



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 3

STATEMENT OF BASIS

FORMER UNION SWITCH AND SIGNAL DIVISION
PITTSBURGH, PENNSYLVANIA
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Prepared by:
Land, Chemicals and Redevelopment Division
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Section 1: Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the former Union Switch and Signal Division (USSD) facility located at 1789 Braddock Avenue, Pittsburgh, Pennsylvania 15218 (Facility).

The EPA's proposed remedy for the Facility consists of maintenance of a cap, installation of building vapor mitigation systems, implementation of a Materials Management Plan (MMP), and the implementation of land use restrictions. This SB highlights key information relied upon by the EPA in proposing this remedy.

The Facility is subject to the EPA's Corrective Action Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. §§ 6901 et seq. (Corrective Action Program). The Corrective Action Program is designed to ensure that owners or operators of facilities subject to RCRA's corrective action requirements have investigated and cleaned up any releases of hazardous waste and hazardous constituents that have occurred at or from their properties. The Commonwealth of Pennsylvania (Commonwealth) is not authorized for the Corrective Action Program under Section 3006 of RCRA. Therefore, the EPA retains primary authority in the Commonwealth for the Corrective Action Program.

The EPA is providing a thirty (30) day public comment period on this SB and may modify its proposed remedy based on comments received during this period. The EPA will announce its selection of a final decision for the Facility in a Final Decision and Response to Comments (FDRTC) after the comment period has ended.

Information on the Corrective Action program and the Government Performance and Results Act Environmental Indicator Determinations for the Facility can be found by navigating to [Hazardous Waste Cleanup: Union Switch and Signal Division in Pittsburgh, Pennsylvania | US EPA](#).

The EPA has compiled an Administrative Record (AR) for the Facility containing all documents, including data and quality assurance information, upon which the EPA's proposed remedy is based. See Section 8, Public Participation, for information on how to review the AR.

Section 2: Facility Background

The Facility is located at 1789 Braddock Avenue, Pittsburgh, Pennsylvania, on a triangular, 40-acre property in the Boroughs of Swissvale and Edgewood in Allegheny County, Pennsylvania (Figure 1 - Facility Location Map). The Facility is bordered to the north by the Parkway East (I-376), by Braddock Avenue to the southwest, and by Conrail railroad tracks to the southeast. The

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Facility is located in a mixed-use residential and retail area, approximately one mile north of the Monongahela River. Topographically, USSD operations were located on a plateau along the western portion of the Facility property. An area that was used for employee parking was located in the western portion of the property, approximately 60 feet below.

From 1880 until 1987, USSD produced various electrical and mechanical components used in railroad signaling and control systems. Operations included the heat treatment of metal parts, painting of finished products, and several types of electroplating processes. A water-treatment plant was used by USSD for the treatment of rinse waters and a portion of the special bath material generated during plating operations.

USSD operated as an independent company until it became a subsidiary of Westinghouse Air Brake (WABCO, becoming WABCO Holdings, Inc., acquired by ZF Group on May 29, 2020) in 1917. In 1968, American Standard purchased the entire operation and reorganized USSD as a separate division. In 1987, USSD ceased operations at the Facility and began closure activities. On November 16, 1987, a final Certificate of Closure for Owner and Operator was submitted by USSD. On December 31, 1987, PADEP approved the closure of the USSD Facility.

In January 1988, following closure of USSD operations, the Facility was purchased by Parkway Union Development Corporation (PUDC). Most of the USSD buildings were removed and the Edgewood Towne Centre was erected. In October 1993, Allegheny County Real Estate records indicate that a 7.36-acre tract (parking lot and undeveloped area) was obtained by the Borough of Edgewood. In October 2004, Phillips Edison Corporation purchased the approximately 30-acre Edgewood Towne Centre shopping center. PUDC continues to own and use a 2.265-acre portion as the Towne Centre Office building. Additional property ownership acquisitions/changes/clarifications have occurred on unidentified dates such that the current parcel owner and identifiers are as follows (Figure 2 – Parcel Ownership and Areas):

- PUDC: Parcel 177-S-270 and landscaped areas that border the western property boundary identified as Parcels 177-L-82, 177-L-84, and 177-R-217
- Philips Edison Corporation: Parcels 177-L-86, 177-R-213
- Agree Shelf ES PA LLC: Parcel 177-L-88
- GetGo Portfolio LLC: Parcel 177-L-90
- AM Rodriguez Associates: Parcel 177-L-92

Section 3: Summary of Environmental History

3.1 RCRA Permitting History

In November 1980, USSD (PAD000001115) filed a Notification of Hazardous Waste Activity and submitted a Part A Hazardous Waste Permit Application for generation and treatment, storage, or disposal (TSD). An amended Notification of Hazardous Waste Activity and a Part A Permit Application were submitted in June 1982 identifying increased hazardous waste generation. On August 29, 1983, USSD submitted a Part B Permit Application to the

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Pennsylvania Department of Environmental Resources (PADER), now the Pennsylvania Department of Environmental Protection (PADEP). USSD decided to close the hazardous waste storage facility (a concrete hazardous drum storage pad) and, consequently, PADER returned the Part B Permit application to USSD and the permit was never filed.

3.2 Early Environmental Activities

In October 1985, USSD filed a closure plan for the Hazardous Waste Storage Facility (a concrete hazardous drum storage pad) and the water treatment facility. On December 10, 1985, a Public Notice for the Hazardous Waste Facility Closure Plan was issued. On February 24, 1987, PADEP approved the October 1985 Closure Plan. Closure of the hazardous waste storage facility consisted of removal of the remaining inventory of drums in the storage area, pressure washing supplemented with scrubbing with a stiff broom, and rinsate collected and analyzed for Cyanide, Cadmium, Chromium, Lead, pH, Total Organic Carbon, and Total Organic Halides (TOX). Slightly elevated TOX levels were reported in the rinsate but PADEP determined the reason was elevated chlorination levels in the Wilkesburg-Penn Joint Water Authority (WPJWA) water supply or the presence of trace halogenated organics in the WPJWA water supply and no further characterization was necessary.

USSD performed additional voluntary investigation and remediation activities in 1987 and 1988 as part of the decommissioning activities at the Facility. The results are documented in the Union Switch and Signal Division Lower Lot Soil Contamination Assessment Report (Assessment Report), Union Switch and Signal Electroplating Building Additional Subsurface Soil Analysis Report (Soil Analysis Report), and Decommissioning Report of the Union Switch and Signal Division American Standard, Inc. Plant (Decommissioning Report). Results from the Assessment Report showed subsurface soil samples were below Toxicity Characteristic Leaching Procedure (TCLP) thresholds for heavy metals tested. Low concentrations of some Polynuclear Aromatic Hydrocarbons (PAHs) typically associated with asphalt were identified. Results from the Soil Analysis Report showed one sample, USS-4, slightly exceeded the Cadmium TCLP threshold of 1 microgram/Liter (ug/L) at 4.3 ug/L. The Decommissioning Report documented activities USSD undertook to address ten areas of potential environmental concern. The most pertinent actions were excavation and disposal of: impacted soil from the Heat Treat Operations, Total Petroleum Hydrocarbon (TPH) and Lead impacted soil from the Metal Chip Hopper Storage Area, disposal of lead and chromium paint waste and equipment from the spray paint booths, closure of the wastewater treatment system including offsite disposal of waste sludges, processing of plating baths and rinsewaters from the electroplating operations, closure of the Hazardous Waste Storage Facility in accordance with the Closure Plan; and offsite disposal of over 300,000 pounds of additional discontinued operational hazardous wastes.

Following a May 18, 1989 site visit by NUS personnel for the EPA under Contract No. 68-01-7346 and Technical Directive Document No. F3-8903-69, on October 24, 1989, a Preliminary Assessment Report (PAR) for USSD was submitted. At the time of the NUS site inspection, demolition was occurring on-site and access was restricted to the surrounding fence line. In the PAR, the following five Solid Waste Management Units (SWMUs) were documented (Figure 3 - SWMU locations):

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SWMU#	Unit	RCRA Waste Code
1	Four Spray Paint Booths	D001, D007, D008
2	Metal-Plating Facility	F006, F007, F008, F009
3	Heat-Treatment Facility	D002, D003, F001, F011
4	Wastewater Treatment Facility	F006
5	Hazardous Waste Storage Pad	D001, D002, D003, D007, D008, F001, F006, F007, F008, F009, F011

In summary, between 1985 and 1988, USSD decommissioned the Facility, structures were dismantled, and various cleanup, closure and soil sampling activities took place. During this decommissioning, USSD transported over 300,000 pounds of operational related hazardous wastes and contaminated soil offsite for disposal. These closure actions addressed hazardous source material and identified contamination located at the SWMUs. On November 13, 1987, USSD submitted a Certificate of Closure to PADEP for the Waste Storage Pad. On December 31, 1987, PADEP approved the closure of the USSD Waste Storage Pad.

3.3 Recent Environmental Investigations

In January 2009, URS Corporation submitted an Environmental Indicator (EI) Inspection Report for the EPA under PADEP General Technical Assistance Contract (GTAC) 4-0-304. The purpose of the EI Report was to gather relevant information in order to determine whether human exposures and/or groundwater releases have been controlled at the USSD Facility. On November 6, 2008, a site visit was conducted by URS with PADEP and representatives of the current Edgewood Towne Centre and Towne Centre Office building owners. Due to the redevelopment that had occurred, the SWMUs were not observed to be present at the time of the site visit. The EI Report summarized the previously identified Closure Plan documentation, Phase I Reports, and additional EPA and PADEP file documents. URS did not obtain the voluntary investigation and remediation activities USSD performed in 1987 and 1988 as part of the decommissioning activities. As a result, an Insufficient Information “IN” status was designated for the RCRA Groundwater Migration and Human Health Exposures Under Control EI Determinations due to a perceived lack of soil and groundwater data.

In 2013, the EPA requested and obtained the Assessment Report, Soil Analysis Report, and Decommissioning Report to evaluate the EIs. Upon review, the EPA determined additional focused data collection was necessary due to limited information regarding current conditions of groundwater, soil, and soil vapor to assess exposure pathways. The EPA utilized the PADEP GTAC and contracted AECOM to perform an investigation at the locations of the former SWMUs. In order to locate appropriate sample locations, the EPA requested AECOM develop an overlay map of historic versus current land use and operations (Figure 4 - Overlay of Historic and Current Map with Sampling Locations). From July 19-21, 2016, AECOM collected ten soil, three groundwater, and four soil gas samples to establish current conditions. On September 15,

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2016, AECOM submitted a Phase II Environmental Site Assessment (ESA) Report. Analytical results were compared to EPA Regional Screening Levels (RSLs) for industrial soil and tap water and calculated EPA vapor intrusion screening levels (VISLs) for commercial/industrial properties. The following analytes were identified in at least one sample exceeding their most conservative screening levels, Target Risk (TR)=1E-06, and Hazard Quotient (HQ)=0.1:

- Soil: benzo(a)anthracene, benzo (a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, Arsenic, Cobalt, Copper, Iron, Lead, Manganese, Selenium, Thallium, Mercury, and Total Cyanide
- Groundwater: benzene, cis-1,2-dichloroethene, trichloroethene (TCE), benzo(a)anthracene, benzo(b)fluoroanthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene, naphthalene, Antimony, Cadmium, Cobalt, Iron, Manganese, Nickel, Selenium, and Total Cyanide
- Soil Vapor: 1,3-butadiene, TCE, chloroform, and carbon tetrachloride

The EPA informed USSD that additional investigations would be necessary to delineate constituents identified in the Phase II Report in order to satisfy Corrective Action obligations. In August 2018, WABCO submitted a Notice of Intent to Remediate (NIR) the USSD Facility to PADEP pursuant to Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2) while participating in the EPA/PADEP One Cleanup Program (OCP).

WABCO implemented investigation activities in 2019 and 2020 to confirm and delineate screening level exceedances identified by the ESA. In December 2020, WABCO submitted a Remedial Investigation Report (RIR) that documented investigation activities performed, as well as exposure pathway evaluations and the proposed demonstration of attainment. The RIR presumed a future non-residential land use due to the then current zoning, and exposure pathways were evaluated considering the non-residential scenario. RIR activities confirmed that the exceedances in the ESA are isolated and delineated. Constituents of Concern (COCs) detected in soil were below their respective Pennsylvania's non-residential direct contact (NRDC) medium-specific concentration (MSC) Statewide Health Standards (SHSs). COCs that were detected at concentrations greater than soil-to-groundwater MSCs were evaluated through the installation of monitoring wells. Only dissolved manganese was detected in groundwater monitoring wells MW-2, MW-3, and MW-4 at concentrations greater than the MSC of 300 ug/L. The highest concentration identified was 16,000 ug/L in MW-3 on November 29, 2021. A search of the Pennsylvania Groundwater Information System database was conducted within a ½ mile radius and no domestic wells were identified. The Boroughs of Swissvale and Edgewood require connection to the public water supply. Fate and Transport (F&T) modeling showed COCs present in groundwater are not expected to reach Nine Mile Run, the closest water body located 650 feet from the Facility boundary, at concentrations greater than PADEP Surface Water Quality Criteria (SWQC). The potential vapor intrusion (VI) exposure pathway was evaluated using Johnson & Ettinger modeling and results show no unacceptable risk to receptors. The RIR was subsequently approved by PADEP on March 17, 2021.

After the RIR approval, it became known that in December 2020, select parcels were re-zoned allowing for multifamily residential development. Given the possibility of multifamily

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residential development, a review of the RIR data was performed and a Risk Assessment and Cleanup Plan (RACP) was submitted in November 2022 to provide a summary of the exceedances of residential standards and evaluate the exposure pathways and options to eliminate them under the potential residential scenario. For the purposes of the RACP and moving forward, the Facility was divided into four areas based on ownership and potential future use as follows (refer to Figure 2):

- Area 1: Parcel 177-L-88 and Parcel 177-L-90
- Area 2: Parcel 177-L-92
- Area 3: Parcels 177-L-86 and Parcel 177-R-213
- Area 4: Parcel 177-S-270 and landscaped areas that border the western property boundary identified as Parcels 177-L-82, 177-L-84, and 177-R-217

The Risk Assessment Report (RAR) was prepared to evaluate potentially complete exposure pathways and characterize potential risks to human health and the environment under residential and non-residential scenarios by comparison of COC concentrations to EPA RSLs. The soil and soil gas data were evaluated by Area. This approach was designed to enable the sale and redevelopment of each parcel or group of parcels and to identify any potential land use restrictions for such locations based on the results of the risk assessment. Groundwater was evaluated on a Facility-wide basis. The RAR identified and evaluated potential exposures from direct contact with soil, inhalation of vapors migrating from the subsurface into a building, and potential inhalation of vapors from groundwater and soil gas during construction activities. Risk characterization was evaluated by calculating the hazard quotient (HQ) for non-carcinogenic effects and excess lifetime cancer risk (ELCR) for constituents evaluated as human carcinogens.

Results of the RAR indicate the only potential risk exceedances from specific COCs by Area are as follows:

- Area 1: The non-cancer Hazard Indexes (HIs) for inhalation exposures for construction workers in a trench exceeded the benchmark of 1. The COC hazard drivers are 1,1-dichloroethene (1,1-DCE) and TCE in air. The HI is the sum of the HQs.
- Area 2: The non-cancer HIs for contact with soil by a resident or construction worker were slightly greater than the benchmark of 1. The hazard drivers are manganese for construction workers and arsenic for residents.
- Area 3: Direct contact with soil could result in elevated non-cancer hazards even when the HIs were segregated by target organ.
 - The construction worker hazard drivers in soil are manganese, cadmium, and cobalt. In addition, soil gas vapors migrating into a trench could result in elevated non-cancer hazards for a construction worker. The construction worker hazard driver in soil gas is TCE.
 - The calculated residential potential ELCR was 6×10^{-5} and the calculated HI was 9 for direct contact with soil. The resident risk drivers are chromium and arsenic, while the primary hazard drivers are cadmium, cobalt and manganese.
 - Potential exposure of future child residents to Lead was evaluated using the Integrated Exposure Uptake Biokinetic (IEUBK) model. The results indicated that

28% of the predicted blood lead levels were greater than the benchmark of 5 microgram/deciliter (µg/dL).

- A focused evaluation of soil data to define an area where protective measures may be employed to reduce the potential risks and hazards for the hypothetical future resident was performed. It was determined that one defined area in Area 3, encompassing sample locations USS-1 through USS-7, USS-15, USS-18 through USS-24, S-5, SB-2, SB-3, and SB-5, had the highest concentrations of these target metals and drove the elevated risk. Based on this, a remedial strategy for this specific area was recommended and proposed in the Cleanup Plan (CP).

Sitewide groundwater calculated ELCRs and HIs were less than the benchmarks of 1×10^{-6} and 1, respectively.

PADEP requested an additional VI evaluation to address potential future receptors. Two replacement soil gas sample points were installed and sampled in June 2023 behind the Edgewood Towne Centre. In September 2023, a new RACP was submitted to address exposure pathways related to commercial and residential receptors. PADEP requested a further VI evaluation in Area 3 to address current commercial receptors. Three sub-slab sample points were installed closer to the Edgewood Towne Centre building and sampled in January 2024. A CP Addendum was submitted in January 2024 indicating no exceedances in the sub-slab VI samples.

An Ecological Screening (ES) was performed and included in the RACP to evaluate potential exposures of environmental receptors at the Facility. An evaluation of wetlands in the area was conducted using the National Wetlands Inventory wetlands mapping tool. The NWI data indicated that no wetland or riverine features are located within the site boundary. Nine Mile Run was identified as a wetland feature located 650 feet north/northwest of the Facility property boundary. A conservative F&T modeling evaluation presented in the RAR showed COCs present in groundwater will not reach Nine Mile Run at concentrations greater than PADEP SWQC. A Pennsylvania Natural Diversity Inventory survey was also generated. Results of the ES indicate there are no complete exposure pathways for ecological receptors to COCs in surface soil or groundwater, therefore no additional exposure estimates or risk assessment is necessary.

A selection of remedial alternatives was reviewed in the CP including source removal (soil excavation, groundwater extraction), engineering controls (installation of cap/pavement), active remediation systems (injections, soil vapor extraction), and institutional controls. An evaluation of these remedial alternatives was performed in accordance with Section 304(j) of Act 2. The CP proposed that potentially complete future exposure pathways will be mitigated using engineering and/or institutional controls for constituents in soil, soil gas, and groundwater that were identified in the RAR to have elevated risks. A Post-Remedial Care Plan was proposed to include engineering controls (ECs) and an institutional control (IC). The ECs proposed in the CP include:

For Areas 1, 2, and 3:

1. Buildings or structures to be inhabited for future residential purposes will be constructed as slab-on-grade and incorporate a passive vapor barrier unless it can be demonstrated

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that that mitigation measures are not needed. Future penetrations of the floor or vapor barrier of any such buildings or structures will be repaired with materials of similar permeability.

Additionally for Area 3:

1. In the event of residential development, surface covers in the area shown on Figure 5 will be maintained to prevent direct-contact exposure.

The IC was proposed to be recorded as an enforceable environmental covenant for Areas 1, 2, and 3 that subjects the Facility to the following:

1. Groundwater beneath the property will not be used for any purpose other than monitoring of groundwater constituents and
2. Contractors performing development or redevelopment activities at the Facility property that could disturb subsurface strata and soil will operate in accordance with an MMP to protect on-site workers from potential exposures during subsurface activities.

The CP was designed with some flexibility so that the ECs may be implemented in conjunction with current and future potential redevelopment activities while the ICs would be implemented immediately. PADEP approved the RACP on February 1, 2024.

3.4 EPA Assessment

As discussed in Section 3, the EPA initiated and led additional characterization actions beyond USSD's voluntary investigation and remedial actions. The EPA's Corrective Action Program (CAP) then coordinated cleanup efforts with PADEP upon USSD's intent to remediate pursuant to Act 2 and acceptance into the OCP in 2018. Under the OCP, PADEP was the lead agency and the EPA reviewed all reports submitted under Act 2 to determine whether the investigations, remedial actions, and final closure determinations satisfied RCRA CAP requirements. The areas identified in the RIR and RACP encompass the SWMUs identified in the PAR.

Groundwater

Groundwater sampling results collected and submitted during the RCRA investigation activities and in the Act 2 reports were compared to the EPA's RSLs, MCLs, and PADEP Residential MSC SHSs. For Act 2 reports where results submitted were evaluated against PADEP Residential MSC SHSs, the EPA determined that those standards are equivalent to the EPA's MCLs and meet or are within the EPA's acceptable RSL risk range of 10^{-4} to 10^{-6} for Corrective Action for each individual contaminant of concern in the Facility groundwater.

Three temporary monitoring well points were installed during the EPA's Phase II ESA. Permanent groundwater monitoring wells MW-1 through MW-5 were installed to characterize groundwater quality upgradient and downgradient from the SWMUs under the OCP. Groundwater samples have been collected quarterly since November 2019.

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One compound, TCE, considered subject to Corrective Action from hazardous waste handling at the Facility has been detected at only one monitoring well, MW-5, centrally located just downgradient of SWMUs 4 and 5. Concentrations ranged from non-detect (ND) to a maximum of 8.7 ug/L, exceeding the MCL of 5 ug/L by less than 2x. The most recent sample result from September 2023 was 3.5 ug/L, less than the MCL. Following the *Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Monitoring Well*, the EPA performed a *Groundwater Statistics Tool* evaluation on TCE in MW-5 in April 2024. The Site and Summary Statistics results showed no trend in the data, a mean concentration of 4 ug/L, and a 95% Upper Confidence Level (UCL) of 5 ug/L. The EPA has determined that TCE has statistically achieved the MCL in MW-5.

Thallium and Manganese have been detected in the downgradient Facility boundary monitoring wells exceeding their MCL of 2 ug/L and Secondary MCL of 50 ug/L, respectively. Concentrations of Thallium have ranged from ND to an estimated maximum of 8.9 ug/L. The estimated 8.9 ug/L result was identified at the most downgradient Facility boundary well, MW-3, in 2022. Thallium is known to be naturally occurring at an average concentration in the Earth's crust generally below 1 part per million (ppm) [Reference: Thallium in the Environment, Science Direct]. All soil samples collected had Thallium concentrations below 1 ppm. The highest Manganese concentration detected was 16,000 ug/L in MW-3 on November 29, 2021. Elevated Manganese in groundwater is commonly caused by urbanization accompanied with the leakage of low-oxygen domestic sewage and land industrialization. The highest concentrations were identified at the most downgradient Facility boundary wells and interior Facility wells located near SWMUs did not exceed the Secondary MCL. The EPA reviewed the reported RCRA Waste Codes identified for each SWMU and operational processes at the Facility and determined there is no indication of handling of Thallium or Manganese as hazardous wastes at the Facility. Therefore, the EPA has determined that Thallium and Manganese exceedances in groundwater are not a result of releases from the Facility and not subject to Corrective Action.

In the RAR, a construction worker was evaluated for inhalation of VOCs migrating from groundwater into an excavation trench during construction activities. Because construction activities can happen at any parcel, groundwater was evaluated on a Facility-wide basis. The calculated ELCR and HI were 2×10^{-9} and 0.05, respectively. These are less than the acceptable Corrective Action risk range of 10^{-4} to 10^{-6} and HI of 1.

In summary, Facility related impacts to groundwater subject to Corrective Action have been shown to have attained the MCLs or are within the acceptable risk range for other receptor pathways. The EPA has determined that no corrective measures to address future potential exposure risk from contact with groundwater at the Facility are necessary.

Soil

Soil sampling results submitted in the Act 2 RIR were compared to PADEP non-residential MSC SHSs and subsequently re-evaluated to include comparison to residential MSC SHSs and RSLs in the revised RACP. For the compounds identified, the EPA has determined that PADEP direct contact soil standards meet or are below the EPA's RSLs and are within the acceptable risk range Statement of Basis

of 10^{-4} to 10^{-6} for Corrective Action.

The EPA soil RSLs were developed primarily as screening values to be used during the early stages of a site evaluation when information about subsurface conditions may have been limited. A conservative estimate is that soil contamination extends from the surface to the water table (maximum possible depth of unsaturated zone). The EPA's 1993 *Urban Soil Lead Abatement Demonstration Project*, referred to in the EPA's July 1996 *Soil Screening Guidance*, defines the top 2 centimeters as the depth of soil where direct contact predominantly occurs (surface soil). The decision to sample soils below 2 centimeters (subsurface soils) depends on the likelihood of deeper soils being disturbed (e.g., from gardening, landscaping or construction activities). Where contamination is thought, or known, to exist below the water table, RSLs do not apply and further investigation is generally necessary.

Surface and subsurface soil samples at the Facility were collected during historic and environmental investigations. An evaluation of potentially complete exposure pathways and characterization of potential risks to human health and the environment under residential and non-residential scenarios by comparison of COCs to RSLs was performed in the RAR. The RAR was prepared in accordance with applicable EPA guidance including the *Risk Assessment Guidance for Superfund*, *Guidelines for Carcinogen Risk Assessment*, *Human Health Evaluation Manual*, *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*, etc. Risk characterization was performed in accordance with two general criteria calculated used to describe risk: HQ for non-carcinogenic effects and ELCR for constituents evaluated as human carcinogens. Potential cancer risks are estimated by an incremental increased probability of an individual developing cancer over a lifetime as a result of pathway-specific exposure to carcinogenic constituents, or the ELCR. Exposure doses are averaged over the expected exposure period to evaluate non-carcinogenic effects. An HQ greater than 1 indicates that the estimated exposure level for that constituent exceeds its reference dose. This ratio does not indicate the probability of an adverse effect. Although an HQ of less than 1 indicates that health effects should not occur, an HQ that exceeds 1 does not imply that health effects will occur, but that health effects are possible. The sum of the HQs is the HI.

The direct-contact exposure pathway was concluded to be potentially complete if residential redevelopment occurs. The revised RA and Cleanup Plan evaluated the relevant exposure scenarios for current and future site workers, hypothetical future construction workers, and hypothetical future residents associated with this medium. Based on calculations conducted for the RA and Cleanup Plan, direct contact with soil in Areas 1, 2 and most of Area 3 would not result in unacceptable risk levels to residents or construction workers. The revised RA and Cleanup Plan identified one defined area in Area 3 that exhibits moderate to elevated risk for direct contact with soils for a future construction worker or resident. That one area is defined on Figure 5 and encompasses sample locations USS-1 through USS-7, USS-15, USS-18 through USS-24, S-5, SB-2, SB-3, and SB-5.

During construction activities a construction worker may be exposed to soil vapors and dust through ingestion and inhalation. Select COCs were determined through the RA process to potentially result in unacceptable exposure for construction workers breathing air in a trench. Statement of Basis

Primary hazard drivers were inhalation of TCE in trench air in Areas 1 and 3, and inhalation of manganese dust in trench air in Area 2. Soil gas data were also used to estimate inhalation exposures of construction workers in a trench. The calculated ELCR was 8×10^{-6} and the calculated HI was 127. Overall, the total ELCR for this potential receptor was 1×10^{-5} and the total HI was 129. The primary hazard drivers are 1,1-DCE and TCE in air.

Due to the potential health effects from exposure to lead, further evaluating concentrations beyond the EPA RSL risk range of 10^{-4} to 10^{-6} for Corrective Action was necessary. Lead concentrations were evaluated in the RAR using the EPA's *Adult Lead Methodology* (ALM) and the *Integrated Exposure Uptake Biokinetic* (IEUBK) model to quantify potential risks and hazards associated with lead exposure to both adults and children in a residential or non-residential use scenario. Parameter values were based on the EPA's latest recommended default values. Lead was determined to be a COC for Areas 2 and 3. ALM and IEUBK results predicted blood lead levels would not be greater than the benchmark of 5 µg/dL for Area 2. Results of the ALM indicated that the predicted blood lead concentrations would exceed the benchmark of 5 µg/dL for construction workers in Area 3. The IEUBK results indicated that only 28% of the predicted blood lead levels would be greater than the benchmark of 5 µg/dL in Area 3. The defined area in Area 3, encompassing sample locations USS-4, USS-7, USS-20 through USS-24, S-5, SB-2 and SB-3, also drove the elevated risk from exposure to lead.

In summary for soil, the EPA has determined that residual impacts exist that could cause elevated risks from direct contact to soil from future potential residents and construction workers, as well as from inhalation in a trench by a construction worker, that require corrective measures to address future potential exposure at the Facility.

Indoor Air

The EPA evaluated the soil gas results in accordance with the *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway From Subsurface Vapor Sources To Indoor Air* (VI Guidance). Concentrations from locations that exceeded RSLs were evaluated by the EPA utilizing the VISL Calculator. TCE results from the highest level detected, SG-2R at 865 µg/m³, exhibited a slightly elevated risk of 5×10^{-5} and an HQ of 12 under a residential use scenario.

The soil gas results that exceeded screening levels collected during the ESA and RIR were further evaluated in the RAR. Receptors were evaluated for both the current (slab-on-grade) and potential future (basement) scenarios. The RAR utilized the EPA's Johnson & Ettinger (J&E) model spreadsheets to evaluate the VI pathway. Results of the J&E model runs predicted there would be no risk from vapor intrusion to indoor air exceeding the EPA's most conservative risk level of 10^{-6} and the HQ from vapor intrusion to indoor air would not exceed 1 for any COC. However, the November 2022 RACP noted a potential uncertainty due to the limited number of soil gas samples and recommended a conservative approach to include vapor intrusion mitigation measures for buildings constructed in the future for residential purposes.

The VI risk from soil gas to indoor air is within the EPA's acceptable risk range of 10^{-4} to 10^{-6}

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for Corrective Action but exceeded the HQ in the VISL Calculator run for TCE. The EPA has determined that residual contamination in soil gas exists that has the potential to cause indoor air concerns based on modeled results and, to be conservative and protective, has determined that the proposal to implement a corrective measure to address this risk at the Facility is appropriate.

Area 4 was initially and currently used as an office building, never contained a SWMU, or handled hazardous waste that would require Corrective Action. Therefore, the EPA has determined that no risks exist and no corrective measures are necessary for Area 4.

Section 4: Corrective Action Objectives

The EPA's Corrective Action Objectives are the following:

1. Groundwater

The EPA expects final remedies to return groundwater to its maximum beneficial use within a timeframe that is reasonable given the particular circumstances of the project. For projects at facilities where aquifers are either currently used for water supply or have the potential to be used for water supply, the EPA will use the maximum contaminant levels (MCLs) promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 C.F.R. Part 141.

2. Soil

The EPA has determined that current and potential future use of the Facility is mixed residential and non-residential and that some Facility soil concentrations remain above acceptable calculated ELCRs, HIs, and/or predicted blood lead levels. Therefore, the EPA's Corrective Action Objectives for soil are:

- Prevent exposures to soil where contaminant concentrations create an unacceptable risk under residential and non-residential use scenarios.
- Control industrial and construction worker exposures to soil where contaminant concentrations resulted in calculated ELCRs and HIs exceeding the EPA's acceptable risk levels.

3. Indoor air

The EPA has determined that the Facility's current and potential future use is mixed residential and non-residential and that contaminants remain in the Facility's soil gas at concentrations that modelling predicts could cause indoor air contaminant concentrations to exceed acceptable ELCRs and HIs. Therefore, the EPA's Corrective Action Objectives for indoor air is:

Statement of Basis

- Prevent human exposure to potential vapor intrusion risks as a result of calculated soil gas-to-indoor air concentrations that could exceed the EPA's acceptable risk range of 10^{-4} and 10^{-6} and hazard index of 1.

Section 5: Proposed Remedy

The EPA's proposed remedy consists of the following components:

1. Groundwater

The EPA has determined that Facility related COCs in groundwater have attained MCLs and no additional corrective measures are necessary. Therefore, EPA is proposing Corrective Action is Complete and no Controls are necessary for Facility-wide groundwater.

2. Indoor Air

The EPA has determined that corrective measures are necessary at the Facility to prevent any potential future exposure to indoor air in excess of calculated risks exceeding EPA's risk range. The EPA's proposed remedy for the Facility requires compliance with the following land use restriction:

1. Future residential use buildings/structures will incorporate a passive vapor barrier unless it can be demonstrated to the EPA and PADEP that soil gas concentrations will not pose a threat to human health and/or the environment and the EPA and PADEP provides prior written approval. Future penetrations of the floor or vapor barrier of any such buildings or structures will be repaired with materials of similar permeability in accordance with an EPA and PADEP approved Post Remediation Care Plan (PRCP).

3. Soil

The EPA has determined that corrective measures are necessary at the Facility to address residual contamination in soil. The EPA's proposed remedy for the Facility requires compliance with and maintenance of the following land use restrictions:

Area 1 and 2:

1. Contractors working on the Facility property that could disturb subsurface strata and soil will operate in accordance with an EPA and PADEP approved MMP.

Area 3:

1. Contractors working within the property that could disturb subsurface strata and soil will operate in accordance with an EPA and PADEP approved MMP; and

Statement of Basis

2. If residential development occurs, surface caps in the area shown on Figure 5 will be inspected and maintained, in accordance with an EPA and PADEP approved PRCP, to prevent direct-contact exposure.

The EPA is not requiring the following Activity and Use Limitation (AUL) subject to Corrective Action but supports the Facility's proposed measures to protect the integrity of the proposed remedy and protect human health from the ingestion pathway to estimated Thallium exceedances of the MCL. The Facility proposed groundwater AUL consists of the following:

1. The groundwater at the Facility shall not be used for any purpose other than to conduct required monitoring activities, unless it is demonstrated to the EPA and PADEP, that such use will not pose a threat to human health and/or the environment.

The EPA's preferred instrument to implement the components of the proposed remedy and ensure that the current and any future landowners comply with the restrictions is an Environmental Covenant prepared under Pennsylvania's Uniform Environmental Covenants Act, 27 Pa. C.S. §§ 6501 et seq. (UECA). These restrictions may also be implemented by an EPA permit or order.

Section 6: Evaluation of Proposed Remedy

This section provides a description of the criteria the EPA used to evaluate the proposed remedy consistent with the EPA guidance. The criteria are applied in two phases. In the first phase, the EPA evaluates three threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria	Evaluation
1) Protect human health and the environment	The EPA's proposed remedy protects human health and the environment by eliminating, reducing, or controlling potential unacceptable risks. Specifically, the proposed remedy protects human health and the environment from potentially complete exposure pathways for contaminants through the maintenance of a cap, installation of building vapor mitigation systems, implementation of a MMP, and the adherence to proposed land and groundwater use restrictions to be established under an Environmental Covenant at the Facility pursuant to Pennsylvania's UECA.

Statement of Basis

2) Achieve media cleanup objectives	The remedy proposed in this SB is based on the current and future anticipated residential land use at the Facility. The aquifer groundwater meets MCLs for contaminants subject to Corrective Action. Due to early environmental remedial actions during Facility closure, soils majorly meet the EPA's RSL risk range with the exception of one small defined area in Area 3. The proposed remedy achieves the cleanup objectives of preventing or controlling exposures to residual soil contamination through the use of ICs and ECs. Only one sample was identified as having a calculated potential risk from indoor air exposures. The proposed remedy achieves the EPA's cleanup objective to prevent human exposure to potential vapor intrusion risks through the use of an IC. Therefore, the EPA's proposed remedy meets the media cleanup objectives based on assumptions regarding current and reasonably anticipated resource uses.
3) Remediating the Source of Releases	In all proposed remedies, the EPA seeks to eliminate or reduce further releases of hazardous wastes and hazardous constituents that may pose a threat to human health and the environment. The Facility has met this objective. The sources have been excavated and remediated to the maximum extent practicable. The Facility ceased operations in 1987 and poses no future threat of new releases.

A selection of remedial alternatives was reviewed in the RACP including institutional controls, containment, treatment, and removal and disposal. An evaluation of these remedial alternatives was performed in accordance with Section 304(j) of Act 2 which includes the following criteria: Long-term Risks and Effectiveness; Reduction of Toxicity, Mobility or Volume; Short-Term Risks and Effectiveness; Implementability; Cost; and Incremental Health and Economic Benefits. As can be seen in the following table, these were evaluated and are in alignment with the EPA's Balancing Criteria.

Balancing Criteria	Evaluation
4) Long-term effectiveness	The current use of the Facility is mixed residential and non-residential. Based on discussions with owners, the reasonably anticipated future use of the Facility is residential. Installation of building vapor mitigation systems, maintenance of soil caps, along with long-term post remedial care requirements will ensure long-term effectiveness.

Statement of Basis

	<p>The Facility is listed by the CAP as vulnerable to climate change. The FEMA National Flood Hazard tool and NOAA flood exposure mapping software were evaluated to determine potential climate change vulnerabilities to the proposed remedy in the long-term. The only reason the Facility is listed by the CAP is due to the Facility boundary being located within 500 feet of the 100-year flood plain of Nine Mile Run. The EPA has determined this will not result in any vulnerabilities to the proposed remedy from climate change and that the long-term effectiveness criteria for the remedy for the Facility is satisfied.</p>
5) Reduction of toxicity, mobility, or volume of the Hazardous Constituents	<p>The reduction of mobility and volume of hazardous constituents has been achieved to the maximum extent practicable as demonstrated by the early remedial activities that removed the bulk of the contaminant sources.</p>
6) Short-term effectiveness	<p>The EPA's proposed remedy does not involve activities which could pose short-term risks to workers, residents, or the environment. A Materials Management Plan has been developed to be protective construction workers during short-term intrusive activities.</p>
7) Implementability	<p>The EPA's proposed remedy is readily implementable. The EPA's proposed remedy consists of remedial work already completed, maintenance of a soil cap in the event of residential use, vapor mitigation systems, and use restrictions. The EPA does not anticipate any regulatory constraints in the implementation of its proposed remedy.</p>
8) Cost	<p>The costs associated with the remaining proposed remedial measures, including implementation of an Environmental Covenant, are minimal (estimated cost of less than \$50,000 per year). This cost is due to the potential maintenance of a cap for contaminated soil and potentially necessary vapor mitigation systems amortized costs as part of possible future residential redevelopment activities. Therefore, the EPA's proposed</p>

	remedy is cost effective.
9) Community Acceptance	The Borough of Edgewood requested enhanced public participation. A Public Involvement Plan was developed. All reports were placed at the local library to allow for community access. Notices of all reports were published in local newspapers and offered the opportunity for public meetings. No comments or requests for public meetings were received. The EPA will evaluate final community acceptance of the proposed remedy during the public comment period, which will be detailed in the FDRTC.
10) State/Support Agency Acceptance	PADEP is not authorized for Corrective Action but was the lead oversight agency for the investigation and cleanup plan at this Facility under Act 2 with input from the EPA under the OCP. PADEP has reviewed and approved the Cleanup Plan. The EPA expects Commonwealth acceptance of the proposed remedy.

Overall, based on the information currently available, the proposed remedy meets the threshold criteria and provides balance of the evaluation criteria.

Section 7: Financial Assurance

The EPA has evaluated whether financial assurance for Corrective Action is necessary to implement the proposed remedy at the Facility. The EPA's proposed remedy requires institutional and engineering controls to prevent exposures to residual contamination in exceedance of residential use levels. The costs for implementation of the proposed remedy at the Facility will be minimal (less than \$50,000 annually). Therefore, the EPA is proposing that no financial assurance is required.

Section 8: Public Participation

Interested persons are invited to comment on the EPA's proposed decision. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, e-mail, or phone to Mr. Kevin Bilash at the address below.

A public meeting will be held upon request. Requests for a public meeting should be made to Statement of Basis

Mr. Kevin Bilash at the address listed below. A meeting will not be scheduled unless one is requested.

The Administrative Record contains all the information considered by the EPA for the proposed decision at this Facility. The Administrative Record is available at the following location:

Contact: Mr. Kevin Bilash (3LD20)
Four Penn Center
1600 JFK Boulevard
Philadelphia, PA 19103
Phone: (215) 814-2796
Email: bilash.kevin@epa.gov

The EPA's review of available information indicates that there are no unaddressed releases of hazardous waste or hazardous constituents from the former Union Switch and Signal Division facility located at 1789 Braddock Avenue, Pittsburgh, Pennsylvania 15218. The EPA's proposed decision for the Facility consists of maintenance of a cap, installation of building vapor mitigation systems, implementation of a MMP, and the adherence to proposed land and groundwater use restrictions.

Date: _____

Stacie Pratt, Acting Director
Land, Chemicals, and Redevelopment Division
US EPA, Region 3

Figure 1 – Facility location

Figure 2 – Parcel Ownership and Areas

Figure 3 – SWMU locations

Figure 4 – Overlay of Historic and Current Map with Sampling Locations

Figure 5 – Post-Remedial Care Plan Activity and Use Limitations

Index to Administrative Record

Storage Facility Closure Plan, Union Switch and Signal Division, October 1985

Public Notice of Hazardous Waste facility Closure Plan, USSD, December 10, 1985

Heat Treat Operation, USSD, October 6, 1986

October 1985 Closure Plan Approval, PADEP, February 24, 1987

Certificate of Closure for the Waste Storage Pad, USSD, November 13, 1987

Certificate of Closure for Owner and Operator, USSD, November 16, 1987

USSD Closure approval letter, PADEP, December 31, 1987

Union Switch and Signal Division Lower Lot Soil Contamination Assessment, IT Corporation, Revised December 10, 1987

Union Switch and Signal Electroplating Building Additional Subsurface Soil Analysis Report, IT Corporation, Revised December 10, 1987

Decommissioning Report of the Union Switch and Signal Division American Standard, Inc. Plant, Union Switch and Signal Division, February 1988

Letter from USEPA to American Standard regarding if corrective action is need at the Site, USEPA, March 10, 1989

Preliminary Assessment Report, NUS Corporation, October 24, 1989

Environmental Indicator Inspection Report, URS Corporation, January 2009

Phase II Environmental Site Assessment Report - FINAL, AECOM, September 15, 2016

WABCO USSD Remedial Investigation Report, Arcadis, December 2020

Former Union Switch and Signal Risk Assessment Report, Arcadis, July 2022

Risk Assessment Report, Arcadis, July 2022, Revised July 2023

Risk Assessment and Cleanup Plan, Arcadis, November 14, 2022

Risk Assessment and Cleanup Plan, Arcadis, September 28, 2023

Statement of Basis

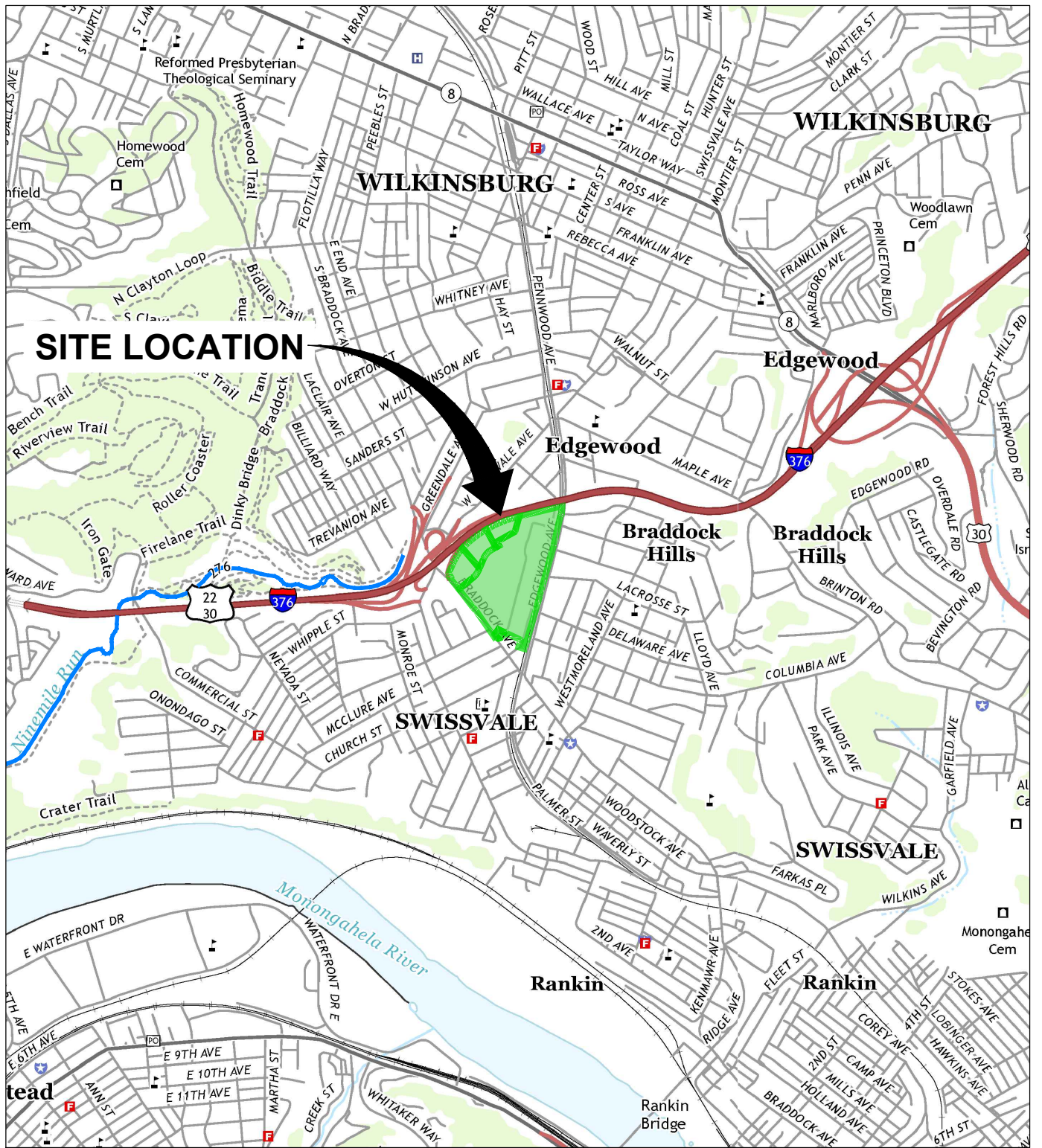
Cleanup Plan Addendum, Arcadis, January 15, 2024

Risk Assessment Report and Cleanup Plan Approval, PADEP, February 1, 2024

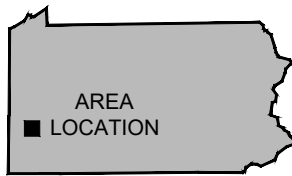
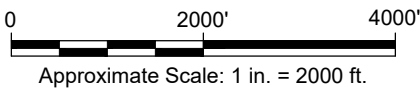
[Thallium in the environment: A critical review focused on natural waters, soils, sediments and airborne particles - ScienceDirect](#), EPA Review, April 2024

Groundwater Statistics Tool evaluation, EPA, April 2024

Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., PITTSBURGH EAST & BRADDOCK, PENNSYLVANIA, 2016.



PENNSYLVANIA

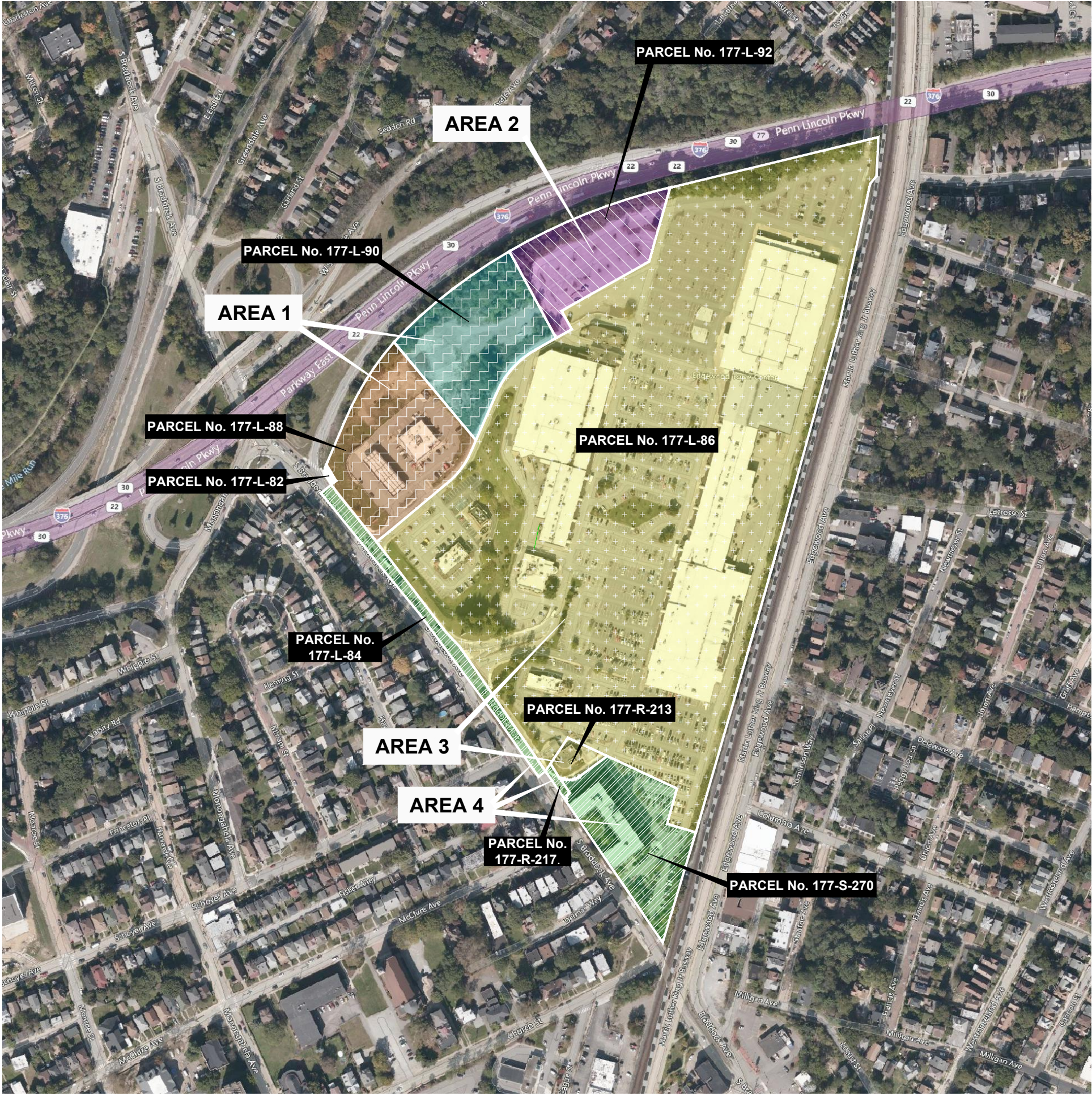
FORMER UNION SWITCH & SIGNAL DIVISION
PITTSBURGH, PENNSYLVANIA

FACILITY LOCATION

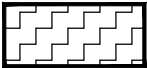
EPA Statement of Basis

FIGURE

1



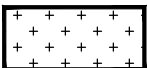
FUTURE LAND USE AREA KEY:



AREA 1: RESIDENTIAL - NO REDEVELOPMENT PLAN:
Lots D-1 (Parcel 177-L-88) and D-2 (Parcel 177-L-90)



AREA 2: RESIDENTIAL - RECENTLY DEVELOPED MULTIUNIT HOUSING:
Lot D-3 (Parcel 177-L-92)

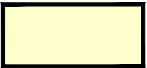


AREA 3: COMMERCIAL - FUTURE POTENTIAL FOR RESIDENTIAL:
(Parcel 177-L-86 and Parcel 177-R-213)



AREA 4: NON-RESIDENTIAL - NO CHANGE PROPOSED:
(Parcel 177-S-270 and Western Property Boundary Landscaped Parcels)

PROPERTY OWNER KEY:



EDGEWOOD STATION LLC



AGREE SHELF ES PA LLC



PARKWAY UNION
DEVELOPMENT CORP



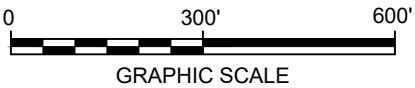
GETGO PORTFOLIO II LP



EDGEWOOD HOUSING
PARTNERS

NOTES:

1. PARCEL INFORMATION PROVIDED BY ALLEGHENY COUNTY GIS VIEWER. ALL LOCATIONS ARE APPROXIMATE.
2. AERIAL PHOTOGRAPH PROVIDED BY MICROSOFT CORPORATION COPYRIGHT 2021.

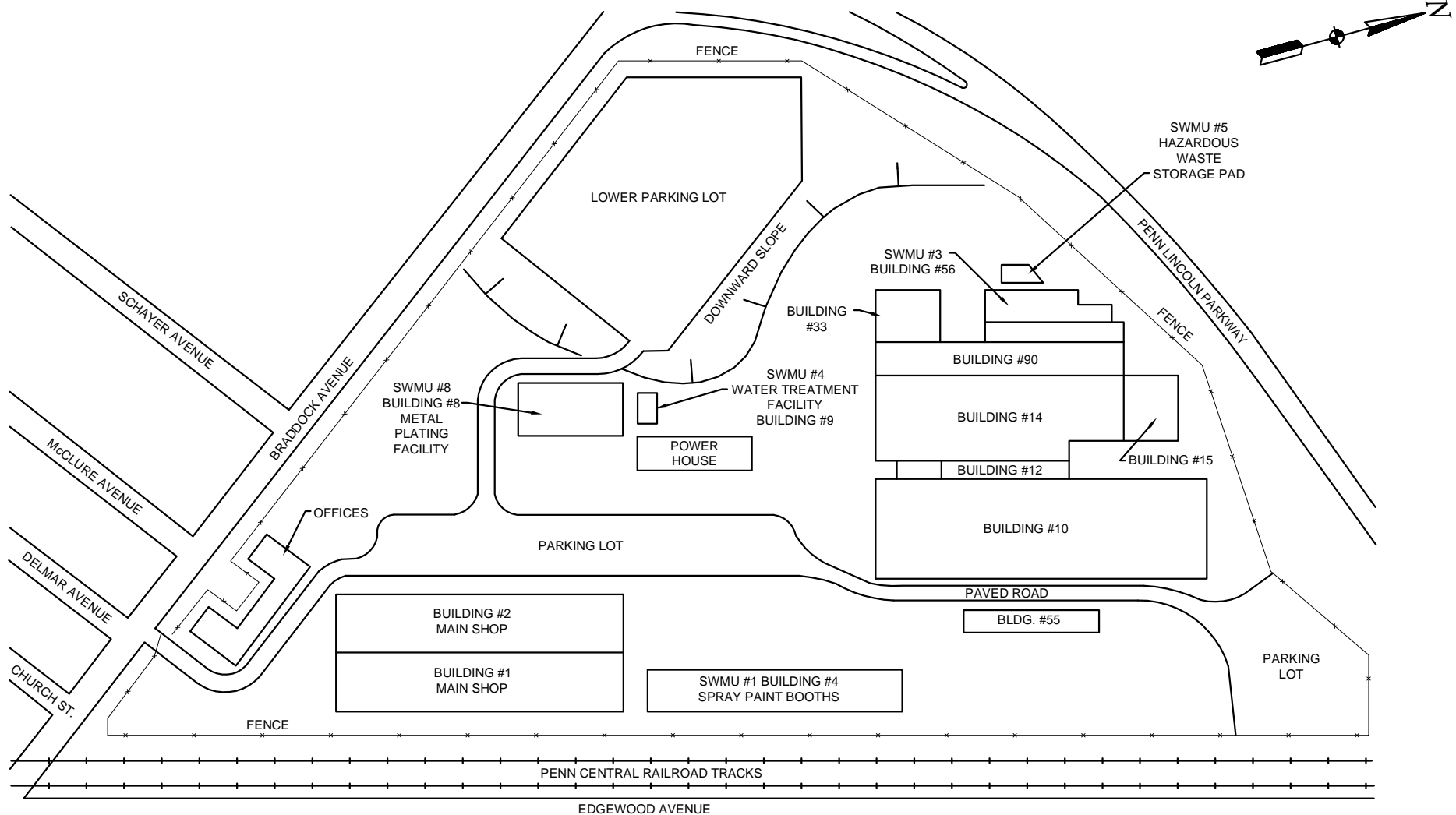


GRAPHIC SCALE

FORMER UNION SWITCH & SIGNAL DIVISION
PITTSBURGH, PENNSYLVANIA

PARCEL OWNERSHIP and AREAS

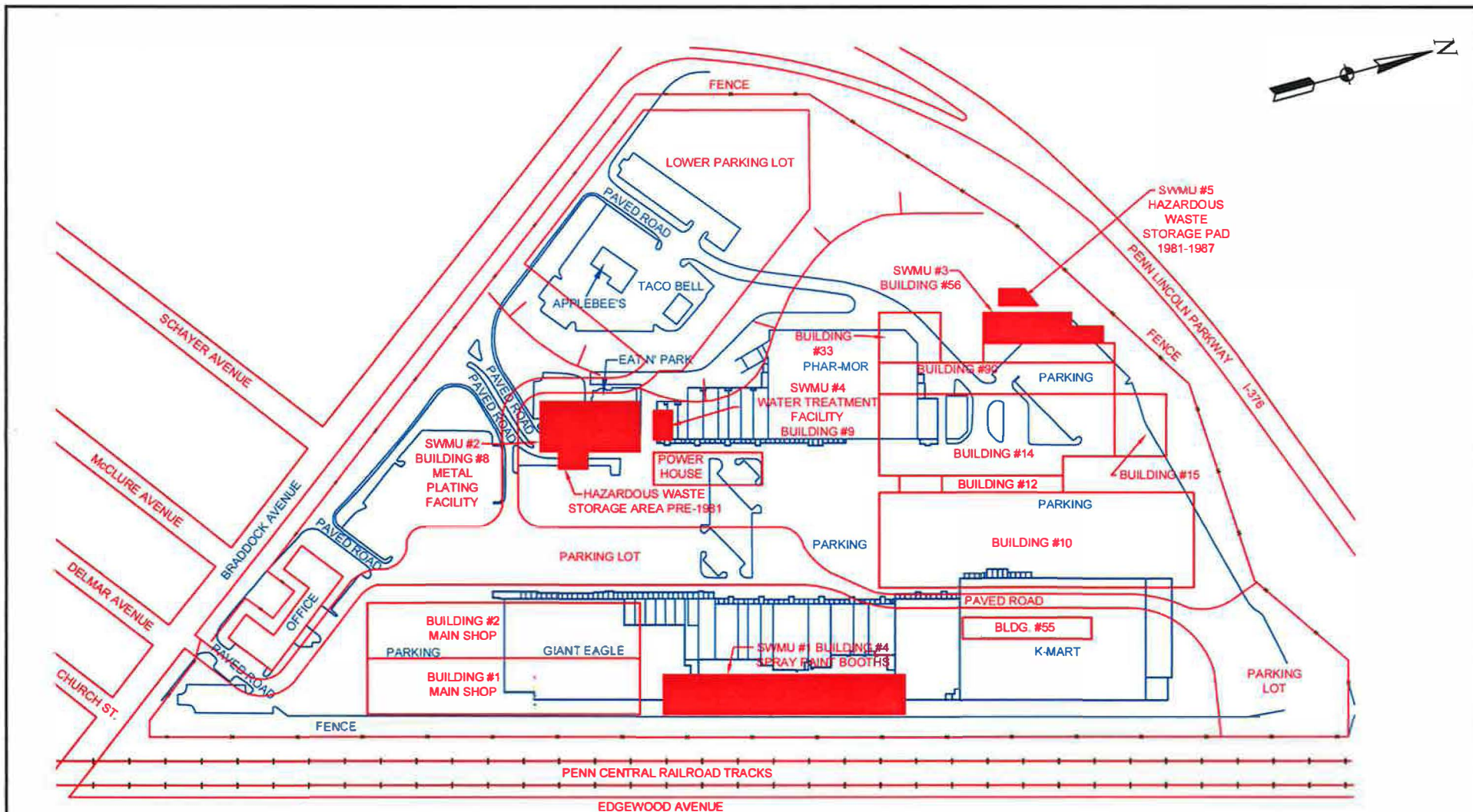
EPA Statement of Basis



NOTE: THIS DRAWING IS NOT TO SCALE

TITLE			
HISTORIC SWMU LOCATIONS			
PROJECT			
Union Switch & Signal Division			
EPA STATEMENT OF BASIS			
SCALE	N.T.S.	DWN. BY	AWJ
DATE	8/21/08	APPR. BY	
JOB NO.		20497896	
FIG. NO.		3	

REFERENCE:
ENVIRONMENTAL PRIORITIES INITIATIVE PRELIMINARY ASSESSMENT,
NUS CORPORATION, OCTOBER 24, 1989.



NOTE: THIS DRAWING IS NOT TO SCALE

LEGEND

--- BOROUGH BOUNDARY
 --- PROPERTY LINE

OVERLAY LEGEND

--- HISTORIC SITE
 --- CURRENT SITE

REFERENCE:
 ENVIRONMENTAL PRIORITIES INITIATIVE PRELIMINARY ASSESSMENT,
 NUS CORPORATION, OCTOBER 24, 1989.

TITLE			
OVERLAY OF CURRENT AND HISTORIC MAP			
PROJECT			
Union Switch & Signal Division			
EPA STATEMENT OF BASIS			
SCALE	N.T.S.	OWN. BY	JAK
DATE	8/21/08	APPR. BY	
JOB NO.	20497896	FIG. NO.	4

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