Part 375-1.8(g), subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water without appropriate treatment as determined by the NYSDOH or the Onondaga County Health Department; and
- require compliance with the approved SMP.

A SMP would be required which includes the following components:

1) 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:
    - an excavation plan that details the provisions for management of future excavations in areas of remaining contamination;
    - a provision for further investigation and remediation should large-scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited (beneath the 800,000 sf former manufacturing building) or unavailable will would be immediately and thoroughly investigated pursuant to an approved plan. Based on the investigation results and a determination of the need for possible additional remedial actions, a RAWP would be developed for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation activities will continue through this process. Any necessary remediation would be completed prior to, or in association with, redevelopment. This includes the former manufacturing building;
    - descriptions of the provisions of the environmental easement including any land use or groundwater use restriction;
    - provisions for the management and inspection of the identified engineering controls;
    - maintain site access controls and notification; and

- steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2) 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; and
   - monitoring for vapor intrusion for any buildings on the facility property, as may be required by the Institutional and Engineering Control Plan described above.

3) An O&M Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M, as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and required notification; and
   - provide access to the site and O&M records.

Long-term O&M would be performed for the above-noted remedial actions as well as for the previously implemented IRMs, including the Former Landfill IRM; Surface Impoundment Cover #1 IRM; Former Thinner Tanks Groundwater Recovery System IRM; SPDES Treatment System IRM; and the Vapor Intrusion Mitigation IRM (i.e., sub-slab depressurization system).

Maintenance activities and performance monitoring would be conducted to ensure that the remedial elements and IRMs are operating effectively and efficiently and to identify the need to implement corrective action(s). Corrective actions for the IRM covers, as well as the existing paved surfaces (i.e., roadways or parking lots) and the former manufacturing building that currently serve as a cover for impacted shallow soils, may consist of repair in areas of disturbance or re-application of vegetation in areas of non-survival.

As part of the long-term groundwater quality monitoring, COC concentration and natural attenuation data would be collected in the shallow and deep groundwater throughout the Subsite. Following the operation of the perimeter groundwater extraction and treatment system for a period up to five years, an evaluation would be performed to determine whether the system is effectively reducing COC concentrations in the off-property groundwater. If it is determined that continued groundwater extraction at the property perimeter alone would not achieve the remediation goals for the off-property groundwater within a reasonable timeframe, then off-property in-situ treatment techniques and extraction and treatment would be considered and incorporated into the remedy as determined to be appropriate.

The evaluations of the SSDS and perimeter extraction system would be documented and the implementation of any of the contingent remedies would be documented via an ESD.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and exposure, CERCLA requires that the Subsite be reviewed at least once every five years.

Green remediation techniques, as detailed in NYSDEC's Green Remediation Program Policy-DER-31,[5] and EPA Region 2's Clean and Green Policy[6] would be considered during the implementation of the preferred alternative to reduce short-term environmental impacts. Green remediation best practices such as the following may be considered:

- Use of renewable energy and/or purchase of renewable energy credits to power energy needs during construction and/or O&M of the remedy.
- Reduction in vehicle idling, including both on and off-road vehicles and construction equipment during construction and/or O&M of the remedy.
- Design of cover systems, to the extent possible, to be usable for alternate uses, require minimal maintenance (*e.g.,* less mowing), and/or be integrated with the planned use of the property.
- Beneficial reuse of material that would otherwise be considered a waste.
- Use of ultra-low sulfur diesel.

[5] See http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

[6] See http://epa.gov/region2/superfund/green_remediation

BASIS FOR THE REMEDY PREFERENCE

Alternative 1 does not satisfy the threshold criteria because it does not provide protection of human health or the environment or provide a means to attain ARARs. Alternative 3 is similar to Alternative 2, except there would be no shallow groundwater collection trench installed along the northern perimeter of the facility property (only a deep groundwater extraction and treatment system). Alternative 4 is similar to Alternative 2, except there would be no shallow groundwater collection trench installed at the property perimeter, no expansion of the Former Thinner Tanks Groundwater Recovery System, and in-situ treatment techniques would be employed instead of groundwater extraction and treatment to address residual VOC contamination in the Former Thinner Tanks Area, northeast of and beneath the former manufacturing building. Alternative 5 is similar to Alternative 4, except Alternative 5 would use traditional vertical well installation for the in-situ treatment remedy instead of horizontal wells and Alternative 5 would also include the installation of a shallow groundwater collection trench at the facility perimeter and soil removal beneath the cover systems and paved areas (parking lots and roads).

While approximately $1.65 million more expensive than Alternative 3, Alternative 2 would directly address contaminated shallow groundwater along the northern perimeter of the facility property, whereas Alternative 3 would not. Alternatives 4 and 5 are more costly ($22,200,000 and $26,000,000, respectively) than Alternative 2 ($8,990,000), but both Alternatives would be more effective than Alternative 2 in addressing the three residual source areas.

Alternative 4 includes active treatment of three separate residual source areas with in-situ treatment, therefore it does not include a shallow groundwater collection trench to address the low concentrations of shallow groundwater contamination at the property perimeter. Alternatives 4 and 5 would be equally effective in addressing the residual source area under the former manufacturing building. However, Alternative 5 would be more disruptive to the tenants because installing traditional vertical wells for the in-situ treatment would require drilling through the building concrete floor within tenant-occupied spaces inside of the former manufacturing building. Alternative 4 would rely on horizontal wells/directional drilling outside of the building footprint for the in-situ treatment. In summary, both Alternatives 4 and 5 would be more protective and significantly more costly than Alternatives 2 and 3. In comparing Alternative 4 and 5, however Alternative 4 would be less disruptive to building occupants and would cost approximately $3.8 million less than Alternative 5.

Based on information currently available, NYSDEC and EPA believe that Alternative 4 is the most appropriate alternative to address contamination at the OU1 portion of the GM IFG Subsite. This preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. NYSDEC and EPA expect the preferred alternative to satisfy the following statutory requirements of CERCLA Section 121(b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element (or justify not meeting the preference).

Table 1
GM Former Inland Fisher Guide Facility
Surface Soils 0-2 Feet (13 June 1985 - 31 December 2009)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Industrial SCOs	Number of Industrial SCO Exceedances
Volatile Organic Compounds (mg/kg)										
Cis-1,2-Dichloroethylene	43	1	0.34	0.34	0.25	1	500	0	1000	0
TRICHLOROETHYLENE (TCE)	45	5	0.02	46	0.47	2	200	0	400	0
Semivolatile Organic Compounds (mg/kg)										
Acenaphthene	58	16	0.04	40	20	1	500	0	1000	0
Anthracene	58	28	0.041	230	100	1	500	0	1000	0
Benzo[a]anthracene	57	49	0.057	350	1	11	5.6	8	11	5
Benzo[a]pyrene	56	47	0.046	300	1	14	1	14	1.1	12
Benzo[b]fluoranthene	57	53	0.039	360	1	16	5.6	9	11	8
Benzo[g,h,i]perylene	54	39	0.043	310	100	1	500	0	1000	0
Benzo[k]fluoranthene	57	45	0.039	120	0.8	11	56	1	110	1
Chrysene	58	53	0.042	380	1	10	56	1	110	1
Dibenzo[a,h]Anthracene	44	11	0.077	39	0.33	5	0.56	4	1.1	3
Dibenzofuran	58	16	0.039	21	7	1	350	0	1000	0
Fluoranthene	58	57	0.04	1200	100	1	500	1	1000	1
Fluorene	58	17	0.039	65	30	1	500	0	1000	0
Indeno[1,2,3-cd]pyrene	54	40	0.038	190	0.5	14	5.6	4	11	2
Phenanthrene	58	51	0.04	670	100	1	500	1	1000	0
Pyrene	58	57	0.043	1000	100	1	500	1	1000	0
PCBs (mg/kg)										
Aroclor-1242	142	1	1.9	1.9	0.1	1	1	1	25	0
Aroclor-1248	142	95	0.002	54	0.1	90	1	71	25	5
Aroclor-1254	44	10	0.03	8	0.1	9	1	2	25	0
Aroclor-1260	142	0	0	0	0.1	0	1	0	25	0
Polychlorinated biphenyls	142	105	0.002	54	0.1	100	1	74	25	5
Metals (mg/kg)										
Arsenic	61	61	1.7	92.8	13	6	16	2	16	2
Chromium	64	64	6.5	1220	30	18	1500	0	6800	0
Copper	64	64	5.4	323	50	4	270	1	10000	0
Nickel	32	32	8.3	4000	30	12	310	1	10000	0
Zinc	61	61	13.2	892	109	15	10000	0	10000	0

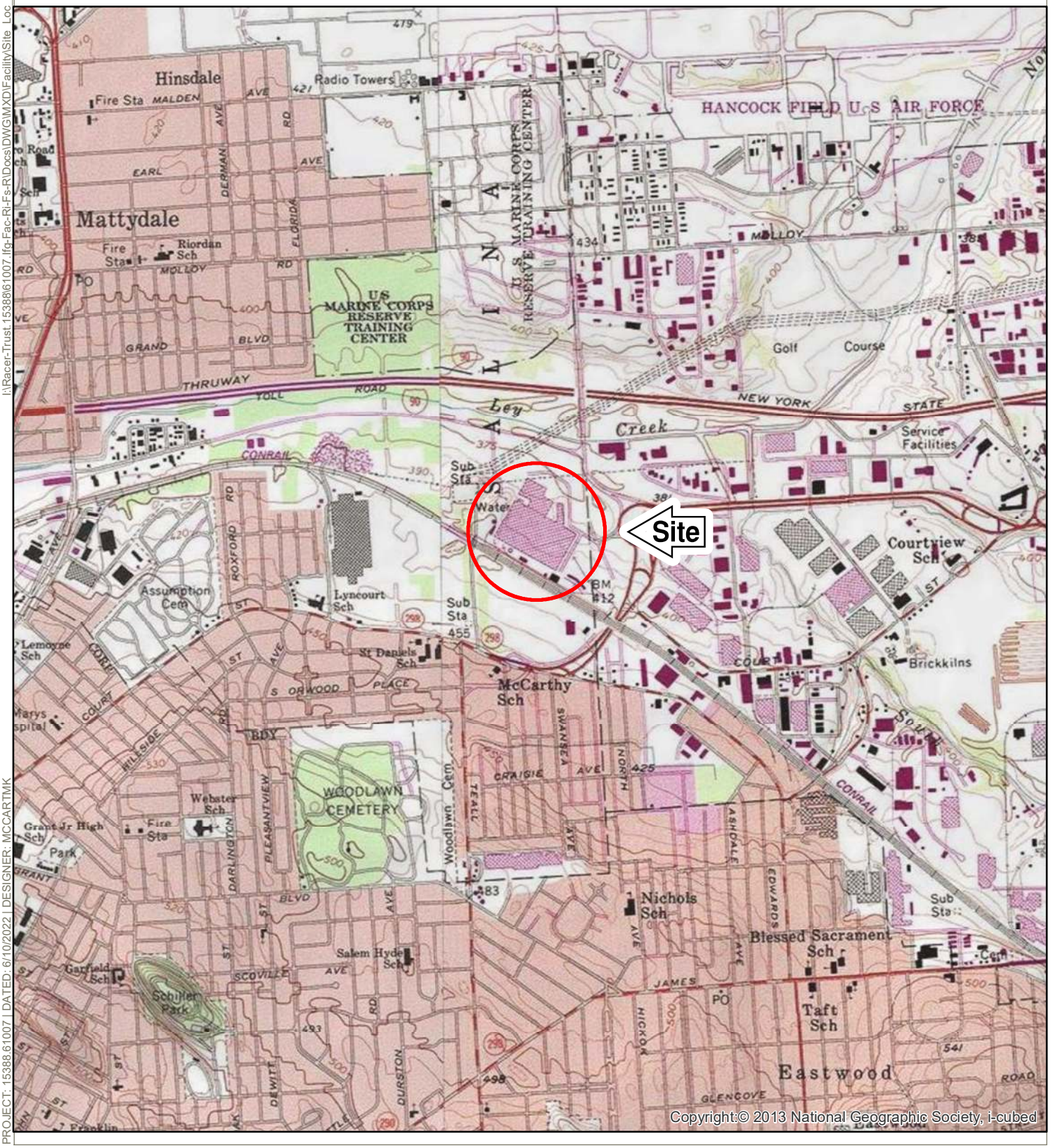
NOTES
This table presents (1) soil data from 13 June 1985 - 31 December 2009, (2) the detected concentration data only, and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial, and Restricted-Industrial SCOs.
NC = No criteria available.
SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

Table 2
GM Former Inland Fisher Guide Facility
Soils >2 Feet (13 June 1985 - 31 December 2009)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Industrial SCOs	Number of Industrial SCO Exceedances
Volatile Organic Compounds (mg/kg)										
ACETONE	50	28	0.005	0.1	0.05	1	500	0	1000	0
Cis-1,2-Dichloroethylene	134	51	0.001	11	0.25	11	500	0	1000	0
ETHYLBENZENE	238	55	0.0008	61	1	27	390	0	780	0
METHYLENE CHLORIDE	149	55	0.001	7.8	0.05	8	500	0	1000	0
TOLUENE	239	74	0.001	720	0.7	16	500	1	1000	0
TRICHLOROETHYLENE (TCE)	148	80	0.001	9800	0.47	37	200	2	400	2
VINYL CHLORIDE	149	8	0.002	0.12	0.02	3	13	0	27	0
Xylenes (total)	238	61	0.002	330	0.26	40	500	0	1000	0
Semivolatile Organic Compounds (mg/kg)										
2-Methylphenol	86	5	0.1	0.44	0.33	1	500	0	1000	0
3&4-Methylphenol	86	11	0.043	3.9	0.33	7	500	0	1000	0
Acenaphthene	87	5	0.058	21	20	1	500	0	1000	0
Anthracene	87	6	0.043	170	100	1	500	0	1000	0
Benzo[a]anthracene	87	11	0.036	150	1	1	5.6	1	11	1
Benzo[a]pyrene	87	9	0.035	110	1	1	1	1	1.1	1
Benzo[b]fluoranthene	87	11	0.047	140	1	1	5.6	1	11	1
Benzo[g,h,i]perylene	87	4	0.039	130	100	1	500	0	1000	0
Benzo[k]fluoranthene	87	5	0.039	59	0.8	1	56	1	110	0
Chrysene	87	12	0.046	170	1	1	56	1	110	1
Dibenzo[a,h]Anthracene	87	2	0.18	65	0.33	1	0.56	1	1.1	1
Dibenzofuran	87	6	0.066	12	7	1	350	0	1000	0
Fluoranthene	87	14	0.038	560	100	1	500	1	1000	0
Fluorene	87	4	0.052	37	30	1	500	0	1000	0
Indeno[1,2,3-cd]pyrene	87	3	0.28	76	0.5	1	5.6	1	11	1
Phenanthrene	87	18	0.037	450	100	1	500	0	1000	0
Pyrene	87	18	0.04	480	100	1	500	0	1000	0
PCBs (mg/kg)										
Aroclor-1016	264	1	0.48	0.48	0.1	1	1	0	25	0
Aroclor-1242	264	7	0.04	1400	0.1	5	1	5	25	3
Aroclor-1248	265	139	0.002	4300	0.1	111	1	70	25	19
Aroclor-1254	168	5	0.027	99	0.1	3	1	2	25	2
Aroclor-1260	264	3	0.027	1.6	0.1	1	1	1	25	0
Polychlorinated biphenyls	274	152	0.002	4300	0.1	120	1	77	25	23
Metals (mg/kg)										
Arsenic	111	115	1.6	65.7	13	11	16	8	16	8
Chromium	117	122	3.1	17200	30	28	1500	6	6800	2
Copper	112	117	4.8	23200	50	25	270	17	10000	1
Cyanide (total)	85	20	0.68	614	27	8	27	8	10000	0
Lead	111	116	2.8	291	63	6	1000	0	3900	0
Nickel	114	119	5	14400	30	30	310	13	10000	1
Zinc	102	107	11.2	53300	109	19	10000	2	10000	2

NOTES
This table presents (1) soil data from 13 June 1985 - 31 December 2009, (2) the detected concentration data only, and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial, and Restricted-Industrial SCOs.
NC = No criteria available.
SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

FIGURE 1



KEY MAP

RACER TRUST
GM - IFG OU1
SYRACUSE, NEW YORK

SITE LOCATION

1940101904
JUNE 2022

0 1,000 2,000 4,000
Feet

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

FIGURE 2

N

LEGEND

PROPERTY AREA LIMITS

RACER TRUST
FORMER IFG FACILITY
SYRACUSE, NEW YORK

PROPERTY AREAS OF THE FORMER GM-OU1 SITE

0 100 200 400 600 Feet

1940101904
JANUARY 2023

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

FIGURE 3

N

LEGEND

- APPROXIMATE LIMITS OF LANDFILL
- APPROXIMATE LIMITS OF SOIL STAGING AREA
- PROPERTY AREA

SAMPLE LOCATION WITH EXCEEDANCE

- SUBSURFACE SAMPLE > IND/PROT. GW SCO
- SURFACE SAMPLE > IND/PROT. GW SCO

RACER TRUST
GM - IFG OU1
SYRACUSE, NEW YORK

LOCATIONS GREATER THAN SCOs

0 100 200 400 600
Feet

1940101904
JUNE 2022

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

I:\Racer Trust\15088.71590 Fmr Ilp Fac-Fs Docs\DWG\MXD\2020\Qtr_DataBox

PROJECT: 15088.71590 | DATED: 7/26/2021 | DESIGNER: VELOCY

OBG-27S	10/31/2006	8/24/2011	8/3/2016
PARAMETER	RESULTS		
Acetone	5 UJ	5 U	**330**
Chloromethane	2 UJ	0.75 J	0.5 U

MW-8	8/3/2016
PARAMETER	RESULTS
No Detections	

OBG-5	11/10/1999
PARAMETER	RESULTS
Methylene Chloride	8 NJ
Toluene	2 NJ

OBG-26S	10/31/2006	8/24/2011	8/2/2016	4/11/2019
PARAMETER	RESULTS			
Acetone	5 UJ	**260**	5.0 U	3.1 J
Vinyl Chloride	**4 J**	**30**	0.57	1 U

OBG-3	11/10/1999	8/2/2016
PARAMETER	RESULTS	
Acetone	---	8.0

OBG-25S	11/1/2006	8/25/2011	8/2/2016	4/9/2019
PARAMETER	RESULTS			
2-Butanone	3 J	5.0 U	5.0 U	10.0 U
Acetone	16 J	5.0 U	10	3.7 J

MW-12	10/31/2006	8/3/2016
PARAMETER	RESULT	
No Detections		

MW-13	10/31/2006	8/3/2016
PARAMETER	RESULT	
No Detections		

OBG-7A	11/9/1999
PARAMETER	RESULTS
No Detections	

OBG-WSSR	10/24/2006	4/10/2019
PARAMETER	RESULTS	
Acetone	5 U	10 U
cis-1,2-Dichloroethene	**9**	1 U
Trichloroethene	**65**	1 U
Vinyl Chloride	**4**	1 U

OBG-23S	10/24/2006
PARAMETER	RESULTS
Trichloroethene	1 J

OBG-9SR	10/25/2006	4/11/2019
PARAMETER	RESULTS	
Benzene	**2**	5.7 U

OBG-8SR	10/27/2006
PARAMETER	RESULTS
Chlorobenzene	2
cis-1,2-Dichloroethene	1 J

W-1S	11/10/1999	11/10/1999
PARAMETER	RESULTS	
No Detections		

OBG-24S	10/23/2006
PARAMETER	RESULTS
No Detections	

MWI-1	8/18/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	2
Trichloroethene	3
Vinyl Chloride	6

OBG-15	11/11/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	**36**
Methylene Chloride	**11 NJ**
Trichloroethene	**230**

OBG-11	11/8/1999
PARAMETER	RESULTS
No Detections	

OBG-12	11/8/1999
PARAMETER	RESULTS
No Detections	

OBG-13	11/4/1999
PARAMETER	RESULTS
Chloroform	4 NJ

MWI-2	8/18/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	**47**
Trichloroethene	**13**

MWI-3	8/18/1999	6/21/2000	11/3/2006
PARAMETER	RESULTS		
1,1-Dichloroethene	1000 U	500 U	**3**
cis-1,2-Dichloroethene	**4700**	**3500**	**1100**
trans-1,2-Dichloroethene	1000 U	500 U	**15**
Trichloroethene	**25000**	**21000**	**5700**
Vinyl Chloride	1000 U	500 U	**23**

WT-3R	8/18/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	2
Trichloroethene	**20**

OBG-75	11/4/1999	10/27/2006	4/10/2019
PARAMETER	RESULTS		
Acetone	---	5 U	4.1 J

OBG-2	11/10/1999	10/30/2006	8/24/2011	8/2/2016
PARAMETER	RESULTS			
Acetone	---	5 UJ	**19**	**31**
Trichloroethene	1 U	2 U	0.5 U	2.8

OBG-1	10/30/2006	8/16/2011	8/2/2016
PARAMETER	RESULTS		
Acetone	5 UJ	21 J	5 U

MW-25	1995	3/20/1996	June 1996 to September 1996	3/17/1997	6/12/1997	1997 to 1999	11/8/1999	2000 to 2006
PARAMETER	RESULTS							
Trichloroethene	No detection	**660***	No Detections	1	**5000***	No Detections	2	No Detection

OBG-65	11/3/1999	10/26/2006	4/10/2019
PARAMETER	RESULTS		
Acetone	---	5 U	3.7 J

OBG-10S	11/8/1999	10/23/2006
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	**15**	2 U

MW-15	1995 to 1996	3/17/1997	June 1997 to 1999	6/2/2000	4/11/2001	4/11/2002	2003 to 2006	5/8/2007	2008 to 2009	6/23/2010
PARAMETER	RESULTS									
cis-1,2-Dichloroethene	No Detections	---	No Detections	---	No Detections	---	No Detections	1 U	No Detections	0.19 J
Ethylbenzene		1 U		5 U		**8**		1 U		0.5 U
Trichloroethene	No Detections	1	No Detections	**110**	No Detections	1 U	No Detections	1 U	No Detections	0.5 U
Xylenes (total)		3 U		15 U		**38**		3.7		1 U

W-11S	11/8/1999	10/25/2006
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	**380**	2 U
trans-1,2-Dichloroethene	**57**	2 U

P-2	11/8/1999
PARAMETER	RESULTS
No Detections	

U-1S	11/3/1999	10/9/2003
PARAMETER	RESULTS	
Ethylbenzene	4 NJ	--
Xylenes (total)	**31 NJ**	0.5 U

- MONITORING WELL
- MONITORING WELL STATUS UNKNOWN OR ABANDONED

Total CVOC* Concentrations (ug/L)

- 0 - 10
- >10 - 100
- >100 - 1000
- >1000

Total CVOCs - 1,1-DCA, 1,1-DCE, cis-1,2-DCE (total), TCE, and VC

* - Color coding within data boxes refers to individual constituents

OBG-26S - Based on last sampling result

LOCATION ID

RESULTS IN ug/L

OBG-23D	10/24/2006
PARAMETER	RESULTS
1,1-Dichloroethene	**12**
Benzene	**1**
cis-1,2-Dichloroethene	**3700**
trans-1,2-Dichloroethene	**10**
Trichloroethene	**1600**
Vinyl Chloride	**1300**

BOLD RESULTS REPRESENT AN EXCEEDANCE

Chemical Name - VOCs	Class GA
1,1-Dichloroethane	5
1,1-Dichloroethene	5
1,2-Dichloroethane	0.6
2-Butanone	50 (G)
Acetone	50 (G)
Benzene	1
Bromodichloromethane	50 (G)
Chlorobenzene	5
Chloroform	7
cis-1,2-Dichloroethene	5
Ethylbenzene	5
Isopropylbenzene	5
Methylene Chloride	5
Toluene	5
trans-1,2-Dichloroethene	5
Trichloroethene	5
Vinyl Chloride	2
Xylenes (total)	5

Notes

"---" - Indicated compound not analyzed for.
" * " - Blind Duplicate
"B" - Compound found in associated blank
"D" - Diluted Sample
"U" - Not Detected.
"L" – Acceptable value, biased low
"J" - Indicates the compound was detected but below the reporting limit. The reported concentration is estimated.
"N" – Tentatively Identified
"G" – Guidance Value
Bold – Exceeds GW Class GA
- New York State Department of Environmental Conservation, Technical and Operational Guidance Series (TOGS) 1.1.1, Class GA Standards and Guidance Values, Revised June 1998.
- Routine annual monitoring results for Thinner Wells (T-13, T-15, T-21, T-24, T-26, T-29, T-33B) are not included on this figure.

0 100 200 Feet

SITE-WIDE SHALLOW AREA HISTORIC GROUNDWATER SAMPLE RESULTS VOCS

RACER TRUST
NYSDEC Site # 7-34-057
Operable Unit 1
SYRACUSE, NEW YORK

FIGURE 04

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

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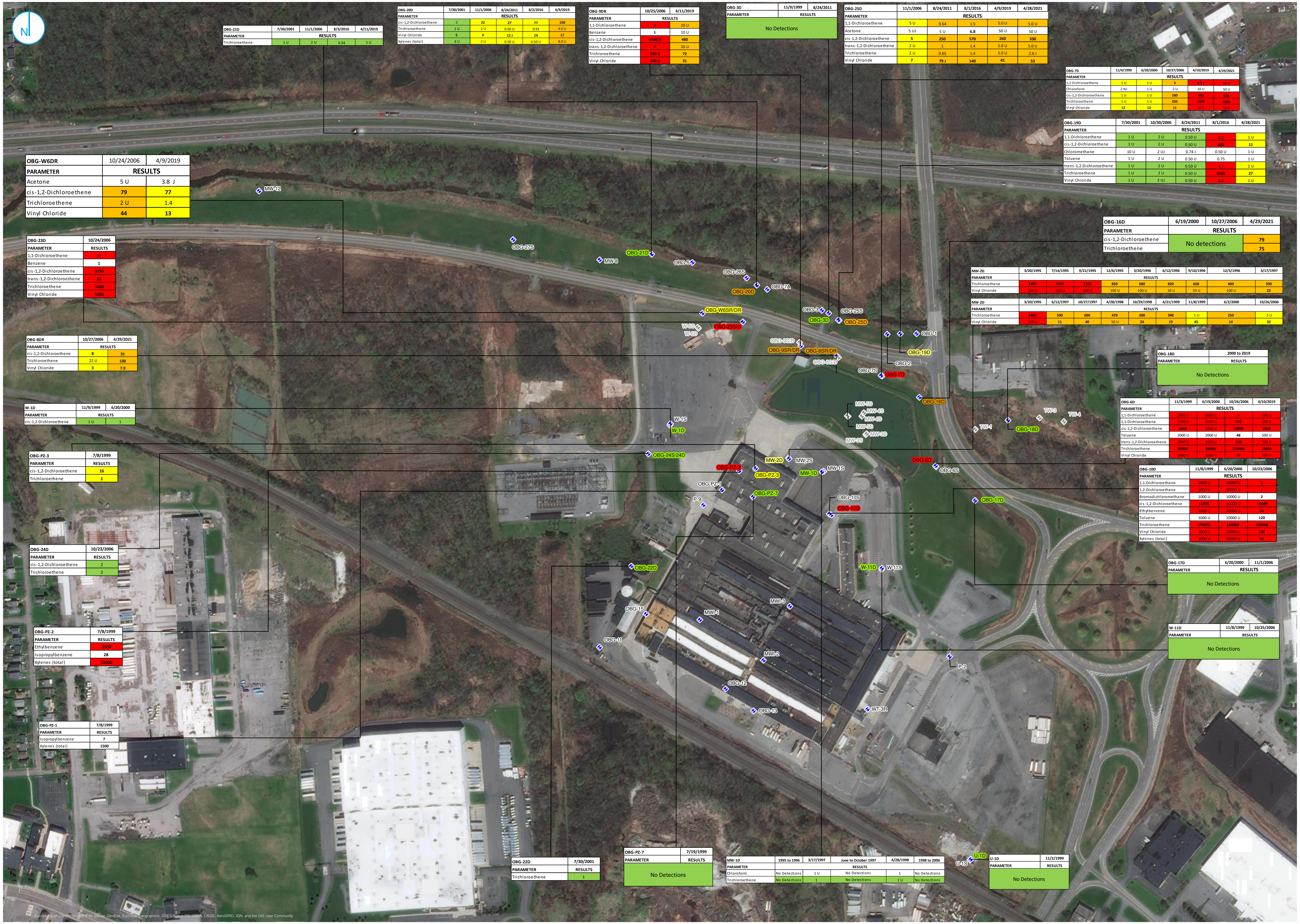

OBG-21D	7/30/2001	11/1/2006	8/3/2016	4/11/2019
PARAMETER	RESULTS			
Trichloroethene	1 U	2 U	0.54	1 U

OBG-20D	7/30/2001	11/1/2006	8/24/2011	8/2/2016	4/9/2019
PARAMETER	RESULTS				
cis-1,2-Dichloroethene	2	**22**	**27**	**77**	**150**
Trichloroethene	1 U	2 U	0.50 U	0.91	4.0 U
Vinyl Chloride	**5**	**9**	**12 J**	**19**	**17**
Xylenes (total)	3 U	2 U	0.50 U	0.50 U	8.0 U

OBG-9DR	10/25/2006	4/11/2019
PARAMETER	RESULTS	
1,1-Dichloroethene	**6**	10 U
Benzene	**1**	10 U
cis-1,2-Dichloroethene	**1800 D**	**480**
trans-1,2-Dichloroethene	**7**	10 U
Trichloroethene	**520 D**	**72**
Vinyl Chloride	**240 D**	**31**

OBG-3D	11/9/1999	8/24/2011
PARAMETER	RESULTS	
No Detections		

OBG-25D	11/1/2006	8/24/2011	8/1/2016	4/9/2019	4/28/2021
PARAMETER	RESULTS				
1,1-Dichloroethene	5 U	0.64	1.5	5.0 U	5.0 U
Acetone	5 UJ	5 U	**6.8**	50 U	50 U
cis-1,2-Dichloroethene	**5**	**250**	**570**	**260**	**330**
trans-1,2-Dichloroethene	2 U	1	1.4	5.0 U	5.0 U
Trichloroethene	2 U	0.65	1.4	5.0 U	2.6 J
Vinyl Chloride	**7**	**79 J**	**140**	**41**	**53**

OBG-7D	11/4/1999	6/20/2000	10/27/2006	4/10/2019	4/29/2021
PARAMETER	RESULTS				
1,1-Dichloroethene	1 U	1 U	3	**6.3 J**	50 U
Chloroform	2 NJ	1 U	2 U	10 U	50 U
cis-1,2-Dichloroethene	1 U	1 U	**180**	**450**	**820**
Trichloroethene	1 U	1 U	**250**	**2300**	**3000**
Vinyl Chloride	**12**	**12**	**11**	10 U	50 U

OBG-19D	7/30/2001	10/30/2006	8/24/2011	8/1/2016	4/28/2021
PARAMETER	RESULTS				
1,1-Dichloroethene	1 U	2 U	0.50 U	**8.1**	1 U
cis-1,2-Dichloroethene	1 U	2 U	0.50 U	**480**	**11**
Chloromethane	10 U	2 UJ	0.74 J	0.50 U	1 U
Toluene	1 U	2 U	0.50 U	0.75	1 U
trans-1,2-Dichloroethene	1 U	2 U	0.50 U	4.7	1 U
Trichloroethene	1 U	2 U	0.50 U	**3500**	**27**
Vinyl Chloride	1 U	2 UJ	0.50 U	**5.2**	1 U

OBG-W6DR	10/24/2006	4/9/2019
PARAMETER	RESULTS	
Acetone	5 U	3.8 J
cis-1,2-Dichloroethene	**79**	**77**
Trichloroethene	2 U	1.4
Vinyl Chloride	**44**	**13**

OBG-16D	6/19/2000	10/27/2006	4/29/2021
PARAMETER	RESULTS		
cis-1,2-Dichloroethene	No detections		**79**
Trichloroethene			**75**

OBG-23D	10/24/2006
PARAMETER	RESULTS
1,1-Dichloroethene	**12**
Benzene	**1**
cis-1,2-Dichloroethene	**3700**
trans-1,2-Dichloroethene	**10**
Trichloroethene	**1600**
Vinyl Chloride	**1300**

MW-2D	3/20/1995	7/14/1995	9/21/1995	12/6/1995	3/20/1996	6/12/1996	9/10/1996	12/5/1996	3/17/1997
PARAMETER	RESULTS								
Trichloroethene	**1400**	**1500**	**1200**	**850**	**680**	**820**	**660**	**400**	**390**
Vinyl Chloride	100 U	100 U	100 U	100 U	100 U	10 U	50 U	100 U	**22**

MW-2D	3/20/1995	6/12/1997	10/27/1997	4/28/1998	10/29/1998	4/21/1999	11/8/1999	6/2/2000	10/26/2006
PARAMETER	RESULTS								
Trichloroethene	**1400**	**590**	**600**	**470**	**300**	**340**	1 U	**250**	5 U
Vinyl Chloride	100 U	**11**	**40**	50 U	**24**	**19**	**45**	**14**	**32**

OBG-8DR	10/27/2006	4/29/2021
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	**8**	**31**
Trichloroethene	22 U	**130**
Vinyl Chloride	**3**	**7.9**

OBG-18D	2000 to 2019
PARAMETER	RESULTS
No Detections	

W-1D	11/9/1999	6/20/2000
PARAMETER	RESULTS	
cis-1,2-Dichloroethene	1 U	1

OBG-6D	11/3/1999	6/19/2000	10/26/2006	4/10/2019
PARAMETER	RESULTS			
1,1-Dichloroethane	2000 U	2000 U	**4**	500 U
1,1-Dichloroethene	2000 U	2000 U	**150**	500 U
cis-1,2-Dichloroethene	**3400**	2000 U	**10000**	**2300**
Toluene	2000 U	2000 U	**48**	500 U
trans-1,2-Dichloroethene	2000 U	2000 U	**130**	500 U
Trichloroethene	**65000**	**48000**	**130000**	**25000**
Vinyl Chloride	2000 U	2000 U	**75**	500 U

OBG-PZ-3	7/8/1999
PARAMETER	RESULTS
cis-1,2-Dichloroethene	**16**
Trichloroethene	**1**

OBG-10D	11/8/1999	6/20/2000	10/23/2006
PARAMETER	RESULTS		
1,1-Dichloroethane	1000 U	10000 U	**5**
1,2-Dichloroethane	1000 U	10000 U	**2**
Bromodichloromethane	1000 U	10000 U	**2**
cis-1,2-Dichloroethene	**11000**	10000 U	**10000**
Ethylbenzene	1000 U	10000 U	**24**
Toluene	1000 U	10000 U	**120**
Trichloroethene	**170000**	**160000**	**160000**
Vinyl Chloride	1000 U	10000 U	**120**
Xylenes (total)	3000 U	30000 U	**92**

OBG-24D	10/23/2006
PARAMETER	RESULTS
cis-1,2-Dichloroethene	2
Trichloroethene	2

OBG-17D	6/20/2000	11/1/2006
PARAMETER	RESULTS	
No Detections		

W-11D	11/8/1999	10/25/2006
PARAMETER	RESULTS	
No Detections		

OBG-PZ-2	7/8/1999
PARAMETER	RESULTS
Ethylbenzene	**3500**
Isopropylbenzene	**28**
Xylenes (total)	**22000**

OBG-PZ-1	7/8/1999
PARAMETER	RESULTS
Isopropylbenzene	**7**
Xylenes (total)	**1500**

OBG-22D	7/30/2001
PARAMETER	RESULTS
Trichloroethene	1

OBG-PZ-7	7/19/1999
PARAMETER	RESULTS
No Detections	

MW-1D	1995 to 1996	3/17/1997	June to October 1997	4/28/1998	1998 to 2006
PARAMETER	RESULTS				
Chloroform	No Detections	1 U	No Detections	1	No Detections
Trichloroethene	No Detections	1	No Detections	1 U	No Detections

U-1D	11/2/1999
PARAMETER	RESULTS
No Detections	

MONITORING WELL

MONITORING WELL STATUS UNKNOWN OR ABANDONED

Total CVOC* Concentrations (ug/L)
0 - 10
>10 - 100
>100 - 1000
>1000

Total CVOCs - 1,1-DCA, 1,1-DCE, cis-1,2-DCE (total), TCE, and VC

* - Color coding within data boxes referes to individual constituents

OBG-19D - Based on last sampling result

LOCATION ID

RESULTS IN ug/L

OBG-23D	10/24/2006
PARAMETER	RESULTS
1,1-Dichloroethene	12
Benzene	1
cis-1,2-Dichloroethene	3700
trans-1,2-Dichloroethene	10
Trichloroethene	1600
Vinyl Chloride	1300

BOLD RESULTS REPRESENT AN EXCEEDANCE

Chemical Name - VOCs	Class GA
1,1-Dichloroethane	5
1,1-Dichloroethene	5
1,2-Dichloroethane	0.6
2-Butanone	50 (G)
Acetone	50 (G)
Benzene	1
Bromodichloromethane	50 (G)
Chlorobenzene	5
Chloroform	7
cis-1,2-Dichloroethene	5
Ethylbenzene	5
Isopropylbenzene	5
Methylene Chloride	5
Toluene	5
trans-1,2-Dichloroethene	5
Trichloroethene	5
Vinyl Chloride	2
Xylenes (total)	5

Notes

"---" - Indicated compound not analyzed for.
" * " - Blind Duplicate
"B" - Compound found in associated blank
"D" - Diluted Sample
"U" - Not Detected.
"L" – Acceptable value, biased low
"J" - Indicates the compound was detected but below the reporting limit. The reported concentration is estimated.
"N" – Tentatively Identified
"G" – Guidance Value
Bold – Exceeds GW Class GA
- New York State Department of Environmental Conservation, Technical and Operational Guidance Series (TOGS) 1.1.1, Class GA Standards and Guidance Values, Revised June 1998.
- Routine annual monitoring results for Thinner Wells (T-13, T-15, T-21, T-24, T-26, T-29, T-33B) are not included on this figure.

0 100 200 Feet

SITE-WIDE DEEP AREA HISTORIC GROUNDWATER SAMPLE RESULTS VOCS

RACER TRUST
NYSDEC Site # 7-34-057
Operable Unit 1
SYRACUSE, NEW YORK

FIGURE 05

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

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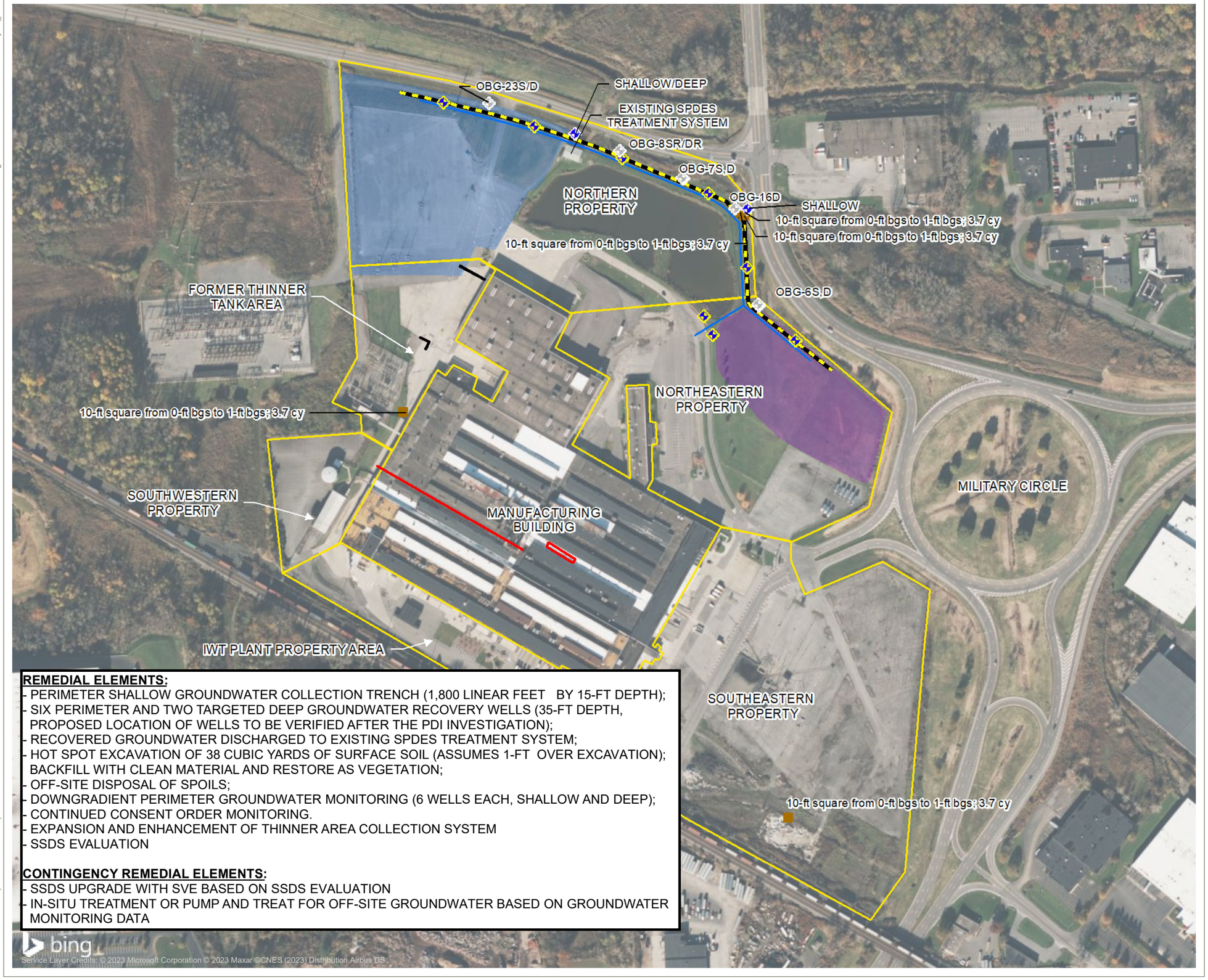
PROJECT: 15388.71590 | DATED: 2/26/2021 | DESIGNER: VELIZCY



REMEDIAL ELEMENTS:
- PERIMETER SHALLOW GROUNDWATER COLLECTION TRENCH (1,800 LINEAR FEET BY 15-FT DEPTH);
- SIX PERIMETER AND TWO TARGETED DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER DISCHARGED TO EXISTING SPDES TREATMENT SYSTEM;
- HOT SPOT EXCAVATION OF 38 CUBIC YARDS OF SURFACE SOIL (ASSUMES 1-FT OVER EXCAVATION); BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- CONTINUED CONSENT ORDER MONITORING.
- EXPANSION AND ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:
- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

N

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- DEEP GROUNDWATER DISCHARGE PIPING
- PROPOSED SHALLOW GROUNDWATER RECOVERY TRENCH
- PROPOSED EXCAVATION AREA
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- PROPERTY AREA LIMITS

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ALTERNATIVE 2

0 100 200 400 600 Feet

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MAY 2023

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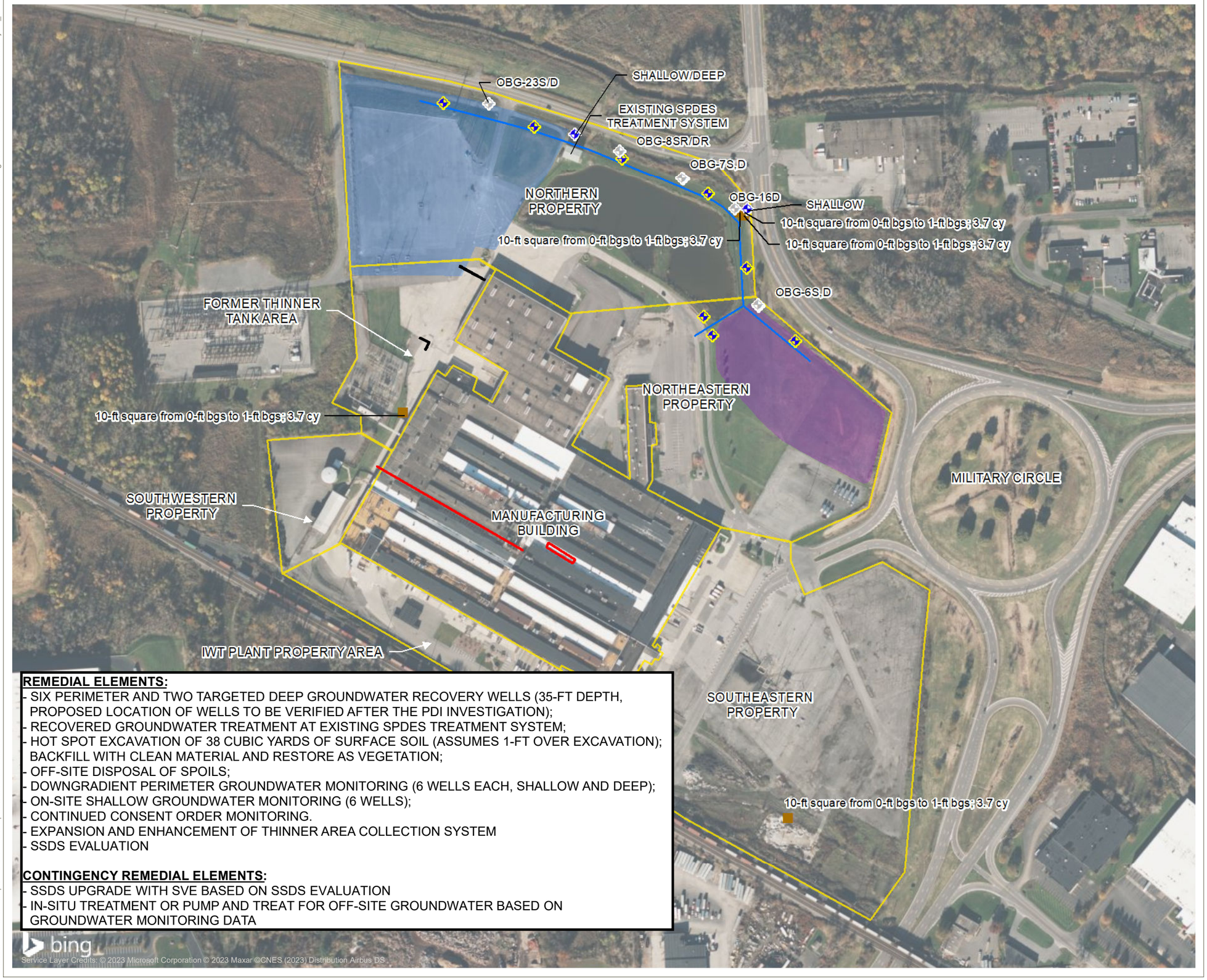
RAMBOLL



REMEDIAL ELEMENTS:
- SIX PERIMETER AND TWO TARGETED DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER TREATMENT AT EXISTING SPDES TREATMENT SYSTEM;
- HOT SPOT EXCAVATION OF 38 CUBIC YARDS OF SURFACE SOIL (ASSUMES 1-FT OVER EXCAVATION); BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- ON-SITE SHALLOW GROUNDWATER MONITORING (6 WELLS);
- CONTINUED CONSENT ORDER MONITORING.
- EXPANSION AND ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:
- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- DEEP GROUNDWATER DISCHARGE PIPING
- PROPOSED EXCAVATION AREA
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- PROPERTY AREA LIMITS

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ALTERNATIVE 3

0 100 200 400 600 Feet

1940101904
MAY 2023

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ENGINEERING SOLUTIONS, INC.
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PROJECT: 1940101904 | DATED: 5/11/2023 | DESIGNER: SSOULE

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FIGURE 8

OBG-23S/D
SHALLOW/DEEP
EXISTING SPDES TREATMENT SYSTEM
OBG-8SR/DR
OBG-7S,D
OBG-16D
SHALLOW
NORTHERN PROPERTY
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
FORMER THINNER TANK AREA
OBG-6S,D
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
NORTHEASTERN PROPERTY
SOUTHWESTERN PROPERTY
MANUFACTURING BUILDING
MILITARY CIRCLE
IWT PLANT PROPERTY AREA
SOUTHEASTERN PROPERTY
10-ft square from 0-ft bgs to 1-ft bgs; 3.7 cy
bing
Service Layer Credits: © 2023 Microsoft Corporation © 2023 Maxar ©CNES (2023) Distribution Airbus DS

REMEDIAL ELEMENTS:
- SIX PERIMETER DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER TREATMENT AT EXISTING SPDES TREATMENT SYSTEM;
- IN SITU TREATMENT OF ELEVATED CHLORINATED AND NON-CHLORINATED VOCS;
- HOT SPOT EXCAVATION OF 38 CUBIC YARDS OF SURFACE SOIL (ASSUMES 1-FT OVER EXCAVATION); BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- ON-SITE SHALLOW GROUNDWATER MONITORING (6 WELLS)
- CONTINUED CONSENT ORDER MONITORING.
- ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:
- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

N

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- DEEP GROUNDWATER DISCHARGE PIPING
- PROPOSED EXCAVATION AREA
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- ELEVATED CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- ELEVATED NON-CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- PROPERTY AREA LIMITS

RACER TRUST
GENERAL MOTORS -
INLAND FISHER GUIDE SUBSITE
SYRACUSE, NEW YORK

ALTERNATIVE 4

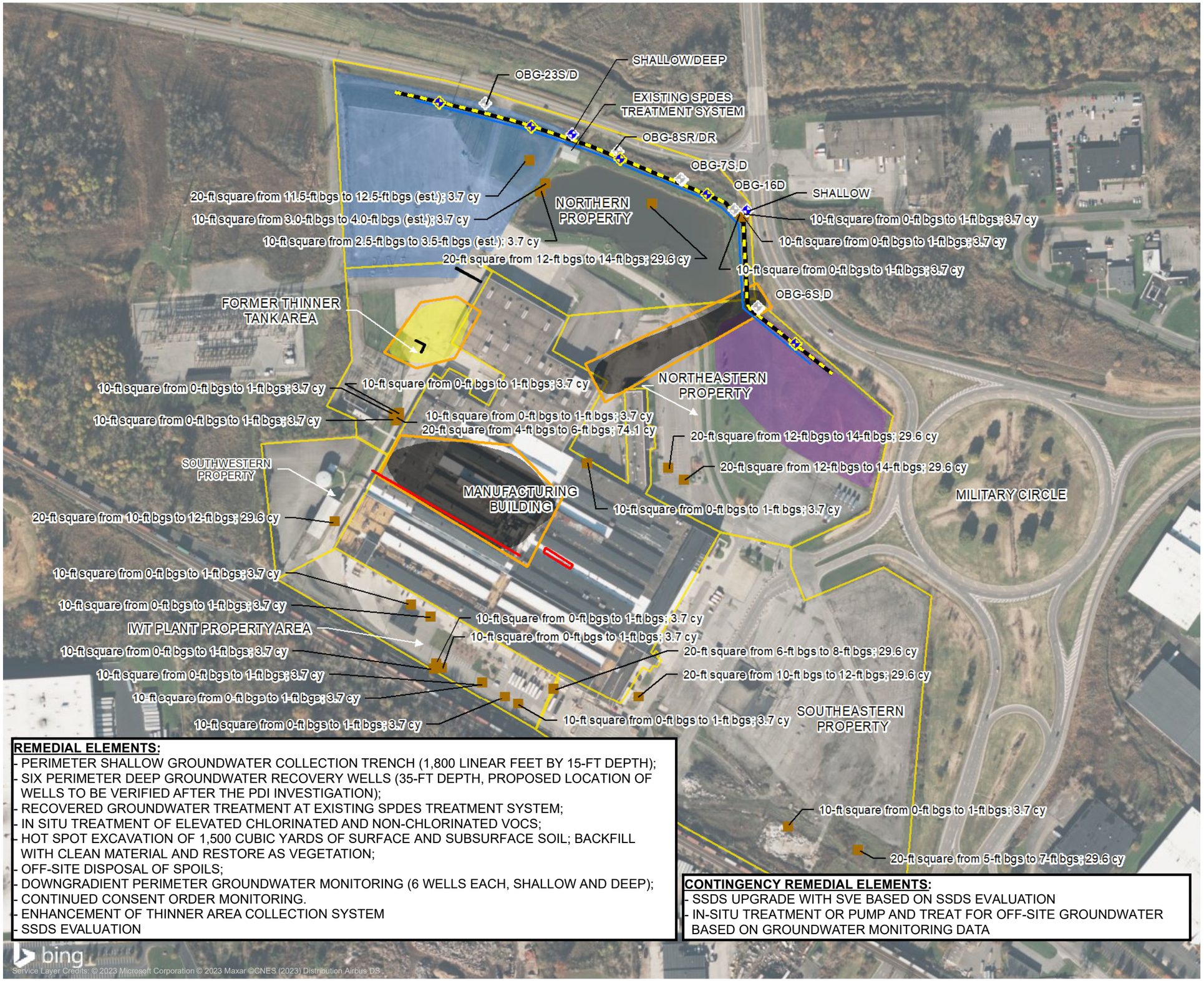
0 100 200 400 600 Feet

1940101904
MAY 2023

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1940101904 | DATED: 5/11/2023 | DESIGNER: SSOULE



REMEDIAL ELEMENTS:

- PERIMETER SHALLOW GROUNDWATER COLLECTION TRENCH (1,800 LINEAR FEET BY 15-FT DEPTH);
- SIX PERIMETER DEEP GROUNDWATER RECOVERY WELLS (35-FT DEPTH, PROPOSED LOCATION OF WELLS TO BE VERIFIED AFTER THE PDI INVESTIGATION);
- RECOVERED GROUNDWATER TREATMENT AT EXISTING SPDES TREATMENT SYSTEM;
- IN SITU TREATMENT OF ELEVATED CHLORINATED AND NON-CHLORINATED VOCS;
- HOT SPOT EXCAVATION OF 1,500 CUBIC YARDS OF SURFACE AND SUBSURFACE SOIL; BACKFILL WITH CLEAN MATERIAL AND RESTORE AS VEGETATION;
- OFF-SITE DISPOSAL OF SPOILS;
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING (6 WELLS EACH, SHALLOW AND DEEP);
- CONTINUED CONSENT ORDER MONITORING.
- ENHANCEMENT OF THINNER AREA COLLECTION SYSTEM
- SSDS EVALUATION

CONTINGENCY REMEDIAL ELEMENTS:

- SSDS UPGRADE WITH SVE BASED ON SSDS EVALUATION
- IN-SITU TREATMENT OR PUMP AND TREAT FOR OFF-SITE GROUNDWATER BASED ON GROUNDWATER MONITORING DATA

N

LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED DEEP GROUNDWATER RECOVERY WELL
- PROPOSED EXCAVATION AREA
- PROPOSED SHALLOW GROUNDWATER RECOVERY TRENCH
- DEEP GROUNDWATER DISCHARGE PIPING
- APPROXIMATE LOCATION OF EXISTING THINNER TANK TRENCH
- SSDS
- APPROXIMATE LIMITS OF EXISTING LANDFILL IRM
- APPROXIMATE LIMITS OF EXISTING SOIL STAGING AREA IRM
- ELEVATED CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- ELEVATED NON-CHLORINATED VOCs AREA IN SITU TREATMENT - APPROXIMATE
- PROPERTY AREA LIMITS

RACER TRUST
GENERAL MOTORS - INLAND FISHER GUIDE SUBSITE
SYRACUSE, NEW YORK

ALTERNATIVE 5

0 100 200 400 600 Feet

1940101904
MAY 2023

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940101904 | DATED: 5/11/2023 | DESIGNER: SSOULE

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-b

PUBLIC NOTICE PUBLISHED IN THE
SYRACUSE POST STANDARD
ON JULY 30, 2023

Ad Number:0010706053-01

Date	Position	Description	P.O. Number	Ad Size
07/30/2023	Other Legals NY	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL		1 x 112.00 CL

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION INVITES PUBLIC COMMENT ON A PROPOSED PLAN FOR GENERAL MOTORS--INLAND FISHER GUIDE OPERABLE UNIT 1 SITE SUBSITE OF ONONDAGA LAKE SUPERFUND SITE The New York State Department of Environmental Conservation (NYSDEC) will hold an open house from 5:00 – 6:00 p.m. and a public meeting at 6:00 p.m. on August 16, 2023 at the Salina Town Hall, located at 201 School Road, Liverpool, to discuss the Proposed Plan for the General Motors--Inland Fisher Guide Operable Unit 1 site, a subsite of the Onondaga Lake Superfund site. The site is located on Military Circle Drive and Townline Road. The Proposed Plan provides a summary of the findings of the Remedial Investigation and Feasibility Study (RI/FS) conducted to determine the nature and extent of the contamination at the site, whether this contamination poses a threat to public health and the environment, and to identify and evaluate cleanup alternatives. The Proposed Plan also identifies NYSDEC and the U.S. Environmental Protection Agency's (EPA's) preferred remedial alternative to address the contamination at the site and the basis for this preference. The preferred remedial alternative includes in-place or in-situ treatment of three residual source areas, perimeter deep groundwater extraction and treatment, contaminated soil excavation with off-site disposal, enhancements of the existing sub-slab depressurization system under the former manufacturing building, development of a site management plan, implementation of institutional controls, and long-term operation, maintenance, and monitoring. NYSDEC and EPA are soliciting public comments on all the remedial alternatives evaluated, including the preferred alternative. Changes to the preferred alternative or selection of a remedial alternative other than the preferred alternative may be made if public comments or additional data indicate that such a change will result in a more appropriate clean up action. The final decision regarding the selected plan will be made after NYSDEC and EPA have taken into consideration all public comments. The Proposed Plan, RI report, and FS report are available at the locations noted below. Information is also available on NYSDEC's website at https://www.dec.ny.gov/data/DecDocs/734057/ Atlantic States Legal Foundation 658 West Onondaga Street Syracuse, New York 13204 315 475 1170 NYSDEC 5786 Widewaters Parkway Syracuse, NY 13214-1867 (315) 426-7400 Please call for an appointment NYSDEC, DER 625 Broadway, 12th Floor Albany, New York 12233 7013 518 402 9676 Please call for an appointment Written comments received during the public comment period, which ends on August 27, 2023, as well as oral comments received at the public meeting, will be documented and addressed in the Responsiveness Summary section of the Record of Decision, the document which formalizes the selection of the cleanup. All written comments should be addressed to: Jacky Luo, Project Manager NYS Department of Environmental Conservation 625 Broadway, 12th Floor Albany, NY 12233 7013 jacky.luo@dec.ny.gov (Please indicate "General Motors--Inland Fish Guide Operable Unit 1 Proposed Plan Comments" in the subject line of the e-mail)

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-c

AUGUST 16, 2023 PUBLIC MEETING TRANSCRIPT

STATE OF NEW YORK ONONDAGA COUNTY

* *

In the Matter of:

PUBLIC COMMENT PERIOD AND PUBLIC MEETING ANNOUNCED

HEARING IN REGARDS TO THE

REMEDY PROPOSED FOR STATE SUPERFUND SITE

* *

HELD AT: Salina Town Hall
201 School Road
Liverpool, New York 13088
August 16, 2023

APPEARANCES:

JASON PELTON, P.G., Section Chief
New York State Division of Enviromental Remediation
625 Broadway
Albany, New York 12233-7013
JACKY LUO, Project Manager
New York State Division of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7013

MARK SERGOTT, P.G., Project Manager
New York State Department of Health
Empire State Plaza - Corning Tower, Room 1787
Albany, New York 12237

Cynthia M. Belmonte,
Court Reporter.

MR. PELTON: Great. I just wanted to say a few quick words here, before we get started. I'm Jason Pelton. I'm a section chief with the New York State Department of Environmental Conservation, out of Albany. Jacky Luo is to my right. He's the project manager for the General Motors, Inland Fisher Guide Site, which is commonly referred to as GM-IFG. He's to lead the presentation tonight. But we're also joined by Mark Sergott. He is the project manager with the New York State Department of Health. He's also going to talk a little bit about his role in the work that we've completed at the GM-IFG site. And the New York State Department of Health concurrence with this remedy. Just, like I said, a few words. Thanks for coming, first and foremost. Welcome to the town hall here. We appreciate you coming out to hear about our proposed plan for the GM-IFG site. For those of you that don't know, it's one of the 11 subsites for the Onondaga Lake site. The map that we have in the back room that shows the position of the GM-IFG site, relative to the Onondaga Lake and some of the other subsites. So, we prepared what we call a proposed plan that outlined our preferred remedy. We released that on

July 28th. That started a 30-day comment period. So, right now we're about in the middle of that comment period. It's going to end on August 27th. At the conclusion of the comment period, we're going to finalize the remedy for the GM-IFG site, in the document that we refer to as a Record of Decision. That Record of Decision will include a response to this summary. And that is our response to any of the comments that we receive during the comment period. And that includes tonight's public meeting. We have a stenographer here tonight. If there are any comments or any questions, please just stand up, so that she can hear you and provide your name, so that she can hear that. And then lastly, I just want to say that this really is the preferred remedy is the culmination of a fairly comprehensive investigation at this site. It has taken many, many years to complete. It also includes a series of what we call interim remedial measures, basically, clean up actions that we complete at a site, before we get to this stage in the remedial process. And, lastly, it includes what we call a feasibility study. And that's an evaluation of clean up options that would be appropriate for the site; given the site

conditions; the site contaminations; the soil type; the ground water contaminants. All those, kind of, get factored into us evaluating what options would work best for this site and this site's characteristics. With that, I will let Jacky get into, you know, some background on the history. He's got an outline here that he'll walk through and he'll talk about. He will present our preferred plan for the site. Thank you. Good evening and thank you for coming. My name is Jacky. And I am the New York State Department of Environmental Conservation Project Manager for the GM-IFG Site. I'm just going to go through a little bit of the site background, the clean up options that we evaluated, the preferred remedy. And then New York State DOH is going to, kind of, talk a little bit. And, finally, the next steps. Please hold off questions until the end of the presentation. So, a little bit of the background. The GM-IFG is a subsite of the Onondaga Lake. As you can see over here, on to the left, you can see is Onondaga Lake. The National Priorities List is, basically, the Nation's higher profile sites across the United States. As you can see over here, we have the OU1 and the New York State Thruway. The

sites has two operable units. An operable unit is how a site is split up based on the types of contaminates or the media -- contaminated media. For example, OU1 are address as groundwater. And then OU2 addresses off site sediments and floodplain soils. Outlined in the blue here is OU1 and then outlined in red is OU2. A remedy has already been selected for OU2 and it's under EPA lead. For the focus of this proposed plan is OU1. As we take a zoomed in look of this figure, you see that I-90 is right over there; we have Ley Creek, which flows east to west just right over there; the site is located on Factory Avenue, Townline Road and Military Circle. The site is, approximately, 65 acres. And there's a 800 square foot former manufacturing company located in the middle. We talked about groundwater at the site. So, just that everyone is aware, groundwater flows north toward Ley Creek. Groundwater from the site is not used and the site and surrounding areas are served by municipal drinking water. So, GM -- or General Motors operated the facility from the early 1950's to 1990's. They manufactured metal and plastic automotive trims such as bumpers, grills, wheel disks and hubcaps. And then in the late 90's,

there was a facility cleanup program where we, kind of, cleaned up and decontaminated the interior of the former manufacturing building. And then in 2009, General Motors filed for bankruptcy. And shortly after Revitalizing Auto Communities Environmental Response Trust, also known as RACER, took over the site and the remedial responsibilities. And then most recently, in 2020, the property was sold off. But, however, RACER still maintains the remedial responsibilities. The current site use is zoned for industrial use and is currently the manufacturing building used by multiple tenants for small scale industrial manufacturing. There are four major contaminants associated with this site, Volatile Organic Compounds, VOC's, trichlorethylene, xylenes, toluene, mental and polychlorinated biphenyls or PCBs. The primary contaminants of concerns for this site are VOCs. These are commonly used as solvents, industrial applications for degreasing. In the yellow and orange colors you can see the chlorinated solvents such as the trichloroethylene and its breakdown products. And then in the purple you can see xylene and toluene and benzene. This slide just shows a cross section of the site and

the underlying geology, going from the left to right you can see the manufacturing building. And on the right is Factory Avenue. This slide just shows that there are two groundwater intervals such as shallow and deep. Shallow is groundwater is found at the 10 to 15 feet deep and deep groundwater is found at 30 to 40 feet deep. In between there is also a clay/silt layer that separates these two layers. So, this figure shows a summary of the larger interim remedial measures that were done on the site. IRM is remedial activities completed to prevent immediate human health and environmental exposure. As you can see in the green or number 1, that's the former thinner tank area groundwater recovery system. This is where non-chlorinated VOCs is pumped and treated at the number 2. That's the water treatment plant. The treatment plant was built as part of the SPDES treatment system IRM to address groundwater and storm water across the site. And then number 3 we have the retention basin. The retention basin was built after the former drainage swale IRM. It's, basically, where a bunch of contaminated PCBs was excavated and put at a disposal offsite or put onto the landfill at #4. Number 4 is the former

landfill IRM where PCBs were placed and capped on site with a low permeability cover. And at number 5 we have the Vapor Intrusion Mitigation IRM. The redline shows the sub-slab depressurization system that was install to address soil vapors beneath the building. This is to prevent volatile contaminants from entering the building. And then number 6 we have decommissioning activities. So, these included dismantling old process systems within the building and cleaning and coating of the floors within the building. And number 7 we have redevelopment IRM where we removed a former industrial water treatment plant in the back, as well as placement of pavement across the site. So, the big take home message from this slide is that there is a lot of contamination that has been addressed as part of our IRMs. And now were just addressing the remaining contamination at the site, which is in the groundwater. Here is a list of the remedial action objectives. I'm not going to read through them. But the main purpose is to prevent unacceptable human exposure and ecological impacts and prevent the migration of contaminants. In evaluating potential cleanup alternatives, we used the following nine criterias: The first two

criterias are known as threshold criteria and must be satisfied in order for an alternative to be considered for selection at the site. The rest of the seven criterias are considered balancing criteria and modifying criteria are used to compare the positive and negative aspects of each of the remedial strategies. Basically, we weigh the pros and cons of these different criteria with each of the alternatives. So, these are the five alternatives that were considered to address the contamination at the site, based off of the remedial action objectives and a review of applicable technologies as well as their associated costs. The alternative range from alternative 1, no further action, which we are required to evaluate as a baseline or basis for comparison to other potential alternatives to alternative 5, which is more of a full removal back to predisposal conditions. And then in between are alternatives that use a variety of different technologies, such as groundwater extraction and treatment and in-situ treatment. Based on the nine evaluation criterias, we are proposing alternative 4. So, here's the preferred alternative number 4. We're going to have in-situ treatment of three residual source

areas. As you can see 1, 2, and 3. In-situ treatment or in-place treatment involves injecting an amendment to promote contaminant degradation. This alternative would utilize horizontal drilling to target materials beneath, at number 2, the manufacturing building to minimize disturbing the occupants of the building. However, for the other two residual areas we would use traditional vertical wells. There's also going to be a treatment system, as you can see in the black there. And then we're also going to do a sub slab depressurization system evaluation, which will be conducted to determine if upgrades to the system can be done to allow for removal of VOCs beneath the building. And then we also have some limited soil excavation and backfill in the brown squares shown on this figure. And then finally we're going to have a site management plan that would continue to maintain all of the current IRMs and the future remedy. As well as a groundwater monitoring plan would be in place.

MR. SERGOTT: Thank you, Jacky. Okay. Hello, folks. Well, my name is Mark Sergott. I'm with the New York State Health Department. I'm the project manager. I work with the Bureau of

Enviromental Exposure Investigation. I work with Jacky and the Department of Conservation on this particular site. Tonight, I just have a couple of quick slides to go over. It's just to, kind of, go over the role of the New York Health Department on sites, like we're discussing here tonight. And then I will also go over some exposure related information that's applicable to this site that we're discussing here tonight. So, the State Health Department, we're involved with the review and the approval of the various investigative and remedial work plans that are associated with any of the environmentally contaminated sites that are located throughout New York State. We've work intimately with the New York State Department of Enviromental Conservation on identifying the nature and extent of contamination at the site. And, basically, at that point, evaluating potential exposures to the enviromental contaminates that area associated with these sites. And, really, from the State Health Department's standpoint it's our focus is to really determine whether or not -- how the public can get in to contact with enviromental contaminates that are associated with these sites. From the day that it's generated, we

make various recommendations and various actions that we feel should be taken in the event that we feel that there are unnecessary exposures occurring because of enviromental contaminants. Ultimately, we want to ensure that any remedy that's selected is protective of public health. After tonight's presentation, along with all the reviews that I've completed recent, I can stand before you tonight and say that the State Health Department does, in fact, approve and accepts and believes that this an acceptable protective plan to the public health. So, when I speak in terms of exposures, what exactly are exposures? Exposures are, basically, just the physical contact with a chemical or substance. And there's, basically, three main exposure pathways in which we're looking to see how, in fact, people could be encountering enviromental contaminates at sites, like we're discussing here tonight. One of those exposure pathways is through inhalation or breathing in an enviromental contaminate; one can be through directly contacting or touching an enviromental contaminate. And the third would be through ingestion, whether it would be through eating or drinking a particular enviromental contaminant

that's associated with the site. Now, it's important to note that one or more of these physical contacts must occur before a chemical has the potential to cause a health problem. And equally important to note is that just because there's a particular exposure doesn't necessarily mean that there's going to be an associated negative health effect. And this last slide is really -- now, that we've gone over the potential exposure pathways, I just, kind of, want to tie these in now and discuss how the components of the remedy are, more or less, going to be addressing these exposure scenarios. Quite honestly, right now there's really minimal opportunities to encounter site contaminates in -- at the site and in its present condition. Reason being is that a lot of the contamination right now is currently at depth or it's largely covered by the building slab and largely by the miles of paved surfaces out there at this lake. So, there are limited opportunities to encounter a lot of the residual contamination that's still in place. In terms of the inhalation exposure pathway, as Jacky mentioned, there are two operating sub-slab depressurization systems that are currently in

place that are operating to minimize solvent -- (Inaudible) -- from occurring. The operations of these particular systems, along with future maintenance, along with some timeframe of periodic indoor air monitoring program likely will occur. That will all be in accordance with the site management plan, as Jacky mentioned, moving forward, which the site will be following. In terms of the potential of inhaling contaminants largely associated with the outside sub-surface excavation. When those are occurring, then the exteriorities of the site, we will be conducting what's known as a community air monitoring plan, which will be in place during the remediation to, basically, to ensure that the work is not negatively effecting the surrounding air quality of the surrounding area. Direct contact, there's really limited opportunities for the public right now to be in contact with contaminants at the site. In terms of direct contact with the materials. This is, more or less, mostly a concern for the contractors and the various workers on site that will be conducting the remediation. That being said, there will still be strict security measures in place during the remediation to ensure that the

public does not have access to these particular remediation areas when the work is occurring. Following the excavation, a site cover system will be constructed in the excavated areas to prevent contact with any residual contamination that reminds. And in the future, if the cover system is ever breeched, whether it be for whatever excavation it may be, or it's regarded -- related to a future development, there will be an excavation plant that's in place to ensure that any residual contamination is properly managed. And last, but not least, in terms of the ingestion pathway, again, there's really no signs currently of people ingesting soils. So, this is really, kind of, written off at this point as not a concern. In terms of drinking of groundwater, as Jacky mentioned, there currently people not drinking groundwater right now associated with the site. There's also a public water supply that serves the area that's not currently impacted by the site related contamination. And then moving forward, regardless, of this information, there will still be a groundwater use restriction that will remain in place at the site, which will, more or less, ensure that no future private water wells

are developed on the property. And that's really all I have, folks. At this point, I'll hand it back over to Jacky to wrap up tonight's presentation and open it up to any questions that people may have. Thank you very much.

MR. LUO: So, like Jason said, for the next step, we have a public commentary that ends on August 27th. You can email me, write me questions here, mail me questions, or even give me a call, if you have any questions. All those questions and comments will be incorporated as part of our rod, which will be issued, hopefully, shortly after in September. And then shortly after that, we will begin remedial design as of late 2023. And after that remedial construction will begin. Thank you. If you have guys have any questions, please feel free just state your name and ask the question.

AUDIENCE MEMBER: Hi, I'm Robert. I'm here representing Syracuse, as the manager of this property. There are a few questions that come to mind. But a few comments to share before the questions. On an opening slide, Jacky, you're indicated that the property is 65 acres. That is just part of the Town of Salina. The total is 78 acres. There are three partials that are pavement

for the park and are in the Town of DeWitt. I would like to share and point out that in the three years that we've been operating in the building, we've had an upwards of 500 to 525 people working in the building every single day. I'm not aware of anyone ever reporting any sort of illness or reason to not come to work due to air, the water or soil. I am a little concerned hearing from Mr. Sergott's presentation where there will be the excavation work that's pointed out in figure eight. The people will not have access. How will that impact the companies that are doing business here during that timeframe?

MR. LUO: We can reroute or we can excavate at a time where there's minimal, I guess, traffic ongoing. Because there are times that you guys don't -- I'm pretty sure -- I'm not sure of the operations of the people at the facility. But if we can try to accommodate you guys and work around you guys, where we would try to do the excavation work during a time period and where there won't be a lot of people on the site.

AUDIENCE MEMBER: I think that this is a perfect timeframe to communicate that as the owner of the property that we will have a seat at the

table and have more than an hour's notice before someone appears on site to start working. We would like to have some notifications as to who is going to do the work? Who is going to do the predesign? Is it the folks that we are familiar with the Ranbull (phonetic). And can we have input from RACER, who is connected through the easement for all of the legal issues. We will need and want an opportunity to communicate with our tenants. So, that they are aware of what's going to happen, even though, it's two years down the road. I think we should have that communication. In the plan that I read there was a list of parties to be coordinated -- to be part of a coordination effort. And everybody was listed except the owner of the building.

MR. LUO: I will update and include you as part of the communications. Typically, before we do any work, we do put out a fact sheet that, kind of, gives notice that there will be work going on. Of course, we will coordinate that with you during that time. And, then, as well as, before we actually do the work, we typically have a meeting on the site. It's, kind of, like, a pre-kick off meeting before we do any of the construction or any

of the work. And then during that time, you can raise an issue for your tenants or discuss with us if you have any issues.

AUDIENCE MEMBER: Great. Thank you. I do have a specific question from the -- (inaudible) -- we noticed that there was a discussion of removing cubic yards of materials in one part. I think it was on page 22. It referenced 38 cubic yards of -- to be remove.

MR. LUO: Yes.

AUDIENCE MEMBER: On page eight it 1,500 cubic yards.

MR. LUO: So, the 30 cubic yards is associated with alternative 4. So, if you go back to slide number 6. Sorry. So, as you can see her on this figure, there are, like, brown little dots on the printer. In total, if you were to remove all of these -- all of the contaminants, we have a lot of contaminants underneath the pavement. So, we don't want to -- we don't think it's necessary to remove every -- all of the contamination beneath the pavement. So, that's how we came up with 40 -- or 38 cubic yards. And if we were to remove all of the contamination, it would probably equal to about 1,500 cubic yards. So, in our preferred

alternative, we're only going for three or four spots that have contaminants that we want to address at the surface level.

AUDIENCE MEMBER: So, of those three spots, the one that just -- (Inaudible) -- is of less concern because there's nothing there?

MR. LUO: Yes.

AUDIENCE MEMBER: Is there a spot somewhere around the pond?

MR. LUO: Yes, a little bit up north over there, to the left.

AUDIENCE MEMBER: Just outside of the property usage?

MR. LUO: Yes.

AUDIENCE MEMBER: It's not a concern. But the one on the west side, is an area for active driving for incoming and outgoing product. And I understand tonight is not the night to drill you for details. But if you're going to be taking out concrete of that driveway, I would like to know that the concrete will be restored.

MR. LUO: Yes, that is the intent. If there is anything -- if there is anything, if we're going to remove pavement, it will be restored. That's part of our back filing, basically.

AUDIENCE MEMBER: And that's one areas of concern. We have tenants that have to be able to pass through.

MR. PELTON: We met earlier today at your property. (Inaudible) -- design and action standpoint. And that's a big step in our recommendation. (Inaudible). We're going to excavate that soil and put it back to the right conditions. We're not just going to show up with a backhoe on a trailer and start working. We will give you notice. Absolutely. And we will put it back to its current condition and make sure there's nothing exposed. (Inaudible).

AUDIENCE MEMBER: I think you can appreciate where I'm coming from.

MR. PELTON: Absolutely.

AUDIENCE MEMBER: I have a lot to learn, as well.

MR. PELTON: It's just a couple of days of work. It's not, like, we were going to open up ten thousands cubic yards and it's going to be open for the use of your tenants for weeks.

AUDIENCE MEMBER: You've been working on this for months, years. And I have a lot to learn. I appreciate the opportunity to meet with you and

to have a tour with you. But, hopefully, we can keep the lines of communication open for when questions arise.

MR. PELTON: Of course.

MR. SERGOTT: Agreed. I agree with what Jason said. Our next phase of work will impact how much soil we will remove, with the lawn. I don't know if you've had a bad experience. You said you were given one hour's notice. I don't know if there was a miscommunication with you. But we strive to better keep you informed.

AUDIENCE MEMBER: As I do to you. If I receive something from you folks, I will do my best. I really appreciate that and anything else that I might or could ask, I think we should put in writing during the next week or so. The last thing I would like to share with you all, as an owner who lives in this community, I'm committed to being in the best -- (Inaudible) -- of property. We look forward to being as cooperative as we can. And not a thorn in your side. Thank you for the opportunity.

MR. LUO: Any other questions or comments?

(Whereupon, there were no further comments or questions.)

MR. LUO: No? All right. Okay. Thank you. That will conclude the meeting.

MR. PELTON: Thank you everyone for coming out tonight.

(Whereupon, the Hearing was concluded.)

* * * * *

C E R T I F I C A T E

STATE OF NEW YORK)
: SS.:
COUNTY OF ONEIDA)

C E R T I F I C A T E

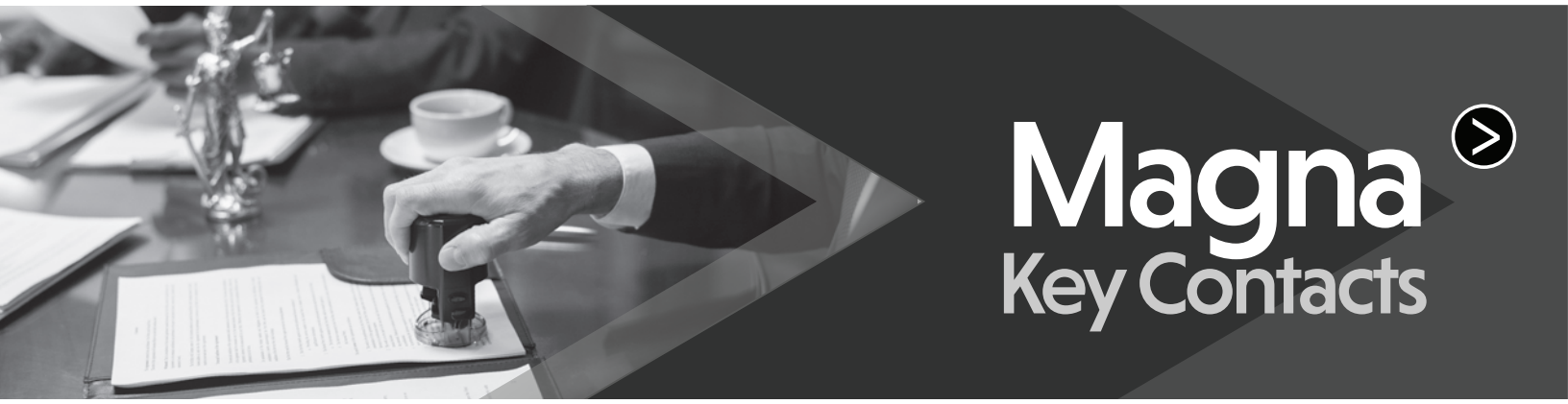
I, Cynthia Belmonte, a Notary Public and Court Reporter, in and for the County of Oneida, State of New York, do hereby certify that the foregoing is a true and correct transcript of the above-entitled matter.

Date: September 9, 2023

Cynthia Belmonte

Cynthia Belmonte

Court Reporter



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MAGNA
LEGAL SERVICES

OPERABLE UNIT 1 OF THE GENERAL MOTORS – INLAND FISHER GUIDE SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-d

WRITTEN COMMENTS RECEIVED DURING THE COMMENT PERIOD

PO Box 247
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RAVproperties.com
315.403.9000

August 25, 2023

Jacky Luo
New York State Department of
Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7013

RE: General Motors – Inland Fisher Guide Site (Site Code: 734057)
Proposed Remedial Action Plan for OU-1

Dear Jacky:

Please accept this letter as SIP Syracuse, LLC's ("SIP Syracuse") formal written comments on the Proposed Remedial Action Plan for OU-1. As you know, SIP Syracuse is the owner of the Salina Industrial PowerPark, which it purchased from RACER in August, 2020. These written comments are being offered in addition to those that I made at the public meeting held on August 16, 2023.

First and foremost, as I discussed at the public meeting, what is of paramount importance to SIP Syracuse is that there be a clear line of open communications between DEC, EPA, RACER and SIP Syracuse regarding the plans for remediation of OU-1. This is to ensure that, among other things, any remedial work is coordinated with us as the property owner, and to ensure there are no surprises that could adversely impact operations of the property or that could complicate SIP Syracuse's relationship with its tenants. As you know, SIP Syracuse has made a tremendous investment of capital and time to ensure the continued success of the Salina Industrial PowerPark and has been an exemplary cooperative owner and steward of the property. In fact, earlier this month we were honored with the 2023 RACER's Edge Award in recognition of our investment and stewardship of the Salina Industrial PowerPark. Yet, in the PRAP, SIP Syracuse, LLC, or simply "the Owner," is not identified, nor are we mentioned on page 20 of the PRAP as a party to be coordinated with during implementation of the remedy.

While we look forward to the continued remediation of the property, we ask that we be provided with the courtesy of open communications, including advanced pre-publication access to proposed remediation documents to allow for our meaningful review and comment before they are issued publicly. That way we can provide relevant input regarding potential impacts to the property and/or speak with our tenants, if necessary, before they learn of something that may cause concern. As I explained, this did not happen with the PRAP. Despite assurances that we would be provided with an advanced copy, we only received it about an hour before it was released for public comment. We hope and expect that can be avoided in the future.

With that said, we offer the following comments and questions on the PRAP for consideration and response by DEC and EPA.

1. Soil Excavation

In our review of the PRAP, it is ambiguous as to the full extent of the soils to be excavated as part of the Preferred Alternative. The discussion of excavation associated with Alternative 4 mentions "approximately 38 CY of unsaturated soil would be excavated" on page 22 of the PRAP, but earlier on page 8 of PRAP it mentions "1500 CY of material is to be removed." While certain clarification was offered at the public meeting, we would prefer written confirmation of this important issue. Please clarify and confirm the total volume of excavation associated with the Preferred Alternative.

Also, please clarify how excavated soils will be handled. Please explain how the excavation process is intended to occur and whether excavated soils will be stockpiled on-site or hauled directly to an authorized disposal site. If the soils are proposed to be stockpiled on-site prior to disposal, please clarify where the soils are proposed to be stockpiled and for how long. It is important to operations of the site that soils not be stockpiled in any area that could interfere with tenant and visitor use of the property. If the soils are to be stockpiled, please also advise as to the procedures and protections to be implemented to avoid exposure to persons and the environment and what measures will be put into place to avoid issues relating to stormwater runoff, for example. Any excavation should be done at a time to minimize impacts to tenants, visitors and overall use of the property.

2. Horizontal Wells/Directional Drilling

While the Preferred Alternative discusses the installation of horizontal wells and need for directional drilling, there are few details offered. We understand that certain details will be developed during the Remedial Design phase, but in order to fully understand the potential impacts we ask that additional details be provided to the extent they are available at this time. For example, the PRAP contains no details regarding the proposed locations and methods for well development and directional drilling. Please provide at least possible locations for review and anticipated/conceptual methods for directional drilling and well development.

With any horizontal well development or directional drilling occurring near, at or under the building, potential impacts to the building structure, foundational components, underground utilities and other subsurface features are a concern. Please provide information regarding the steps that will be taken to ensure that there will be no adverse impacts to the building, foundation, utilities or subsurface as a result. We would request that a geotechnical investigation be performed during the RD phase to avoid any potential issues.

3. "Potential Adverse Impacts"

Page 19 of the PRAP contains a discussion regarding "potential adverse impacts" associated with the Preferred Alternative. Please elaborate on this discussion so that we can understand the full scope of "potential adverse impacts" to the property, tenants, and other visitors to the property and what steps will be taken to specifically mitigate these potential impacts. Along these lines, we want to be sure that any property damage that may occur during the course of the implementation of the remedy will be satisfactorily repaired and restored at no cost to SIP Syracuse. Please confirm.

4. Collection and Treatment of Contaminated Groundwater

The PRAP contains a general discussion regarding how the Preferred Alternative will involve the collection and treatment of contaminated groundwater, but there are few details provided. There is a discussion in the PRAP regarding how contaminated groundwater will be collected and treated at the existing SPDES water treatment system (PRAP, p. 22). Please provide details on how the existing pond system will be designed and modified to accommodate this additional need for capacity associated with the collection of contaminated groundwater. Currently, it is questionable that the existing SPDES pond system has sufficient capacity now to accommodate stormwater. In fact, it has been increasingly observed during times of heavy rainfall that the stormwater ponds have nearly overflowed, causing backups in the piping which, in turn, causes flooding concerns that could be exacerbated as part of the proposed remedy. Please explain what will be done to address our current concerns, and potential future issues during implementation of the remedy.

5. Environmental Easement

Please clarify whether the existing Environmental Easement is proposed to be modified. Please provide information as to anticipated changes and how it may impact use/operations (i.e., tenant restrictions or notifications) of the property.

We reserve our right to submit additional comments on the Environmental Easement when it is available in draft form.

6. Site Management Plan

Please provide additional information regarding anticipated contents of the SMP including how it may impact use/operations of the property.

We reserve our right to submit additional comments on the SMP when it is available in draft form.

7. Remedy Design and Implementation

Please clarify the next anticipated personnel, contractors, steps and timeframes associated with design of the remedy and implementation of the remedy. Please also clarify when DEC and EPA anticipate sharing additional documents related to design and implementation of the remedy for our review and comment.

Thank you for having hosted the August 16th public comments meeting, and for the opportunity to submit these comments and questions regarding the PRAP. Please include this comment letter as part of the record of DEC and EPA's consideration of the PRAP and remedial alternative selection. We look forward to receiving DEC and EPA's responses.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Robert Lieberman
Managing Member