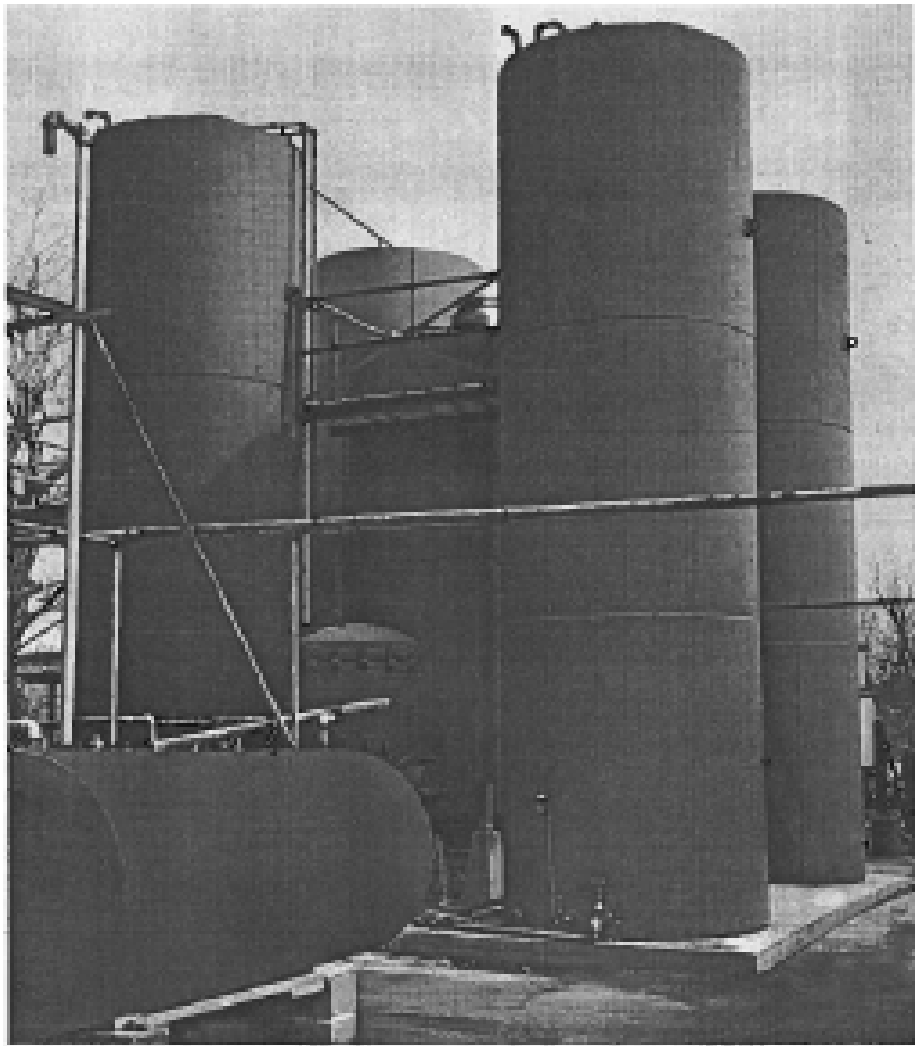
REMEDIAL ACTION REPORT
FOR
REMEDIATION OF SOIL CONTAMINATION
MACKENZIE CHEMICAL WORKS SUPERFUND SITE
CENTRAL ISLIP, NY
EPA CERCLIS ID NUMBER: NYD980753420



United States Environmental Protection Agency
Region II
New York, New York
September 2020

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INTRODUCTION

This Remedial Action Report (RAR) documents the completion of the remediation of soil contamination at the MacKenzie Chemical Works Superfund, site located in Central Islip, Suffolk County, New York. The RAR was prepared by Environmental Protection Agency (EPA) staff, consistent with the requirements of EPA's *Closeout Procedures for National Priorities List Sites* (OSWER Directive 9320.2-22, May 2011).

The soil remediation, which was performed from 2006 through 2020, consisted of soil vapor extraction (SVE) to address subsurface volatile organic compound (VOC)-contaminated soil and limited excavation to address residual VOC- and semi-volatile organic compound (SVOC)-contaminated soil. These efforts were consistent with EPA's March 2003 Record of Decision (ROD) for the site as modified by Explanation of Significant Differences (ESDs) issued in July 2011 and September 2020.

I. BACKGROUND

Site Location and Description

The MacKenzie Chemical Works site is located in a residential/light commercial area encompassing approximately 1.4 acres. The property originally contained numerous buildings and structures, including three one-story block buildings (a former manufacturing building and two warehouses) and a two-story block building (a former laboratory/warehouse), all of which have been recently removed. The property is bounded to the north by the Long Island Rail Road and commercial properties, to the east by a residential property and an abandoned parking lot, to the south by Railroad Avenue and residential properties, and to the west by Cordello Avenue and vacant land. See **Appendix A, Figure 1**, for the site layout.

The local topography surrounding the site consists of relatively flat terrain with a very slight southerly downward slope (*i.e.*, a difference in elevation of approximately 70 feet over several miles). Subsurface features reportedly included two former concrete-lined waste lagoons (backfilled with clean soils), at least one cesspool, and at least nine storm-water drywells. Surficial geology is comprised of one to two feet of topsoil/fill underlain by the sand and gravel of the upper geologic unit. Depth to groundwater is approximately 50 feet below ground surface (bgs). Local groundwater flow at the site moves south to southeast. No surface water bodies exist at or near the site. There are no streams or stream-cut channels at or near the property. The nearest surface water bodies are Champlin Creek, which is located over a mile south of the

property and the Connetquot River, which is located approximately two miles east of the property.

There are three primary water-bearing aquifers underlying Suffolk County, comprising a federally-designated sole source of drinking water for Long Island. Therefore, groundwater in the vicinity of the site is a potential source of drinking water. The only known private well near or downgradient of the property is located on a residential property that is hydrologically sidegradient. Sampling of this well has shown that it is not impacted by site-related contaminants. The nearest municipal drinking water supply well is located approximately 3,500 feet southeast of the property (well beyond the contaminant plume) and is screened at a depth of 710 feet bgs.

The property, which has been used for industrial/commercial purposes since 1948, is presently zoned industrial; according to the Town of Islip Department of Planning and Development, it is not anticipated that the land use will change in the future.

Site History

The property was used from approximately 1948 to 1987 for the manufacture of various chemical products by MacKenzie Chemical Works, Inc. (MCW), including fuel additives and metal acetylacetonates. Over the years of operation, the Suffolk County Department of Health Services (SCDHS) and the Suffolk County Fire Department documented poor housekeeping and operational procedures. According to SCDHS, MCW stored 1,2,3-trichloropropane (1,2,3-TCP) in three 10,000-gallon tanks on the property. Other potential historical waste sources include other storage tanks[1], leaking drums, two waste lagoons, a cesspool, and storm-water drywells. Spills, explosions, and fires occurred at the facility, including a methyl ethyl ketone (MEK) spill in 1977, a nitrous oxide release in 1978, and an MEK fire in 1979. Based on these and other events, SCDHS ordered MCW to perform a general property cleanup, including the excavation and drumming of stained surface soils. This effort was completed in 1979.

Based on a 1983 assessment conducted by EPA, MCW arranged for the disposal of thirty-three drums of stained surface soils (from the 1979 cleanup effort) and twenty-two drums of liquid wastes. MCW operations at the property ceased in 1987. In 1993, SCDHS installed nine downgradient temporary well points in order to assess the horizontal and vertical extent of groundwater contamination. The results of the SCDHS effort indicated the presence of elevated levels of 1,2,3-TCP, tetrachloroethylene (PCE), and trichloroethylene (TCE) in downgradient groundwater. In 1993, New York State Department of Environmental Conservation (NYSDEC) completed an investigation of the property. The results of the NYSDEC effort indicated the presence of elevated levels of 1,2,3-TCP, PCE, and TCE in on-site soils and groundwater. Semi-volatile organic compounds (SVOCs) were detected in on-site soils.

In January 1998, NYSDEC commenced a remedial investigation and feasibility study (RI/FS) to determine the nature and extent of contamination at and emanating from the property and to

[1] All tanks associated with MCW operations were decommissioned. Most were scrapped in the 1990s.

identify and evaluate remedial alternatives. During this investigation, NYSDEC emptied the two concrete-lined and intact waste lagoons of all soil and sludge materials and backfilled them with clean soils. The excavated material was disposed of at an appropriate waste-receiving facility. In June 1999, based on the preliminary findings of the RI, NYSDEC requested that EPA take a response action at the property. In response to NYSDEC's request, EPA collected groundwater samples from off-property monitoring wells, two municipal supply wells, and one private well in April 2000. Based upon the results of this investigation, EPA concluded that immediate actions were not required, but remedial actions should be considered to address potential long-term threats. NYSDEC completed the RI/FS in August 2000.

The site was proposed for inclusion on the National Priorities List (NPL) in June 2001; it was listed on the NPL in September 2001. Based upon the results of the RI/FS, in March 2003, EPA signed a ROD, selecting a remedy for the site. The key components of the selected remedy included treatment of the unsaturated soils exceeding New York State Technical and Administrative Guidance Memorandum No. 94-HWR-4046 (TAGM) objectives for VOCs using thermally-enhanced SVE, excavation and off-site disposal of approximately 100 cubic yards of SVOC-contaminated soils exceeding TAGM levels, demolition, decontamination, as necessary, and off-site disposal of the laboratory building, treatment of the contaminated groundwater using in-situ chemical oxidation (ISCO) (*e.g.*, air sparging with ozone injection), long-term groundwater monitoring, institutional controls restricting the installation and use of groundwater wells at and downgradient of the property until groundwater quality has been restored, and engineering controls, such as fencing and signs, to protect the integrity of the remedy and to limit facility access until cleanup levels have been attained. The ROD also identified a contingency remedy for the soil (excavation and off-site treatment/disposal of the contaminated soils) and a contingency remedy for the groundwater (treatment using a permeable reactive barrier) should treatability studies show that the selected remedies would not be effective.

A 2003 investigation delineated the treatment zone for the 1,2,3-TCP source area and established baseline conditions. During this investigation 1,2,3-TCP was found to be present in the source area at levels much higher than reported in previous investigations. 1,2,3-TCP was present at levels over 400,000 micrograms per liter (µg/L) in unsaturated soil in the source area (*i.e.*, in the former area of a leaking 1,2,3-TCP storage tank) and present at over 100,000 µg/L in the saturated soil. The highest 1,2,3-TCP level reported at this time in downgradient monitoring wells was from the closest shallow well to the source area where 14,000 µg/L was reported.

From October 2003 to December 2004, Removal Action contractor, Earth Tech, Inc., performed treatability studies related to the SVE remedy. During the treatability studies, it was determined that thermal enhancement of the SVE system was not necessary to achieve the established cleanup goals. In addition, based on the results of an air sparging and ozone injection field study performed in 2006, it was concluded that this particular oxidation technology was insufficient to effectively remediate the groundwater. Laboratory and field testing of an alternative-oxidation technology was performed, resulting in the successful deployment of ISCO using persulfate for the treatment of the groundwater. The soil and groundwater remedies were modified accordingly. These remedy modification decisions were documented in a July 2011 ESD.

The buildings were demolished in 2004 and 2006. Full-scale deployment of ISCO occurred in 2006.

II. CONSTRUCTION ACTIVITIES

2006 SVOC Soil Excavation

In August 2006, Earth Tech excavated approximately 20 cubic yards of SVOC-contaminated soils that exceeded the TAGM objectives. The excavated soils were stockpiled and subsequently removed from the site to an EPA-approved facility in Suffolk County.

SVE

Full-scale operation of the SVE system commenced following the successful completion of the treatability studies. The SVE system was expanded in summer 2006 to include contaminated soils around and underlying the slabs of two former on-site buildings (the buildings had been demolished, leaving only the slabs). The expanded system was brought on-line in September 2006. There were seventeen soil-vapor extraction wells utilized in the source area (see **Appendix A, Figure 2**). Soil vapors from the SVE system were piped, in series through two carbon vessels filled with 2,000 pounds each of vapor-phase activated carbon before being released to the atmosphere. Carbon change-outs occurred initially every 3 months for approximately one year and then approximately every 1.5 to 2 years. SVE vacuum, flow, VOC, and other readings were collected regularly. VOC, oxygen, carbon monoxide, hydrogen sulfide, and lower explosive limit readings were measured directly from the SVE wells. Total influent flow rates averaged approximately 480 cubic feet per minute. Individual well flows varied depending on the total number of wells open. The system was shut down occasionally for general maintenance, during post-ISCO injection periods, and during holiday periods.

The SVE system ran continuously in the source area from its full-scale deployment in 2004 until February 2010. Thereafter, until August 2020, the system operated on a part-time basis (6:00 pm – 6:00 am) as part of an optimization strategy that integrated more efficient contaminant recovery with energy conservation, while taking advantage of discounted night-time electricity rates.

2013 Confirmation Soil Sampling

The effectiveness of the soil treatment was first evaluated in July 2011 by comparing baseline- and treated-soil sampling results. Baseline soil sampling was performed in 2006 and treated-soil sampling was performed in 2009. The evaluation at that time indicated that the source treatment had reduced the overall contaminant mass within the source area by greater than 92 percent. Specifically, the data showed substantial reductions of 1,2,3-TCP concentrations throughout the source area. In the 2004 soil-sampling data set, levels of 1,2,3-TCP greater than 5.0 milligrams per kilogram (mg/kg) were common and were encountered as high as 530 mg/kg. In 2009, only one sample collected within the source area had levels of 1,2,3-TCP above 5.0 mg/kg and that

sample was collected at a depth of 20 to 24 feet bgs. While favorable, the conclusion based on the data was that the SVE and ISCO efforts should continue in the source area.

Comprehensive source-area soil sampling was conducted following the 2012 ISCO persulfate-injection event in January 2013. Samples were collected at multiple locations and multiple depths from the ground surface down to the water table (approximately 50 ft bgs). The 1,2,3-TCP soil cleanup objective for the site is 0.4 mg/kg. With one exception, samples collected from the sandy vadose-zone source-area unit (5 to 50 feet bgs) were either not detected (ND) or were below the 0.4 mg/kg cleanup goal; the lone exception was a concentration of 0.48 mg/kg for 1,2,3-TCP at 14 feet bgs. The SVE system was returned to service upon completion of the soil-boring effort in order to address the 0.48 mg/kg and to remove any additional residual subsurface contamination that might be present.

In the shallow-fill unit (0 to 5 ft bgs), seven of 12 locations were below the 0.4 mg/kg cleanup goal. The range of concentrations of 1,2,3-TCP in the remaining five shallow locations was 0.57 to 14 mg/kg. This indicated that the upper lower-permeability anthropomorphic-fill strata was retaining levels of 1,2,3-TCP at levels above the cleanup goal and that this upper unit was not responding to the SVE. Sampling on a grid to delineate the presence of 1,2,3-TCP was initiated in November 2017. A total of 34 locations were sampled in the 0-5 ft bgs zone as part of this effort. Evaluation of the data led to a follow up grid delineation effort in October 2019 where an additional 51 locations were sampled in the 0-5 ft bgs zone. Collectively, the 2017/2019 surface-soil sampling effort provided the information needed to proceed with the removal of residual surface soils above the source area containing 1,2,3-TCP levels above the soil cleanup objective for the site is 0.4 mg/kg

See **Appendix A, Figure 3** for a layout of the 2013 soil borings and the soil-sampling results.

2020 Supplemental Excavation

While the SVE system was highly effective in removing VOCs from the sandy soils that are located from 3 to 5 ft bgs down to the water table (approximately 50 ft), it was not as effective in treating the tighter soils located from the surface down to 3 to 5 ft bgs. These soils, which were less permeable than the soils at depth, were likely fill material. A September 25, 2020 ESD documented EPA's decision to address the VOC-contaminated soils that were not treated through the operation of the SVE system by excavation and disposed off-site, consistent with the contingent remedy.

Mobilization for the residual surface-soil excavation began on August 17, 2020 and excavation began shortly thereafter. A total of approximately 1,800 tons of residual surface soil above the cleanup goals was removed from the source area. The excavation was driven by pre-delineation results with post-excavation confirmation sampling, per NYSDEC DER-10, and was completed on September 17, 2020. Excavated soils were shipped to an EPA- and NYSDEC-approved off-site facility.

The designated areas of excavation were delineated by the 2017/2019 soil sampling events (see **Appendix A, Figure 4**).

The EPA OSC verified the marked-out boundaries of the excavation.

Excavation of the contaminated soils was performed from August 18, 2020 to September 15, 2020. Post-excavation sampling results from EPA's Philis Laboratory showed all of the results below the site TCP cleanup goal of 0.4 mg/kg. Approximately 1,800 tons of contaminated soil was removed for disposal at Posillico Materials, LLC, Farmingdale, NY, a Comprehensive Environmental Response, Compensation, and Liability Act-approved facility.

See **Appendix B**, below, for a summary of the excavation and disposal work.

Community Air Monitoring Program

A community air monitoring program was performed throughout the excavation effort. No dust or vapor exceedences were recorded, beyond normal operational procedures and exceedances (*i.e.,* heavy equipment exhaust, dust from clean fill, *etc*.), which were mitigated as encountered.

Engineering and Institutional Controls

The site has been fenced in order to protect the integrity of the remedy and to limit facility access until cleanup levels have been attained.

Institutional controls restricting the installation and use of groundwater wells at and downgradient of the site until groundwater quality has been restored are present in the form of existing restrictions limiting the use of groundwater as a potable or process water, as required by SCDHS.

Redevelopment

The property, which has been used for industrial/commercial purposes since 1948, is presently zoned industrial. According to the Town of Islip Department of Planning and Development, it is not anticipated that the land use will change in the future. At the completion of all remedial activities, it is anticipated that the entire 1.4 acres will be available for industrial/commercial redevelopment.

III. CHRONOLOGY OF EVENTS

A chronology of major events related to the soil remedy, starting with the signing of the ROD, is presented below:

Date	Event
2003	ROD signed
2003	Begin design of SVE

2004	SVE treatability studies performed
2004 - 2005	Start of SVE full-scale operation.
2004 & 2006	Buildings demolition
2006	SVOC-contaminated soils excavation
2006	Groundwater Interim Remedial Action Report approved
2006	Preliminary Groundwater Close-Out Report approved
2011	ESD
2012	Source-area SVE soil confirmation sampling
2017	Phase 1 Supplemental surface-soil sampling effort
2017	Phase 2 Supplemental surface-soil sampling effort
2019	Phase 3 Supplemental surface-soil sampling effort
2020	ESD
2020	Supplemental surface-soil excavation effort

IV. PERFORMANCE STANDARDS AND CONSTRUCTION QUALITY CONTROL

Quality assurance of the project was performed by EPA during the construction of the remedy and during all other field work. All work adhered to approved plans and specifications. All work met the required federal, state, and local building codes and was completed on schedule.

Remediation Objectives	Performance Results
Mitigate the potential for contaminants to migrate from soils and drainage structures on the property into groundwater.	The successful deployment of SVE along with the completion of the supplemental excavations has led to the attainment of cleanup goals in surface and subsurface soils.
Reduce or eliminate any direct contact, ingestion, or inhalation threat associated with contaminated soil on the property.	The completion of the supplemental excavations and the attainment of cleanup goals in surface and subsurface soils has reduced or eliminated direct contact, ingestion, and inhalation threats associated with contaminated soil on the property.

For the SVE of subsurface soils, samples from the 2012 confirmation source-area soil-boring effort (5-50 ft bgs) showed the attainment of the 0.4 mg/kg cleanup goal in all but one sample (0.48 at 14 ft bgs at boring SS006)(see **Appendix A, Figure 3**). By 2018, continuation of the SVE in this area had reduced this contamination to below the cleanup goal.

For the excavation of surface soils, the goal of the supplemental excavations was the removal of soils that exceed the TAGM cleanup concentration of 0.4 mg/kg in the 0-5 ft bgs zone of the source area and disposal at an approved off-site facility. To this end, soil samples were analyzed at a New York State ELAP-approved laboratory for TCP and several SVOCs by analytical methods 8260 and 8270, respectively. Post-excavation and, prior to backfilling, confirmatory samples were collected from the excavation sidewalls and bottom per DER-10. Cleanup goals were attained throughout the excavation areas. A total of 1,800 tons of soil with elevated TCP levels were removed from the 0-5 ft zone of the source area. Soils removed during the supplemental excavations were disposed of at an approved off-site facility.

Certified clean fill was used to finish the excavations.

All work was conducted in accordance with the health and safety plan, quality assurance project plan, and sampling plan. No substantial problems or deviations were identified related to performance of the SVE or supplemental excavations.

V. FINAL INSPECTION AND CERTIFICATIONS

Inspections

On September 29, 2020 a final inspection was conducted. EPA, Weston Solutions, Inc., and Environmental Restoration LLC personnel were on-site for this inspection. No punch list items were noted. The property remains secure and is in good condition. The project was completed to the satisfaction of EPA and NYSDEC. With the SVE and ISCO facilities removed, the excavations complete, all contaminated materials removed from the site, emplacement of certified-clean fill, and the property otherwise secure, no other tasks are required.

Health and Safety

No health or safety problems were encountered during construction, operation, or excavation. Modified Level D personal protective equipment was required for all site personnel.

Summary

Based upon the data and observations, as documented in previous letters and reports, it has been determined that the soil remedial action for the MCW site has been completed in conformance with the project plans and specifications as approved by EPA Region 2. See **Appendix C**.

VI. OPERATION & MAINTENANCE ACTIVITIES

With completion of active treatment measures, O&M activities will focus on maintaining existing facilities (*e.g.*, fencing, monitoring wells, *etc*.) and on ensuring institutional controls remain in effect. The site will be inspected periodically to ensure secure conditions are maintained and that all facilities are in proper working order. Monitoring wells at, and downgradient from, the site will be sampled regularly until it is determined that site-related groundwater contamination is below the cleanup goals. No potential problems or concerns with these activities are anticipated.

VII. CONTACT INFORMATION

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MacKenzie Chemical Works Site Data Visualization, MacKenzie Chemical Works Site, Central Islip, New York, USEPA, August 2015.

MacKenzie Chemical Works Site Data Visualization Update, MacKenzie Chemical Works Site, Central Islip, New York, USEPA, March 2017.

Record of Decision, MacKenzie Chemical Works Site, Central Islip, New York, USEPA, March 2003.

APPENDIX A
FIGURES

Figure 1: MacKenzie Chemical Works – Site Layout with Nearby Monitoring Wells

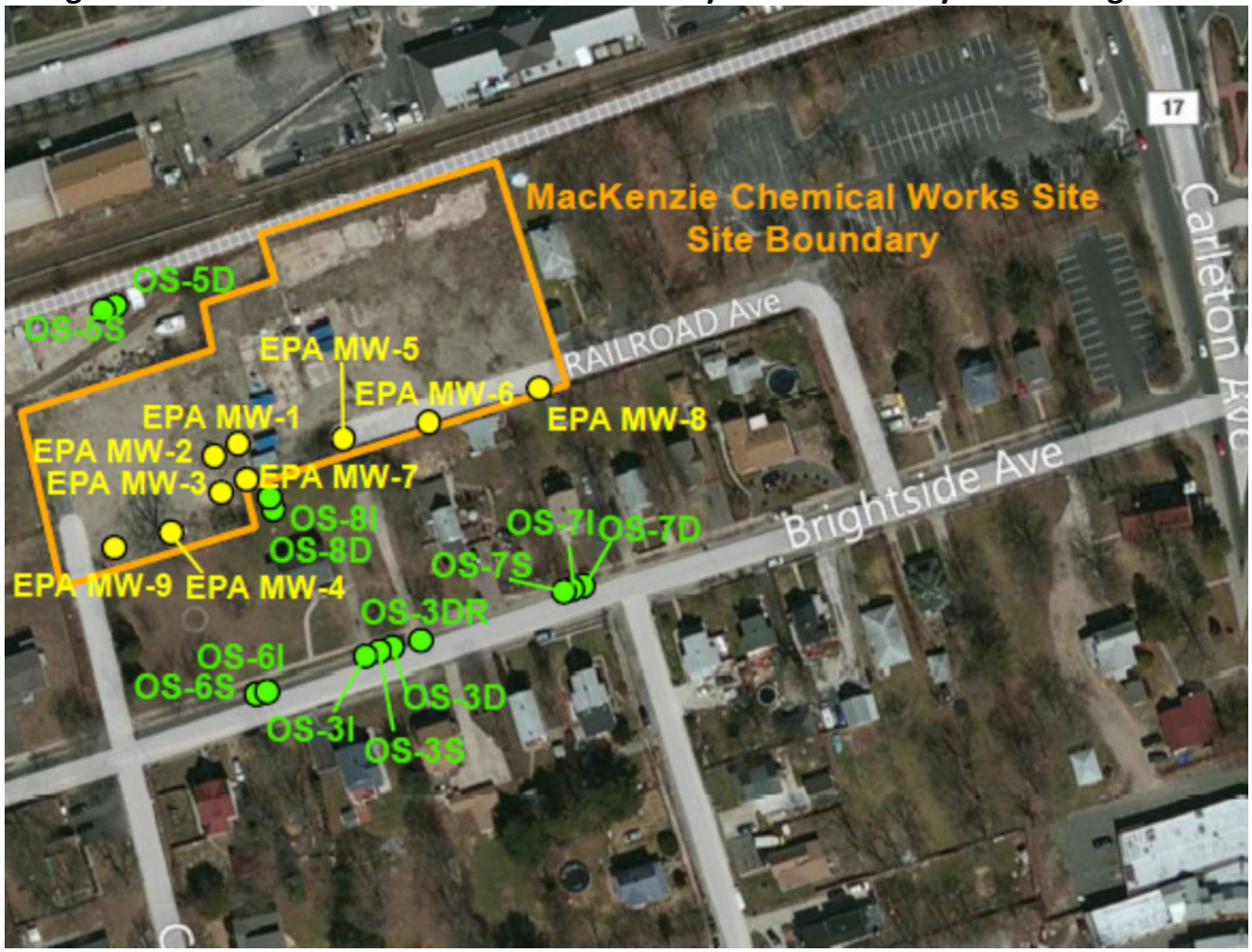


Figure 2: MacKenzie Chemical Works – *In-situ* Soil-Vapor Extraction System

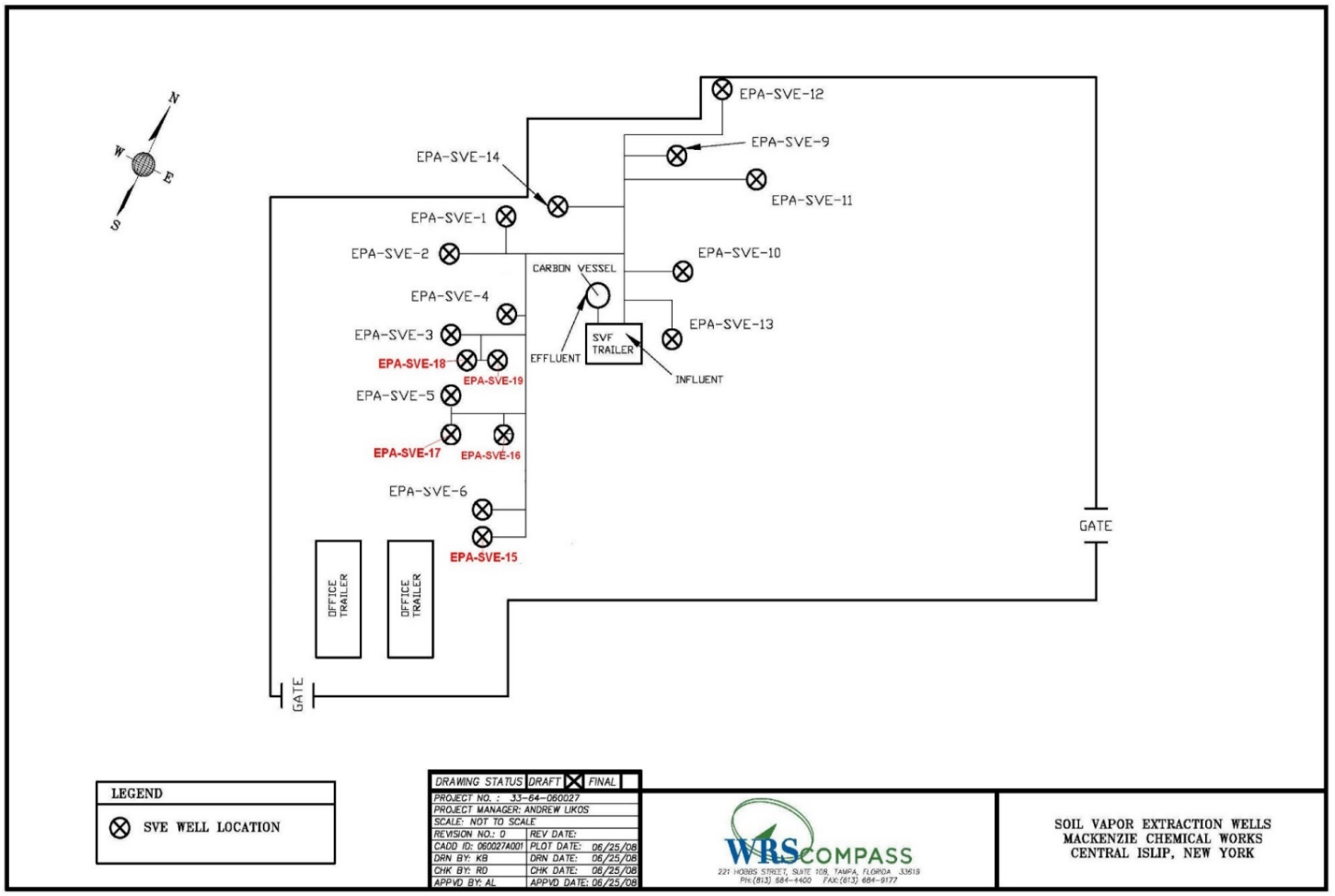


Figure 3: MacKenzie Chemical Works – February 2013 Post-ISCO Soil Sampling Data

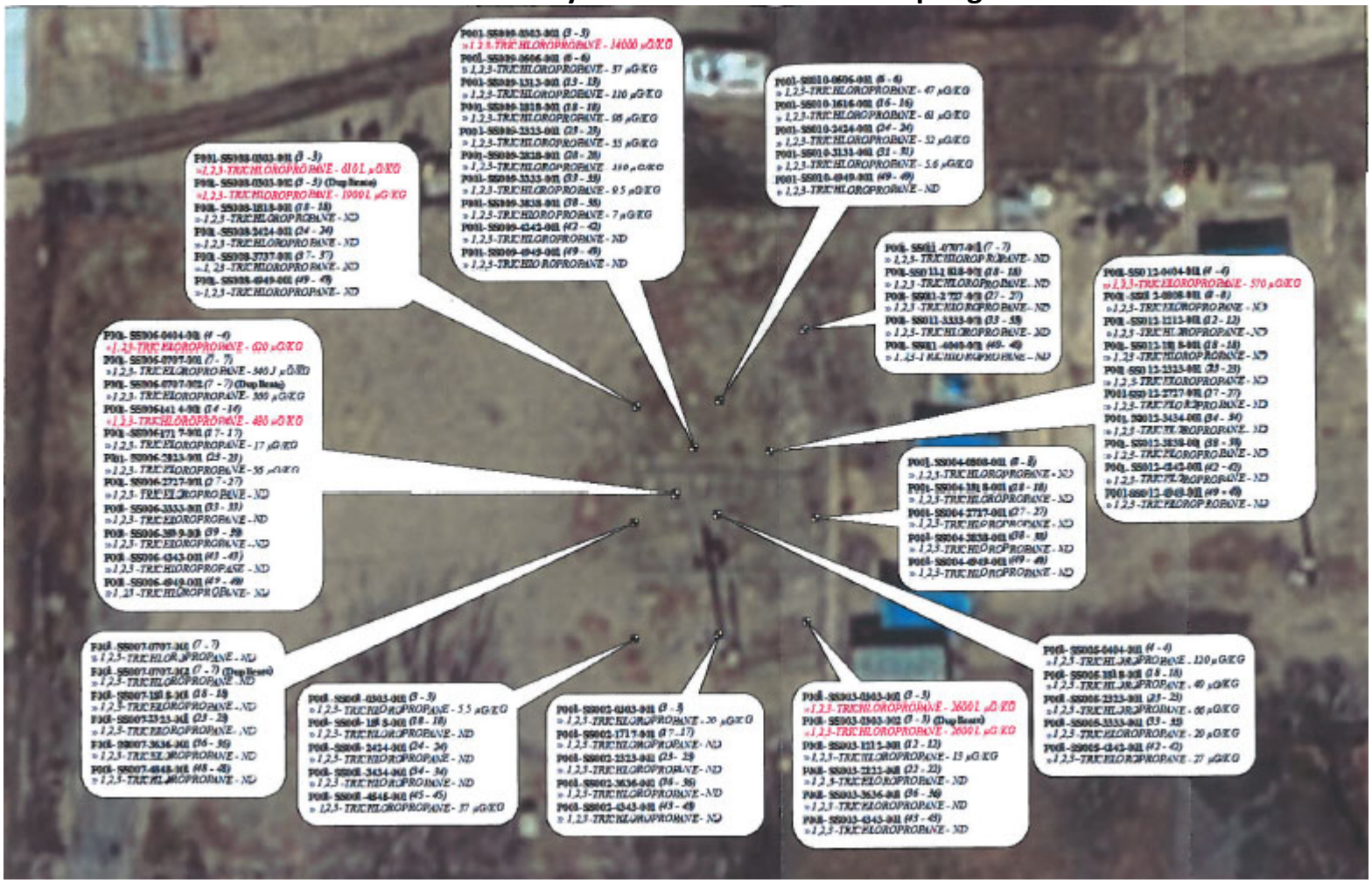
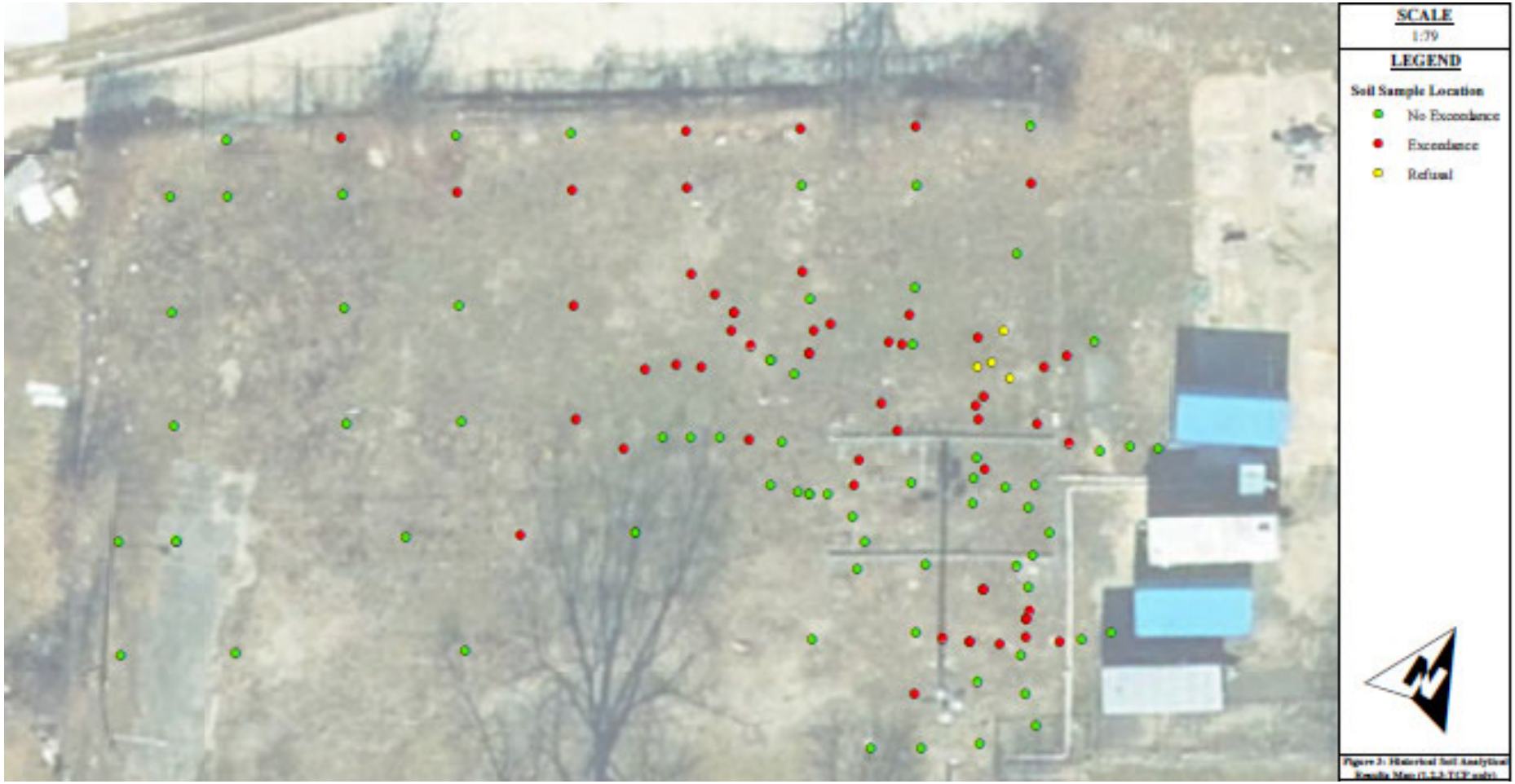


Figure 4: MacKenzie Chemical Works – 2017/2019 Surface Soil Characterization Data



APPENDIX B
EXCAVATION AND DISPOSAL OPERATIONS

Pre-Soil Excavation Activities

Prior to mobilizing to the site, Removal Action contractor Environmental Restoration, LLC (ER) completed the procurement of laboratories for disposal characterization of contaminated soil, and clean fill.

On August 17, 2020, ER mobilized personnel and equipment to the site. At that time, the heavy equipment was delivered on-site (excavator, front-end loader, skid steer, excavator with hammer attachment, brushhog and 6k Lull forklift), with port-a-johns and 20-cubic yard general waste dumpster.

ER initiated site clearance of overgrown vegetation and dismantled the SVE system piping. The majority of the piping was discarded due to its age and wear (UV deterioration), with the exception of any valves and couplings that were in usable condition. These were placed inside the SVE system container while piping from the two vapor- phase carbon vessels was also removed and all openings in the vessels were covered and secured in preparation for transport off-site. ER personnel decommissioned the SVE wells by pulling out and backfilling with sand/bentonite.

Utility clearance was performed and completed.

August 18 - 21, 2020

On August 18, 2020, ER completed the set-up of the decontamination area and soil staging area on an existing cement slab, east of the excavation area.

Removal Action START contractor, Weston Solutions, Inc., completed the stationing of the DustTrak units (particulate monitors) upgradient and between the site and residential homes. These units were stationed every day during excavations activities. The data from the DustTraks was downloaded directly to the command trailer for monitoring during site operations. ER sets up fire hose to local hydrant (permit received from Suffolk County) to perform dust suppression during excavation operations.

ER began test trenches within the delineated excavation area to identify the extent of a buried cement slab, which was indicated during sampling activities. With this completed, ER began excavation of all soil above the cement slab.

On August 19, 2020, ER continued operations to identify the extent of the slab, and to scrap and stockpile all soil above it. ER continued set-up of stockpile area for contaminated soil.

An electrician disconnected the power to the former SVE system and connected power to the site operations trailers.

On August 20, 2020, ER began excavation of high TCP soil areas (no cement slab identified) in the northwest quadrant of the excavation in order to get representative soil samples for disposal characterization. This stockpiled soil is designated SP-1. Excavation was approximately to a 3- to 5-foot depth determined by investigation sampling results and field screening of the material.

Additional unidentified areas of slab were found, requiring the removal of soil above the slab which was stockpiled to the potential clean pile for testing.

On August 21, 2020, ER continued soil excavation in the northwest and southwest quadrant of the excavation. ER began breaking up and stockpiling of concrete slab from the northeast/southeast quadrants.

Approximately 400 tons of contaminated soil and 200 tons of potential clean fill (based upon analysis) was stockpiled by August 21, 2020.

August 24 - 28, 2020

On August 24, 2020, ER continued soil excavation in the northwest and southwest quadrant of the excavation and breaking up and stockpiling of concrete slab from the northeast/southeast quadrants.

Four loads of 2-inch stone to spread and compact on the eastern portion of the site in preparation for future loading of disposal trucks was delivered.

On August 24, 2020, the Weston Solutions, Inc. collected post-excavation samples for VOCs from the northwest/southwest quadrants, center area, consistent with NYSDEC guidelines, *i.e.,* sidewalls and bottom, and shipped it to the EPA Philis laboratory for analyses.

On August 24, 2020, ER and Weston Solutions, Inc. took representative composite samples from the contaminated stockpile (SP-1 & SP-1A); potential clean pile (BF-1); and crushed concrete (CONC) sampled for disposal characterization, i.e., pH, Flashpoint, Total RCRA 8 Metals, Total PCBs, Reactive Cyanide/Sulfide, Total VOCs/SVOCs, Total and TCLP Pesticides/Herbicides, TPH, and TCLP VOCs/SVOCs analyses.

Between August 25 - 26, 2020, ER concentrated on breaking up and stockpiling of concrete slab from the northeast/southeast quadrants. A drywell is found in the northeast quadrant. The cement was carefully removed around the drywell to preserve its integrity.

Eight additional loads of 2-inch stone were delivered to spread and compact on the eastern portion of the site in preparation for future loading of disposal trucks.

On August 26, 2020, ER received post-excavation sampling results from the Philis Laboratory, for the northwest/southwest quadrants, center area, with all analysis results below the 0.4 mg/kg TCP action level.

On August 26, 2020, ER received the results of disposal characterization from representative composite samples taken from the contaminated stockpile (SP-1 & SP-1A), potential clean pile (BF-1), and crushed concrete sampled for disposal characterization. The results indicated that SP-1 and SP-1A were all nonhazardous for disposal, the potential clean pile (BF-1) was nonhazardous, but contained TCP above the 0.4 mg/kg action level (must be disposed); and the crushed concrete was nonhazardous and non-detect for all compounds.

On August 26, 2020, Weston Solutions, Inc. collected post-excavation samples for VOCs from the full northwest/southwest quadrants.

Between August 27 - 28, 2020, ER continued breaking up and stockpiling of concrete slab from the northeast/southeast quadrants and began soil excavation in the northeast and southeast quadrant of the excavation. This excavated material was stockpiled and staged in a new pile, designated SP-2.

On August 28, 2020, ER received post excavation sampling results from the Philis Laboratory, for the full northwest/southwest quadrants, with all analysis results below the 0.4 mg/kg TCP action level.

Approximately 1,300 tons of contaminated soil was stockpiled by August 28, 2020.

August 31 – September 4, 2020

On August 31, 2020, ER continued soil excavation in the northeast and southeast quadrant of the excavation at one-foot increments of visible/screened contaminated soil. This excavated material was stockpiled and staged in SP-2.

Between August 31 and September 1, 2020, ER and Weston Solutions, Inc. took representative composite soil samples from the second contaminated stockpile (SP-2) for disposal characterization, *i.e.,* pH, Flashpoint, Total RCRA 8 Metals, Total PCBs, Reactive Cyanide/Sulfide, Total VOCs/SVOCs, Total and TCLP Pesticides/Herbicides, TPH, and TCLP VOCs/SVOCs analyses; and to evaluate clean fill sources, East Coast Mining (ECM-BF) and Posillico Materials (POS-BF), *i.e.,* TCL VOCs, TCL SVOCs, TAL Metals, Pesticides, Herbicides, PCBs, Reactivity, and DRO/GRO.

On September 1, 2020, Weston Solutions, Inc. collected post-excavation samples for VOCs from the northeast/southeast quadrants and shipped them to the EPA Philis laboratory for analysis.

On September 3, ER received post excavation sampling results from the Philis Laboratory for the northeast/southeast quadrants, with all analysis results below the 0.4

mg/kg TCP action level, except for one exceedance in the center and one northeast sidewall.

On September 3 - 4, 2020, ER excavated soil in a small area south of the main excavation area, near a telephone pole and between monitoring wells, MW-1 and MW-2.

September 8 – 10, 2020

On September 8, 2020, ER continued soil excavation in the northeast and southeast quadrant of the excavation at one-foot increments based upon post-excavation results and visible/screened contaminated soil.

On September 9, 2020, ER received the results of disposal characterization from representative composite soil samples taken from the second contaminated stockpile (SP-2); and clean fill sources, East Coast Mining (ECM-BF) and Posillico Materials (POS-BF). Results indicate SP-2 is nonhazardous for disposal, and both clean fill sources are non-detect for all compounds and available for backfilling material.

On September 9, 2020, with receipt of all certifications and insurance, ER approved Posillico Materials, LLC, a new, state-of-the-art, closed loop, soil washing facility identified and approved by NYSDEC for T&D.

On September 9, 2020, EPA continues soil excavation in the northeast quadrant of visibly contaminated purple soil (northeast corner) based upon post-excavation results and visible/screened contaminated soil.

On September 9, 2020, Weston Solutions, Inc. collected post-excavation samples for SVOCs for the entire large excavation. Sample locations are from the same VOC sampling points consistent with NYSDEC guidelines, i.e., sidewalls and bottom, and shipped to the EPA Philis laboratory for analysis.

September 14 – 17, 2020

On September 14, 2020, ER began loadout and off-site disposal of contaminated soil.

On September 14, ER received post excavation sampling results from the Philis Laboratory for SVOCs for the entire large excavation, with all analysis results below the NYSDEC 375 residential levels.

On September 15, 2020, Weston Solutions, Inc. collected post-excavation samples for VOCs and SVOCs from the small excavation area south of the main excavation and shipped them to the EPA Philis laboratory for analysis.

On September 17, ER received post-excavation sampling results from the Philis Laboratory for VOCs, with all analysis results below NYSDEC 375 residential levels and site TCP cleanup goal of 0.4 mg/kg.

With receipt of this final data, all post-excavation sample results indicate cleanup to below the 0.4 mg/kg cleanup goal.

By September 17, 2020, approximately 1,200 tons of soil was transported off-site for disposal.

September 21 – 24, 2020

On September 21, 2020, ER continued loadout and off-site disposal of contaminated soil.

By September 23, 2020, the final load of approximately 600 tons of soil was transported off-site for disposal.

T&D operations were completed with approximately 1,800 tons of contaminated soil removed for off-site disposal to a CERCLA approved facility.

On September 23, 2020, backfilling operations with certified clean fill began and was completed on September 29, 2020.

September 23, 2020

With receipt of analytical results which confirmed cleanup goals, approximately 1,800 standard tons of non-hazardous soil from the excavation areas were shipped to the off-site Posillico Materials, LLC, Farmingdale, NY, a CERCLA approved facility.

APPENDIX C
CERTIFICATION

MacKENZIE CHEMICAL WORKS SUPERFUND SITE
CENTRAL ISLIP, NY

CERTIFICATION OF SOIL REMEDIAL ACTION

To the best of my knowledge I certify that the *In-Situ* Vapor Extraction (ISVE) and Soil Excavation remedy at the MacKenzie Chemical Works Superfund Site was implemented in accordance with the March 2003 Record of Decision (ROD) for the site as modified by Explanation of Significant Differences (ESDs) issued in July 2011 and September 2020, and all EPA-approved plans and specifications. Based upon the final inspection and receipt of all analytical results, it has been concluded that the ISVE and Soil Excavation meets the requirements of the Remedial Action.

Signature: 

Name: Frank Mahalski

Title: Response Manager, Environmental Restoration, LLC