THIRD FIVE-YEAR REVIEW REPORT FOR JACKSON STEEL SUPERFUND SITE MINEOLA, TOWN OF NORTH HEMPSTEAD NASSAU COUNTY, NEW YORK

Prepared by

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List of Abbreviations & Acronyms

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COCs	Contaminants Of Concern
1,2-DCE	1,2-Dichloroethene
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FS	Feasibility Study
FYR	Five-Year Review
HI	Hazard Index
IC	Institutional Control
ICIAP	Institutional Control Implementation and Assurance Plan
ISVE	In-Situ Vapor Extraction
IRIS	Integrated Risk Information System
MCLs	Maximum Contaminant Levels
µg/m3	Micrograms Per Cubic Meter
NCHD	Nassau County Health Department
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OU	Operable Unit
PCE	Tetrachloroethylene
RAO	Remedial Action Objectives
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SVOC	Semivolatile Organic Compounds
SSDS	Subslab Depressurization System
SVI	Soil Vapor Intrusion
TCA	Trichloroethane
TCE	Trichloroethylene
VIMP	Vapor Intrusion Management Plan
VISL	Vapor Intrusion Screening Level
VOC	Volatile Organic Compounds

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

This is the third FYR for the Jackson Steel site. The triggering action for this policy FYR is the signature date of the last review. The approval date of the last review was May 18, 2017. This FYR has been prepared because, while the remedial action will not leave hazardous substances, pollutants or contaminants on-site above levels that allow for unlimited use and unrestricted exposure, the remedy requires more than five years to complete.

The site is being addressed as a single operable unit (OU), which is the subject of this FYR

The U.S. Environmental Protection Agency (EPA) conducted this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act Section 121, consistent with the National Contingency Plan (40 CFR Section 300.430(f)(4)(ii)) and considering EPA policy.

The Jackson Steel Superfund site FYR was led by Christos Tsiamis, the EPA Remedial Project Manager (RPM). Participants included Kathryn Flynn (EPA hydrogeologist), Nick Mazziotta (EPA human-health risk assessor), Michael Clemetson (EPA ecological risk assessor), and Shereen Kandil (EPA community involvement coordinator[CIC]).

The FYR began on May 5, 2021.

Site Background

The 1.5-acre Jackson Steel site, located at 435 First Street in Mineola, Town of North Hempstead, Nassau County, New York, contains a vacant, one-story 43,000-square-foot building formerly used as a metal-forming facility and an approximately 10,000-square foot paved parking area. The building consists of two sections—the original building, constructed in 1959, is located closer to First Street, and the newer section, which was added in 1963, is at the rear. The former office space is located along the north wall and a loading dock is located in the southwest corner of the front section of the building. An old vertical aboveground 275-gallon storage tank is situated in the front section of the building next to the former offices. A trench is located in the floor along the inside western wall of the building extension, above which a degreasing station is suspected to have been located. Two sumps are located in the front section of the building behind the former office space. A third sump is located outside the building, near the main entrance.

The property is zoned B-1 for business use and retail or office space. The site is bordered to the north by commercial and single-family dwellings, to the east by multiple-family dwellings in a two-story apartment complex, to the south by a daycare center and an exercise studio, and to the west by an office building and restaurant. Herricks Road to the west has predominantly commercial properties on both sides of the heavily-traveled road. See Appendix A, Figure 1, for a

site plan.

The Jackson Steel Company is defunct and the facility has been vacant since the early 1990s. In May 2020, Mineola 435, LLC acquired the property.

Appendix B, attached, summarizes the documents utilized to prepare this FYR.
Appendix C, attached, summarizes the site's topography and geology/hydrogeology.

For more details related to background, physical characteristics, geology/hydrogeology, land/resource use, and history related to the site, please refer to www.epa.gov/superfund/jackson-steel.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Jackson Steel		
EPA ID: NYD001344456		
Region: 2	**State:** NY	**City/County:** Mineola/Town of North Hempstead/ Nassau County
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA *[If "Other Federal Agency", enter Agency name]*:		
Author name (Federal or State Project Manager): Christos Tsiamis		
Author affiliation: EPA		
Review period: 5/19/2017- 1/28/2022		
Date of site inspection:3/27/2021		
Type of review: Policy		
Review number: 3		
Triggering action date: 5/18/2017		
Due date *(five years after triggering action date)*: 5/18/2022		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The property was used from the mid-1970s until 1991 as a "roll form metal shapes" manufacturing facility. Degreasers, including tetrachloroethylene (PCE), trichloroethylene (TCE), and 1,1,1-trichloroethane (TCA), were used at the facility until 1985. Sludges from degreasing equipment were stored in drums and in the tank described above.

The analytical results from samples collected by the Nassau County Department of Health (NCHD) in the early 1990s from within, around, and below three on-property dry wells indicated the presence of volatile organic compounds (VOCs) above drinking water standards at depths down to 40 feet below the ground surface. VOCs were also detected in groundwater samples collected from monitoring wells located downgradient of the dry wells. The contaminants of concern (COCs) identified for the site included VOCs (namely, PCE and TCE), semivolatile organic compounds (SVOCs) (primarily, PAHs), pesticides, and metals.

Dumping of wastes into the dry wells and spills and leaks from drums storing various chemicals during the facility's operations are the likely sources of the contamination found at the site.

On February 4, 2000, the site was listed on EPA's Superfund National Priorities List (NPL).

The results of the RI, which was completed in 2002, indicated that VOCs, semivolatile organic compounds, pesticides, and metals were present in the surface soil and VOC contamination was present at several subsurface soil locations. In addition, contamination was found in a trench and sumps located inside the building and dry wells located under the parking lot at the site.

Groundwater from the three hydrogeologic units underlying the site—the Upper Glacial Aquifer (upper aquifer), Magothy Confining Bed (a low permeability, clay layer separating the upper and deep aquifers), and the Magothy Aquifer (deep aquifer)—were also sampled. VOC contamination above state and federal standards was detected both in the Upper Glacial Aquifer and Magothy Aquifer.

The human health risk assessment concluded that future commercial/industrial and residential exposure to building floor materials (via direct contact), surface soils (via inhalation of dusts/vapors) and groundwater (via ingestion, inhalation of vapors while showering, and direct contact) would result in risk and hazard exceeding EPA threshold criteria.

Because the property includes a mostly paved industrial/commercial facility, it was concluded that there was minimal habitat available for ecological receptors on the property. A screening of ecological risks was, however, performed. This screening concluded that VOC contamination in the surface soil posed a potential unacceptable risk to burrowing animals that may come into contact with these soils.

Response Actions

Following the commencement of remedial investigation (RI)-related field work in October 2001, because of concerns about the proximity of the site to a daycare center, NCHD performed air sampling inside the daycare center building. The air samples detected PCE at levels below the New York State Department of Health's (NYSDOH's) guideline for indoor PCE exposure. Given the sensitivity of the population exposed (preschool children), NCHD collected additional samples in December 2001. At that time, indoor air testing was also conducted inside the former Jackson Steel building and a restaurant located adjacent to the site. The results indicated that PCE levels in the indoor air of several rooms in the daycare center were above NYSDOH's guideline for indoor PCE exposure. As a result, in 2002, a subslab depressurization system (SSDS) was installed at the daycare center by EPA. In addition, a ventilation system was installed by the daycare center's contractor. Samples collected to assess the effectiveness of the measures implemented showed that the PCE levels in the air were significantly below NYSDOH's guideline and below EPA's benchmarks.

Because elevated PCE levels were also detected in a billiards club building that shared common walls with the site building and the daycare center, EPA installed a second SSDS under the concrete slab of this building.

Following the completion of the RI/feasibility study, a Record of Decision (ROD) for the site was issued on September 24, 2004.

The following remedial action objectives (RAOs) were established for the site:

- Minimize or eliminate contaminant migration from contaminated soils and dry wells to the groundwater;
- Minimize or eliminate any contaminant migration from contaminated soils and groundwater to indoor air;
- Restore groundwater to levels which meet state and federal standards within a reasonable time frame;
- Mitigate the migration of the affected groundwater; and
- Reduce or eliminate any direct contact, ingestion, or inhalation threat associated with contaminated soils, soil vapor, contaminated surfaces in the on-property building, and groundwater.

The major components of the selected remedy as described in the ROD, as modified by a 2007 Explanation of Significant Differences (ESD),[1] included:

[1] The selected remedy included the extraction and treatment of the contaminated groundwater in the deep aquifer underneath the site if confirmatory groundwater sampling indicated that the site was the source of the groundwater contamination to this aquifer. Because a supplemental groundwater investigations concluded that there were multiple unknown upgradient contaminant sources and that the site was not a current, significant source of the contamination in the deep aquifer, EPA decided not to implement the extraction and treatment of the contaminated groundwater in the deep aquifer component of the groundwater remedy. This modification to the remedy was documented in the ESD.

- Decontamination of the former Jackson Steel building floor;
- *In-situ* soil vapor extraction (ISVE)[2] to treat the contaminated subsurface soil;
- Excavation and off-site disposal of the contaminated surface soil and contaminated material in on-site sumps, a trench, and dry wells; and
- *In-situ* chemical oxidation[3] to treat the contaminated groundwater in the Upper Glacial Aquifer.

The soil cleanup objectives were established pursuant to New York State Technical and Administrative Guidance Memorandum No. 94-HWR-4046 objectives (Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, Division of Hazardous Waste Remediation, January 24, 1994) (TAGM). These levels were the more stringent cleanup level between a human-health protection value and a value based on protection of groundwater. The groundwater cleanup goals were the more stringent of the state or federal promulgated standards. EPA and NYSDOH promulgated health-based protective Maximum Contaminant Levels (MCLs) are enforceable standards for various drinking water contaminants. MCLs ensure that drinking water does not pose either a short- or long-term health risk.

Response Action Implementation

The building decontamination and the excavation of the contaminated surface soil and the contaminated material in the building sumps, trench, and dry wells and their disposal were performed from 2005 to 2006. Approximately 170 cubic yards of material was excavated and disposed of at an EPA-approved off-site facility.

The *in-situ* chemical oxidation component of the groundwater remedy was implemented in 2005. Approximately, 15,000 gallons of iron-catalyzed sodium persulfate (with small amounts of buffering agents) and 600 gallons of hydrogen peroxide were injected in the aquifer through a network of 20 injection wells to treat the contamination in the Upper Glacial Aquifer. Nine rounds of post-chemical oxidation injection groundwater performance sampling were conducted 2005-2006. Because the concentrations of several contaminants slightly rebounded after a significant initial drop, as a polishing step, air oxidation was implemented to further reduce the VOC concentrations. Groundwater sampling in 2011 showed that the cleanup goals were achieved.

After a successful pilot test, an ISVE system consisting of nine ISVE wells and 11 vapor monitoring probes began operating in 2005. While the cleanup objectives for the soil were met in 2008, EPA continued to operate the ISVE system until 2013, because VOC vapors were still being recovered from underneath the former Jackson Steel building. The operation of the ISVE system

[2] ISVE involves drawing air through a series of wells to volatilize the solvents in the soils. The extracted vapors are then treated and released to the atmosphere.

[3] Under this technology, an oxidizing agent is injected into the contaminated groundwater. An oxidizing agent uses oxygen to degrade VOCs.

was discontinued when the levels of vapor removal became too low for the system to continue to be efficient.

Although the soil cleanup levels have been met, residual levels of VOCs remain that have the potential to migrate as vapor into buildings. Because the residual levels of VOCs are expected to dissipate slowly, EPA concluded that preventing human exposure to VOCs at the former Jackson Steel building, daycare center, and billiards club/retail store/exercise studio will be needed for a number of years to ensure the protectiveness of the remedy. Therefore, the existing SSDSs at the daycare center and exercise studio will continue to operate. Additional actions, from monitoring to the installation of an additional SSDS, may be needed should the currently unoccupied former Jackson Steel building be occupied or replaced with another structure in the future. EPA determined that institutional controls (ICs) requiring the continued operation of the SSDSs were needed. In addition, EPA determined that ICs requiring vapor intrusion sampling and/or mitigative measures were needed should the former Jackson Steel building be occupied or replaced with another structure in the future.

EPA issued an ESD on June 20, 2016, documenting its determination to incorporate into the remedy ICs to prevent exposure through vapor intrusion.[4] The ICs will remain in place until the residual VOCs fully dissipate in the subsurface. EPA noted in the ESD that a Vapor Intrusion Management Plan (VIMP) and Institutional Control Implementation and Assurance Plan (ICIAP) would be prepared to ensure that the ICs were appropriately implemented and maintained. In addition, in the ESD, EPA noted that it would communicate directly with the Village of Mineola Superintendent of Buildings, requesting that EPA and New York State Department of Environmental Conservation (NYSDEC) be notified if the existing building is to be refurbished and used for human occupancy or demolished and a new structure constructed. The correspondence would also request that the Village not issue a Certificate of Occupancy until necessary vapor intrusion-related actions identified by EPA and NYSDEC are carried out.

A VIMP and ICIAP were completed on June 20, 2016.

The site was deleted from the NPL on September 26, 2016.

In March 2021, Mineola 435, LLC entered into an order with NYSDEC to, among other things, develop a Site Management Plan and grant an environmental easement.

Institutional Controls

Table 1, below, summarizes the implemented institutional controls.

[4] The ICs that were ultimately put into place identify the addresses of the two buildings, not the usage of the buildings.

Table 1: **Summary of Implemented Institutional Controls**

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs needed?	ICs called for in the decision documents?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
indoor air	yes	yes	former Jackson Steel building	prevent exposure to VOCs in indoor air	deed notice filed on July 27, 2016
indoor air	yes	yes	daycare center and exercise studio	prevent exposure to VOCs in indoor air	deed notice filed on July 27, 2016
indoor air	yes	yes	former Jackson Steel building	prevent exposure to VOCs in indoor air	June 20, 2016 notification letter sent to Superintendent of Buildings

Systems Operation/Operation & Maintenance

Because groundwater standards had been met for several years subsequent to the ISCO injections and air oxidation, groundwater sampling was discontinued after the 2011 sampling event.

The aboveground ISVE infrastructure was removed by EPA in 2013. In 2016, the groundwater monitoring wells, ISVE wells, vapor monitoring wells, ISCO injection wells, and ISCO monitoring wells, were decommissioned.

EPA maintained the SSDSs until they were replaced by the property owner's contractor in 2016. That owner's contractor is now performing the maintenance of the systems. Periodic inspections are performed to verify the SSDSs are operating as designed. Specifically, the fans are observed during operation to see if there are any abnormal noises, buzzing, scraping, or no sound at all; system piping and connections are inspected for any breach or damage; slab/system interface seals are inspected for breaches; system differential pressure gauges are checked for functionality; the pressure differential readings are checked to insure that the differential pressure is in the acceptable range; and the electrical components are inspected for damage.

Through March 2017, EPA performed vapor intrusion monitoring at the former Jackson Steel building, daycare center, and retail store/daycare center annually during the heating season. Fourteen subslab samples and 15 indoor air samples were collected. Each sample was analyzed for select VOCs including PCE, TCE, cis/trans-1,2-dichloroethene (1,2-DCE), 1,1,1-TCA, 1,2-dichloroethane, and 1,1-dichloroethane.

In April 2017, NYSDEC assumed responsibility for vapor intrusion monitoring as part of operation and maintenance (O&M).

Potential impacts on the site from climate change were assessed. The performance of the remedy is currently not at risk due to the expected effects of climate change in the region near the site.

III. PROGRESS SINCE THE LAST REVIEW

The protectiveness determinations from the last FYR are summarized in Table 2, below.

Table 2: **Protectiveness Determinations/Statements from 2017 Five-Year Review**

Operable Unit	Protectiveness Determination	Protectiveness Statement
01	Protective	The remedy at OU 1 is protective of human health and the environment.
Sitewide	Protective	The sitewide remedy is protective of human health and the environment.

Although the previous FYR report had no recommendations or follow-up actions, some findings were noted related to routine O&M. Specifically, during the March 2017 soil vapor intrusion (SVI) sampling event, four of the five subslab ports within the daycare center could not be sampled because they were covered with a polymer by the property owner to prevent children from sticking their fingers in them. The previous FYR recommended that the sealed sampling ports be opened or replaced before the next sampling event. In addition, because the ISVE system was removed, PCE and TCE concentrations under the subslab increased, suggesting that residual contamination remains beneath the slab of the former Jackson Steel building. The previous FYR report noted that while the SSDSs are in effect, as the indoor air results continue to be below NYSDOH guidelines and EPA Vapor Intrusion Screening Levels (VISLs), the increasing VOC trend under the subslab should be evaluated as monitoring continues.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On August 6, 2021, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at Superfund sites in New York, New Jersey, Puerto Rico and the U.S. Virgin Islands, including the Jackson Steel Superfund site. The announcement can be found at the following web address: https://www.epa.gov/superfund/R2-fiveyearreviews.

In addition to this notification, a notice of the commencement of the FYR was sent to local public officials. The notice was posted on the Village of Mineola website on November 1, 2021. The purpose of the notice was to inform the community that EPA would be conducting a FYR to ensure that remedy implemented at the site remains protective of public health and is functioning as designed. In addition, the notice included contact information, including addresses and telephone numbers, for questions related to the FYR process or the site.

Once the FYR is completed, the FYR report will be made available on EPA's Jackson Steel Co. site webpage, www.epa.gov/superfund/jackson-steel, and at the site information repositories maintained at:

EPA Region 2 Superfund Records Center
290 Broadway, 18th Floor
New York, New York,

Town of North Hempstead
200 Plandome Road
Manhasset, NY 11030

60 Seventh Street
Garden City, NY 11530

Village of Mineola Hall
155 Washington Avenue
Mineola, NY 11501

Garden City Public Library
No site interviews were conducted as part of the FYR.

Data Review

As was noted above, during EPA's 2017 SVI sampling event, four of the five subslab ports within the daycare center could not be sampled because they were covered with a polymer by the property owner. As a result, only one subslab port and 15 indoor air samples were collected at the daycare center. Nine subslab samples were collected at the former Jackson steel building (indoor air samples were not collected because the building is not occupied, the roof is damaged, and there are broken windows). The former retail store could not be sampled because it was being converted to an exercise studio at the time.

Sampling was also performed by NYSDEC in February 2019. During this sampling event, only indoor air samples were collected at the daycare center. All the results were below screening levels.

In March 2021, indoor air samples were again collected at the daycare center. The results are not yet available. The former Jackson Steel building and exercise studio were not sampled at this time due to site access issues.

In April 2021, Mineola 435, LLC's contractor, Fleming Engineering, collected subslab samples from eight permanent sample locations beneath the existing concrete floor slab within the Jackson Steel building. The results are discussed below. See Appendix A Figures 2 and 3 for the sample locations.

For this FYR, all available subslab and indoor data for the Jackson Steel and retail store facilities were compared to the EPA commercial VISLs reflecting a cancer risk of 10^{-6} (one in a million) and noncancer hazard index of 1. For completeness, indoor air results were also compared to the screening values included in the 2017 NYSDOH Soil Vapor/Indoor Air Decision Matrices, which are slightly different than EPA's. PCE and TCE are the primary focus of this review because they are the only chemicals to exceed subslab screening levels. Subslab and indoor air results for the daycare were compared to the EPA residential VISLs to account for exposures to young children,

which are considered to be a sensitive population. The VISLs and NYSDOH guidelines referenced for this evaluation are indicated in Table 3, below.

Table 3: Vapor Intrusion Screening Levels and NYSDOH Guidelines

Evaluation Criteria	PCE	TCE
Subslab ($\mu g/m^3$)		
EPA VISL (commercial)	1,600	100
EPA VISL (residential)	360	16
NYSDOH (generic land use)	100	6
Indoor Air ($\mu g/m^3$)		
EPA VISL (commercial)	47	3
EPA VISL (residential)	11	0.48
NYSDOH (generic land use)	3	0.2

After the ISVE system was removed, PCE and TCE concentrations increased in the subslab throughout the entire former Jackson Steel building footprint. In 2017, the maximum subslab PCE and TCE concentrations for the former Jackson Steel building were 8,500 and 320 $\mu g/m^3$, respectively. PCE and TCE were also identified within the single subslab sample collected at the daycare center at 4.3 $\mu g/m^3$ and 0.33 $\mu g/m^3$, respectively. However, these results are considerably below their corresponding EPA VISLs and NYSDOH screening values. 1,2-DCE, 1,1,1-TCA, 1,2-dichloroethane, and 1,1-dichloroethane were also detected in the subslab samples collected for the former Jackson Steel building at the same locations as elevated PCE and TCE, but at significantly lower concentrations. These chemicals were not detected in indoor air at any location within the former Jackson Steel building or the daycare center in 2017 or 2019 and the results fall under the "no further action" category in the applicable NYSDOH Soil Vapor/Indoor Air Decision Matrices. While PCE and TCE concentrations beneath the slab of the former Jackson Steel building increased, the indoor air results for these chemicals were consistently below NYSDOH screening levels and EPA VISLs across the 2017 and 2019 sampling events, indicating the effectiveness of the SSDSs.

During the April 2021 sampling event within the former Jackson Steel building, the floor slab was observed to be in poor condition, consisting of numerous cracks and holes and extensive roof damage. Indoor air samples were not collected, as they would not be considered representative of the building when occupied. The results of this sampling event indicate that subslab PCE has decreased substantially since 2017. The maximum concentration fell from 8,500 $\mu g/m^3$ in 2017 to 302 $\mu g/m^3$ in 2021, which is below the commercial VISL. A modest decrease was observed for TCE, as well. The maximum concentration fell from 320 $\mu g/m^3$ in 2017 to 117 $\mu g/m^3$ in 2021. The location in which the maximum concentration was measured (SV-7) (see Appendix A, Figure 3), was the only one to exceed the EPA commercial VISL.

In summary, the data available for this FYR show that PCE and TCE are not present in indoor air at the daycare above levels of concern despite some exceedances of subslab screening levels at the former Jackson Steel facility. Although indoor air data at the exercise studio has not been collected since 2016, the results there have consistently been below screening levels. The former Jackson

Steel facility is currently unoccupied and in poor condition. Subslab data shows some exceedances of screening levels. Indoor air data will be collected if the building is reoccupied.

Site Inspection

The site was inspected by NYSDEC concurrent with the SVI sampling March 27-28, 2021. Observations made during the inspection indicated that the SSDSs are in good condition.

During the April 2021 sampling event, the contractor observed that the floor slab of the former Jackson Steel building was in poor condition, consisting of numerous cracks and holes. Extensive roof damage was also observed.

V. TECHNICAL ASSESSMENT

QUESTION A: *Is the remedy functioning as intended by the decision documents?*

The ROD, as modified by the two ESDs, called for the excavation of the surface soils that were contaminated with VOCs, SVOCs, pesticides, and metals; excavation of the contents of the two dry wells and sump located outside the building and the dry well, sumps, and trench located inside the building; treatment of the VOC-contaminated unsaturated subsurface soils using ISVE; decontamination of the building floor through vacuuming and power washing; off-site disposal of the excavated material, vacuumed dust, and wash water; *in-situ* treatment of the contaminated groundwater in the upper aquifer in the source area with an oxidizing agent, and ICs related to vapor intrusion.

The soil and groundwater remedies have been completed and the site has been deleted from the NPL.

During the 2017 SVI sampling event, only one subslab port within the daycare center could be sampled and the former retail store could not be sampled because it was being converted to an exercise studio at the time. During the 2019 SVI sampling event, only indoor air samples were collected at the daycare center. The former Jackson Steel building and exercise studio were not sampled due to site access issues. Samples were collected at the daycare center and exercise studio in March 2021, but the results are not yet available. Therefore, the last sample results that are available for the retail store/exercise studio are from 2016. At that time, indoor air results were below screening levels.

While subslab soil gas samples at a number of locations under the former Jackson Steel building exceeded subslab EPA VISLs for PCE and TCE in 2017, substantial decreases were observed in 2021. All PCE results were below the EPA VISLs and only one TCE result slightly exceeded the commercial VISL. Although indoor air samples were not collected in the former Jackson Steel building in 2021 because the building is in poor condition, the concentrations are expected to be low, considering the decrease in subslab concentrations from previous sampling events in which all of the corresponding indoor air concentrations were already significantly below the NYSDOH guideline and EPA's acceptable benchmarks. The low indoor air concentrations at the daycare

center during this FYR period indicate that the SSDS is working effectively. Monitoring should continue at the former Jackson Steel building, daycare center, and exercise studio. The ICs that are in place are effective in preventing exposure, as well.

QUESTION B: *Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?*

There have been no changes in the physical conditions of the site over the past five years that would change the protectiveness of the remedy. The human health risk assessment concluded that future commercial/industrial and residential exposure to building floor materials (via direct contact), surface soils (via inhalation of dusts/vapors) and groundwater (via ingestion, inhalation of vapors while showering, and direct contact) would result in risk and hazard exceeding EPA threshold criteria. The contaminants of concern (COCs) identified for the site included VOCs (namely, PCE and TCE), SVOCs (primarily, PAHs), pesticides, and metals. Land-use assumptions, exposure assumptions and pathways, and clean up levels considered in the 2004 ROD and 2007 ESD followed the Risk Assessment Guidance for Superfund used by the Agency and remain valid. Although specific parameters may have changed since the time the risk assessment was completed, the process that was used is still valid.

The current and anticipated future use of this property (including soil and groundwater) is not expected to change in the next five years. Therefore, the RAOs noted in Section II remain valid. The ROD established the federal MCLs and NYSDEC Class GA groundwater standards as the cleanup criteria for the COCs in groundwater, which remain valid. The groundwater met MCLs/NYSDEC Groundwater Criteria and the potential for any exposure through potable uses has been eliminated. The soil cleanup objectives were established pursuant to NYSDEC TAGM guidelines. Contaminated soil exceeding TAGM objectives in soil were excavated and no longer serve as a source of exposure. Although the TAGM objectives are no longer in effect, comparison of the cleanup goals established for the COCs with respective NYSDEC Soil Cleanup Objectives (6 NYCRR Part 375) and EPA Regional Screening Levels indicates that the remedy is protective of human health.

Vapor Intrusion

Vapor intrusion is currently considered to be the primary route of potential exposure at this site. The vapor intrusion pathway was evaluated by conducting indoor air and subslab sampling as described in Section IV. As discussed in the "Initial Response" section, SSDSs were initially installed in 2002 and replaced in 2016 to address vapor intrusion at the daycare center and former retail store/daycare center. The systems are periodically inspected and subslab and indoor air monitoring is ongoing.

EPA evaluated indoor air sample results collected at the Jackson Steel building and daycare center from 2017 and 2019 in comparison to commercial and residential indoor air VISLs associated with a risk of 10^{-6} (one in a million) and a noncancer HI of 1 as well as generic screening levels provided within the 2017 NYSDOH Soil Vapor/Indoor Air Decision Matrices. As indicated above, the results of this comparison indicate that the indoor air concentrations for all analytes, including

PCE and TCE, are either non-detect or considerably below levels of concern, thus indicating the remedy continues to be effective at mitigating exposure.

Ecological Risk

Because the property includes a mostly paved industrial/commercial facility, it was concluded that there was minimal habitat available for ecological receptors on the property. Due to the suburban/commercial setting, it was also concluded that the potential for exposure to receptors and ecological risk was minimal in the area surrounding the property, as well. A screening of ecological risks was, however, performed. This screening concluded that VOC contamination in the surface soil posed a potential unacceptable risk to burrowing animals that may come into contact with these soils.

Although the ecological risk assessment screening values used to support the ROD may not necessarily reflect the current values, the exposure assumptions remain appropriate and, thus, the remedy remains protective of ecological resources. The terrestrial exposure pathway has been addressed by the removal of contaminated surface soil. Although the contamination in the Upper Glacial Aquifer has also been addressed, it never posed an ecological risk since this aquifer does not discharge into any water bodies in the vicinity of the site.

QUESTION C: *Has any other information come to light that could call into question the protectiveness of the remedy?*

There is no other information or issues related to the site that would change the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Table 4, below, notes that there are no issues or recommendations stemming from this FYR.

Table 4: Issues/Recommendations

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1

OTHER FINDINGS

After the ISVE system was removed, PCE and TCE concentrations in the former Jackson Steel building initially increased, suggesting that residual contamination remained beneath the slab of this structure. Sampling in 2021, however, indicated a substantial decrease in PCE and TCE

concentrations beneath the slab of this building. The fluctuating VOC levels in the subslab need to be evaluated as monitoring continues. In addition, when the roof is refurbished and the building is made ready for occupancy, the floor slab should be sealed with epoxy or similar material along with sealing of any piping or other avenues for potential vapor intrusion. When this is completed, sampling both the subslab and indoor air concurrently should be performed to ensure that the pathway is not complete.

The 2017 and 2019 indoor air sample results collected at the daycare center were below NYSDOH guidelines and EPA VISLs, indicating the effectiveness of the SSDS. Because the 2021 sample results from the daycare and exercise studio buildings are not available yet, the only data that is available for the exercise studio is from 2016. At that time, the indoor air results were below screening levels. Monitoring should continue at both buildings.

VII. PROTECTIVENESS STATEMENT

Table 5, below, presents the operable unit and sitewide protectiveness statements.

Table 5: Protectiveness Statements

Protectiveness Statement(s)	
Operable Unit: OU 1	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at OU 1 is protective of human health and the environment.	
Sitewide Protectiveness Statement	
Protectiveness Determination: Protective	
Protectiveness Statement: The sitewide remedy is protective of human health and the environment.	

VIII. NEXT REVIEW

The next FYR report for the Jackson Steel site is required five years from the completion date of this review.

APPENDIX A – FIGURES

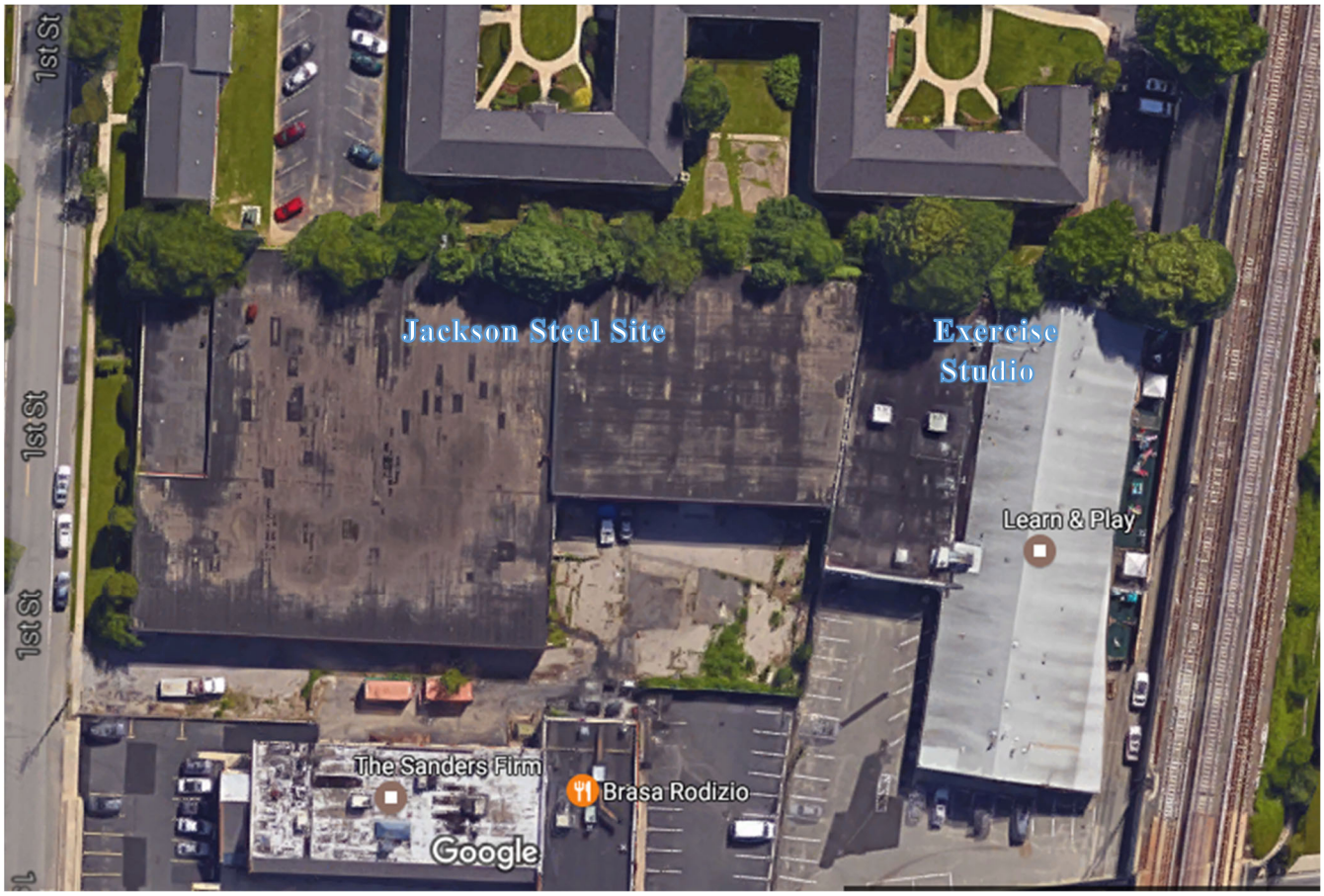

Figure 1—Jackson Steel Site

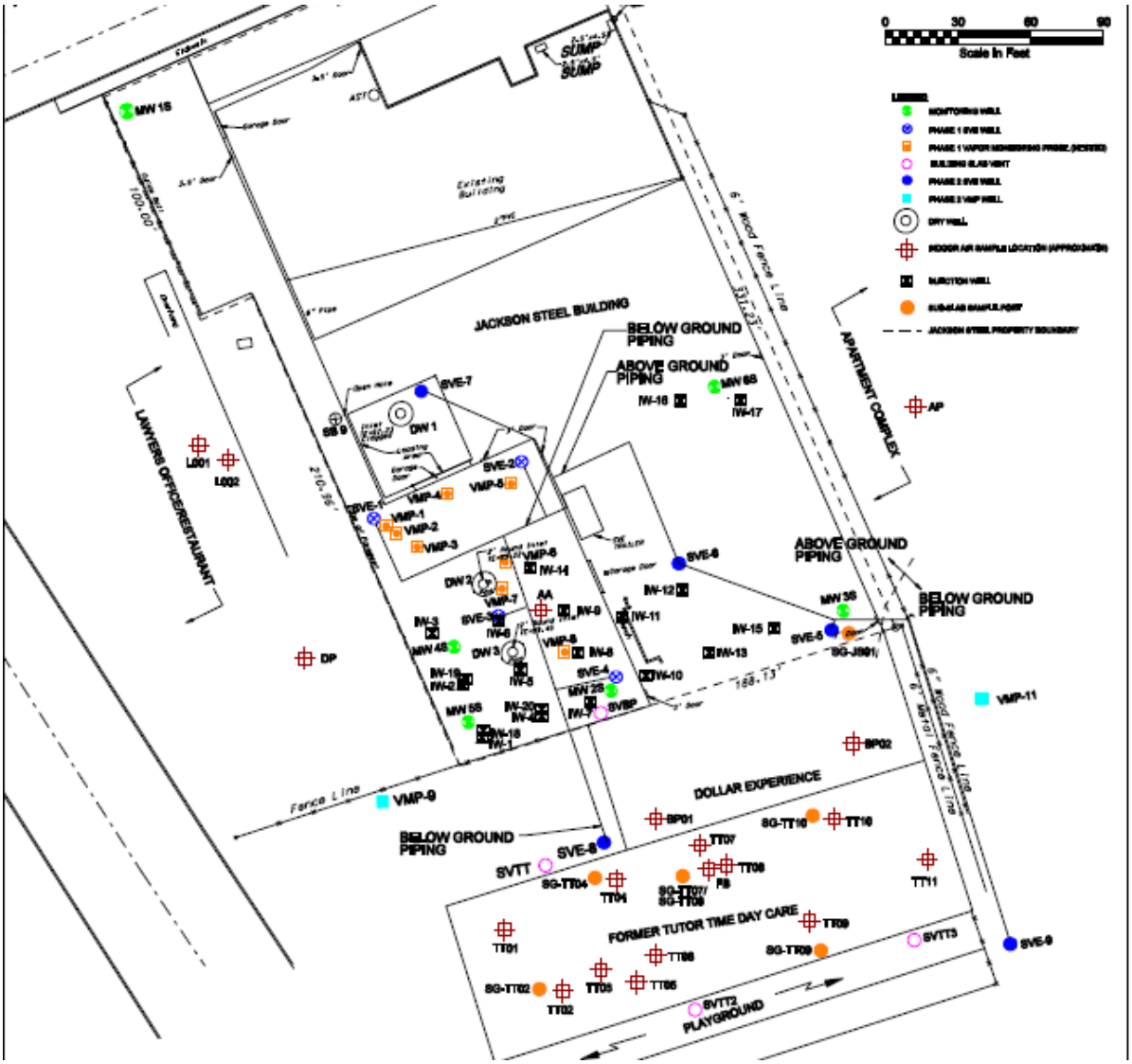

Figure 2 – Jackson Steel Subslab SVI Sample Locations

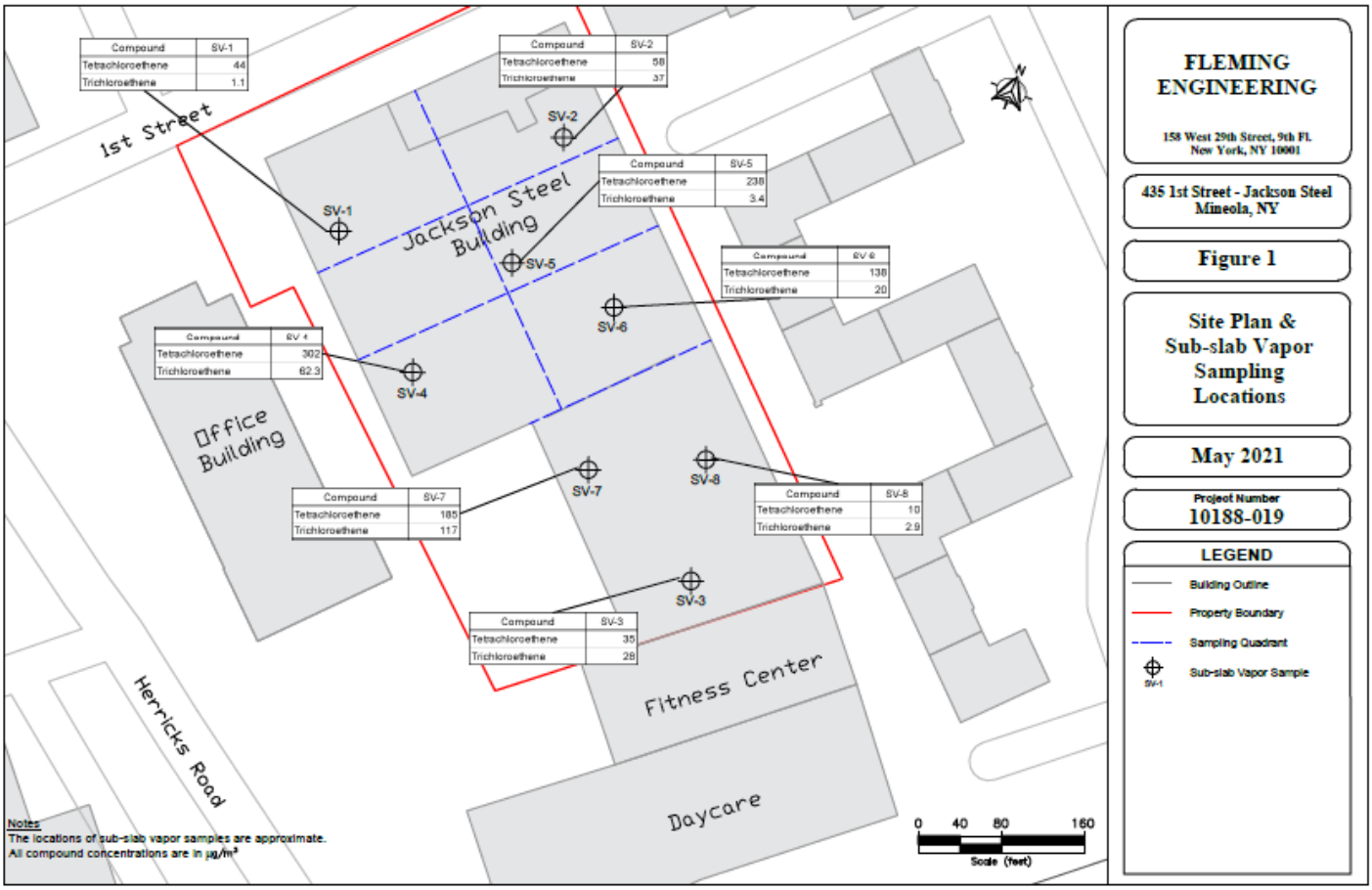

Figure 3 – Jackson Steel Subslab SVI Sample Locations

APPENDIX B – DOCUMENTS, DATA, AND INFORMATION REVIEWED IN COMPLETING FIVE YEAR REVIEW

Documents, Data, and Information Reviewed in Completing Five-Year Review	
Document Title (Author)	**Submittal Date**
Record of Decision, Jackson Steel Superfund Site, Mineola, Nassau County, New York, Environmental Protection Agency	2004
Remedial Action Construction Report Upper Glacial Aquifer for the Jackson Steel Site, Mineola, New York, CH2MHill	2006
Preliminary Close-Out Report, Environmental Protection Agency	2007
Explanation of Significant Differences, Jackson Steel Superfund Site, Mineola, Nassau County, New York, Environmental Protection Agency	2007
Remedial Action Report for Soils and Building Floor Decontamination for the Jackson Steel Superfund Site, Mineola, New York, CH2MHill	2008
First Five-Year Review Report, EPA	2012
Summary of 2013 and 2014 Analytical Results for Indoor Air Samples, Jackson Steel Superfund Site, Mineola, New York, CH2MHill	2014
Summary of 2015 Analytical Results for Indoor Air Samples, Jackson Steel Superfund Site, Mineola, New York, Environmental Protection Agency	2015
Summary of 2016 Analytical Results for Indoor Air Samples, Jackson Steel Superfund Site, Mineola, New York, Environmental Protection Agency	2016
Explanation of Significant Differences, Jackson Steel Superfund Site, Mineola, Nassau County, New York, Environmental Protection Agency	2016
Report of Vapor Mitigation System Installation, Operations, and Maintenance, Learn & Play Day Care Center, 80 Herricks Road, Mineola, New York, Alpine Environmental Services	2016
Jackson Steel Superfund Site Vapor Intrusion Management Plan, Environmental Protection Agency	2016
Jackson Steel Superfund Site Institutional Control Implementation and Assurance Plan	2016
Jackson Steel Close-Out Report, Environmental Protection Agency	2016
National Oil and Hazardous Substances Pollution Contingency Plan; National Priorities List: Deletion of the Jackson Steel Superfund Site, Proposed rule; notice of intent for deletion, Environmental Protection Agency	2016
National Oil and Hazardous Substances Pollution Contingency Plan; National Priorities List: Deletion of the Jackson Steel Superfund Site, Proposed rule; Direct final rule, Environmental Protection Agency	2016
Second Five-Year Review Report, EPA	2017
Soil Vapor Intrusion Letter Report, Flemming Engineering	2021
EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new Applicable or Relevant and Appropriate Requirements relating to the protectiveness of the remedy have been developed since EPA issued the Record of Decision	

APPENDIX C – TOPOGRAPHY, SITE GEOLOGY/HYDROGEOLOGY, AND LAND AND RESOURCE USE

Topography

The local topography surrounding the site consists of relatively flat terrain, with gentle changes in elevation that typically do not exceed twenty feet of vertical relief. The site itself is flat with no discernible change in topography, and has an elevation of 96-98 feet above mean sea level.

Site Geology/Hydrogeology

Surface soils at the site are Upper Pleistocene Deposits, which are commonly referred to by the name of the hydrogeologic unit that they form, the Upper Glacial Aquifer. This Upper Glacial unit consists, predominantly, of varying consistencies of intermixed-to-interbedded, brown-orange-yellow sands and gravels to a depth of approximately 105 feet below ground surface (bgs). Some silts were observed, mainly near the ground surface, but also in smaller quantities deeper in the formation and in minor lenses throughout. Little or no clay was observed.

At approximately 105 feet bgs, the top of the Magothy Formation is encountered. The top of the formation (the Magothy Confining Bed) consists of characteristic fine-to-medium sands interbedded with clay and sandy-silty clay, with gray coloration, and the presence of organic lignite (wood) fragments. The Magothy Confining Bed appears to be a localized occurrence overlying the Magothy Aquifer in the vicinity of the site. Its observed thickness at the site was approximately 296 feet. This thickness decreases significantly over a relatively short lateral distance to the northeast (approximately 600 feet) to 42 feet thick. Its thickness decreases to approximately 167 feet approximately 600 feet southwest of the site.

The silty clay of the Magothy Confining Bed is believed to be a semi-confining layer effectively separating the Upper Glacial Aquifer and the Magothy Formation.

The groundwater flow in the Upper Glacial and Magothy Aquifers in this vicinity is to the southwest under non-stressed conditions. Pumping of the public supply and irrigation wells influences the groundwater flow direction.

Land and Resource Use

The property, which has been used for industrial/commercial purposes since it was constructed, has been zoned for a number of different uses through the past several decades. The property is presently zoned "B-1" for business use as retail or office space.

Area residents utilize municipal water.