Act 2 Remedial Investigation/Risk Assessment/Final Report

52-Acre Parcel
Fairless Hills Facility
U. S. Steel
Fairless Hills, Bucks County, Pennsylvania

USS Real Estate

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1. Introduction

This Remedial Investigation/Final Report (RI/FR) is being submitted to the Pennsylvania Department of Environmental Protection (PADEP) to document the attainment of the Statewide Health Standards (SHSs) and Site-Specific Standard (SSS) for a 52-Acre Parcel consisting of the area west and south of the former motor building including: parts of Slab Yards 1, 2, and 3; the former Reheating Furnace; Electrical Substations 6 and 13; the Air Separation Plant; and the outdoor Rolling Mills Electrical Substation (Site) at the U. S. Steel (USS) Fairless Hills Facility (aka Keystone Industrial Port Complex), Fairless Hills, Bucks County, Pennsylvania (Facility). The Site characterized and evaluated in this report is approximately 52 acres of the industrial Facility. The Site included operations that supported the former industrial operations. This RI/RA/FR demonstrating attainment of the SHS and SSS for soil was prepared in accordance with Pennsylvania Chapter 250, the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2), Sections 250.408, 250.409, and 250.411. The Facility location is presented on Figure 1.1. The Site location is presented on Figure 1.2.

Based on current Site conditions, the results for the remedial investigation, previous assessments, evaluation of potential receptors and exposure pathways, and execution of an Environmental Covenant with activity use limitations to ensure future use restrictions, USS has demonstrated attainment with the SHS and SSS for Site compounds of concern (COC) for soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2).

2. Site Description

2.1 Facility and Site Location

The Facility is located on the west bank of the Delaware River, approximately 1 mile west of Bordentown, New Jersey, 2 miles south of Trenton, New Jersey and 3 miles east of Levittown, Pennsylvania (Figure 1.1). The Facility is approximately 2,800 acres. The Facility is bounded to the east and southeast by low-lying wetlands, tidal marshes, and forested areas that represent former farmed fields. To the southwest of the Facility is the Geological Reclamation Operations and Waste Systems Inc. (G.R.O.W.S) landfill, a subsidiary of Waste Management of Pennsylvania (WMPA). To the northwest of the Facility is the New Ford Mill Industrial Park and property belonging to Wheelabrator Environmental Systems, Inc. To the northeast of the Facility is Biles Island (owned by WMPA). U.S. Steel has granted right-of-way across their property to Waste Management, the Philadelphia Electric Company, and the Public Service Electric and Gas Company.

The Site characterized and evaluated as part of this RI/FR consists of an approximately 52-acre parcel as shown on Figure 1.2. The Site is bounded to the north, south, east, and west by former Facility operational areas.

2.2 Facility and Site Background

Facility

Prior to 1952, the Facility was used for agricultural purposes. During construction of the Facility, numerous borrow pits were excavated to provide fill material to raise the Facility above the elevation of the 100-year floodplain. The Facility began operations in 1952. Its primary activities were integrated steel-making and finishing. The majority of the Facility operations were constructed in the early 1950s. Additional development took place in the 1960s and the early 1970s, including the construction of the electric arc furnace, rod mill, and wire mill. In the early 1980s the electric arc furnace and several finishing operations (rod, bar, rolling, and wire mills) were shut down. In 1984, the coke and coal chemical plants were shut down. The sinter plant ceased operations in 1990. Steel-making operations ceased in 1991 when the last blast furnace, open hearths, and primary mills were shut down. Currently, only the galvanizing facility is still operating.

Site

The 52-acre parcel includes part of the former Bloom and Billet mills; parts of Slab Yards 1, 2, and 3; the former Reheating Furnace; former Electrical Substations 6 and 13; former Air Separation Plant and the existing outdoor Rolling Mills Electrical Substation. The 52-acre parcel also includes the northern portion BP-2 South. BP-2 South is rectangular in shape and covers an area of approximately 65 acres. BP-2 South was active between 1968 and 1975, and received slag, general wastes, metal scrap, railroad ties and discarded tires. BP-2 South has been filled to grade. The Site includes two stormwater drainage ditches, one along the western boundary and one along the northern boundary. These ditches drain stormwater from developed portions of the Facility to a NPDES permitted outfall located approximately 3,200 feet south of the Site.

2.3 Physiography and Topography

The Facility is located on a broad alluvial plain of the Delaware River (Figure 1.1). The Facility elevation is approximately 10 to 20 feet (ft) above mean sea level (AMSL). The alluvial plain lies on the inside bend of a major change in the river channel direction from southeast to southwest. The change in direction corresponds to the emergence of the river from the undulating, rolling low relief hills of the Piedmont Physiographic Province to the relatively flat Atlantic Coastal Plain Province. In the northeastern United States, the boundary between these two provinces is commonly termed the "Fall Line" that trends northeast-southwest (NE-SW) and lies approximately 5 miles northwest of the Facility.

The Piedmont Province consists of a series of NE-SW trending uplands composed of rounded hills and plains cut by relatively narrow valleys. The altitude of the region ranges from 40 to 700 ft AMSL, with local relief not greater than 200 ft. The slope of the whole region is gradually to the southeast. The Piedmont Province is underlain by crystalline rocks of Pre-Cambrian and Cambrian age (Kimball, 1976).

The Atlantic Coastal Plain Province is a low-lying, gently rolling plain. At the Facility, the slope is generally to the southeast toward the Delaware River. The Coastal Plain is composed of unconsolidated or poorly consolidated, flat-lying sediment strata consisting of clay, silt, sandy clay,

sand, and gravel of the Mesozoic and Cenozoic age. The beds thicken to the southeast and overlie some of the consolidated crystalline rocks that are at or near the surface in the Piedmont Province.

From a review of the Trenton East and Trenton West, New Jersey USGS 7.5-minute series topographic quadrangle maps and Site engineering plans, ground surface across the majority of Site is fairly flat at 18 to 21 feet (ft) Above Mean Sea Level (AMSL).

2.4 Geologic and Hydrogeologic Setting

According to the Soil Survey of Bucks and Philadelphia Counties, Pennsylvania: U.S. Department of Agriculture, Map 73 (Thompkins, Edward A., July 1975), the Facility is covered by Urban Land, 0 to 8 percent slopes. The Urban Land-Howell Complex is the second most predominant soil type at the Facility. Urban land is soil that has been modified by disturbance of the natural layers with addition of fill material to accommodate large industrial and housing installations. The existing surface of the 52-Acre Parcel is composed of steel making slag, some concrete slabs, and course sinters.

Based on data obtained from borings and test pits, the Facility overburden is comprised of fill material overlying fine to coarse sand/gravel, silts, and clays. In general, the fill varied in thickness from 0 to 15 ft. Fill material generally included slag with a few fines. Native soil encountered beneath the fill material appears to be indicative of the Trenton Gravel Series, generally consisting of fine to coarse gravel, sand, and some silt and minor amounts of clay. The upper-most water-bearing unit occurs in the unconsolidated native material and is unconfined. The depth to water in the soil borings was encountered at depths ranging from 6 to 15 ft below ground surface (bgs).

Bedrock was not encountered in any of the borings during the remedial investigation; however, the 1997 RCRA Facility Investigation (RFI) Report noted that the Site is underlain by the Wissahickon Schist and bedrock generally is located approximately 80 to 100 ft bgs.

3. Remedial Investigation

The following presents a summary of the methodology and procedures followed during the remedial investigation. All remedial investigation activities were performed in accordance with standard industry practice and guidelines described in the Land Recycling Program Technical Guidance manual (June 8, 2002) and followed proper health and safety protocols required by Occupational Safety and Health Administration (OSHA) Regulations 1910.120. A site-specific Health and Safety Plan (HASP) was followed by field staff during all field activities performed at the Site.

Prior to the start of the investigation, utilities were cleared by Pennsylvania One Call and USS personnel.

To complement historical soil concentrations at 16 sampling locations, GHD completed additional soil and sediment sampling on the Site. GHD collected soil samples on February 27, 2014, and sediment samples on September 9, 2016.

Five soil borings (BH-200-14 to BH-204-14) were advanced using a Geoprobe® rig at the locations presented on Figure 3.1. Locations were selected based on a review of historical operations and

aerial photographs, as well as the locations of historical investigative samples (see Figure 3.1), to provide representative coverage across the parcel.

The Geoprobe® was advanced at each boring location to the top of the water table. Four-foot long macrocores were collected at each boring location. The macrocores were opened and then screened using a RAE Systems MiniRae 2000 Photoionization Detector (PID) for possible presence of VOCs. The PID was calibrated daily prior to use. Following sample collection at each location, the cores were classified in general accordance with the Unified Soil Classification System (USCS) and the cuttings returned to the open holes. Appendix A presents the soil boring stratigraphic logs along with the results of the PID screening. Soil boring locations were surveyed in advance of the sampling events.

From each boring, one soil sample was collected from 0 to 2 ft bgs and a second sample was collected from the interval between 2 ft bgs and the water table, exhibiting the highest level of impacts based on observation and/or PID readings. If no impacts were observed, the sample was collected from either the base of the fill layer or at the midpoint between 2 foot depth and the water table if fill was not obvious. Soil samples were submitted to TestAmerica for chemical analysis. Quality assurance and quality control samples were collected during sampling. All samples were collected and transported following standard chain-of-custody procedures. Soil samples were analyzed for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Metals, Cyanide, and Polychlorinated Biphenyls (PCBs).

Four sediment samples (SD201-16 through SD204-16) were collected from the ditch that runs along the northern and western portions of BP-2 South. Standing water was not observed at the time of sampling in September 2016. Sediment samples were submitted to TestAmerica for chemical analysis. Quality assurance and quality control samples were collected during sampling. Sediment samples were analyzed for VOCs, SVOCs, Metals, Acid-volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM), PCBs, Cyanide, Soot Carbon, Sulfide, and TOC.

In August 2017, Kleinfelder, Inc. collected soil samples at the Site. A total of nine soil borings (GP-01-2017 to GP-09-2017) were advanced using a direct-push rig. Eight test pits (TP-01-2017 to TP-08-2017) were also completed and sampled at the Site. Soil boring and test pit locations are presented on Figure 3.1. Soil samples from the soil borings were taken from varying depth intervals between 9 and 11.5 ft bgs. The test pit samples were taken from varying depth intervals between 5 and 11 ft bgs. Soil samples were analyzed for VOCs, SVOCs, Metals, and PCBs.

On September 29, 2017, Lewis Environmental (Lewis) completed excavations in two areas to remove drip tanks from the Site. Figure 3.1 presents the locations of the drip tank removals. During the event, Lewis collected post-excavation soil samples. One sample was taken from each end of each excavation associated with the drip tank. In addition, a composite soil sample was collected from the excavated stockpiled soil. The samples were analyzed for VOCs, SVOCs, Metals, and PCBs. The drip tanks were disposed of off Site. The excavated soil was used to backfill the excavations. The backfill materials were bucket tamped for compaction and the surface area rough graded.

4. Data Evaluation

4.1 Soil Sample Results

Tables 4.1 to 4.3 present the analytical results for the soil samples collected during the 2016/2017 investigations as well as historical investigative samples collected at the Site. All analytical results were below the following Pennsylvania Non-Residential Medium-Specific Concentrations (MSCs): Direct Contact Criteria for 0 to 2 ft bgs (Table 4.1); Direct Contact Criteria for 2 to 15 ft bgs (Table 4.2); and Soil-to-Groundwater Criteria (Non-Use Aquifer) (Table 4.3), with the following exceptions:

- Two surficial samples (locations BH-200-14 and BH-203-14) reported an exceedance of the Direct Contact Criteria (0 to 2 ft bgs) for vanadium. The MSC for vanadium is 220 mg/kg. The analytical results for vanadium were 280 and 291 mg/kg, respectively. The Site-Specific Standard (SSS) for Vanadium is 320 mg/kg. The calculations that support the SSS for vanadium are presented in Appendix B. Therefore, the soil sampling program has demonstrated attainment of the SHS for soil.
- Two surficial samples (locations BH-200-14 and BH-203-14) reported an exceedance of the Direct Contact Criteria (0 to 2 ft bgs) for iron. The MSC for iron is 190,000 milligrams per kilogram (mg/kg). The analytical results for iron were 201,000 and 212,000 mg/kg, respectively. The 95% upper confidence limit (UCL) of the mean for iron (149,954 mg/kg) is below the MSC. The calculations that support the 95% UCL for surficial iron are presented in Appendix C.
- One subsurface soil sample collected by Kleinfelder, Inc. (location GP-03-2017) had an exceedance of the Direct Contact Criteria (2 to 15 ft bgs) for iron. The MSC for iron is 190,000 milligrams per kilogram (mg/kg). The analytical results for iron was 194,000 mg/kg. The 95% upper confidence limit (UCL) of the mean for iron (56,204 mg/kg) is below the MSC. The calculations that support the 95% UCL for surficial iron are presented in Appendix C.
- One sediment sample (location SD203-16) reported an exceedance of the Direct Contact Criteria (0 to 2 ft bgs) for lead. The MSC is 1,000 mg/kg. The analytical result was 2,270 mg/kg. The 95% upper confidence limit (UCL) of the mean (528 mg/kg) is below the MSC. The calculations that support the 95% UCL for surficial lead are presented in Appendix C. Therefore, the soil sampling program has demonstrated attainment of the SHS for soil.
- One historical surficial soil sample (location NATP-14) reported an exceedance of the Direct Contact Criteria (0 to 2 ft bgs) for benzo(a)pyrene. The MSC is 11 milligrams per kilogram (mg/kg). The analytical results were 15 and 16 mg/kg in the sample and duplicate analysis, respectively. The 95% UCL of the mean (5.6 mg/kg) is below the MSC. The calculations that support the 95% UCL for surficial benzo(a)pyrene are presented in Appendix C. Therefore, the soil sampling program has demonstrated attainment of the SHS for soil.

All soil samples were also screened against the PA Soil Statewide Health Standard Vapor Intrusion Screening Values (Table 2) from the Vapor Intrusion into Buildings from Groundwater and Soil Technical Guidance Manual dated January 18, 2017. All of the soil samples were below the vapor intrusion screening values.

Appendix D presents the data validation memorandum.

4.2 Aquatic Sediment Sample Results

The Site contains two drainage ditches, the smaller of which is usually dry and the large of which is often dry. The bottoms of these were sampled and treated as aquatic sediments and screened to standard sediment quality benchmarks (SQB). Some divalent metals were found at concentrations above these SQBs, so AVS/SEM analyses were also conducted to address the likely bioavailability of these metal. AVS/SEM analyses demonstrate that no sediment had metals that could significantly impact aquatic life. Therefore, sampling of sediments found no potential for ecological effects of Site related compounds.

Appendix D presents the data validation memorandum.

5. Site Conceptual Model

The Facility is located on a broad alluvial plain of the Delaware River. The Facility elevation is approximately 10 to 20 ft AMSL. The alluvial plain lies on the inside bend of a major change in the river channel direction from southeast to southwest.

The Site encompasses approximately 52 acres. Based on the subsurface observations during the remedial investigation activities, fill material underlies the Site and consists of slag, gravel, sands, and silts. Native soil encountered beneath the fill material appear to be consistent with the Trenton Gravel Series, generally consisting of fine to coarse gravel, sand, with some silt and minor amounts of clay. The upper-most water bearing unit occurs in the unconsolidated native material or fill and is unconfined. The water table was not encountered in the soil borings indicating that the water table is below 15 ft bgs.

The Site is part of an industrial park and only non-residential uses of the Property are permitted for the future. The Site is primarily vacant with only a few buildings associated with the electrical sub-station. A non-use aquifer determination was approved by PADEP in April 1999, and eliminates the groundwater exposure pathway. Also, in an April 11, 2011 letter, PADEP provided a release of environmental liability for compounds of concern (COC) in Facility-wide groundwater. Currently, there are no uses of groundwater for potable or non-potable purposes between the up-gradient boundary of the Facility and the Delaware River. Furthermore, the use of Facility groundwater is restricted through the implementation of an Environmental Covenant and all present and future use of groundwater from any source on the Property shall be prohibited, except for purposes of monitoring groundwater quality, as necessary. Given the use of the Site for industrial purposes and physical constraints that hinder the establishment of any significant habitat, there is no complete pathway for ecological exposure in upland areas.

Furthermore, by deed recordation, the uses of the subject property will be restricted to non-residential purposes and there is no complete pathway to on-site groundwater.

6. Exposure Pathway and Receptor Evaluation

The Site is currently zoned Materials Processing and Manufacturing (MPM) for non-residential use and will be deed restricted. The immediate and planned future use is non-residential and light industrial. The direct contact SHS was based on non-residential criteria. The soil to groundwater pathway was based on the non-use aquifer criteria because the Site has obtained a non-use aquifer designation from PADEP.

6.1 Soil

The soil concentrations at the Site reported concentrations of COCs below the applicable MSCs for direct-contact in a non-residential use scenario (for both surface and subsurface soil) with the exception of: two shallow locations that exceeded for vanadium. A Site-specific risk assessment was completed to calculate a SSS for vanadium. The Site-specific risk assessment identified that an acceptable SSS for surficial vanadium would be 320 mg/kg, and that risk-based direct contact criterion is utilized in this assessment. In considering all the available data, attainment of these SSSs for vanadium has been demonstrated. Therefore, there is no unacceptable risk to receptors to COCs in soil.

The soil concentrations at the Site reported concentrations of COCs below the applicable MSCs soil-to-groundwater criteria for non-use aquifers. Therefore, there is no exposure pathway from soil-to-groundwater, and there is a non-use aquifer determination for the Site and Facility.

6.2 Ecological Evaluation

The EHA followed Act 2 guidance and additional guidance provided in Ogden Environmental (2014).[1] The complete EHA is provided in Appendix E, but the following paragraphs provide a brief summary. The nature of contaminants (chemicals other than just petroleum products) and the extent of terrestrial and stormwater management features on the Site mandated a more extensive EHA.

Thus, the EHA needed to determine whether there were releases of constituents of potential ecological concern (CPECs). The surface materials/soils (top 2 ft) at the Site have elevated concentrations of several metals that have been defined as CPECs under Act 2 guidance. These metals are naturally occurring and, thus, are ubiquitous in surface soils, whether or not the metals were released by Site activities. Therefore, average concentrations found in the Site's surface materials were compared to average background concentration for Pennsylvania to determine which metals were likely released by Site activities[2]. A number of organic compounds (e.g., PAH

[1] Ogden Environmental. 2014. Ecological Screening Process Rationale. Statewide Health Standards. www.portal.state.pa.us/portal/server.pt/community/standards%2C_guidance_and_procedures/21543/statewide health_standards/1034862.

[2] Act 2 guidance for background analyses was not followed for two reasons. First, the intent of this background analysis is not to attain a "background standard" for soils. Rather, the intent of this analysis is to identify CPECs for consideration in surface water and sediments. Because the exposure pathways from surface material/soil to ecological receptors are functionally incomplete, there is no need to attain a background standard for soils/surface materials themselves. Second, the guidance recommends that nearby uncontaminated soils that are similar in texture to contaminated site soils should be sampled to determine local background concentrations.

and PCBs) were also detected in surface material. Because these compounds are also widely dispersed in the environment, concentrations of the organics detected in surface material were compared to background concentrations for urban soils, when available. Thus, PAH concentrations were compared to background concentrations for urban soils from New Jersey and Massachusetts. Other organics, which lacked reliable background concentrations for comparison, were conservatively assumed to have a background concentration of 0.05 mg/kg[3].

Average concentrations of Site's surface material greater than 150 percent of background concentrations was considered evidence of a Site release of that chemical. Site-specific CPECs were identified as those constituents that were both Act 2 CPECs and those chemicals observed to be elevated above background. Using this selection method, a number of slag-related metals (chromium, copper, iron, and manganese), most of the PAHs, and PCBs were identified as Site-specific CPECs.

Since CPECs are present in the surface materials/soils, the Site could not be eliminated from further ecological evaluations under 250.311 (b) and a more detailed evaluation of potential ecological effects was undertaken.

GHD ecologist Scott E Bush conducted a Site visit in January 2017 to examine and evaluate existing Site habitats and existing Site conditions. Based on this visit and available sampling data, an Ecological Health Assessment (EHA) was completed following Act 2 guidance. This EHA is described in more detail in Appendix E, but the following sections describe the on-Site habitat and the conclusions of the EHA.

Existing Site Conditions and Ecological Features

The Site is approximately 52 acres and is relatively flat. The majority of the Site topography ranges in elevation from approximately 10 to 20 ft AMSL. The Site consists almost entirely (>98 percent) of terrestrial habitat. Except for two facility stormwater ditches, the substrate from 0 to 18 inches was observed to be mostly granular slag and sinters on leveled ground. Due to the lack of well-developed soil, vegetation is sparse over much of the ground surface. The terrestrial vegetation present consisted of patchy areas of eastern cottonwood (Populus deltoides) saplings and Morrow's honeysuckle (Lonicera morrowii) and a herbaceous stratum containing yellow sweet clover (*Melilotus officinalis*), spotted knapweed (*Centaurea maculosa*), foxtail grass (*Setaria faberi*), common mullein (*Verbascum thapsus*), and Virginia broomsedge (*Andropogon virginicus*).

Given the high level of disturbance and lack of well-developed soils, the terrestrial area provides very limited habitat for plant and animal species. GHD ecologists observed no evidence that Site-related compounds are causing toxicity to the flora or fauna on the Site. Rather, the sparsely vegetated and depauperate plant communities present are attributable to the poor growing conditions afforded by the surface material, mostly slag with little to no soil. In the limited areas where soils are present, the tree and shrub communities are present but are comprised of early colonizing species typical of previously disturbed sites.

However, the surface materials at the Site are mostly slag, sinter, and fill, which have no natural soil equivalents, near or distant from the Site

[3] This value was based on professional judgement and experience as a conservative threshold for urban background and potential ecotoxicity.

Given the highly disturbed and industrial nature of the Site, the terrestrial area does not represent a "habitat of concern" that requires purview under Act 2. Thus, exposure pathways, between CPECs in soil and sensitive ecological receptors, were determined to be incomplete.

A stormwater channel, referred to as the Central Canal, occurs along the western Site boundary and conveys stormwater from the Facility to a NPDES permitted stormwater outfall near the Delaware River in the southern portion of the Facility. The channel has steep slag banks and bottom substrate consisting of slag and variable sediments. The vegetation in and along the channel at the toe-of-slope consists of common reed (*Phragmites australis*), false indigo (*Amorpha fruticosa*), purple loosestrife (*Lythrum salicaria*), Morrow's honeysuckle (*Lonicera morrowii*) and poison ivy (*Toxicodendron radicans*). The Central Canal receives stormwater runoff from portions of the entire Facility, and it continues to the north and south of the 52-acre parcel. The on-Site segment of the Central Canal lacks permanent water but periodically contains stormwater from the Facility.

A second stormwater drainage ditch occurs in the northern portion of the Site, running east-west and draining to the Central Canal near the northern Site boundary. The east-west ditch conveys stormwater from the 52-acre parcel and nearby portions of the Facility to the Central Canal. The east-west ditch also normally lacks surface water but periodically conveys stormwater to the Central Canal following rain events. There was no surface water in either drainage ditch when sampling occurred in September 2016.

The Central Canal and east-west ditch both are unsuitable to support any of the species of concern. The habitat value of the Central Canal and east-west stormwater ditch is very limited due to their small size, disturbed nature, and dominance by exotic and nuisance plant species. Both ditches are covered under the Facility stormwater NPDES permit, which further limits habitat values and regulatory concern.

Notwithstanding these limitations, the onsite stormwater management ditches were considered a "habitat of concern" in the EHA. Bottom material/sediments of the perpendicular drainage ditch and Central Canal were sampled. A number of Site-related CPECs and other chemicals were detected in these sediment samples. Concentrations of Site-related CPECs detected in these sediments were screened against Ecological Screening Values (ESVs) to determine whether exposures were potentially significant. In no case did Site-related CPECs exceed ESVs that considered bioavailability in sediments. To be conservative and make use of available data, chemicals that were not Site-related CPECs but were detected in sediments, were also screened against ESVs. In this case, there were minor but ecologically insignificant exceedances of ESVs, apparently caused by compounds from areas upstream of the Site.

As part of the EHA, an assessment of the Site was conducted to determine if any of the sensitive receptors listed at PA Chapter 250.311 (a) were present on the Site. A Pennsylvania Natural Diversity Inventory (PNDI) database search (Appendix F) indicates no potential conflicts with any Federally-listed threatened or endangered species as designated by the United States Fish and Wildlife Service (USFWS) under the Endangered Species Act (16 U.S.C.A. § § 1531-5544).

The PNDI lists six potential conflicts with State-listed reptile and amphibian species under the jurisdiction of the Pennsylvania Fish and Boat Commission (PFBC) including the eastern redbelly

turtle (*Pseudemys rubriventris*) and several frog and toad species. However, as described above, the on-Site ditches usually lack surface water, are highly degraded, and lack vegetated adjoining areas. Consequently, it is unlikely that any of these species will occur on the Site because all of these species are water dependent. The PFBC was consulted and has concurred that the terrestrial habitats and stormwater ditches on the Site are unsuitable habitats for the species of concern and that redevelopment of the Site will not affect species of concern under their jurisdiction. A copy of the PFBC review letter is provided in Appendix F.

Weight of Evidence Analysis of Potential Ecological Effects

The 52-acre parcel consists almost entirely of highly disturbed terrestrial area. Much of the Site's surface material is not soils but a mixture of slag and sinters. The terrestrial part of the Site does not constitute an important ecological resource for plants or animals. That is, it does not serve as habitat for species of concern nor is it a habitat of concern (i.e., a wetland or surface water). Hence, direct exposure pathways, from chemicals in the Site's surface material to valued ecosystems and their biota, are considered incomplete. These incomplete exposure pathways are expected to persist in the future as the Site is developed.

The Site also contains stormwater conveyance ditches along the northern and western site boundaries that total approximately 2,625 linear feet. Although these stormwater ditches are unnatural and dominated by nuisance exotic plant species, they were conservatively treated as a habitat of concern in the EHA. That is, exposure pathways between Site-related CPECs in ditch sediments and ecological receptors were assumed to be complete in these stormwater conveyance ditch areas. Concentrations of Site-related CPECs and non-Site-related chemicals were screened against conservative ESVs, and found to be below levels that would cause significant ecological risk. Potential for ecological risks were further constrained by the small area involved (approximately 1.2 acres) and the poor habitat potential of the stormwater conveyance ditches. The weight of evidence, therefore, indicates no significant potential for impacts to ecological receptors in the associated drainage ditches. Since the ditches are the only habitats of concern at the Site, no further assessment of ecological risks is recommended.

6.3 Vapor Intrusion Evaluation

The soil sample results at the Site reported concentrations of COCs below the applicable PA Soil Statewide Health Standard Vapor Intrusion Screening Values from the Vapor Intrusion into Buildings from Groundwater and Soil Technical Guidance Manual. Therefore, there are no unacceptable human exposures to COCs identified in soil as a result of potential vapor intrusion into indoor air.

7. Remediation Standards

The requirement to implement remedial investigation activities is outlined in Chapter 250, and provides specific procedures to demonstrate attainment of a SHS, SSS, or Background Standard. Obtaining an environmental release from liability will require that the Site be remediated to a selected cleanup standard using one, or a combination, of three available standards: SHS, SSS, or Background Standard.

The standards as defined in Chapter 250 of The Land Recycling and Environmental Remediation Standards Act are as follows:

- Statewide Health Standard
- Site-Specific Standard
- Background Standard
- A combination of standards

Statewide Health Standard (SHS) – A standard adopted by the Environmental Quality Board which achieves a uniform Statewide health-based level so that any substantial present or probable future risk to human health and the environment is eliminated.

Site-Specific Standard (SSS) - A standard developed that meets the human health and environmental protection goals. The development of the SSS shall be based on a property-specific risk assessment (if required), or through pathway elimination.

Background Standard – The background standard shall be established using analysis of samples of regulated substances present at the property but not related to any release at the property.

Combination of Standards – A person may use a combination of the remediation standards to implement a property remediation plan and may propose to use the SSS standard whether or not efforts have been made to attain the background or SHS.

8. Demonstration of Attainment

USS has demonstrated attainment of a SHS and SSS for all COCs analyzed in soil as part of the remedial investigation for on-Site surficial and subsurface soil. This standard was demonstrated for attainment purposes based upon the following conditions:

- The Site has been utilized for industrial purposes since 1952, and there are no foreseeable changes for the use of the Property.
- The representative surficial and subsurface soil sampling program has reported COCs below the SHS MSC and SSS values for all soil samples.
- The soil concentrations at the Site reported concentrations of COCs below the applicable PA Soil Statewide Health Standard Vapor Intrusion Screening Values.
- An Environmental Covenant will be executed for the Property restricting residential use.
- No current or future pathways to surficial or subsurface soil with unacceptable risk have been identified.

Therefore, USS is requesting a release from environmental liability for COCs in soil.

The Site is industrial in nature. Under current and future Site uses, complete exposure pathways between surface material/soils to ecological receptors are functionally incomplete and also ecologically insignificant. Similarly, exposure pathways between potential Site-related metals in sediment and ecological receptors are complete. Also, concentration of CPECs and other

compounds in sediment were judged to be below levels that pose unacceptable ecological risk, especially when Site-specific constraints on bioavailability are considered. Therefore, additional ecological evaluation of the site is not warranted.

9. Post-Remediation Care Plan

In accordance with the Uniform Environmental Covenants Act (UECA), an Environmental Covenant will be drafted for the Property and submitted to PADEP. Upon approval, the Environmental Covenant will be executed and recorded for the Property.

With execution of the Environmental Covenant, the Property is subject to the activity and use limitations, which the Owner/Holder and each subsequent owner of the Property shall abide by to ensure future use of the Property is limited to Non-residential use.

Upon approval of this RI/FR, the Environmental Covenant will be executed and recorded. No further post-remediation care beyond the aforementioned will be implemented.

10. Conclusions

The Site evaluated in this report is part of the larger industrial Facility and the Site included operations that supported the historical industrial facility. An environmental covenant will be executed and recorded for the Site to ensure that the use of the Site remains non-residential. A Non-Use Aquifer determination approved in April 1999 ensures that the soil to groundwater pathway is eliminated, and that groundwater under the Property is not used. Based on current Site conditions, the results for the RI/RA and previous assessments, evaluation of potential receptors and exposure pathways, USS has demonstrated attainment with the SHS for Site COCs for soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2). Therefore, USS requests a release of environmental liability for the Site soil COCs in attainment with the SHS and SSS. No further post-remediation care plan beyond the execution of the Environmental Covenant, and as addressed in Section 9.0, is currently proposed based on the Site conditions and use of the Property.

11. References

Description of Current Conditions, U.S. Steel Fairless Works, July 1993 Revised March 1994, BCM.

Final Draft of the Land Recycling Program Technical Guidance Manual, June 8, 2002, Pennsylvania Department of Environment Protection.

Groundwater Investigation Report of Southeastern Bucks County and Adjacent Areas, 1976, Kimball, L. Robert

Groundwater Resources of the Coastal Plain Area of Southeastern Pennsylvania: Pennsylvania Topographic and Geologic Survey Bulletin W-13, 1961, Greenman et al.

Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2, January 18, 2017, Pennsylvania Department of Environment Protection.

Soil Survey of Bucks and Philadelphia Counties, Pennsylvania: U.S. Department of Agriculture, Mat 73, July 1975, Thompkins, Edward A.

12. Act 2 Administrative Requirements

12.1 Notice of Intent to Remediate and Notice of Report

The Notice of Intent to Remediate (NIR) and Final Report Summary was submitted to the PADEP on February 22, 2018. A copy of the NIR and Final Report Summary for the Site is presented in Appendix G together with a copy of the municipal notification letter to Falls Township concerning submission of the NIR and FR Summary to PADEP. A notice was published in the Bucks County Courier Times regarding submission of the NIR and FR to PADEP. Proof of publication and receipt of the municipal notification letter by Falls Township is presented in Appendix G.

12.2 Transmittal Sheet for Plan/Report Submission

The Transmittal Sheet for Plan/Report Submission is attached to the front of this report with a check for $250.

12.3 Final Report Summary

The Final Report Summary is presented in Appendix G.

13. Signatures

GHD has prepared this report on behalf of USS to justify a request for an Act 2 Release of Liability under the SHS for soils at the 52-acre parcel Site at the USS Facility in Fairless Hills, Bucks County, Pennsylvania.

An Act 2 Release of Liability is hereby requested on behalf of USS by:

3-13-18
Date

Michael H Leon
Authorized Representative for Owner

Michael H. Leon
Name (print or type)

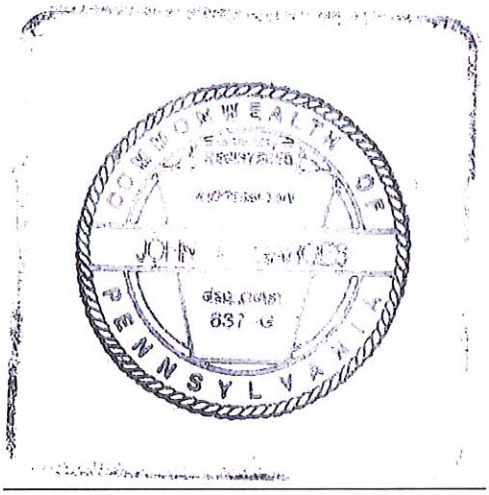
Senior Environmental Engineer
Title (print or type)

March 12, 2018
Date

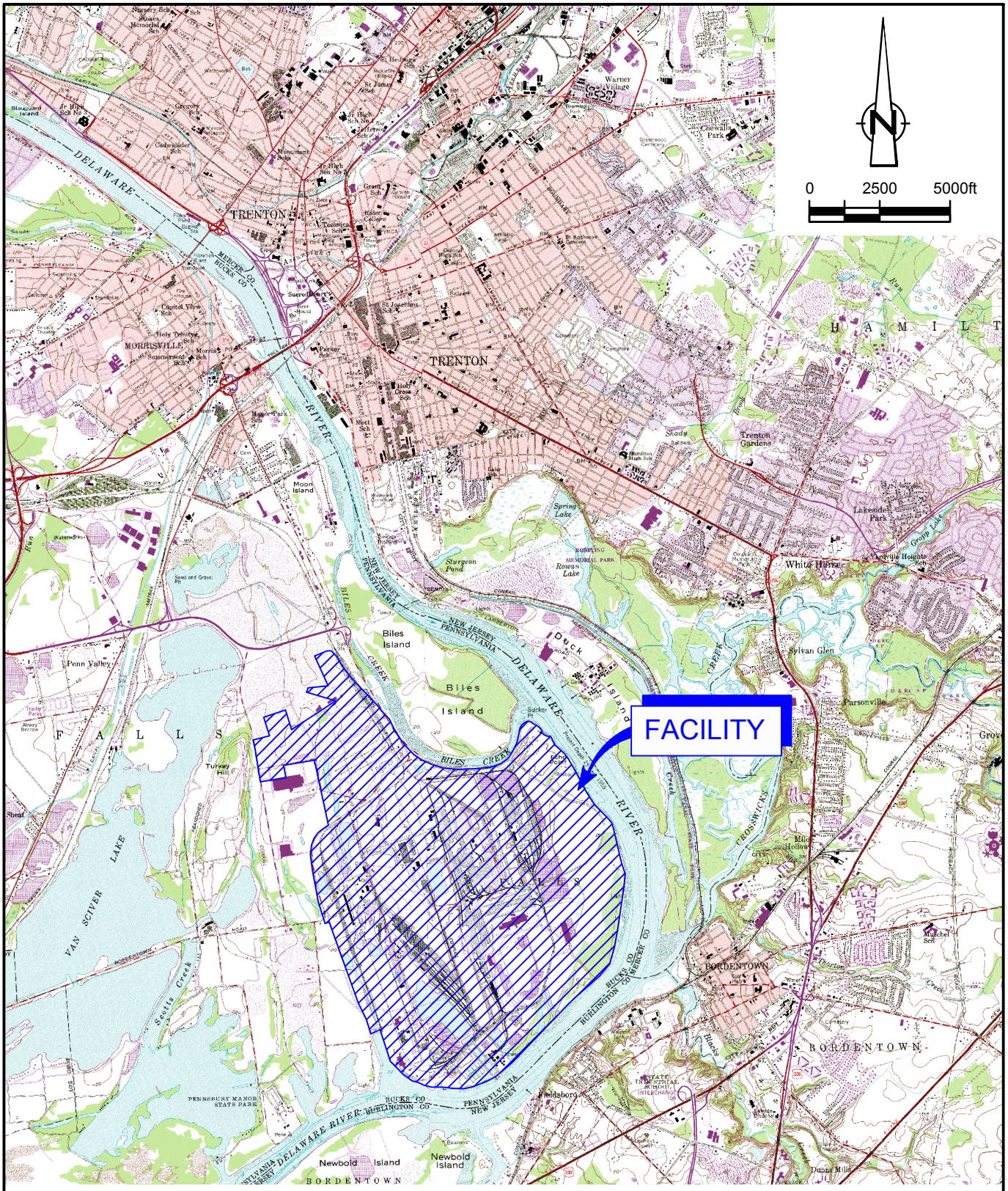
John A Garges
Consultant

John A. Garges
Name (print or type)

Project Director/Project Geologist
Title (print or type)



By affixing my seal to this document, I am certifying that the information is true and correct. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information.



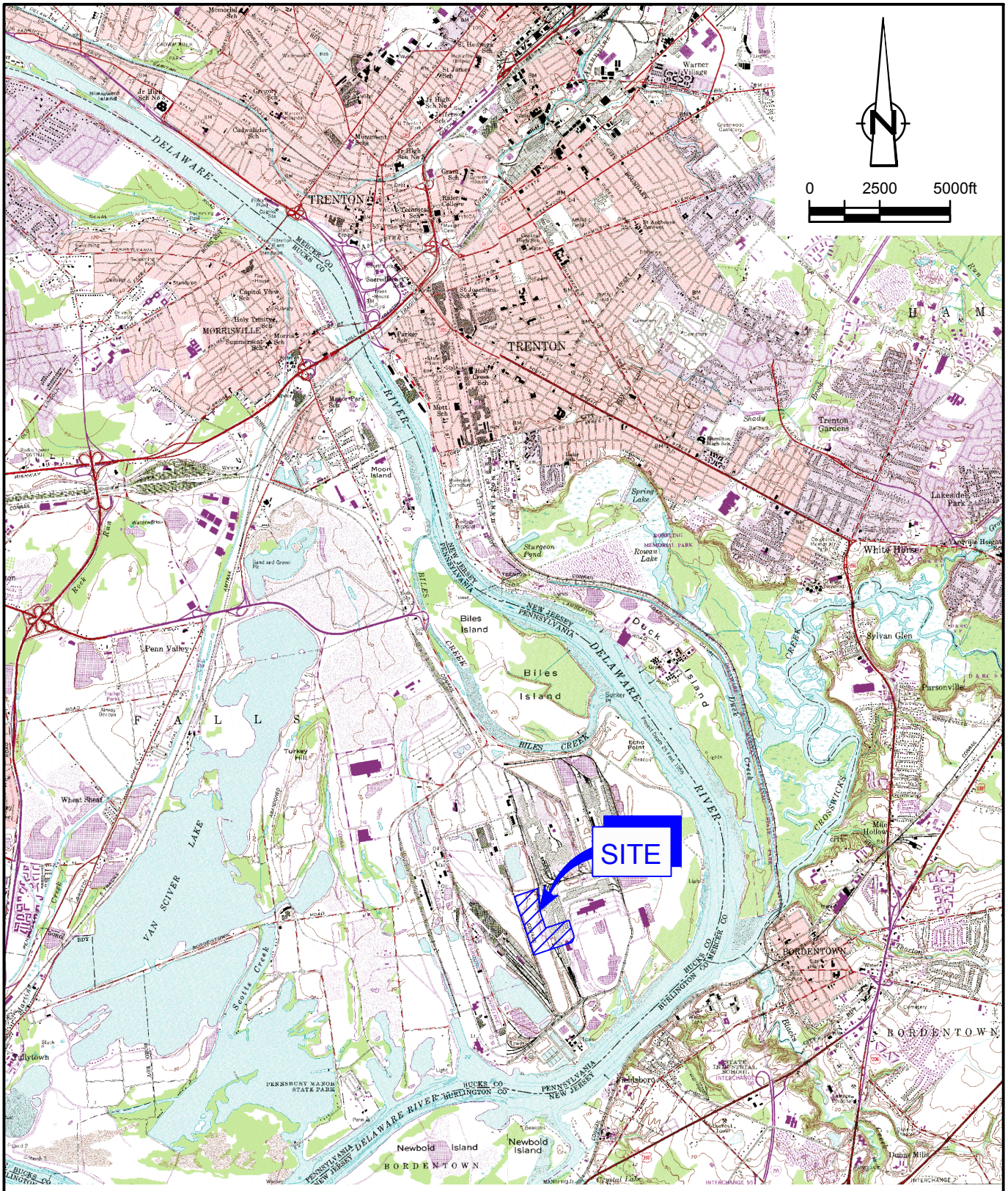
SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA
PHOTOREVISED 1981.

figure 1.1

FACILITY LOCATION
52-ACRE AREA
US STEEL
Fairless Hills, PA

GHD

83101-00(011)GN-WA001 MAY 29, 2017



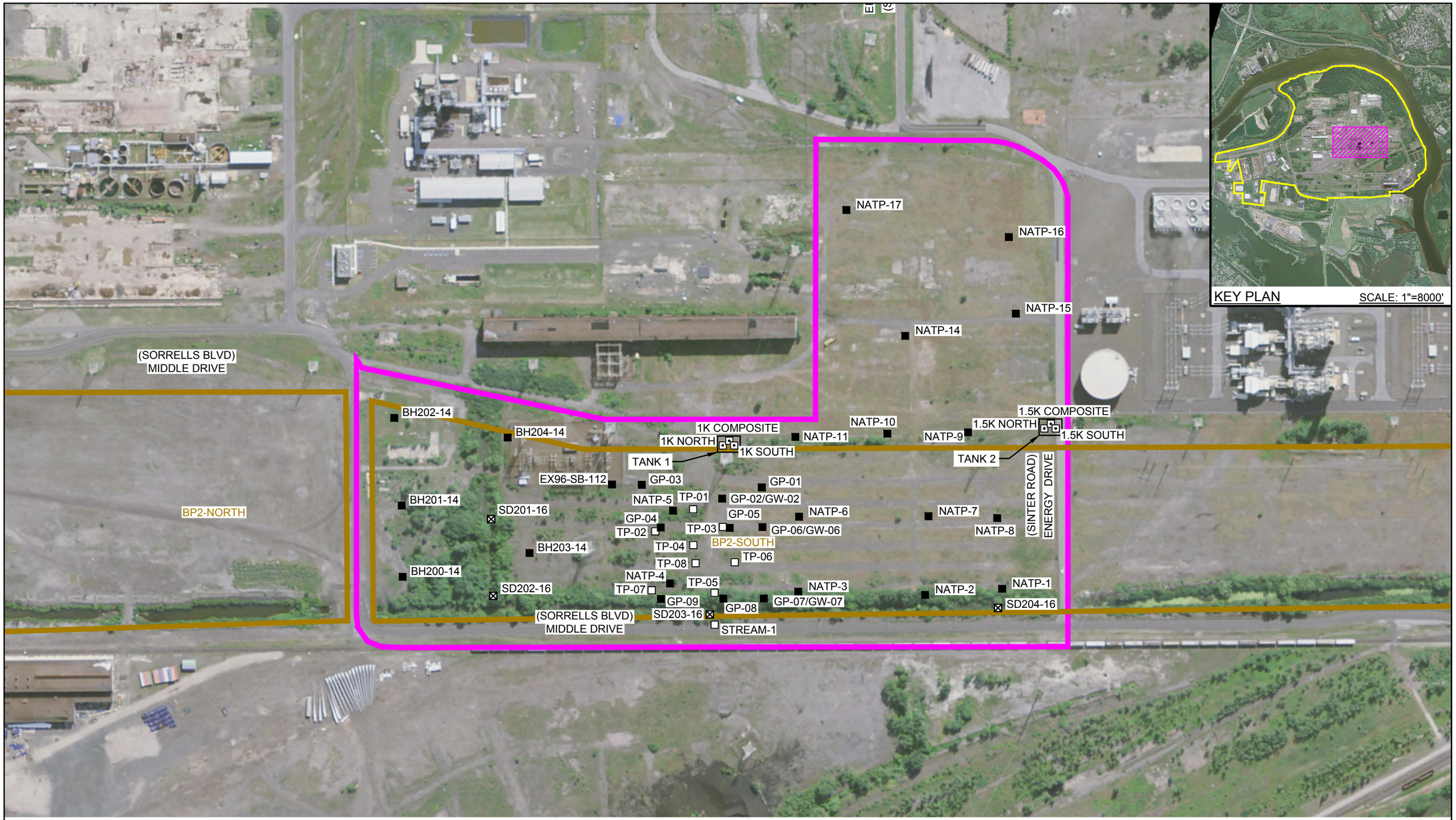
SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA
PHOTOREVISED 1981.

figure 1.2

SITE LOCATION
52-ACRE PARCEL
U. S. STEEL
Fairless Hills, PA

GHD

83101-00(011)GN-WA002 MAY 29, 2017



TRUE NORTH

0 150 300ft

LEGEND

- SOIL SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION (NO SURFACE WATER PRESENT)
- PARCEL
- BORROW PIT AREA
- TEST PIT LOCATION
- DRIP TANK EXCAVATION SOIL SAMPLE (APPROXIMATE)

SOURCES:
SHOWALTER AND ASSOCIATES, FILE 90413 recd September 4, 2013,
7022REIS.PRO (dated March 30, 2012), and 7022ROAD (dated April 23, 2013);
MR112613 recd November 26, 2013.
AERIAL IMAGE SOURCE: NAIP, 2013.

figure 3.1

INVESTIGATION LOCATIONS
52-ACRE PARCEL
U.S. STEEL
Fairless Hills, PA

83101-00(011)GN-WA003 JAN 3, 2018

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			1.5K BOTTOM NORTH	1.5K BOTTOM SOUTH	1.5K SOILS COMPOSITE	1K BOTTOM NORTH	1K BOTTOM SOUTH	1K SOILS COMPOSITE	BH-200-14	BH-201-14	BH-202-14	BH-203-14	BH-204-14
Sample ID:			1.5K BOTTOM NORTH	1.5K BOTTOM SOUTH	1.5K SOILS COMPOSITE	1K BOTTOM NORTH	1K BOTTOM SOUTH	1K SOILS COMPOSITE	S-83101-022714-BW-005	S-83101-022714-BW-003	S-83101-022714-BW-001	S-83101-022714-BW-007	S-83101-022714-BW-011
Sample Date:			9/29/2017	9/29/2017	9/29/2017	9/29/2017	9/29/2017	9/29/2017	2/27/2014	2/27/2014	2/27/2014	2/27/2014	2/27/2014
Sample Depth:			-	-	-	-	-	-	(0-2) ft BGS	(0-2) ft BGS	(0-2) ft BGS	(0-2) ft BGS	(0-2) ft BGS
Parameters	**Units**	**0-2**											
Volatile Organic Compounds													
1,1,1-Trichloroethane	mg/kg	10000	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0028 U	0.0032 U	0.0031 U	0.0031 U	0.0027 U	0.0064 U
1,1,2,2-Tetrachloroethane	mg/kg	38	0.0035 U	0.0033 U	0.0032 U	0.0032 U	0.0032 U	0.0034 U	0.0082 U	0.0079 U	0.0077 U	0.0068 UJ	0.016 U
1,1,2-Trichloroethane	mg/kg	16	0.0029 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.0098 U	0.0094 U	0.0092 U	0.0081 U	0.019 U
1,1-Dichloroethane	mg/kg	1400	0.0022 U	0.002 U	0.002 U	0.0019 U	0.002 U	0.0021 U	0.0068 U	0.0065 U	0.0064 U	0.0056 U	0.013 U
1,1-Dichloroethene	mg/kg	10000	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0032 U	0.0046 U	0.0044 U	0.0043 U	0.0038 U	0.009 U
1,2,3-Trichlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	3100	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.018 U	0.017 U	0.017 U	0.015 U	0.035 U
1,2,4-Trimethylbenzene	mg/kg	560	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.37	0.0037 U	0.0034 U	0.0033 U	0.0033 U	0.0033 U	0.0035 U	0.021 U	0.02 U	0.02 U	0.017 U	0.041 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.0032 U	0.003 U	0.003 U	0.0029 U	0.003 U	0.0031 U	0.014 U	0.014 U	0.014 U	0.012 U	0.028 U
1,2-Dichlorobenzene	mg/kg	10000	0.0048 U	0.0045 U	0.0044 U	0.0043 U	0.0044 U	0.0046 U	0.011 U	0.01 U	0.01 U	0.0089 U	0.021 U
1,2-Dichloroethane	mg/kg	86	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0099 U	0.0095 U	0.0093 U	0.0082 U	0.019 U
1,2-Dichloropropane	mg/kg	220	0.0029 U	0.0027 U	0.0027 U	0.0026 U	0.0027 U	0.0028 U	0.0045 U	0.0043 U	0.0042 U	0.0037 U	0.0088 U
1,3,5-Trimethylbenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	10000	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0071 U	0.0068 U	0.0066 U	0.0058 U	0.014 U
1,4-Dichlorobenzene	mg/kg	200	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.012 U	0.012 U	0.011 U	0.01 U	0.024 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0033 U	0.12 U	0.12 U	0.11 U	0.1 U	0.24 U
2-Hexanone	mg/kg	2400	0.005 U	0.0047 U	0.0045 U	0.0045 U	0.0045 U	0.0048 U	0.026 U	0.025 U	0.025 U	0.022 U	0.051 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	10000	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.0022 U	0.0021 U	0.002 U	0.002 U	0.002 U	0.0021 U	0.052 U	0.049 U	0.048 U	0.043 U	0.1 U
Acetone	mg/kg	10000	0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0036 U	0.14 U	0.13 U	0.13 U	0.12 U	0.27 U
Benzene	mg/kg	290	0.0023 U	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0043 U	0.0041 U	0.0041 U	0.0036 U	0.0084 U
Bromodichloromethane	mg/kg	60	0.0028 U	0.0026 U	0.0026 U	0.0025 U	0.0026 U	0.0027 U	0.0065 U	0.0063 U	0.0061 U	0.0054 U	0.013 U
Bromoform	mg/kg	2000	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.003 U	0.01 U	0.0096 U	0.0094 U	0.0083 UJ	0.02 UJ
Bromomethane (Methyl bromide)	mg/kg	400	0.0053 U	0.005 U	0.0049 U	0.0048 U	0.0049 U	0.0051 U	0.0095 UJ	0.0091 UJ	0.0089 UJ	0.0078 UJ	0.019 U
Carbon disulfide	mg/kg	10000	0.0036 U	0.0034 U	0.0033 U	0.0032 U	0.0033 U	0.0034 U	0.0065 U	0.0063 U	0.0062 U	0.0054 U	0.013 U
Carbon tetrachloride	mg/kg	370	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036 U	0.0038 U	0.003 U	0.0029 U	0.0028 U	0.0025 U	0.0058 U
Chlorobenzene	mg/kg	4000	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0058 U	0.0055 U	0.0054 U	0.0048 U	0.011 U
Chlorobromomethane	mg/kg	3200	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	10000	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0029 U	0.0088 U	0.0085 U	0.0083 U	0.0073 U	0.017 U
Chloroform (Trichloromethane)	mg/kg	97	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.0041 U	0.0039 U	0.0039 U	0.0034 U	0.008 U
Chloromethane (Methyl chloride)	mg/kg	1200	0.0046 U	0.0043 U	0.0042 U	0.0041 U	0.0042 U	0.0044 U	0.0051 U	0.0049 U	0.0048 U	0.0042 U	0.0099 U
cis-1,2-Dichloroethene	mg/kg	6400	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0093 U	0.0089 U	0.0087 U	0.0077 U	0.018 U
cis-1,3-Dichloropropene	mg/kg		0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0096 U	0.0092 U	0.009 U	0.0079 U	0.019 U
Cyclohexane	mg/kg	10000	0.0015 U	0.0014 U	0.0013 U	0.0013 U	0.0013 U	0.0014 U	0.0083 U	0.008 U	0.0078 U	0.0069 U	0.016 U
Cymene (p-Isopropyltoluene)	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	82	0.0029 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.01 U	0.01 U	0.0098 U	0.0086 UJ	0.02 U
Dichlorodifluoromethane (CFC-12)	mg/kg	8000	0.0035 U	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.0033 U	0.011 U	0.011 U	0.011 U	0.0093 U	0.022 U
Ethylbenzene	mg/kg	890	0.0026 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.005 U	0.0048 U	0.0047 U	0.0041 U	0.0098 U
Isopropyl benzene	mg/kg	10000	0.0028 U	0.0026 U	0.0025 U	0.0025 U	0.0025 U	0.0026 U	0.004 U	0.0038 U	0.0038 U	0.0033 U	0.0078 U
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	10000	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0029 U	9.3	0.017 U	0.016 U	1.4	0.8
Methyl cyclohexane	mg/kg		0.0025 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.0071 U	0.0068 U	0.0066 U	0.0058 U	0.014 U
Methyl tert butyl ether (MTBE)	mg/kg	8600	0.0044 U	0.0041 U	0.004 U	0.0039 U	0.004 U	0.0042 U	0.0072 U	0.0069 U	0.0068 U	0.006 U	0.014 U
Methylene chloride	mg/kg	10000	0.0028 U	0.0026 U	0.0026 U	0.0025 U	0.0026 U	0.0027 U	0.0095 U	0.0091 U	0.0089 U	0.0079 U	0.019 U
Naphthalene	mg/kg	760	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	10000	0.0016 U	0.0015 U	0.0014 U	0.0014 U	0.0014 U	0.0015 U	0.0062 U	0.0059 U	0.0058 U	0.0051 U	0.012 U
tert-Butylbenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	3200	0.0024 U	0.0022 U	0.0022 U	0.0021 U	0.0022 U	0.0023 U	0.0051 U	0.0049 U	0.0048 U	0.0042 U	0.0099 U
Toluene	mg/kg	10000	0.002 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0019 U	0.0078 U	0.0075 U	0.0073 U	0.0065 U	0.015 U
trans-1,2-Dichloroethene	mg/kg	4800	0.003 U	0.0028 U	0.0028 U	0.0027 U	0.0027 U	0.0029 U	0.0067 U	0.0065 U	0.0063 U	0.0056 U	0.013 U
trans-1,3-Dichloropropene	mg/kg		0.0021 U	0.0019 U	0.0019 U	0.0018 U	0.0019 U	0.002 U	0.013 U	0.012 U	0.012 U	0.01 U	0.025 U
Trichloroethene	mg/kg	160	0.0018 U	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0048 U	0.0046 U	0.0045 U	0.004 U	0.0094 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0076 U	0.0073 U	0.0072 U	0.0063 U	0.015 U
Trifluorotrichloroethane (CFC-113)	mg/kg	10000	0.0023 U	0.0021 U	0.0021 U	0.002 U	0.0021 U	0.0022 U	0.0043 U	0.0041 U	0.004 U	0.0035 U	0.0084 U
Vinyl chloride	mg/kg	61	0.0044 U	0.0041 U	0.004 U	0.0039 U	0.004 U	0.0042 U	0.0076 U	0.0073 U	0.0071 U	0.0062 U	0.015 U
Xylenes (total)	mg/kg	8000	0.0051 U	0.0048 U	0.0047 U	0.0046 U	0.0047 U	0.0049 U	0.019 U	0.018 U	0.018 U	0.016 U	0.037 U
Semi-volatile Organic Compounds													
1,2,4,5-Tetrachlorobenzene	mg/kg	960	-	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	220	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.04 U	0.041 U	0.039 U	0.039 U	0.039 U
2,4,5-Trichlorophenol	mg/kg	190000	0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0033 U	0.0035 U	0.046 U	0.047 U	0.046 U	0.045 U	0.046 U
2,4,6-Trichlorophenol	mg/kg	3200	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0033 U	0.042 U	0.043 U	0.041 U	0.041 U	0.042 U
2,4-Dichlorophenol	mg/kg	9600	0.0032 U	0.003 U	0.0029 U	0.0029 U	0.0029 U	0.003 U	0.053 U	0.054 U	0.052 U	0.051 U	0.052 U
2,4-Dimethylphenol	mg/kg	10000	0.003 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U	0.0029 U	0.089 U	0.09 U	0.087 U	0.087 U	0.088 U
2,4-Dinitrophenol	mg/kg	6400	0.079 U	0.075 U	0.072 U	0.072 U	0.071 U	0.076 U	0.2 U	0.21 U	0.2 U	0.2 U	0.2 U

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			1.5K BOTTOM NORTH	1.5K BOTTOM SOUTH	1.5K SOILS COMPOSITE	1K BOTTOM NORTH	1K BOTTOM SOUTH	1K SOILS COMPOSITE	BH-200-14	BH-201-14	BH-202-14	BH-203-14	BH-204-14
Sample ID:			1.5K BOTTOM NORTH	1.5K BOTTOM SOUTH	1.5K SOILS COMPOSITE	1K BOTTOM NORTH	1K BOTTOM SOUTH	1K SOILS COMPOSITE	S-83101-022714-BW-005	S-83101-022714-BW-003	S-83101-022714-BW-001	S-83101-022714-BW-007	S-83101-022714-BW-011
Sample Date:			9/29/2017	9/29/2017	9/29/2017	9/29/2017	9/29/2017	9/29/2017	2/27/2014	2/27/2014	2/27/2014	2/27/2014	2/27/2014
Sample Depth:			-	-	-	-	-	-	(0-2) ft BGS	(0-2) ft BGS	(0-2) ft BGS	(0-2) ft BGS	(0-2) ft BGS
Parameters	**Units**	**0-2**											
2,4-Dinitrotoluene	mg/kg	290	0.0051 U	0.0049 U	0.0047 U	0.0047 U	0.0047 U	0.0049 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
2,6-Dinitrotoluene	mg/kg	61	0.0027 U	0.0026 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
2-Chloronaphthalene	mg/kg	190000	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.04 U	0.041 U	0.04 U	0.039 U	0.04 U
2-Chlorophenol	mg/kg	10000	0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.047 U	0.048 U	0.047 U	0.046 U	0.047 U
2-Methylnaphthalene	mg/kg	13000	0.003 U	0.0028 U	0.0028 J	0.0033 J	0.0027 U	0.027	0.046 U	0.047 U	0.046 U	0.045 U	0.046 U
2-Methylphenol	mg/kg	160000	0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.061 U	0.062 U	0.06 U	0.06 U	0.061 U
2-Nitroaniline	mg/kg	32000	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
2-Nitrophenol	mg/kg	26000	0.0028 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.04 U	0.041 U	0.04 U	0.039 U	0.04 U
3&4-Methylphenol	mg/kg		-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	200	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.13 U	0.13 U	0.12 U	0.12 U	0.12 U
3-Nitroaniline	mg/kg		0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.13 U	0.13 U	0.13 U	0.12 U	0.13 U
4,6-Dinitro-2-methylphenol	mg/kg	260	0.072 U	0.068 U	0.066 U	0.066 U	0.065 U	0.069 U	0.098 U	0.1 U	0.097 U	0.096 U	0.097 U
4-Bromophenyl phenyl ether	mg/kg		0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0033 U	0.0036 U	0.036 U	0.036 U	0.035 U	0.035 U	0.035 U
4-Chloro-3-methylphenol	mg/kg	190000	0.0041 U	0.0039 U	0.0038 U	0.0038 U	0.0037 U	0.0039 U	0.054 U	0.055 U	0.053 U	0.053 U	0.054 U
4-Chloroaniline	mg/kg	460	0.0022 U	0.0021 U	0.002 U	0.002 U	0.002 U	0.0021 U	0.095 U	0.097 U	0.094 U	0.093 U	0.094 U
4-Chlorophenyl phenyl ether	mg/kg		0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.042 U	0.043 U	0.042 U	0.041 U	0.042 U
4-Methylphenol	mg/kg	16000	0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.071 U	0.072 U	0.07 U	0.069 U	0.07 U
4-Nitroaniline	mg/kg	4600	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
4-Nitrophenol	mg/kg	26000	0.041 U	0.039 U	0.037 U	0.037 U	0.037 U	0.039 U	0.23 U	0.24 U	0.23 U	0.23 U	0.23 U
Acenaphthene	mg/kg	190000	0.0028 J	0.0025 U	0.026	0.0066 J	0.0027 J	0.14	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
Acenaphthylene	mg/kg	190000	0.0026 U	0.0025 U	0.0038 J	0.0025 J	0.0024 U	0.011	0.042 U	0.043 U	0.042 U	0.042 U	0.042 U
Acetophenone	mg/kg	10000	0.0027 U	0.0025 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.055 U	0.056 U	0.054 U	0.054 U	0.055 U
Anthracene	mg/kg	190000	0.0029 U	0.0027 U	0.024	0.0091	0.0045 J	0.22	0.044 U	0.045 U	0.043 U	0.043 U	0.043 U
Atrazine	mg/kg	400	0.0054 U	0.0051 U	0.0049 U	0.0049 U	0.0049 U	0.0052 U	0.055 U	0.057 U	0.055 U	0.054 U	0.055 U
Benzaldehyde	mg/kg		0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.042 U	0.043 U	0.042 U	0.041 U	0.042 U
Benzo(a)anthracene	mg/kg	130	0.0062 J	0.0048 J	0.034	0.02	0.011	0.48	0.0025 U	0.0026 U	0.0025 U	0.0025 U	0.0025 UJ
Benzo(a)pyrene	mg/kg	12	0.01	0.0052 J	0.03	0.018	0.0094	0.36	0.0025 U	0.0026 U	0.0025 U	0.0025 U	0.04 J
Benzo(b)fluoranthene	mg/kg	76	0.011	0.0062 J	0.043	0.025	0.013	0.49	0.0023 U	0.0023 U	0.0022 U	0.0022 U	0.068 J
Benzo(g,h,i)perylene	mg/kg	190000	0.011	0.0052 J	0.04	0.025	0.0066 J	0.28	0.027 U	0.027 U	0.026 U	0.026 J	0.026 U
Benzo(k)fluoranthene	mg/kg	76	0.0052 J	0.0027 J	0.017	0.011	0.0047 J	0.16	0.0027 U	0.0028 U	0.0027 U	0.0027 U	0.025 J
Biphenyl (1,1-Biphenyl)	mg/kg	11000	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0068 J	0.048 U	0.049 U	0.047 U	0.047 U	0.048 U
bis(2-Chloroethoxy)methane	mg/kg	9600	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.002 U	0.0022 U	0.046 U	0.047 U	0.046 U	0.045 U	0.046 U
bis(2-Chloroethyl)ether	mg/kg	6.7	0.0023 U	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0049 U	0.005 U	0.0048 U	0.0048 U	0.0049 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6500	0.026 U	0.025 U	0.024 U	0.024 U	0.024 U	0.025 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.029 U	0.027 U	0.027 U	0.027 U	0.026 U	0.028 U	0.033 U	0.034 U	0.032 U	0.032 U	0.033 U
Caprolactam	mg/kg		0.018 U	0.017 U	0.017 U	0.017 U	0.017 U	0.018 U	0.083 U	0.084 U	0.082 UJ	0.081 U	0.082 U
Carbazole	mg/kg	4600	0.0033 U	0.0031 U	0.0096	0.0064 J	0.003 U	0.13	0.042 U	0.043 U	0.042 U	0.042 U	0.042 U
Chrysene	mg/kg	760	0.0072 J	0.0049 J	0.04	0.022	0.011	0.48	0.042 U	0.043 U	0.041 U	0.041 U	0.046 J
Dibenz(a,h)anthracene	mg/kg	22	0.0032 U	0.0031 U	0.0086	0.0046 J	0.0029 U	0.07	0.0045 U	0.0046 U	0.0045 U	0.0044 U	0.0045 U
Dibenzofuran	mg/kg	3200	0.0031 U	0.003 U	0.021 J	0.0037 J	0.0028 U	0.058	0.042 U	0.043 U	0.042 U	0.041 U	0.042 U
Diethyl phthalate	mg/kg	10000	0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.043 U	0.044 U	0.042 U	0.042 U	0.042 U
Dimethyl phthalate	mg/kg		0.0027 U	0.0026 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.043 U	0.043 U	0.042 U	0.042 U	0.042 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0042 J	0.0031 J	0.0029 J	0.0034 J	0.0038 J	0.0043 J	0.044 U	0.045 U	0.044 U	0.043 U	0.044 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0046 U	0.0044 U	0.0042 U	0.0042 U	0.0042 U	0.0044 U	0.023 U	0.023 U	0.023 U	0.022 U	0.023 U
Fluoranthene	mg/kg	130000	0.0089	0.0077	0.067	0.044	0.024	0.93	0.048 U	0.049 U	0.047 U	0.047 U	0.056 J
Fluorene	mg/kg	130000	0.0028 U	0.0026 U	0.022	0.0047 J	0.0025 U	0.1	0.046 U	0.047 U	0.045 U	0.045 U	0.045 U
Hexachlorobenzene	mg/kg	57	0.0031 U	0.003 U	0.0029 U	0.0029 U	0.0028 U	0.003 U	0.0049 U	0.005 U	0.0048 U	0.0048 U	0.0049 U
Hexachlorobutadiene	mg/kg	1200	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0022 U	0.0024 U	0.0088 U	0.0089 U	0.0087 U	0.0086 U	0.0087 U
Hexachlorocyclopentadiene	mg/kg	10000	0.0033 U	0.0031 U	0.003 U	0.003 U	0.003 U	0.0032 U	0.042 U	0.043 U	R	0.041 U	0.042 U
Hexachloroethane	mg/kg	220	0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.004 U	0.0041 U	0.0039 U	0.0039 U	0.004 U
Indeno(1,2,3-cd)pyrene	mg/kg	76	0.0097	0.0042 J	0.024	0.015	0.006 J	0.24	0.0067 U	0.0068 U	0.0066 U	0.0065 U	0.035 UJ
Isophorone	mg/kg	10000	0.0021 U	0.002 U	0.002 U	0.002 U	0.0019 U	0.0021 U	0.044 U	0.044 U	0.043 U	0.043 U	0.043 U
Naphthalene	mg/kg	760	0.0028 U	0.0027 U	0.0061 J	0.0045 J	0.0025 U	0.049	0.042 U	0.042 U	0.041 U	0.041 U	0.041 U
Nitrobenzene	mg/kg	6400	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0029 U	0.0051 U	0.0052 U	0.005 U	0.005 U	0.0051 U
N-Nitrosodi-n-propylamine	mg/kg	13	0.0026 U	0.0025 U	0.0024 U	0.0024 U	0.0024 U	0.0025 U	0.006 U	0.0061 U	0.0059 U	0.0059 U	0.0059 U
N-Nitrosodiphenylamine	mg/kg	19000	0.0061 U	0.0058 U	0.0056 U	0.0056 U	0.0055 U	0.0059 U	0.035 U	0.036 U	0.035 U	0.035 U	0.035 U
Pentachlorophenol	mg/kg	230	0.073 U	0.07 U	0.068 U	0.068 U	0.066 U	0.071 U	0.11 U	0.11 U	0.11 U	0.1 U	0.11 U
Phenanthrene	mg/kg	190000	0.0045 J	0.0031 U	0.064	0.035	0.017	0.69	0.046 U	0.047 U	0.045 U	0.045 U	0.045 U
Phenol	mg/kg	16000	0.0052 U	0.005 U	0.0048 U	0.0048 U	0.0047 U	0.005 U	0.048 U	0.049 U	0.048 U	0.047 U	0.048 U
Pyrene	mg/kg	96000	0.0092	0.0084	0.058	0.038	0.02	0.82	0.03 U	0.031 U	0.03 U	0.029 U	0.042 J
Metals													
Aluminum	mg/kg	190000	5100	4700	5600	2400	180	4300	7930	8500	9050	8970	6210
Antimony	mg/kg	1300	0.24 J	0.24	0.26	0.4	0.41	0.27	0.37 UJ	0.39 UJ	0.42 UJ	0.34 UJ	0.32 UJ
Arsenic	mg/kg	61	4.4	3.9	4.7	9.9	6.1	2.7	3.1 J	4.6 J	4.9 J	2.2 J	5.2 J
Barium	mg/kg	190000	20	19	28	31	5	66	137	62.2	27.1	117	52.3
Beryllium	mg/kg	11	0.27	0.23	0.36	0.39	0.026 U	0.75	0.86	0.64	0.45	1.5	0.49
Cadmium	mg/kg	6.1	0.064 J	0.058 J	0.11	0.12	0.013 J	0.23	0.38 U	0.40 U	0.43 U	0.34 U	0.51
Calcium	mg/kg		930	320	11000	14000	100	38000	134000	739	1780	139000	21300 J
Chromium	mg/kg		16	7.3	150	170	4.2	440	1900 J	20.2 J	20.4 J	1920 J	392 J
Cobalt	mg/kg	960	6.1	5.3	5.8	1.7	0.2	2.8	1.7	4.7	5.6	1.6	5.1

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**BH-200-14**	**BH-201-14**	**BH-202-14**	**BH-203-14**	**BH-204-14**
Sample ID:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**S-83101-022714-BW-005**	**S-83101-022714-BW-003**	**S-83101-022714-BW-001**	**S-83101-022714-BW-007**	**S-83101-022714-BW-011**
Sample Date:			**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:			**-**	**-**	**-**	**-**	**-**	**-**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**	**0-2**											
Copper	mg/kg	120000	8.8	7.8	13	8.7	1.6	14	38.9	6.3	7.6	20.5	18.2
Iron	mg/kg	190000	14000	13000	28000	34000	11000	73000	**201000 J**	15300 J	16500 J	**212000 J**	56500
Lead	mg/kg	1000	8.4	7.8	18	14	7.1	13	12.3 J	5.4 J	16.7 J	16.8 J	29.9
Magnesium	mg/kg		2500	2100	13000	5400	140	15000	49000	926	1230	44700	9470 J
Manganese	mg/kg	150000	460	350	1600	2200	28	7500	20900	81.7	162	15500	3350 J
Mercury	mg/kg	510	0.0073 U	0.016 J	0.035 J	0.089	0.12	0.047	0.012 U	0.028	0.018	0.013 U	0.013 U
Nickel	mg/kg	64000	10	9.5	12	4.5	0.54	6.1	9.6	7.7	10.6	8.2	13.9
Potassium	mg/kg		680	620	740	390	400	360	256	546	619	298	483
Selenium	mg/kg	16000	0.52 J	0.46 J	0.7	0.69	0.31 J	1	0.40 J	0.41 U	0.44 U	0.90	0.33 U
Silver	mg/kg	16000	0.016 U	0.015 U	0.017 J	0.029 J	0.014 J	0.033 J	0.75 U	0.80 U	0.87 U	0.69 U	0.65 U
Sodium	mg/kg		31 J	27 J	53 J	76	39 J	190	268	43.8 U	47.9 U	213	57.3
Thallium	mg/kg	32	0.044 J	0.04 J	0.052 J	0.37	0.52	0.044 J	0.16 U	0.16 U	0.18 U	0.14 U	0.13 U
Vanadium	mg/kg	220	11	7.5	81	49	5.4	100	**280**	17.8	20.7	**291**	75.1
Zinc	mg/kg	190000	27	25	39	85	6.2	160	85.9	25.0	24.9	61.6	172
MetalsSEM													
Cadmium	umol/g		-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g		-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g		-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g		-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g		-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none		-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g		-	-	-	-	-	-	-	-	-	-	-
PCBs													
Aroclor-1016 (PCB-1016)	mg/kg	46	0.00051 U	0.00049 U	0.00048 U	0.00047 U	0.00047 U	0.00049 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U
Aroclor-1221 (PCB-1221)	mg/kg	46	0.0005 U	0.00047 U	0.00047 U	0.00046 U	0.00046 U	0.00048 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U
Aroclor-1232 (PCB-1232)	mg/kg	46	0.00038 U	0.00036 U	0.00036 U	0.00035 U	0.00035 U	0.00037 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U
Aroclor-1242 (PCB-1242)	mg/kg	46	0.00077 U	0.00073 U	0.00072 U	0.0007 U	0.0007 U	0.00074 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U
Aroclor-1248 (PCB-1248)	mg/kg	46	0.00046 U	0.00044 U	0.00043 U	0.00042 U	0.00042 U	0.00044 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U
Aroclor-1254 (PCB-1254)	mg/kg	46	0.0028	0.0026	0.0074	0.0042	0.0024	0.0081	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
Aroclor-1260 (PCB-1260)	mg/kg	46	0.00064 U	0.00081 J	0.0037	0.0038	0.0033	0.0051	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
Total PCBs	mg/kg		-	-	-	-	-	-	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U
General Chemistry													
Cyanide (total)	mg/kg		-	-	-	-	-	-	0.091 J	0.061 U	0.059 U	0.059 U	0.084 J
pH	s.u.		8.3	8.3	9.3	7.3	4.8	8.6	-	-	-	-	-
Soot carbon	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Total solids	%		-	-	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		BH-204-14	NATP-1	NATP-10	NATP-11	NATP-14	NATP-15	NATP-16	NATP-17	NATP-2	NATP-3	NATP-4	NATP-5	NATP-6	NATP-7	NATP-8	NATP-9
Sample ID:		S-83101-022714-BW-012	NATP-1_0.5-1.0	NATP-10_1.0-1.5	NATP-11_1.0-1.5	NATP-14_1.25-1.75	NATP-15_0.25-0.75	NATP-16_1.5-2.0	NATP-17_0.5-1.0	NATP-2_1.5-2.0	NATP-3_0.5-1.0	NATP-4_1.5-2.0	NATP-5_0.5-1.0	NATP-6_1.5-2.0	NATP-7_0.25-0.75	NATP-8_0.5-1.0	NATP-9_1.5-2.0
Sample Date:		2/27/2014	6/12/2006	6/13/2006	6/13/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/13/2006	6/13/2006
Sample Depth:		(0-2) ft BGS	(0.5-1) ft BGS	(1-1.5) ft BGS	(1-1.5) ft BGS	(1.25-1.75) ft BGS	(0.25-0.75) ft BGS	(1.5-2) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS	(0.25-0.75) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS
		(Duplicate)															
Parameters	**Units**																
Volatile Organic Compounds																	
1,1,1-Trichloroethane	mg/kg	0.003 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0075 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,1,2-Trichloroethane	mg/kg	0.009 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,1-Dichloroethane	mg/kg	0.0062 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,1-Dichloroethene	mg/kg	0.0042 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.016 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.019 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.013 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,2-Dichlorobenzene	mg/kg	0.0098 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,2-Dichloroethane	mg/kg	0.009 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,2-Dichloropropane	mg/kg	0.0041 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0065 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
1,4-Dichlorobenzene	mg/kg	0.011 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.11 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
2-Hexanone	mg/kg	0.024 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.047 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Acetone	mg/kg	0.13 U	0.019 U	0.026 U	0.019 U	0.019 U	0.021 U	0.027 U	0.019 U	0.026 U	0.023 U	0.019 U	0.018 U	0.019 U	0.022 U	0.017 U	0.02 U
Benzene	mg/kg	0.0039 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Bromodichloromethane	mg/kg	0.006 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Bromoform	mg/kg	0.0092 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Bromomethane (Methyl bromide)	mg/kg	0.0087 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Carbon disulfide	mg/kg	0.006 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Carbon tetrachloride	mg/kg	0.0027 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Chlorobenzene	mg/kg	0.0053 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.0081 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Chloroform (Trichloromethane)	mg/kg	0.0038 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Chloromethane (Methyl chloride)	mg/kg	0.0046 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
cis-1,2-Dichloroethene	mg/kg	0.0085 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0039 J	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
cis-1,3-Dichloropropene	mg/kg	0.0088 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Cyclohexane	mg/kg	0.0076 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.0095 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.01 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Ethylbenzene	mg/kg	0.0046 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Isopropyl benzene	mg/kg	0.0037 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	1.3	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Methyl cyclohexane	mg/kg	0.0065 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0066 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Methylene chloride	mg/kg	0.0087 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0026 J	0.0029 J	0.0047 U	0.0064 U	0.0033 J	0.0019 J	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.0057 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.0046 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Toluene	mg/kg	0.0071 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
trans-1,2-Dichloroethene	mg/kg	0.0062 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
trans-1,3-Dichloropropene	mg/kg	0.012 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Trichloroethene	mg/kg	0.0044 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0022 J	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.007 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0039 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Vinyl chloride	mg/kg	0.0069 U	0.0047 U	0.0064 U	0.0047 U	0.0048 U	0.0052 U	0.0068 U	0.0047 U	0.0064 U	0.0059 U	0.0047 U	0.0046 U	0.0048 U	0.0055 U	0.0042 U	0.005 U
Xylenes (total)	mg/kg	0.017 U	0.014 U	0.019 U	0.014 U	0.014 U	0.016 U	0.021 U	0.014 U	0.019 U	0.018 U	0.014 U	0.014 U	0.014 U	0.017 U	0.013 U	0.015 U
Semi-volatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.041 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2,4,5-Trichlorophenol	mg/kg	0.048 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2,4,6-Trichlorophenol	mg/kg	0.044 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2,4-Dichlorophenol	mg/kg	0.055 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2,4-Dimethylphenol	mg/kg	0.092 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2,4-Dinitrophenol	mg/kg	0.21 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		BH-204-14	NATP-1	NATP-10	NATP-11	NATP-14	NATP-15	NATP-16	NATP-17	NATP-2	NATP-3	NATP-4	NATP-5	NATP-6	NATP-7	NATP-8	NATP-9
Sample ID:		S-83101-022714-BW-012	NATP-1_0.5-1.0	NATP-10_1.0-1.5	NATP-11_1.0-1.5	NATP-14_1.25-1.75	NATP-15_0.25-0.75	NATP-16_1.5-2.0	NATP-17_0.5-1.0	NATP-2_1.5-2.0	NATP-3_0.5-1.0	NATP-4_1.5-2.0	NATP-5_0.5-1.0	NATP-6_1.5-2.0	NATP-7_0.25-0.75	NATP-8_0.5-1.0	NATP-9_1.5-2.0
Sample Date:		2/27/2014	6/12/2006	6/13/2006	6/13/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/13/2006	6/13/2006
Sample Depth:		(0-2) ft BGS	(0.5-1) ft BGS	(1-1.5) ft BGS	(1-1.5) ft BGS	(1.25-1.75) ft BGS	(0.25-0.75) ft BGS	(1.5-2) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS	(0.25-0.75) ft BGS	(0.5-1) ft BGS	(1.5-2) ft BGS
		(Duplicate)															
Parameters	**Units**																
2,4-Dinitrotoluene	mg/kg	0.012 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2,6-Dinitrotoluene	mg/kg	0.011 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2-Chloronaphthalene	mg/kg	0.042 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2-Chlorophenol	mg/kg	0.049 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2-Methylnaphthalene	mg/kg	0.048 U	0.0095 J	0.36 U	0.35 U	0.52 J	0.35 U	0.013 J	0.022 J	0.72 U	6.9 U	0.37 U	6.9 U	0.062 J	0.014 J	0.017 J	0.36 U
2-Methylphenol	mg/kg	0.064 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
2-Nitroaniline	mg/kg	0.16 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
2-Nitrophenol	mg/kg	0.042 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	0.13 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
3-Nitroaniline	mg/kg	0.13 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
4,6-Dinitro-2-methylphenol	mg/kg	0.1 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
4-Bromophenyl phenyl ether	mg/kg	0.037 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
4-Chloro-3-methylphenol	mg/kg	0.056 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
4-Chloroaniline	mg/kg	0.099 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
4-Chlorophenyl phenyl ether	mg/kg	0.044 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
4-Methylphenol	mg/kg	0.074 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
4-Nitroaniline	mg/kg	0.12 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
4-Nitrophenol	mg/kg	0.24 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
Acenaphthene	mg/kg	0.054 U	0.0054 J	0.003 J	0.0026 J	3.9 / 4	0.01	0.028	0.018 J	0.0028 J	0.28 U	0.012	0.25 J	0.017	0.0025 J	0.0064 J	0.0024 J
Acenaphthylene	mg/kg	0.044 U	0.012	0.0073 U	0.0071 U	0.73 U / 0.12 J	0.01	0.035	0.033 J	0.0027 J	0.28 U	0.003 J	0.28 U	0.016	0.007 U	0.0077 J	0.0073 U
Acetophenone	mg/kg	0.057 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Anthracene	mg/kg	0.045 U	0.016	0.0038 J	0.0019 J	6.8 / 6.5	0.028	0.11	0.063	0.0082	0.28 U	0.025	0.24 J	0.021	0.0023 J	0.015	0.0073 U
Atrazine	mg/kg	0.058 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Benzaldehyde	mg/kg	0.044 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Benzo(a)anthracene	mg/kg	0.16 J	0.07	0.026	0.0083	18 / 18	0.13	0.43	0.2	0.074	1.7	0.07	5.4	0.033	0.0068 J	0.052	0.0053 J
Benzo(a)pyrene	mg/kg	0.16 J	0.087	0.025	0.0098	16 / 15	0.12	0.38	0.16	0.072	1.3	0.07	3.3	0.032	0.0054 J	0.07	0.0034 J
Benzo(b)fluoranthene	mg/kg	0.23 J	0.08	0.02	0.0079	14 / 16	0.2	0.51	0.14	0.088	0.82	0.061	2	0.024	0.011	0.077	0.0085
Benzo(g,h,i)perylene	mg/kg	0.079 J	0.086	0.019	0.01	10 / 10	0.1	0.021	0.14	0.14	2.4	0.059	2.7	0.026	0.013	0.09	0.0061 J
Benzo(k)fluoranthene	mg/kg	0.09 J	0.064	0.02	0.0088	12 / 14	0.0071 U	0.016 U	0.15	0.0072 U	0.28 U	0.047	0.28 U	0.027	0.007 U	0.049	0.0073 U
Biphenyl (1,1-Biphenyl)	mg/kg	0.05 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
bis(2-Chloroethoxy)methane	mg/kg	0.048 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
bis(2-Chloroethyl)ether	mg/kg	0.0051 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.12 U	0.36 U	0.36 U	0.35 U	0.17 J	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.022 J	0.35 U	0.36 U
Butyl benzylphthalate (BBP)	mg/kg	0.034 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.014 J	0.35 U	0.019 J	0.019 J
Caprolactam	mg/kg	0.086 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Carbazole	mg/kg	0.044 U	0.36 U	0.36 U	0.35 U	3.6	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Chrysene	mg/kg	0.22 J	0.095	0.025	0.01	20 / 20	0.18	0.46	0.27	0.18	4.3	0.081	14	0.043	0.011	0.082	0.0081
Dibenz(a,h)anthracene	mg/kg	0.0047 U	0.028	0.0066 J	0.0028 J	4.1 / 4.3	0.041	0.15	0.048	0.037	0.71	0.021	1.3	0.0097	0.0022 J	0.024	0.0018 J
Dibenzofuran	mg/kg	0.044 U	0.36 U	0.36 U	0.35 U	1.7 J	0.35 U	0.015 J	0.74 U	0.72 U	6.9 U	0.0096 J	6.9 U	0.38 U	0.35 U	0.0089 J	0.36 U
Diethyl phthalate	mg/kg	0.045 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Dimethyl phthalate	mg/kg	0.044 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Di-n-butylphthalate (DBP)	mg/kg	0.046 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.024 U	0.36 U	0.36 U	0.35 U	0.59 J	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Fluoranthene	mg/kg	0.32 J	0.063	0.032	0.013	31 E / 35	0.26	0.59	0.27	0.075	0.47	0.13	1.9	0.044	0.0079	0.064	0.0093
Fluorene	mg/kg	0.048 U	0.0054 J	0.003 J	0.0025 J	2.2 / 2.2	0.0047 J	0.026	0.037 U	0.0072 U	0.28 U	0.012	0.28 U	0.02	0.004 J	0.014 U	0.003 J
Hexachlorobenzene	mg/kg	0.0051 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Hexachlorobutadiene	mg/kg	0.0091 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Hexachlorocyclopentadiene	mg/kg	0.044 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
Hexachloroethane	mg/kg	0.0042 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.11 J	0.069	0.016	0.0081	10 / 9.9	0.097	0.32	0.13	0.05	0.52	0.051	0.84	0.023	0.006 J	0.068	0.0037 J
Isophorone	mg/kg	0.045 U	0.36 U	0.36 U	0.35 U	1.8 U	0.28 J	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Naphthalene	mg/kg	0.043 U	0.012	0.0073 U	0.0071 U	1.1 / 1	0.0063 J	0.033	0.022 J	0.0066 J	0.28 U	0.0083	0.1 J	0.025	0.011	0.018	0.0026 J
Nitrobenzene	mg/kg	0.0053 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
N-Nitrosodi-n-propylamine	mg/kg	0.0062 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
N-Nitrosodiphenylamine	mg/kg	0.037 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Pentachlorophenol	mg/kg	0.11 U	1.7 U	1.8 U	1.7 U	8.8 U	1.7 U	1.9 U	3.6 U	3.5 U	33 U	1.8 U	34 U	1.8 U	1.7 U	1.7 U	1.7 U
Phenanthrene	mg/kg	0.18 J	0.037	0.018	0.012	23 / 24	0.13	0.28	0.15	0.055	0.55	0.092	0.27 J	0.053	0.024	0.054	0.015
Phenol	mg/kg	0.05 U	0.36 U	0.36 U	0.35 U	1.8 U	0.35 U	0.4 U	0.74 U	0.72 U	6.9 U	0.37 U	6.9 U	0.38 U	0.35 U	0.35 U	0.36 U
Pyrene	mg/kg	0.28 J	0.074	0.027	0.01	26 / 29	0.12	0.42	0.24	0.073	2.4	0.11	8.2	0.082	0.011	0.047	0.0059 J
Metals																	
Aluminum	mg/kg	4570	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	mg/kg	0.42 UJ	0.092 B	7.3 U	7.1 U	0.22	0.19 B	0.054 B	1.5	0.18 B	0.18 B	0.048 B	0.21	0.07 B	0.097 B	0.24	7.3 U
Arsenic	mg/kg	8.7 J	3.5	0.59 J	2 J	2.6 J	1.5 J	3.2 J	6.2 J	2.6	2.3	3.5	2.4	3.2	6.1	2.7 J	1.9 J
Barium	mg/kg	27.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	0.62	1.2	9.9	0.57	0.61	0.8	0.62	0.22	3.1	0.8	0.42	1.1	2.6	1.3	0.87	0.42
Cadmium	mg/kg	0.43 U	0.46	0.68	0.13	0.49	0.77	0.52	0.76	0.45	0.42	0.13	0.53	1	0.14	0.34	0.14
Calcium	mg/kg	3440 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	51.5 J	166 J	10 J	8.8 J	334 J	1400 J	245 J	301 J	921 J	1180 J	16 J	1530 J	44.1 J	32.9 J	1160 J	31.4 J
Cobalt	mg/kg	3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**BH-204-14**	**NATP-1**	**NATP-10**	**NATP-11**	**NATP-14**	**NATP-15**	**NATP-16**	**NATP-17**	**NATP-2**	**NATP-3**	**NATP-4**	**NATP-5**	**NATP-6**	**NATP-7**	**NATP-8**	**NATP-9**
Sample ID:		**S-83101-022714-BW-012**	**NATP-1_0.5-1.0**	**NATP-10_1.0-1.5**	**NATP-11_1.0-1.5**	**NATP-14_1.25-1.75**	**NATP-15_0.25-0.75**	**NATP-16_1.5-2.0**	**NATP-17_0.5-1.0**	**NATP-2_1.5-2.0**	**NATP-3_0.5-1.0**	**NATP-4_1.5-2.0**	**NATP-5_0.5-1.0**	**NATP-6_1.5-2.0**	**NATP-7_0.25-0.75**	**NATP-8_0.5-1.0**	**NATP-9_1.5-2.0**
Sample Date:		**2/27/2014**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**
Sample Depth:		**(0-2) ft BGS**	**(0.5-1) ft BGS**	**(1-1.5) ft BGS**	**(1-1.5) ft BGS**	**(1.25-1.75) ft BGS**	**(0.25-0.75) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(0.25-0.75) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**(Duplicate)**															
Copper	mg/kg	7.1	18.3 J	2.3	84.3	37.5	28.2	14.5	76.2	19.4 J	23.4 J	8.7 J	27.2 J	16.3 J	26.6 J	39.5	55.2
Iron	mg/kg	25700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	11.9	18.7	3.3	6.7	53.9	17.6	22.8	44.3	10.7	22.8	6.5	12.6	21.2	14	19.8	8.2
Magnesium	mg/kg	1840 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/kg	228 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.013 U	0.073	0.036 U	0.035 U	1.9	0.011 B	0.053	0.033 B	0.011 B	0.017 B	0.022 B	0.017 B	0.039	0.0097 B	0.028 B	0.036 U
Nickel	mg/kg	7.5	12.5	0.35	12.4	13.7	15.7	11.9	56	7.5	11.2	9.2	16.7	7.5	21.4	16.3	17.2
Potassium	mg/kg	809	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	0.44 U	1.2	5.8	0.63	0.53 B	0.47 B	0.98	0.61	2.7	0.58	0.61	0.81	1.4	0.36 B	0.6	0.71
Silver	mg/kg	0.87 U	0.073 B	0.088 B	0.04 B	0.083 B	0.13	0.058 B	0.19	0.078 B	0.11	7.5 U	0.067 B	0.15	0.044 B	0.093 B	0.035 B
Sodium	mg/kg	48.0 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/kg	0.18 U	0.16	7.3 U	0.04 B	0.1 B	0.021 B	0.087 B	0.024 B	0.021 B	0.02 B	0.036 B	0.011 B	0.074 B	0.19	0.047 B	0.043 B
Vanadium	mg/kg	33.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	177	81.6	7.1	29.4	82.4	33.3	104	247	35.7	91.5	33.9	55.2	137	68.4	108	50.4
MetalsSEM																	
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																	
Aroclor-1016 (PCB-1016)	mg/kg	0.017 U	0.0072 U	7.3 U	7.1 U	0.73 U	0.0071 U	0.016 U	0.037 U	0.0072 U	0.28 U	0.0075 U	0.28 U	0.0076 U	0.007 U	14 U	7.3 U
Aroclor-1221 (PCB-1221)	mg/kg	0.017 U	0.0072 U	7.3 U	7.1 U	0.73 U	0.0071 U	0.016 U	0.037 U	0.0072 U	0.28 U	0.0075 U	0.28 U	0.0076 U	0.007 U	14 U	7.3 U
Aroclor-1232 (PCB-1232)	mg/kg	0.017 U	0.0072 U	7.3 U	7.1 U	0.73 U	0.0071 U	0.016 U	0.037 U	0.0072 U	0.28 U	0.0075 U	0.28 U	0.0076 U	0.007 U	14 U	7.3 U
Aroclor-1242 (PCB-1242)	mg/kg	0.017 U	0.0072 U	7.3 U	7.1 U	0.73 U	0.0071 U	0.016 U	0.037 U	0.0072 U	0.28 U	0.0075 U	0.28 U	0.0076 U	0.007 U	14 U	7.3 U
Aroclor-1248 (PCB-1248)	mg/kg	0.017 U	0.0072 U	7.3 U	7.1 U	0.73 U	0.23	0.016 U	0.037 U	0.038	2.2	0.0075 U	0.28 U	0.0076 U	0.007 U	14 J	7.3 U
Aroclor-1254 (PCB-1254)	mg/kg	0.021 U	0.0072 U	7.3 U	7.1 U	0.73 U	0.0071 U	0.016 U	0.037 U	0.0072 U	0.28 U	0.0075 U	0.28 U	0.0076 U	0.007 U	14 U	7.3 U
Aroclor-1260 (PCB-1260)	mg/kg	0.021 U	0.085	7.3 U	7.1 U	0.73 U	0.019 J	0.016 U	0.037 U	0.23	2.7	0.0075 U	0.015 J	0.0076 U	0.007 U	42	7.3 U
Total PCBs	mg/kg	0.021 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																	
Cyanide (total)	mg/kg	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	-	92.6	91.1	93.9	91.1	93.9	82.6	89.1	92.3	96.2	88.7	95.3	87.9	94.7	93.1	91.7

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**	**STREAM-1**
Sample ID:		**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**	**STREAM-1_1.0-1.5**
Sample Date:		**9/9/2016**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**8/24/2017**
Sample Depth:		**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(1-1.5) ft BGS**
Parameters	**Units**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	mg/kg	0.0025 U	0.0019 U	0.0021 U	0.0047 U	0.000732 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0094 U	0.0069 U	0.0079 U	0.017 U	0.000934 U
1,1,2-Trichloroethane	mg/kg	0.0066 U	0.0049 U	0.0056 U	0.012 U	0.000709 U
1,1-Dichloroethane	mg/kg	0.0027 U	0.0020 U	0.0022 U	0.0049 U	0.000509 U
1,1-Dichloroethene	mg/kg	0.0034 U	0.0025 U	0.0029 U	0.0064 U	0.000774 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	0.000783 U
1,2,4-Trichlorobenzene	mg/kg	0.0096 U	0.0071 U	0.0081 U	0.018 U	0.000992 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.011 U	0.0079 U	0.0090 U	0.020 U	0.0027 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0051 U	0.0037 U	0.0042 U	0.0094 U	0.000876 U
1,2-Dichlorobenzene	mg/kg	0.0077 U	0.0057 U	0.0065 U	0.014 U	0.000781 U
1,2-Dichloroethane	mg/kg	0.0026 U	0.0020 U	0.0022 U	0.0049 U	0.000679 U
1,2-Dichloropropane	mg/kg	0.0044 U	0.0033 U	0.0037 U	0.0082 U	0.000916 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000611 U
1,4-Dichlorobenzene	mg/kg	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000579 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.0071 U	0.0052 U	0.0059 U	0.013 U	0.0422
2-Hexanone	mg/kg	0.0096 U	0.0071 U	0.0081 U	0.018 U	0.0638
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.0084 U	0.0062 U	0.0071 U	0.016 U	0.00712 J
Acetone	mg/kg	0.024 U	0.018 U	0.020 U	0.045 U	0.348
Benzene	mg/kg	0.0072 U	0.0053 U	0.0060 U	0.013 U	0.00069 U
Bromodichloromethane	mg/kg	0.0047 U	0.0035 U	0.0040 U	0.0088 U	0.000648 U
Bromoform	mg/kg	0.011 U	0.0080 U	0.0091 U	0.020 U	0.00108 U
Bromomethane (Methyl bromide)	mg/kg	0.0041 U	0.0030 U	0.0034 U	0.0075 U	0.00342 U
Carbon disulfide	mg/kg	0.0050 U	0.0037 U	0.0042 U	0.0093 U	0.000847 J
Carbon tetrachloride	mg/kg	0.0032 U	0.0024 U	0.0027 U	0.0060 U	0.000839 U
Chlorobenzene	mg/kg	0.0053 U	0.0039 U	0.0044 U	0.0098 U	0.000541 U
Chlorobromomethane	mg/kg	-	-	-	-	0.000997 U
Chloroethane	mg/kg	0.0050 U	0.0037 U	0.0042 U	0.0093 U	0.00242 U
Chloroform (Trichloromethane)	mg/kg	0.0030 U	0.0022 U	0.0025 U	0.0055 U	0.000586 U
Chloromethane (Methyl chloride)	mg/kg	0.0063 U	0.0046 U	0.0052 U	0.012 U	0.000957 U
cis-1,2-Dichloroethene	mg/kg	0.0032 U	0.0023 U	0.0027 U	0.0059 U	0.0006 U
cis-1,3-Dichloropropene	mg/kg	0.0052 U	0.0038 U	0.0043 U	0.0096 U	0.000669 U
Cyclohexane	mg/kg	0.0035 U	0.0026 U	0.0029 U	0.0065 U	0.000895 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-
Dibromochloromethane	mg/kg	0.0059 U	0.0043 U	0.0049 U	0.011 U	0.000953 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0070 U	0.0051 U	0.0058 U	0.013 U	0.00182 U
Ethylbenzene	mg/kg	0.0047 U	0.0035 U	0.0039 U	0.0087 U	0.00076 U
Isopropyl benzene	mg/kg	0.0081 U	0.0060 U	0.0068 U	0.015 U	0.000621 U
m&p-Xylenes	mg/kg	-	-	-	-	-
Methyl acetate	mg/kg	0.031 U	0.023 U	0.026 U	0.058 U	0.0275 J
Methyl cyclohexane	mg/kg	0.0043 U	0.0032 U	0.0036 U	0.0079 U	0.000971 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0059 U	0.0044 U	0.0050 U	0.011 U	0.000541 U
Methylene chloride	mg/kg	0.0013 U	0.0030 U	0.0054 U	0.0083 U	0.00256 U
Naphthalene	mg/kg	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-
Styrene	mg/kg	0.0055 U	0.0041 U	0.0046 U	0.010 U	0.000597 U
tert-Butylbenzene	mg/kg	-	-	-	-	-
Tetrachloroethene	mg/kg	0.0029 U	0.0022 U	0.0025 U	0.0054 U	0.000706 U
Toluene	mg/kg	0.0086 U	0.0063 U	0.0072 U	0.016 U	0.00187 J
trans-1,2-Dichloroethene	mg/kg	0.0024 U	0.0018 U	0.0020 U	0.0045 U	0.000674 U
trans-1,3-Dichloropropene	mg/kg	0.0057 U	0.0042 U	0.0048 U	0.011 U	0.000683 U
Trichloroethene	mg/kg	0.0027 U	0.0020 U	0.0022 U	0.0049 U	0.000713 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000976 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0033 U	0.0024 U	0.0027 U	0.0061 U	0.000934 U
Vinyl chloride	mg/kg	0.0060 U	0.0044 U	0.0051 U	0.011 U	0.000744 U
Xylenes (total)	mg/kg	0.011 U	0.0079 U	0.0090 U	0.020 U	0.00178 U
Semi-volatile Organic Compounds						
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	3.53 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.13 U	0.056 U	0.14 U	0.032 U	0.353 U
2,4,5-Trichlorophenol	mg/kg	0.65 U	0.27 U	0.68 U	0.16 U	0.483 U
2,4,6-Trichlorophenol	mg/kg	0.92 U	0.39 U	0.95 U	0.22 U	0.363 U
2,4-Dichlorophenol	mg/kg	0.12 U	0.052 U	0.13 U	0.030 U	0.346 U
2,4-Dimethylphenol	mg/kg	0.96 U	0.40 U	1.0 U	0.23 U	2.19 U
2,4-Dinitrophenol	mg/kg	7.3 U	3.1 U	7.6 U	1.8 U	4.55 U

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**	**STREAM-1**
Sample ID:		**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**	**STREAM-1_1.0-1.5**
Sample Date:		**9/9/2016**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**8/24/2017**
Sample Depth:		**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(1-1.5) ft BGS**
Parameters	**Units**					
2,4-Dinitrotoluene	mg/kg	0.49 U	0.21 U	0.51 U	0.12 U	0.281 U
2,6-Dinitrotoluene	mg/kg	0.63 U	0.27 U	0.66 U	0.15 U	0.342 U
2-Chloronaphthalene	mg/kg	0.13 U	0.054 U	0.13 U	0.031 U	0.297 U
2-Chlorophenol	mg/kg	0.50 U	0.21 U	0.52 U	0.12 U	0.386 U
2-Methylnaphthalene	mg/kg	0.22 J	0.12 J	0.26 J	0.044 J	0.4 U
2-Methylphenol	mg/kg	0.43 U	0.18 U	0.45 U	0.10 U	0.458 U
2-Nitroaniline	mg/kg	2.7 U	1.2 U	2.9 U	0.67 U	0.351 U
2-Nitrophenol	mg/kg	0.68 U	0.28 U	0.70 U	0.16 U	0.604 U
3&4-Methylphenol	mg/kg	-	-	-	-	0.365 U
3,3'-Dichlorobenzidine	mg/kg	0.65 U	0.27 U	0.67 U	0.16 U	3.7 U
3-Nitroaniline	mg/kg	2.5 U	1.1 U	2.6 U	0.62 U	0.395 U
4,6-Dinitro-2-methylphenol	mg/kg	2.5 U	1.0 U	2.6 U	0.60 U	5.76 U
4-Bromophenyl phenyl ether	mg/kg	0.53 U	0.22 U	0.56 U	0.13 U	0.53 U
4-Chloro-3-methylphenol	mg/kg	0.56 U	0.24 U	0.59 U	0.14 U	0.222 U
4-Chloroaniline	mg/kg	0.49 U	0.21 U	0.51 U	0.12 U	1.64 U
4-Chlorophenyl phenyl ether	mg/kg	0.68 U	0.29 U	0.71 U	0.17 U	0.29 U
4-Methylphenol	mg/kg	0.60 U	0.25 U	0.62 U	0.15 U	-
4-Nitroaniline	mg/kg	2.5 U	1.0 U	2.6 U	0.61 U	0.297 U
4-Nitrophenol	mg/kg	2.2 U	0.94 U	2.3 U	0.55 U	2.44 U
Acenaphthene	mg/kg	0.29 J	0.049 U	0.67 J	0.092 J	0.297 U
Acenaphthylene	mg/kg	0.14 U	0.059 U	0.26 J	0.034 U	0.311 U
Acetophenone	mg/kg	0.50 U	0.21 U	0.52 U	0.12 U	3.49 U
Anthracene	mg/kg	0.53 J	0.24 J	0.92 J	0.21 J	0.293 U
Atrazine	mg/kg	0.60 U	0.25 U	0.62 U	0.15 U	4.37 U
Benzaldehyde	mg/kg	0.92 U	0.39 U	0.96 U	0.22 U	2.46 U
Benzo(a)anthracene	mg/kg	2.7	0.83	6.3	1.0	0.414 J
Benzo(a)pyrene	mg/kg	3.7	1.1	6.8	1.1	0.405 J
Benzo(b)fluoranthene	mg/kg	4.7	1.4	10	1.6	0.707 J
Benzo(g,h,i)perylene	mg/kg	4.1	1.2	6.2	1.1	0.491 J
Benzo(k)fluoranthene	mg/kg	2.2	0.77	3.5	0.56	0.27 U
Biphenyl (1,1-Biphenyl)	mg/kg	0.55 U	0.23 U	0.57 U	0.13 U	0.274 U
bis(2-Chloroethoxy)methane	mg/kg	0.40 U	0.17 U	0.42 U	0.099 U	0.358 U
bis(2-Chloroethyl)ether	mg/kg	0.16 U	0.069 U	0.17 U	0.040 U	0.416 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.99 U	0.42 U	1.0 U	0.24 U	0.558 U
Butyl benzylphthalate (BBP)	mg/kg	0.84 U	0.35 U	0.87 U	0.20 U	0.479 U
Caprolactam	mg/kg	4.6 U	1.9 U	4.8 U	1.1 U	4.83 U
Carbazole	mg/kg	0.51 J	0.047 U	1.2 J	0.19 J	0.244 U
Chrysene	mg/kg	3.5	1.1	7.7	1.3	0.594 J
Dibenz(a,h)anthracene	mg/kg	1.1 J	0.28 J	1.5	0.30	0.381 U
Dibenzofuran	mg/kg	0.60 U	0.25 U	0.63 U	0.15 U	0.242 U
Diethyl phthalate	mg/kg	0.67 U	0.28 U	0.70 U	0.16 U	0.321 U
Dimethyl phthalate	mg/kg	0.67 U	0.28 U	0.70 U	0.16 U	0.251 U
Di-n-butylphthalate (DBP)	mg/kg	0.77 U	0.32 U	0.80 U	0.19 U	0.507 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.65 U	0.27 U	0.67 U	0.16 U	0.421 U
Fluoranthene	mg/kg	5.1	1.6	12	1.9	0.897 J
Fluorene	mg/kg	0.16 U	0.068 U	0.38 J	0.039 U	0.316 U
Hexachlorobenzene	mg/kg	0.13 U	0.055 U	0.14 U	0.032 U	0.397 U
Hexachlorobutadiene	mg/kg	0.14 U	0.058 U	0.14 U	0.033 U	0.465 U
Hexachlorocyclopentadiene	mg/kg	0.66 U	0.28 U	0.69 U	0.16 U	2.72 U
Hexachloroethane	mg/kg	0.44 U	0.18 U	0.46 U	0.11 U	0.623 U
Indeno(1,2,3-cd)pyrene	mg/kg	3.8	0.93	5.0	0.92	0.367 J
Isophorone	mg/kg	0.46 U	0.19 U	0.48 U	0.11 U	0.242 U
Naphthalene	mg/kg	0.11 U	0.15 J	0.11 U	0.026 U	0.414 U
Nitrobenzene	mg/kg	0.51 U	0.21 U	0.53 U	0.12 U	0.323 U
N-Nitrosodi-n-propylamine	mg/kg	0.14 U	0.060 U	0.15 U	0.035 U	0.421 U
N-Nitrosodiphenylamine	mg/kg	0.57 U	0.24 U	0.59 U	0.14 U	0.277 U
Pentachlorophenol	mg/kg	0.55 U	0.23 U	0.57 U	0.13 U	2.23 U
Phenanthrene	mg/kg	2.1	0.79	5.6	0.86	0.517 J
Phenol	mg/kg	0.14 U	0.061 U	0.15 U	0.035 U	0.323 U
Pyrene	mg/kg	4.6	1.6	12	1.9	0.792 J
Metals						
Aluminum	mg/kg	12700	7460	8910	11100	13200
Antimony	mg/kg	2.6	1.0	5.0	1.7	1.88 J
Arsenic	mg/kg	12.7	4.0	14.3	6.4	5.01
Barium	mg/kg	98.2	65.9	226	157	187
Beryllium	mg/kg	0.96	0.59	2.1	0.98	1.15
Cadmium	mg/kg	2.0	1.4	4.9	2.1	3.12
Calcium	mg/kg	6370	4460	12400	11700	29200
Chromium	mg/kg	390	237	393	229	355
Cobalt	mg/kg	11.0	5.8	8.9	8.8	9.71

Table 4.1

Screened Analytical Results
Surficial Soil Samples vs Non-Residential Direct Contact Criteria (0-2)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**	**STREAM-1**
Sample ID:		**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**	**STREAM-1_1.0-1.5**
Sample Date:		**9/9/2016**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**8/24/2017**
Sample Depth:		**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(1-1.5) ft BGS**
Parameters	**Units**					
Copper	mg/kg	208	144	307	172	109
Iron	mg/kg	59900	34200	91100	47900	46800
Lead	mg/kg	262	150	**2270**	178	169
Magnesium	mg/kg	3970	2900	3560	4120	6370
Manganese	mg/kg	917	397	776	586	1260
Mercury	mg/kg	0.63	0.19	0.33	0.20	0.161
Nickel	mg/kg	91.7	56.4	80.3	34.8	44.2
Potassium	mg/kg	1080	585	569	1100	1520
Selenium	mg/kg	10.8	3.3	8.2	6.4	1.72 U
Silver	mg/kg	0.72	0.38	0.94	0.53	0.651 U
Sodium	mg/kg	168 U	90.3 U	116 U	514 U	516
Thallium	mg/kg	0.26	0.14	0.28	0.26	1.51 U
Vanadium	mg/kg	75.6	36.5	111	77.9	83.2
Zinc	mg/kg	638	503	2330	488	981
MetalsSEM						
Cadmium	umol/g	0.0088	0.0089	0.026	0.012	-
Copper	umol/g	1.3	1.1	1.8	0.73	-
Lead	umol/g	0.75	0.54	1.6	0.39	-
Mercury	umol/g	0.00018	0.00010	0.00013	0.000023 U	-
Nickel	umol/g	0.45	0.36	0.40	0.15	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	0.00100 U	56.4	99.2	0.00100 U	-
Zinc	umol/g	2.9	4.2	13.4	4.1	-
PCBs						
Aroclor-1016 (PCB-1016)	mg/kg	0.0035 U	0.0029 U	0.0037 U	0.0069 U	0.00813 U
Aroclor-1221 (PCB-1221)	mg/kg	0.0055 U	0.0046 U	0.0058 U	0.011 U	0.0125 U
Aroclor-1232 (PCB-1232)	mg/kg	0.0019 U	0.0016 U	0.0020 U	0.0038 U	0.00969 U
Aroclor-1242 (PCB-1242)	mg/kg	0.0028 U	0.0024 U	0.0029 U	0.0055 U	0.00739 U
Aroclor-1248 (PCB-1248)	mg/kg	0.0018 U	0.0015 U	0.0019 U	0.0035 U	0.00732 U
Aroclor-1254 (PCB-1254)	mg/kg	0.21	0.096	0.18	0.093	0.011 U
Aroclor-1260 (PCB-1260)	mg/kg	0.22	0.12	0.20	0.095	0.15 P
Total PCBs	mg/kg	0.43	0.22	0.38	0.19	-
General Chemistry						
Cyanide (total)	mg/kg	0.79	0.18 J	1.8	1.0	-
pH	s.u.	-	-	-	-	-
Soot carbon	mg/kg	18200	6440	17500	14300	-
Sulfide	mg/kg	5.5 UJ	4.6 J	6.5 J	10.8 UJ	-
Total organic carbon (TOC)	mg/kg	161000	22500	122000	113000	-
Total solids	%	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**BH-200-14**	**BH-201-14**	**BH-202-14**	**BH-203-14**	**BH-204-14**	**EX96-SB-112**	**GP-01-2017**	**GP-02-2017**	**GP-02-2017**	**GP-03-2017**	**GP-04-2017**	**GP-05-2017**
Sample ID:			**S-83101-022714-BW-006**	**S-83101-022714-BW-004**	**S-83101-022714-BW-002**	**S-83101-022714-BW-008**	**S-83101-022714-BW-013**	**SB-112_14-16**	**GP-01_11.0-11.5**	**DUP-02_082317**	**GP-02_10.5-11.0**	**GP-03_11.0-11.5**	**GP-04_9.0-9.5**	**GP-05_9.0-9.5**
Sample Date:			**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**10/14/1996**	**8/24/2017**	**8/23/2017**	**8/23/2017**	**8/24/2017**	**8/24/2017**	**8/24/2017**
Sample Depth:			**(8-10) ft BGS**	**(8-10) ft BGS**	**(10-12) ft BGS**	**(5-7) ft BGS**	**(7.5-9.5) ft BGS**	**(14-16) ft BGS**	**(11-11.5) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(11-11.5) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**
Parameters	**Units**	**2-15**												
Volatile Organic Compounds														
1,1,1-Trichloroethane	mg/kg	10000	0.0038 U	0.0039 U	0.026 J	0.0033 U	0.0039 U	-	0.000323 U	0.000331 U	0.000332 U	0.0003 U	0.000359 U	0.000329 U
1,1,2,2-Tetrachloroethane	mg/kg	44	0.0097 U	0.0099 U	0.01 U	0.0083 U	0.01 U	-	0.000412 U	0.000422 U	0.000424 U	0.000382 U	0.000458 U	0.00042 U
1,1,2-Trichloroethane	mg/kg	18	0.012 U	0.012 U	0.012 U	0.0099 U	0.012 U	-	0.000313 U	0.000321 U	0.000322 U	0.00029 U	0.000348 U	0.000319 U
1,1-Dichloroethane	mg/kg	1600	0.008 U	0.0082 U	0.0086 U	0.0069 U	0.0082 U	-	0.000225 U	0.00023 U	0.000232 U	0.000209 U	0.00025 U	0.000229 U
1,1-Dichloroethene	mg/kg	10000	0.0055 U	0.0055 U	0.0058 U	0.0047 U	0.0056 U	-	0.000342 U	0.000351 U	0.000352 U	0.000318 U	0.00038 U	0.000349 U
1,2,3-Trichlorobenzene	mg/kg		-	-	-	-	-	-	0.000345 U	0.000354 U	0.000356 U	0.000321 U	0.000384 U	0.000352 U
1,2,4-Trichlorobenzene	mg/kg	10000	0.021 U	0.021 U	0.023 U	0.018 U	0.022 U	9999 U	0.000438 U	0.000449 U	0.000451 U	0.000407 U	0.000487 U	0.000447 U
1,2,4-Trimethylbenzene	mg/kg	640	-	-	-	-	-	9999 U	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.43	0.025 U	0.025 U	0.026 U	0.021 U	0.025 U	-	0.00119 U	0.00122 U	0.00122 U	0.0011 U	0.00132 U	0.00121 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	4.3	0.017 U	0.017 U	0.018 U	0.015 U	0.017 U	-	0.000387 U	0.000397 U	0.000399 U	0.000359 U	0.00043 U	0.000395 U
1,2-Dichlorobenzene	mg/kg	10000	0.013 U	0.013 U	0.014 U	0.011 U	0.013 U	-	0.000344 U	0.000353 U	0.000355 U	0.00032 U	0.000383 U	0.000351 U
1,2-Dichloroethane	mg/kg	98	0.012 U	0.012 U	0.012 U	0.01 U	0.012 U	-	0.000299 U	0.000307 U	0.000308 U	0.000278 U	0.000332 U	0.000305 U
1,2-Dichloropropane	mg/kg	260	0.0053 U	0.0054 U	0.0057 U	0.0045 U	0.0054 U	-	0.000404 U	0.000414 U	0.000416 U	0.000375 U	0.000449 U	0.000412 U
1,3,5-Trimethylbenzene	mg/kg	10000	-	-	-	-	-	9999 U	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	10000	0.0083 U	0.0085 U	0.0089 U	0.0071 U	0.0086 U	-	0.00027 U	0.000277 U	0.000278 U	0.00025 U	0.0003 U	0.000275 U
1,4-Dichlorobenzene	mg/kg	230	0.014 U	0.015 U	0.015 U	0.012 U	0.015 U	9999 U	0.000255 U	0.000262 U	0.000262 U	0.000237 U	0.000284 U	0.00026 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.14 U	0.15 U	0.15 U	0.12 U	0.15 U	-	0.0143	0.00542 U	0.00544 U	0.00608 J	0.00587 U	0.00539 U
2-Hexanone	mg/kg	2800	0.031 U	0.031 U	0.033 U	0.026 U	0.032 U	-	0.00247 J	0.00159 U	0.0016 U	0.00144 U	0.00172 U	0.00158 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	10000	-	-	-	-	-	9999 U	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.061 U	0.062 U	0.065 U	0.052 U	0.062 U	-	0.00212 U	0.00218 U	0.00218 U	0.00197 U	0.00236 U	0.00216 U
Acetone	mg/kg	10000	0.17 U	0.17 U	0.18 U	0.14 U	0.17 U	-	0.0431 J	0.0116 U	0.0116 U	0.0219 J	0.0125 U	0.0115 U
Benzene	mg/kg	330	0.0051 U	0.0052 U	0.0054 U	0.0044 U	0.0052 U	9999 U	0.000596 J	0.000312 U	0.000314 U	0.000319 J	0.000339 U	0.000311 U
Bromodichloromethane	mg/kg	69	0.0077 U	0.0078 U	0.0082 U	0.0066 U	0.0079 U	-	0.000287 U	0.000294 U	0.000295 U	0.000266 U	0.000319 U	0.000292 U
Bromoform	mg/kg	2300	0.012 U	0.012 U	0.013 U	0.01 UJ	0.012 U	-	0.000479 U	0.000491 U	0.000493 U	0.000444 U	0.000532 U	0.000488 U
Bromomethane (Methyl bromide)	mg/kg	460	0.011 UJ	0.011 UJ	0.012 UJ	0.0096 U	0.011 U	-	0.00151 U	0.00155 U	0.00155 U	0.0014 U	0.00168 U	0.00154 U
Carbon disulfide	mg/kg	10000	0.0077 U	0.0078 U	0.0083 U	0.0066 U	0.0079 U	-	0.00791	0.00277	0.000257 U	0.00718	0.000331 J	0.000254 U
Carbon tetrachloride	mg/kg	430	0.0035 U	0.0036 U	0.0038 U	0.003 U	0.0036 U	-	0.00037 U	0.00038 U	0.000382 U	0.000344 U	0.000412 U	0.000378 U
Chlorobenzene	mg/kg	4600	0.0068 U	0.0069 U	0.0073 U	0.0058 U	0.007 U	-	0.000239 U	0.000245 U	0.000247 U	0.000222 U	0.000266 U	0.000244 U
Chlorobromomethane	mg/kg	3600	-	-	-	-	-	-	0.00044 U	0.000451 U	0.000454 U	0.000409 U	0.000489 U	0.000449 U
Chloroethane	mg/kg	10000	0.01 U	0.011 U	0.011 U	0.0089 U	0.011 U	-	0.00107 U	0.00109 U	0.0011 U	0.000991 U	0.00119 U	0.00109 U
Chloroform (Trichloromethane)	mg/kg	110	0.0048 U	0.0049 U	0.0052 U	0.0041 U	0.005 U	9999 U	0.000259 U	0.000265 U	0.000267 U	0.00024 U	0.000287 U	0.000264 U
Chloromethane (Methyl chloride)	mg/kg	1400	0.006 U	0.0061 U	0.0064 U	0.0051 U	0.0061 U	-	0.000423 U	0.000434 U	0.000436 U	0.000393 U	0.000471 U	0.000432 U
cis-1,2-Dichloroethene	mg/kg	10000	0.011 U	0.011 U	0.012 U	0.0093 U	0.011 U	-	0.000265 U	0.000272 U	0.000274 U	0.000246 U	0.000295 U	0.00027 U
cis-1,3-Dichloropropene	mg/kg		0.011 U	0.012 U	0.012 U	0.0097 U	0.012 U	-	0.000296 U	0.000303 U	0.000305 U	0.000275 U	0.000329 U	0.000302 U
Cyclohexane	mg/kg	10000	0.0098 U	0.0099 U	0.01 U	0.0084 U	0.01 U	-	0.000395 U	0.000405 U	0.000408 U	0.000367 U	0.000439 U	0.000403 U
Cymene (p-Isopropyltoluene)	mg/kg		-	-	-	-	-	9999 U	-	-	-	-	-	-
Dibromochloromethane	mg/kg	95	0.012 U	0.012 U	0.013 U	0.011 U	0.013 U	-	0.000421 U	0.000432 U	0.000433 U	0.000391 U	0.000468 U	0.000429 U
Dichlorodifluoromethane (CFC-12)	mg/kg	9100	0.013 U	0.013 U	0.014 U	0.011 U	0.014 U	-	0.000805 U	0.000825 U	0.00083 U	0.000747 U	0.000895 U	0.000821 U
Ethylbenzene	mg/kg	1000	0.0059 U	0.006 U	0.0063 U	0.0051 U	0.053 J	9999 U	0.000335 U	0.000344 U	0.000346 U	0.000311 U	0.000373 U	0.000342 U
Isopropyl benzene	mg/kg	10000	0.0047 U	0.0048 U	0.0051 U	0.004 U	0.0048 U	9999 U	0.000274 U	0.000281 U	0.000282 U	0.000255 U	0.000305 U	0.00028 U
m&p-Xylenes	mg/kg		-	-	-	-	-	9999 U	-	-	-	-	-	-
Methyl acetate	mg/kg	10000	0.021 U	0.021 U	0.022 U	0.018 U	0.4	-	0.00689 U	0.00706 U	0.00709 U	0.00639 U	0.00765 U	0.00702 U
Methyl cyclohexane	mg/kg		0.0083 U	0.0085 U	0.0089 U	0.0071 U	0.0086 U	-	0.000429 U	0.00044 U	0.000442 U	0.000398 U	0.000477 U	0.000437 U
Methyl tert butyl ether (MTBE)	mg/kg	9900	0.0085 U	0.0086 U	0.0091 U	0.0073 U	0.0087 U	-	0.000239 U	0.000245 U	0.000247 U	0.000222 U	0.000266 U	0.000244 U
Methylene chloride	mg/kg	10000	0.011 U	0.011 U	0.012 U	0.0096 U	0.012 U	9999 U	0.00113 U	0.00116 U	0.00116 U	0.00105 U	0.00125 U	0.00115 U
Naphthalene	mg/kg	190000	-	-	-	-	-	9999 U	-	-	-	-	-	-
N-Butylbenzene	mg/kg	10000	-	-	-	-	-	9999 U	-	-	-	-	-	-
N-Propylbenzene	mg/kg	10000	-	-	-	-	-	9999 U	-	-	-	-	-	-
o-Xylene	mg/kg		-	-	-	-	-	9999 U	-	-	-	-	-	-
Styrene	mg/kg	10000	0.0073 U	0.0074 U	0.0078 U	0.0063 U	0.0075 U	9999 U	0.000264 U	0.000271 U	0.000272 U	0.000245 U	0.000294 U	0.000269 U
tert-Butylbenzene	mg/kg	10000	-	-	-	-	-	9999 U	-	-	-	-	-	-
Tetrachloroethene	mg/kg	3600	0.006 U	0.0061 U	0.0064 U	0.0051 U	0.0061 U	-	0.000792 J	0.000319 U	0.000321 U	0.000289 U	0.000346 U	0.000318 U
Toluene	mg/kg	10000	0.0092 U	0.0093 U	0.0099 U	0.0079 U	0.046 J	0.001 J	0.00694	0.00062 J	0.000504 U	0.00167 J	0.000545 U	0.0005 U
trans-1,2-Dichloroethene	mg/kg	5500	0.0079 U	0.0081 U	0.0085 U	0.0068 U	0.0081 U	-	0.000298 U	0.000306 U	0.000307 U	0.000277 U	0.000331 U	0.000304 U
trans-1,3-Dichloropropene	mg/kg		0.015 U	0.015 U	0.016 U	0.013 U	0.015 U	-	0.000301 U	0.000309 U	0.000311 U	0.00028 U	0.000335 U	0.000307 U
Trichloroethene	mg/kg	180	0.0057 U	0.0058 U	0.039 J	0.0049 U	0.0058 U	9999 U	0.000315 U	0.000323 U	0.000324 U	0.000292 U	0.00035 U	0.000321 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.009 U	0.0091 U	0.0096 U	0.0077 U	0.0092 U	0.004 J	0.000431 U	0.000442 U	0.000445 U	0.0004 U	0.000479 U	0.00044 U
Trifluorotrichloroethane (CFC-113)	mg/kg	10000	0.0051 U	0.0051 U	0.0054 U	0.0043 U	0.0052 U	-	0.000412 U	0.000422 U	0.000424 U	0.000382 U	0.000458 U	0.00042 U
Vinyl chloride	mg/kg	280	0.0089 U	0.009 U	0.0095 U	0.0076 U	0.0091 U	-	0.000329 U	0.000337 U	0.000339 U	0.000305 U	0.000365 U	0.000335 U
Xylenes (total)	mg/kg	9100	0.022 U	0.022 U	0.024 U	0.019 U	0.26	-	0.000788 U	0.000808 U	0.000812 U	0.000731 U	0.000876 U	0.000803 U
Semi-volatile Organic Compounds														
1,2,4,5-Tetrachlorobenzene	mg/kg	190000	-	-	-	-	-	-	1.72 U	0.0882 U	0.0784 U	0.799 U	0.0956 U	0.0877 U

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			BH-200-14	BH-201-14	BH-202-14	BH-203-14	BH-204-14	EX96-SB-112	GP-01-2017	GP-02-2017	GP-02-2017	GP-03-2017	GP-04-2017	GP-05-2017
Sample ID:			S-83101-022714-BW-006	S-83101-022714-BW-004	S-83101-022714-BW-002	S-83101-022714-BW-008	S-83101-022714-BW-013	SB-112_14-16	GP-01_11.0-11.5	DUP-02_082317	GP-02_10.5-11.0	GP-03_11.0-11.5	GP-04_9.0-9.5	GP-05_9.0-9.5
Sample Date:			2/27/2014	2/27/2014	2/27/2014	2/27/2014	2/27/2014	10/14/1996	8/24/2017	8/23/2017	8/23/2017	8/24/2017	8/24/2017	8/24/2017
Sample Depth:			(8-10) ft BGS	(8-10) ft BGS	(10-12) ft BGS	(5-7) ft BGS	(7.5-9.5) ft BGS	(14-16) ft BGS	(11-11.5) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(11-11.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS
Parameters	**Units**	**2-15**												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	250	0.04 U	0.043 U	0.039 U	0.039 U	0.041 U	-	0.172 U	0.0088 U	0.00782 U	0.0796 U	0.00954 U	0.00875 U
2,4,5-Trichlorophenol	mg/kg	190000	0.047 U	0.05 U	0.046 U	0.045 U	0.047 U	-	0.235 U	0.012 U	0.0107 U	0.109 U	0.013 U	0.012 U
2,4,6-Trichlorophenol	mg/kg	190000	0.043 U	0.045 U	0.041 U	0.041 U	0.043 U	-	0.176 U	0.00902 U	0.00802 U	0.0816 U	0.00977 U	0.00897 U
2,4-Dichlorophenol	mg/kg	190000	0.053 U	0.056 U	0.052 U	0.051 U	0.054 U	-	0.168 U	0.00863 U	0.00768 U	0.0782 U	0.00936 U	0.00859 U
2,4-Dimethylphenol	mg/kg	10000	0.09 U	0.095 U	0.087 U	0.087 U	0.09 U	-	1.06 U	0.0545 U	0.0485 U	0.494 U	0.0591 U	0.0542 U
2,4-Dinitrophenol	mg/kg	190000	0.21 U	0.22 U	0.2 U	0.2 U	0.21 U	-	2.21 U	0.113 UJ3	0.101 UJ3	1.03 U	0.123 U	0.113 U
2,4-Dinitrotoluene	mg/kg	190000	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	-	0.137 U	0.00703 U	0.00625 U	0.0636 U	0.00762 U	0.00699 U
2,6-Dinitrotoluene	mg/kg	190000	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	-	0.166 U	0.00853 U	0.00759 U	0.0772 U	0.00925 U	0.00848 U
2-Chloronaphthalene	mg/kg	190000	0.041 U	0.043 U	0.039 U	0.039 U	0.041 U	-	0.145 U	0.0074 U	0.00658 U	0.067 U	0.00802 U	0.00736 U
2-Chlorophenol	mg/kg	10000	0.048 U	0.051 U	0.046 U	0.046 U	0.048 U	-	0.187 U	0.00962 U	0.00855 U	0.0871 U	0.0104 U	0.00957 U
2-Methylnaphthalene	mg/kg	190000	0.047 U	0.049 U	0.045 U	0.045 U	0.047 U	-	0.467 J	0.00997 U	0.00886 U	0.0902 U	0.0108 U	0.00991 U
2-Methylphenol	mg/kg	190000	0.062 U	0.066 U	0.06 U	0.06 U	0.062 U	-	0.222 U	0.0114 U	0.0101 U	0.103 U	0.0124 U	0.0113 U
2-Nitroaniline	mg/kg	190000	0.15 U	0.16 U	0.15 U	0.15 U	0.15 U	-	0.17 U	0.00874 U	0.00777 U	0.0791 U	0.00947 U	0.00869 U
2-Nitrophenol	mg/kg	190000	0.041 U	0.043 U	0.039 U	0.039 U	0.041 U	-	0.294 U	0.015 U	0.0134 U	0.136 U	0.0163 U	0.015 U
3&4-Methylphenol	mg/kg		-	-	-	-	-	-	0.177 U	0.00906 U	0.00806 U	0.0821 U	0.00982 U	0.00901 U
3,3'-Dichlorobenzidine	mg/kg	190000	0.13 U	0.14 U	0.12 U	0.12 U	0.13 U	-	1.79 U	0.0919 U	0.0817 U	0.832 U	0.0996 U	0.0914 U
3-Nitroaniline	mg/kg		0.13 U	0.14 U	0.13 U	0.12 U	0.13 U	-	0.192 U	0.00984 U	0.00875 U	0.0891 U	0.0107 U	0.00978 U
4,6-Dinitro-2-methylphenol	mg/kg	190000	0.099 U	0.1 U	0.096 U	0.096 U	0.1 U	-	2.8 U	0.144 U	0.128 U	1.3 U	0.156 U	0.143 U
4-Bromophenyl phenyl ether	mg/kg		0.036 U	0.038 U	0.035 U	0.035 U	0.036 U	-	0.257 U	0.0132 U	0.0117 U	0.119 U	0.0143 U	0.0131 U
4-Chloro-3-methylphenol	mg/kg	190000	0.055 U	0.058 U	0.053 U	0.053 U	0.055 U	-	0.108 U	0.00552 U	0.00491 U	0.05 U	0.00598 U	0.00549 U
4-Chloroaniline	mg/kg	190000	0.097 U	0.1 U	0.094 U	0.093 U	0.097 U	-	0.795 U	0.0407 U	0.0362 U	0.369 U	0.0442 U	0.0405 U
4-Chlorophenyl phenyl ether	mg/kg		0.043 U	0.045 U	0.041 U	0.041 U	0.043 U	-	0.141 U	0.00726 U	0.00645 U	0.0657 U	0.00787 U	0.00722 U
4-Methylphenol	mg/kg	190000	0.072 U	0.076 U	0.07 U	0.069 U	0.072 U	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	190000	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	-	0.145 U	0.0074 U	0.00658 U	0.067 U	0.00802 U	0.00736 U
4-Nitrophenol	mg/kg	190000	0.23 U	0.25 U	0.23 U	0.23 U	0.24 U	-	1.19 U	0.0608 U	0.054 U	0.55 U	0.0659 U	0.0604 U
Acenaphthene	mg/kg	190000	0.053 U	0.056 U	0.052 U	0.051 U	0.053 U	0.041 U	0.186 J	0.00743 U	0.00661 U	0.0673 U	0.00806 U	0.00739 U
Acenaphthylene	mg/kg	190000	0.043 U	0.046 U	0.042 U	0.041 U	0.043 U	0.041 U	0.151 U	0.00777 U	0.00691 U	0.0703 U	0.00842 U	0.00772 U
Acetophenone	mg/kg	10000	0.056 U	0.059 U	0.054 U	0.054 U	0.056 U	-	1.69 U	0.087 U	0.0774 U	0.788 U	0.0944 U	0.0866 U
Anthracene	mg/kg	190000	0.044 U	0.047 U	0.043 U	0.043 U	0.045 U	0.041 U	0.169 J	0.00731 U	0.0065 U	0.0901 J	0.00793 U	0.00727 U
Atrazine	mg/kg	190000	0.056 U	0.06 U	0.055 U	0.054 U	0.057 U	-	2.12 U	0.109 U	0.0965 U	0.983 U	0.118 U	0.108 U
Benzaldehyde	mg/kg		0.043 U	0.045 U	0.042 U	0.041 U	0.043 U	-	1.2 U	0.0616 U	0.0548 U	0.557 U	0.0668 U	0.0612 U
Benzo(a)anthracene	mg/kg	190000	0.0025 U	0.0027 U	0.061	0.0024 U	0.0026 U	0.041 U	0.904	0.00495 U	0.00441 U	0.295 J	0.00537 U	0.00493 U
Benzo(a)pyrene	mg/kg	190000	0.0026 U	0.039	0.056	0.0025 U	0.0026 U	0.082 U	0.613 J	0.00634 U	0.00564 U	0.214 J	0.00688 U	0.00631 U
Benzo(b)fluoranthene	mg/kg	190000	0.0023 U	0.039	0.079	0.0022 U	0.0023 U	0.082 U	0.481 J	0.00804 U	0.00715 U	0.194 J	0.00872 U	0.008 U
Benzo(g,h,i)perylene	mg/kg	190000	0.027 U	0.029 U	0.036 J	0.026 U	0.027 U	0.082 U	0.409 J	0.00834 U	0.00742 U	0.302 J	0.00905 U	0.0083 U
Benzo(k)fluoranthene	mg/kg	190000	0.0028 U	0.023 J	0.034 J	0.0027 U	0.0028 U	0.16 U	0.143 J	0.00674 U	0.00599 U	0.0924 J	0.0073 U	0.0067 U
Biphenyl (1,1-Biphenyl)	mg/kg	190000	0.049 U	0.052 U	0.047 U	0.047 U	0.049 U	-	0.133 U	0.00681 U	0.00605 U	0.0616 U	0.00738 U	0.00677 U
bis(2-Chloroethoxy)methane	mg/kg	10000	0.047 U	0.05 U	0.046 U	0.045 U	0.047 U	-	0.174 U	0.00891 U	0.00792 U	0.0807 U	0.00966 U	0.00886 U
bis(2-Chloroethyl)ether	mg/kg	7.7	0.005 U	0.0053 U	0.0048 U	0.0048 U	0.005 U	-	0.202 U	0.0104 U	0.00922 U	0.0939 U	0.0112 U	0.0103 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	10000	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.11 J	0.271 U	0.0139 U	0.0124 U	0.126 U	0.0151 U	0.0138 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.033 U	0.035 U	0.032 U	0.032 U	0.034 U	-	0.233 U	0.0119 U	0.0106 U	0.108 U	0.0129 U	0.0119 U
Caprolactam	mg/kg		0.084 U	0.089 U	0.081 U	0.081 U	0.084 U	-	2.35 U	0.12 U	0.107 U	1.09 U	0.13 U	0.12 U
Carbazole	mg/kg	190000	0.043 U	0.046 U	0.042 U	0.041 U	0.043 U	-	0.119 U	0.00606 U	0.00539 U	0.0608 J	0.00657 U	0.00603 U
Chrysene	mg/kg	190000	0.043 U	0.045 U	0.071 J	0.041 U	0.043 U	0.041 U	1.83	0.00642 U	0.00571 U	0.421	0.00696 U	0.00639 U
Dibenz(a,h)anthracene	mg/kg	190000	0.0046 U	0.0049 U	0.0045 U	0.0044 U	0.0046 U	0.082 U	0.185 U	0.0095 U	0.00845 U	0.116 J	0.0103 U	0.00945 U
Dibenzofuran	mg/kg	190000	0.043 U	0.045 U	0.041 U	0.041 U	0.043 U	-	0.117 U	0.006 U	0.00533 U	0.0543 U	0.0065 U	0.00596 U
Diethyl phthalate	mg/kg	10000	0.043 U	0.046 U	0.042 U	0.042 U	0.044 U	-	0.156 U	0.008 U	0.00711 U	0.0724 U	0.00867 U	0.00795 U
Dimethyl phthalate	mg/kg		0.043 U	0.046 U	0.042 U	0.042 U	0.043 U	-	0.122 U	0.00625 U	0.00556 U	0.0566 U	0.00678 U	0.00622 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.045 U	0.048 U	0.044 U	0.043 U	0.045 U	-	0.246 U	0.0126 U	0.0112 U	0.114 U	0.0137 U	0.0125 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.023 U	0.025 U	0.023 U	0.022 U	0.023 U	-	0.204 U	0.0105 U	0.00934 U	0.095 U	0.0114 U	0.0104 U
Fluoranthene	mg/kg	190000	0.049 U	0.051 U	0.081 J	0.047 U	0.049 U	0.041 U	0.58 J	0.00769 J	0.0051 U	0.207 J	0.00622 U	0.00571 U
Fluorene	mg/kg	190000	0.047 U	0.049 U	0.045 U	0.045 U	0.047 U	0.041 U	0.357 J	0.00789 U	0.00702 U	0.0715 U	0.00856 U	0.00785 U
Hexachlorobenzene	mg/kg	190000	0.005 U	0.0053 U	0.0048 U	0.0048 U	0.005 U	-	0.193 U	0.00991 U	0.00881 U	0.0897 U	0.0107 U	0.00985 U
Hexachlorobutadiene	mg/kg	10000	0.0089 U	0.0094 U	0.0086 U	0.0086 U	0.0089 U	-	0.226 U	0.0116 U	0.0103 U	0.105 U	0.0125 U	0.0115 U
Hexachlorocyclopentadiene	mg/kg	10000	0.043 U	0.045 U	0.042 U	0.041 U	0.043 U	-	1.32 U	0.0679 U	0.0604 U	0.615 U	0.0737 U	0.0676 U
Hexachloroethane	mg/kg	260	0.0041 U	0.0043 U	0.0039 U	0.0039 U	0.0041 U	-	0.303 U	0.0155 U	0.0138 U	0.14 U	0.0168 U	0.0154 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.0068 U	0.0072 U	0.052	0.0065 U	0.0068 U	0.082 U	0.174 U	0.00894 U	0.00795 U	0.117 J	0.00969 U	0.00889 U
Isophorone	mg/kg	10000	0.044 U	0.047 U	0.043 U	0.043 U	0.044 U	-	0.117 U	0.00604 U	0.00537 U	0.0547 U	0.00655 U	0.00601 U
Naphthalene	mg/kg	190000	0.042 U	0.045 U	0.041 U	0.041 U	0.042 U	-	0.201 U	0.0103 U	0.00915 U	0.0932 U	0.0112 U	0.0102 U
Nitrobenzene	mg/kg	10000	0.0052 U	0.0055 U	0.005 U	0.005 U	0.0052 U	-	0.157 U	0.00804 U	0.00715 U	0.0728 U	0.00872 U	0.008 U
N-Nitrosodi-n-propylamine	mg/kg	10000	0.0061 U	0.0064 U	0.0059 U	0.0059 U	0.0061 U	-	0.204 U	0.0105 U	0.00932 U	0.0949 U	0.0114 U	0.0104 U
N-Nitrosodiphenylamine	mg/kg	190000	0.036 U	0.038 U	0.035 U	0.035 U	0.036 U	0.082 U	0.134 U	0.00687 U	0.00611 U	0.0622 U	0.00745 U	0.00684 U
Pentachlorophenol	mg/kg	190000	0.11 U	0.11 U	0.11 U	0.1 U	0.11 U	-	1.08 U	0.0556 U	0.0494 U	0.503 U	0.0602 U	0.0552 U
Phenanthrene	mg/kg	190000	0.046 U	0.049 U	0.045 U	0.045 U	0.047 U	0.041 U	1.67	0.00611 U	0.00543 U	0.155 J	0.00662 U	0.00608 U
Phenol	mg/kg	18000	0.049 U	0.052 U	0.047 U	0.047 U	0.049 U	-	0.157 U	0.00804 U	0.00715 U	0.0728 U	0.00872 U	0.008 U

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**BH-200-14**	**BH-201-14**	**BH-202-14**	**BH-203-14**	**BH-204-14**	**EX96-SB-112**	**GP-01-2017**	**GP-02-2017**	**GP-02-2017**	**GP-03-2017**	**GP-04-2017**	**GP-05-2017**
Sample ID:			**S-83101-022714-BW-006**	**S-83101-022714-BW-004**	**S-83101-022714-BW-002**	**S-83101-022714-BW-008**	**S-83101-022714-BW-013**	**SB-112_14-16**	**GP-01_11.0-11.5**	**DUP-02_082317**	**GP-02_10.5-11.0**	**GP-03_11.0-11.5**	**GP-04_9.0-9.5**	**GP-05_9.0-9.5**
Sample Date:			**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**10/14/1996**	**8/24/2017**	**8/23/2017**	**8/23/2017**	**8/24/2017**	**8/24/2017**	**8/24/2017**
Sample Depth:			**(8-10) ft BGS**	**(8-10) ft BGS**	**(10-12) ft BGS**	**(5-7) ft BGS**	**(7.5-9.5) ft BGS**	**(14-16) ft BGS**	**(11-11.5) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(11-11.5) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**
Parameters	**Units**	**2-15**												
Pyrene	mg/kg	190000	0.031 U	0.032 U	0.072 J	0.029 U	0.031 U	0.082 U	1.73	0.0142 U	0.0127 U	0.446	0.0154 U	0.0142 U
Metals														
Aluminum	mg/kg	190000	5860	22700	26200	4800	34200	-	11800	695	422	9120	281	332
Antimony	mg/kg	190000	0.37 UJ	0.42 UJ	0.37 UJ	0.34 UJ	0.35 UJ	1.15 J	4.23 U	0.868 U	0.772 U	5.96 J	0.941 U	0.863 U
Arsenic	mg/kg	190000	4.1 J	2.1 J	2.5 J	3.2 J	2.4	4.6	3.67 U	3.13	1.92 J	3.41 U	0.845 J	0.748 U
Barium	mg/kg	190000	21.2	379	523	17.5	899	-	122	9.11	3.59	93.6	7.83	3.13
Beryllium	mg/kg	190000	0.30	8.4	10.0	0.24	8.3	0.43	2.22	0.128 J	0.072 U	1.52	0.157 J	0.285
Cadmium	mg/kg	190000	0.38 U	0.43 U	0.38 U	0.35 U	0.36 U	9999 U	0.395 U	0.081 U	0.072 U	0.367 U	0.0905 J	0.0806 U
Calcium	mg/kg		2700	137000	155000	138	142000	-	124000	1980	210	115000	370	32.5 BJ
Chromium	mg/kg		27.3 J	61.8 J	25.3 J	5.6 J	96.3	11.1	665	14.9	3.8	1170	3.5	1.23
Cobalt	mg/kg	190000	5.7	1.0	0.80 U	4.9	1.1	-	1.3 U	0.396 J	0.237 U	1.21 U	1.02 J	0.472 J
Copper	mg/kg	190000	9.0	5.1	4.8	7.3	3.3	10.7	13.5	1.9 J	1 J	11.4	2.13 J	1.94 J
Iron	mg/kg	190000	14500 J	58000 J	24900 J	10400 J	58600	-	123000	6490	2550	**194000**	6450	1230
Lead	mg/kg	190000	5.7 J	10.3 J	4.0 J	4.9 J	0.22 J	5.95	26.3	3.05 B	2.03 B	14	5.58	2.36
Magnesium	mg/kg		3040	52900	65400	1910	52600	-	37700	791	86.9 J	36800	189	64.6 J
Manganese	mg/kg	190000	650	1690	750	319	2020	-	11700	101	6.98	8750	48.4	4.67
Mercury	mg/kg	190000	0.013 U	0.013 U	0.020	0.012 U	0.013 U	9999 U	0.00316 U	0.0105 BJ	0.00518 BJ	0.00509 J	0.00351 U	0.00322 U
Nickel	mg/kg	190000	11.7	2.7	1.7	9.7	2.6	10.5	7.79 J	1.19 J	0.64 J	15.1	2.58	1.43 J
Potassium	mg/kg		514	730	720	435	2770	-	867	393	182	345 J	68.5 J	80 J
Selenium	mg/kg	190000	0.39 U	7.9	7.7	0.36 U	4.4	9999 U	4.18 U	0.856 U	0.762 U	3.88 U	0.928 U	0.852 U
Silver	mg/kg	190000	0.77 U	0.86 U	0.75 U	0.70 U	0.71 U	9999 U	1.58 U	0.324 U	0.288 U	1.47 U	0.351 U	0.322 U
Sodium	mg/kg		42.3 U	902	756	38.7 U	1440	-	986	34.5 J	10.1 U	245 J	18.4 J	13 J
Thallium	mg/kg	190000	0.16 U	0.18 U	0.16 U	0.14 U	0.15 U	0.22 J	3.67 U	0.752 U	0.669 U	3.41 U	0.816 U	0.748 U
Vanadium	mg/kg	190000	11.1	26.5	6.5	6.1	43.5	-	181	8.68	5.5 B	159	6.74	1.94 J
Zinc	mg/kg	190000	30.7	36.5	75.0	25.2	2.8 U	33	74.1 B	4.71 J	3.3 J	62.6 B	33.6	12.9 B
MetalsSEM														
Cadmium	umol/g		-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g		-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g		-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g		-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g		-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none		-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g		-	-	-	-	-	-	-	-	-	-	-	-
PCBs														
Aroclor-1016 (PCB-1016)	mg/kg	10000	0.017 U	0.017 U	0.016 U	0.016 U	0.017 U	-	0.00395 U	0.00405 U	0.0036 U	0.00367 U	0.00439 U	0.00403 U
Aroclor-1221 (PCB-1221)	mg/kg	10000	0.017 U	0.017 U	0.016 U	0.016 U	0.017 U	-	0.00606 U	0.00622 U	0.00553 U	0.00563 U	0.00674 U	0.00618 U
Aroclor-1232 (PCB-1232)	mg/kg	10000	0.017 U	0.017 U	0.016 U	0.016 U	0.017 U	-	0.00471 U	0.00483 U	0.00429 U	0.00437 U	0.00523 U	0.0048 U
Aroclor-1242 (PCB-1242)	mg/kg	10000	0.017 U	0.017 U	0.016 U	0.016 U	0.017 U	-	0.00359 U	0.00368 U	0.00327 U	0.00333 U	0.00399 U	0.00366 U
Aroclor-1248 (PCB-1248)	mg/kg	10000	0.017 U	0.017 U	0.016 U	0.016 U	0.017 U	-	0.00356 U	0.00365 U	0.00324 U	0.0033 U	0.00395 U	0.00363 U
Aroclor-1254 (PCB-1254)	mg/kg	10000	0.021 U	0.022 U	0.02 U	0.02 U	0.021 U	-	0.00533 U	0.00546 U	0.00486 U	0.00495 U	0.00592 U	0.00543 U
Aroclor-1260 (PCB-1260)	mg/kg	190000	0.021 U	0.022 U	0.02 U	0.02 U	0.021 U	-	0.0416 P	0.00572 U	0.00508 U	0.00518 U	0.0062 U	0.00569 U
Total PCBs	mg/kg		0.021 U	0.022 U	0.02 U	0.02 U	0.021 U	9999 U	-	-	-	-	-	-
General Chemistry														
Cyanide (total)	mg/kg		0.39	0.69	0.059 U	0.39	0.16	-	-	-	-	-	-	-
pH	s.u.		-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg		-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg		-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg		-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%		-	-	-	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**GP-06-2017**	**GP-07-2017**	**GP-08-2017**	**GP-09-2017**	**NATP-1**	**NATP-10**	**NATP-11**	**NATP-14**	**NATP-15**	**NATP-16**	**NATP-17**	**NATP-2**	**NATP-3**	**NATP-4**
Sample ID:		**GP-06_9.5-10.0**	**GP-07_9.0-9.5**	**GP-08_9.0-9.5**	**GP-09_9.0-9.5**	**NATP-1_4.75-5.25**	**NATP-10_11.5-12.0**	**NATP-11_7.0-7.5**	**NATP-14_8.5-9.0**	**NATP-15_4.0-4.5**	**NATP-16_13.5-14.0**	**NATP-17_5.75-6.25**	**NATP-2_11.5-12.0**	**NATP-3_6.25-6.75**	**NATP-4_6.0-6.5**
Sample Date:		**8/23/2017**	**8/24/2017**	**8/24/2017**	**8/24/2017**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**
Sample Depth:		**(9.5-10) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(4.75-5.25) ft BGS**	**(11.5-12) ft BGS**	**(7-7.5) ft BGS**	**(8.5-9) ft BGS**	**(4-4.5) ft BGS**	**(13.5-14) ft BGS**	**(5.75-6.25) ft BGS**	**(11.5-12) ft BGS**	**(6.25-6.75) ft BGS**	**(6-6.5) ft BGS**
Parameters	**Units**														
Volatile Organic Compounds															
1,1,1-Trichloroethane	mg/kg	0.000423 U	0.000355 U	0.000343 U	0.000371 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,1,2,2-Tetrachloroethane	mg/kg	0.000539 U	0.000453 U	0.000437 U	0.000474 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,1,2-Trichloroethane	mg/kg	0.000409 U	0.000344 U	0.000332 U	0.000359 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,1-Dichloroethane	mg/kg	0.000294 U	0.000247 U	0.000238 U	0.000258 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,1-Dichloroethene	mg/kg	0.000448 U	0.000376 U	0.000363 U	0.000393 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,2,3-Trichlorobenzene	mg/kg	0.000452 U	0.00038 U	0.000367 U	0.000397 U	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.000573 U	0.000481 U	0.000465 U	0.000504 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.00155 U	0.0013 U	0.00126 U	0.00136 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.000506 U	0.000426 U	0.000411 U	0.000445 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,2-Dichlorobenzene	mg/kg	0.00045 U	0.000378 U	0.000365 U	0.000396 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,2-Dichloroethane	mg/kg	0.000391 U	0.000329 U	0.000317 U	0.000344 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,2-Dichloropropane	mg/kg	0.000529 U	0.000444 U	0.000429 U	0.000465 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.000354 U	0.000297 U	0.000286 U	0.00031 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
1,4-Dichlorobenzene	mg/kg	0.000334 U	0.00028 U	0.000271 U	0.000293 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.00691 U	0.00581 U	0.00561 U	0.00607 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
2-Hexanone	mg/kg	0.00202 U	0.0017 U	0.00164 U	0.00178 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.00277 U	0.00233 U	0.00225 U	0.00244 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Acetone	mg/kg	0.0148 U	0.0124 U	0.012 U	0.013 U	0.023 U	0.023 U	0.02 U	0.022 U	0.024 U	0.013 J	0.021 U	0.02 U	0.024 U	0.02 U
Benzene	mg/kg	0.000398 U	0.000335 U	0.000323 U	0.00035 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Bromodichloromethane	mg/kg	0.000375 U	0.000315 U	0.000304 U	0.00033 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Bromoform	mg/kg	0.000626 U	0.000526 U	0.000508 U	0.00055 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Bromomethane (Methyl bromide)	mg/kg	0.00197 U	0.00166 U	0.00161 U	0.00174 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Carbon disulfide	mg/kg	0.000327 U	0.000301 J	0.000829 J	0.000287 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Carbon tetrachloride	mg/kg	0.000484 U	0.000407 U	0.000393 U	0.000426 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Chlorobenzene	mg/kg	0.000314 U	0.000263 U	0.000254 U	0.000275 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Chlorobromomethane	mg/kg	0.000576 U	0.000484 U	0.000467 U	0.000506 U	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.00139 U	0.00117 U	0.00113 U	0.00123 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Chloroform (Trichloromethane)	mg/kg	0.000338 U	0.000284 U	0.000274 U	0.000297 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Chloromethane (Methyl chloride)	mg/kg	0.000555 U	0.000465 U	0.000449 U	0.000487 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
cis-1,2-Dichloroethene	mg/kg	0.000347 U	0.000292 U	0.000282 U	0.000305 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0021 J	0.0053 U	0.0051 U	0.006 U	0.0051 U
cis-1,3-Dichloropropene	mg/kg	0.000387 U	0.000325 U	0.000314 U	0.00034 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Cyclohexane	mg/kg	0.000517 U	0.000434 U	0.000419 U	0.000454 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.000551 U	0.000463 U	0.000447 U	0.000484 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.00105 U	0.000885 U	0.000854 U	0.000925 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Ethylbenzene	mg/kg	0.000438 U	0.000368 U	0.000356 U	0.000385 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Isopropyl benzene	mg/kg	0.000358 U	0.000301 U	0.000291 U	0.000315 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.00901 U	0.00757 U	0.00731 U	0.00792 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Methyl cyclohexane	mg/kg	0.000562 U	0.000471 U	0.000455 U	0.000493 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Methyl tert butyl ether (MTBE)	mg/kg	0.000314 U	0.000263 U	0.000254 U	0.000275 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Methylene chloride	mg/kg	0.00148 U	0.00124 U	0.0012 U	0.0013 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0036 J	0.0033 J	0.0036 J	0.0051 U	0.0026 J	0.0024 J
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.000345 U	0.00029 U	0.00028 U	0.000304 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.000408 U	0.000342 U	0.000331 U	0.000358 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0027 J	0.0053 U	0.0051 U	0.006 U	0.0051 U
Toluene	mg/kg	0.00064 U	0.000538 U	0.000771 J	0.000563 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
trans-1,2-Dichloroethene	mg/kg	0.00039 U	0.000328 U	0.000316 U	0.000343 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
trans-1,3-Dichloropropene	mg/kg	0.000395 U	0.000331 U	0.00032 U	0.000347 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Trichloroethene	mg/kg	0.000412 U	0.000346 U	0.000334 U	0.000362 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.011	0.0053 U	0.0051 U	0.006 U	0.0051 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.000564 U	0.000474 U	0.000458 U	0.000496 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.000539 U	0.000453 U	0.000437 U	0.000474 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Vinyl chloride	mg/kg	0.00043 U	0.000361 U	0.000349 U	0.000378 U	0.0056 U	0.0058 U	0.0051 U	0.0055 U	0.0059 U	0.0049 U	0.0053 U	0.0051 U	0.006 U	0.0051 U
Xylenes (total)	mg/kg	0.00103 U	0.000866 U	0.000836 U	0.000906 U	0.017 U	0.017 U	0.015 U	0.017 U	0.018 U	0.015 U	0.016 U	0.015 U	0.018 U	0.015 U
Semi-volatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	mg/kg	0.0923 U	0.0945 U	0.0913 U	0.0989 U	-	-	-	-	-	-	-	-	-	-

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		GP-06-2017	GP-07-2017	GP-08-2017	GP-09-2017	NATP-1	NATP-10	NATP-11	NATP-14	NATP-15	NATP-16	NATP-17	NATP-2	NATP-3	NATP-4
Sample ID:		GP-06_9.5-10.0	GP-07_9.0-9.5	GP-08_9.0-9.5	GP-09_9.0-9.5	NATP-1_4.75-5.25	NATP-10_11.5-12.0	NATP-11_7.0-7.5	NATP-14_8.5-9.0	NATP-15_4.0-4.5	NATP-16_13.5-14.0	NATP-17_5.75-6.25	NATP-2_11.5-12.0	NATP-3_6.25-6.75	NATP-4_6.0-6.5
Sample Date:		8/23/2017	8/24/2017	8/24/2017	8/24/2017	6/12/2006	6/13/2006	6/13/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/12/2006	6/12/2006	6/12/2006
Sample Depth:		(9.5-10) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(4.75-5.25) ft BGS	(11.5-12) ft BGS	(7-7.5) ft BGS	(8.5-9) ft BGS	(4-4.5) ft BGS	(13.5-14) ft BGS	(5.75-6.25) ft BGS	(11.5-12) ft BGS	(6.25-6.75) ft BGS	(6-6.5) ft BGS
Parameters	**Units**														
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.0092 U	0.00943 U	0.0091 U	0.00986 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2,4,5-Trichlorophenol	mg/kg	0.0126 U	0.0129 U	0.0125 U	0.0135 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2,4,6-Trichlorophenol	mg/kg	0.00943 U	0.00966 U	0.00933 U	0.0101 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2,4-Dichlorophenol	mg/kg	0.00903 U	0.00926 U	0.00894 U	0.00968 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2,4-Dimethylphenol	mg/kg	0.057 U	0.0584 U	0.0564 U	0.0611 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2,4-Dinitrophenol	mg/kg	0.119 UJ3	0.122 U	0.117 U	0.127 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
2,4-Dinitrotoluene	mg/kg	0.00735 U	0.00753 U	0.00727 U	0.00788 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2,6-Dinitrotoluene	mg/kg	0.00892 U	0.00914 U	0.00883 U	0.00956 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2-Chloronaphthalene	mg/kg	0.00774 U	0.00793 U	0.00765 U	0.00829 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2-Chlorophenol	mg/kg	0.0101 U	0.0103 U	0.00995 U	0.0108 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2-Methylnaphthalene	mg/kg	0.0104 U	0.0107 U	0.0103 U	0.0112 U	0.015 J	0.41 U	0.37 U	0.072 J	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2-Methylphenol	mg/kg	0.0119 U	0.0122 U	0.0118 U	0.0128 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
2-Nitroaniline	mg/kg	0.00914 U	0.00937 U	0.00904 U	0.0098 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
2-Nitrophenol	mg/kg	0.0157 U	0.0161 U	0.0156 U	0.0169 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
3&4-Methylphenol	mg/kg	0.00948 U	0.00971 U	0.0212 J	0.0102 U	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	0.0961 U	0.0985 U	0.0951 U	0.103 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
3-Nitroaniline	mg/kg	0.0103 U	0.0105 U	0.0102 U	0.011 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
4,6-Dinitro-2-methylphenol	mg/kg	0.15 U	0.154 U	0.149 U	0.161 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
4-Bromophenyl phenyl ether	mg/kg	0.0138 U	0.0141 U	0.0137 U	0.0148 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
4-Chloro-3-methylphenol	mg/kg	0.00578 U	0.00592 U	0.00571 U	0.00619 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
4-Chloroaniline	mg/kg	0.0426 U	0.0437 U	0.0422 U	0.0457 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
4-Chlorophenyl phenyl ether	mg/kg	0.00759 U	0.00778 U	0.00751 U	0.00814 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
4-Methylphenol	mg/kg	-	-	-	-	0.12 J	0.41 U	0.37 U	0.019 J	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
4-Nitroaniline	mg/kg	0.00774 U	0.00793 U	0.00765 U	0.00829 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
4-Nitrophenol	mg/kg	0.0636 U	0.0651 U	0.0629 U	0.0681 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
Acenaphthene	mg/kg	0.00777 U	0.00796 U	0.00769 U	0.00833 U	0.011	0.003 J	0.0035 J	0.028	0.012 J	0.025	0.15	0.0072 U	0.0045 J	0.0086
Acenaphthylene	mg/kg	0.00812 U	0.00832 U	0.00804 U	0.00871 U	0.0083	0.0082 U	0.0075 U	0.012	0.011 J	0.0029 J	0.041	0.0072 U	0.0034 J	0.0078 U
Acetophenone	mg/kg	0.091 U	0.0933 U	0.0901 U	0.0976 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Anthracene	mg/kg	0.00765 U	0.00784 U	0.00757 U	0.0082 U	0.036	0.0056 J	0.0053 J	0.074	0.033	0.018	0.31	0.0023 J	0.0088	0.009
Atrazine	mg/kg	0.114 U	0.116 U	0.112 U	0.122 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Benzaldehyde	mg/kg	0.0644 U	0.066 U	0.0637 U	0.069 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Benzo(a)anthracene	mg/kg	0.00518 U	0.00531 U	0.0253 J	0.00555 U	0.14	0.018	0.017	0.19	0.17	0.08	1.4	0.018	0.046	0.025
Benzo(a)pyrene	mg/kg	0.00663 U	0.0068 U	0.0229 J	0.00711 U	0.15	0.019	0.017	0.16	0.16	0.11	1.2	0.016	0.058	0.033
Benzo(b)fluoranthene	mg/kg	0.00841 U	0.00862 U	0.0276 J	0.00902 U	0.12	0.028	0.015	0.14	0.15	0.09	1	0.014	0.046	0.024
Benzo(g,h,i)perylene	mg/kg	0.00873 U	0.00895 U	0.0178 J	0.00936 U	0.11	0.015	0.013	0.11	0.13	0.097	0.83	0.011	0.048	0.025
Benzo(k)fluoranthene	mg/kg	0.00705 U	0.00722 U	0.012 J	0.00755 U	0.13	0.0082 U	0.014	0.12	0.16	0.07	0.84	0.013	0.039	0.023
Biphenyl (1,1-Biphenyl)	mg/kg	0.00712 U	0.00729 U	0.00704 U	0.00763 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
bis(2-Chloroethoxy)methane	mg/kg	0.00932 U	0.00955 U	0.00922 U	0.00999 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
bis(2-Chloroethyl)ether	mg/kg	0.0108 U	0.0111 U	0.0107 U	0.0116 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.0145 U	0.0149 U	0.0144 U	0.0156 U	0.054 J	0.41 U	0.37 U	0.025 J	0.35 U	0.38 U	0.72 U	0.36 U	0.026 J	0.38 U
Butyl benzylphthalate (BBP)	mg/kg	0.0125 U	0.0128 U	0.0123 U	0.0134 U	0.4 U	0.41 U	0.37 U	0.017 J	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Caprolactam	mg/kg	0.126 U	0.129 U	0.125 U	0.135 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Carbazole	mg/kg	0.00634 U	0.0065 U	0.00628 U	0.0068 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.15 J	0.36 U	0.42 U	0.38 U
Chrysene	mg/kg	0.00672 U	0.00689 U	0.0234 J	0.0072 U	0.18	0.024	0.021	0.23	0.22	0.091	1.8	0.02	0.062	0.028
Dibenz(a,h)anthracene	mg/kg	0.00994 U	0.0102 U	0.00983 U	0.0107 U	0.042	0.0047 J	0.0049 J	0.053	0.048	0.037	0.33	0.0042 J	0.019	0.0097
Dibenzofuran	mg/kg	0.00627 U	0.00643 U	0.00621 U	0.00672 U	0.011 J	0.41 U	0.37 U	0.024 J	0.013 J	0.38 U	0.044 J	0.36 U	0.42 U	0.38 U
Diethyl phthalate	mg/kg	0.00837 U	0.00857 U	0.00828 U	0.00897 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Dimethyl phthalate	mg/kg	0.00654 U	0.0067 U	0.00647 U	0.00701 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Di-n-butylphthalate (DBP)	mg/kg	0.0132 U	0.0135 U	0.0131 U	0.0141 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.011 U	0.0113 U	0.0109 U	0.0118 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Fluoranthene	mg/kg	0.00601 U	0.00615 U	0.0312 J	0.00644 U	0.18	0.033	0.037	0.3	0.31	0.12	1.9	0.02	0.049	0.042
Fluorene	mg/kg	0.00826 U	0.00846 U	0.00817 U	0.00885 U	0.022	0.0038 J	0.0042 J	0.029	0.0081 J	0.0071 J	0.097	0.0072 U	0.0057 J	0.0043 J
Hexachlorobenzene	mg/kg	0.0104 U	0.0106 U	0.0103 U	0.0111 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Hexachlorobutadiene	mg/kg	0.0121 U	0.0124 U	0.012 U	0.013 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Hexachlorocyclopentadiene	mg/kg	0.0711 U	0.0728 U	0.0703 U	0.0762 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
Hexachloroethane	mg/kg	0.0162 U	0.0166 U	0.0161 U	0.0174 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.00935 U	0.00958 U	0.0152 J	0.01 U	0.095	0.014	0.012	0.1	0.12	0.09	0.78	0.0094	0.039	0.023
Isophorone	mg/kg	0.00632 U	0.00648 U	0.00625 U	0.00677 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Naphthalene	mg/kg	0.0108 U	0.011 U	0.0106 U	0.0115 U	0.03	0.0046 J	0.0038 J	0.056	0.011 J	0.0042 J	0.035 J	0.0072 U	0.01	0.0027 J
Nitrobenzene	mg/kg	0.00841 U	0.00862 U	0.00833 U	0.00902 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
N-Nitrosodi-n-propylamine	mg/kg	0.011 U	0.0112 U	0.0109 U	0.0118 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
N-Nitrosodiphenylamine	mg/kg	0.00719 U	0.00737 U	0.00712 U	0.00771 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U
Pentachlorophenol	mg/kg	0.0581 U	0.0596 U	0.0575 U	0.0623 U	1.9 U	2 U	1.8 U	1.8 U	1.7 U	1.9 U	3.5 U	1.7 U	2 U	1.9 U
Phenanthrene	mg/kg	0.00639 U	0.00655 U	0.0153 J	0.00685 U	0.12	0.031	0.031	0.31	0.16	0.056	0.99	0.0097	0.026	0.021
Phenol	mg/kg	0.00841 U	0.00862 U	0.00833 U	0.00902 U	0.4 U	0.41 U	0.37 U	0.38 U	0.35 U	0.38 U	0.72 U	0.36 U	0.42 U	0.38 U

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**GP-06-2017**	**GP-07-2017**	**GP-08-2017**	**GP-09-2017**	**NATP-1**	**NATP-10**	**NATP-11**	**NATP-14**	**NATP-15**	**NATP-16**	**NATP-17**	**NATP-2**	**NATP-3**	**NATP-4**
Sample ID:		**GP-06_9.5-10.0**	**GP-07_9.0-9.5**	**GP-08_9.0-9.5**	**GP-09_9.0-9.5**	**NATP-1_4.75-5.25**	**NATP-10_11.5-12.0**	**NATP-11_7.0-7.5**	**NATP-14_8.5-9.0**	**NATP-15_4.0-4.5**	**NATP-16_13.5-14.0**	**NATP-17_5.75-6.25**	**NATP-2_11.5-12.0**	**NATP-3_6.25-6.75**	**NATP-4_6.0-6.5**
Sample Date:		**8/23/2017**	**8/24/2017**	**8/24/2017**	**8/24/2017**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**
Sample Depth:		**(9.5-10) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(4.75-5.25) ft BGS**	**(11.5-12) ft BGS**	**(7-7.5) ft BGS**	**(8.5-9) ft BGS**	**(4-4.5) ft BGS**	**(13.5-14) ft BGS**	**(5.75-6.25) ft BGS**	**(11.5-12) ft BGS**	**(6.25-6.75) ft BGS**	**(6-6.5) ft BGS**
Parameters	**Units**														
Pyrene	mg/kg	0.0149 U	0.0153 U	0.0304 J	0.016 U	0.18	0.029	0.028	0.17	0.19	0.11	1.9	0.017	0.05	0.042
Metals															
Aluminum	mg/kg	414	357	348	6160	-	-	-	-	-	-	-	-	-	-
Antimony	mg/kg	0.908 U	0.93 U	0.898 U	0.973 U	0.061 B	0.022 B	7.5 U	0.055 B	0.12 B	0.029 B	0.31	0.0087 B	8.5 U	0.022 B
Arsenic	mg/kg	1.08 J	1.35 J	1.2 J	4.36	1.6	10.4 J	3.2 J	3.7 J	0.72 J	6.2 J	3.2 J	1.7	1.4	3.7
Barium	mg/kg	4.91	6.72	6.4	27.4	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	0.0847 U	0.157 J	0.176 J	0.355	0.37	1	0.58	0.69	0.59	0.59	0.38	7.2 U	0.25	0.36
Cadmium	mg/kg	0.0847 U	0.0868 U	0.0839 U	0.0908 U	0.35	0.29	0.087 B	0.28	0.66	0.19	0.76	0.043 B	0.17	0.12
Calcium	mg/kg	205	689	331	278	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2.52	3.51	2.46	7.66	6.4 J	14.2 J	12.5 J	20.9 J	1290 J	12.8 J	1490 J	4.2 J	4.6 J	11.1 J
Cobalt	mg/kg	1.41	1.56	1.62	6.72	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	1.28 J	4.51	2.45	9.15	5.9 J	19.3	10.3	15.2	20.1	13.8	23.9	2.1 J	5.2 J	10.5 J
Iron	mg/kg	1240	4540	4560	13800	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	1.99 B	3.68	4.97	7.43	15.8	24.1	12.5	17.7	16.5	16.3	61.5	4.2	5.5	8.1
Magnesium	mg/kg	85.6 J	277	194	2390	-	-	-	-	-	-	-	-	-	-
Manganese	mg/kg	12	38.3	31.4	336	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.00414 BJ	0.0162 J	0.00335 U	0.00363 U	0.085	0.43	0.042	0.041	0.035 U	0.044	0.072	0.012 B	0.025 B	0.017 B
Nickel	mg/kg	1.61 J	2.93	3.05	13.2	4.2	17.4	13.1	15.8	10.7	12.3	15.6	0.79	4.5	11.7
Potassium	mg/kg	99.7 J	72.2 J	104 J	693	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	0.896 U	0.918 U	0.886 U	0.96 U	0.34 B	1	0.48 B	0.97	0.49 B	1	0.56	0.075 B	0.15 B	0.18 B
Silver	mg/kg	0.339 U	0.347 U	0.335 U	0.363 U	0.042 B	0.057 B	7.5 U	0.048 B	0.11	7.7 U	0.15	7.2 U	8.5 U	7.8 U
Sodium	mg/kg	11.9 U	19.6 J	13.5 J	27.5 J	-	-	-	-	-	-	-	-	-	-
Thallium	mg/kg	0.787 U	0.806 U	0.779 U	0.844 U	0.082 B	0.17	0.081 B	0.11	0.011 B	0.094 B	0.024 B	0.056 B	0.051 B	0.045 B
Vanadium	mg/kg	6.42 B	12.4	3.26	7.77	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	8.57	13.1 B	29.1	37	106	55.1	34.5	43.2	72.4	31.9	126	3	47.3	36.3
MetalsSEM															
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs															
Aroclor-1016 (PCB-1016)	mg/kg	0.00424 U	0.00434 U	0.00419 U	0.00454 U	0.008 U	8.2 U	7.5 U	0.0076 U	0.021 U	0.0077 U	0.036 U	0.0072 U	0.0085 U	0.0078 U
Aroclor-1221 (PCB-1221)	mg/kg	0.0065 U	0.00666 U	0.00643 U	0.00697 U	0.008 U	8.2 U	7.5 U	0.0076 U	0.021 U	0.0077 U	0.036 U	0.0072 U	0.0085 U	0.0078 U
Aroclor-1232 (PCB-1232)	mg/kg	0.00505 U	0.00517 U	0.005 U	0.00541 U	0.008 U	8.2 U	7.5 U	0.0076 U	0.021 U	0.0077 U	0.036 U	0.0072 U	0.0085 U	0.0078 U
Aroclor-1242 (PCB-1242)	mg/kg	0.00385 U	0.00395 U	0.00381 U	0.00413 U	0.008 U	8.2 U	7.5 U	0.0076 U	0.021 U	0.0077 U	0.036 U	0.0072 U	0.0085 U	0.0078 U
Aroclor-1248 (PCB-1248)	mg/kg	0.00381 U	0.00391 U	0.00377 U	0.00409 U	0.008 U	8.2 U	7.5 U	0.0076 U	0.41	0.0077 U	0.51	0.0072 U	0.0085 U	0.0078 U
Aroclor-1254 (PCB-1254)	mg/kg	0.00571 U	0.00586 U	0.00565 U	0.00613 U	0.008 U	8.2 U	7.5 U	0.0076 U	0.021 U	0.0077 U	0.036 U	0.0072 U	0.0085 U	0.0078 U
Aroclor-1260 (PCB-1260)	mg/kg	0.00598 U	0.00613 U	0.00592 U	0.00641 U	0.008 U	8.2 U	7.5 U	0.031 J	0.031 J	0.0077 U	0.036 U	0.0072 U	0.0085 J	0.0078 U
Total PCBs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry															
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	-	-	-	-	83.4	81.2	89.4	87.6	93.3	86.5	91.8	92.7	78.6	85.9

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-5	NATP-5	NATP-6	NATP-7	NATP-8	NATP-9	TP-01-2017	TP-02-2017	TP-03-2017	TP-04-2017	TP-04-2017	TP-05-2017	TP-06-2017	TP-07-2017	TP-08-2017
Sample ID:		DUP-001	NATP-5_10.5-11.0	NATP-6_12.0-12.5	NATP-7_11.5-12.0	NATP-8_11.5-11.75	NATP-9_14.5-15.0	TP-01-10.5-11.0	TP-02-5.0-5.5	TP-03-6.5-7.0	DUP-01_082317	TP-04_10.5-11.0	TP-05_9.5-10.0	TP-06-5.0-5.5	TP-07_9.5-10.0	TP-08-9.5-10.0
Sample Date:		6/12/2006	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006	8/22/2017	8/22/2017	8/22/2017	8/23/2017	8/23/2017	8/23/2017	8/22/2017	8/23/2017	8/22/2017
Sample Depth:		(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(12-12.5) ft BGS	(11.5-12) ft BGS	(11.5-11.75) ft BGS	(14.5-15) ft BGS	(10.5-11) ft BGS	(5-5.5) ft BGS	(6.5-7) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(9.5-10) ft BGS	(5-5.5) ft BGS	(9.5-10) ft BGS	(9.5-10) ft BGS
Parameters	**Units**															
Volatile Organic Compounds																
1,1,1-Trichloroethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00796 U	0.0103 U	0.0123 U	0.00035 U	0.000428 U	0.0133 U	0.0136 U	0.0204 U	0.000357 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0102 U	0.0131 U	0.0156 U	0.000447 U	0.000546 U	0.0171 U	0.0174 U	0.0259 U	0.000456 U
1,1,2-Trichloroethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00771 U	0.00993 U	0.0119 U	0.000339 U	0.000415 U	0.0129 U	0.528 U	0.0197 U	0.000346 U
1,1-Dichloroethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00554 U	0.00714 U	0.00852 U	0.000244 U	0.000298 U	0.00927 U	0.00947 U	0.0142 U	0.000249 U
1,1-Dichloroethene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00843 U	0.0109 U	0.013 U	0.000371 U	0.000453 U	0.0141 U	0.0144 U	0.0215 U	0.000378 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	0.00851 U	0.011 U	0.0131 U	0.000375 U	0.000458 U	0.0143 U	0.0146 U	0.0218 U	0.000382 U
1,2,4-Trichlorobenzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0108 U	0.0139 U	0.0167 U	0.000475 U	0.000581 U	0.018 U	0.0185 U	0.0276 U	0.000485 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0292 U	0.0376 U	0.0449 U	0.00129 U	0.00157 U	0.049 U	0.0501 U	0.0748 U	0.00131 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00955 U	0.0123 U	0.0147 U	0.00042 U	0.000513 U	0.016 U	0.654 U	0.0244 U	0.000428 U
1,2-Dichlorobenzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00849 U	0.0109 U	0.0131 U	0.000373 U	0.000456 U	0.0142 U	0.0145 U	0.0217 U	0.000381 U
1,2-Dichloroethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00738 U	0.0095 U	0.0113 U	0.000324 U	0.000397 U	0.0124 U	0.0126 U	0.0188 U	0.000331 U
1,2-Dichloropropane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00997 U	0.0128 U	0.0153 U	0.000438 U	0.000537 U	0.0167 U	0.017 U	0.0255 U	0.000447 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00665 U	0.00858 U	0.0102 U	0.000293 U	0.000358 U	0.0111 U	0.0114 U	0.017 U	0.000298 U
1,4-Dichlorobenzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00628 U	0.0081 U	0.00968 U	0.000277 U	0.000338 U	0.0105 U	0.0108 U	0.0162 U	0.000282 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.13 U	0.168 U	0.201 U	0.00573 U	0.007 U	0.218 U	0.222 U	0.333 U	0.00584 U
2-Hexanone	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0381 U	0.0491 U	0.0587 U	0.00168 U	0.00205 U	0.0638 U	2.61 U	0.0975 U	0.00171 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0523 U	0.0674 U	0.0806 U	0.0023 U	0.00281 U	0.0877 U	3.57 U	0.134 U	0.00235 U
Acetone	mg/kg	0.025 U	0.024 U	0.022 U	0.02 U	0.029 U	0.02 U	0.279 U	0.359 U	0.429 U	0.0122 U	0.015 U	0.466 U	0.475 U	0.711 U	0.0125 U
Benzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00751 U	0.00968 U	0.0116 U	0.000331 U	0.000405 U	0.0126 U	0.0129 U	0.0193 U	0.000337 U
Bromodichloromethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00706 U	0.00911 U	0.0109 U	0.000311 U	0.00038 U	0.0118 U	0.0121 U	0.0181 U	0.000317 U
Bromoform	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0118 U	0.0152 U	0.0182 U	0.000519 U	0.000635 U	0.0197 U	0.0202 U	0.0302 U	0.00053 U
Bromomethane (Methyl bromide)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0372 U	0.0481 U	0.0574 U	0.00164 U	0.00201 U	0.0624 U	0.0637 U	0.0954 U	0.00167 U
Carbon disulfide	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00615 U	0.627	1.44	0.000271 U	0.000906 J	3.28	0.478	0.0226 J	0.000743 J
Carbon tetrachloride	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00913 U	0.0118 U	0.0141 U	0.000402 U	0.000491 U	0.0153 U	0.0156 U	0.0234 U	0.00041 U
Chlorobenzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0059 U	0.0076 U	0.00908 U	0.00026 U	0.000318 U	0.00987 U	0.404 U	0.015 U	0.000265 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	0.0108 U	0.014 U	0.0167 U	0.000477 U	0.000584 U	0.0182 U	0.0185 U	0.0278 U	0.000487 U
Chloroethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0263 U	0.0339 U	0.0405 U	0.00116 U	0.00141 U	0.0441 U	0.045 U	0.0673 U	0.00118 U
Chloroform (Trichloromethane)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00637 U	0.0082 U	0.00981 U	0.00028 U	0.000342 U	0.0107 U	0.0109 U	0.0163 U	0.000286 U
Chloromethane (Methyl chloride)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0104 U	0.0135 U	0.0161 U	0.000459 U	0.000562 U	0.0175 U	0.0179 U	0.0266 U	0.000468 U
cis-1,2-Dichloroethene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00654 U	0.0213 J	0.0163 J	0.000288 U	0.000352 U	0.0158 J	0.0112 U	0.0167 U	0.000293 U
cis-1,3-Dichloropropene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00729 U	0.00939 U	0.0112 U	0.000321 U	0.000392 U	0.0122 U	0.499 U	0.0187 U	0.000327 U
Cyclohexane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00974 U	0.0126 U	0.015 U	0.000428 U	0.000524 U	0.0163 U	0.0167 U	0.0249 U	0.000437 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0104 U	0.0134 U	0.0161 U	0.000457 U	0.000559 U	0.0174 U	0.71 U	0.0265 U	0.000466 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0199 U	0.0255 U	0.0306 U	0.000873 U	0.00107 U	0.0332 U	0.0339 U	0.0507 U	0.00089 U
Ethylbenzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00826 U	0.0106 U	0.0127 U	0.000364 U	0.000445 U	0.0138 U	0.566 U	0.0211 U	0.000371 U
Isopropyl benzene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00676 U	0.00872 U	0.0104 U	0.000297 U	0.000363 U	0.0113 U	0.0116 U	0.0173 U	0.000303 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.17 U	0.408 J	0.502 J	0.00747 U	0.00914 U	0.876 J	0.36 J	0.434 U	0.00762 U
Methyl cyclohexane	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0106 U	0.0136 U	0.0162 U	0.000465 U	0.000569 U	0.0177 U	0.018 U	0.0271 U	0.000475 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0059 U	0.0076 U	0.00908 U	0.00026 U	0.000318 U	0.00987 U	0.0101 U	0.015 U	0.000265 U
Methylene chloride	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0279 U	0.0359 U	0.0429 U	0.00122 U	0.0015 U	0.0466 U	0.0475 U	0.0711 U	0.00125 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00651 U	0.00839 U	0.01 U	0.000286 U	0.000351 U	0.0109 U	0.0111 U	0.0167 U	0.000292 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00768 U	0.0099 U	0.0118 U	0.000338 U	0.000413 U	0.0129 U	0.526 U	0.0197 U	0.000345 U
Toluene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0695 J	0.831	0.657	0.000531 U	0.00065 U	0.539	0.826 U	0.508	0.000542 U
trans-1,2-Dichloroethene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00735 U	0.00947 U	0.0113 U	0.000323 U	0.000395 U	0.0123 U	0.0126 U	0.0188 U	0.00033 U
trans-1,3-Dichloropropene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00743 U	0.00958 U	0.0114 U	0.000327 U	0.000399 U	0.0124 U	0.509 U	0.019 U	0.000333 U
Trichloroethene	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.00776 U	0.01 U	0.012 U	0.000342 U	0.000417 U	0.013 U	0.0133 U	0.0198 U	0.000348 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0106 U	0.0137 U	0.0164 U	0.000468 U	0.000571 U	0.0178 U	0.0182 U	0.0272 U	0.000477 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0102 U	0.0131 U	0.0156 U	0.000447 U	0.000546 U	0.0171 U	0.0174 U	0.0259 U	0.000456 U
Vinyl chloride	mg/kg	0.0063 U	0.006 U	0.0054 U	0.005 U	0.0073 U	0.005 U	0.0081 U	0.0104 U	0.0125 U	0.000356 U	0.000435 U	0.0136 U	0.0139 U	0.0207 U	0.000363 U
Xylenes (total)	mg/kg	0.019 U	0.018 U	0.016 U	0.015 U	0.022 U	0.015 U	0.0195 U	0.025 U	0.03 U	0.000855 U	0.00105 U	0.0325 U	1.33 U	0.0497 U	0.000872 U
Semi-volatile Organic Compounds																
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	0.0793 U	4.37 U	4.71 U	0.0933 U	0.106 U	0.362 U	0.256 U	0.215 U	0.0952 U

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-5	NATP-5	NATP-6	NATP-7	NATP-8	NATP-9	TP-01-2017	TP-02-2017	TP-03-2017	TP-04-2017	TP-04-2017	TP-05-2017	TP-06-2017	TP-07-2017	TP-08-2017
Sample ID:		DUP-001	NATP-5_10.5-11.0	NATP-6_12.0-12.5	NATP-7_11.5-12.0	NATP-8_11.5-11.75	NATP-9_14.5-15.0	TP-01-10.5-11.0	TP-02-5.0-5.5	TP-03-6.5-7.0	DUP-01_082317	TP-04_10.5-11.0	TP-05_9.5-10.0	TP-06-5.0-5.5	TP-07_9.5-10.0	TP-08-9.5-10.0
Sample Date:		6/12/2006	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006	8/22/2017	8/22/2017	8/22/2017	8/23/2017	8/23/2017	8/23/2017	8/22/2017	8/23/2017	8/22/2017
Sample Depth:		(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(12-12.5) ft BGS	(11.5-12) ft BGS	(11.5-11.75) ft BGS	(14.5-15) ft BGS	(10.5-11) ft BGS	(5-5.5) ft BGS	(6.5-7) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(9.5-10) ft BGS	(5-5.5) ft BGS	(9.5-10) ft BGS	(9.5-10) ft BGS
Parameters	**Units**															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00791 UJ3	0.436 U	0.469 U	0.0093 U	0.0105 U	0.036 U	0.0256 U	0.0215 U	0.00949 U
2,4,5-Trichlorophenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0108 U	0.597 U	0.642 U	0.0127 U	0.0144 U	0.0493 U	0.0351 U	0.0295 U	0.013 U
2,4,6-Trichlorophenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00811 U	0.448 U	0.482 U	0.00954 U	0.0108 U	0.037 U	0.0263 U	0.0221 U	0.00973 U
2,4-Dichlorophenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00776 U	0.427 U	0.46 U	0.00913 U	0.0103 U	0.0354 U	0.0251 U	0.0211 U	0.00932 U
2,4-Dimethylphenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.049 UJ3J4	2.7 UJ3J4	2.9 UJ3J4	0.0577 U	0.0653 U	0.223 U	0.159 UJ3J4	0.134 U	0.0588 UJ3J4
2,4-Dinitrophenol	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.102 U	5.62 U	6.05 U	0.12 UJ3	0.136 UJ3	0.464 UJ3	0.33 U	0.278 UJ3	0.122 U
2,4-Dinitrotoluene	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00632 U	0.349 U	0.375 U	0.00743 U	0.00842 U	0.0287 U	0.0204 U	0.0171 U	0.00758 U
2,6-Dinitrotoluene	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00767 U	0.423 U	0.456 U	0.00902 U	0.0102 U	0.0349 U	0.0248 U	0.0208 U	0.0092 U
2-Chloronaphthalene	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00665 U	0.367 U	0.395 U	0.00782 U	0.00886 U	0.0303 U	0.0216 U	0.0181 U	0.00798 U
2-Chlorophenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00865 U	0.476 U	0.513 U	0.0102 U	0.0115 U	0.0393 U	0.028 U	0.0235 U	0.0104 U
2-Methylnaphthalene	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.036 J	0.38 U	0.00896 U	0.493 U	0.531 U	0.0105 U	0.0119 U	0.0819 J	0.0446 J	0.0332 J	0.0108 U
2-Methylphenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0103 U	0.565 U	0.608 U	0.0121 U	0.0137 U	0.0467 U	0.0332 U	0.0279 U	0.0123 U
2-Nitroaniline	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.00786 U	0.433 U	0.466 U	0.00924 U	0.0105 U	0.0357 U	0.0254 U	0.0214 U	0.00943 U
2-Nitrophenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0135 U	0.746 U	0.803 U	0.0159 U	0.018 U	0.0616 U	0.0438 U	0.0368 U	0.0162 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	0.00815 U	0.535 J	1.08 J	0.00959 U	0.0302 J	0.586 J	0.453 J	0.196 J	0.0111 J
3,3'-Dichlorobenzidine	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.0826 U	4.56 U	4.91 U	0.0972 U	0.11 U	0.376 U	0.268 U	0.225 U	0.0992 U
3-Nitroaniline	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.00884 U	0.488 U	0.525 U	0.0104 U	0.0118 U	0.0403 U	0.0287 U	0.0241 U	0.0106 U
4,6-Dinitro-2-methylphenol	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.129 U	7.11 U	7.66 U	0.152 U	0.172 U	0.587 U	0.418 U	0.351 U	0.155 U
4-Bromophenyl phenyl ether	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0119 U	0.654 U	0.704 U	0.014 U	0.0158 U	0.054 U	0.0384 U	0.0323 U	0.0142 U
4-Chloro-3-methylphenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00496 U	0.274 U	0.295 U	0.00584 U	0.00661 U	0.0226 U	0.0161 U	0.0135 U	0.00596 U
4-Chloroaniline	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0366 U	2.02 U	2.18 U	0.0431 U	0.0488 U	0.167 U	0.119 U	0.0998 U	0.044 U
4-Chlorophenyl phenyl ether	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00652 U	0.36 U	0.388 U	0.00768 U	0.00869 U	0.0297 U	0.0211 U	0.0177 U	0.00783 U
4-Methylphenol	mg/kg	0.02 J	0.016 J	0.037 J	0.37 U	0.11 J	0.38 U	-	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.00665 U	0.367 U	0.395 U	0.00782 U	0.00886 U	0.0303 U	0.0216 U	0.0181 U	0.00798 U
4-Nitrophenol	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.0546 U	3.01 U	3.24 U	0.0643 U	0.0728 U	0.25 U	0.177 U	0.149 U	0.0656 U
Acenaphthene	mg/kg	0.013	0.015	0.0094	0.0051 J	0.023	0.0077 U	0.00668 U	0.574 J	0.397 U	0.00786 U	0.0089 U	0.042 J	0.0216 U	0.0214 J	0.00802 U
Acenaphthylene	mg/kg	0.0096	0.016	0.01	0.0054 J	0.025	0.0077 U	0.00698 U	0.384 U	0.414 U	0.00821 U	0.0093 U	0.0487 J	0.0226 U	0.019 U	0.00838 U
Acetophenone	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0782 UJ3	4.32 U	4.65 U	0.0921 U	0.104 U	0.357 U	0.253 U	0.213 U	0.0939 U
Anthracene	mg/kg	0.023	0.039	0.025	0.0092	0.067	0.0077 U	0.00658 U	0.373 J	0.391 U	0.00774 U	0.0137 J	0.145 J	0.0467 J	0.0641 J	0.00789 U
Atrazine	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0976 U	5.38 U	5.79 U	0.115 U	0.13 U	0.444 U	0.317 U	0.266 U	0.117 U
Benzaldehyde	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0554 U	3.06 U	3.29 U	0.0651 U	0.0738 U	0.253 U	0.179 U	0.15 U	0.0664 U
Benzo(a)anthracene	mg/kg	0.062	0.1	0.059	0.031	0.18	0.0077 U	0.00682 J	0.687 J	0.562 J	0.0107 J	0.036 J	0.286	0.0685 J	0.117	0.0187 J
Benzo(a)pyrene	mg/kg	0.052	0.095	0.049	0.03	0.16	0.0077 U	0.00655 J	0.609 J	0.411 J	0.00999 J	0.0304 J	0.256	0.0496 J	0.0955	0.0197 J
Benzo(b)fluoranthene	mg/kg	0.038	0.074	0.041	0.028	0.12	0.0077 U	0.00753 J	0.653 J	0.539 J	0.0147 J	0.046	0.434	0.0872 J	0.166	0.0231 J
Benzo(g,h,i)perylene	mg/kg	0.039	0.068	0.041	0.025	0.12	0.0077 U	0.0075 U	0.413 U	0.445 U	0.00883 U	0.0157 J	0.0858 J	0.0245 J	0.0473 J	0.009 U
Benzo(k)fluoranthene	mg/kg	0.044	0.067	0.039	0.026	0.13	0.0077 U	0.00606 U	0.343 J	0.36 U	0.00713 U	0.0125 J	0.147 J	0.0326 J	0.0368 J	0.012 J
Biphenyl (1,1-Biphenyl)	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00612 U	0.337 U	0.363 U	0.0072 U	0.00815 U	0.0278 U	0.0199 U	0.0167 U	0.00734 U
bis(2-Chloroethoxy)methane	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00801 U	0.442 U	0.476 U	0.00943 U	0.0107 U	0.0365 U	0.026 U	0.0218 U	0.00962 U
bis(2-Chloroethyl)ether	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00932 U	0.513 U	0.553 U	0.011 U	0.0124 U	0.0425 U	0.0302 U	0.0254 U	0.0112 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.03 J	0.03 J	0.028 J	0.37 U	0.055 J	0.38 U	0.0125 U	0.688 U	0.741 U	0.0147 U	0.0166 U	0.164 J	0.0404 U	0.0564 J	0.015 U
Butyl benzylphthalate (BBP)	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.037 J	0.38 U	0.0107 U	0.591 U	0.636 U	0.0126 U	0.0143 U	0.0488 U	0.0347 U	0.0292 U	0.0129 U
Caprolactam	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.108 U	5.97 U	6.42 U	0.127 U	0.144 U	0.493 U	0.351 U	0.295 U	0.13 U
Carbazole	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00545 U	0.301 U	0.324 U	0.00642 U	0.00727 U	0.0351 J	0.0177 U	0.0397 J	0.00654 U
Chrysene	mg/kg	0.069	0.12	0.07	0.044	0.21	0.0077 U	0.00734 J	0.68 J	0.489 J	0.0162 J	0.0395 J	0.343	0.0779 J	0.131	0.0157 J
Dibenz(a,h)anthracene	mg/kg	0.015	0.026	0.015	0.0075	0.033	0.0077 U	0.00854 U	0.47 U	0.506 U	0.0101 U	0.0114 U	0.0389 U	0.0276 U	0.0232 U	0.0103 U
Dibenzofuran	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.023 J	0.38 U	0.00539 U	0.297 U	0.32 U	0.00634 U	0.00718 U	0.0464 J	0.0175 U	0.0249 J	0.00647 U
Diethyl phthalate	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00719 U	0.396 U	0.426 U	0.00846 U	0.00958 U	0.0327 U	0.0233 U	0.0196 U	0.00863 U
Dimethyl phthalate	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00562 U	0.31 U	0.334 U	0.00661 U	0.00749 U	0.0256 U	0.0182 U	0.0153 U	0.00674 U
Di-n-butylphthalate (DBP)	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0113 U	0.625 U	0.673 U	0.0133 U	0.0151 U	0.0516 U	0.0367 U	0.0309 U	0.0136 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00944 U	0.521 U	0.561 U	0.0111 U	0.0126 U	0.043 U	0.0305 U	0.0257 U	0.0113 U
Fluoranthene	mg/kg	0.086	0.13	0.084	0.056	0.27	0.0077 U	0.0117 J	1.27 J	0.998 J	0.0129 J	0.0671	0.643	0.171	0.264	0.0235 J
Fluorene	mg/kg	0.012	0.015	0.015	0.0062 J	0.035	0.0077 U	0.0071 U	0.392 U	0.422 U	0.00835 U	0.00946 U	0.0894 J	0.0352 J	0.0436 J	0.00852 U
Hexachlorobenzene	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00891 U	0.491 U	0.528 U	0.0105 U	0.0119 U	0.0406 U	0.0288 U	0.0242 U	0.0107 U
Hexachlorobutadiene	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0104 U	0.574 U	0.618 U	0.0122 U	0.0139 U	0.0474 U	0.0337 U	0.0283 U	0.0125 U
Hexachlorocyclopentadiene	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.0611 U	3.37 U	3.63 U	0.0719 U	0.0814 U	0.278 U	0.197 U	0.166 U	0.0733 U
Hexachloroethane	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.0139 UJ3	0.769 U	0.828 U	0.0164 U	0.0186 U	0.0635 U	0.0452 U	0.038 U	0.0167 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.036	0.059	0.036	0.022	0.088	0.0077 U	0.00803 U	0.443 U	0.477 U	0.00945 U	0.0152 J	0.0923 J	0.026 U	0.0397 J	0.00964 U
Isophorone	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00543 U	0.3 U	0.323 U	0.00639 U	0.00724 U	0.0248 U	0.0175 U	0.0147 U	0.00652 U
Naphthalene	mg/kg	0.015	0.016	0.016	0.01	0.059	0.0077 U	0.00925 U	0.511 U	0.55 U	0.0109 U	0.0204 J	0.132 J	0.0667 J	0.0734 J	0.0111 U
Nitrobenzene	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00723 U	0.399 U	0.429 U	0.00851 U	0.00964 U	0.0328 U	0.0234 U	0.0197 U	0.00868 U
N-Nitrosodi-n-propylamine	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00943 U	0.519 U	0.559 U	0.0111 U	0.0126 U	0.043 U	0.0305 U	0.0257 U	0.0113 U
N-Nitrosodiphenylamine	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00618 U	0.341 U	0.367 U	0.00727 U	0.00824 U	0.0281 U	0.0201 U	0.0169 U	0.00742 U
Pentachlorophenol	mg/kg	2.1 U	2 U	2 U	1.8 U	2.2 U	1.8 U	0.0499 U	2.75 U	2.96 U	0.0588 U	0.0666 U	0.227 U	0.162 U	0.136 U	0.0599 U
Phenanthrene	mg/kg	0.066	0.1	0.071	0.039	0.18	0.0075 J	0.00799 J	0.804 J	0.58 J	0.00894 J	0.0501	0.369	0.1 J	0.209	0.0108 J
Phenol	mg/kg	0.43 U	0.42 U	0.41 U	0.37 U	0.46 U	0.38 U	0.00723 U	0.399 U	0.429 U	0.00851 U	0.00964 U	0.0328 U	0.0234 U	0.0197 U	0.00868 U

Table 4.2

Screened Analytical Results
Deep Soil Samples vs Non-Residential Direct Contact Criteria (2-15)
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**NATP-5**	**NATP-5**	**NATP-6**	**NATP-7**	**NATP-8**	**NATP-9**	**TP-01-2017**	**TP-02-2017**	**TP-03-2017**	**TP-04-2017**	**TP-04-2017**	**TP-05-2017**	**TP-06-2017**	**TP-07-2017**	**TP-08-2017**
Sample ID:		**DUP-001**	**NATP-5_10.5-11.0**	**NATP-6_12.0-12.5**	**NATP-7_11.5-12.0**	**NATP-8_11.5-11.75**	**NATP-9_14.5-15.0**	**TP-01-10.5-11.0**	**TP-02-5.0-5.5**	**TP-03-6.5-7.0**	**DUP-01_082317**	**TP-04_10.5-11.0**	**TP-05_9.5-10.0**	**TP-06-5.0-5.5**	**TP-07_9.5-10.0**	**TP-08-9.5-10.0**
Sample Date:		**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**8/22/2017**	**8/22/2017**	**8/22/2017**	**8/23/2017**	**8/23/2017**	**8/23/2017**	**8/22/2017**	**8/23/2017**	**8/22/2017**
Sample Depth:		**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(12-12.5) ft BGS**	**(11.5-12) ft BGS**	**(11.5-11.75) ft BGS**	**(14.5-15) ft BGS**	**(10.5-11) ft BGS**	**(5-5.5) ft BGS**	**(6.5-7) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(9.5-10) ft BGS**	**(5-5.5) ft BGS**	**(9.5-10) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**															
Pyrene	mg/kg	0.088	0.15	0.083	0.047	0.23	0.0077 U	0.0128 U	1.03 J	0.87 J	0.0223 J	0.0824	0.814	0.151	0.28	0.0238 J
Metals																
Aluminum	mg/kg	-	-	-	-	-	-	877	13600	15200	1150	1210	15300	16100	9300	1320
Antimony	mg/kg	0.013 B	8.5 U	0.024 B	0.16 B	0.11 B	7.7 U	0.78 U	1.72 J	1.87 J	0.918 U	1.04 U	2.82 J	1.26 U	1.86 J	0.937 U
Arsenic	mg/kg	2.2	1.7	2	8.9 J	4 J	5.7 J	2.33	12.9	13.3	1.11 J	1.39 J	13	12.6	8.41	1.78 J
Barium	mg/kg	-	-	-	-	-	-	10.1	181	180	9.49	10.1	168	169	106	11.5
Beryllium	mg/kg	0.29	0.23	0.6	1.5	2.6	0.35	0.396	14.1	12.6	0.387	0.306	11.6	12.7	6.88	0.375
Cadmium	mg/kg	0.21	0.15	0.46	0.39	2.1	0.096 B	0.223 BJ	9.05	8.61	0.168 J	0.147 J	7.83	7.98	4.59	0.348 BJ
Calcium	mg/kg	-	-	-	-	-	-	719	4380	7520	994	708	5350	10100	2690	1050
Chromium	mg/kg	5.1 J	4.8 J	6.5 J	149 J	21.7 J	13 J	5.48	57.6	72.8	5.65	6.02	62.5	64.1	42.3	8.33
Cobalt	mg/kg	-	-	-	-	-	-	1.76	19.9	21.9	1.9	1.93	23.3	24.3	13.9	2.06
Copper	mg/kg	6.2 J	3.8 J	9.1 J	25.6	34.4	11.2	5.41	102	107	4.15	4.08	102	102	63.5	5.71
Iron	mg/kg	-	-	-	-	-	-	6450	33000	42100	7610	6440	47600	43500	26700	15200
Lead	mg/kg	5.5	4.5	10	23.2	51.9	9.2	7.86	172	178	7.46	6.4	157	153	97.2	13.5
Magnesium	mg/kg	-	-	-	-	-	-	411	4210	4860	572	442	3800	4480	2680	557
Manganese	mg/kg	-	-	-	-	-	-	70.9	753	1200	102	87.2	827	911	687	229
Mercury	mg/kg	0.021 B	8.5 U	0.054	0.044	0.27	0.019 B	0.00593 J	0.553	0.609	0.00986 BJ	0.0106 BJ	0.5	0.477	0.349	0.0231 J
Nickel	mg/kg	3.5	3.3	5.6	15.9	19	13.7	4.31	46.8	50	4.1	3.55	51.3	49.9	30.8	4.49
Potassium	mg/kg	-	-	-	-	-	-	197	1790	2540	242	264	2580	3010	1460	296
Selenium	mg/kg	0.09 B	0.075 B	0.21 B	0.48 B	0.88	0.33 B	0.77 U	1.41 J	1.37 J	0.906 U	1.03 U	1.52 J	1.83 J	1.05 U	0.924 U
Silver	mg/kg	8.8 U	8.5 U	0.064 B	0.089 B	0.29	0.23 U	0.291 U	0.856 J	0.897 J	0.343 U	0.388 U	0.767 J	0.579 J	0.491 J	0.35 U
Sodium	mg/kg	-	-	-	-	-	-	18.8 BJ	95.3 BJ	116 BJ	12.1 U	41.2 J	99.3 J	131 BJ	90.7 J	23.4 BJ
Thallium	mg/kg	0.046 B	0.037 B	0.049 B	0.055 B	0.14	0.081 B	0.676 U	0.932 U	1 U	0.796 U	0.901 U	1.03 U	1.1 U	0.921 U	0.812 U
Vanadium	mg/kg	-	-	-	-	-	-	5.72	38.4	43.3	5.52 B	8.5 B	48.6	47.5	30.3	9.42
Zinc	mg/kg	37.3	29.9	78.8	116	371	34.2	58.4	1260	1310	49.4	40.9	1150	1090	710	87.4
MetalsSEM																
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																
Aroclor-1016 (PCB-1016)	mg/kg	0.0088 U	0.0085 U	0.0082 U	7.4 U	9.3 U	0.12 U	0.00364 U	0.00502 U	0.0054 U	0.00428 U	0.00485 U	0.00553 U	0.0059 U	0.00496 U	0.00437 U
Aroclor-1221 (PCB-1221)	mg/kg	0.0088 U	0.0085 U	0.0082 U	7.4 U	9.3 U	0.12 U	0.00559 U	0.0077 U	0.00829 U	0.00657 U	0.00745 U	0.00848 U	0.00905 U	0.00761 U	0.00671 U
Aroclor-1232 (PCB-1232)	mg/kg	0.0088 U	0.0085 U	0.0082 U	7.4 U	9.3 U	0.12 U	0.00434 U	0.00598 U	0.00644 U	0.00511 U	0.00578 U	0.00659 U	0.00703 U	0.00591 U	0.00521 U
Aroclor-1242 (PCB-1242)	mg/kg	0.0088 U	0.0085 U	0.0082 U	7.4 U	9.3 U	0.12 U	0.00331 U	0.00456 U	0.00491 U	0.00389 U	0.00441 U	0.00502 U	0.00536 U	0.00451 U	0.00397 U
Aroclor-1248 (PCB-1248)	mg/kg	0.0088 U	0.0085 U	0.0082 U	19 J	20 J	0.58 U	0.00328 U	0.00452 U	0.00486 U	0.00386 U	0.00437 U	0.00497 U	0.00531 U	0.00446 U	0.00393 U
Aroclor-1254 (PCB-1254)	mg/kg	0.0088 U	0.0085 U	0.0082 U	7.4 U	9.3 U	0.12 U	0.00491 U	0.00677 U	0.00729 U	0.00578 U	0.00654 U	0.00745 U	0.00796 U	0.00669 U	0.0203 JP
Aroclor-1260 (PCB-1260)	mg/kg	0.0088 U	0.0085 U	0.0082 U	16 J	39 J	0.12 U	0.00514 U	0.00709 U	0.00763 U	0.00605 U	0.00685 U	0.0078 U	0.00833 U	0.007 U	0.00617 U
Total PCBs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	76.2	78.1	81.1	89.6	71.4	86.6	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**	**BH-202-14**
Sample ID:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**	**S-83101-022714-BW-001**
Sample Date:			**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:			**-**	**-**	**-**	**-**	**-**	**-**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**	**Soil to WG**											
Volatile Organic Compounds													
1,1,1-Trichloroethane	mg/kg	200	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0028 U	0.0032 U	0.0038 U	0.0031 U	0.0039 U	0.0031 U
1,1,2,2-Tetrachloroethane	mg/kg	43	0.0035 U	0.0033 U	0.0032 U	0.0032 U	0.0032 U	0.0034 U	0.0082 U	0.0097 U	0.0079 U	0.0099 U	0.0077 U
1,1,2-Trichloroethane	mg/kg	5	0.0029 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.0098 U	0.012 U	0.0094 U	0.012 U	0.0092 U
1,1-Dichloroethane	mg/kg	160	0.0022 U	0.002 U	0.002 U	0.0019 U	0.002 U	0.0021 U	0.0068 U	0.008 U	0.0065 U	0.0082 U	0.0064 U
1,1-Dichloroethene	mg/kg	7	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0032 U	0.0046 U	0.0055 U	0.0044 U	0.0055 U	0.0043 U
1,2,3-Trichlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	10000	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.018 U	0.021 U	0.017 U	0.021 U	0.017 U
1,2,4-Trimethylbenzene	mg/kg	3500	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	2	0.0037 U	0.0034 U	0.0033 U	0.0033 U	0.0033 U	0.0035 U	0.021 U	0.025 U	0.02 U	0.025 U	0.02 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.5	0.0032 U	0.003 U	0.003 U	0.0029 U	0.003 U	0.0031 U	0.014 U	0.017 U	0.014 U	0.017 U	0.014 U
1,2-Dichlorobenzene	mg/kg	6000	0.0048 U	0.0045 U	0.0044 U	0.0043 U	0.0044 U	0.0046 U	0.011 U	0.013 U	0.01 U	0.013 U	0.01 U
1,2-Dichloroethane	mg/kg	5	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0099 U	0.012 U	0.0095 U	0.012 U	0.0093 U
1,2-Dichloropropane	mg/kg	5	0.0029 U	0.0027 U	0.0027 U	0.0026 U	0.0027 U	0.0028 U	0.0045 U	0.0053 U	0.0043 U	0.0054 U	0.0042 U
1,3,5-Trimethylbenzene	mg/kg	210	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	6100	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0071 U	0.0083 U	0.0068 U	0.0085 U	0.0066 U
1,4-Dichlorobenzene	mg/kg	1000	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.012 U	0.014 U	0.012 U	0.015 U	0.011 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0033 U	0.12 U	0.14 U	0.12 U	0.15 U	0.11 U
2-Hexanone	mg/kg	26	0.005 U	0.0047 U	0.0045 U	0.0045 U	0.0045 U	0.0048 U	0.026 U	0.031 U	0.025 U	0.031 U	0.025 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	2800	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.0022 U	0.0021 U	0.002 U	0.002 U	0.002 U	0.0021 U	0.052 U	0.061 U	0.049 U	0.062 U	0.048 U
Acetone	mg/kg	10000	0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0036 U	0.14 U	0.17 U	0.13 U	0.17 U	0.13 U
Benzene	mg/kg	50	0.0023 U	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0043 U	0.0051 U	0.0041 U	0.0052 U	0.0041 U
Bromodichloromethane	mg/kg	8	0.0028 U	0.0026 U	0.0026 U	0.0025 U	0.0026 U	0.0027 U	0.0065 U	0.0077 U	0.0063 U	0.0078 U	0.0061 U
Bromoform	mg/kg	800	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.003 U	0.01 U	0.012 U	0.0096 U	0.012 U	0.0094 U
Bromomethane (Methyl bromide)	mg/kg	100	0.0053 U	0.005 U	0.0049 U	0.0048 U	0.0049 U	0.0051 U	0.0095 UJ	0.011 UJ	0.0091 UJ	0.011 UJ	0.0089 UJ
Carbon disulfide	mg/kg	620	0.0036 U	0.0034 U	0.0033 U	0.0032 U	0.0033 U	0.0034 U	0.0065 U	0.0077 U	0.0063 U	0.0078 U	0.0062 U
Carbon tetrachloride	mg/kg	5	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036 U	0.0038 U	0.003 U	0.0035 U	0.0029 U	0.0036 U	0.0028 U
Chlorobenzene	mg/kg	1000	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0058 U	0.0068 U	0.0055 U	0.0069 U	0.0054 U
Chlorobromomethane	mg/kg	9	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	10000	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0029 U	0.0088 U	0.01 U	0.0085 U	0.011 U	0.0083 U
Chloroform (Trichloromethane)	mg/kg	80	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.0041 U	0.0048 U	0.0039 U	0.0049 U	0.0039 U
Chloromethane (Methyl chloride)	mg/kg	300	0.0046 U	0.0043 U	0.0042 U	0.0041 U	0.0042 U	0.0044 U	0.0051 U	0.006 U	0.0049 U	0.0061 U	0.0048 U
cis-1,2-Dichloroethene	mg/kg	70	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0093 U	0.011 U	0.0089 U	0.011 U	0.0087 U
cis-1,3-Dichloropropene	mg/kg		0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0096 U	0.011 U	0.0092 U	0.012 U	0.009 U
Cyclohexane	mg/kg	6900	0.0015 U	0.0014 U	0.0013 U	0.0013 U	0.0013 U	0.0014 U	0.0083 U	0.0098 U	0.008 U	0.0099 U	0.0078 U
Cymene (p-Isopropyltoluene)	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	800	0.0029 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.01 U	0.012 U	0.01 U	0.012 U	0.0098 U
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.0035 U	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.0033 U	0.011 U	0.013 U	0.011 U	0.013 U	0.011 U
Ethylbenzene	mg/kg	7000	0.0026 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.005 U	0.0059 U	0.0048 U	0.006 U	0.0047 U
Isopropyl benzene	mg/kg	10000	0.0028 U	0.0026 U	0.0025 U	0.0025 U	0.0025 U	0.0026 U	0.004 U	0.0047 U	0.0038 U	0.0048 U	0.0038 U
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	10000	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0029 U	9.3	0.021 U	0.017 U	0.021 U	0.016 U
Methyl cyclohexane	mg/kg		0.0025 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.0071 U	0.0083 U	0.0068 U	0.0085 U	0.0066 U
Methyl tert butyl ether (MTBE)	mg/kg	20	0.0044 U	0.0041 U	0.004 U	0.0039 U	0.004 U	0.0042 U	0.0072 U	0.0085 U	0.0069 U	0.0086 U	0.0068 U
Methylene chloride	mg/kg	50	0.0028 U	0.0026 U	0.0026 U	0.0025 U	0.0026 U	0.0027 U	0.0095 U	0.011 U	0.0091 U	0.011 U	0.0089 U
Naphthalene	mg/kg	7500	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	3700	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	1700	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	2400	0.0016 U	0.0015 U	0.0014 U	0.0014 U	0.0014 U	0.0015 U	0.0062 U	0.0073 U	0.0059 U	0.0074 U	0.0058 U
tert-Butylbenzene	mg/kg	2200	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	5	0.0024 U	0.0022 U	0.0022 U	0.0021 U	0.0022 U	0.0023 U	0.0051 U	0.006 U	0.0049 U	0.0061 U	0.0048 U
Toluene	mg/kg	10000	0.002 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0019 U	0.0078 U	0.0092 U	0.0075 U	0.0093 U	0.0073 U
trans-1,2-Dichloroethene	mg/kg	100	0.003 U	0.0028 U	0.0028 U	0.0027 U	0.0027 U	0.0029 U	0.0067 U	0.0079 U	0.0065 U	0.0081 U	0.0063 U
trans-1,3-Dichloropropene	mg/kg		0.0021 U	0.0019 U	0.0019 U	0.0018 U	0.0019 U	0.002 U	0.013 U	0.015 U	0.012 U	0.015 U	0.012 U
Trichloroethene	mg/kg	5	0.0018 U	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0048 U	0.0057 U	0.0046 U	0.0058 U	0.0045 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0076 U	0.009 U	0.0073 U	0.0091 U	0.0072 U
Trifluorotrichloroethane (CFC-113)	mg/kg	10000	0.0023 U	0.0021 U	0.0021 U	0.002 U	0.0021 U	0.0022 U	0.0043 U	0.0051 U	0.0041 U	0.0051 U	0.004 U
Vinyl chloride	mg/kg	2	0.0044 U	0.0041 U	0.004 U	0.0039 U	0.004 U	0.0042 U	0.0076 U	0.0089 U	0.0073 U	0.009 U	0.0071 U
Xylenes (total)	mg/kg	10000	0.0051 U	0.0048 U	0.0047 U	0.0046 U	0.0047 U	0.0049 U	0.019 U	0.022 U	0.018 U	0.022 U	0.018 U
Semi-volatile Organic Compounds													
1,2,4,5-Tetrachlorobenzene	mg/kg	270	-	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	3000	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.04 U	0.04 U	0.041 U	0.043 U	0.039 U
2,4,5-Trichlorophenol	mg/kg	190000	0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0033 U	0.0035 U	0.046 U	0.047 U	0.047 U	0.05 U	0.046 U
2,4,6-Trichlorophenol	mg/kg	34000	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0033 U	0.042 U	0.043 U	0.043 U	0.045 U	0.041 U
2,4-Dichlorophenol	mg/kg	2000	0.0032 U	0.003 U	0.0029 U	0.0029 U	0.0029 U	0.003 U	0.053 U	0.053 U	0.054 U	0.056 U	0.052 U
2,4-Dimethylphenol	mg/kg	10000	0.003 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U	0.0029 U	0.089 U	0.09 U	0.09 U	0.095 U	0.087 U
2,4-Dinitrophenol	mg/kg	23000	0.079 U	0.075 U	0.072 U	0.072 U	0.071 U	0.076 U	0.2 U	0.21 U	0.21 U	0.22 U	0.2 U

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**	**BH-202-14**
Sample ID:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**	**S-83101-022714-BW-001**
Sample Date:			**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:			**-**	**-**	**-**	**-**	**-**	**-**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**	**Soil to WG**											
2,4-Dinitrotoluene	mg/kg	1100	0.0051 U	0.0049 U	0.0047 U	0.0047 U	0.0047 U	0.0049 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U
2,6-Dinitrotoluene	mg/kg	230	0.0027 U	0.0026 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U
2-Chloronaphthalene	mg/kg	20000	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.04 U	0.041 U	0.041 U	0.043 U	0.04 U
2-Chlorophenol	mg/kg	4.4	0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.047 U	0.048 U	0.048 U	0.051 U	0.047 U
2-Methylnaphthalene	mg/kg	1900	0.003 U	0.0028 U	0.0028 J	0.0033 J	0.0027 U	0.027	0.046 U	0.047 U	0.047 U	0.049 U	0.046 U
2-Methylphenol	mg/kg	58000	0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.061 U	0.062 U	0.062 U	0.066 U	0.06 U
2-Nitroaniline	mg/kg	120	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U
2-Nitrophenol	mg/kg	93000	0.0028 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.04 U	0.041 U	0.041 U	0.043 U	0.04 U
3&4-Methylphenol	mg/kg		-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	17000	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.13 U	0.13 U	0.13 U	0.14 U	0.12 U
3-Nitroaniline	mg/kg		0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U
4,6-Dinitro-2-methylphenol	mg/kg	930	0.072 U	0.068 U	0.066 U	0.066 U	0.065 U	0.069 U	0.098 U	0.099 U	0.1 U	0.1 U	0.097 U
4-Bromophenyl phenyl ether	mg/kg		0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0033 U	0.0036 U	0.036 U	0.036 U	0.036 U	0.038 U	0.035 U
4-Chloro-3-methylphenol	mg/kg	2500	0.0041 U	0.0039 U	0.0038 U	0.0038 U	0.0037 U	0.0039 U	0.054 U	0.055 U	0.055 U	0.058 U	0.053 U
4-Chloroaniline	mg/kg	2.1	0.0022 U	0.0021 U	0.002 U	0.002 U	0.002 U	0.0021 U	0.095 U	0.097 U	0.097 U	0.1 U	0.094 U
4-Chlorophenyl phenyl ether	mg/kg		0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.042 U	0.043 U	0.043 U	0.045 U	0.042 U
4-Methylphenol	mg/kg	58000	0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.071 U	0.072 U	0.072 U	0.076 U	0.07 U
4-Nitroaniline	mg/kg	17	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U
4-Nitrophenol	mg/kg	6000	0.041 U	0.039 U	0.037 U	0.037 U	0.037 U	0.039 U	0.23 U	0.23 U	0.24 U	0.25 U	0.23 U
Acenaphthene	mg/kg	4700	0.0028 J	0.0025 U	0.026	0.0066 J	0.0027 J	0.14	0.052 U	0.053 U	0.053 U	0.056 U	0.052 U
Acenaphthylene	mg/kg	18000	0.0026 U	0.0025 U	0.0038 J	0.0025 J	0.0024 U	0.011	0.042 U	0.043 U	0.043 U	0.046 U	0.042 U
Acetophenone	mg/kg	1200	0.0027 U	0.0025 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.055 U	0.056 U	0.056 U	0.059 U	0.054 U
Anthracene	mg/kg	350	0.0029 U	0.0027 U	0.024	0.0091	0.0045 J	0.22	0.044 U	0.044 U	0.045 U	0.047 U	0.043 U
Atrazine	mg/kg	0.3	0.0054 U	0.0051 U	0.0049 U	0.0049 U	0.0049 U	0.0052 U	0.055 U	0.056 U	0.057 U	0.06 U	0.055 U
Benzaldehyde	mg/kg		0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.042 U	0.043 U	0.043 U	0.045 U	0.042 U
Benzo(a)anthracene	mg/kg	960	0.0062 J	0.0048 J	0.034	0.02	0.011	0.48	0.0025 U	0.0025 U	0.0026 U	0.0027 U	0.0025 U
Benzo(a)pyrene	mg/kg	860	0.01	0.0052 J	0.03	0.018	0.0094	0.36	0.0025 U	0.0026 U	0.0026 U	0.039	0.0025 U
Benzo(b)fluoranthene	mg/kg	170	0.011	0.0062 J	0.043	0.025	0.013	0.49	0.0023 U	0.0023 U	0.0023 U	0.039	0.0022 U
Benzo(g,h,i)perylene	mg/kg	180	0.011	0.0052 J	0.04	0.025	0.0066 J	0.28	0.027 U	0.027 U	0.027 U	0.029 U	0.026 U
Benzo(k)fluoranthene	mg/kg	610	0.0052 J	0.0027 J	0.017	0.011	0.0047 J	0.16	0.0027 U	0.0028 U	0.0028 U	0.023 J	0.0027 U
Biphenyl (1,1-Biphenyl)	mg/kg	3100	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0068 J	0.048 U	0.049 U	0.049 U	0.052 U	0.047 U
bis(2-Chloroethoxy)methane	mg/kg	35	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.002 U	0.0022 U	0.046 U	0.047 U	0.047 U	0.05 U	0.046 U
bis(2-Chloroethyl)ether	mg/kg	7.6	0.0023 U	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0049 U	0.005 U	0.005 U	0.0053 U	0.0048 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.026 U	0.025 U	0.024 U	0.024 U	0.024 U	0.025 U	0.12 U	0.12 U	0.12 U	0.13 U	0.12 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.029 U	0.027 U	0.027 U	0.027 U	0.026 U	0.028 U	0.033 U	0.033 U	0.034 U	0.035 U	0.032 U
Caprolactam	mg/kg		0.018 U	0.017 U	0.017 U	0.017 U	0.017 U	0.018 U	0.083 U	0.084 U	0.084 U	0.089 U	0.082 UJ
Carbazole	mg/kg	110	0.0033 U	0.0031 U	0.0096	0.0064 J	0.003 U	0.13	0.042 U	0.043 U	0.043 U	0.046 U	0.042 U
Chrysene	mg/kg	230	0.0072 J	0.0049 J	0.04	0.022	0.011	0.48	0.042 U	0.043 U	0.043 U	0.045 U	0.041 U
Dibenz(a,h)anthracene	mg/kg	270	0.0032 U	0.0031 U	0.0086	0.0046 J	0.0029 U	0.07	0.0045 U	0.0046 U	0.0046 U	0.0049 U	0.0045 U
Dibenzofuran	mg/kg	12000	0.0031 U	0.003 U	0.021 J	0.0037 J	0.0028 U	0.058	0.042 U	0.043 U	0.043 U	0.045 U	0.042 U
Diethyl phthalate	mg/kg	10000	0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.043 U	0.043 U	0.044 U	0.046 U	0.042 U
Dimethyl phthalate	mg/kg		0.0027 U	0.0026 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.043 U	0.043 U	0.043 U	0.046 U	0.042 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0042 J	0.0031 J	0.0029 J	0.0034 J	0.0038 J	0.0043 J	0.044 U	0.045 U	0.045 U	0.048 U	0.044 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0046 U	0.0044 U	0.0042 U	0.0042 U	0.0042 U	0.0044 U	0.023 U	0.023 U	0.023 U	0.025 U	0.023 U
Fluoranthene	mg/kg	3200	0.0089	0.0077	0.067	0.044	0.024	0.93	0.048 U	0.049 U	0.049 U	0.051 U	0.047 U
Fluorene	mg/kg	3800	0.0028 U	0.0026 U	0.022	0.0047 J	0.0025 U	0.1	0.046 U	0.047 U	0.047 U	0.049 U	0.045 U
Hexachlorobenzene	mg/kg	5.8	0.0031 U	0.003 U	0.0029 U	0.0029 U	0.0028 U	0.003 U	0.0049 U	0.005 U	0.005 U	0.0053 U	0.0048 U
Hexachlorobutadiene	mg/kg	3400	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0022 U	0.0024 U	0.0088 U	0.0089 U	0.0089 U	0.0094 U	0.0087 U
Hexachlorocyclopentadiene	mg/kg	3300	0.0033 U	0.0031 U	0.003 U	0.003 U	0.003 U	0.0032 U	0.042 U	0.043 U	0.043 U	0.045 U	R
Hexachloroethane	mg/kg	56	0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.004 U	0.0041 U	0.0041 U	0.0043 U	0.0039 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.0097	0.0042 J	0.024	0.015	0.006 J	0.24	0.0067 U	0.0068 U	0.0068 U	0.0072 U	0.0066 U
Isophorone	mg/kg	10000	0.0021 U	0.002 U	0.002 U	0.002 U	0.0019 U	0.0021 U	0.044 U	0.044 U	0.044 U	0.047 U	0.043 U
Naphthalene	mg/kg	7500	0.0028 U	0.0027 U	0.0061 J	0.0045 J	0.0025 U	0.049	0.042 U	0.042 U	0.042 U	0.045 U	0.041 U
Nitrobenzene	mg/kg	10000	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0029 U	0.0051 U	0.0052 U	0.0052 U	0.0055 U	0.005 U
N-Nitrosodi-n-propylamine	mg/kg	49	0.0026 U	0.0025 U	0.0024 U	0.0024 U	0.0024 U	0.0025 U	0.006 U	0.0061 U	0.0061 U	0.0064 U	0.0059 U
N-Nitrosodiphenylamine	mg/kg	5500	0.0061 U	0.0058 U	0.0056 U	0.0056 U	0.0055 U	0.0059 U	0.035 U	0.036 U	0.036 U	0.038 U	0.035 U
Pentachlorophenol	mg/kg	5000	0.073 U	0.07 U	0.068 U	0.068 U	0.066 U	0.071 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Phenanthrene	mg/kg	10000	0.0045 J	0.0031 U	0.064	0.035	0.017	0.69	0.046 U	0.046 U	0.047 U	0.049 U	0.045 U
Phenol	mg/kg	20000	0.0052 U	0.005 U	0.0048 U	0.0048 U	0.0047 U	0.005 U	0.048 U	0.049 U	0.049 U	0.052 U	0.048 U
Pyrene	mg/kg	2200	0.0092	0.0084	0.058	0.038	0.02	0.82	0.03 U	0.031 U	0.031 U	0.032 U	0.03 U
Metals													
Aluminum	mg/kg		5100	4700	5600	2400	180	4300	7930	5860	8500	22700	9050
Antimony	mg/kg	27000	0.24 J	0.24	0.26	0.4	0.41	0.27	0.37 UJ	0.37 UJ	0.39 UJ	0.42 UJ	0.42 UJ
Arsenic	mg/kg	29000	4.4	3.9	4.7	9.9	6.1	2.7	3.1 J	4.1 J	4.6 J	2.1 J	4.9 J
Barium	mg/kg	190000	20	19	28	31	5	66	137	21.2	62.2	379	27.1
Beryllium	mg/kg	190000	0.27	0.23	0.36	0.39	0.026 U	0.75	0.86	0.30	0.64	8.4	0.45
Cadmium	mg/kg	38000	0.064 J	0.058 J	0.11	0.12	0.013 J	0.23	0.38 U	0.38 U	0.40 U	0.43 U	0.43 U
Calcium	mg/kg		930	320	11000	14000	100	38000	134000	2700	739	137000	1780
Chromium	mg/kg		16	7.3	150	170	4.2	440	1900 J	27.3 J	20.2 J	61.8 J	20.4 J
Cobalt	mg/kg	160000	6.1	5.3	5.8	1.7	0.2	2.8	1.7	5.7	4.7	1.0	5.6

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**	**BH-202-14**
Sample ID:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**	**S-83101-022714-BW-001**
Sample Date:			**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:			**-**	**-**	**-**	**-**	**-**	**-**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**	**Soil to WG**											
Copper	mg/kg	190000	8.8	7.8	13	8.7	1.6	14	38.9	9.0	6.3	5.1	7.6
Iron	mg/kg		14000	13000	28000	34000	11000	73000	201000 J	14500 J	15300 J	58000 J	16500 J
Lead	mg/kg	190000	8.4	7.8	18	14	7.1	13	12.3 J	5.7 J	5.4 J	10.3 J	16.7 J
Magnesium	mg/kg		2500	2100	13000	5400	140	15000	49000	3040	926	52900	1230
Manganese	mg/kg	190000	460	350	1600	2200	28	7500	20900	650	81.7	1690	162
Mercury	mg/kg	10000	0.0073 U	0.016 J	0.035 J	0.089	0.12	0.047	0.012 U	0.013 U	0.028	0.013 U	0.018
Nickel	mg/kg	190000	10	9.5	12	4.5	0.54	6.1	9.6	11.7	7.7	2.7	10.6
Potassium	mg/kg		680	620	740	390	400	360	256	514	546	730	619
Selenium	mg/kg	26000	0.52 J	0.46 J	0.7	0.69	0.31 J	1	0.40 J	0.39 U	0.41 U	7.9	0.44 U
Silver	mg/kg	84000	0.016 U	0.015 U	0.017 J	0.029 J	0.014 J	0.033 J	0.75 U	0.77 U	0.80 U	0.86 U	0.87 U
Sodium	mg/kg		31 J	27 J	53 J	76	39 J	190	268	42.3 U	43.8 U	902	47.9 U
Thallium	mg/kg	14000	0.044 J	0.04 J	0.052 J	0.37	0.52	0.044 J	0.16 U	0.16 U	0.16 U	0.18 U	0.18 U
Vanadium	mg/kg	190000	11	7.5	81	49	5.4	100	280	11.1	17.8	26.5	20.7
Zinc	mg/kg	190000	27	25	39	85	6.2	160	85.9	30.7	25.0	36.5	24.9
MetalsSEM													
Cadmium	umol/g		-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g		-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g		-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g		-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g		-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none		-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g		-	-	-	-	-	-	-	-	-	-	-
PCBs													
Aroclor-1016 (PCB-1016)	mg/kg	47	0.00051 U	0.00049 U	0.00048 U	0.00047 U	0.00047 U	0.00049 U	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U
Aroclor-1221 (PCB-1221)	mg/kg	0.83	0.0005 U	0.00047 U	0.00047 U	0.00046 U	0.00046 U	0.00048 U	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U
Aroclor-1232 (PCB-1232)	mg/kg	0.7	0.00038 U	0.00036 U	0.00036 U	0.00035 U	0.00035 U	0.00037 U	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U
Aroclor-1242 (PCB-1242)	mg/kg	20	0.00077 U	0.00073 U	0.00072 U	0.0007 U	0.0007 U	0.00074 U	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U
Aroclor-1248 (PCB-1248)	mg/kg	81	0.00046 U	0.00044 U	0.00043 U	0.00042 U	0.00042 U	0.00044 U	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U
Aroclor-1254 (PCB-1254)	mg/kg	340	0.0028	0.0026	0.0074	0.0042	0.0024	0.0081	0.021 U	0.021 U	0.021 U	0.022 U	0.02 U
Aroclor-1260 (PCB-1260)	mg/kg	770	0.00064 U	0.00081 J	0.0037	0.0038	0.0033	0.0051	0.021 U	0.021 U	0.021 U	0.022 U	0.02 U
Total PCBs	mg/kg		-	-	-	-	-	-	0.021 U	0.021 U	0.021 U	0.022 U	0.02 U
General Chemistry													
Cyanide (total)	mg/kg		-	-	-	-	-	-	0.091 J	0.39	0.061 U	0.69	0.059 U
pH	s.u.		8.3	8.3	9.3	7.3	4.8	8.6	-	-	-	-	-
Soot carbon	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg		-	-	-	-	-	-	-	-	-	-	-
Total solids	%		-	-	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		BH-202-14	BH-203-14	BH-203-14	BH-204-14	BH-204-14	BH-204-14	EX96-SB-112	GP-01-2017	GP-02-2017	GP-02-2017	GP-03-2017	GP-04-2017	GP-05-2017	GP-06-2017
Sample ID:		S-83101-022714-BW-002	S-83101-022714-BW-007	S-83101-022714-BW-008	S-83101-022714-BW-011	S-83101-022714-BW-012	S-83101-022714-BW-013	SB-112_14-16	GP-01_11.0-11.5	DUP-02_082317	GP-02_10.5-11.0	GP-03_11.0-11.5	GP-04_9.0-9.5	GP-05_9.0-9.5	GP-06_9.5-10.0
Sample Date:		2/27/2014	2/27/2014	2/27/2014	2/27/2014	2/27/2014	2/27/2014	10/14/1996	8/24/2017	8/23/2017	8/23/2017	8/24/2017	8/24/2017	8/24/2017	8/23/2017
Sample Depth:		(10-12) ft BGS	(0-2) ft BGS	(5-7) ft BGS	(0-2) ft BGS	(0-2) ft BGS (Duplicate)	(7.5-9.5) ft BGS	(14-16) ft BGS	(11-11.5) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(11-11.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(9.5-10) ft BGS
Parameters	**Units**														
Volatile Organic Compounds															
1,1,1-Trichloroethane	mg/kg	0.026 J	0.0027 U	0.0033 U	0.0064 U	0.003 U	0.0039 U	-	0.000323 U	0.000331 U	0.000332 U	0.0003 U	0.000359 U	0.000329 U	0.000423 U
1,1,2,2-Tetrachloroethane	mg/kg	0.01 U	0.0068 UJ	0.0083 U	0.016 U	0.0075 U	0.01 U	-	0.000412 U	0.000422 U	0.000424 U	0.000382 U	0.000458 U	0.00042 U	0.000539 U
1,1,2-Trichloroethane	mg/kg	0.012 U	0.0081 U	0.0099 U	0.019 U	0.009 U	0.012 U	-	0.000313 U	0.000321 U	0.000322 U	0.00029 U	0.000348 U	0.000319 U	0.000409 U
1,1-Dichloroethane	mg/kg	0.0086 U	0.0056 U	0.0069 U	0.013 U	0.0062 U	0.0082 U	-	0.000225 U	0.00023 U	0.000232 U	0.000209 U	0.00025 U	0.000229 U	0.000294 U
1,1-Dichloroethene	mg/kg	0.0058 U	0.0038 U	0.0047 U	0.009 U	0.0042 U	0.0056 U	-	0.000342 U	0.000351 U	0.000352 U	0.000318 U	0.00038 U	0.000349 U	0.000448 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	0.000345 U	0.000354 U	0.000356 U	0.000321 U	0.000384 U	0.000352 U	0.000452 U
1,2,4-Trichlorobenzene	mg/kg	0.023 U	0.015 U	0.018 U	0.035 U	0.016 U	0.022 U	9999 U	0.000438 U	0.000449 U	0.000451 U	0.000407 U	0.000487 U	0.000447 U	0.000573 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.026 U	0.017 U	0.021 U	0.041 U	0.019 U	0.025 U	-	0.00119 U	0.00122 U	0.00122 U	0.0011 U	0.00132 U	0.00121 U	0.00155 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.018 U	0.012 U	0.015 U	0.028 U	0.013 U	0.017 U	-	0.000387 U	0.000397 U	0.000399 U	0.000359 U	0.00043 U	0.000395 U	0.000506 U
1,2-Dichlorobenzene	mg/kg	0.014 U	0.0089 U	0.011 U	0.021 U	0.0098 U	0.013 U	-	0.000344 U	0.000353 U	0.000355 U	0.00032 U	0.000383 U	0.000351 U	0.00045 U
1,2-Dichloroethane	mg/kg	0.012 U	0.0082 U	0.01 U	0.019 U	0.009 U	0.012 U	-	0.000299 U	0.000307 U	0.000308 U	0.000278 U	0.000332 U	0.000305 U	0.000391 U
1,2-Dichloropropane	mg/kg	0.0057 U	0.0037 U	0.0045 U	0.0088 U	0.0041 U	0.0054 U	-	0.000404 U	0.000414 U	0.000416 U	0.000375 U	0.000449 U	0.000412 U	0.000529 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0089 U	0.0058 U	0.0071 U	0.014 U	0.0065 U	0.0086 U	-	0.00027 U	0.000277 U	0.000278 U	0.00025 U	0.0003 U	0.000275 U	0.000354 U
1,4-Dichlorobenzene	mg/kg	0.015 U	0.01 U	0.012 U	0.024 U	0.011 U	0.015 U	9999 U	0.000255 U	0.000262 U	0.000262 U	0.000237 U	0.000284 U	0.00026 U	0.000334 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.15 U	0.1 U	0.12 U	0.24 U	0.11 U	0.15 U	-	0.0143	0.00542 U	0.00544 U	0.00608 J	0.00587 U	0.00539 U	0.00691 U
2-Hexanone	mg/kg	0.033 U	0.022 U	0.026 U	0.051 U	0.024 U	0.032 U	-	0.00247 J	0.00159 U	0.0016 U	0.00144 U	0.00172 U	0.00158 U	0.00202 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.065 U	0.043 U	0.052 U	0.1 U	0.047 U	0.062 U	-	0.00212 U	0.00218 U	0.00218 U	0.00197 U	0.00236 U	0.00216 U	0.00277 U
Acetone	mg/kg	0.18 U	0.12 U	0.14 U	0.27 U	0.13 U	0.17 U	-	0.0431 J	0.0116 U	0.0116 U	0.0219 J	0.0125 U	0.0115 U	0.0148 U
Benzene	mg/kg	0.0054 U	0.0036 U	0.0044 U	0.0084 U	0.0039 U	0.0052 U	9999 U	0.000596 J	0.000312 U	0.000314 U	0.000319 J	0.000339 U	0.000311 U	0.000398 U
Bromodichloromethane	mg/kg	0.0082 U	0.0054 U	0.0066 U	0.013 U	0.006 U	0.0079 U	-	0.000287 U	0.000294 U	0.000295 U	0.000266 U	0.000319 U	0.000292 U	0.000375 U
Bromoform	mg/kg	0.013 U	0.0083 UJ	0.01 UJ	0.02 UJ	0.0092 U	0.012 U	-	0.000479 U	0.000491 U	0.000493 U	0.000444 U	0.000532 U	0.000488 U	0.000626 U
Bromomethane (Methyl bromide)	mg/kg	0.012 UJ	0.0078 UJ	0.0096 U	0.019 U	0.0087 U	0.011 U	-	0.00151 U	0.00155 U	0.00155 U	0.0014 U	0.00168 U	0.00154 U	0.00197 U
Carbon disulfide	mg/kg	0.0083 U	0.0054 U	0.0066 U	0.013 U	0.006 U	0.0079 U	-	0.00791	0.00277	0.000257 U	0.00718	0.000331 J	0.000254 U	0.000327 U
Carbon tetrachloride	mg/kg	0.0038 U	0.0025 U	0.003 U	0.0058 U	0.0027 U	0.0036 U	-	0.00037 U	0.00038 U	0.000382 U	0.000344 U	0.000412 U	0.000378 U	0.000484 U
Chlorobenzene	mg/kg	0.0073 U	0.0048 U	0.0058 U	0.011 U	0.0053 U	0.007 U	-	0.000239 U	0.000245 U	0.000247 U	0.000222 U	0.000266 U	0.000244 U	0.000314 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	0.00044 U	0.000451 U	0.000454 U	0.000409 U	0.000489 U	0.000449 U	0.000576 U
Chloroethane	mg/kg	0.011 U	0.0073 U	0.0089 U	0.017 U	0.0081 U	0.011 U	-	0.00107 U	0.00109 U	0.0011 U	0.000991 U	0.00119 U	0.00109 U	0.00139 U
Chloroform (Trichloromethane)	mg/kg	0.0052 U	0.0034 U	0.0041 U	0.008 U	0.0038 U	0.005 U	9999 U	0.000259 U	0.000265 U	0.000267 U	0.00024 U	0.000287 U	0.000264 U	0.000338 U
Chloromethane (Methyl chloride)	mg/kg	0.0064 U	0.0042 U	0.0051 U	0.0099 U	0.0046 U	0.0061 U	-	0.000423 U	0.000434 U	0.000436 U	0.000393 U	0.000471 U	0.000432 U	0.000555 U
cis-1,2-Dichloroethene	mg/kg	0.012 U	0.0077 U	0.0093 U	0.018 U	0.0085 U	0.011 U	-	0.000265 U	0.000272 U	0.000274 U	0.000246 U	0.000295 U	0.00027 U	0.000347 U
cis-1,3-Dichloropropene	mg/kg	0.012 U	0.0079 U	0.0097 U	0.019 U	0.0088 U	0.012 U	-	0.000296 U	0.000303 U	0.000305 U	0.000275 U	0.000329 U	0.000302 U	0.000387 U
Cyclohexane	mg/kg	0.01 U	0.0069 U	0.0084 U	0.016 U	0.0076 U	0.01 U	-	0.000395 U	0.000405 U	0.000408 U	0.000367 U	0.000439 U	0.000403 U	0.000517 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.013 U	0.0086 UJ	0.011 U	0.02 U	0.0095 U	0.013 U	-	0.000421 U	0.000432 U	0.000433 U	0.000391 U	0.000468 U	0.000429 U	0.000551 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.014 U	0.0093 U	0.011 U	0.022 U	0.01 U	0.014 U	-	0.000805 U	0.000825 U	0.00083 U	0.000747 U	0.000895 U	0.000821 U	0.00105 U
Ethylbenzene	mg/kg	0.0063 U	0.0041 U	0.0051 U	0.0098 U	0.0046 U	0.053 J	9999 U	0.000335 U	0.000344 U	0.000346 U	0.000311 U	0.000373 U	0.000342 U	0.000438 U
Isopropyl benzene	mg/kg	0.0051 U	0.0033 U	0.004 U	0.0078 U	0.0037 U	0.0048 U	9999 U	0.000274 U	0.000281 U	0.000282 U	0.000255 U	0.000305 U	0.00028 U	0.000358 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.022 U	1.4	0.018 U	0.8	1.3	0.4	-	0.00689 U	0.00706 U	0.00709 U	0.00639 U	0.00765 U	0.00702 U	0.00901 U
Methyl cyclohexane	mg/kg	0.0089 U	0.0058 U	0.0071 U	0.014 U	0.0065 U	0.0086 U	-	0.000429 U	0.00044 U	0.000442 U	0.000398 U	0.000477 U	0.000437 U	0.000562 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0091 U	0.006 U	0.0073 U	0.014 U	0.0066 U	0.0087 U	-	0.000239 U	0.000245 U	0.000247 U	0.000222 U	0.000266 U	0.000244 U	0.000314 U
Methylene chloride	mg/kg	0.012 U	0.0079 U	0.0096 U	0.019 U	0.0087 U	0.012 U	9999 U	0.00113 U	0.00116 U	0.00116 U	0.00105 U	0.00125 U	0.00115 U	0.00148 U
Naphthalene	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
Styrene	mg/kg	0.0078 U	0.0051 U	0.0063 U	0.012 U	0.0057 U	0.0075 U	9999 U	0.000264 U	0.000271 U	0.000272 U	0.000245 U	0.000294 U	0.000269 U	0.000345 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	9999 U	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.0064 U	0.0042 U	0.0051 U	0.0099 U	0.0046 U	0.0061 U	-	0.000792 J	0.000319 U	0.000321 U	0.000289 U	0.000346 U	0.000318 U	0.000408 U
Toluene	mg/kg	0.0099 U	0.0065 U	0.0079 U	0.015 U	0.0071 U	0.046 J	0.001 J	0.00694	0.00062 J	0.000504 U	0.00167 J	0.000545 U	0.0005 U	0.00064 U
trans-1,2-Dichloroethene	mg/kg	0.0085 U	0.0056 U	0.0068 U	0.013 U	0.0062 U	0.0081 U	-	0.000298 U	0.000306 U	0.000307 U	0.000277 U	0.000331 U	0.000304 U	0.00039 U
trans-1,3-Dichloropropene	mg/kg	0.016 U	0.01 U	0.013 U	0.025 U	0.012 U	0.015 U	-	0.000301 U	0.000309 U	0.000311 U	0.00028 U	0.000335 U	0.000307 U	0.000395 U
Trichloroethene	mg/kg	0.039 J	0.004 U	0.0049 U	0.0094 U	0.0044 U	0.0058 U	9999 U	0.000315 U	0.000323 U	0.000324 U	0.000292 U	0.00035 U	0.000321 U	0.000412 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0096 U	0.0063 U	0.0077 U	0.015 U	0.007 U	0.0092 U	0.004 J	0.000431 U	0.000442 U	0.000445 U	0.0004 U	0.000479 U	0.00044 U	0.000564 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0054 U	0.0035 U	0.0043 U	0.0084 U	0.0039 U	0.0052 U	-	0.000412 U	0.000422 U	0.000424 U	0.000382 U	0.000458 U	0.00042 U	0.000539 U
Vinyl chloride	mg/kg	0.0095 U	0.0062 U	0.0076 U	0.015 U	0.0069 U	0.0091 U	-	0.000329 U	0.000337 U	0.000339 U	0.000305 U	0.000365 U	0.000335 U	0.00043 U
Xylenes (total)	mg/kg	0.024 U	0.016 U	0.019 U	0.037 U	0.017 U	0.26	-	0.000788 U	0.000808 U	0.000812 U	0.000731 U	0.000876 U	0.000803 U	0.00103 U
Semi-volatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	1.72 U	0.0882 U	0.0784 U	0.799 U	0.0956 U	0.0877 U	0.0923 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.039 U	0.039 U	0.039 U	0.039 U	0.041 U	0.041 U	-	0.172 U	0.0088 U	0.00782 U	0.0796 U	0.00954 U	0.00875 U	0.0092 U
2,4,5-Trichlorophenol	mg/kg	0.046 U	0.045 U	0.045 U	0.046 U	0.048 U	0.047 U	-	0.235 U	0.012 U	0.0107 U	0.109 U	0.013 U	0.012 U	0.0126 U
2,4,6-Trichlorophenol	mg/kg	0.041 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.176 U	0.00902 U	0.00802 U	0.0816 U	0.00977 U	0.00897 U	0.00943 U
2,4-Dichlorophenol	mg/kg	0.052 U	0.051 U	0.051 U	0.052 U	0.055 U	0.054 U	-	0.168 U	0.00863 U	0.00768 U	0.0782 U	0.00936 U	0.00859 U	0.00903 U
2,4-Dimethylphenol	mg/kg	0.087 U	0.087 U	0.087 U	0.088 U	0.092 U	0.09 U	-	1.06 U	0.0545 U	0.0485 U	0.494 U	0.0591 U	0.0542 U	0.057 U
2,4-Dinitrophenol	mg/kg	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U	-	2.21 U	0.113 UJ3	0.101 UJ3	1.03 U	0.123 U	0.113 U	0.119 UJ3

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		BH-202-14	BH-203-14	BH-203-14	BH-204-14	BH-204-14	BH-204-14	EX96-SB-112	GP-01-2017	GP-02-2017	GP-02-2017	GP-03-2017	GP-04-2017	GP-05-2017	GP-06-2017
Sample ID:		S-83101-022714-BW-002	S-83101-022714-BW-007	S-83101-022714-BW-008	S-83101-022714-BW-011	S-83101-022714-BW-012	S-83101-022714-BW-013	SB-112_14-16	GP-01_11.0-11.5	DUP-02_082317	GP-02_10.5-11.0	GP-03_11.0-11.5	GP-04_9.0-9.5	GP-05_9.0-9.5	GP-06_9.5-10.0
Sample Date:		2/27/2014	2/27/2014	2/27/2014	2/27/2014	2/27/2014	2/27/2014	10/14/1996	8/24/2017	8/23/2017	8/23/2017	8/24/2017	8/24/2017	8/24/2017	8/23/2017
Sample Depth:		(10-12) ft BGS	(0-2) ft BGS	(5-7) ft BGS	(0-2) ft BGS	(0-2) ft BGS (Duplicate)	(7.5-9.5) ft BGS	(14-16) ft BGS	(11-11.5) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(11-11.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(9.5-10) ft BGS
Parameters	**Units**														
2,4-Dinitrotoluene	mg/kg	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	-	0.137 U	0.00703 U	0.00625 U	0.0636 U	0.00762 U	0.00699 U	0.00735 U
2,6-Dinitrotoluene	mg/kg	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	-	0.166 U	0.00853 U	0.00759 U	0.0772 U	0.00925 U	0.00848 U	0.00892 U
2-Chloronaphthalene	mg/kg	0.039 U	0.039 U	0.039 U	0.04 U	0.042 U	0.041 U	-	0.145 U	0.0074 U	0.00658 U	0.067 U	0.00802 U	0.00736 U	0.00774 U
2-Chlorophenol	mg/kg	0.046 U	0.046 U	0.046 U	0.047 U	0.049 U	0.048 U	-	0.187 U	0.00962 U	0.00855 U	0.0871 U	0.0104 U	0.00957 U	0.0101 U
2-Methylnaphthalene	mg/kg	0.045 U	0.045 U	0.045 U	0.046 U	0.048 U	0.047 U	-	0.467 J	0.00997 U	0.00886 U	0.0902 U	0.0108 U	0.00991 U	0.0104 U
2-Methylphenol	mg/kg	0.06 U	0.06 U	0.06 U	0.061 U	0.064 U	0.062 U	-	0.222 U	0.0114 U	0.0101 U	0.103 U	0.0124 U	0.0113 U	0.0119 U
2-Nitroaniline	mg/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U	-	0.17 U	0.00874 U	0.00777 U	0.0791 U	0.00947 U	0.00869 U	0.00914 U
2-Nitrophenol	mg/kg	0.039 U	0.039 U	0.039 U	0.04 U	0.042 U	0.041 U	-	0.294 U	0.015 U	0.0134 U	0.136 U	0.0163 U	0.015 U	0.0157 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	-	0.177 U	0.00906 U	0.00806 U	0.0821 U	0.00982 U	0.00901 U	0.00948 U
3,3'-Dichlorobenzidine	mg/kg	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U	0.13 U	-	1.79 U	0.0919 U	0.0817 U	0.832 U	0.0996 U	0.0914 U	0.0961 U
3-Nitroaniline	mg/kg	0.13 U	0.12 U	0.12 U	0.13 U	0.13 U	0.13 U	-	0.192 U	0.00984 U	0.00875 U	0.0891 U	0.0107 U	0.00978 U	0.0103 U
4,6-Dinitro-2-methylphenol	mg/kg	0.096 U	0.096 U	0.096 U	0.097 U	0.1 U	0.1 U	-	2.8 U	0.144 U	0.128 U	1.3 U	0.156 U	0.143 U	0.15 U
4-Bromophenyl phenyl ether	mg/kg	0.035 U	0.035 U	0.035 U	0.035 U	0.037 U	0.036 U	-	0.257 U	0.0132 U	0.0117 U	0.119 U	0.0143 U	0.0131 U	0.0138 U
4-Chloro-3-methylphenol	mg/kg	0.053 U	0.053 U	0.053 U	0.054 U	0.056 U	0.055 U	-	0.108 U	0.00552 U	0.00491 U	0.05 U	0.00598 U	0.00549 U	0.00578 U
4-Chloroaniline	mg/kg	0.094 U	0.093 U	0.093 U	0.094 U	0.099 U	0.097 U	-	0.795 U	0.0407 U	0.0362 U	0.369 U	0.0442 U	0.0405 U	0.0426 U
4-Chlorophenyl phenyl ether	mg/kg	0.041 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.141 U	0.00726 U	0.00645 U	0.0657 U	0.00787 U	0.00722 U	0.00759 U
4-Methylphenol	mg/kg	0.07 U	0.069 U	0.069 U	0.07 U	0.074 U	0.072 U	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	-	0.145 U	0.0074 U	0.00658 U	0.067 U	0.00802 U	0.00736 U	0.00774 U
4-Nitrophenol	mg/kg	0.23 U	0.23 U	0.23 U	0.23 U	0.24 U	0.24 U	-	1.19 U	0.0608 U	0.054 U	0.55 U	0.0659 U	0.0604 U	0.0636 U
Acenaphthene	mg/kg	0.052 U	0.051 U	0.051 U	0.052 U	0.054 U	0.053 U	0.041 U	0.186 J	0.00743 U	0.00661 U	0.0673 U	0.00806 U	0.00739 U	0.00777 U
Acenaphthylene	mg/kg	0.042 U	0.042 U	0.041 U	0.042 U	0.044 U	0.043 U	0.041 U	0.151 U	0.00777 U	0.00691 U	0.0703 U	0.00842 U	0.00772 U	0.00812 U
Acetophenone	mg/kg	0.054 U	0.054 U	0.054 U	0.055 U	0.057 U	0.056 U	-	1.69 U	0.087 U	0.0774 U	0.788 U	0.0944 U	0.0866 U	0.091 U
Anthracene	mg/kg	0.043 U	0.043 U	0.043 U	0.043 U	0.045 U	0.045 U	0.041 U	0.169 J	0.00731 U	0.0065 U	0.0901 J	0.00793 U	0.00727 U	0.00765 U
Atrazine	mg/kg	0.055 U	0.054 U	0.054 U	0.055 U	0.058 U	0.057 U	-	2.12 U	0.109 U	0.0965 U	0.983 U	0.118 U	0.108 U	0.114 U
Benzaldehyde	mg/kg	0.042 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	1.2 U	0.0616 U	0.0548 U	0.557 U	0.0668 U	0.0612 U	0.0644 U
Benzo(a)anthracene	mg/kg	0.061	0.0025 U	0.0024 U	0.0025 UJ	0.16 J	0.0026 U	0.041 U	0.904	0.00495 U	0.00441 U	0.295 J	0.00537 U	0.00493 U	0.00518 U
Benzo(a)pyrene	mg/kg	0.056	0.0025 U	0.0025 U	0.04 J	0.16 J	0.0026 U	0.082 U	0.613 J	0.00634 U	0.00564 U	0.214 J	0.00688 U	0.00631 U	0.00663 U
Benzo(b)fluoranthene	mg/kg	0.079	0.0022 U	0.0022 U	0.068 J	0.23 J	0.0023 U	0.082 U	0.481 J	0.00804 U	0.00715 U	0.194 J	0.00872 U	0.008 U	0.00841 U
Benzo(g,h,i)perylene	mg/kg	0.036 J	0.026 J	0.026 U	0.026 U	0.079 J	0.027 U	0.082 U	0.409 J	0.00834 U	0.00742 U	0.302 J	0.00905 U	0.0083 U	0.00873 U
Benzo(k)fluoranthene	mg/kg	0.034 J	0.0027 U	0.0027 U	0.025 J	0.09 J	0.0028 U	0.16 U	0.143 J	0.00674 U	0.00599 U	0.0924 J	0.0073 U	0.0067 U	0.00705 U
Biphenyl (1,1-Biphenyl)	mg/kg	0.047 U	0.047 U	0.047 U	0.048 U	0.05 U	0.049 U	-	0.133 U	0.00681 U	0.00605 U	0.0616 U	0.00738 U	0.00677 U	0.00712 U
bis(2-Chloroethoxy)methane	mg/kg	0.046 U	0.045 U	0.045 U	0.046 U	0.048 U	0.047 U	-	0.174 U	0.00891 U	0.00792 U	0.0807 U	0.00966 U	0.00886 U	0.00932 U
bis(2-Chloroethyl)ether	mg/kg	0.0048 U	0.0048 U	0.0048 U	0.0049 U	0.0051 U	0.005 U	-	0.202 U	0.0104 U	0.00922 U	0.0939 U	0.0112 U	0.0103 U	0.0108 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.11 J	0.271 U	0.0139 U	0.0124 U	0.126 U	0.0151 U	0.0138 U	0.0145 U
Butyl benzylphthalate (BBP)	mg/kg	0.032 U	0.032 U	0.032 U	0.033 U	0.034 U	0.034 U	-	0.233 U	0.0119 U	0.0106 U	0.108 U	0.0129 U	0.0119 U	0.0125 U
Caprolactam	mg/kg	0.081 U	0.081 U	0.081 U	0.082 U	0.086 U	0.084 U	-	2.35 U	0.12 U	0.107 U	1.09 U	0.13 U	0.12 U	0.126 U
Carbazole	mg/kg	0.042 U	0.042 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.119 U	0.00606 U	0.00539 U	0.0608 J	0.00657 U	0.00603 U	0.00634 U
Chrysene	mg/kg	0.071 J	0.041 U	0.041 U	0.046 J	0.22 J	0.043 U	0.041 U	1.83	0.00642 U	0.00571 U	0.421	0.00696 U	0.00639 U	0.00672 U
Dibenz(a,h)anthracene	mg/kg	0.0045 U	0.0044 U	0.0044 U	0.0045 U	0.0047 U	0.0046 U	0.082 U	0.185 U	0.0095 U	0.00845 U	0.116 J	0.0103 U	0.00945 U	0.00994 U
Dibenzofuran	mg/kg	0.041 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.117 U	0.006 U	0.00533 U	0.0543 U	0.0065 U	0.00596 U	0.00627 U
Diethyl phthalate	mg/kg	0.042 U	0.042 U	0.042 U	0.042 U	0.045 U	0.044 U	-	0.156 U	0.008 U	0.00711 U	0.0724 U	0.00867 U	0.00795 U	0.00837 U
Dimethyl phthalate	mg/kg	0.042 U	0.042 U	0.042 U	0.042 U	0.044 U	0.043 U	-	0.122 U	0.00625 U	0.00556 U	0.0566 U	0.00678 U	0.00622 U	0.00654 U
Di-n-butylphthalate (DBP)	mg/kg	0.044 U	0.043 U	0.043 U	0.044 U	0.046 U	0.045 U	-	0.246 U	0.0126 U	0.0112 U	0.114 U	0.0137 U	0.0125 U	0.0132 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.023 U	0.022 U	0.022 U	0.023 U	0.024 U	0.023 U	-	0.204 U	0.0105 U	0.00934 U	0.095 U	0.0114 U	0.0104 U	0.011 U
Fluoranthene	mg/kg	0.081 J	0.047 U	0.047 U	0.056 J	0.32 J	0.049 U	0.041 U	0.58 J	0.00769 J	0.0051 U	0.207 J	0.00622 U	0.00571 U	0.00601 U
Fluorene	mg/kg	0.045 U	0.045 U	0.045 U	0.045 U	0.048 U	0.047 U	0.041 U	0.357 J	0.00789 U	0.00702 U	0.0715 U	0.00856 U	0.00785 U	0.00826 U
Hexachlorobenzene	mg/kg	0.0048 U	0.0048 U	0.0048 U	0.0049 U	0.0051 U	0.005 U	-	0.193 U	0.00991 U	0.00881 U	0.0897 U	0.0107 U	0.00985 U	0.0104 U
Hexachlorobutadiene	mg/kg	0.0086 U	0.0086 U	0.0086 U	0.0087 U	0.0091 U	0.0089 U	-	0.226 U	0.0116 U	0.0103 U	0.105 U	0.0125 U	0.0115 U	0.0121 U
Hexachlorocyclopentadiene	mg/kg	0.042 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	1.32 U	0.0679 U	0.0604 U	0.615 U	0.0737 U	0.0676 U	0.0711 U
Hexachloroethane	mg/kg	0.0039 U	0.0039 U	0.0039 U	0.004 U	0.0042 U	0.0041 U	-	0.303 U	0.0155 U	0.0138 U	0.14 U	0.0168 U	0.0154 U	0.0162 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.052	0.0065 U	0.0065 U	0.035 UJ	0.11 J	0.0068 U	0.082 U	0.174 U	0.00894 U	0.00795 U	0.117 J	0.00969 U	0.00889 U	0.00935 U
Isophorone	mg/kg	0.043 U	0.043 U	0.043 U	0.043 U	0.045 U	0.044 U	-	0.117 U	0.00604 U	0.00537 U	0.0547 U	0.00655 U	0.00601 U	0.00632 U
Naphthalene	mg/kg	0.041 U	0.041 U	0.041 U	0.041 U	0.043 U	0.042 U	-	0.201 U	0.0103 U	0.00915 U	0.0932 U	0.0112 U	0.0102 U	0.0108 U
Nitrobenzene	mg/kg	0.005 U	0.005 U	0.005 U	0.0051 U	0.0053 U	0.0052 U	-	0.157 U	0.00804 U	0.00715 U	0.0728 U	0.00872 U	0.008 U	0.00841 U
N-Nitrosodi-n-propylamine	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.0059 U	0.0062 U	0.0061 U	-	0.204 U	0.0105 U	0.00932 U	0.0949 U	0.0114 U	0.0104 U	0.011 U
N-Nitrosodiphenylamine	mg/kg	0.035 U	0.035 U	0.035 U	0.035 U	0.037 U	0.036 U	0.082 U	0.134 U	0.00687 U	0.00611 U	0.0622 U	0.00745 U	0.00684 U	0.00719 U
Pentachlorophenol	mg/kg	0.11 U	0.1 U	0.1 U	0.11 U	0.11 U	0.11 U	-	1.08 U	0.0556 U	0.0494 U	0.503 U	0.0602 U	0.0552 U	0.0581 U
Phenanthrene	mg/kg	0.045 U	0.045 U	0.045 U	0.045 U	0.18 J	0.047 U	0.041 U	1.67	0.00611 U	0.00543 U	0.155 J	0.00662 U	0.00608 U	0.00639 U
Phenol	mg/kg	0.047 U	0.047 U	0.047 U	0.048 U	0.05 U	0.049 U	-	0.157 U	0.00804 U	0.00715 U	0.0728 U	0.00872 U	0.008 U	0.00841 U
Pyrene	mg/kg	0.072 J	0.029 U	0.029 U	0.042 J	0.28 J	0.031 U	0.082 U	1.73	0.0142 U	0.0127 U	0.446	0.0154 U	0.0142 U	0.0149 U
Metals															
Aluminum	mg/kg	26200	8970	4800	6210	4570	34200	-	11800	695	422	9120	281	332	414
Antimony	mg/kg	0.37 UJ	0.34 UJ	0.34 UJ	0.32 UJ	0.42 UJ	0.35 UJ	1.15 J	4.23 U	0.868 U	0.772 U	5.96 J	0.941 U	0.863 U	0.908 U
Arsenic	mg/kg	2.5 J	2.2 J	3.2 J	5.2 J	8.7 J	2.4	4.6	3.67 U	3.13	1.92 J	3.41 U	0.845 J	0.748 U	1.08 J
Barium	mg/kg	523	117	17.5	52.3	27.1	899	-	122	9.11	3.59	93.6	7.83	3.13	4.91
Beryllium	mg/kg	10.0	1.5	0.24	0.49	0.62	8.3	0.43	2.22	0.128 J	0.072 U	1.52	0.157 J	0.285	0.0847 U
Cadmium	mg/kg	0.38 U	0.34 U	0.35 U	0.51	0.43 U	0.36 U	9999 U	0.395 U	0.081 U	0.072 U	0.367 U	0.0905 J	0.0806 U	0.0847 U
Calcium	mg/kg	155000	139000	138	21300 J	3440 J	142000	-	124000	1980	210	115000	370	32.5 BJ	205
Chromium	mg/kg	25.3 J	1920 J	5.6 J	392 J	51.5 J	96.3	11.1	665	14.9	3.8	1170	3.5	1.23	2.52
Cobalt	mg/kg	0.80 U	1.6	4.9	5.1	3.8	1.1	-	1.3 U	0.396 J	0.237 U	1.21 U	1.02 J	0.472 J	1.41

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**	**EX96-SB-112**	**GP-01-2017**	**GP-02-2017**	**GP-02-2017**	**GP-03-2017**	**GP-04-2017**	**GP-05-2017**	**GP-06-2017**
Sample ID:		**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**	**SB-112_14-16**	**GP-01_11.0-11.5**	**DUP-02_082317**	**GP-02_10.5-11.0**	**GP-03_11.0-11.5**	**GP-04_9.0-9.5**	**GP-05_9.0-9.5**	**GP-06_9.5-10.0**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**10/14/1996**	**8/24/2017**	**8/23/2017**	**8/23/2017**	**8/24/2017**	**8/24/2017**	**8/24/2017**	**8/23/2017**
Sample Depth:		**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**	**(14-16) ft BGS**	**(11-11.5) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(11-11.5) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**														
Copper	mg/kg	4.8	20.5	7.3	18.2	7.1	3.3	10.7	13.5	1.9 J	1 J	11.4	2.13 J	1.94 J	1.28 J
Iron	mg/kg	24900 J	212000 J	10400 J	56500	25700	58600	-	123000	6490	2550	194000	6450	1230	1240
Lead	mg/kg	4.0 J	16.8 J	4.9 J	29.9	11.9	0.22 J	5.95	26.3	3.05 B	2.03 B	14	5.58	2.36	1.99 B
Magnesium	mg/kg	65400	44700	1910	9470 J	1840 J	52600	-	37700	791	86.9 J	36800	189	64.6 J	85.6 J
Manganese	mg/kg	750	15500	319	3350 J	228 J	2020	-	11700	101	6.98	8750	48.4	4.67	12
Mercury	mg/kg	0.020	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	9999 U	0.00316 U	0.0105 BJ	0.00518 BJ	0.00509 J	0.00351 U	0.00322 U	0.00414 BJ
Nickel	mg/kg	1.7	8.2	9.7	13.9	7.5	2.6	10.5	7.79 J	1.19 J	0.64 J	15.1	2.58	1.43 J	1.61 J
Potassium	mg/kg	720	298	435	483	809	2770	-	867	393	182	345 J	68.5 J	80 J	99.7 J
Selenium	mg/kg	7.7	0.90	0.36 U	0.33 U	0.44 U	4.4	9999 U	4.18 U	0.856 U	0.762 U	3.88 U	0.928 U	0.852 U	0.896 U
Silver	mg/kg	0.75 U	0.69 U	0.70 U	0.65 U	0.87 U	0.71 U	9999 U	1.58 U	0.324 U	0.288 U	1.47 U	0.351 U	0.322 U	0.339 U
Sodium	mg/kg	756	213	38.7 U	57.3	48.0 U	1440	-	986	34.5 J	10.1 U	245 J	18.4 J	13 J	11.9 U
Thallium	mg/kg	0.16 U	0.14 U	0.14 U	0.13 U	0.18 U	0.15 U	0.22 J	3.67 U	0.752 U	0.669 U	3.41 U	0.816 U	0.748 U	0.787 U
Vanadium	mg/kg	6.5	291	6.1	75.1	33.2	43.5	-	181	8.68	5.5 B	159	6.74	1.94 J	6.42 B
Zinc	mg/kg	75.0	61.6	25.2	172	177	2.8 U	33	74.1 B	4.71 J	3.3 J	62.6 B	33.6	12.9 B	8.57
MetalsSEM															
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs															
Aroclor-1016 (PCB-1016)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00395 U	0.00405 U	0.0036 U	0.00367 U	0.00439 U	0.00403 U	0.00424 U
Aroclor-1221 (PCB-1221)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00606 U	0.00622 U	0.00553 U	0.00563 U	0.00674 U	0.00618 U	0.0065 U
Aroclor-1232 (PCB-1232)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00471 U	0.00483 U	0.00429 U	0.00437 U	0.00523 U	0.0048 U	0.00505 U
Aroclor-1242 (PCB-1242)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00359 U	0.00368 U	0.00327 U	0.00333 U	0.00399 U	0.00366 U	0.00385 U
Aroclor-1248 (PCB-1248)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00356 U	0.00365 U	0.00324 U	0.0033 U	0.00395 U	0.00363 U	0.00381 U
Aroclor-1254 (PCB-1254)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.021 U	-	0.00533 U	0.00546 U	0.00486 U	0.00495 U	0.00592 U	0.00543 U	0.00571 U
Aroclor-1260 (PCB-1260)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.021 U	-	0.0416 P	0.00572 U	0.00508 U	0.00518 U	0.0062 U	0.00569 U	0.00598 U
Total PCBs	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.021 U	9999 U	-	-	-	-	-	-	-
General Chemistry															
Cyanide (total)	mg/kg	0.059 U	0.059 U	0.39	0.084 J	0.20	0.16	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		GP-07-2017	GP-08-2017	GP-09-2017	NATP-1	NATP-1	NATP-10	NATP-10	NATP-11	NATP-11	NATP-14	NATP-14	NATP-15	NATP-15	NATP-16	NATP-16	NATP-17
Sample ID:		GP-07_9.0-9.5	GP-08_9.0-9.5	GP-09_9.0-9.5	NATP-1_0.5-1.0	NATP-1_4.75-5.25	NATP-10_1.0-1.5	NATP-10_11.5-12.0	NATP-11_1.0-1.5	NATP-11_7.0-7.5	NATP-14_1.25-1.75	NATP-14_8.5-9.0	NATP-15_0.25-0.75	NATP-15_4.0-4.5	NATP-16_1.5-2.0	NATP-16_13.5-14.0	NATP-17_0.5-1.0
Sample Date:		8/24/2017	8/24/2017	8/24/2017	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006	6/13/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006
Sample Depth:		(9-9.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(0.5-1) ft BGS	(4.75-5.25) ft BGS	(1-1.5) ft BGS	(11.5-12) ft BGS	(1-1.5) ft BGS	(7-7.5) ft BGS	(1.25-1.75) ft BGS	(8.5-9) ft BGS	(0.25-0.75) ft BGS	(4-4.5) ft BGS	(1.5-2) ft BGS	(13.5-14) ft BGS	(0.5-1) ft BGS
Parameters	**Units**																
Volatile Organic Compounds																	
1,1,1-Trichloroethane	mg/kg	0.000355 U	0.000343 U	0.000371 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,1,2,2-Tetrachloroethane	mg/kg	0.000453 U	0.000437 U	0.000474 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,1,2-Trichloroethane	mg/kg	0.000344 U	0.000332 U	0.000359 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,1-Dichloroethane	mg/kg	0.000247 U	0.000238 U	0.000258 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,1-Dichloroethene	mg/kg	0.000376 U	0.000363 U	0.000393 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,2,3-Trichlorobenzene	mg/kg	0.00038 U	0.000367 U	0.000397 U	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.000481 U	0.000465 U	0.000504 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0013 U	0.00126 U	0.00136 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.000426 U	0.000411 U	0.000445 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,2-Dichlorobenzene	mg/kg	0.000378 U	0.000365 U	0.000396 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,2-Dichloroethane	mg/kg	0.000329 U	0.000317 U	0.000344 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,2-Dichloropropane	mg/kg	0.000444 U	0.000429 U	0.000465 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.000297 U	0.000286 U	0.00031 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
1,4-Dichlorobenzene	mg/kg	0.00028 U	0.000271 U	0.000293 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.00581 U	0.00561 U	0.00607 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
2-Hexanone	mg/kg	0.0017 U	0.00164 U	0.00178 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.00233 U	0.00225 U	0.00244 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Acetone	mg/kg	0.0124 U	0.012 U	0.013 U	0.019 U	0.023 U	0.026 U	0.023 U	0.019 U	0.02 U	0.019 U	0.022 U	0.021 U	0.024 U	0.027 U	0.013 J	0.019 U
Benzene	mg/kg	0.000335 U	0.000323 U	0.00035 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Bromodichloromethane	mg/kg	0.000315 U	0.000304 U	0.00033 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Bromoform	mg/kg	0.000526 U	0.000508 U	0.00055 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Bromomethane (Methyl bromide)	mg/kg	0.00166 U	0.00161 U	0.00174 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Carbon disulfide	mg/kg	0.000301 J	0.000829 J	0.000287 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Carbon tetrachloride	mg/kg	0.000407 U	0.000393 U	0.000426 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Chlorobenzene	mg/kg	0.000263 U	0.000254 U	0.000275 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Chlorobromomethane	mg/kg	0.000484 U	0.000467 U	0.000506 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.00117 U	0.00113 U	0.00123 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Chloroform (Trichloromethane)	mg/kg	0.000284 U	0.000274 U	0.000297 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Chloromethane (Methyl chloride)	mg/kg	0.000465 U	0.000449 U	0.000487 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
cis-1,2-Dichloroethene	mg/kg	0.000292 U	0.000282 U	0.000305 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0039 J	0.0021 J	0.0047 U
cis-1,3-Dichloropropene	mg/kg	0.000325 U	0.000314 U	0.00034 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Cyclohexane	mg/kg	0.000434 U	0.000419 U	0.000454 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.000463 U	0.000447 U	0.000484 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.000885 U	0.000854 U	0.000925 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Ethylbenzene	mg/kg	0.000368 U	0.000356 U	0.000385 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Isopropyl benzene	mg/kg	0.000301 U	0.000291 U	0.000315 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.00757 U	0.00731 U	0.00792 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Methyl cyclohexane	mg/kg	0.000471 U	0.000455 U	0.000493 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Methyl tert butyl ether (MTBE)	mg/kg	0.000263 U	0.000254 U	0.000275 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Methylene chloride	mg/kg	0.00124 U	0.0012 U	0.0013 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0026 J	0.0036 J	0.0029 J	0.0033 J	0.0047 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.00029 U	0.00028 U	0.000304 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.000342 U	0.000331 U	0.000358 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0027 J	0.0047 U
Toluene	mg/kg	0.000538 U	0.000771 J	0.000563 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
trans-1,2-Dichloroethene	mg/kg	0.000328 U	0.000316 U	0.000343 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
trans-1,3-Dichloropropene	mg/kg	0.000331 U	0.00032 U	0.000347 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Trichloroethene	mg/kg	0.000346 U	0.000334 U	0.000362 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0022 J	0.011	0.0047 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.000474 U	0.000458 U	0.000496 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.000453 U	0.000437 U	0.000474 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Vinyl chloride	mg/kg	0.000361 U	0.000349 U	0.000378 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U	0.0059 U	0.0068 U	0.0049 U	0.0047 U
Xylenes (total)	mg/kg	0.000866 U	0.000836 U	0.000906 U	0.014 U	0.017 U	0.019 U	0.017 U	0.014 U	0.015 U	0.014 U	0.017 U	0.016 U	0.018 U	0.021 U	0.015 U	0.014 U
Semi-volatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	mg/kg	0.0945 U	0.0913 U	0.0989 U	-	-	-	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.00943 U	0.0091 U	0.00986 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2,4,5-Trichlorophenol	mg/kg	0.0129 U	0.0125 U	0.0135 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2,4,6-Trichlorophenol	mg/kg	0.00966 U	0.00933 U	0.0101 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2,4-Dichlorophenol	mg/kg	0.00926 U	0.00894 U	0.00968 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2,4-Dimethylphenol	mg/kg	0.0584 U	0.0564 U	0.0611 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2,4-Dinitrophenol	mg/kg	0.122 U	0.117 U	0.127 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		GP-07-2017	GP-08-2017	GP-09-2017	NATP-1	NATP-1	NATP-10	NATP-10	NATP-11	NATP-11	NATP-14	NATP-14	NATP-15	NATP-15	NATP-16	NATP-16	NATP-17
Sample ID:		GP-07_9.0-9.5	GP-08_9.0-9.5	GP-09_9.0-9.5	NATP-1_0.5-1.0	NATP-1_4.75-5.25	NATP-10_1.0-1.5	NATP-10_11.5-12.0	NATP-11_1.0-1.5	NATP-11_7.0-7.5	NATP-14_1.25-1.75	NATP-14_8.5-9.0	NATP-15_0.25-0.75	NATP-15_4.0-4.5	NATP-16_1.5-2.0	NATP-16_13.5-14.0	NATP-17_0.5-1.0
Sample Date:		8/24/2017	8/24/2017	8/24/2017	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006	6/13/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006
Sample Depth:		(9-9.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(0.5-1) ft BGS	(4.75-5.25) ft BGS	(1-1.5) ft BGS	(11.5-12) ft BGS	(1-1.5) ft BGS	(7-7.5) ft BGS	(1.25-1.75) ft BGS	(8.5-9) ft BGS	(0.25-0.75) ft BGS	(4-4.5) ft BGS	(1.5-2) ft BGS	(13.5-14) ft BGS	(0.5-1) ft BGS
Parameters	**Units**																
2,4-Dinitrotoluene	mg/kg	0.00753 U	0.00727 U	0.00788 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2,6-Dinitrotoluene	mg/kg	0.00914 U	0.00883 U	0.00956 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2-Chloronaphthalene	mg/kg	0.00793 U	0.00765 U	0.00829 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2-Chlorophenol	mg/kg	0.0103 U	0.00995 U	0.0108 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2-Methylnaphthalene	mg/kg	0.0107 U	0.0103 U	0.0112 U	0.0095 J	0.015 J	0.36 U	0.41 U	0.35 U	0.37 U	0.52 J	0.072 J	0.35 U	0.35 U	0.013 J	0.38 U	0.022 J
2-Methylphenol	mg/kg	0.0122 U	0.0118 U	0.0128 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
2-Nitroaniline	mg/kg	0.00937 U	0.00904 U	0.0098 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
2-Nitrophenol	mg/kg	0.0161 U	0.0156 U	0.0169 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
3&4-Methylphenol	mg/kg	0.00971 U	0.0212 J	0.0102 U	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	0.0985 U	0.0951 U	0.103 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
3-Nitroaniline	mg/kg	0.0105 U	0.0102 U	0.011 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
4,6-Dinitro-2-methylphenol	mg/kg	0.154 U	0.149 U	0.161 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
4-Bromophenyl phenyl ether	mg/kg	0.0141 U	0.0137 U	0.0148 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
4-Chloro-3-methylphenol	mg/kg	0.00592 U	0.00571 U	0.00619 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
4-Chloroaniline	mg/kg	0.0437 U	0.0422 U	0.0457 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
4-Chlorophenyl phenyl ether	mg/kg	0.00778 U	0.00751 U	0.00814 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
4-Methylphenol	mg/kg	-	-	-	0.36 U	0.12 J	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.019 J	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
4-Nitroaniline	mg/kg	0.00793 U	0.00765 U	0.00829 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
4-Nitrophenol	mg/kg	0.0651 U	0.0629 U	0.0681 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
Acenaphthene	mg/kg	0.00796 U	0.00769 U	0.00833 U	0.0054 J	0.011	0.003 J	0.003 J	0.0026 J	0.0035 J	3.9 / 4	0.028	0.01	0.012 J	0.028	0.025	0.018 J
Acenaphthylene	mg/kg	0.00832 U	0.00804 U	0.00871 U	0.012	0.0083	0.0073 U	0.0082 U	0.0071 U	0.0075 U	0.73 U / 0.12 J	0.012	0.01	0.011 J	0.035	0.0029 J	0.033 J
Acetophenone	mg/kg	0.0933 U	0.0901 U	0.0976 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Anthracene	mg/kg	0.00784 U	0.00757 U	0.0082 U	0.016	0.036	0.0038 J	0.0056 J	0.0019 J	0.0053 J	6.8 / 6.5	0.074	0.028	0.033	0.11	0.018	0.063
Atrazine	mg/kg	0.116 U	0.112 U	0.122 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Benzaldehyde	mg/kg	0.066 U	0.0637 U	0.069 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Benzo(a)anthracene	mg/kg	0.00531 U	0.0253 J	0.00555 U	0.07	0.14	0.026	0.018	0.0083	0.017	18 / 18	0.19	0.13	0.17	0.43	0.08	0.2
Benzo(a)pyrene	mg/kg	0.0068 U	0.0229 J	0.00711 U	0.087	0.15	0.025	0.019	0.0098	0.017	16 / 15	0.16	0.12	0.16	0.38	0.11	0.16
Benzo(b)fluoranthene	mg/kg	0.00862 U	0.0276 J	0.00902 U	0.08	0.12	0.02	0.028	0.0079	0.015	14 / 16	0.14	0.2	0.15	0.51	0.09	0.14
Benzo(g,h,i)perylene	mg/kg	0.00895 U	0.0178 J	0.00936 U	0.086	0.11	0.019	0.015	0.01	0.013	10 / 10	0.11	0.1	0.13	0.021	0.097	0.14
Benzo(k)fluoranthene	mg/kg	0.00722 U	0.012 J	0.00755 U	0.064	0.13	0.02	0.0082 U	0.0088	0.014	12 / 14	0.12	0.0071 U	0.16	0.016 U	0.07	0.15
Biphenyl (1,1-Biphenyl)	mg/kg	0.00729 U	0.00704 U	0.00763 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
bis(2-Chloroethoxy)methane	mg/kg	0.00955 U	0.00922 U	0.00999 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
bis(2-Chloroethyl)ether	mg/kg	0.0111 U	0.0107 U	0.0116 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.0149 U	0.0144 U	0.0156 U	0.36 U	0.054 J	0.36 U	0.41 U	0.35 U	0.37 U	0.17 J	0.025 J	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Butyl benzylphthalate (BBP)	mg/kg	0.0128 U	0.0123 U	0.0134 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.017 J	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Caprolactam	mg/kg	0.129 U	0.125 U	0.135 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Carbazole	mg/kg	0.0065 U	0.00628 U	0.0068 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	3.6	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Chrysene	mg/kg	0.00689 U	0.0234 J	0.0072 U	0.095	0.18	0.025	0.024	0.01	0.021	20 / 20	0.23	0.18	0.22	0.46	0.091	0.27
Dibenz(a,h)anthracene	mg/kg	0.0102 U	0.00983 U	0.0107 U	0.028	0.042	0.0066 J	0.0047 J	0.0028 J	0.0049 J	4.1 / 4.3	0.053	0.041	0.048	0.15	0.037	0.048
Dibenzofuran	mg/kg	0.00643 U	0.00621 U	0.00672 U	0.36 U	0.011 J	0.36 U	0.41 U	0.35 U	0.37 U	1.7 J	0.024 J	0.35 U	0.013 J	0.015 J	0.38 U	0.74 U
Diethyl phthalate	mg/kg	0.00857 U	0.00828 U	0.00897 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Dimethyl phthalate	mg/kg	0.0067 U	0.00647 U	0.00701 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Di-n-butylphthalate (DBP)	mg/kg	0.0135 U	0.0131 U	0.0141 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.0113 U	0.0109 U	0.0118 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	0.59 J	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Fluoranthene	mg/kg	0.00615 U	0.0312 J	0.00644 U	0.063	0.18	0.032	0.033	0.013	0.037	31 E / 35	0.3	0.26	0.31	0.59	0.12	0.27
Fluorene	mg/kg	0.00846 U	0.00817 U	0.00885 U	0.0054 J	0.022	0.003 J	0.0038 J	0.0025 J	0.0042 J	2.2 / 2.2	0.029	0.0047 J	0.0081 J	0.026	0.0071 J	0.037 U
Hexachlorobenzene	mg/kg	0.0106 U	0.0103 U	0.0111 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Hexachlorobutadiene	mg/kg	0.0124 U	0.012 U	0.013 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Hexachlorocyclopentadiene	mg/kg	0.0728 U	0.0703 U	0.0762 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
Hexachloroethane	mg/kg	0.0166 U	0.0161 U	0.0174 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.00958 U	0.0152 J	0.01 U	0.069	0.095	0.016	0.014	0.0081	0.012	10 / 9.9	0.1	0.097	0.12	0.32	0.09	0.13
Isophorone	mg/kg	0.00648 U	0.00625 U	0.00677 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.28 J	0.35 U	0.4 U	0.38 U	0.74 U
Naphthalene	mg/kg	0.011 U	0.0106 U	0.0115 U	0.012	0.03	0.0073 U	0.0046 J	0.0071 U	0.0038 J	1.1 / 1	0.056	0.0063 J	0.011 J	0.033	0.0042 J	0.022 J
Nitrobenzene	mg/kg	0.00862 U	0.00833 U	0.00902 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
N-Nitrosodi-n-propylamine	mg/kg	0.0112 U	0.0109 U	0.0118 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
N-Nitrosodiphenylamine	mg/kg	0.00737 U	0.00712 U	0.00771 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Pentachlorophenol	mg/kg	0.0596 U	0.0575 U	0.0623 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.9 U	1.9 U	3.6 U
Phenanthrene	mg/kg	0.00655 U	0.0153 J	0.00685 U	0.037	0.12	0.018	0.031	0.012	0.031	23 / 24	0.31	0.13	0.16	0.28	0.056	0.15
Phenol	mg/kg	0.00862 U	0.00833 U	0.00902 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U	0.35 U	0.4 U	0.38 U	0.74 U
Pyrene	mg/kg	0.0153 U	0.0304 J	0.016 U	0.074	0.18	0.027	0.029	0.01	0.028	26 / 29	0.17	0.12	0.19	0.42	0.11	0.24
Metals																	
Aluminum	mg/kg	357	348	6160	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	mg/kg	0.93 U	0.898 U	0.973 U	0.092 B	0.061 B	7.3 U	0.022 B	7.1 U	7.5 U	0.22	0.055 B	0.19 B	0.12 B	0.054 B	0.029 B	1.5
Arsenic	mg/kg	1.35 J	1.2 J	4.36	3.5	1.6	0.59 J	10.4 J	2 J	3.2 J	2.6 J	3.7 J	1.5 J	0.72 J	3.2 J	6.2 J	6.2 J
Barium	mg/kg	6.72	6.4	27.4	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	0.157 J	0.176 J	0.355	1.2	0.37	9.9	1	0.57	0.58	0.61	0.69	0.8	0.59	0.62	0.59	0.22
Cadmium	mg/kg	0.0868 U	0.0839 U	0.0908 U	0.46	0.35	0.68	0.29	0.13	0.087 B	0.49	0.28	0.77	0.66	0.52	0.19	0.76
Calcium	mg/kg	689	331	278	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	3.51	2.46	7.66	166 J	6.4 J	10 J	14.2 J	8.8 J	12.5 J	334 J	20.9 J	1400 J	1290 J	245 J	12.8 J	301 J
Cobalt	mg/kg	1.56	1.62	6.72	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**GP-07-2017**	**GP-08-2017**	**GP-09-2017**	**NATP-1**	**NATP-1**	**NATP-10**	**NATP-10**	**NATP-11**	**NATP-11**	**NATP-14**	**NATP-14**	**NATP-15**	**NATP-15**	**NATP-16**	**NATP-16**	**NATP-17**
Sample ID:		**GP-07_9.0-9.5**	**GP-08_9.0-9.5**	**GP-09_9.0-9.5**	**NATP-1_0.5-1.0**	**NATP-1_4.75-5.25**	**NATP-10_1.0-1.5**	**NATP-10_11.5-12.0**	**NATP-11_1.0-1.5**	**NATP-11_7.0-7.5**	**NATP-14_1.25-1.75**	**NATP-14_8.5-9.0**	**NATP-15_0.25-0.75**	**NATP-15_4.0-4.5**	**NATP-16_1.5-2.0**	**NATP-16_13.5-14.0**	**NATP-17_0.5-1.0**
Sample Date:		**8/24/2017**	**8/24/2017**	**8/24/2017**	**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**
Sample Depth:		**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(0.5-1) ft BGS**	**(4.75-5.25) ft BGS**	**(1-1.5) ft BGS**	**(11.5-12) ft BGS**	**(1-1.5) ft BGS**	**(7-7.5) ft BGS**	**(1.25-1.75) ft BGS**	**(8.5-9) ft BGS**	**(0.25-0.75) ft BGS**	**(4-4.5) ft BGS**	**(1.5-2) ft BGS**	**(13.5-14) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**																
Copper	mg/kg	4.51	2.45	9.15	18.3 J	5.9 J	2.3	19.3	84.3	10.3	37.5	15.2	28.2	20.1	14.5	13.8	76.2
Iron	mg/kg	4540	4560	13800	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	3.68	4.97	7.43	18.7	15.8	3.3	24.1	6.7	12.5	53.9	17.7	17.6	16.5	22.8	16.3	44.3
Magnesium	mg/kg	277	194	2390	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/kg	38.3	31.4	336	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.0162 J	0.00335 U	0.00363 U	0.073	0.085	0.036 U	0.43	0.035 U	0.042	1.9	0.041	0.011 B	0.035 U	0.053	0.044	0.033 B
Nickel	mg/kg	2.93	3.05	13.2	12.5	4.2	0.35	17.4	12.4	13.1	13.7	15.8	15.7	10.7	11.9	12.3	56
Potassium	mg/kg	72.2 J	104 J	693	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	0.918 U	0.886 U	0.96 U	1.2	0.34 B	5.8	1	0.63	0.48 B	0.53 B	0.97	0.47 B	0.49 B	0.98	1	0.61
Silver	mg/kg	0.347 U	0.335 U	0.363 U	0.073 B	0.042 B	0.088 B	0.057 B	0.04 B	7.5 U	0.083 B	0.048 B	0.13	0.11	0.058 B	7.7 U	0.19
Sodium	mg/kg	19.6 J	13.5 J	27.5 J	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/kg	0.806 U	0.779 U	0.844 U	0.16	0.082 B	7.3 U	0.17	0.04 B	0.081 B	0.1 B	0.11	0.021 B	0.011 B	0.087 B	0.094 B	0.024 B
Vanadium	mg/kg	12.4	3.26	7.77	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	13.1 B	29.1	37	81.6	106	7.1	55.1	29.4	34.5	82.4	43.2	33.3	72.4	104	31.9	247
MetalsSEM																	
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																	
Aroclor-1016 (PCB-1016)	mg/kg	0.00434 U	0.00419 U	0.00454 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U	0.021 U	0.016 U	0.0077 U	0.037 U
Aroclor-1221 (PCB-1221)	mg/kg	0.00666 U	0.00643 U	0.00697 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U	0.021 U	0.016 U	0.0077 U	0.037 U
Aroclor-1232 (PCB-1232)	mg/kg	0.00517 U	0.005 U	0.00541 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U	0.021 U	0.016 U	0.0077 U	0.037 U
Aroclor-1242 (PCB-1242)	mg/kg	0.00395 U	0.00381 U	0.00413 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U	0.021 U	0.016 U	0.0077 U	0.037 U
Aroclor-1248 (PCB-1248)	mg/kg	0.00391 U	0.00377 U	0.00409 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.23	0.41	0.016 U	0.0077 U	0.037 U
Aroclor-1254 (PCB-1254)	mg/kg	0.00586 U	0.00565 U	0.00613 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U	0.021 U	0.016 U	0.0077 U	0.037 U
Aroclor-1260 (PCB-1260)	mg/kg	0.00613 U	0.00592 U	0.00641 U	0.085	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.031 J	0.019 J	0.031 J	0.016 U	0.0077 U	0.037 U
Total PCBs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																	
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	-	-	-	92.6	83.4	91.1	81.2	93.9	89.4	91.1	87.6	93.9	93.3	82.6	86.5	89.1

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-17	NATP-2	NATP-2	NATP-3	NATP-3	NATP-4	NATP-4	NATP-5	NATP-5	NATP-5	NATP-6	NATP-6	NATP-7	NATP-7	NATP-8	NATP-8
Sample ID:		NATP-17_5.75-6.25	NATP-2_1.5-2.0	NATP-2_11.5-12.0	NATP-3_0.5-1.0	NATP-3_6.25-6.75	NATP-4_1.5-2.0	NATP-4_6.0-6.5	NATP-5_0.5-1.0	DUP-001	NATP-5_10.5-11.0	NATP-6_1.5-2.0	NATP-6_12.0-12.5	NATP-7_0.25-0.75	NATP-7_11.5-12.0	NATP-8_0.5-1.0	NATP-8_11.5-11.75
Sample Date:		6/14/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006
Sample Depth:		(5.75-6.25) ft BGS	(1.5-2) ft BGS	(11.5-12) ft BGS	(0.5-1) ft BGS	(6.25-6.75) ft BGS	(1.5-2) ft BGS	(6-6.5) ft BGS	(0.5-1) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(1.5-2) ft BGS	(12-12.5) ft BGS	(0.25-0.75) ft BGS	(11.5-12) ft BGS	(0.5-1) ft BGS	(11.5-11.75) ft BGS
Parameters	**Units**																
Volatile Organic Compounds																	
1,1,1-Trichloroethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,1,2-Trichloroethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,1-Dichloroethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,1-Dichloroethene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,2-Dichlorobenzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,2-Dichloroethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,2-Dichloropropane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
1,4-Dichlorobenzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
2-Hexanone	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Acetone	mg/kg	0.021 U	0.026 U	0.02 U	0.023 U	0.024 U	0.019 U	0.02 U	0.018 U	0.025 U	0.024 U	0.019 U	0.022 U	0.022 U	0.02 U	0.017 U	0.029 U
Benzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Bromodichloromethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Bromoform	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Bromomethane (Methyl bromide)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Carbon disulfide	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Carbon tetrachloride	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Chlorobenzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Chloroform (Trichloromethane)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Chloromethane (Methyl chloride)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
cis-1,2-Dichloroethene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
cis-1,3-Dichloropropene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Cyclohexane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Ethylbenzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Isopropyl benzene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Methyl cyclohexane	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Methylene chloride	mg/kg	0.0036 J	0.0064 U	0.0051 U	0.0033 J	0.0026 J	0.0019 J	0.0024 J	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Toluene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
trans-1,2-Dichloroethene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
trans-1,3-Dichloropropene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Trichloroethene	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Vinyl chloride	mg/kg	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U
Xylenes (total)	mg/kg	0.016 U	0.019 U	0.015 U	0.018 U	0.018 U	0.014 U	0.015 U	0.014 U	0.019 U	0.018 U	0.014 U	0.016 U	0.017 U	0.015 U	0.013 U	0.022 U
Semi-volatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2,4,5-Trichlorophenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2,4,6-Trichlorophenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2,4-Dichlorophenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2,4-Dimethylphenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2,4-Dinitrophenol	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-17	NATP-2	NATP-2	NATP-3	NATP-3	NATP-4	NATP-4	NATP-5	NATP-5	NATP-5	NATP-6	NATP-6	NATP-7	NATP-7	NATP-8	NATP-8
Sample ID:		NATP-17_5.75-6.25	NATP-2_1.5-2.0	NATP-2_11.5-12.0	NATP-3_0.5-1.0	NATP-3_6.25-6.75	NATP-4_1.5-2.0	NATP-4_6.0-6.5	NATP-5_0.5-1.0	DUP-001	NATP-5_10.5-11.0	NATP-6_1.5-2.0	NATP-6_12.0-12.5	NATP-7_0.25-0.75	NATP-7_11.5-12.0	NATP-8_0.5-1.0	NATP-8_11.5-11.75
Sample Date:		6/14/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006
Sample Depth:		(5.75-6.25) ft BGS	(1.5-2) ft BGS	(11.5-12) ft BGS	(0.5-1) ft BGS	(6.25-6.75) ft BGS	(1.5-2) ft BGS	(6-6.5) ft BGS	(0.5-1) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(1.5-2) ft BGS	(12-12.5) ft BGS	(0.25-0.75) ft BGS	(11.5-12) ft BGS	(0.5-1) ft BGS	(11.5-11.75) ft BGS
Parameters	**Units**																
2,4-Dinitrotoluene	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2,6-Dinitrotoluene	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2-Chloronaphthalene	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2-Chlorophenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2-Methylnaphthalene	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.062 J	0.41 U	0.014 J	0.37 U	0.017 J	0.036 J
2-Methylphenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
2-Nitroaniline	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
2-Nitrophenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
3-Nitroaniline	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
4,6-Dinitro-2-methylphenol	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
4-Bromophenyl phenyl ether	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
4-Chloro-3-methylphenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
4-Chloroaniline	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
4-Chlorophenyl phenyl ether	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
4-Methylphenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.02 J	0.016 J	0.38 U	0.037 J	0.35 U	0.37 U	0.35 U	0.11 J
4-Nitroaniline	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
4-Nitrophenol	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
Acenaphthene	mg/kg	0.15	0.0028 J	0.0072 U	0.28 U	0.0045 J	0.012	0.0086	0.25 J	0.013	0.015	0.017	0.0094	0.0025 J	0.0051 J	0.0064 J	0.023
Acenaphthylene	mg/kg	0.041	0.0027 J	0.0072 U	0.28 U	0.0034 J	0.003 J	0.0078 U	0.28 U	0.0096	0.016	0.016	0.01	0.007 U	0.0054 J	0.0077 J	0.025
Acetophenone	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Anthracene	mg/kg	0.31	0.0082	0.0023 J	0.28 U	0.0088	0.025	0.009	0.24 J	0.023	0.039	0.021	0.025	0.0023 J	0.0092	0.015	0.067
Atrazine	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Benzaldehyde	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Benzo(a)anthracene	mg/kg	1.4	0.074	0.018	1.7	0.046	0.07	0.025	5.4	0.062	0.1	0.033	0.059	0.0068 J	0.031	0.052	0.18
Benzo(a)pyrene	mg/kg	1.2	0.072	0.016	1.3	0.058	0.07	0.033	3.3	0.052	0.095	0.032	0.049	0.0054 J	0.03	0.07	0.16
Benzo(b)fluoranthene	mg/kg	1	0.088	0.014	0.82	0.046	0.061	0.024	2	0.038	0.074	0.024	0.041	0.011	0.028	0.077	0.12
Benzo(g,h,i)perylene	mg/kg	0.83	0.14	0.011	2.4	0.048	0.059	0.025	2.7	0.039	0.068	0.026	0.041	0.013	0.025	0.09	0.12
Benzo(k)fluoranthene	mg/kg	0.84	0.0072 U	0.013	0.28 U	0.039	0.047	0.023	0.28 U	0.044	0.067	0.027	0.039	0.007 U	0.026	0.049	0.13
Biphenyl (1,1-Biphenyl)	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
bis(2-Chloroethoxy)methane	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
bis(2-Chloroethyl)ether	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.026 J	0.37 U	0.38 U	6.9 U	0.03 J	0.03 J	0.38 U	0.028 J	0.022 J	0.37 U	0.35 U	0.055 J
Butyl benzylphthalate (BBP)	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.014 J	0.41 U	0.35 U	0.37 U	0.019 J	0.037 J
Caprolactam	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Carbazole	mg/kg	0.15 J	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Chrysene	mg/kg	1.8	0.18	0.02	4.3	0.062	0.081	0.028	14	0.069	0.12	0.043	0.07	0.011	0.044	0.082	0.21
Dibenz(a,h)anthracene	mg/kg	0.33	0.037	0.0042 J	0.71	0.019	0.021	0.0097	1.3	0.015	0.026	0.0097	0.015	0.0022 J	0.0075	0.024	0.033
Dibenzofuran	mg/kg	0.044 J	0.72 U	0.36 U	6.9 U	0.42 U	0.0096 J	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.0089 J	0.023 J
Diethyl phthalate	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Dimethyl phthalate	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Di-n-butylphthalate (DBP)	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Fluoranthene	mg/kg	1.9	0.075	0.02	0.47	0.049	0.13	0.042	1.9	0.086	0.13	0.044	0.084	0.0079	0.056	0.064	0.27
Fluorene	mg/kg	0.097	0.0072 U	0.0072 U	0.28 U	0.0057 J	0.012	0.0043 J	0.28 U	0.012	0.015	0.02	0.015	0.004 J	0.0062 J	0.014 U	0.035
Hexachlorobenzene	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Hexachlorobutadiene	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Hexachlorocyclopentadiene	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
Hexachloroethane	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.78	0.05	0.0094	0.52	0.039	0.051	0.023	0.84	0.036	0.059	0.023	0.036	0.006 J	0.022	0.068	0.088
Isophorone	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Naphthalene	mg/kg	0.035 J	0.0066 J	0.0072 U	0.28 U	0.01	0.0083	0.0027 J	0.1 J	0.015	0.016	0.025	0.016	0.011	0.01	0.018	0.059
Nitrobenzene	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
N-Nitrosodi-n-propylamine	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
N-Nitrosodiphenylamine	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Pentachlorophenol	mg/kg	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U	2 U	1.7 U	1.8 U	1.7 U	2.2 U
Phenanthrene	mg/kg	0.99	0.055	0.0097	0.55	0.026	0.092	0.021	0.27 J	0.066	0.1	0.053	0.071	0.024	0.039	0.054	0.18
Phenol	mg/kg	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U
Pyrene	mg/kg	1.9	0.073	0.017	2.4	0.05	0.11	0.042	8.2	0.088	0.15	0.082	0.083	0.011	0.047	0.047	0.23
Metals																	
Aluminum	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	mg/kg	0.31	0.18 B	0.0087 B	0.18 B	8.5 U	0.048 B	0.022 B	0.21	0.013 B	8.5 U	0.07 B	0.024 B	0.097 B	0.16 B	0.24	0.11 B
Arsenic	mg/kg	3.2 J	2.6	1.7	2.3	1.4	3.5	3.7	2.4	2.2	1.7	3.2	2	6.1	8.9 J	2.7 J	4 J
Barium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	0.38	3.1	7.2 U	0.8	0.25	0.42	0.36	1.1	0.29	0.23	2.6	0.6	1.3	1.5	0.87	2.6
Cadmium	mg/kg	0.76	0.45	0.043 B	0.42	0.17	0.13	0.12	0.53	0.21	0.15	1	0.46	0.14	0.39	0.34	2.1
Calcium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	1490 J	921 J	4.2 J	1180 J	4.6 J	16 J	11.1 J	1530 J	5.1 J	4.8 J	44.1 J	6.5 J	32.9 J	149 J	1160 J	21.7 J
Cobalt	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**NATP-17**	**NATP-2**	**NATP-2**	**NATP-3**	**NATP-3**	**NATP-4**	**NATP-4**	**NATP-5**	**NATP-5**	**NATP-5**	**NATP-6**	**NATP-6**	**NATP-7**	**NATP-7**	**NATP-8**	**NATP-8**
Sample ID:		**NATP-17_5.75-6.25**	**NATP-2_1.5-2.0**	**NATP-2_11.5-12.0**	**NATP-3_0.5-1.0**	**NATP-3_6.25-6.75**	**NATP-4_1.5-2.0**	**NATP-4_6.0-6.5**	**NATP-5_0.5-1.0**	**DUP-001**	**NATP-5_10.5-11.0**	**NATP-6_1.5-2.0**	**NATP-6_12.0-12.5**	**NATP-7_0.25-0.75**	**NATP-7_11.5-12.0**	**NATP-8_0.5-1.0**	**NATP-8_11.5-11.75**
Sample Date:		**6/14/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**
Sample Depth:		**(5.75-6.25) ft BGS**	**(1.5-2) ft BGS**	**(11.5-12) ft BGS**	**(0.5-1) ft BGS**	**(6.25-6.75) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(0.5-1) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(1.5-2) ft BGS**	**(12-12.5) ft BGS**	**(0.25-0.75) ft BGS**	**(11.5-12) ft BGS**	**(0.5-1) ft BGS**	**(11.5-11.75) ft BGS**
Parameters	**Units**																
Copper	mg/kg	23.9	19.4 J	2.1 J	23.4 J	5.2 J	8.7 J	10.5 J	27.2 J	6.2 J	3.8 J	16.3 J	9.1 J	26.6 J	25.6	39.5	34.4
Iron	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	61.5	10.7	4.2	22.8	5.5	6.5	8.1	12.6	5.5	4.5	21.2	10	14	23.2	19.8	51.9
Magnesium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.072	0.011 B	0.012 B	0.017 B	0.025 B	0.022 B	0.017 B	0.017 B	0.021 B	8.5 U	0.039	0.054	0.0097 B	0.044	0.028 B	0.27
Nickel	mg/kg	15.6	7.5	0.79	11.2	4.5	9.2	11.7	16.7	3.5	3.3	7.5	5.6	21.4	15.9	16.3	19
Potassium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	0.56	2.7	0.075 B	0.58	0.15 B	0.61	0.18 B	0.81	0.09 B	0.075 B	1.4	0.21 B	0.36 B	0.48 B	0.6	0.88
Silver	mg/kg	0.15	0.078 B	7.2 U	0.11	8.5 U	7.5 U	7.8 U	0.067 B	8.8 U	8.5 U	0.15	0.064 B	0.044 B	0.089 B	0.093 B	0.29
Sodium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/kg	0.024 B	0.021 B	0.056 B	0.02 B	0.051 B	0.036 B	0.045 B	0.011 B	0.046 B	0.037 B	0.074 B	0.049 B	0.19	0.055 B	0.047 B	0.14
Vanadium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	126	35.7	3	91.5	47.3	33.9	36.3	55.2	37.3	29.9	137	78.8	68.4	116	108	371
MetalsSEM																	
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																	
Aroclor-1016 (PCB-1016)	mg/kg	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U	0.0082 U	0.007 U	7.4 U	14 U	9.3 U
Aroclor-1221 (PCB-1221)	mg/kg	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U	0.0082 U	0.007 U	7.4 U	14 U	9.3 U
Aroclor-1232 (PCB-1232)	mg/kg	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U	0.0082 U	0.007 U	7.4 U	14 U	9.3 U
Aroclor-1242 (PCB-1242)	mg/kg	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U	0.0082 U	0.007 U	7.4 U	14 U	9.3 U
Aroclor-1248 (PCB-1248)	mg/kg	0.51	0.038	0.0072 U	2.2	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U	0.0082 U	0.007 U	19 J	14 J	20 J
Aroclor-1254 (PCB-1254)	mg/kg	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U	0.0082 U	0.007 U	7.4 U	14 U	9.3 U
Aroclor-1260 (PCB-1260)	mg/kg	0.036 U	0.23	0.0072 U	2.7	0.0085 J	0.0075 U	0.0078 U	0.015 J	0.0088 U	0.0085 U	0.0076 U	0.0082 U	0.007 U	16 J	42	39 J
Total PCBs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																	
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	91.8	92.3	92.7	96.2	78.6	88.7	85.9	95.3	76.2	78.1	87.9	81.1	94.7	89.6	93.1	71.4

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-9	NATP-9	SD201-16	SD202-16	SD203-16	SD204-16	STREAM-1	TP-01-2017	TP-02-2017	TP-03-2017	TP-04-2017	TP-04-2017	TP-05-2017	TP-06-2017
Sample ID:		NATP-9_1.5-2.0	NATP-9_14.5-15.0	SD-83101-090916-CJM-017	SD-83101-090916-CJM-018	SD-83101-090916-CJM-020	SD-83101-090916-CJM-019	STREAM-1_1.0-1.5	TP-01-10.5-11.0	TP-02-5.0-5.5	TP-03-6.5-7.0	DUP-01_082317	TP-04_10.5-11.0	TP-05_9.5-10.0	TP-06-5.0-5.5
Sample Date:		6/13/2006	6/13/2006	9/9/2016	9/9/2016	9/9/2016	9/9/2016	8/24/2017	8/22/2017	8/22/2017	8/22/2017	8/23/2017	8/23/2017	8/23/2017	8/22/2017
Sample Depth:		(1.5-2) ft BGS	(14.5-15) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(1-1.5) ft BGS	(10.5-11) ft BGS	(5-5.5) ft BGS	(6.5-7) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(9.5-10) ft BGS	(5-5.5) ft BGS
Parameters	**Units**														
Volatile Organic Compounds															
1,1,1-Trichloroethane	mg/kg	0.005 U	0.005 U	0.0025 U	0.0019 U	0.0021 U	0.0047 U	0.000732 U	0.00796 U	0.0103 U	0.0123 U	0.00035 U	0.000428 U	0.0133 U	0.0136 U
1,1,2,2-Tetrachloroethane	mg/kg	0.005 U	0.005 U	0.0094 U	0.0069 U	0.0079 U	0.017 U	0.000934 U	0.0102 U	0.0131 U	0.0156 U	0.000447 U	0.000546 U	0.0171 U	0.0174 U
1,1,2-Trichloroethane	mg/kg	0.005 U	0.005 U	0.0066 U	0.0049 U	0.0056 U	0.012 U	0.000709 U	0.00771 U	0.00993 U	0.0119 U	0.000339 U	0.000415 U	0.0129 U	0.528 U
1,1-Dichloroethane	mg/kg	0.005 U	0.005 U	0.0027 U	0.0020 U	0.0022 U	0.0049 U	0.000509 U	0.00554 U	0.00714 U	0.00852 U	0.000244 U	0.000298 U	0.00927 U	0.00947 U
1,1-Dichloroethene	mg/kg	0.005 U	0.005 U	0.0034 U	0.0025 U	0.0029 U	0.0064 U	0.000774 U	0.00843 U	0.0109 U	0.013 U	0.000371 U	0.000453 U	0.0141 U	0.0144 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	0.000783 U	0.00851 U	0.011 U	0.0131 U	0.000375 U	0.000458 U	0.0143 U	0.0146 U
1,2,4-Trichlorobenzene	mg/kg	0.005 U	0.005 U	0.0096 U	0.0071 U	0.0081 U	0.018 U	0.000992 U	0.0108 U	0.0139 U	0.0167 U	0.000475 U	0.000581 U	0.018 U	0.0185 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.005 U	0.005 U	0.011 U	0.0079 U	0.0090 U	0.020 U	0.0027 U	0.0292 U	0.0376 U	0.0449 U	0.00129 U	0.00157 U	0.049 U	0.0501 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.005 U	0.005 U	0.0051 U	0.0037 U	0.0042 U	0.0094 U	0.000876 U	0.00955 U	0.0123 U	0.0147 U	0.00042 U	0.000513 U	0.016 U	0.654 U
1,2-Dichlorobenzene	mg/kg	0.005 U	0.005 U	0.0077 U	0.0057 U	0.0065 U	0.014 U	0.000781 U	0.00849 U	0.0109 U	0.0131 U	0.000373 U	0.000456 U	0.0142 U	0.0145 U
1,2-Dichloroethane	mg/kg	0.005 U	0.005 U	0.0026 U	0.0020 U	0.0022 U	0.0049 U	0.000679 U	0.00738 U	0.0095 U	0.0113 U	0.000324 U	0.000397 U	0.0124 U	0.0126 U
1,2-Dichloropropane	mg/kg	0.005 U	0.005 U	0.0044 U	0.0033 U	0.0037 U	0.0082 U	0.000916 U	0.00997 U	0.0128 U	0.0153 U	0.000438 U	0.000537 U	0.0167 U	0.017 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.005 U	0.005 U	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000611 U	0.00665 U	0.00858 U	0.0102 U	0.000293 U	0.000358 U	0.0111 U	0.0114 U
1,4-Dichlorobenzene	mg/kg	0.005 U	0.005 U	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000579 U	0.00628 U	0.0081 U	0.00968 U	0.000277 U	0.000338 U	0.0105 U	0.0108 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.005 U	0.005 U	0.0071 U	0.0052 U	0.0059 U	0.013 U	0.0422	0.13 U	0.168 U	0.201 U	0.00573 U	0.007 U	0.218 U	0.222 U
2-Hexanone	mg/kg	0.005 U	0.005 U	0.0096 U	0.0071 U	0.0081 U	0.018 U	0.0638	0.0381 U	0.0491 U	0.0587 U	0.00168 U	0.00205 U	0.0638 U	2.61 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.005 U	0.005 U	0.0084 U	0.0062 U	0.0071 U	0.016 U	0.00712 J	0.0523 U	0.0674 U	0.0806 U	0.0023 U	0.00281 U	0.0877 U	3.57 U
Acetone	mg/kg	0.02 U	0.02 U	0.024 U	0.018 U	0.020 U	0.045 U	0.348	0.279 U	0.359 U	0.429 U	0.0122 U	0.015 U	0.466 U	0.475 U
Benzene	mg/kg	0.005 U	0.005 U	0.0072 U	0.0053 U	0.0060 U	0.013 U	0.00069 U	0.00751 U	0.00968 U	0.0116 U	0.000331 U	0.000405 U	0.0126 U	0.0129 U
Bromodichloromethane	mg/kg	0.005 U	0.005 U	0.0047 U	0.0035 U	0.0040 U	0.0088 U	0.000648 U	0.00706 U	0.00911 U	0.0109 U	0.000311 U	0.00038 U	0.0118 U	0.0121 U
Bromoform	mg/kg	0.005 U	0.005 U	0.011 U	0.0080 U	0.0091 U	0.020 U	0.00108 U	0.0118 U	0.0152 U	0.0182 U	0.000519 U	0.000635 U	0.0197 U	0.0202 U
Bromomethane (Methyl bromide)	mg/kg	0.005 U	0.005 U	0.0041 U	0.0030 U	0.0034 U	0.0075 U	0.00342 U	0.0372 U	0.0481 U	0.0574 U	0.00164 U	0.00201 U	0.0624 U	0.0637 U
Carbon disulfide	mg/kg	0.005 U	0.005 U	0.0050 U	0.0037 U	0.0042 U	0.0093 U	0.000847 J	0.00615 U	0.627	1.44	0.000271 U	0.000906 J	3.28	0.478
Carbon tetrachloride	mg/kg	0.005 U	0.005 U	0.0032 U	0.0024 U	0.0027 U	0.0060 U	0.000839 U	0.00913 U	0.0118 U	0.0141 U	0.000402 U	0.000491 U	0.0153 U	0.0156 U
Chlorobenzene	mg/kg	0.005 U	0.005 U	0.0053 U	0.0039 U	0.0044 U	0.0098 U	0.000541 U	0.0059 U	0.0076 U	0.00908 U	0.00026 U	0.000318 U	0.00987 U	0.404 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	0.000997 U	0.0108 U	0.014 U	0.0167 U	0.000477 U	0.000584 U	0.0182 U	0.0185 U
Chloroethane	mg/kg	0.005 U	0.005 U	0.0050 U	0.0037 U	0.0042 U	0.0093 U	0.00242 U	0.0263 U	0.0339 U	0.0405 U	0.00116 U	0.00141 U	0.0441 U	0.045 U
Chloroform (Trichloromethane)	mg/kg	0.005 U	0.005 U	0.0030 U	0.0022 U	0.0025 U	0.0055 U	0.000586 U	0.00637 U	0.0082 U	0.00981 U	0.00028 U	0.000342 U	0.0107 U	0.0109 U
Chloromethane (Methyl chloride)	mg/kg	0.005 U	0.005 U	0.0063 U	0.0046 U	0.0052 U	0.012 U	0.000957 U	0.0104 U	0.0135 U	0.0161 U	0.000459 U	0.000562 U	0.0175 U	0.0179 U
cis-1,2-Dichloroethene	mg/kg	0.005 U	0.005 U	0.0032 U	0.0023 U	0.0027 U	0.0059 U	0.0006 U	0.00654 U	0.0213 J	0.0163 J	0.000288 U	0.000352 U	0.0158 J	0.0112 U
cis-1,3-Dichloropropene	mg/kg	0.005 U	0.005 U	0.0052 U	0.0038 U	0.0043 U	0.0096 U	0.000669 U	0.00729 U	0.00939 U	0.0112 U	0.000321 U	0.000392 U	0.0122 U	0.499 U
Cyclohexane	mg/kg	0.005 U	0.005 U	0.0035 U	0.0026 U	0.0029 U	0.0065 U	0.000895 U	0.00974 U	0.0126 U	0.015 U	0.000428 U	0.000524 U	0.0163 U	0.0167 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.005 U	0.005 U	0.0059 U	0.0043 U	0.0049 U	0.011 U	0.000953 U	0.0104 U	0.0134 U	0.0161 U	0.000457 U	0.000559 U	0.0174 U	0.71 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.005 U	0.005 U	0.0070 U	0.0051 U	0.0058 U	0.013 U	0.00182 U	0.0199 U	0.0255 U	0.0306 U	0.000873 U	0.00107 U	0.0332 U	0.0339 U
Ethylbenzene	mg/kg	0.005 U	0.005 U	0.0047 U	0.0035 U	0.0039 U	0.0087 U	0.00076 U	0.00826 U	0.0106 U	0.0127 U	0.000364 U	0.000445 U	0.0138 U	0.566 U
Isopropyl benzene	mg/kg	0.005 U	0.005 U	0.0081 U	0.0060 U	0.0068 U	0.015 U	0.000621 U	0.00676 U	0.00872 U	0.0104 U	0.000297 U	0.000363 U	0.0113 U	0.0116 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.005 U	0.005 U	0.031 U	0.023 U	0.026 U	0.058 U	0.0275 J	0.17 U	0.408 J	0.502 J	0.00747 U	0.00914 U	0.876 J	0.36 J
Methyl cyclohexane	mg/kg	0.005 U	0.005 U	0.0043 U	0.0032 U	0.0036 U	0.0079 U	0.000971 U	0.0106 U	0.0136 U	0.0162 U	0.000465 U	0.000569 U	0.0177 U	0.018 U
Methyl tert butyl ether (MTBE)	mg/kg	0.005 U	0.005 U	0.0059 U	0.0044 U	0.0050 U	0.011 U	0.000541 U	0.0059 U	0.0076 U	0.00908 U	0.00026 U	0.000318 U	0.00987 U	0.0101 U
Methylene chloride	mg/kg	0.005 U	0.005 U	0.0013 U	0.0030 U	0.0054 U	0.0083 U	0.00256 U	0.0279 U	0.0359 U	0.0429 U	0.00122 U	0.0015 U	0.0466 U	0.0475 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.005 U	0.005 U	0.0055 U	0.0041 U	0.0046 U	0.010 U	0.000597 U	0.00651 U	0.00839 U	0.01 U	0.000286 U	0.000351 U	0.0109 U	0.0111 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.005 U	0.005 U	0.0029 U	0.0022 U	0.0025 U	0.0054 U	0.000706 U	0.00768 U	0.0099 U	0.0118 U	0.000338 U	0.000413 U	0.0129 U	0.526 U
Toluene	mg/kg	0.005 U	0.005 U	0.0086 U	0.0063 U	0.0072 U	0.016 U	0.00187 J	0.0695 J	0.831	0.657	0.000531 U	0.00065 U	0.539	0.826 U
trans-1,2-Dichloroethene	mg/kg	0.005 U	0.005 U	0.0024 U	0.0018 U	0.0020 U	0.0045 U	0.000674 U	0.00735 U	0.00947 U	0.0113 U	0.000323 U	0.000395 U	0.0123 U	0.0126 U
trans-1,3-Dichloropropene	mg/kg	0.005 U	0.005 U	0.0057 U	0.0042 U	0.0048 U	0.011 U	0.000683 U	0.00743 U	0.00958 U	0.0114 U	0.000327 U	0.000399 U	0.0124 U	0.509 U
Trichloroethene	mg/kg	0.005 U	0.005 U	0.0027 U	0.0020 U	0.0022 U	0.0049 U	0.000713 U	0.00776 U	0.01 U	0.012 U	0.000342 U	0.000417 U	0.013 U	0.0133 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.005 U	0.005 U	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000976 U	0.0106 U	0.0137 U	0.0164 U	0.000468 U	0.000571 U	0.0178 U	0.0182 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.005 U	0.005 U	0.0033 U	0.0024 U	0.0027 U	0.0061 U	0.000934 U	0.0102 U	0.0131 U	0.0156 U	0.000447 U	0.000546 U	0.0171 U	0.0174 U
Vinyl chloride	mg/kg	0.005 U	0.005 U	0.0060 U	0.0044 U	0.0051 U	0.011 U	0.000744 U	0.0081 U	0.0104 U	0.0125 U	0.000356 U	0.000435 U	0.0136 U	0.0139 U
Xylenes (total)	mg/kg	0.015 U	0.015 U	0.011 U	0.0079 U	0.0090 U	0.020 U	0.00178 U	0.0195 U	0.025 U	0.03 U	0.000855 U	0.00105 U	0.0325 U	1.33 U
Semi-volatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	3.53 U	0.0793 U	4.37 U	4.71 U	0.0933 U	0.106 U	0.362 U	0.256 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.36 U	0.38 U	0.13 U	0.056 U	0.14 U	0.032 U	0.353 U	0.00791 UJ3	0.436 U	0.469 U	0.0093 U	0.0105 U	0.036 U	0.0256 U
2,4,5-Trichlorophenol	mg/kg	0.36 U	0.38 U	0.65 U	0.27 U	0.68 U	0.16 U	0.483 U	0.0108 U	0.597 U	0.642 U	0.0127 U	0.0144 U	0.0493 U	0.0351 U
2,4,6-Trichlorophenol	mg/kg	0.36 U	0.38 U	0.92 U	0.39 U	0.95 U	0.22 U	0.363 U	0.00811 U	0.448 U	0.482 U	0.00954 U	0.0108 U	0.037 U	0.0263 U
2,4-Dichlorophenol	mg/kg	0.36 U	0.38 U	0.12 U	0.052 U	0.13 U	0.030 U	0.346 U	0.00776 U	0.427 U	0.46 U	0.00913 U	0.0103 U	0.0354 U	0.0251 U
2,4-Dimethylphenol	mg/kg	0.36 U	0.38 U	0.96 U	0.40 U	1.0 U	0.23 U	2.19 U	0.049 UJ3J4	2.7 UJ3J4	2.9 UJ3J4	0.0577 U	0.0653 U	0.223 U	0.159 UJ3J4
2,4-Dinitrophenol	mg/kg	1.7 U	1.8 U	7.3 U	3.1 U	7.6 U	1.8 U	4.55 U	0.102 U	5.62 U	6.05 U	0.12 UJ3	0.136 UJ3	0.464 UJ3	0.33 U

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-9	NATP-9	SD201-16	SD202-16	SD203-16	SD204-16	STREAM-1	TP-01-2017	TP-02-2017	TP-03-2017	TP-04-2017	TP-04-2017	TP-05-2017	TP-06-2017
Sample ID:		NATP-9_1.5-2.0	NATP-9_14.5-15.0	SD-83101-090916-CJM-017	SD-83101-090916-CJM-018	SD-83101-090916-CJM-020	SD-83101-090916-CJM-019	STREAM-1_1.0-1.5	TP-01-10.5-11.0	TP-02-5.0-5.5	TP-03-6.5-7.0	DUP-01_082317	TP-04_10.5-11.0	TP-05_9.5-10.0	TP-06-5.0-5.5
Sample Date:		6/13/2006	6/13/2006	9/9/2016	9/9/2016	9/9/2016	9/9/2016	8/24/2017	8/22/2017	8/22/2017	8/22/2017	8/23/2017	8/23/2017	8/23/2017	8/22/2017
Sample Depth:		(1.5-2) ft BGS	(14.5-15) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(1-1.5) ft BGS	(10.5-11) ft BGS	(5-5.5) ft BGS	(6.5-7) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(9.5-10) ft BGS	(5-5.5) ft BGS
Parameters	**Units**														
2,4-Dinitrotoluene	mg/kg	0.36 U	0.38 U	0.49 U	0.21 U	0.51 U	0.12 U	0.281 U	0.00632 U	0.349 U	0.375 U	0.00743 U	0.00842 U	0.0287 U	0.0204 U
2,6-Dinitrotoluene	mg/kg	0.36 U	0.38 U	0.63 U	0.27 U	0.66 U	0.15 U	0.342 U	0.00767 U	0.423 U	0.456 U	0.00902 U	0.0102 U	0.0349 U	0.0248 U
2-Chloronaphthalene	mg/kg	0.36 U	0.38 U	0.13 U	0.054 U	0.13 U	0.031 U	0.297 U	0.00665 U	0.367 U	0.395 U	0.00782 U	0.00886 U	0.0303 U	0.0216 U
2-Chlorophenol	mg/kg	0.36 U	0.38 U	0.50 U	0.21 U	0.52 U	0.12 U	0.386 U	0.00865 U	0.476 U	0.513 U	0.0102 U	0.0115 U	0.0393 U	0.028 U
2-Methylnaphthalene	mg/kg	0.36 U	0.38 U	0.22 J	0.12 J	0.26 J	0.044 J	0.4 U	0.00896 U	0.493 U	0.531 U	0.0105 U	0.0119 U	0.0819 J	0.0446 J
2-Methylphenol	mg/kg	0.36 U	0.38 U	0.43 U	0.18 U	0.45 U	0.10 U	0.458 U	0.0103 U	0.565 U	0.608 U	0.0121 U	0.0137 U	0.0467 U	0.0332 U
2-Nitroaniline	mg/kg	1.7 U	1.8 U	2.7 U	1.2 U	2.9 U	0.67 U	0.351 U	0.00786 U	0.433 U	0.466 U	0.00924 U	0.0105 U	0.0357 U	0.0254 U
2-Nitrophenol	mg/kg	0.36 U	0.38 U	0.68 U	0.28 U	0.70 U	0.16 U	0.604 U	0.0135 U	0.746 U	0.803 U	0.0159 U	0.018 U	0.0616 U	0.0438 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	0.365 U	0.00815 U	0.535 J	1.08 J	0.00959 U	0.0302 J	0.586 J	0.453 J
3,3'-Dichlorobenzidine	mg/kg	1.7 U	1.8 U	0.65 U	0.27 U	0.67 U	0.16 U	3.7 U	0.0826 U	4.56 U	4.91 U	0.0972 U	0.11 U	0.376 U	0.268 U
3-Nitroaniline	mg/kg	1.7 U	1.8 U	2.5 U	1.1 U	2.6 U	0.62 U	0.395 U	0.00884 U	0.488 U	0.525 U	0.0104 U	0.0118 U	0.0403 U	0.0287 U
4,6-Dinitro-2-methylphenol	mg/kg	1.7 U	1.8 U	2.5 U	1.0 U	2.6 U	0.60 U	5.76 U	0.129 U	7.11 U	7.66 U	0.152 U	0.172 U	0.587 U	0.418 U
4-Bromophenyl phenyl ether	mg/kg	0.36 U	0.38 U	0.53 U	0.22 U	0.56 U	0.13 U	0.53 U	0.0119 U	0.654 U	0.704 U	0.014 U	0.0158 U	0.054 U	0.0384 U
4-Chloro-3-methylphenol	mg/kg	0.36 U	0.38 U	0.56 U	0.24 U	0.59 U	0.14 U	0.222 U	0.00496 U	0.274 U	0.295 U	0.00584 U	0.00661 U	0.0226 U	0.0161 U
4-Chloroaniline	mg/kg	0.36 U	0.38 U	0.49 U	0.21 U	0.51 U	0.12 U	1.64 U	0.0366 U	2.02 U	2.18 U	0.0431 U	0.0488 U	0.167 U	0.119 U
4-Chlorophenyl phenyl ether	mg/kg	0.36 U	0.38 U	0.68 U	0.29 U	0.71 U	0.17 U	0.29 U	0.00652 U	0.36 U	0.388 U	0.00768 U	0.00869 U	0.0297 U	0.0211 U
4-Methylphenol	mg/kg	0.36 U	0.38 U	0.60 U	0.25 U	0.62 U	0.15 U	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	1.7 U	1.8 U	2.5 U	1.0 U	2.6 U	0.61 U	0.297 U	0.00665 U	0.367 U	0.395 U	0.00782 U	0.00886 U	0.0303 U	0.0216 U
4-Nitrophenol	mg/kg	1.7 U	1.8 U	2.2 U	0.94 U	2.3 U	0.55 U	2.44 U	0.0546 U	3.01 U	3.24 U	0.0643 U	0.0728 U	0.25 U	0.177 U
Acenaphthene	mg/kg	0.0024 J	0.0077 U	0.29 J	0.049 U	0.67 J	0.092 J	0.297 U	0.00668 U	0.574 J	0.397 U	0.00786 U	0.0089 U	0.042 J	0.0216 U
Acenaphthylene	mg/kg	0.0073 U	0.0077 U	0.14 U	0.059 U	0.26 J	0.034 U	0.311 U	0.00698 U	0.384 U	0.414 U	0.00821 U	0.0093 U	0.0487 J	0.0226 U
Acetophenone	mg/kg	0.36 U	0.38 U	0.50 U	0.21 U	0.52 U	0.12 U	3.49 U	0.0782 UJ3	4.32 U	4.65 U	0.0921 U	0.104 U	0.357 U	0.253 U
Anthracene	mg/kg	0.0073 U	0.0077 U	0.53 J	0.24 J	0.92 J	0.21 J	0.293 U	0.00658 U	0.373 J	0.391 U	0.00774 U	0.0137 J	0.145 J	0.0467 J
Atrazine	mg/kg	0.36 U	0.38 U	0.60 U	0.25 U	0.62 U	0.15 U	4.37 U	0.0976 U	5.38 U	5.79 U	0.115 U	0.13 U	0.444 U	0.317 U
Benzaldehyde	mg/kg	0.36 U	0.38 U	0.92 U	0.39 U	0.96 U	0.22 U	2.46 U	0.0554 U	3.06 U	3.29 U	0.0651 U	0.0738 U	0.253 U	0.179 U
Benzo(a)anthracene	mg/kg	0.0053 J	0.0077 U	2.7	0.83	6.3	1.0	0.414 J	0.00682 J	0.687 J	0.562 J	0.0107 J	0.036 J	0.286	0.0685 J
Benzo(a)pyrene	mg/kg	0.0034 J	0.0077 U	3.7	1.1	6.8	1.1	0.405 J	0.00655 J	0.609 J	0.411 J	0.00999 J	0.0304 J	0.256	0.0496 J
Benzo(b)fluoranthene	mg/kg	0.0085	0.0077 U	4.7	1.4	10	1.6	0.707 J	0.00753 J	0.653 J	0.539 J	0.0147 J	0.046	0.434	0.0872 J
Benzo(g,h,i)perylene	mg/kg	0.0061 J	0.0077 U	4.1	1.2	6.2	1.1	0.491 J	0.0075 U	0.413 U	0.445 U	0.00883 U	0.0157 J	0.0858 J	0.0245 J
Benzo(k)fluoranthene	mg/kg	0.0073 U	0.0077 U	2.2	0.77	3.5	0.56	0.27 U	0.00606 U	0.343 J	0.36 U	0.00713 U	0.0125 J	0.147 J	0.0326 J
Biphenyl (1,1-Biphenyl)	mg/kg	0.36 U	0.38 U	0.55 U	0.23 U	0.57 U	0.13 U	0.274 U	0.00612 U	0.337 U	0.363 U	0.0072 U	0.00815 U	0.0278 U	0.0199 U
bis(2-Chloroethoxy)methane	mg/kg	0.36 U	0.38 U	0.40 U	0.17 U	0.42 U	0.099 U	0.358 U	0.00801 U	0.442 U	0.476 U	0.00943 U	0.0107 U	0.0365 U	0.026 U
bis(2-Chloroethyl)ether	mg/kg	0.36 U	0.38 U	0.16 U	0.069 U	0.17 U	0.040 U	0.416 U	0.00932 U	0.513 U	0.553 U	0.011 U	0.0124 U	0.0425 U	0.0302 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.36 U	0.38 U	0.99 U	0.42 U	1.0 U	0.24 U	0.558 U	0.0125 U	0.688 U	0.741 U	0.0147 U	0.0166 U	0.164 J	0.0404 U
Butyl benzylphthalate (BBP)	mg/kg	0.019 J	0.38 U	0.84 U	0.35 U	0.87 U	0.20 U	0.479 U	0.0107 U	0.591 U	0.636 U	0.0126 U	0.0143 U	0.0488 U	0.0347 U
Caprolactam	mg/kg	0.36 U	0.38 U	4.6 U	1.9 U	4.8 U	1.1 U	4.83 U	0.108 U	5.97 U	6.42 U	0.127 U	0.144 U	0.493 U	0.351 U
Carbazole	mg/kg	0.36 U	0.38 U	0.51 J	0.047 U	1.2 J	0.19 J	0.244 U	0.00545 U	0.301 U	0.324 U	0.00642 U	0.00727 U	0.0351 J	0.0177 U
Chrysene	mg/kg	0.0081	0.0077 U	3.5	1.1	7.7	1.3	0.594 J	0.00734 J	0.68 J	0.489 J	0.0162 J	0.0395 J	0.343	0.0779 J
Dibenz(a,h)anthracene	mg/kg	0.0018 J	0.0077 U	1.1 J	0.28 J	1.5	0.30	0.381 U	0.00854 U	0.47 U	0.506 U	0.0101 U	0.0114 U	0.0389 U	0.0276 U
Dibenzofuran	mg/kg	0.36 U	0.38 U	0.60 U	0.25 U	0.63 U	0.15 U	0.242 U	0.00539 U	0.297 U	0.32 U	0.00634 U	0.00718 U	0.0464 J	0.0175 U
Diethyl phthalate	mg/kg	0.36 U	0.38 U	0.67 U	0.28 U	0.70 U	0.16 U	0.321 U	0.00719 U	0.396 U	0.426 U	0.00846 U	0.00958 U	0.0327 U	0.0233 U
Dimethyl phthalate	mg/kg	0.36 U	0.38 U	0.67 U	0.28 U	0.70 U	0.16 U	0.251 U	0.00562 U	0.31 U	0.334 U	0.00661 U	0.00749 U	0.0256 U	0.0182 U
Di-n-butylphthalate (DBP)	mg/kg	0.36 U	0.38 U	0.77 U	0.32 U	0.80 U	0.19 U	0.507 U	0.0113 U	0.625 U	0.673 U	0.0133 U	0.0151 U	0.0516 U	0.0367 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.36 U	0.38 U	0.65 U	0.27 U	0.67 U	0.16 U	0.421 U	0.00944 U	0.521 U	0.561 U	0.0111 U	0.0126 U	0.043 U	0.0305 U
Fluoranthene	mg/kg	0.0093	0.0077 U	5.1	1.6	12	1.9	0.897 J	0.0117 J	1.27 J	0.998 J	0.0129 J	0.0671	0.643	0.171
Fluorene	mg/kg	0.003 J	0.0077 U	0.16 U	0.068 U	0.38 J	0.039 U	0.316 U	0.0071 U	0.392 U	0.422 U	0.00835 U	0.00946 U	0.0894 J	0.0352 J
Hexachlorobenzene	mg/kg	0.36 U	0.38 U	0.13 U	0.055 U	0.14 U	0.032 U	0.397 U	0.00891 U	0.491 U	0.528 U	0.0105 U	0.0119 U	0.0406 U	0.0288 U
Hexachlorobutadiene	mg/kg	0.36 U	0.38 U	0.14 U	0.058 U	0.14 U	0.033 U	0.465 U	0.0104 U	0.574 U	0.618 U	0.0122 U	0.0139 U	0.0474 U	0.0337 U
Hexachlorocyclopentadiene	mg/kg	1.7 U	1.8 U	0.66 U	0.28 U	0.69 U	0.16 U	2.72 U	0.0611 U	3.37 U	3.63 U	0.0719 U	0.0814 U	0.278 U	0.197 U
Hexachloroethane	mg/kg	0.36 U	0.38 U	0.44 U	0.18 U	0.46 U	0.11 U	0.623 U	0.0139 UJ3	0.769 U	0.828 U	0.0164 U	0.0186 U	0.0635 U	0.0452 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.0037 J	0.0077 U	3.8	0.93	5.0	0.92	0.367 J	0.00803 U	0.443 U	0.477 U	0.00945 U	0.0152 J	0.0923 J	0.026 U
Isophorone	mg/kg	0.36 U	0.38 U	0.46 U	0.19 U	0.48 U	0.11 U	0.242 U	0.00543 U	0.3 U	0.323 U	0.00639 U	0.00724 U	0.0248 U	0.0175 U
Naphthalene	mg/kg	0.0026 J	0.0077 U	0.11 U	0.15 J	0.11 U	0.026 U	0.414 U	0.00925 U	0.511 U	0.55 U	0.0109 U	0.0204 J	0.132 J	0.0667 J
Nitrobenzene	mg/kg	0.36 U	0.38 U	0.51 U	0.21 U	0.53 U	0.12 U	0.323 U	0.00723 U	0.399 U	0.429 U	0.00851 U	0.00964 U	0.0328 U	0.0234 U
N-Nitrosodi-n-propylamine	mg/kg	0.36 U	0.38 U	0.14 U	0.060 U	0.15 U	0.035 U	0.421 U	0.00943 U	0.519 U	0.559 U	0.0111 U	0.0126 U	0.043 U	0.0305 U
N-Nitrosodiphenylamine	mg/kg	0.36 U	0.38 U	0.57 U	0.24 U	0.59 U	0.14 U	0.277 U	0.00618 U	0.341 U	0.367 U	0.00727 U	0.00824 U	0.0281 U	0.0201 U
Pentachlorophenol	mg/kg	1.7 U	1.8 U	0.55 U	0.23 U	0.57 U	0.13 U	2.23 U	0.0499 U	2.75 U	2.96 U	0.0588 U	0.0666 U	0.227 U	0.162 U
Phenanthrene	mg/kg	0.015	0.0075 J	2.1	0.79	5.6	0.86	0.517 J	0.00799 J	0.804 J	0.58 J	0.00894 J	0.0501	0.369	0.1 J
Phenol	mg/kg	0.36 U	0.38 U	0.14 U	0.061 U	0.15 U	0.035 U	0.323 U	0.00723 U	0.399 U	0.429 U	0.00851 U	0.00964 U	0.0328 U	0.0234 U
Pyrene	mg/kg	0.0059 J	0.0077 U	4.6	1.6	12	1.9	0.792 J	0.0128 U	1.03 J	0.87 J	0.0223 J	0.0824	0.814	0.151
Metals															
Aluminum	mg/kg	-	-	12700	7460	8910	11100	13200	877	13600	15200	1150	1210	15300	16100
Antimony	mg/kg	7.3 U	7.7 U	2.6	1.0	5.0	1.7	1.88 J	0.78 U	1.72 J	1.87 J	0.918 U	1.04 U	2.82 J	1.26 U
Arsenic	mg/kg	1.9 J	5.7 J	12.7	4.0	14.3	6.4	5.01	2.33	12.9	13.3	1.11 J	1.39 J	13	12.6
Barium	mg/kg	-	-	98.2	65.9	226	157	187	10.1	181	180	9.49	10.1	168	169
Beryllium	mg/kg	0.42	0.35	0.96	0.59	2.1	0.98	1.15	0.396	14.1	12.6	0.387	0.306	11.6	12.7
Cadmium	mg/kg	0.14	0.096 B	2.0	1.4	4.9	2.1	3.12	0.223 BJ	9.05	8.61	0.168 J	0.147 J	7.83	7.98
Calcium	mg/kg	-	-	6370	4460	12400	11700	29200	719	4380	7520	994	708	5350	10100
Chromium	mg/kg	31.4 J	13 J	390	237	393	229	355	5.48	57.6	72.8	5.65	6.02	62.5	64.1
Cobalt	mg/kg	-	-	11.0	5.8	8.9	8.8	9.71	1.76	19.9	21.9	1.9	1.93	23.3	24.3

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**NATP-9**	**NATP-9**	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**	**STREAM-1**	**TP-01-2017**	**TP-02-2017**	**TP-03-2017**	**TP-04-2017**	**TP-04-2017**	**TP-05-2017**	**TP-06-2017**
Sample ID:		**NATP-9_1.5-2.0**	**NATP-9_14.5-15.0**	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**	**STREAM-1_1.0-1.5**	**TP-01-10.5-11.0**	**TP-02-5.0-5.5**	**TP-03-6.5-7.0**	**DUP-01_082317**	**TP-04_10.5-11.0**	**TP-05_9.5-10.0**	**TP-06-5.0-5.5**
Sample Date:		**6/13/2006**	**6/13/2006**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**8/24/2017**	**8/22/2017**	**8/22/2017**	**8/22/2017**	**8/23/2017**	**8/23/2017**	**8/23/2017**	**8/22/2017**
Sample Depth:		**(1.5-2) ft BGS**	**(14.5-15) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(1-1.5) ft BGS**	**(10.5-11) ft BGS**	**(5-5.5) ft BGS**	**(6.5-7) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(9.5-10) ft BGS**	**(5-5.5) ft BGS**
Parameters	**Units**														
Copper	mg/kg	55.2	11.2	208	144	307	172	109	5.41	102	107	4.15	4.08	102	102
Iron	mg/kg	-	-	59900	34200	91100	47900	46800	6450	33000	42100	7610	6440	47600	43500
Lead	mg/kg	8.2	9.2	262	150	2270	178	169	7.86	172	178	7.46	6.4	157	153
Magnesium	mg/kg	-	-	3970	2900	3560	4120	6370	411	4210	4860	572	442	3800	4480
Manganese	mg/kg	-	-	917	397	776	586	1260	70.9	753	1200	102	87.2	827	911
Mercury	mg/kg	0.036 U	0.019 B	0.63	0.19	0.33	0.20	0.161	0.00593 J	0.553	0.609	0.00986 BJ	0.0106 BJ	0.5	0.477
Nickel	mg/kg	17.2	13.7	91.7	56.4	80.3	34.8	44.2	4.31	46.8	50	4.1	3.55	51.3	49.9
Potassium	mg/kg	-	-	1080	585	569	1100	1520	197	1790	2540	242	264	2580	3010
Selenium	mg/kg	0.71	0.33 B	10.8	3.3	8.2	6.4	1.72 U	0.77 U	1.41 J	1.37 J	0.906 U	1.03 U	1.52 J	1.83 J
Silver	mg/kg	0.035 B	0.23 U	0.72	0.38	0.94	0.53	0.651 U	0.291 U	0.856 J	0.897 J	0.343 U	0.388 U	0.767 J	0.579 J
Sodium	mg/kg	-	-	168 U	90.3 U	116 U	514 U	516	18.8 BJ	95.3 BJ	116 BJ	12.1 U	41.2 J	99.3 J	131 BJ
Thallium	mg/kg	0.043 B	0.081 B	0.26	0.14	0.28	0.26	1.51 U	0.676 U	0.932 U	1 U	0.796 U	0.901 U	1.03 U	1.1 U
Vanadium	mg/kg	-	-	75.6	36.5	111	77.9	83.2	5.72	38.4	43.3	5.52 B	8.5 B	48.6	47.5
Zinc	mg/kg	50.4	34.2	638	503	2330	488	981	58.4	1260	1310	49.4	40.9	1150	1090
MetalsSEM															
Cadmium	umol/g	-	-	0.0088	0.0089	0.026	0.012	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	1.3	1.1	1.8	0.73	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	0.75	0.54	1.6	0.39	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	0.00018	0.00010	0.00013	0.000023 U	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	0.45	0.36	0.40	0.15	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	0.00100 U	56.4	99.2	0.00100 U	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	2.9	4.2	13.4	4.1	-	-	-	-	-	-	-	-
PCBs															
Aroclor-1016 (PCB-1016)	mg/kg	7.3 U	0.12 U	0.0035 U	0.0029 U	0.0037 U	0.0069 U	0.00813 U	0.00364 U	0.00502 U	0.0054 U	0.00428 U	0.00485 U	0.00553 U	0.0059 U
Aroclor-1221 (PCB-1221)	mg/kg	7.3 U	0.12 U	0.0055 U	0.0046 U	0.0058 U	0.011 U	0.0125 U	0.00559 U	0.0077 U	0.00829 U	0.00657 U	0.00745 U	0.00848 U	0.00905 U
Aroclor-1232 (PCB-1232)	mg/kg	7.3 U	0.12 U	0.0019 U	0.0016 U	0.0020 U	0.0038 U	0.00969 U	0.00434 U	0.00598 U	0.00644 U	0.00511 U	0.00578 U	0.00659 U	0.00703 U
Aroclor-1242 (PCB-1242)	mg/kg	7.3 U	0.12 U	0.0028 U	0.0024 U	0.0029 U	0.0055 U	0.00739 U	0.00331 U	0.00456 U	0.00491 U	0.00389 U	0.00441 U	0.00502 U	0.00536 U
Aroclor-1248 (PCB-1248)	mg/kg	7.3 U	0.58 U	0.0018 U	0.0015 U	0.0019 U	0.0035 U	0.00732 U	0.00328 U	0.00452 U	0.00486 U	0.00386 U	0.00437 U	0.00497 U	0.00531 U
Aroclor-1254 (PCB-1254)	mg/kg	7.3 U	0.12 U	0.21	0.096	0.18	0.093	0.011 U	0.00491 U	0.00677 U	0.00729 U	0.00578 U	0.00654 U	0.00745 U	0.00796 U
Aroclor-1260 (PCB-1260)	mg/kg	7.3 U	0.12 U	0.22	0.12	0.20	0.095	0.15 P	0.00514 U	0.00709 U	0.00763 U	0.00605 U	0.00685 U	0.0078 U	0.00833 U
Total PCBs	mg/kg	-	-	0.43	0.22	0.38	0.19	-	-	-	-	-	-	-	-
General Chemistry															
Cyanide (total)	mg/kg	-	-	0.79	0.18 J	1.8	1.0	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	18200	6440	17500	14300	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	5.5 UJ	4.6 J	6.5 J	10.8 UJ	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	161000	22500	122000	113000	-	-	-	-	-	-	-	-
Total solids	%	91.7	86.6	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**TP-07-2017**	**TP-08-2017**
Sample ID:		**TP-07_9.5-10.0**	**TP-08-9.5-10.0**
Sample Date:		**8/23/2017**	**8/22/2017**
Sample Depth:		**(9.5-10) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**		
Volatile Organic Compounds			
1,1,1-Trichloroethane	mg/kg	0.0204 U	0.000357 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0259 U	0.000456 U
1,1,2-Trichloroethane	mg/kg	0.0197 U	0.000346 U
1,1-Dichloroethane	mg/kg	0.0142 U	0.000249 U
1,1-Dichloroethene	mg/kg	0.0215 U	0.000378 U
1,2,3-Trichlorobenzene	mg/kg	0.0218 U	0.000382 U
1,2,4-Trichlorobenzene	mg/kg	0.0276 U	0.000485 U
1,2,4-Trimethylbenzene	mg/kg	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0748 U	0.00131 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0244 U	0.000428 U
1,2-Dichlorobenzene	mg/kg	0.0217 U	0.000381 U
1,2-Dichloroethane	mg/kg	0.0188 U	0.000331 U
1,2-Dichloropropane	mg/kg	0.0255 U	0.000447 U
1,3,5-Trimethylbenzene	mg/kg	-	-
1,3-Dichlorobenzene	mg/kg	0.017 U	0.000298 U
1,4-Dichlorobenzene	mg/kg	0.0162 U	0.000282 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.333 U	0.00584 U
2-Hexanone	mg/kg	0.0975 U	0.00171 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.134 U	0.00235 U
Acetone	mg/kg	0.711 U	0.0125 U
Benzene	mg/kg	0.0193 U	0.000337 U
Bromodichloromethane	mg/kg	0.0181 U	0.000317 U
Bromoform	mg/kg	0.0302 U	0.00053 U
Bromomethane (Methyl bromide)	mg/kg	0.0954 U	0.00167 U
Carbon disulfide	mg/kg	0.0226 J	0.000743 J
Carbon tetrachloride	mg/kg	0.0234 U	0.00041 U
Chlorobenzene	mg/kg	0.015 U	0.000265 U
Chlorobromomethane	mg/kg	0.0278 U	0.000487 U
Chloroethane	mg/kg	0.0673 U	0.00118 U
Chloroform (Trichloromethane)	mg/kg	0.0163 U	0.000286 U
Chloromethane (Methyl chloride)	mg/kg	0.0266 U	0.000468 U
cis-1,2-Dichloroethene	mg/kg	0.0167 U	0.000293 U
cis-1,3-Dichloropropene	mg/kg	0.0187 U	0.000327 U
Cyclohexane	mg/kg	0.0249 U	0.000437 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-
Dibromochloromethane	mg/kg	0.0265 U	0.000466 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0507 U	0.00089 U
Ethylbenzene	mg/kg	0.0211 U	0.000371 U
Isopropyl benzene	mg/kg	0.0173 U	0.000303 U
m&p-Xylenes	mg/kg	-	-
Methyl acetate	mg/kg	0.434 U	0.00762 U
Methyl cyclohexane	mg/kg	0.0271 U	0.000475 U
Methyl tert butyl ether (MTBE)	mg/kg	0.015 U	0.000265 U
Methylene chloride	mg/kg	0.0711 U	0.00125 U
Naphthalene	mg/kg	-	-
N-Butylbenzene	mg/kg	-	-
N-Propylbenzene	mg/kg	-	-
o-Xylene	mg/kg	-	-
Styrene	mg/kg	0.0167 U	0.000292 U
tert-Butylbenzene	mg/kg	-	-
Tetrachloroethene	mg/kg	0.0197 U	0.000345 U
Toluene	mg/kg	0.508	0.000542 U
trans-1,2-Dichloroethene	mg/kg	0.0188 U	0.00033 U
trans-1,3-Dichloropropene	mg/kg	0.019 U	0.000333 U
Trichloroethene	mg/kg	0.0198 U	0.000348 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0272 U	0.000477 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0259 U	0.000456 U
Vinyl chloride	mg/kg	0.0207 U	0.000363 U
Xylenes (total)	mg/kg	0.0497 U	0.000872 U
Semi-volatile Organic Compounds			
1,2,4,5-Tetrachlorobenzene	mg/kg	0.215 U	0.0952 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.0215 U	0.00949 U
2,4,5-Trichlorophenol	mg/kg	0.0295 U	0.013 U
2,4,6-Trichlorophenol	mg/kg	0.0221 U	0.00973 U
2,4-Dichlorophenol	mg/kg	0.0211 U	0.00932 U
2,4-Dimethylphenol	mg/kg	0.134 U	0.0588 UJ3J4
2,4-Dinitrophenol	mg/kg	0.278 UJ3	0.122 U

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**TP-07-2017**	**TP-08-2017**
Sample ID:		**TP-07_9.5-10.0**	**TP-08-9.5-10.0**
Sample Date:		**8/23/2017**	**8/22/2017**
Sample Depth:		**(9.5-10) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**		
2,4-Dinitrotoluene	mg/kg	0.0171 U	0.00758 U
2,6-Dinitrotoluene	mg/kg	0.0208 U	0.0092 U
2-Chloronaphthalene	mg/kg	0.0181 U	0.00798 U
2-Chlorophenol	mg/kg	0.0235 U	0.0104 U
2-Methylnaphthalene	mg/kg	0.0332 J	0.0108 U
2-Methylphenol	mg/kg	0.0279 U	0.0123 U
2-Nitroaniline	mg/kg	0.0214 U	0.00943 U
2-Nitrophenol	mg/kg	0.0368 U	0.0162 U
3&4-Methylphenol	mg/kg	0.196 J	0.0111 J
3,3'-Dichlorobenzidine	mg/kg	0.225 U	0.0992 U
3-Nitroaniline	mg/kg	0.0241 U	0.0106 U
4,6-Dinitro-2-methylphenol	mg/kg	0.351 U	0.155 U
4-Bromophenyl phenyl ether	mg/kg	0.0323 U	0.0142 U
4-Chloro-3-methylphenol	mg/kg	0.0135 U	0.00596 U
4-Chloroaniline	mg/kg	0.0998 U	0.044 U
4-Chlorophenyl phenyl ether	mg/kg	0.0177 U	0.00783 U
4-Methylphenol	mg/kg	-	-
4-Nitroaniline	mg/kg	0.0181 U	0.00798 U
4-Nitrophenol	mg/kg	0.149 U	0.0656 U
Acenaphthene	mg/kg	0.0214 J	0.00802 U
Acenaphthylene	mg/kg	0.019 U	0.00838 U
Acetophenone	mg/kg	0.213 U	0.0939 U
Anthracene	mg/kg	0.0641 J	0.00789 U
Atrazine	mg/kg	0.266 U	0.117 U
Benzaldehyde	mg/kg	0.15 U	0.0664 U
Benzo(a)anthracene	mg/kg	0.117	0.0187 J
Benzo(a)pyrene	mg/kg	0.0955	0.0197 J
Benzo(b)fluoranthene	mg/kg	0.166	0.0231 J
Benzo(g,h,i)perylene	mg/kg	0.0473 J	0.009 U
Benzo(k)fluoranthene	mg/kg	0.0368 J	0.012 J
Biphenyl (1,1-Biphenyl)	mg/kg	0.0167 U	0.00734 U
bis(2-Chloroethoxy)methane	mg/kg	0.0218 U	0.00962 U
bis(2-Chloroethyl)ether	mg/kg	0.0254 U	0.0112 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.0564 J	0.015 U
Butyl benzylphthalate (BBP)	mg/kg	0.0292 U	0.0129 U
Caprolactam	mg/kg	0.295 U	0.13 U
Carbazole	mg/kg	0.0397 J	0.00654 U
Chrysene	mg/kg	0.131	0.0157 J
Dibenz(a,h)anthracene	mg/kg	0.0232 U	0.0103 U
Dibenzofuran	mg/kg	0.0249 J	0.00647 U
Diethyl phthalate	mg/kg	0.0196 U	0.00863 U
Dimethyl phthalate	mg/kg	0.0153 U	0.00674 U
Di-n-butylphthalate (DBP)	mg/kg	0.0309 U	0.0136 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.0257 U	0.0113 U
Fluoranthene	mg/kg	0.264	0.0235 J
Fluorene	mg/kg	0.0436 J	0.00852 U
Hexachlorobenzene	mg/kg	0.0242 U	0.0107 U
Hexachlorobutadiene	mg/kg	0.0283 U	0.0125 U
Hexachlorocyclopentadiene	mg/kg	0.166 U	0.0733 U
Hexachloroethane	mg/kg	0.038 U	0.0167 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.0397 J	0.00964 U
Isophorone	mg/kg	0.0147 U	0.00652 U
Naphthalene	mg/kg	0.0734 J	0.0111 U
Nitrobenzene	mg/kg	0.0197 U	0.00868 U
N-Nitrosodi-n-propylamine	mg/kg	0.0257 U	0.0113 U
N-Nitrosodiphenylamine	mg/kg	0.0169 U	0.00742 U
Pentachlorophenol	mg/kg	0.136 U	0.0599 U
Phenanthrene	mg/kg	0.209	0.0108 J
Phenol	mg/kg	0.0197 U	0.00868 U
Pyrene	mg/kg	0.28	0.0238 J
Metals			
Aluminum	mg/kg	9300	1320
Antimony	mg/kg	1.86 J	0.937 U
Arsenic	mg/kg	8.41	1.78 J
Barium	mg/kg	106	11.5
Beryllium	mg/kg	6.88	0.375
Cadmium	mg/kg	4.59	0.348 BJ
Calcium	mg/kg	2690	1050
Chromium	mg/kg	42.3	8.33
Cobalt	mg/kg	13.9	2.06

Table 4.3

Screened Analytical Results
All Soil Samples vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**TP-07-2017**	**TP-08-2017**
Sample ID:		**TP-07_9.5-10.0**	**TP-08-9.5-10.0**
Sample Date:		**8/23/2017**	**8/22/2017**
Sample Depth:		**(9.5-10) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**		
Copper	mg/kg	63.5	5.71
Iron	mg/kg	26700	15200
Lead	mg/kg	97.2	13.5
Magnesium	mg/kg	2680	557
Manganese	mg/kg	687	229
Mercury	mg/kg	0.349	0.0231 J
Nickel	mg/kg	30.8	4.49
Potassium	mg/kg	1460	296
Selenium	mg/kg	1.05 U	0.924 U
Silver	mg/kg	0.491 J	0.35 U
Sodium	mg/kg	90.7 J	23.4 BJ
Thallium	mg/kg	0.921 U	0.812 U
Vanadium	mg/kg	30.3	9.42
Zinc	mg/kg	710	87.4
MetalsSEM			
Cadmium	umol/g	-	-
Copper	umol/g	-	-
Lead	umol/g	-	-
Mercury	umol/g	-	-
Nickel	umol/g	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-
Zinc	umol/g	-	-
PCBs			
Aroclor-1016 (PCB-1016)	mg/kg	0.00496 U	0.00437 U
Aroclor-1221 (PCB-1221)	mg/kg	0.00761 U	0.00671 U
Aroclor-1232 (PCB-1232)	mg/kg	0.00591 U	0.00521 U
Aroclor-1242 (PCB-1242)	mg/kg	0.00451 U	0.00397 U
Aroclor-1248 (PCB-1248)	mg/kg	0.00446 U	0.00393 U
Aroclor-1254 (PCB-1254)	mg/kg	0.00669 U	0.0203 JP
Aroclor-1260 (PCB-1260)	mg/kg	0.007 U	0.00617 U
Total PCBs	mg/kg	-	-
General Chemistry			
Cyanide (total)	mg/kg	-	-
pH	s.u.	-	-
Soot carbon	mg/kg	-	-
Sulfide	mg/kg	-	-
Total organic carbon (TOC)	mg/kg	-	-
Total solids	%	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**
Sample ID:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**
Sample Date:			**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:			**-**	**-**	**-**	**-**	**-**	**-**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**
Parameters	**Units**	**VI**										
Volatile Organic Compounds												
1,1,1-Trichloroethane	mg/kg	7.4	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0028 U	0.0032 U	0.0038 U	0.0031 U	0.0039 U
1,1,2,2-Tetrachloroethane	mg/kg	0.13	0.0035 U	0.0033 U	0.0032 U	0.0032 U	0.0032 U	0.0034 U	0.0082 U	0.0097 U	0.0079 U	0.0099 U
1,1,2-Trichloroethane	mg/kg	0.15	0.0029 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.0098 U	0.012 U	0.0094 U	0.012 U
1,1-Dichloroethane	mg/kg	3.9	0.0022 U	0.002 U	0.002 U	0.0019 U	0.002 U	0.0021 U	0.0068 U	0.008 U	0.0065 U	0.0082 U
1,1-Dichloroethene	mg/kg	0.19	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0032 U	0.0046 U	0.0055 U	0.0044 U	0.0055 U
1,2,3-Trichlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	27	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.018 U	0.021 U	0.017 U	0.021 U
1,2,4-Trimethylbenzene	mg/kg	35	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0092	0.0037 U	0.0034 U	0.0033 U	0.0033 U	0.0033 U	0.0035 U	0.021 U	0.025 U	0.02 U	0.025 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0013	0.0032 U	0.003 U	0.003 U	0.0029 U	0.003 U	0.0031 U	0.014 U	0.017 U	0.014 U	0.017 U
1,2-Dichlorobenzene	mg/kg	59	0.0048 U	0.0045 U	0.0044 U	0.0043 U	0.0044 U	0.0046 U	0.011 U	0.013 U	0.01 U	0.013 U
1,2-Dichloroethane	mg/kg	0.10	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0099 U	0.012 U	0.0095 U	0.012 U
1,2-Dichloropropane	mg/kg	0.11	0.0029 U	0.0027 U	0.0027 U	0.0026 U	0.0027 U	0.0028 U	0.0045 U	0.0053 U	0.0043 U	0.0054 U
1,3,5-Trimethylbenzene	mg/kg	210	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg		0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0071 U	0.0083 U	0.0068 U	0.0085 U
1,4-Dichlorobenzene	mg/kg	10	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.012 U	0.014 U	0.012 U	0.015 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	1100	0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0033 U	0.12 U	0.14 U	0.12 U	0.15 U
2-Hexanone	mg/kg	6.4	0.005 U	0.0047 U	0.0045 U	0.0045 U	0.0045 U	0.0048 U	0.026 U	0.031 U	0.025 U	0.031 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg		-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	210	0.0022 U	0.0021 U	0.002 U	0.002 U	0.002 U	0.0021 U	0.052 U	0.061 U	0.049 U	0.062 U
Acetone	mg/kg	4700	0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0036 U	0.14 U	0.17 U	0.13 U	0.17 U
Benzene	mg/kg	0.13	0.0023 U	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0043 U	0.0051 U	0.0041 U	0.0052 U
Bromodichloromethane	mg/kg	2.7	0.0028 U	0.0026 U	0.0026 U	0.0025 U	0.0026 U	0.0027 U	0.0065 U	0.0077 U	0.0063 U	0.0078 U
Bromoform	mg/kg	3.5	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.003 U	0.01 U	0.012 U	0.0096 U	0.012 U
Bromomethane (Methyl bromide)	mg/kg	0.54	0.0053 U	0.005 U	0.0049 U	0.0048 U	0.0049 U	0.0051 U	0.0095 UJ	0.011 UJ	0.0091 UJ	0.011 UJ
Carbon disulfide	mg/kg	530	0.0036 U	0.0034 U	0.0033 U	0.0032 U	0.0033 U	0.0034 U	0.0065 U	0.0077 U	0.0063 U	0.0078 U
Carbon tetrachloride	mg/kg	0.26	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036 U	0.0038 U	0.003 U	0.0035 U	0.0029 U	0.0036 U
Chlorobenzene	mg/kg	6.1	0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0058 U	0.0068 U	0.0055 U	0.0069 U
Chlorobromomethane	mg/kg	1.6	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	26	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0029 U	0.0088 U	0.01 U	0.0085 U	0.011 U
Chloroform (Trichloromethane)	mg/kg	2.0	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.0041 U	0.0048 U	0.0039 U	0.0049 U
Chloromethane (Methyl chloride)	mg/kg	0.38	0.0046 U	0.0043 U	0.0042 U	0.0041 U	0.0042 U	0.0044 U	0.0051 U	0.006 U	0.0049 U	0.0061 U
cis-1,2-Dichloroethene	mg/kg		0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0093 U	0.011 U	0.0089 U	0.011 U
cis-1,3-Dichloropropene	mg/kg		0.0019 U	0.0018 U	0.0017 U	0.0017 U	0.0017 U	0.0018 U	0.0096 U	0.011 U	0.0092 U	0.012 U
Cyclohexane	mg/kg	6900	0.0015 U	0.0014 U	0.0013 U	0.0013 U	0.0013 U	0.0014 U	0.0083 U	0.0098 U	0.008 U	0.0099 U
Cymene (p-Isopropyltoluene)	mg/kg		-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	2.5	0.0029 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.01 U	0.012 U	0.01 U	0.012 U
Dichlorodifluoromethane (CFC-12)	mg/kg	100	0.0035 U	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.0033 U	0.011 U	0.013 U	0.011 U	0.013 U
Ethylbenzene	mg/kg	46	0.0026 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.005 U	0.0059 U	0.0048 U	0.006 U
Isopropyl benzene	mg/kg	2500	0.0028 U	0.0026 U	0.0025 U	0.0025 U	0.0025 U	0.0026 U	0.004 U	0.0047 U	0.0038 U	0.0048 U
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg		0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0029 U	9.3	0.021 U	0.017 U	0.021 U
Methyl cyclohexane	mg/kg		0.0025 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.0071 U	0.0083 U	0.0068 U	0.0085 U
Methyl tert butyl ether (MTBE)	mg/kg	1.4	0.0044 U	0.0041 U	0.004 U	0.0039 U	0.004 U	0.0042 U	0.0072 U	0.0085 U	0.0069 U	0.0086 U
Methylene chloride	mg/kg	1.5	0.0028 U	0.0026 U	0.0026 U	0.0025 U	0.0026 U	0.0027 U	0.0095 U	0.011 U	0.0091 U	0.011 U
Naphthalene	mg/kg	25	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg		-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	1700	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg		-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	79	0.0016 U	0.0015 U	0.0014 U	0.0014 U	0.0014 U	0.0015 U	0.0062 U	0.0073 U	0.0059 U	0.0074 U
tert-Butylbenzene	mg/kg		-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.43	0.0024 U	0.0022 U	0.0022 U	0.0021 U	0.0022 U	0.0023 U	0.0051 U	0.006 U	0.0049 U	0.0061 U
Toluene	mg/kg	44	0.002 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0019 U	0.0078 U	0.0092 U	0.0075 U	0.0093 U
trans-1,2-Dichloroethene	mg/kg	2.3	0.003 U	0.0028 U	0.0028 U	0.0027 U	0.0027 U	0.0029 U	0.0067 U	0.0079 U	0.0065 U	0.0081 U
trans-1,3-Dichloropropene	mg/kg		0.0021 U	0.0019 U	0.0019 U	0.0018 U	0.0019 U	0.002 U	0.013 U	0.015 U	0.012 U	0.015 U
Trichloroethene	mg/kg	0.17	0.0018 U	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0048 U	0.0057 U	0.0046 U	0.0058 U
Trichlorofluoromethane (CFC-11)	mg/kg	87	0.0017 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0076 U	0.009 U	0.0073 U	0.0091 U
Trifluorotrichloroethane (CFC-113)	mg/kg	10000	0.0023 U	0.0021 U	0.0021 U	0.002 U	0.0021 U	0.0022 U	0.0043 U	0.0051 U	0.0041 U	0.0051 U
Vinyl chloride	mg/kg	0.027	0.0044 U	0.0041 U	0.004 U	0.0039 U	0.004 U	0.0042 U	0.0076 U	0.0089 U	0.0073 U	0.009 U
Xylenes (total)	mg/kg	990	0.0051 U	0.0048 U	0.0047 U	0.0046 U	0.0047 U	0.0049 U	0.019 U	0.022 U	0.018 U	0.022 U
Semi-volatile Organic Compounds												
1,2,4,5-Tetrachlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	8.0	0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.04 U	0.04 U	0.041 U	0.043 U
2,4,5-Trichlorophenol	mg/kg		0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0033 U	0.0035 U	0.046 U	0.047 U	0.047 U	0.05 U
2,4,6-Trichlorophenol	mg/kg		0.0034 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0033 U	0.042 U	0.043 U	0.043 U	0.045 U

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**
Sample ID:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**
Sample Date:			**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:			**-**	**-**	**-**	**-**	**-**	**-**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**
Parameters	**Units**	**VI**										
2,4-Dichlorophenol	mg/kg		0.0032 U	0.003 U	0.0029 U	0.0029 U	0.0029 U	0.003 U	0.053 U	0.053 U	0.054 U	0.056 U
2,4-Dimethylphenol	mg/kg		0.003 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U	0.0029 U	0.089 U	0.09 U	0.09 U	0.095 U
2,4-Dinitrophenol	mg/kg		0.079 U	0.075 U	0.072 U	0.072 U	0.071 U	0.076 U	0.2 U	0.21 U	0.21 U	0.22 U
2,4-Dinitrotoluene	mg/kg		0.0051 U	0.0049 U	0.0047 U	0.0047 U	0.0047 U	0.0049 U	0.012 U	0.012 U	0.012 U	0.013 U
2,6-Dinitrotoluene	mg/kg		0.0027 U	0.0026 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.011 U	0.011 U	0.011 U	0.012 U
2-Chloronaphthalene	mg/kg		0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.04 U	0.041 U	0.041 U	0.043 U
2-Chlorophenol	mg/kg		0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.047 U	0.048 U	0.048 U	0.051 U
2-Methylnaphthalene	mg/kg	1900	0.003 U	0.0028 U	0.0028 J	0.0033 J	0.0027 U	0.027	0.046 U	0.047 U	0.047 U	0.049 U
2-Methylphenol	mg/kg		0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.061 U	0.062 U	0.062 U	0.066 U
2-Nitroaniline	mg/kg		0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	0.15 U	0.15 U	0.15 U	0.16 U
2-Nitrophenol	mg/kg		0.0028 U	0.0027 U	0.0026 U	0.0026 U	0.0026 U	0.0027 U	0.04 U	0.041 U	0.041 U	0.043 U
3&4-Methylphenol	mg/kg		-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg		0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.13 U	0.13 U	0.13 U	0.14 U
3-Nitroaniline	mg/kg		0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.13 U	0.13 U	0.13 U	0.14 U
4,6-Dinitro-2-methylphenol	mg/kg		0.072 U	0.068 U	0.066 U	0.066 U	0.065 U	0.069 U	0.098 U	0.099 U	0.1 U	0.1 U
4-Bromophenyl phenyl ether	mg/kg		0.0037 U	0.0035 U	0.0034 U	0.0034 U	0.0033 U	0.0036 U	0.036 U	0.036 U	0.036 U	0.038 U
4-Chloro-3-methylphenol	mg/kg		0.0041 U	0.0039 U	0.0038 U	0.0038 U	0.0037 U	0.0039 U	0.054 U	0.055 U	0.055 U	0.058 U
4-Chloroaniline	mg/kg		0.0022 U	0.0021 U	0.002 U	0.002 U	0.002 U	0.0021 U	0.095 U	0.097 U	0.097 U	0.1 U
4-Chlorophenyl phenyl ether	mg/kg		0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.042 U	0.043 U	0.043 U	0.045 U
4-Methylphenol	mg/kg		0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.071 U	0.072 U	0.072 U	0.076 U
4-Nitroaniline	mg/kg		0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.11 U	0.11 U	0.11 U	0.12 U
4-Nitrophenol	mg/kg		0.041 U	0.039 U	0.037 U	0.037 U	0.037 U	0.039 U	0.23 U	0.23 U	0.24 U	0.25 U
Acenaphthene	mg/kg		0.0028 J	0.0025 U	0.026	0.0066 J	0.0027 J	0.14	0.052 U	0.053 U	0.053 U	0.056 U
Acenaphthylene	mg/kg		0.0026 U	0.0025 U	0.0038 J	0.0025 J	0.0024 U	0.011	0.042 U	0.043 U	0.043 U	0.046 U
Acetophenone	mg/kg		0.0027 U	0.0025 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.055 U	0.056 U	0.056 U	0.059 U
Anthracene	mg/kg		0.0029 U	0.0027 U	0.024	0.0091	0.0045 J	0.22	0.044 U	0.044 U	0.045 U	0.047 U
Atrazine	mg/kg		0.0054 U	0.0051 U	0.0049 U	0.0049 U	0.0049 U	0.0052 U	0.055 U	0.056 U	0.057 U	0.06 U
Benzaldehyde	mg/kg		0.0025 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.042 U	0.043 U	0.043 U	0.045 U
Benzo(a)anthracene	mg/kg		0.0062 J	0.0048 J	0.034	0.02	0.011	0.48	0.0025 U	0.0025 U	0.0026 U	0.0027 U
Benzo(a)pyrene	mg/kg		0.01	0.0052 J	0.03	0.018	0.0094	0.36	0.0025 U	0.0026 U	0.0026 U	0.039
Benzo(b)fluoranthene	mg/kg		0.011	0.0062 J	0.043	0.025	0.013	0.49	0.0023 U	0.0023 U	0.0023 U	0.039
Benzo(g,h,i)perylene	mg/kg		0.011	0.0052 J	0.04	0.025	0.0066 J	0.28	0.027 U	0.027 U	0.027 U	0.029 U
Benzo(k)fluoranthene	mg/kg		0.0052 J	0.0027 J	0.017	0.011	0.0047 J	0.16	0.0027 U	0.0028 U	0.0028 U	0.023 J
Biphenyl (1,1-Biphenyl)	mg/kg	190	0.0031 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0068 J	0.048 U	0.049 U	0.049 U	0.052 U
bis(2-Chloroethoxy)methane	mg/kg		0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.002 U	0.0022 U	0.046 U	0.047 U	0.047 U	0.05 U
bis(2-Chloroethyl)ether	mg/kg	0.14	0.0023 U	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0049 U	0.005 U	0.005 U	0.0053 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.026 U	0.025 U	0.024 U	0.024 U	0.024 U	0.025 U	0.12 U	0.12 U	0.12 U	0.13 U
Butyl benzylphthalate (BBP)	mg/kg		0.029 U	0.027 U	0.027 U	0.027 U	0.026 U	0.028 U	0.033 U	0.033 U	0.034 U	0.035 U
Caprolactam	mg/kg		0.018 U	0.017 U	0.017 U	0.017 U	0.017 U	0.018 U	0.083 U	0.084 U	0.084 U	0.089 U
Carbazole	mg/kg		0.0033 U	0.0031 U	0.0096	0.0064 J	0.003 U	0.13	0.042 U	0.043 U	0.043 U	0.046 U
Chrysene	mg/kg		0.0072 J	0.0049 J	0.04	0.022	0.011	0.48	0.042 U	0.043 U	0.043 U	0.045 U
Dibenz(a,h)anthracene	mg/kg		0.0032 U	0.0031 U	0.0086	0.0046 J	0.0029 U	0.07	0.0045 U	0.0046 U	0.0046 U	0.0049 U
Dibenzofuran	mg/kg		0.0031 U	0.003 U	0.021 J	0.0037 J	0.0028 U	0.058	0.042 U	0.043 U	0.043 U	0.045 U
Diethyl phthalate	mg/kg		0.0034 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U	0.0033 U	0.043 U	0.043 U	0.044 U	0.046 U
Dimethyl phthalate	mg/kg		0.0027 U	0.0026 U	0.0025 U	0.0025 U	0.0024 U	0.0026 U	0.043 U	0.043 U	0.043 U	0.046 U
Di-n-butylphthalate (DBP)	mg/kg		0.0042 J	0.0031 J	0.0029 J	0.0034 J	0.0038 J	0.0043 J	0.044 U	0.045 U	0.045 U	0.048 U
Di-n-octyl phthalate (DnOP)	mg/kg		0.0046 U	0.0044 U	0.0042 U	0.0042 U	0.0042 U	0.0044 U	0.023 U	0.023 U	0.023 U	0.025 U
Fluoranthene	mg/kg		0.0089	0.0077	0.067	0.044	0.024	0.93	0.048 U	0.049 U	0.049 U	0.051 U
Fluorene	mg/kg		0.0028 U	0.0026 U	0.022	0.0047 J	0.0025 U	0.1	0.046 U	0.047 U	0.047 U	0.049 U
Hexachlorobenzene	mg/kg		0.0031 U	0.003 U	0.0029 U	0.0029 U	0.0028 U	0.003 U	0.0049 U	0.005 U	0.005 U	0.0053 U
Hexachlorobutadiene	mg/kg		0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0022 U	0.0024 U	0.0088 U	0.0089 U	0.0089 U	0.0094 U
Hexachlorocyclopentadiene	mg/kg		0.0033 U	0.0031 U	0.003 U	0.003 U	0.003 U	0.0032 U	0.042 U	0.043 U	0.043 U	0.045 U
Hexachloroethane	mg/kg	0.56	0.0028 U	0.0026 U	0.0026 U	0.0026 U	0.0025 U	0.0027 U	0.004 U	0.0041 U	0.0041 U	0.0043 U
Indeno(1,2,3-cd)pyrene	mg/kg		0.0097	0.0042 J	0.024	0.015	0.006 J	0.24	0.0067 U	0.0068 U	0.0068 U	0.0072 U
Isophorone	mg/kg		0.0021 U	0.002 U	0.002 U	0.002 U	0.0019 U	0.0021 U	0.044 U	0.044 U	0.044 U	0.047 U
Naphthalene	mg/kg	25	0.0028 U	0.0027 U	0.0061 J	0.0045 J	0.0025 U	0.049	0.042 U	0.042 U	0.042 U	0.045 U
Nitrobenzene	mg/kg	10	0.003 U	0.0028 U	0.0027 U	0.0027 U	0.0027 U	0.0029 U	0.0051 U	0.0052 U	0.0052 U	0.0055 U
N-Nitrosodi-n-propylamine	mg/kg		0.0026 U	0.0025 U	0.0024 U	0.0024 U	0.0024 U	0.0025 U	0.006 U	0.0061 U	0.0061 U	0.0064 U
N-Nitrosodiphenylamine	mg/kg		0.0061 U	0.0058 U	0.0056 U	0.0056 U	0.0055 U	0.0059 U	0.035 U	0.036 U	0.036 U	0.038 U
Pentachlorophenol	mg/kg		0.073 U	0.07 U	0.068 U	0.068 U	0.066 U	0.071 U	0.11 U	0.11 U	0.11 U	0.11 U
Phenanthrene	mg/kg		0.0045 J	0.0031 U	0.064	0.035	0.017	0.69	0.046 U	0.046 U	0.047 U	0.049 U
Phenol	mg/kg	7900	0.0052 U	0.005 U	0.0048 U	0.0048 U	0.0047 U	0.005 U	0.048 U	0.049 U	0.049 U	0.052 U
Pyrene	mg/kg		0.0092	0.0084	0.058	0.038	0.02	0.82	0.03 U	0.031 U	0.031 U	0.032 U
Metals												
Aluminum	mg/kg		5100	4700	5600	2400	180	4300	7930	5860	8500	22700
Antimony	mg/kg		0.24 J	0.24	0.26	0.4	0.41	0.27	0.37 UJ	0.37 UJ	0.39 UJ	0.42 UJ
Arsenic	mg/kg		4.4	3.9	4.7	9.9	6.1	2.7	3.1 J	4.1 J	4.6 J	2.1 J

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**
Sample ID:			**1.5K BOTTOM NORTH**	**1.5K BOTTOM SOUTH**	**1.5K SOILS COMPOSITE**	**1K BOTTOM NORTH**	**1K BOTTOM SOUTH**	**1K SOILS COMPOSITE**	**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**
Sample Date:			**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**9/29/2017**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:			**-**	**-**	**-**	**-**	**-**	**-**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**
Parameters	**Units**	**VI**										
Barium	mg/kg		20	19	28	31	5	66	137	21.2	62.2	379
Beryllium	mg/kg		0.27	0.23	0.36	0.39	0.026 U	0.75	0.86	0.30	0.64	8.4
Cadmium	mg/kg		0.064 J	0.058 J	0.11	0.12	0.013 J	0.23	0.38 U	0.38 U	0.40 U	0.43 U
Calcium	mg/kg		930	320	11000	14000	100	38000	134000	2700	739	137000
Chromium	mg/kg		16	7.3	150	170	4.2	440	1900 J	27.3 J	20.2 J	61.8 J
Cobalt	mg/kg		6.1	5.3	5.8	1.7	0.2	2.8	1.7	5.7	4.7	1.0
Copper	mg/kg		8.8	7.8	13	8.7	1.6	14	38.9	9.0	6.3	5.1
Iron	mg/kg		14000	13000	28000	34000	11000	73000	201000 J	14500 J	15300 J	58000 J
Lead	mg/kg		8.4	7.8	18	14	7.1	13	12.3 J	5.7 J	5.4 J	10.3 J
Magnesium	mg/kg		2500	2100	13000	5400	140	15000	49000	3040	926	52900
Manganese	mg/kg		460	350	1600	2200	28	7500	20900	650	81.7	1690
Mercury	mg/kg		0.0073 U	0.016 J	0.035 J	0.089	0.12	0.047	0.012 U	0.013 U	0.028	0.013 U
Nickel	mg/kg		10	9.5	12	4.5	0.54	6.1	9.6	11.7	7.7	2.7
Potassium	mg/kg		680	620	740	390	400	360	256	514	546	730
Selenium	mg/kg		0.52 J	0.46 J	0.7	0.69	0.31 J	1	0.40 J	0.39 U	0.41 U	7.9
Silver	mg/kg		0.016 U	0.015 U	0.017 J	0.029 J	0.014 J	0.033 J	0.75 U	0.77 U	0.80 U	0.86 U
Sodium	mg/kg		31 J	27 J	53 J	76	39 J	190	268	42.3 U	43.8 U	902
Thallium	mg/kg		0.044 J	0.04 J	0.052 J	0.37	0.52	0.044 J	0.16 U	0.16 U	0.16 U	0.18 U
Vanadium	mg/kg		11	7.5	81	49	5.4	100	280	11.1	17.8	26.5
Zinc	mg/kg		27	25	39	85	6.2	160	85.9	30.7	25.0	36.5
MetalsSEM												
Cadmium	umol/g		-	-	-	-	-	-	-	-	-	-
Copper	umol/g		-	-	-	-	-	-	-	-	-	-
Lead	umol/g		-	-	-	-	-	-	-	-	-	-
Mercury	umol/g		-	-	-	-	-	-	-	-	-	-
Nickel	umol/g		-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none		-	-	-	-	-	-	-	-	-	-
Zinc	umol/g		-	-	-	-	-	-	-	-	-	-
PCBs												
Aroclor-1016 (PCB-1016)	mg/kg		0.00051 U	0.00049 U	0.00048 U	0.00047 U	0.00047 U	0.00049 U	0.016 U	0.017 U	0.017 U	0.017 U
Aroclor-1221 (PCB-1221)	mg/kg	0.83	0.0005 U	0.00047 U	0.00047 U	0.00046 U	0.00046 U	0.00048 U	0.016 U	0.017 U	0.017 U	0.017 U
Aroclor-1232 (PCB-1232)	mg/kg	0.7	0.00038 U	0.00036 U	0.00036 U	0.00035 U	0.00035 U	0.00037 U	0.016 U	0.017 U	0.017 U	0.017 U
Aroclor-1242 (PCB-1242)	mg/kg		0.00077 U	0.00073 U	0.00072 U	0.0007 U	0.0007 U	0.00074 U	0.016 U	0.017 U	0.017 U	0.017 U
Aroclor-1248 (PCB-1248)	mg/kg		0.00046 U	0.00044 U	0.00043 U	0.00042 U	0.00042 U	0.00044 U	0.016 U	0.017 U	0.017 U	0.017 U
Aroclor-1254 (PCB-1254)	mg/kg		0.0028	0.0026	0.0074	0.0042	0.0024	0.0081	0.021 U	0.021 U	0.021 U	0.022 U
Aroclor-1260 (PCB-1260)	mg/kg		0.00064 U	0.00081 J	0.0037	0.0038	0.0033	0.0051	0.021 U	0.021 U	0.021 U	0.022 U
Total PCBs	mg/kg		-	-	-	-	-	-	0.021 U	0.021 U	0.021 U	0.022 U
General Chemistry												
Cyanide (total)	mg/kg		-	-	-	-	-	-	0.091 J	0.39	0.061 U	0.69
pH	s.u.		8.3	8.3	9.3	7.3	4.8	8.6	-	-	-	-
Soot carbon	mg/kg		-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg		-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg		-	-	-	-	-	-	-	-	-	-
Total solids	%		-	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**BH-202-14**	**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**	**EX96-SB-112**	**GP-01-2017**	**GP-02-2017**	**GP-02-2017**	**GP-03-2017**
Sample ID:		**S-83101-022714-BW-001**	**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**	**SB-112_14-16**	**GP-01_11.0-11.5**	**DUP-02_082317**	**GP-02_10.5-11.0**	**GP-03_11.0-11.5**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**10/14/1996**	**8/24/2017**	**8/23/2017**	**8/23/2017**	**8/24/2017**
Sample Depth:		**(0-2) ft BGS**	**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**	**(14-16) ft BGS**	**(11-11.5) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(11-11.5) ft BGS**
Parameters	**Units**												
Volatile Organic Compounds													
1,1,1-Trichloroethane	mg/kg	0.0031 U	0.026 J	0.0027 U	0.0033 U	0.0064 U	0.003 U	0.0039 U	-	0.000323 U	0.000331 U	0.000332 U	0.0003 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0077 U	0.01 U	0.0068 UJ	0.0083 U	0.016 U	0.0075 U	0.01 U	-	0.000412 U	0.000422 U	0.000424 U	0.000382 U
1,1,2-Trichloroethane	mg/kg	0.0092 U	0.012 U	0.0081 U	0.0099 U	0.019 U	0.009 U	0.012 U	-	0.000313 U	0.000321 U	0.000322 U	0.00029 U
1,1-Dichloroethane	mg/kg	0.0064 U	0.0086 U	0.0056 U	0.0069 U	0.013 U	0.0062 U	0.0082 U	-	0.000225 U	0.00023 U	0.000232 U	0.000209 U
1,1-Dichloroethene	mg/kg	0.0043 U	0.0058 U	0.0038 U	0.0047 U	0.009 U	0.0042 U	0.0056 U	-	0.000342 U	0.000351 U	0.000352 U	0.000318 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	0.000345 U	0.000354 U	0.000356 U	0.000321 U
1,2,4-Trichlorobenzene	mg/kg	0.017 U	0.023 U	0.015 U	0.018 U	0.035 U	0.016 U	0.022 U	9999 U	0.000438 U	0.000449 U	0.000451 U	0.000407 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.02 U	0.026 U	0.017 U	0.021 U	0.041 U	0.019 U	0.025 U	-	0.00119 U	0.00122 U	0.00122 U	0.0011 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.014 U	0.018 U	0.012 U	0.015 U	0.028 U	0.013 U	0.017 U	-	0.000387 U	0.000397 U	0.000399 U	0.000359 U
1,2-Dichlorobenzene	mg/kg	0.01 U	0.014 U	0.0089 U	0.011 U	0.021 U	0.0098 U	0.013 U	-	0.000344 U	0.000353 U	0.000355 U	0.00032 U
1,2-Dichloroethane	mg/kg	0.0093 U	0.012 U	0.0082 U	0.01 U	0.019 U	0.009 U	0.012 U	-	0.000299 U	0.000307 U	0.000308 U	0.000278 U
1,2-Dichloropropane	mg/kg	0.0042 U	0.0057 U	0.0037 U	0.0045 U	0.0088 U	0.0041 U	0.0054 U	-	0.000404 U	0.000414 U	0.000416 U	0.000375 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0066 U	0.0089 U	0.0058 U	0.0071 U	0.014 U	0.0065 U	0.0086 U	-	0.00027 U	0.000277 U	0.000278 U	0.00025 U
1,4-Dichlorobenzene	mg/kg	0.011 U	0.015 U	0.01 U	0.012 U	0.024 U	0.011 U	0.015 U	9999 U	0.000255 U	0.000262 U	0.000262 U	0.000237 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.11 U	0.15 U	0.1 U	0.12 U	0.24 U	0.11 U	0.15 U	-	0.0143	0.00542 U	0.00544 U	0.00608 J
2-Hexanone	mg/kg	0.025 U	0.033 U	0.022 U	0.026 U	0.051 U	0.024 U	0.032 U	-	0.00247 J	0.00159 U	0.0016 U	0.00144 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.048 U	0.065 U	0.043 U	0.052 U	0.1 U	0.047 U	0.062 U	-	0.00212 U	0.00218 U	0.00218 U	0.00197 U
Acetone	mg/kg	0.13 U	0.18 U	0.12 U	0.14 U	0.27 U	0.13 U	0.17 U	-	0.0431 J	0.0116 U	0.0116 U	0.0219 J
Benzene	mg/kg	0.0041 U	0.0054 U	0.0036 U	0.0044 U	0.0084 U	0.0039 U	0.0052 U	9999 U	0.000596 J	0.000312 U	0.000314 U	0.000319 J
Bromodichloromethane	mg/kg	0.0061 U	0.0082 U	0.0054 U	0.0066 U	0.013 U	0.006 U	0.0079 U	-	0.000287 U	0.000294 U	0.000295 U	0.000266 U
Bromoform	mg/kg	0.0094 U	0.013 U	0.0083 UJ	0.01 UJ	0.02 UJ	0.0092 U	0.012 U	-	0.000479 U	0.000491 U	0.000493 U	0.000444 U
Bromomethane (Methyl bromide)	mg/kg	0.0089 UJ	0.012 UJ	0.0078 UJ	0.0096 U	0.019 U	0.0087 U	0.011 U	-	0.00151 U	0.00155 U	0.00155 U	0.0014 U
Carbon disulfide	mg/kg	0.0062 U	0.0083 U	0.0054 U	0.0066 U	0.013 U	0.006 U	0.0079 U	-	0.00791	0.00277	0.000257 U	0.00718
Carbon tetrachloride	mg/kg	0.0028 U	0.0038 U	0.0025 U	0.003 U	0.0058 U	0.0027 U	0.0036 U	-	0.00037 U	0.00038 U	0.000382 U	0.000344 U
Chlorobenzene	mg/kg	0.0054 U	0.0073 U	0.0048 U	0.0058 U	0.011 U	0.0053 U	0.007 U	-	0.000239 U	0.000245 U	0.000247 U	0.000222 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	0.00044 U	0.000451 U	0.000454 U	0.000409 U
Chloroethane	mg/kg	0.0083 U	0.011 U	0.0073 U	0.0089 U	0.017 U	0.0081 U	0.011 U	-	0.00107 U	0.00109 U	0.0011 U	0.000991 U
Chloroform (Trichloromethane)	mg/kg	0.0039 U	0.0052 U	0.0034 U	0.0041 U	0.008 U	0.0038 U	0.005 U	9999 U	0.000259 U	0.000265 U	0.000267 U	0.00024 U
Chloromethane (Methyl chloride)	mg/kg	0.0048 U	0.0064 U	0.0042 U	0.0051 U	0.0099 U	0.0046 U	0.0061 U	-	0.000423 U	0.000434 U	0.000436 U	0.000393 U
cis-1,2-Dichloroethene	mg/kg	0.0087 U	0.012 U	0.0077 U	0.0093 U	0.018 U	0.0085 U	0.011 U	-	0.000265 U	0.000272 U	0.000274 U	0.000246 U
cis-1,3-Dichloropropene	mg/kg	0.009 U	0.012 U	0.0079 U	0.0097 U	0.019 U	0.0088 U	0.012 U	-	0.000296 U	0.000303 U	0.000305 U	0.000275 U
Cyclohexane	mg/kg	0.0078 U	0.01 U	0.0069 U	0.0084 U	0.016 U	0.0076 U	0.01 U	-	0.000395 U	0.000405 U	0.000408 U	0.000367 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
Dibromochloromethane	mg/kg	0.0098 U	0.013 U	0.0086 UJ	0.011 U	0.02 U	0.0095 U	0.013 U	-	0.000421 U	0.000432 U	0.000433 U	0.000391 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.011 U	0.014 U	0.0093 U	0.011 U	0.022 U	0.01 U	0.014 U	-	0.000805 U	0.000825 U	0.00083 U	0.000747 U
Ethylbenzene	mg/kg	0.0047 U	0.0063 U	0.0041 U	0.0051 U	0.0098 U	0.0046 U	0.053 J	9999 U	0.000335 U	0.000344 U	0.000346 U	0.000311 U
Isopropyl benzene	mg/kg	0.0038 U	0.0051 U	0.0033 U	0.004 U	0.0078 U	0.0037 U	0.0048 U	9999 U	0.000274 U	0.000281 U	0.000282 U	0.000255 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
Methyl acetate	mg/kg	0.016 U	0.022 U	1.4	0.018 U	0.8	1.3	0.4	-	0.00689 U	0.00706 U	0.00709 U	0.00639 U
Methyl cyclohexane	mg/kg	0.0066 U	0.0089 U	0.0058 U	0.0071 U	0.014 U	0.0065 U	0.0086 U	-	0.000429 U	0.00044 U	0.000442 U	0.000398 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0068 U	0.0091 U	0.006 U	0.0073 U	0.014 U	0.0066 U	0.0087 U	-	0.000239 U	0.000245 U	0.000247 U	0.000222 U
Methylene chloride	mg/kg	0.0089 U	0.012 U	0.0079 U	0.0096 U	0.019 U	0.0087 U	0.012 U	9999 U	0.00113 U	0.00116 U	0.00116 U	0.00105 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
Styrene	mg/kg	0.0058 U	0.0078 U	0.0051 U	0.0063 U	0.012 U	0.0057 U	0.0075 U	9999 U	0.000264 U	0.000271 U	0.000272 U	0.000245 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	9999 U	-	-	-	-
Tetrachloroethene	mg/kg	0.0048 U	0.0064 U	0.0042 U	0.0051 U	0.0099 U	0.0046 U	0.0061 U	-	0.000792 J	0.000319 U	0.000321 U	0.000289 U
Toluene	mg/kg	0.0073 U	0.0099 U	0.0065 U	0.0079 U	0.015 U	0.0071 U	0.046 J	0.001 J	0.00694	0.00062 J	0.000504 U	0.00167 J
trans-1,2-Dichloroethene	mg/kg	0.0063 U	0.0085 U	0.0056 U	0.0068 U	0.013 U	0.0062 U	0.0081 U	-	0.000298 U	0.000306 U	0.000307 U	0.000277 U
trans-1,3-Dichloropropene	mg/kg	0.012 U	0.016 U	0.01 U	0.013 U	0.025 U	0.012 U	0.015 U	-	0.000301 U	0.000309 U	0.000311 U	0.00028 U
Trichloroethene	mg/kg	0.0045 U	0.039 J	0.004 U	0.0049 U	0.0094 U	0.0044 U	0.0058 U	9999 U	0.000315 U	0.000323 U	0.000324 U	0.000292 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0072 U	0.0096 U	0.0063 U	0.0077 U	0.015 U	0.007 U	0.0092 U	0.004 J	0.000431 U	0.000442 U	0.000445 U	0.0004 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.004 U	0.0054 U	0.0035 U	0.0043 U	0.0084 U	0.0039 U	0.0052 U	-	0.000412 U	0.000422 U	0.000424 U	0.000382 U
Vinyl chloride	mg/kg	0.0071 U	0.0095 U	0.0062 U	0.0076 U	0.015 U	0.0069 U	0.0091 U	-	0.000329 U	0.000337 U	0.000339 U	0.000305 U
Xylenes (total)	mg/kg	0.018 U	0.024 U	0.016 U	0.019 U	0.037 U	0.017 U	0.26	-	0.000788 U	0.000808 U	0.000812 U	0.000731 U
Semi-volatile Organic Compounds													
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	1.72 U	0.0882 U	0.0784 U	0.799 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.041 U	0.041 U	-	0.172 U	0.0088 U	0.00782 U	0.0796 U
2,4,5-Trichlorophenol	mg/kg	0.046 U	0.046 U	0.045 U	0.045 U	0.046 U	0.048 U	0.047 U	-	0.235 U	0.012 U	0.0107 U	0.109 U
2,4,6-Trichlorophenol	mg/kg	0.041 U	0.041 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.176 U	0.00902 U	0.00802 U	0.0816 U

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**BH-202-14**	**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**	**EX96-SB-112**	**GP-01-2017**	**GP-02-2017**	**GP-02-2017**	**GP-03-2017**
Sample ID:		**S-83101-022714-BW-001**	**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**	**SB-112_14-16**	**GP-01_11.0-11.5**	**DUP-02_082317**	**GP-02_10.5-11.0**	**GP-03_11.0-11.5**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**10/14/1996**	**8/24/2017**	**8/23/2017**	**8/23/2017**	**8/24/2017**
Sample Depth:		**(0-2) ft BGS**	**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**	**(14-16) ft BGS**	**(11-11.5) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(11-11.5) ft BGS**
Parameters	**Units**												
2,4-Dichlorophenol	mg/kg	0.052 U	0.052 U	0.051 U	0.051 U	0.052 U	0.055 U	0.054 U	-	0.168 U	0.00863 U	0.00768 U	0.0782 U
2,4-Dimethylphenol	mg/kg	0.087 U	0.087 U	0.087 U	0.087 U	0.088 U	0.092 U	0.09 U	-	1.06 U	0.0545 U	0.0485 U	0.494 U
2,4-Dinitrophenol	mg/kg	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U	-	2.21 U	0.113 UJ3	0.101 UJ3	1.03 U
2,4-Dinitrotoluene	mg/kg	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	-	0.137 U	0.00703 U	0.00625 U	0.0636 U
2,6-Dinitrotoluene	mg/kg	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	-	0.166 U	0.00853 U	0.00759 U	0.0772 U
2-Chloronaphthalene	mg/kg	0.04 U	0.039 U	0.039 U	0.039 U	0.04 U	0.042 U	0.041 U	-	0.145 U	0.0074 U	0.00658 U	0.067 U
2-Chlorophenol	mg/kg	0.047 U	0.046 U	0.046 U	0.046 U	0.047 U	0.049 U	0.048 U	-	0.187 U	0.00962 U	0.00855 U	0.0871 U
2-Methylnaphthalene	mg/kg	0.046 U	0.045 U	0.045 U	0.045 U	0.046 U	0.048 U	0.047 U	-	0.467 J	0.00997 U	0.00886 U	0.0902 U
2-Methylphenol	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.061 U	0.064 U	0.062 U	-	0.222 U	0.0114 U	0.0101 U	0.103 U
2-Nitroaniline	mg/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U	-	0.17 U	0.00874 U	0.00777 U	0.0791 U
2-Nitrophenol	mg/kg	0.04 U	0.039 U	0.039 U	0.039 U	0.04 U	0.042 U	0.041 U	-	0.294 U	0.015 U	0.0134 U	0.136 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	-	-	0.177 U	0.00906 U	0.00806 U	0.0821 U
3,3'-Dichlorobenzidine	mg/kg	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U	0.13 U	-	1.79 U	0.0919 U	0.0817 U	0.832 U
3-Nitroaniline	mg/kg	0.13 U	0.13 U	0.12 U	0.12 U	0.13 U	0.13 U	0.13 U	-	0.192 U	0.00984 U	0.00875 U	0.0891 U
4,6-Dinitro-2-methylphenol	mg/kg	0.097 U	0.096 U	0.096 U	0.096 U	0.097 U	0.1 U	0.1 U	-	2.8 U	0.144 U	0.128 U	1.3 U
4-Bromophenyl phenyl ether	mg/kg	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.037 U	0.036 U	-	0.257 U	0.0132 U	0.0117 U	0.119 U
4-Chloro-3-methylphenol	mg/kg	0.053 U	0.053 U	0.053 U	0.053 U	0.054 U	0.056 U	0.055 U	-	0.108 U	0.00552 U	0.00491 U	0.05 U
4-Chloroaniline	mg/kg	0.094 U	0.094 U	0.093 U	0.093 U	0.094 U	0.099 U	0.097 U	-	0.795 U	0.0407 U	0.0362 U	0.369 U
4-Chlorophenyl phenyl ether	mg/kg	0.042 U	0.041 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.141 U	0.00726 U	0.00645 U	0.0657 U
4-Methylphenol	mg/kg	0.07 U	0.07 U	0.069 U	0.069 U	0.07 U	0.074 U	0.072 U	-	-	-	-	-
4-Nitroaniline	mg/kg	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	-	0.145 U	0.0074 U	0.00658 U	0.067 U
4-Nitrophenol	mg/kg	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.24 U	0.24 U	-	1.19 U	0.0608 U	0.054 U	0.55 U
Acenaphthene	mg/kg	0.052 U	0.052 U	0.051 U	0.051 U	0.052 U	0.054 U	0.053 U	0.041 U	0.186 J	0.00743 U	0.00661 U	0.0673 U
Acenaphthylene	mg/kg	0.042 U	0.042 U	0.042 U	0.041 U	0.042 U	0.044 U	0.043 U	0.041 U	0.151 U	0.00777 U	0.00691 U	0.0703 U
Acetophenone	mg/kg	0.054 U	0.054 U	0.054 U	0.054 U	0.055 U	0.057 U	0.056 U	-	1.69 U	0.087 U	0.0774 U	0.788 U
Anthracene	mg/kg	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.045 U	0.045 U	0.041 U	0.169 J	0.00731 U	0.0065 U	0.0901 J
Atrazine	mg/kg	0.055 U	0.055 U	0.054 U	0.054 U	0.055 U	0.058 U	0.057 U	-	2.12 U	0.109 U	0.0965 U	0.983 U
Benzaldehyde	mg/kg	0.042 U	0.042 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	1.2 U	0.0616 U	0.0548 U	0.557 U
Benzo(a)anthracene	mg/kg	0.0025 U	0.061	0.0025 U	0.0024 U	0.0025 UJ	0.16 J	0.0026 U	0.041 U	0.904	0.00495 U	0.00441 U	0.295 J
Benzo(a)pyrene	mg/kg	0.0025 U	0.056	0.0025 U	0.0025 U	0.04 J	0.16 J	0.0026 U	0.082 U	0.613 J	0.00634 U	0.00564 U	0.214 J
Benzo(b)fluoranthene	mg/kg	0.0022 U	0.079	0.0022 U	0.0022 U	0.068 J	0.23 J	0.0023 U	0.082 U	0.481 J	0.00804 U	0.00715 U	0.194 J
Benzo(g,h,i)perylene	mg/kg	0.026 U	0.036 J	0.026 J	0.026 U	0.026 U	0.079 J	0.027 U	0.082 U	0.409 J	0.00834 U	0.00742 U	0.302 J
Benzo(k)fluoranthene	mg/kg	0.0027 U	0.034 J	0.0027 U	0.0027 U	0.025 J	0.09 J	0.0028 U	0.16 U	0.143 J	0.00674 U	0.00599 U	0.0924 J
Biphenyl (1,1-Biphenyl)	mg/kg	0.047 U	0.047 U	0.047 U	0.047 U	0.048 U	0.05 U	0.049 U	-	0.133 U	0.00681 U	0.00605 U	0.0616 U
bis(2-Chloroethoxy)methane	mg/kg	0.046 U	0.046 U	0.045 U	0.045 U	0.046 U	0.048 U	0.047 U	-	0.174 U	0.00891 U	0.00792 U	0.0807 U
bis(2-Chloroethyl)ether	mg/kg	0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.0049 U	0.0051 U	0.005 U	-	0.202 U	0.0104 U	0.00922 U	0.0939 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.11 J	0.271 U	0.0139 U	0.0124 U	0.126 U
Butyl benzylphthalate (BBP)	mg/kg	0.032 U	0.032 U	0.032 U	0.032 U	0.033 U	0.034 U	0.034 U	-	0.233 U	0.0119 U	0.0106 U	0.108 U
Caprolactam	mg/kg	0.082 UJ	0.081 U	0.081 U	0.081 U	0.082 U	0.086 U	0.084 U	-	2.35 U	0.12 U	0.107 U	1.09 U
Carbazole	mg/kg	0.042 U	0.042 U	0.042 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.119 U	0.00606 U	0.00539 U	0.0608 J
Chrysene	mg/kg	0.041 U	0.071 J	0.041 U	0.041 U	0.046 J	0.22 J	0.043 U	0.041 U	1.83	0.00642 U	0.00571 U	0.421
Dibenz(a,h)anthracene	mg/kg	0.0045 U	0.0045 U	0.0044 U	0.0044 U	0.0045 U	0.0047 U	0.0046 U	0.082 U	0.185 U	0.0095 U	0.00845 U	0.116 J
Dibenzofuran	mg/kg	0.042 U	0.041 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	0.117 U	0.006 U	0.00533 U	0.0543 U
Diethyl phthalate	mg/kg	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.045 U	0.044 U	-	0.156 U	0.008 U	0.00711 U	0.0724 U
Dimethyl phthalate	mg/kg	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.044 U	0.043 U	-	0.122 U	0.00625 U	0.00556 U	0.0566 U
Di-n-butylphthalate (DBP)	mg/kg	0.044 U	0.044 U	0.043 U	0.043 U	0.044 U	0.046 U	0.045 U	-	0.246 U	0.0126 U	0.0112 U	0.114 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.023 U	0.023 U	0.022 U	0.022 U	0.023 U	0.024 U	0.023 U	-	0.204 U	0.0105 U	0.00934 U	0.095 U
Fluoranthene	mg/kg	0.047 U	0.081 J	0.047 U	0.047 U	0.056 J	0.32 J	0.049 U	0.041 U	0.58 J	0.00769 J	0.0051 U	0.207 J
Fluorene	mg/kg	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.048 U	0.047 U	0.041 U	0.357 J	0.00789 U	0.00702 U	0.0715 U
Hexachlorobenzene	mg/kg	0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.0049 U	0.0051 U	0.005 U	-	0.193 U	0.00991 U	0.00881 U	0.0897 U
Hexachlorobutadiene	mg/kg	0.0087 U	0.0086 U	0.0086 U	0.0086 U	0.0087 U	0.0091 U	0.0089 U	-	0.226 U	0.0116 U	0.0103 U	0.105 U
Hexachlorocyclopentadiene	mg/kg	R	0.042 U	0.041 U	0.041 U	0.042 U	0.044 U	0.043 U	-	1.32 U	0.0679 U	0.0604 U	0.615 U
Hexachloroethane	mg/kg	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.004 U	0.0042 U	0.0041 U	-	0.303 U	0.0155 U	0.0138 U	0.14 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.0066 U	0.052	0.0065 U	0.0065 U	0.035 UJ	0.11 J	0.0068 U	0.082 U	0.174 U	0.00894 U	0.00795 U	0.117 J
Isophorone	mg/kg	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.045 U	0.044 U	-	0.117 U	0.00604 U	0.00537 U	0.0547 U
Naphthalene	mg/kg	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.043 U	0.042 U	-	0.201 U	0.0103 U	0.00915 U	0.0932 U
Nitrobenzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.0051 U	0.0053 U	0.0052 U	-	0.157 U	0.00804 U	0.00715 U	0.0728 U
N-Nitrosodi-n-propylamine	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.0059 U	0.0059 U	0.0062 U	0.0061 U	-	0.204 U	0.0105 U	0.00932 U	0.0949 U
N-Nitrosodiphenylamine	mg/kg	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.037 U	0.036 U	0.082 U	0.134 U	0.00687 U	0.00611 U	0.0622 U
Pentachlorophenol	mg/kg	0.11 U	0.11 U	0.1 U	0.1 U	0.11 U	0.11 U	0.11 U	-	1.08 U	0.0556 U	0.0494 U	0.503 U
Phenanthrene	mg/kg	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.18 J	0.047 U	0.041 U	1.67	0.00611 U	0.00543 U	0.155 J
Phenol	mg/kg	0.048 U	0.047 U	0.047 U	0.047 U	0.048 U	0.05 U	0.049 U	-	0.157 U	0.00804 U	0.00715 U	0.0728 U
Pyrene	mg/kg	0.03 U	0.072 J	0.029 U	0.029 U	0.042 J	0.28 J	0.031 U	0.082 U	1.73	0.0142 U	0.0127 U	0.446
Metals													
Aluminum	mg/kg	9050	26200	8970	4800	6210	4570	34200	-	11800	695	422	9120
Antimony	mg/kg	0.42 UJ	0.37 UJ	0.34 UJ	0.34 UJ	0.32 UJ	0.42 UJ	0.35 UJ	1.15 J	4.23 U	0.868 U	0.772 U	5.96 J
Arsenic	mg/kg	4.9 J	2.5 J	2.2 J	3.2 J	5.2 J	8.7 J	2.4	4.6	3.67 U	3.13	1.92 J	3.41 U

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**BH-202-14**	**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**	**EX96-SB-112**	**GP-01-2017**	**GP-02-2017**	**GP-02-2017**	**GP-03-2017**
Sample ID:		**S-83101-022714-BW-001**	**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**	**SB-112_14-16**	**GP-01_11.0-11.5**	**DUP-02_082317**	**GP-02_10.5-11.0**	**GP-03_11.0-11.5**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**10/14/1996**	**8/24/2017**	**8/23/2017**	**8/23/2017**	**8/24/2017**
Sample Depth:		**(0-2) ft BGS**	**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**	**(14-16) ft BGS**	**(11-11.5) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(11-11.5) ft BGS**
Parameters	**Units**												
Barium	mg/kg	27.1	523	117	17.5	52.3	27.1	899	-	122	9.11	3.59	93.6
Beryllium	mg/kg	0.45	10.0	1.5	0.24	0.49	0.62	8.3	0.43	2.22	0.128 J	0.072 U	1.52
Cadmium	mg/kg	0.43 U	0.38 U	0.34 U	0.35 U	0.51	0.43 U	0.36 U	9999 U	0.395 U	0.081 U	0.072 U	0.367 U
Calcium	mg/kg	1780	155000	139000	138	21300 J	3440 J	142000	-	124000	1980	210	115000
Chromium	mg/kg	20.4 J	25.3 J	1920 J	5.6 J	392 J	51.5 J	96.3	11.1	665	14.9	3.8	1170
Cobalt	mg/kg	5.6	0.80 U	1.6	4.9	5.1	3.8	1.1	-	1.3 U	0.396 J	0.237 U	1.21 U
Copper	mg/kg	7.6	4.8	20.5	7.3	18.2	7.1	3.3	10.7	13.5	1.9 J	1 J	11.4
Iron	mg/kg	16500 J	24900 J	212000 J	10400 J	56500	25700	58600	-	123000	6490	2550	194000
Lead	mg/kg	16.7 J	4.0 J	16.8 J	4.9 J	29.9	11.9	0.22 J	5.95	26.3	3.05 B	2.03 B	14
Magnesium	mg/kg	1230	65400	44700	1910	9470 J	1840 J	52600	-	37700	791	86.9 J	36800
Manganese	mg/kg	162	750	15500	319	3350 J	228 J	2020	-	11700	101	6.98	8750
Mercury	mg/kg	0.018	0.020	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	9999 U	0.00316 U	0.0105 BJ	0.00518 BJ	0.00509 J
Nickel	mg/kg	10.6	1.7	8.2	9.7	13.9	7.5	2.6	10.5	7.79 J	1.19 J	0.64 J	15.1
Potassium	mg/kg	619	720	298	435	483	809	2770	-	867	393	182	345 J
Selenium	mg/kg	0.44 U	7.7	0.90	0.36 U	0.33 U	0.44 U	4.4	9999 U	4.18 U	0.856 U	0.762 U	3.88 U
Silver	mg/kg	0.87 U	0.75 U	0.69 U	0.70 U	0.65 U	0.87 U	0.71 U	9999 U	1.58 U	0.324 U	0.288 U	1.47 U
Sodium	mg/kg	47.9 U	756	213	38.7 U	57.3	48.0 U	1440	-	986	34.5 J	10.1 U	245 J
Thallium	mg/kg	0.18 U	0.16 U	0.14 U	0.14 U	0.13 U	0.18 U	0.15 U	0.22 J	3.67 U	0.752 U	0.669 U	3.41 U
Vanadium	mg/kg	20.7	6.5	291	6.1	75.1	33.2	43.5	-	181	8.68	5.5 B	159
Zinc	mg/kg	24.9	75.0	61.6	25.2	172	177	2.8 U	33	74.1 B	4.71 J	3.3 J	62.6 B
MetalsSEM													
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-
PCBs													
Aroclor-1016 (PCB-1016)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00395 U	0.00405 U	0.0036 U	0.00367 U
Aroclor-1221 (PCB-1221)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00606 U	0.00622 U	0.00553 U	0.00563 U
Aroclor-1232 (PCB-1232)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00471 U	0.00483 U	0.00429 U	0.00437 U
Aroclor-1242 (PCB-1242)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00359 U	0.00368 U	0.00327 U	0.00333 U
Aroclor-1248 (PCB-1248)	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	-	0.00356 U	0.00365 U	0.00324 U	0.0033 U
Aroclor-1254 (PCB-1254)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.021 U	-	0.00533 U	0.00546 U	0.00486 U	0.00495 U
Aroclor-1260 (PCB-1260)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.021 U	-	0.0416 P	0.00572 U	0.00508 U	0.00518 U
Total PCBs	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.021 U	9999 U	-	-	-	-
General Chemistry													
Cyanide (total)	mg/kg	0.059 U	0.059 U	0.059 U	0.39	0.084 J	0.20	0.16	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		GP-04-2017	GP-05-2017	GP-06-2017	GP-07-2017	GP-08-2017	GP-09-2017	NATP-1	NATP-1	NATP-10	NATP-10	NATP-11	NATP-11	NATP-14	NATP-14	NATP-15
Sample ID:		GP-04_9.0-9.5	GP-05_9.0-9.5	GP-06_9.5-10.0	GP-07_9.0-9.5	GP-08_9.0-9.5	GP-09_9.0-9.5	NATP-1_0.5-1.0	NATP-1_4.75-5.25	NATP-10_1.0-1.5	NATP-10_11.5-12.0	NATP-11_1.0-1.5	NATP-11_7.0-7.5	NATP-14_1.25-1.75	NATP-14_8.5-9.0	NATP-15_0.25-0.75
Sample Date:		8/24/2017	8/24/2017	8/23/2017	8/24/2017	8/24/2017	8/24/2017	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006	6/13/2006	6/14/2006	6/14/2006	6/14/2006
Sample Depth:		(9-9.5) ft BGS	(9-9.5) ft BGS	(9.5-10) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(0.5-1) ft BGS	(4.75-5.25) ft BGS	(1-1.5) ft BGS	(11.5-12) ft BGS	(1-1.5) ft BGS	(7-7.5) ft BGS	(1.25-1.75) ft BGS	(8.5-9) ft BGS	(0.25-0.75) ft BGS
Parameters	**Units**															
Volatile Organic Compounds																
1,1,1-Trichloroethane	mg/kg	0.000359 U	0.000329 U	0.000423 U	0.000355 U	0.000343 U	0.000371 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,1,2,2-Tetrachloroethane	mg/kg	0.000458 U	0.00042 U	0.000539 U	0.000453 U	0.000437 U	0.000474 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,1,2-Trichloroethane	mg/kg	0.000348 U	0.000319 U	0.000409 U	0.000344 U	0.000332 U	0.000359 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,1-Dichloroethane	mg/kg	0.00025 U	0.000229 U	0.000294 U	0.000247 U	0.000238 U	0.000258 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,1-Dichloroethene	mg/kg	0.00038 U	0.000349 U	0.000448 U	0.000376 U	0.000363 U	0.000393 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,2,3-Trichlorobenzene	mg/kg	0.000384 U	0.000352 U	0.000452 U	0.00038 U	0.000367 U	0.000397 U	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.000487 U	0.000447 U	0.000573 U	0.000481 U	0.000465 U	0.000504 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.00132 U	0.00121 U	0.00155 U	0.0013 U	0.00126 U	0.00136 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.00043 U	0.000395 U	0.000506 U	0.000426 U	0.000411 U	0.000445 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,2-Dichlorobenzene	mg/kg	0.000383 U	0.000351 U	0.00045 U	0.000378 U	0.000365 U	0.000396 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,2-Dichloroethane	mg/kg	0.000332 U	0.000305 U	0.000391 U	0.000329 U	0.000317 U	0.000344 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,2-Dichloropropane	mg/kg	0.000449 U	0.000412 U	0.000529 U	0.000444 U	0.000429 U	0.000465 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0003 U	0.000275 U	0.000354 U	0.000297 U	0.000286 U	0.00031 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
1,4-Dichlorobenzene	mg/kg	0.000284 U	0.00026 U	0.000334 U	0.00028 U	0.000271 U	0.000293 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.00587 U	0.00539 U	0.00691 U	0.00581 U	0.00561 U	0.00607 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
2-Hexanone	mg/kg	0.00172 U	0.00158 U	0.00202 U	0.0017 U	0.00164 U	0.00178 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.00236 U	0.00216 U	0.00277 U	0.00233 U	0.00225 U	0.00244 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Acetone	mg/kg	0.0125 U	0.0115 U	0.0148 U	0.0124 U	0.012 U	0.013 U	0.019 U	0.023 U	0.026 U	0.023 U	0.019 U	0.02 U	0.019 U	0.022 U	0.021 U
Benzene	mg/kg	0.000339 U	0.000311 U	0.000398 U	0.000335 U	0.000323 U	0.00035 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Bromodichloromethane	mg/kg	0.000319 U	0.000292 U	0.000375 U	0.000315 U	0.000304 U	0.00033 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Bromoform	mg/kg	0.000532 U	0.000488 U	0.000626 U	0.000526 U	0.000508 U	0.00055 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Bromomethane (Methyl bromide)	mg/kg	0.00168 U	0.00154 U	0.00197 U	0.00166 U	0.00161 U	0.00174 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Carbon disulfide	mg/kg	0.000331 J	0.000254 U	0.000327 U	0.000301 J	0.000829 J	0.000287 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Carbon tetrachloride	mg/kg	0.000412 U	0.000378 U	0.000484 U	0.000407 U	0.000393 U	0.000426 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Chlorobenzene	mg/kg	0.000266 U	0.000244 U	0.000314 U	0.000263 U	0.000254 U	0.000275 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Chlorobromomethane	mg/kg	0.000489 U	0.000449 U	0.000576 U	0.000484 U	0.000467 U	0.000506 U	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.00119 U	0.00109 U	0.00139 U	0.00117 U	0.00113 U	0.00123 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Chloroform (Trichloromethane)	mg/kg	0.000287 U	0.000264 U	0.000338 U	0.000284 U	0.000274 U	0.000297 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Chloromethane (Methyl chloride)	mg/kg	0.000471 U	0.000432 U	0.000555 U	0.000465 U	0.000449 U	0.000487 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
cis-1,2-Dichloroethene	mg/kg	0.000295 U	0.00027 U	0.000347 U	0.000292 U	0.000282 U	0.000305 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
cis-1,3-Dichloropropene	mg/kg	0.000329 U	0.000302 U	0.000387 U	0.000325 U	0.000314 U	0.00034 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Cyclohexane	mg/kg	0.000439 U	0.000403 U	0.000517 U	0.000434 U	0.000419 U	0.000454 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.000468 U	0.000429 U	0.000551 U	0.000463 U	0.000447 U	0.000484 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.000895 U	0.000821 U	0.00105 U	0.000885 U	0.000854 U	0.000925 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Ethylbenzene	mg/kg	0.000373 U	0.000342 U	0.000438 U	0.000368 U	0.000356 U	0.000385 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Isopropyl benzene	mg/kg	0.000305 U	0.00028 U	0.000358 U	0.000301 U	0.000291 U	0.000315 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.00765 U	0.00702 U	0.00901 U	0.00757 U	0.00731 U	0.00792 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Methyl cyclohexane	mg/kg	0.000477 U	0.000437 U	0.000562 U	0.000471 U	0.000455 U	0.000493 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Methyl tert butyl ether (MTBE)	mg/kg	0.000266 U	0.000244 U	0.000314 U	0.000263 U	0.000254 U	0.000275 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Methylene chloride	mg/kg	0.00125 U	0.00115 U	0.00148 U	0.00124 U	0.0012 U	0.0013 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0026 J
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.000294 U	0.000269 U	0.000345 U	0.00029 U	0.00028 U	0.000304 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.000346 U	0.000318 U	0.000408 U	0.000342 U	0.000331 U	0.000358 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Toluene	mg/kg	0.000545 U	0.0005 U	0.00064 U	0.000538 U	0.000771 J	0.000563 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
trans-1,2-Dichloroethene	mg/kg	0.000331 U	0.000304 U	0.00039 U	0.000328 U	0.000316 U	0.000343 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
trans-1,3-Dichloropropene	mg/kg	0.000335 U	0.000307 U	0.000395 U	0.000331 U	0.00032 U	0.000347 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Trichloroethene	mg/kg	0.00035 U	0.000321 U	0.000412 U	0.000346 U	0.000334 U	0.000362 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.000479 U	0.00044 U	0.000564 U	0.000474 U	0.000458 U	0.000496 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.000458 U	0.00042 U	0.000539 U	0.000453 U	0.000437 U	0.000474 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Vinyl chloride	mg/kg	0.000365 U	0.000335 U	0.00043 U	0.000361 U	0.000349 U	0.000378 U	0.0047 U	0.0056 U	0.0064 U	0.0058 U	0.0047 U	0.0051 U	0.0048 U	0.0055 U	0.0052 U
Xylenes (total)	mg/kg	0.000876 U	0.000803 U	0.00103 U	0.000866 U	0.000836 U	0.000906 U	0.014 U	0.017 U	0.019 U	0.017 U	0.014 U	0.015 U	0.014 U	0.017 U	0.016 U
Semi-volatile Organic Compounds																
1,2,4,5-Tetrachlorobenzene	mg/kg	0.0956 U	0.0877 U	0.0923 U	0.0945 U	0.0913 U	0.0989 U	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.00954 U	0.00875 U	0.0092 U	0.00943 U	0.0091 U	0.00986 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2,4,5-Trichlorophenol	mg/kg	0.013 U	0.012 U	0.0126 U	0.0129 U	0.0125 U	0.0135 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2,4,6-Trichlorophenol	mg/kg	0.00977 U	0.00897 U	0.00943 U	0.00966 U	0.00933 U	0.0101 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		GP-04-2017	GP-05-2017	GP-06-2017	GP-07-2017	GP-08-2017	GP-09-2017	NATP-1	NATP-1	NATP-10	NATP-10	NATP-11	NATP-11	NATP-14	NATP-14	NATP-15
Sample ID:		GP-04_9.0-9.5	GP-05_9.0-9.5	GP-06_9.5-10.0	GP-07_9.0-9.5	GP-08_9.0-9.5	GP-09_9.0-9.5	NATP-1_0.5-1.0	NATP-1_4.75-5.25	NATP-10_1.0-1.5	NATP-10_11.5-12.0	NATP-11_1.0-1.5	NATP-11_7.0-7.5	NATP-14_1.25-1.75	NATP-14_8.5-9.0	NATP-15_0.25-0.75
Sample Date:		8/24/2017	8/24/2017	8/23/2017	8/24/2017	8/24/2017	8/24/2017	6/12/2006	6/12/2006	6/13/2006	6/13/2006	6/13/2006	6/13/2006	6/14/2006	6/14/2006	6/14/2006
Sample Depth:		(9-9.5) ft BGS	(9-9.5) ft BGS	(9.5-10) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(9-9.5) ft BGS	(0.5-1) ft BGS	(4.75-5.25) ft BGS	(1-1.5) ft BGS	(11.5-12) ft BGS	(1-1.5) ft BGS	(7-7.5) ft BGS	(1.25-1.75) ft BGS	(8.5-9) ft BGS	(0.25-0.75) ft BGS
Parameters	**Units**															
2,4-Dichlorophenol	mg/kg	0.00936 U	0.00859 U	0.00903 U	0.00926 U	0.00894 U	0.00968 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2,4-Dimethylphenol	mg/kg	0.0591 U	0.0542 U	0.057 U	0.0584 U	0.0564 U	0.0611 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2,4-Dinitrophenol	mg/kg	0.123 U	0.113 U	0.119 UJ3	0.122 U	0.117 U	0.127 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
2,4-Dinitrotoluene	mg/kg	0.00762 U	0.00699 U	0.00735 U	0.00753 U	0.00727 U	0.00788 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2,6-Dinitrotoluene	mg/kg	0.00925 U	0.00848 U	0.00892 U	0.00914 U	0.00883 U	0.00956 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2-Chloronaphthalene	mg/kg	0.00802 U	0.00736 U	0.00774 U	0.00793 U	0.00765 U	0.00829 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2-Chlorophenol	mg/kg	0.0104 U	0.00957 U	0.0101 U	0.0103 U	0.00995 U	0.0108 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2-Methylnaphthalene	mg/kg	0.0108 U	0.00991 U	0.0104 U	0.0107 U	0.0103 U	0.0112 U	0.0095 J	0.015 J	0.36 U	0.41 U	0.35 U	0.37 U	0.52 J	0.072 J	0.35 U
2-Methylphenol	mg/kg	0.0124 U	0.0113 U	0.0119 U	0.0122 U	0.0118 U	0.0128 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
2-Nitroaniline	mg/kg	0.00947 U	0.00869 U	0.00914 U	0.00937 U	0.00904 U	0.0098 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
2-Nitrophenol	mg/kg	0.0163 U	0.015 U	0.0157 U	0.0161 U	0.0156 U	0.0169 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
3&4-Methylphenol	mg/kg	0.00982 U	0.00901 U	0.00948 U	0.00971 U	0.0212 J	0.0102 U	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	0.0996 U	0.0914 U	0.0961 U	0.0985 U	0.0951 U	0.103 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
3-Nitroaniline	mg/kg	0.0107 U	0.00978 U	0.0103 U	0.0105 U	0.0102 U	0.011 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
4,6-Dinitro-2-methylphenol	mg/kg	0.156 U	0.143 U	0.15 U	0.154 U	0.149 U	0.161 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
4-Bromophenyl phenyl ether	mg/kg	0.0143 U	0.0131 U	0.0138 U	0.0141 U	0.0137 U	0.0148 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
4-Chloro-3-methylphenol	mg/kg	0.00598 U	0.00549 U	0.00578 U	0.00592 U	0.00571 U	0.00619 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
4-Chloroaniline	mg/kg	0.0442 U	0.0405 U	0.0426 U	0.0437 U	0.0422 U	0.0457 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
4-Chlorophenyl phenyl ether	mg/kg	0.00787 U	0.00722 U	0.00759 U	0.00778 U	0.00751 U	0.00814 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
4-Methylphenol	mg/kg	-	-	-	-	-	-	0.36 U	0.12 J	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.019 J	0.35 U
4-Nitroaniline	mg/kg	0.00802 U	0.00736 U	0.00774 U	0.00793 U	0.00765 U	0.00829 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
4-Nitrophenol	mg/kg	0.0659 U	0.0604 U	0.0636 U	0.0651 U	0.0629 U	0.0681 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
Acenaphthene	mg/kg	0.00806 U	0.00739 U	0.00777 U	0.00796 U	0.00769 U	0.00833 U	0.0054 J	0.011	0.003 J	0.003 J	0.0026 J	0.0035 J	3.9 / 4	0.028	0.01
Acenaphthylene	mg/kg	0.00842 U	0.00772 U	0.00812 U	0.00832 U	0.00804 U	0.00871 U	0.012	0.0083	0.0073 U	0.0082 U	0.0071 U	0.0075 U	0.73 U / 0.12 J	0.012	0.01
Acetophenone	mg/kg	0.0944 U	0.0866 U	0.091 U	0.0933 U	0.0901 U	0.0976 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Anthracene	mg/kg	0.00793 U	0.00727 U	0.00765 U	0.00784 U	0.00757 U	0.0082 U	0.016	0.036	0.0038 J	0.0056 J	0.0019 J	0.0053 J	6.8 / 6.5	0.074	0.028
Atrazine	mg/kg	0.118 U	0.108 U	0.114 U	0.116 U	0.112 U	0.122 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Benzaldehyde	mg/kg	0.0668 U	0.0612 U	0.0644 U	0.066 U	0.0637 U	0.069 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Benzo(a)anthracene	mg/kg	0.00537 U	0.00493 U	0.00518 U	0.00531 U	0.0253 J	0.00555 U	0.07	0.14	0.026	0.018	0.0083	0.017	18 / 18	0.19	0.13
Benzo(a)pyrene	mg/kg	0.00688 U	0.00631 U	0.00663 U	0.0068 U	0.0229 J	0.00711 U	0.087	0.15	0.025	0.019	0.0098	0.017	16 / 15	0.16	0.12
Benzo(b)fluoranthene	mg/kg	0.00872 U	0.008 U	0.00841 U	0.00862 U	0.0276 J	0.00902 U	0.08	0.12	0.02	0.028	0.0079	0.015	14 / 16	0.14	0.2
Benzo(g,h,i)perylene	mg/kg	0.00905 U	0.0083 U	0.00873 U	0.00895 U	0.0178 J	0.00936 U	0.086	0.11	0.019	0.015	0.01	0.013	10 / 10	0.11	0.1
Benzo(k)fluoranthene	mg/kg	0.0073 U	0.0067 U	0.00705 U	0.00722 U	0.012 J	0.00755 U	0.064	0.13	0.02	0.0082 U	0.0088	0.014	12 / 14	0.12	0.0071 U
Biphenyl (1,1-Biphenyl)	mg/kg	0.00738 U	0.00677 U	0.00712 U	0.00729 U	0.00704 U	0.00763 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
bis(2-Chloroethoxy)methane	mg/kg	0.00966 U	0.00886 U	0.00932 U	0.00955 U	0.00922 U	0.00999 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
bis(2-Chloroethyl)ether	mg/kg	0.0112 U	0.0103 U	0.0108 U	0.0111 U	0.0107 U	0.0116 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.0151 U	0.0138 U	0.0145 U	0.0149 U	0.0144 U	0.0156 U	0.36 U	0.054 J	0.36 U	0.41 U	0.35 U	0.37 U	0.17 J	0.025 J	0.35 U
Butyl benzylphthalate (BBP)	mg/kg	0.0129 U	0.0119 U	0.0125 U	0.0128 U	0.0123 U	0.0134 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.017 J	0.35 U
Caprolactam	mg/kg	0.13 U	0.12 U	0.126 U	0.129 U	0.125 U	0.135 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Carbazole	mg/kg	0.00657 U	0.00603 U	0.00634 U	0.0065 U	0.00628 U	0.0068 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	3.6	0.38 U	0.35 U
Chrysene	mg/kg	0.00696 U	0.00639 U	0.00672 U	0.00689 U	0.0234 J	0.0072 U	0.095	0.18	0.025	0.024	0.01	0.021	20 / 20	0.23	0.18
Dibenz(a,h)anthracene	mg/kg	0.0103 U	0.00945 U	0.00994 U	0.0102 U	0.00983 U	0.0107 U	0.028	0.042	0.0066 J	0.0047 J	0.0028 J	0.0049 J	4.1 / 4.3	0.053	0.041
Dibenzofuran	mg/kg	0.0065 U	0.00596 U	0.00627 U	0.00643 U	0.00621 U	0.00672 U	0.36 U	0.011 J	0.36 U	0.41 U	0.35 U	0.37 U	1.7 J	0.024 J	0.35 U
Diethyl phthalate	mg/kg	0.00867 U	0.00795 U	0.00837 U	0.00857 U	0.00828 U	0.00897 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Dimethyl phthalate	mg/kg	0.00678 U	0.00622 U	0.00654 U	0.0067 U	0.00647 U	0.00701 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Di-n-butylphthalate (DBP)	mg/kg	0.0137 U	0.0125 U	0.0132 U	0.0135 U	0.0131 U	0.0141 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.0114 U	0.0104 U	0.011 U	0.0113 U	0.0109 U	0.0118 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	0.59 J	0.38 U	0.35 U
Fluoranthene	mg/kg	0.00622 U	0.00571 U	0.00601 U	0.00615 U	0.0312 J	0.00644 U	0.063	0.18	0.032	0.033	0.013	0.037	31 E / 35	0.3	0.26
Fluorene	mg/kg	0.00856 U	0.00785 U	0.00826 U	0.00846 U	0.00817 U	0.00885 U	0.0054 J	0.022	0.003 J	0.0038 J	0.0025 J	0.0042 J	2.2 / 2.2	0.029	0.0047 J
Hexachlorobenzene	mg/kg	0.0107 U	0.00985 U	0.0104 U	0.0106 U	0.0103 U	0.0111 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Hexachlorobutadiene	mg/kg	0.0125 U	0.0115 U	0.0121 U	0.0124 U	0.012 U	0.013 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Hexachlorocyclopentadiene	mg/kg	0.0737 U	0.0676 U	0.0711 U	0.0728 U	0.0703 U	0.0762 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
Hexachloroethane	mg/kg	0.0168 U	0.0154 U	0.0162 U	0.0166 U	0.0161 U	0.0174 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.00969 U	0.00889 U	0.00935 U	0.00958 U	0.0152 J	0.01 U	0.069	0.095	0.016	0.014	0.0081	0.012	10 / 9.9	0.1	0.097
Isophorone	mg/kg	0.00655 U	0.00601 U	0.00632 U	0.00648 U	0.00625 U	0.00677 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.28 J
Naphthalene	mg/kg	0.0112 U	0.0102 U	0.0108 U	0.011 U	0.0106 U	0.0115 U	0.012	0.03	0.0073 U	0.0046 J	0.0071 U	0.0038 J	1.1 / 1	0.056	0.0063 J
Nitrobenzene	mg/kg	0.00872 U	0.008 U	0.00841 U	0.00862 U	0.00833 U	0.00902 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
N-Nitrosodi-n-propylamine	mg/kg	0.0114 U	0.0104 U	0.011 U	0.0112 U	0.0109 U	0.0118 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
N-Nitrosodiphenylamine	mg/kg	0.00745 U	0.00684 U	0.00719 U	0.00737 U	0.00712 U	0.00771 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Pentachlorophenol	mg/kg	0.0602 U	0.0552 U	0.0581 U	0.0596 U	0.0575 U	0.0623 U	1.7 U	1.9 U	1.8 U	2 U	1.7 U	1.8 U	8.8 U	1.8 U	1.7 U
Phenanthrene	mg/kg	0.00662 U	0.00608 U	0.00639 U	0.00655 U	0.0153 J	0.00685 U	0.037	0.12	0.018	0.031	0.012	0.031	23 / 24	0.31	0.13
Phenol	mg/kg	0.00872 U	0.008 U	0.00841 U	0.00862 U	0.00833 U	0.00902 U	0.36 U	0.4 U	0.36 U	0.41 U	0.35 U	0.37 U	1.8 U	0.38 U	0.35 U
Pyrene	mg/kg	0.0154 U	0.0142 U	0.0149 U	0.0153 U	0.0304 J	0.016 U	0.074	0.18	0.027	0.029	0.01	0.028	26 / 29	0.17	0.12
Metals																
Aluminum	mg/kg	281	332	414	357	348	6160	-	-	-	-	-	-	-	-	-
Antimony	mg/kg	0.941 U	0.863 U	0.908 U	0.93 U	0.898 U	0.973 U	0.092 B	0.061 B	7.3 U	0.022 B	7.1 U	7.5 U	0.22	0.055 B	0.19 B
Arsenic	mg/kg	0.845 J	0.748 U	1.08 J	1.35 J	1.2 J	4.36	3.5	1.6	0.59 J	10.4 J	2 J	3.2 J	2.6 J	3.7 J	1.5 J

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**GP-04-2017**	**GP-05-2017**	**GP-06-2017**	**GP-07-2017**	**GP-08-2017**	**GP-09-2017**	**NATP-1**	**NATP-1**	**NATP-10**	**NATP-10**	**NATP-11**	**NATP-11**	**NATP-14**	**NATP-14**	**NATP-15**
Sample ID:		**GP-04_9.0-9.5**	**GP-05_9.0-9.5**	**GP-06_9.5-10.0**	**GP-07_9.0-9.5**	**GP-08_9.0-9.5**	**GP-09_9.0-9.5**	**NATP-1_0.5-1.0**	**NATP-1_4.75-5.25**	**NATP-10_1.0-1.5**	**NATP-10_11.5-12.0**	**NATP-11_1.0-1.5**	**NATP-11_7.0-7.5**	**NATP-14_1.25-1.75**	**NATP-14_8.5-9.0**	**NATP-15_0.25-0.75**
Sample Date:		**8/24/2017**	**8/24/2017**	**8/23/2017**	**8/24/2017**	**8/24/2017**	**8/24/2017**	**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**
Sample Depth:		**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(9.5-10) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(9-9.5) ft BGS**	**(0.5-1) ft BGS**	**(4.75-5.25) ft BGS**	**(1-1.5) ft BGS**	**(11.5-12) ft BGS**	**(1-1.5) ft BGS**	**(7-7.5) ft BGS**	**(1.25-1.75) ft BGS**	**(8.5-9) ft BGS**	**(0.25-0.75) ft BGS**
Parameters	**Units**															
Barium	mg/kg	7.83	3.13	4.91	6.72	6.4	27.4	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	0.157 J	0.285	0.0847 U	0.157 J	0.176 J	0.355	1.2	0.37	9.9	1	0.57	0.58	0.61	0.69	0.8
Cadmium	mg/kg	0.0905 J	0.0806 U	0.0847 U	0.0868 U	0.0839 U	0.0908 U	0.46	0.35	0.68	0.29	0.13	0.087 B	0.49	0.28	0.77
Calcium	mg/kg	370	32.5 BJ	205	689	331	278	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	3.5	1.23	2.52	3.51	2.46	7.66	166 J	6.4 J	10 J	14.2 J	8.8 J	12.5 J	334 J	20.9 J	1400 J
Cobalt	mg/kg	1.02 J	0.472 J	1.41	1.56	1.62	6.72	-	-	-	-	-	-	-	-	-
Copper	mg/kg	2.13 J	1.94 J	1.28 J	4.51	2.45	9.15	18.3 J	5.9 J	2.3	19.3	84.3	10.3	37.5	15.2	28.2
Iron	mg/kg	6450	1230	1240	4540	4560	13800	-	-	-	-	-	-	-	-	-
Lead	mg/kg	5.58	2.36	1.99 B	3.68	4.97	7.43	18.7	15.8	3.3	24.1	6.7	12.5	53.9	17.7	17.6
Magnesium	mg/kg	189	64.6 J	85.6 J	277	194	2390	-	-	-	-	-	-	-	-	-
Manganese	mg/kg	48.4	4.67	12	38.3	31.4	336	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.00351 U	0.00322 U	0.00414 BJ	0.0162 J	0.00335 U	0.00363 U	0.073	0.085	0.036 U	0.43	0.035 U	0.042	1.9	0.041	0.011 B
Nickel	mg/kg	2.58	1.43 J	1.61 J	2.93	3.05	13.2	12.5	4.2	0.35	17.4	12.4	13.1	13.7	15.8	15.7
Potassium	mg/kg	68.5 J	80 J	99.7 J	72.2 J	104 J	693	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	0.928 U	0.852 U	0.896 U	0.918 U	0.886 U	0.96 U	1.2	0.34 B	5.8	1	0.63	0.48 B	0.53 B	0.97	0.47 B
Silver	mg/kg	0.351 U	0.322 U	0.339 U	0.347 U	0.335 U	0.363 U	0.073 B	0.042 B	0.088 B	0.057 B	0.04 B	7.5 U	0.083 B	0.048 B	0.13
Sodium	mg/kg	18.4 J	13 J	11.9 U	19.6 J	13.5 J	27.5 J	-	-	-	-	-	-	-	-	-
Thallium	mg/kg	0.816 U	0.748 U	0.787 U	0.806 U	0.779 U	0.844 U	0.16	0.082 B	7.3 U	0.17	0.04 B	0.081 B	0.1 B	0.11	0.021 B
Vanadium	mg/kg	6.74	1.94 J	6.42 B	12.4	3.26	7.77	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	33.6	12.9 B	8.57	13.1 B	29.1	37	81.6	106	7.1	55.1	29.4	34.5	82.4	43.2	33.3
MetalsSEM																
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																
Aroclor-1016 (PCB-1016)	mg/kg	0.00439 U	0.00403 U	0.00424 U	0.00434 U	0.00419 U	0.00454 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U
Aroclor-1221 (PCB-1221)	mg/kg	0.00674 U	0.00618 U	0.0065 U	0.00666 U	0.00643 U	0.00697 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U
Aroclor-1232 (PCB-1232)	mg/kg	0.00523 U	0.0048 U	0.00505 U	0.00517 U	0.005 U	0.00541 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U
Aroclor-1242 (PCB-1242)	mg/kg	0.00399 U	0.00366 U	0.00385 U	0.00395 U	0.00381 U	0.00413 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U
Aroclor-1248 (PCB-1248)	mg/kg	0.00395 U	0.00363 U	0.00381 U	0.00391 U	0.00377 U	0.00409 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.23
Aroclor-1254 (PCB-1254)	mg/kg	0.00592 U	0.00543 U	0.00571 U	0.00586 U	0.00565 U	0.00613 U	0.0072 U	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.0076 U	0.0071 U
Aroclor-1260 (PCB-1260)	mg/kg	0.0062 U	0.00569 U	0.00598 U	0.00613 U	0.00592 U	0.00641 U	0.085	0.008 U	7.3 U	8.2 U	7.1 U	7.5 U	0.73 U	0.031 J	0.019 J
Total PCBs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	-	-	-	-	-	-	92.6	83.4	91.1	81.2	93.9	89.4	91.1	87.6	93.9

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-15	NATP-16	NATP-16	NATP-17	NATP-17	NATP-2	NATP-2	NATP-3	NATP-3	NATP-4	NATP-4	NATP-5	NATP-5	NATP-5	NATP-6
Sample ID:		NATP-15_4.0-4.5	NATP-16_1.5-2.0	NATP-16_13.5-14.0	NATP-17_0.5-1.0	NATP-17_5.75-6.25	NATP-2_1.5-2.0	NATP-2_11.5-12.0	NATP-3_0.5-1.0	NATP-3_6.25-6.75	NATP-4_1.5-2.0	NATP-4_6.0-6.5	NATP-5_0.5-1.0	DUP-001	NATP-5_10.5-11.0	NATP-6_1.5-2.0
Sample Date:		6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006
Sample Depth:		(4-4.5) ft BGS	(1.5-2) ft BGS	(13.5-14) ft BGS	(0.5-1) ft BGS	(5.75-6.25) ft BGS	(1.5-2) ft BGS	(11.5-12) ft BGS	(0.5-1) ft BGS	(6.25-6.75) ft BGS	(1.5-2) ft BGS	(6-6.5) ft BGS	(0.5-1) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(1.5-2) ft BGS
Parameters	**Units**															
Volatile Organic Compounds																
1,1,1-Trichloroethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,1,2-Trichloroethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,1-Dichloroethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,1-Dichloroethene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,2-Dichlorobenzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,2-Dichloroethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,2-Dichloropropane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
1,4-Dichlorobenzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
2-Hexanone	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Acetone	mg/kg	0.024 U	0.027 U	0.013 J	0.019 U	0.021 U	0.026 U	0.02 U	0.023 U	0.024 U	0.019 U	0.02 U	0.018 U	0.025 U	0.024 U	0.019 U
Benzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Bromodichloromethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Bromoform	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Bromomethane (Methyl bromide)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Carbon disulfide	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Carbon tetrachloride	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Chlorobenzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Chloroform (Trichloromethane)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Chloromethane (Methyl chloride)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
cis-1,2-Dichloroethene	mg/kg	0.0059 U	0.0039 J	0.0021 J	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
cis-1,3-Dichloropropene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Cyclohexane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Ethylbenzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Isopropyl benzene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Methyl cyclohexane	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Methylene chloride	mg/kg	0.0036 J	0.0029 J	0.0033 J	0.0047 U	0.0036 J	0.0064 U	0.0051 U	0.0033 J	0.0026 J	0.0019 J	0.0024 J	0.0046 U	0.0063 U	0.006 U	0.0048 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.0059 U	0.0068 U	0.0027 J	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Toluene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
trans-1,2-Dichloroethene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
trans-1,3-Dichloropropene	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Trichloroethene	mg/kg	0.0059 U	0.0022 J	0.011	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Vinyl chloride	mg/kg	0.0059 U	0.0068 U	0.0049 U	0.0047 U	0.0053 U	0.0064 U	0.0051 U	0.0059 U	0.006 U	0.0047 U	0.0051 U	0.0046 U	0.0063 U	0.006 U	0.0048 U
Xylenes (total)	mg/kg	0.018 U	0.021 U	0.015 U	0.014 U	0.016 U	0.019 U	0.015 U	0.018 U	0.018 U	0.014 U	0.015 U	0.014 U	0.019 U	0.018 U	0.014 U
Semi-volatile Organic Compounds																
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2,4,5-Trichlorophenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2,4,6-Trichlorophenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		NATP-15	NATP-16	NATP-16	NATP-17	NATP-17	NATP-2	NATP-2	NATP-3	NATP-3	NATP-4	NATP-4	NATP-5	NATP-5	NATP-5	NATP-6
Sample ID:		NATP-15_4.0-4.5	NATP-16_1.5-2.0	NATP-16_13.5-14.0	NATP-17_0.5-1.0	NATP-17_5.75-6.25	NATP-2_1.5-2.0	NATP-2_11.5-12.0	NATP-3_0.5-1.0	NATP-3_6.25-6.75	NATP-4_1.5-2.0	NATP-4_6.0-6.5	NATP-5_0.5-1.0	DUP-001	NATP-5_10.5-11.0	NATP-6_1.5-2.0
Sample Date:		6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006	6/12/2006
Sample Depth:		(4-4.5) ft BGS	(1.5-2) ft BGS	(13.5-14) ft BGS	(0.5-1) ft BGS	(5.75-6.25) ft BGS	(1.5-2) ft BGS	(11.5-12) ft BGS	(0.5-1) ft BGS	(6.25-6.75) ft BGS	(1.5-2) ft BGS	(6-6.5) ft BGS	(0.5-1) ft BGS	(10.5-11) ft BGS (Duplicate)	(10.5-11) ft BGS	(1.5-2) ft BGS
Parameters	**Units**															
2,4-Dichlorophenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2,4-Dimethylphenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2,4-Dinitrophenol	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
2,4-Dinitrotoluene	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2,6-Dinitrotoluene	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2-Chloronaphthalene	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2-Chlorophenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2-Methylnaphthalene	mg/kg	0.35 U	0.013 J	0.38 U	0.022 J	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.062 J
2-Methylphenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
2-Nitroaniline	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
2-Nitrophenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
3-Nitroaniline	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
4,6-Dinitro-2-methylphenol	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
4-Bromophenyl phenyl ether	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
4-Chloro-3-methylphenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
4-Chloroaniline	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
4-Chlorophenyl phenyl ether	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
4-Methylphenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.02 J	0.016 J	0.38 U
4-Nitroaniline	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
4-Nitrophenol	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
Acenaphthene	mg/kg	0.012 J	0.028	0.025	0.018 J	0.15	0.0028 J	0.0072 U	0.28 U	0.0045 J	0.012	0.0086	0.25 J	0.013	0.015	0.017
Acenaphthylene	mg/kg	0.011 J	0.035	0.0029 J	0.033 J	0.041	0.0027 J	0.0072 U	0.28 U	0.0034 J	0.003 J	0.0078 U	0.28 U	0.0096	0.016	0.016
Acetophenone	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Anthracene	mg/kg	0.033	0.11	0.018	0.063	0.31	0.0082	0.0023 J	0.28 U	0.0088	0.025	0.009	0.24 J	0.023	0.039	0.021
Atrazine	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Benzaldehyde	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Benzo(a)anthracene	mg/kg	0.17	0.43	0.08	0.2	1.4	0.074	0.018	1.7	0.046	0.07	0.025	5.4	0.062	0.1	0.033
Benzo(a)pyrene	mg/kg	0.16	0.38	0.11	0.16	1.2	0.072	0.016	1.3	0.058	0.07	0.033	3.3	0.052	0.095	0.032
Benzo(b)fluoranthene	mg/kg	0.15	0.51	0.09	0.14	1	0.088	0.014	0.82	0.046	0.061	0.024	2	0.038	0.074	0.024
Benzo(g,h,i)perylene	mg/kg	0.13	0.021	0.097	0.14	0.83	0.14	0.011	2.4	0.048	0.059	0.025	2.7	0.039	0.068	0.026
Benzo(k)fluoranthene	mg/kg	0.16	0.016 U	0.07	0.15	0.84	0.0072 U	0.013	0.28 U	0.039	0.047	0.023	0.28 U	0.044	0.067	0.027
Biphenyl (1,1-Biphenyl)	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
bis(2-Chloroethoxy)methane	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
bis(2-Chloroethyl)ether	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.026 J	0.37 U	0.38 U	6.9 U	0.03 J	0.03 J	0.38 U
Butyl benzylphthalate (BBP)	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.014 J
Caprolactam	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Carbazole	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.15 J	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Chrysene	mg/kg	0.22	0.46	0.091	0.27	1.8	0.18	0.02	4.3	0.062	0.081	0.028	14	0.069	0.12	0.043
Dibenz(a,h)anthracene	mg/kg	0.048	0.15	0.037	0.048	0.33	0.037	0.0042 J	0.71	0.019	0.021	0.0097	1.3	0.015	0.026	0.0097
Dibenzofuran	mg/kg	0.013 J	0.015 J	0.38 U	0.74 U	0.044 J	0.72 U	0.36 U	6.9 U	0.42 U	0.0096 J	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Diethyl phthalate	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Dimethyl phthalate	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Di-n-butylphthalate (DBP)	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Fluoranthene	mg/kg	0.31	0.59	0.12	0.27	1.9	0.075	0.02	0.47	0.049	0.13	0.042	1.9	0.086	0.13	0.044
Fluorene	mg/kg	0.0081 J	0.026	0.0071 J	0.037 U	0.097	0.0072 U	0.0072 U	0.28 U	0.0057 J	0.012	0.0043 J	0.28 U	0.012	0.015	0.02
Hexachlorobenzene	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Hexachlorobutadiene	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Hexachlorocyclopentadiene	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
Hexachloroethane	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.12	0.32	0.09	0.13	0.78	0.05	0.0094	0.52	0.039	0.051	0.023	0.84	0.036	0.059	0.023
Isophorone	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Naphthalene	mg/kg	0.011 J	0.033	0.0042 J	0.022 J	0.035 J	0.0066 J	0.0072 U	0.28 U	0.01	0.0083	0.0027 J	0.1 J	0.015	0.016	0.025
Nitrobenzene	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
N-Nitrosodi-n-propylamine	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
N-Nitrosodiphenylamine	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Pentachlorophenol	mg/kg	1.7 U	1.9 U	1.9 U	3.6 U	3.5 U	3.5 U	1.7 U	33 U	2 U	1.8 U	1.9 U	34 U	2.1 U	2 U	1.8 U
Phenanthrene	mg/kg	0.16	0.28	0.056	0.15	0.99	0.055	0.0097	0.55	0.026	0.092	0.021	0.27 J	0.066	0.1	0.053
Phenol	mg/kg	0.35 U	0.4 U	0.38 U	0.74 U	0.72 U	0.72 U	0.36 U	6.9 U	0.42 U	0.37 U	0.38 U	6.9 U	0.43 U	0.42 U	0.38 U
Pyrene	mg/kg	0.19	0.42	0.11	0.24	1.9	0.073	0.017	2.4	0.05	0.11	0.042	8.2	0.088	0.15	0.082
Metals																
Aluminum	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	mg/kg	0.12 B	0.054 B	0.029 B	1.5	0.31	0.18 B	0.0087 B	0.18 B	8.5 U	0.048 B	0.022 B	0.21	0.013 B	8.5 U	0.07 B
Arsenic	mg/kg	0.72 J	3.2 J	6.2 J	6.2 J	3.2 J	2.6	1.7	2.3	1.4	3.5	3.7	2.4	2.2	1.7	3.2

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**NATP-15**	**NATP-16**	**NATP-16**	**NATP-17**	**NATP-17**	**NATP-2**	**NATP-2**	**NATP-3**	**NATP-3**	**NATP-4**	**NATP-4**	**NATP-5**	**NATP-5**	**NATP-5**	**NATP-6**
Sample ID:		**NATP-15_4.0-4.5**	**NATP-16_1.5-2.0**	**NATP-16_13.5-14.0**	**NATP-17_0.5-1.0**	**NATP-17_5.75-6.25**	**NATP-2_1.5-2.0**	**NATP-2_11.5-12.0**	**NATP-3_0.5-1.0**	**NATP-3_6.25-6.75**	**NATP-4_1.5-2.0**	**NATP-4_6.0-6.5**	**NATP-5_0.5-1.0**	**DUP-001**	**NATP-5_10.5-11.0**	**NATP-6_1.5-2.0**
Sample Date:		**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/14/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**	**6/12/2006**
Sample Depth:		**(4-4.5) ft BGS**	**(1.5-2) ft BGS**	**(13.5-14) ft BGS**	**(0.5-1) ft BGS**	**(5.75-6.25) ft BGS**	**(1.5-2) ft BGS**	**(11.5-12) ft BGS**	**(0.5-1) ft BGS**	**(6.25-6.75) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(0.5-1) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**															
Barium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	0.59	0.62	0.59	0.22	0.38	3.1	7.2 U	0.8	0.25	0.42	0.36	1.1	0.29	0.23	2.6
Cadmium	mg/kg	0.66	0.52	0.19	0.76	0.76	0.45	0.043 B	0.42	0.17	0.13	0.12	0.53	0.21	0.15	1
Calcium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	1290 J	245 J	12.8 J	301 J	1490 J	921 J	4.2 J	1180 J	4.6 J	16 J	11.1 J	1530 J	5.1 J	4.8 J	44.1 J
Cobalt	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	20.1	14.5	13.8	76.2	23.9	19.4 J	2.1 J	23.4 J	5.2 J	8.7 J	10.5 J	27.2 J	6.2 J	3.8 J	16.3 J
Iron	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	16.5	22.8	16.3	44.3	61.5	10.7	4.2	22.8	5.5	6.5	8.1	12.6	5.5	4.5	21.2
Magnesium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.035 U	0.053	0.044	0.033 B	0.072	0.011 B	0.012 B	0.017 B	0.025 B	0.022 B	0.017 B	0.017 B	0.021 B	8.5 U	0.039
Nickel	mg/kg	10.7	11.9	12.3	56	15.6	7.5	0.79	11.2	4.5	9.2	11.7	16.7	3.5	3.3	7.5
Potassium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	0.49 B	0.98	1	0.61	0.56	2.7	0.075 B	0.58	0.15 B	0.61	0.18 B	0.81	0.09 B	0.075 B	1.4
Silver	mg/kg	0.11	0.058 B	7.7 U	0.19	0.15	0.078 B	7.2 U	0.11	8.5 U	7.5 U	7.8 U	0.067 B	8.8 U	8.5 U	0.15
Sodium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/kg	0.011 B	0.087 B	0.094 B	0.024 B	0.024 B	0.021 B	0.056 B	0.02 B	0.051 B	0.036 B	0.045 B	0.011 B	0.046 B	0.037 B	0.074 B
Vanadium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	72.4	104	31.9	247	126	35.7	3	91.5	47.3	33.9	36.3	55.2	37.3	29.9	137
MetalsSEM																
Cadmium	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																
Aroclor-1016 (PCB-1016)	mg/kg	0.021 U	0.016 U	0.0077 U	0.037 U	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U
Aroclor-1221 (PCB-1221)	mg/kg	0.021 U	0.016 U	0.0077 U	0.037 U	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U
Aroclor-1232 (PCB-1232)	mg/kg	0.021 U	0.016 U	0.0077 U	0.037 U	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U
Aroclor-1242 (PCB-1242)	mg/kg	0.021 U	0.016 U	0.0077 U	0.037 U	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U
Aroclor-1248 (PCB-1248)	mg/kg	0.41	0.016 U	0.0077 U	0.037 U	0.51	0.038	0.0072 U	2.2	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U
Aroclor-1254 (PCB-1254)	mg/kg	0.021 U	0.016 U	0.0077 U	0.037 U	0.036 U	0.0072 U	0.0072 U	0.28 U	0.0085 U	0.0075 U	0.0078 U	0.28 U	0.0088 U	0.0085 U	0.0076 U
Aroclor-1260 (PCB-1260)	mg/kg	0.031 J	0.016 U	0.0077 U	0.037 U	0.036 U	0.23	0.0072 U	2.7	0.0085 J	0.0075 U	0.0078 U	0.015 J	0.0088 U	0.0085 U	0.0076 U
Total PCBs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total solids	%	93.3	82.6	86.5	89.1	91.8	92.3	92.7	96.2	78.6	88.7	85.9	95.3	76.2	78.1	87.9

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**NATP-6**	**NATP-7**	**NATP-7**	**NATP-8**	**NATP-8**	**NATP-9**	**NATP-9**	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**	**STREAM-1**
Sample ID:		**NATP-6_12.0-12.5**	**NATP-7_0.25-0.75**	**NATP-7_11.5-12.0**	**NATP-8_0.5-1.0**	**NATP-8_11.5-11.75**	**NATP-9_1.5-2.0**	**NATP-9_14.5-15.0**	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**	**STREAM-1_1.0-1.5**
Sample Date:		**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**8/24/2017**
Sample Depth:		**(12-12.5) ft BGS**	**(0.25-0.75) ft BGS**	**(11.5-12) ft BGS**	**(0.5-1) ft BGS**	**(11.5-11.75) ft BGS**	**(1.5-2) ft BGS**	**(14.5-15) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(1-1.5) ft BGS**
Parameters	**Units**												
Volatile Organic Compounds													
1,1,1-Trichloroethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0025 U	0.0019 U	0.0021 U	0.0047 U	0.000732 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0094 U	0.0069 U	0.0079 U	0.017 U	0.000934 U
1,1,2-Trichloroethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0066 U	0.0049 U	0.0056 U	0.012 U	0.000709 U
1,1-Dichloroethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0027 U	0.0020 U	0.0022 U	0.0049 U	0.000509 U
1,1-Dichloroethene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0034 U	0.0025 U	0.0029 U	0.0064 U	0.000774 U
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	0.000783 U
1,2,4-Trichlorobenzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0096 U	0.0071 U	0.0081 U	0.018 U	0.000992 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.011 U	0.0079 U	0.0090 U	0.020 U	0.0027 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0051 U	0.0037 U	0.0042 U	0.0094 U	0.000876 U
1,2-Dichlorobenzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0077 U	0.0057 U	0.0065 U	0.014 U	0.000781 U
1,2-Dichloroethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0026 U	0.0020 U	0.0022 U	0.0049 U	0.000679 U
1,2-Dichloropropane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0044 U	0.0033 U	0.0037 U	0.0082 U	0.000916 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000611 U
1,4-Dichlorobenzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000579 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0071 U	0.0052 U	0.0059 U	0.013 U	0.0422
2-Hexanone	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0096 U	0.0071 U	0.0081 U	0.018 U	0.0638
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0084 U	0.0062 U	0.0071 U	0.016 U	0.00712 J
Acetone	mg/kg	0.022 U	0.022 U	0.02 U	0.017 U	0.029 U	0.02 U	0.02 U	0.024 U	0.018 U	0.020 U	0.045 U	0.348
Benzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0072 U	0.0053 U	0.0060 U	0.013 U	0.00069 U
Bromodichloromethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0047 U	0.0035 U	0.0040 U	0.0088 U	0.000648 U
Bromoform	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.011 U	0.0080 U	0.0091 U	0.020 U	0.00108 U
Bromomethane (Methyl bromide)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0041 U	0.0030 U	0.0034 U	0.0075 U	0.00342 U
Carbon disulfide	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0050 U	0.0037 U	0.0042 U	0.0093 U	0.000847 J
Carbon tetrachloride	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0032 U	0.0024 U	0.0027 U	0.0060 U	0.000839 U
Chlorobenzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0053 U	0.0039 U	0.0044 U	0.0098 U	0.000541 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	0.000997 U
Chloroethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0050 U	0.0037 U	0.0042 U	0.0093 U	0.00242 U
Chloroform (Trichloromethane)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0030 U	0.0022 U	0.0025 U	0.0055 U	0.000586 U
Chloromethane (Methyl chloride)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0063 U	0.0046 U	0.0052 U	0.012 U	0.000957 U
cis-1,2-Dichloroethene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0032 U	0.0023 U	0.0027 U	0.0059 U	0.0006 U
cis-1,3-Dichloropropene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0052 U	0.0038 U	0.0043 U	0.0096 U	0.000669 U
Cyclohexane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0035 U	0.0026 U	0.0029 U	0.0065 U	0.000895 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0059 U	0.0043 U	0.0049 U	0.011 U	0.000953 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0070 U	0.0051 U	0.0058 U	0.013 U	0.00182 U
Ethylbenzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0047 U	0.0035 U	0.0039 U	0.0087 U	0.00076 U
Isopropyl benzene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0081 U	0.0060 U	0.0068 U	0.015 U	0.000621 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.031 U	0.023 U	0.026 U	0.058 U	0.0275 J
Methyl cyclohexane	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0043 U	0.0032 U	0.0036 U	0.0079 U	0.000971 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0059 U	0.0044 U	0.0050 U	0.011 U	0.000541 U
Methylene chloride	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0013 U	0.0030 U	0.0054 U	0.0083 U	0.00256 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0055 U	0.0041 U	0.0046 U	0.010 U	0.000597 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0029 U	0.0022 U	0.0025 U	0.0054 U	0.000706 U
Toluene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0086 U	0.0063 U	0.0072 U	0.016 U	0.00187 J
trans-1,2-Dichloroethene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0024 U	0.0018 U	0.0020 U	0.0045 U	0.000674 U
trans-1,3-Dichloropropene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0057 U	0.0042 U	0.0048 U	0.011 U	0.000683 U
Trichloroethene	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0027 U	0.0020 U	0.0022 U	0.0049 U	0.000713 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0070 U	0.0052 U	0.0059 U	0.013 U	0.000976 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0033 U	0.0024 U	0.0027 U	0.0061 U	0.000934 U
Vinyl chloride	mg/kg	0.0054 U	0.0055 U	0.005 U	0.0042 U	0.0073 U	0.005 U	0.005 U	0.0060 U	0.0044 U	0.0051 U	0.011 U	0.000744 U
Xylenes (total)	mg/kg	0.016 U	0.017 U	0.015 U	0.013 U	0.022 U	0.015 U	0.015 U	0.011 U	0.0079 U	0.0090 U	0.020 U	0.00178 U
Semi-volatile Organic Compounds													
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	3.53 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.13 U	0.056 U	0.14 U	0.032 U	0.353 U
2,4,5-Trichlorophenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.65 U	0.27 U	0.68 U	0.16 U	0.483 U
2,4,6-Trichlorophenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.92 U	0.39 U	0.95 U	0.22 U	0.363 U

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**NATP-6**	**NATP-7**	**NATP-7**	**NATP-8**	**NATP-8**	**NATP-9**	**NATP-9**	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**	**STREAM-1**
Sample ID:		**NATP-6_12.0-12.5**	**NATP-7_0.25-0.75**	**NATP-7_11.5-12.0**	**NATP-8_0.5-1.0**	**NATP-8_11.5-11.75**	**NATP-9_1.5-2.0**	**NATP-9_14.5-15.0**	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**	**STREAM-1_1.0-1.5**
Sample Date:		**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**8/24/2017**
Sample Depth:		**(12-12.5) ft BGS**	**(0.25-0.75) ft BGS**	**(11.5-12) ft BGS**	**(0.5-1) ft BGS**	**(11.5-11.75) ft BGS**	**(1.5-2) ft BGS**	**(14.5-15) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(1-1.5) ft BGS**
Parameters	**Units**												
2,4-Dichlorophenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.12 U	0.052 U	0.13 U	0.030 U	0.346 U
2,4-Dimethylphenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.96 U	0.40 U	1.0 U	0.23 U	2.19 U
2,4-Dinitrophenol	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	7.3 U	3.1 U	7.6 U	1.8 U	4.55 U
2,4-Dinitrotoluene	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.49 U	0.21 U	0.51 U	0.12 U	0.281 U
2,6-Dinitrotoluene	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.63 U	0.27 U	0.66 U	0.15 U	0.342 U
2-Chloronaphthalene	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.13 U	0.054 U	0.13 U	0.031 U	0.297 U
2-Chlorophenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.50 U	0.21 U	0.52 U	0.12 U	0.386 U
2-Methylnaphthalene	mg/kg	0.41 U	0.014 J	0.37 U	0.017 J	0.036 J	0.36 U	0.38 U	0.22 J	0.12 J	0.26 J	0.044 J	0.4 U
2-Methylphenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.43 U	0.18 U	0.45 U	0.10 U	0.458 U
2-Nitroaniline	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	2.7 U	1.2 U	2.9 U	0.67 U	0.351 U
2-Nitrophenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.68 U	0.28 U	0.70 U	0.16 U	0.604 U
3&4-Methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	0.365 U
3,3'-Dichlorobenzidine	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	0.65 U	0.27 U	0.67 U	0.16 U	3.7 U
3-Nitroaniline	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	2.5 U	1.1 U	2.6 U	0.62 U	0.395 U
4,6-Dinitro-2-methylphenol	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	2.5 U	1.0 U	2.6 U	0.60 U	5.76 U
4-Bromophenyl phenyl ether	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.53 U	0.22 U	0.56 U	0.13 U	0.53 U
4-Chloro-3-methylphenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.56 U	0.24 U	0.59 U	0.14 U	0.222 U
4-Chloroaniline	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.49 U	0.21 U	0.51 U	0.12 U	1.64 U
4-Chlorophenyl phenyl ether	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.68 U	0.29 U	0.71 U	0.17 U	0.29 U
4-Methylphenol	mg/kg	0.037 J	0.35 U	0.37 U	0.35 U	0.11 J	0.36 U	0.38 U	0.60 U	0.25 U	0.62 U	0.15 U	-
4-Nitroaniline	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	2.5 U	1.0 U	2.6 U	0.61 U	0.297 U
4-Nitrophenol	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	2.2 U	0.94 U	2.3 U	0.55 U	2.44 U
Acenaphthene	mg/kg	0.0094	0.0025 J	0.0051 J	0.0064 J	0.023	0.0024 J	0.0077 U	0.29 J	0.049 U	0.67 J	0.092 J	0.297 U
Acenaphthylene	mg/kg	0.01	0.007 U	0.0054 J	0.0077 J	0.025	0.0073 U	0.0077 U	0.14 U	0.059 U	0.26 J	0.034 U	0.311 U
Acetophenone	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.50 U	0.21 U	0.52 U	0.12 U	3.49 U
Anthracene	mg/kg	0.025	0.0023 J	0.0092	0.015	0.067	0.0073 U	0.0077 U	0.53 J	0.24 J	0.92 J	0.21 J	0.293 U
Atrazine	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.60 U	0.25 U	0.62 U	0.15 U	4.37 U
Benzaldehyde	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.92 U	0.39 U	0.96 U	0.22 U	2.46 U
Benzo(a)anthracene	mg/kg	0.059	0.0068 J	0.031	0.052	0.18	0.0053 J	0.0077 U	2.7	0.83	6.3	1.0	0.414 J
Benzo(a)pyrene	mg/kg	0.049	0.0054 J	0.03	0.07	0.16	0.0034 J	0.0077 U	3.7	1.1	6.8	1.1	0.405 J
Benzo(b)fluoranthene	mg/kg	0.041	0.011	0.028	0.077	0.12	0.0085	0.0077 U	4.7	1.4	10	1.6	0.707 J
Benzo(g,h,i)perylene	mg/kg	0.041	0.013	0.025	0.09	0.12	0.0061 J	0.0077 U	4.1	1.2	6.2	1.1	0.491 J
Benzo(k)fluoranthene	mg/kg	0.039	0.007 U	0.026	0.049	0.13	0.0073 U	0.0077 U	2.2	0.77	3.5	0.56	0.27 U
Biphenyl (1,1-Biphenyl)	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.55 U	0.23 U	0.57 U	0.13 U	0.274 U
bis(2-Chloroethoxy)methane	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.40 U	0.17 U	0.42 U	0.099 U	0.358 U
bis(2-Chloroethyl)ether	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.16 U	0.069 U	0.17 U	0.040 U	0.416 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.028 J	0.022 J	0.37 U	0.35 U	0.055 J	0.36 U	0.38 U	0.99 U	0.42 U	1.0 U	0.24 U	0.558 U
Butyl benzylphthalate (BBP)	mg/kg	0.41 U	0.35 U	0.37 U	0.019 J	0.037 J	0.019 J	0.38 U	0.84 U	0.35 U	0.87 U	0.20 U	0.479 U
Caprolactam	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	4.6 U	1.9 U	4.8 U	1.1 U	4.83 U
Carbazole	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.51 J	0.047 U	1.2 J	0.19 J	0.244 U
Chrysene	mg/kg	0.07	0.011	0.044	0.082	0.21	0.0081	0.0077 U	3.5	1.1	7.7	1.3	0.594 J
Dibenz(a,h)anthracene	mg/kg	0.015	0.0022 J	0.0075	0.024	0.033	0.0018 J	0.0077 U	1.1 J	0.28 J	1.5	0.30	0.381 U
Dibenzofuran	mg/kg	0.41 U	0.35 U	0.37 U	0.0089 J	0.023 J	0.36 U	0.38 U	0.60 U	0.25 U	0.63 U	0.15 U	0.242 U
Diethyl phthalate	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.67 U	0.28 U	0.70 U	0.16 U	0.321 U
Dimethyl phthalate	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.67 U	0.28 U	0.70 U	0.16 U	0.251 U
Di-n-butylphthalate (DBP)	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.77 U	0.32 U	0.80 U	0.19 U	0.507 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.65 U	0.27 U	0.67 U	0.16 U	0.421 U
Fluoranthene	mg/kg	0.084	0.0079	0.056	0.064	0.27	0.0093	0.0077 U	5.1	1.6	12	1.9	0.897 J
Fluorene	mg/kg	0.015	0.004 J	0.0062 J	0.014 U	0.035	0.003 J	0.0077 U	0.16 U	0.068 U	0.38 J	0.039 U	0.316 U
Hexachlorobenzene	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.13 U	0.055 U	0.14 U	0.032 U	0.397 U
Hexachlorobutadiene	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.14 U	0.058 U	0.14 U	0.033 U	0.465 U
Hexachlorocyclopentadiene	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	0.66 U	0.28 U	0.69 U	0.16 U	2.72 U
Hexachloroethane	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.44 U	0.18 U	0.46 U	0.11 U	0.623 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.036	0.006 J	0.022	0.068	0.088	0.0037 J	0.0077 U	3.8	0.93	5.0	0.92	0.367 J
Isophorone	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.46 U	0.19 U	0.48 U	0.11 U	0.242 U
Naphthalene	mg/kg	0.016	0.011	0.01	0.018	0.059	0.0026 J	0.0077 U	0.11 U	0.15 J	0.11 U	0.026 U	0.414 U
Nitrobenzene	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.51 U	0.21 U	0.53 U	0.12 U	0.323 U
N-Nitrosodi-n-propylamine	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.14 U	0.060 U	0.15 U	0.035 U	0.421 U
N-Nitrosodiphenylamine	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.57 U	0.24 U	0.59 U	0.14 U	0.277 U
Pentachlorophenol	mg/kg	2 U	1.7 U	1.8 U	1.7 U	2.2 U	1.7 U	1.8 U	0.55 U	0.23 U	0.57 U	0.13 U	2.23 U
Phenanthrene	mg/kg	0.071	0.024	0.039	0.054	0.18	0.015	0.0075 J	2.1	0.79	5.6	0.86	0.517 J
Phenol	mg/kg	0.41 U	0.35 U	0.37 U	0.35 U	0.46 U	0.36 U	0.38 U	0.14 U	0.061 U	0.15 U	0.035 U	0.323 U
Pyrene	mg/kg	0.083	0.011	0.047	0.047	0.23	0.0059 J	0.0077 U	4.6	1.6	12	1.9	0.792 J
Metals													
Aluminum	mg/kg	-	-	-	-	-	-	-	12700	7460	8910	11100	13200
Antimony	mg/kg	0.024 B	0.097 B	0.16 B	0.24	0.11 B	7.3 U	7.7 U	2.6	1.0	5.0	1.7	1.88 J
Arsenic	mg/kg	2	6.1	8.9 J	2.7 J	4 J	1.9 J	5.7 J	12.7	4.0	14.3	6.4	5.01

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**NATP-6**	**NATP-7**	**NATP-7**	**NATP-8**	**NATP-8**	**NATP-9**	**NATP-9**	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**	**STREAM-1**
Sample ID:		**NATP-6_12.0-12.5**	**NATP-7_0.25-0.75**	**NATP-7_11.5-12.0**	**NATP-8_0.5-1.0**	**NATP-8_11.5-11.75**	**NATP-9_1.5-2.0**	**NATP-9_14.5-15.0**	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**	**STREAM-1_1.0-1.5**
Sample Date:		**6/12/2006**	**6/12/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**6/13/2006**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**9/9/2016**	**8/24/2017**
Sample Depth:		**(12-12.5) ft BGS**	**(0.25-0.75) ft BGS**	**(11.5-12) ft BGS**	**(0.5-1) ft BGS**	**(11.5-11.75) ft BGS**	**(1.5-2) ft BGS**	**(14.5-15) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(0-0.5) ft BGS**	**(1-1.5) ft BGS**
Parameters	**Units**												
Barium	mg/kg	-	-	-	-	-	-	-	98.2	65.9	226	157	187
Beryllium	mg/kg	0.6	1.3	1.5	0.87	2.6	0.42	0.35	0.96	0.59	2.1	0.98	1.15
Cadmium	mg/kg	0.46	0.14	0.39	0.34	2.1	0.14	0.096 B	2.0	1.4	4.9	2.1	3.12
Calcium	mg/kg	-	-	-	-	-	-	-	6370	4460	12400	11700	29200
Chromium	mg/kg	6.5 J	32.9 J	149 J	1160 J	21.7 J	31.4 J	13 J	390	237	393	229	355
Cobalt	mg/kg	-	-	-	-	-	-	-	11.0	5.8	8.9	8.8	9.71
Copper	mg/kg	9.1 J	26.6 J	25.6	39.5	34.4	55.2	11.2	208	144	307	172	109
Iron	mg/kg	-	-	-	-	-	-	-	59900	34200	91100	47900	46800
Lead	mg/kg	10	14	23.2	19.8	51.9	8.2	9.2	262	150	2270	178	169
Magnesium	mg/kg	-	-	-	-	-	-	-	3970	2900	3560	4120	6370
Manganese	mg/kg	-	-	-	-	-	-	-	917	397	776	586	1260
Mercury	mg/kg	0.054	0.0097 B	0.044	0.028 B	0.27	0.036 U	0.019 B	0.63	0.19	0.33	0.20	0.161
Nickel	mg/kg	5.6	21.4	15.9	16.3	19	17.2	13.7	91.7	56.4	80.3	34.8	44.2
Potassium	mg/kg	-	-	-	-	-	-	-	1080	585	569	1100	1520
Selenium	mg/kg	0.21 B	0.36 B	0.48 B	0.6	0.88	0.71	0.33 B	10.8	3.3	8.2	6.4	1.72 U
Silver	mg/kg	0.064 B	0.044 B	0.089 B	0.093 B	0.29	0.035 B	0.23 U	0.72	0.38	0.94	0.53	0.651 U
Sodium	mg/kg	-	-	-	-	-	-	-	168 U	90.3 U	116 U	514 U	516
Thallium	mg/kg	0.049 B	0.19	0.055 B	0.047 B	0.14	0.043 B	0.081 B	0.26	0.14	0.28	0.26	1.51 U
Vanadium	mg/kg	-	-	-	-	-	-	-	75.6	36.5	111	77.9	83.2
Zinc	mg/kg	78.8	68.4	116	108	371	50.4	34.2	638	503	2330	488	981
MetalsSEM													
Cadmium	umol/g	-	-	-	-	-	-	-	0.0088	0.0089	0.026	0.012	-
Copper	umol/g	-	-	-	-	-	-	-	1.3	1.1	1.8	0.73	-
Lead	umol/g	-	-	-	-	-	-	-	0.75	0.54	1.6	0.39	-
Mercury	umol/g	-	-	-	-	-	-	-	0.00018	0.00010	0.00013	0.000023 U	-
Nickel	umol/g	-	-	-	-	-	-	-	0.45	0.36	0.40	0.15	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	0.00100 U	56.4	99.2	0.00100 U	-
Zinc	umol/g	-	-	-	-	-	-	-	2.9	4.2	13.4	4.1	-
PCBs													
Aroclor-1016 (PCB-1016)	mg/kg	0.0082 U	0.007 U	7.4 U	14 U	9.3 U	7.3 U	0.12 U	0.0035 U	0.0029 U	0.0037 U	0.0069 U	0.00813 U
Aroclor-1221 (PCB-1221)	mg/kg	0.0082 U	0.007 U	7.4 U	14 U	9.3 U	7.3 U	0.12 U	0.0055 U	0.0046 U	0.0058 U	0.011 U	0.0125 U
Aroclor-1232 (PCB-1232)	mg/kg	0.0082 U	0.007 U	7.4 U	14 U	9.3 U	7.3 U	0.12 U	0.0019 U	0.0016 U	0.0020 U	0.0038 U	0.00969 U
Aroclor-1242 (PCB-1242)	mg/kg	0.0082 U	0.007 U	7.4 U	14 U	9.3 U	7.3 U	0.12 U	0.0028 U	0.0024 U	0.0029 U	0.0055 U	0.00739 U
Aroclor-1248 (PCB-1248)	mg/kg	0.0082 U	0.007 U	19 J	14 J	20 J	7.3 U	0.58 U	0.0018 U	0.0015 U	0.0019 U	0.0035 U	0.00732 U
Aroclor-1254 (PCB-1254)	mg/kg	0.0082 U	0.007 U	7.4 U	14 U	9.3 U	7.3 U	0.12 U	0.21	0.096	0.18	0.093	0.011 U
Aroclor-1260 (PCB-1260)	mg/kg	0.0082 U	0.007 U	16 J	42	39 J	7.3 U	0.12 U	0.22	0.12	0.20	0.095	0.15 P
Total PCBs	mg/kg	-	-	-	-	-	-	-	0.43	0.22	0.38	0.19	-
General Chemistry													
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	0.79	0.18 J	1.8	1.0	-
pH	s.u.	-	-	-	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	18200	6440	17500	14300	-
Sulfide	mg/kg	-	-	-	-	-	-	-	5.5 UJ	4.6 J	6.5 J	10.8 UJ	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	161000	22500	122000	113000	-
Total solids	%	81.1	94.7	89.6	93.1	71.4	91.7	86.6	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**TP-01-2017**	**TP-02-2017**	**TP-03-2017**	**TP-04-2017**	**TP-04-2017**	**TP-05-2017**	**TP-06-2017**	**TP-07-2017**	**TP-08-2017**
Sample ID:		**TP-01-10.5-11.0**	**TP-02-5.0-5.5**	**TP-03-6.5-7.0**	**DUP-01_082317**	**TP-04_10.5-11.0**	**TP-05_9.5-10.0**	**TP-06-5.0-5.5**	**TP-07_9.5-10.0**	**TP-08-9.5-10.0**
Sample Date:		**8/22/2017**	**8/22/2017**	**8/22/2017**	**8/23/2017**	**8/23/2017**	**8/23/2017**	**8/22/2017**	**8/23/2017**	**8/22/2017**
Sample Depth:		**(10.5-11) ft BGS**	**(5-5.5) ft BGS**	**(6.5-7) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(9.5-10) ft BGS**	**(5-5.5) ft BGS**	**(9.5-10) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**									
Volatile Organic Compounds										
1,1,1-Trichloroethane	mg/kg	0.00796 U	0.0103 U	0.0123 U	0.00035 U	0.000428 U	0.0133 U	0.0136 U	0.0204 U	0.000357 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0102 U	0.0131 U	0.0156 U	0.000447 U	0.000546 U	0.0171 U	0.0174 U	0.0259 U	0.000456 U
1,1,2-Trichloroethane	mg/kg	0.00771 U	0.00993 U	0.0119 U	0.000339 U	0.000415 U	0.0129 U	0.528 U	0.0197 U	0.000346 U
1,1-Dichloroethane	mg/kg	0.00554 U	0.00714 U	0.00852 U	0.000244 U	0.000298 U	0.00927 U	0.00947 U	0.0142 U	0.000249 U
1,1-Dichloroethene	mg/kg	0.00843 U	0.0109 U	0.013 U	0.000371 U	0.000453 U	0.0141 U	0.0144 U	0.0215 U	0.000378 U
1,2,3-Trichlorobenzene	mg/kg	0.00851 U	0.011 U	0.0131 U	0.000375 U	0.000458 U	0.0143 U	0.0146 U	0.0218 U	0.000382 U
1,2,4-Trichlorobenzene	mg/kg	0.0108 U	0.0139 U	0.0167 U	0.000475 U	0.000581 U	0.018 U	0.0185 U	0.0276 U	0.000485 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.0292 U	0.0376 U	0.0449 U	0.00129 U	0.00157 U	0.049 U	0.0501 U	0.0748 U	0.00131 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.00955 U	0.0123 U	0.0147 U	0.00042 U	0.000513 U	0.016 U	0.654 U	0.0244 U	0.000428 U
1,2-Dichlorobenzene	mg/kg	0.00849 U	0.0109 U	0.0131 U	0.000373 U	0.000456 U	0.0142 U	0.0145 U	0.0217 U	0.000381 U
1,2-Dichloroethane	mg/kg	0.00738 U	0.0095 U	0.0113 U	0.000324 U	0.000397 U	0.0124 U	0.0126 U	0.0188 U	0.000331 U
1,2-Dichloropropane	mg/kg	0.00997 U	0.0128 U	0.0153 U	0.000438 U	0.000537 U	0.0167 U	0.017 U	0.0255 U	0.000447 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.00665 U	0.00858 U	0.0102 U	0.000293 U	0.000358 U	0.0111 U	0.0114 U	0.017 U	0.000298 U
1,4-Dichlorobenzene	mg/kg	0.00628 U	0.0081 U	0.00968 U	0.000277 U	0.000338 U	0.0105 U	0.0108 U	0.0162 U	0.000282 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.13 U	0.168 U	0.201 U	0.00573 U	0.007 U	0.218 U	0.222 U	0.333 U	0.00584 U
2-Hexanone	mg/kg	0.0381 U	0.0491 U	0.0587 U	0.00168 U	0.00205 U	0.0638 U	2.61 U	0.0975 U	0.00171 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.0523 U	0.0674 U	0.0806 U	0.0023 U	0.00281 U	0.0877 U	3.57 U	0.134 U	0.00235 U
Acetone	mg/kg	0.279 U	0.359 U	0.429 U	0.0122 U	0.015 U	0.466 U	0.475 U	0.711 U	0.0125 U
Benzene	mg/kg	0.00751 U	0.00968 U	0.0116 U	0.000331 U	0.000405 U	0.0126 U	0.0129 U	0.0193 U	0.000337 U
Bromodichloromethane	mg/kg	0.00706 U	0.00911 U	0.0109 U	0.000311 U	0.00038 U	0.0118 U	0.0121 U	0.0181 U	0.000317 U
Bromoform	mg/kg	0.0118 U	0.0152 U	0.0182 U	0.000519 U	0.000635 U	0.0197 U	0.0202 U	0.0302 U	0.00053 U
Bromomethane (Methyl bromide)	mg/kg	0.0372 U	0.0481 U	0.0574 U	0.00164 U	0.00201 U	0.0624 U	0.0637 U	0.0954 U	0.00167 U
Carbon disulfide	mg/kg	0.00615 U	0.627	1.44	0.000271 U	0.000906 J	3.28	0.478	0.0226 J	0.000743 J
Carbon tetrachloride	mg/kg	0.00913 U	0.0118 U	0.0141 U	0.000402 U	0.000491 U	0.0153 U	0.0156 U	0.0234 U	0.00041 U
Chlorobenzene	mg/kg	0.0059 U	0.0076 U	0.00908 U	0.00026 U	0.000318 U	0.00987 U	0.404 U	0.015 U	0.000265 U
Chlorobromomethane	mg/kg	0.0108 U	0.014 U	0.0167 U	0.000477 U	0.000584 U	0.0182 U	0.0185 U	0.0278 U	0.000487 U
Chloroethane	mg/kg	0.0263 U	0.0339 U	0.0405 U	0.00116 U	0.00141 U	0.0441 U	0.045 U	0.0673 U	0.00118 U
Chloroform (Trichloromethane)	mg/kg	0.00637 U	0.0082 U	0.00981 U	0.00028 U	0.000342 U	0.0107 U	0.0109 U	0.0163 U	0.000286 U
Chloromethane (Methyl chloride)	mg/kg	0.0104 U	0.0135 U	0.0161 U	0.000459 U	0.000562 U	0.0175 U	0.0179 U	0.0266 U	0.000468 U
cis-1,2-Dichloroethene	mg/kg	0.00654 U	0.0213 J	0.0163 J	0.000288 U	0.000352 U	0.0158 J	0.0112 U	0.0167 U	0.000293 U
cis-1,3-Dichloropropene	mg/kg	0.00729 U	0.00939 U	0.0112 U	0.000321 U	0.000392 U	0.0122 U	0.499 U	0.0187 U	0.000327 U
Cyclohexane	mg/kg	0.00974 U	0.0126 U	0.015 U	0.000428 U	0.000524 U	0.0163 U	0.0167 U	0.0249 U	0.000437 U
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	0.0104 U	0.0134 U	0.0161 U	0.000457 U	0.000559 U	0.0174 U	0.71 U	0.0265 U	0.000466 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0199 U	0.0255 U	0.0306 U	0.000873 U	0.00107 U	0.0332 U	0.0339 U	0.0507 U	0.00089 U
Ethylbenzene	mg/kg	0.00826 U	0.0106 U	0.0127 U	0.000364 U	0.000445 U	0.0138 U	0.566 U	0.0211 U	0.000371 U
Isopropyl benzene	mg/kg	0.00676 U	0.00872 U	0.0104 U	0.000297 U	0.000363 U	0.0113 U	0.0116 U	0.0173 U	0.000303 U
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	0.17 U	0.408 J	0.502 J	0.00747 U	0.00914 U	0.876 J	0.36 J	0.434 U	0.00762 U
Methyl cyclohexane	mg/kg	0.0106 U	0.0136 U	0.0162 U	0.000465 U	0.000569 U	0.0177 U	0.018 U	0.0271 U	0.000475 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0059 U	0.0076 U	0.00908 U	0.00026 U	0.000318 U	0.00987 U	0.0101 U	0.015 U	0.000265 U
Methylene chloride	mg/kg	0.0279 U	0.0359 U	0.0429 U	0.00122 U	0.0015 U	0.0466 U	0.0475 U	0.0711 U	0.00125 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
N-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.00651 U	0.00839 U	0.01 U	0.000286 U	0.000351 U	0.0109 U	0.0111 U	0.0167 U	0.000292 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.00768 U	0.0099 U	0.0118 U	0.000338 U	0.000413 U	0.0129 U	0.526 U	0.0197 U	0.000345 U
Toluene	mg/kg	0.0695 J	0.831	0.657	0.000531 U	0.00065 U	0.539	0.826 U	0.508	0.000542 U
trans-1,2-Dichloroethene	mg/kg	0.00735 U	0.00947 U	0.0113 U	0.000323 U	0.000395 U	0.0123 U	0.0126 U	0.0188 U	0.00033 U
trans-1,3-Dichloropropene	mg/kg	0.00743 U	0.00958 U	0.0114 U	0.000327 U	0.000399 U	0.0124 U	0.509 U	0.019 U	0.000333 U
Trichloroethene	mg/kg	0.00776 U	0.01 U	0.012 U	0.000342 U	0.000417 U	0.013 U	0.0133 U	0.0198 U	0.000348 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0106 U	0.0137 U	0.0164 U	0.000468 U	0.000571 U	0.0178 U	0.0182 U	0.0272 U	0.000477 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0102 U	0.0131 U	0.0156 U	0.000447 U	0.000546 U	0.0171 U	0.0174 U	0.0259 U	0.000456 U
Vinyl chloride	mg/kg	0.0081 U	0.0104 U	0.0125 U	0.000356 U	0.000435 U	0.0136 U	0.0139 U	0.0207 U	0.000363 U
Xylenes (total)	mg/kg	0.0195 U	0.025 U	0.03 U	0.000855 U	0.00105 U	0.0325 U	1.33 U	0.0497 U	0.000872 U
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	mg/kg	0.0793 U	4.37 U	4.71 U	0.0933 U	0.106 U	0.362 U	0.256 U	0.215 U	0.0952 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.00791 UJ3	0.436 U	0.469 U	0.0093 U	0.0105 U	0.036 U	0.0256 U	0.0215 U	0.00949 U
2,4,5-Trichlorophenol	mg/kg	0.0108 U	0.597 U	0.642 U	0.0127 U	0.0144 U	0.0493 U	0.0351 U	0.0295 U	0.013 U
2,4,6-Trichlorophenol	mg/kg	0.00811 U	0.448 U	0.482 U	0.00954 U	0.0108 U	0.037 U	0.0263 U	0.0221 U	0.00973 U

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**TP-01-2017**	**TP-02-2017**	**TP-03-2017**	**TP-04-2017**	**TP-04-2017**	**TP-05-2017**	**TP-06-2017**	**TP-07-2017**	**TP-08-2017**
Sample ID:		**TP-01-10.5-11.0**	**TP-02-5.0-5.5**	**TP-03-6.5-7.0**	**DUP-01_082317**	**TP-04_10.5-11.0**	**TP-05_9.5-10.0**	**TP-06-5.0-5.5**	**TP-07_9.5-10.0**	**TP-08-9.5-10.0**
Sample Date:		**8/22/2017**	**8/22/2017**	**8/22/2017**	**8/23/2017**	**8/23/2017**	**8/23/2017**	**8/22/2017**	**8/23/2017**	**8/22/2017**
Sample Depth:		**(10.5-11) ft BGS**	**(5-5.5) ft BGS**	**(6.5-7) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(9.5-10) ft BGS**	**(5-5.5) ft BGS**	**(9.5-10) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**									
2,4-Dichlorophenol	mg/kg	0.00776 U	0.427 U	0.46 U	0.00913 U	0.0103 U	0.0354 U	0.0251 U	0.0211 U	0.00932 U
2,4-Dimethylphenol	mg/kg	0.049 UJ3J4	2.7 UJ3J4	2.9 UJ3J4	0.0577 U	0.0653 U	0.223 U	0.159 UJ3J4	0.134 U	0.0588 UJ3J4
2,4-Dinitrophenol	mg/kg	0.102 U	5.62 U	6.05 U	0.12 UJ3	0.136 UJ3	0.464 UJ3	0.33 U	0.278 UJ3	0.122 U
2,4-Dinitrotoluene	mg/kg	0.00632 U	0.349 U	0.375 U	0.00743 U	0.00842 U	0.0287 U	0.0204 U	0.0171 U	0.00758 U
2,6-Dinitrotoluene	mg/kg	0.00767 U	0.423 U	0.456 U	0.00902 U	0.0102 U	0.0349 U	0.0248 U	0.0208 U	0.0092 U
2-Chloronaphthalene	mg/kg	0.00665 U	0.367 U	0.395 U	0.00782 U	0.00886 U	0.0303 U	0.0216 U	0.0181 U	0.00798 U
2-Chlorophenol	mg/kg	0.00865 U	0.476 U	0.513 U	0.0102 U	0.0115 U	0.0393 U	0.028 U	0.0235 U	0.0104 U
2-Methylnaphthalene	mg/kg	0.00896 U	0.493 U	0.531 U	0.0105 U	0.0119 U	0.0819 J	0.0446 J	0.0332 J	0.0108 U
2-Methylphenol	mg/kg	0.0103 U	0.565 U	0.608 U	0.0121 U	0.0137 U	0.0467 U	0.0332 U	0.0279 U	0.0123 U
2-Nitroaniline	mg/kg	0.00786 U	0.433 U	0.466 U	0.00924 U	0.0105 U	0.0357 U	0.0254 U	0.0214 U	0.00943 U
2-Nitrophenol	mg/kg	0.0135 U	0.746 U	0.803 U	0.0159 U	0.018 U	0.0616 U	0.0438 U	0.0368 U	0.0162 U
3&4-Methylphenol	mg/kg	0.00815 U	0.535 J	1.08 J	0.00959 U	0.0302 J	0.586 J	0.453 J	0.196 J	0.0111 J
3,3'-Dichlorobenzidine	mg/kg	0.0826 U	4.56 U	4.91 U	0.0972 U	0.11 U	0.376 U	0.268 U	0.225 U	0.0992 U
3-Nitroaniline	mg/kg	0.00884 U	0.488 U	0.525 U	0.0104 U	0.0118 U	0.0403 U	0.0287 U	0.0241 U	0.0106 U
4,6-Dinitro-2-methylphenol	mg/kg	0.129 U	7.11 U	7.66 U	0.152 U	0.172 U	0.587 U	0.418 U	0.351 U	0.155 U
4-Bromophenyl phenyl ether	mg/kg	0.0119 U	0.654 U	0.704 U	0.014 U	0.0158 U	0.054 U	0.0384 U	0.0323 U	0.0142 U
4-Chloro-3-methylphenol	mg/kg	0.00496 U	0.274 U	0.295 U	0.00584 U	0.00661 U	0.0226 U	0.0161 U	0.0135 U	0.00596 U
4-Chloroaniline	mg/kg	0.0366 U	2.02 U	2.18 U	0.0431 U	0.0488 U	0.167 U	0.119 U	0.0998 U	0.044 U
4-Chlorophenyl phenyl ether	mg/kg	0.00652 U	0.36 U	0.388 U	0.00768 U	0.00869 U	0.0297 U	0.0211 U	0.0177 U	0.00783 U
4-Methylphenol	mg/kg	-	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	0.00665 U	0.367 U	0.395 U	0.00782 U	0.00886 U	0.0303 U	0.0216 U	0.0181 U	0.00798 U
4-Nitrophenol	mg/kg	0.0546 U	3.01 U	3.24 U	0.0643 U	0.0728 U	0.25 U	0.177 U	0.149 U	0.0656 U
Acenaphthene	mg/kg	0.00668 U	0.574 J	0.397 U	0.00786 U	0.0089 U	0.042 J	0.0216 U	0.0214 J	0.00802 U
Acenaphthylene	mg/kg	0.00698 U	0.384 U	0.414 U	0.00821 U	0.0093 U	0.0487 J	0.0226 U	0.019 U	0.00838 U
Acetophenone	mg/kg	0.0782 UJ3	4.32 U	4.65 U	0.0921 U	0.104 U	0.357 U	0.253 U	0.213 U	0.0939 U
Anthracene	mg/kg	0.00658 U	0.373 J	0.391 U	0.00774 U	0.0137 J	0.145 J	0.0467 J	0.0641 J	0.00789 U
Atrazine	mg/kg	0.0976 U	5.38 U	5.79 U	0.115 U	0.13 U	0.444 U	0.317 U	0.266 U	0.117 U
Benzaldehyde	mg/kg	0.0554 U	3.06 U	3.29 U	0.0651 U	0.0738 U	0.253 U	0.179 U	0.15 U	0.0664 U
Benzo(a)anthracene	mg/kg	0.00682 J	0.687 J	0.562 J	0.0107 J	0.036 J	0.286	0.0685 J	0.117	0.0187 J
Benzo(a)pyrene	mg/kg	0.00655 J	0.609 J	0.411 J	0.00999 J	0.0304 J	0.256	0.0496 J	0.0955	0.0197 J
Benzo(b)fluoranthene	mg/kg	0.00753 J	0.653 J	0.539 J	0.0147 J	0.046	0.434	0.0872 J	0.166	0.0231 J
Benzo(g,h,i)perylene	mg/kg	0.0075 U	0.413 U	0.445 U	0.00883 U	0.0157 J	0.0858 J	0.0245 J	0.0473 J	0.009 U
Benzo(k)fluoranthene	mg/kg	0.00606 U	0.343 J	0.36 U	0.00713 U	0.0125 J	0.147 J	0.0326 J	0.0368 J	0.012 J
Biphenyl (1,1-Biphenyl)	mg/kg	0.00612 U	0.337 U	0.363 U	0.0072 U	0.00815 U	0.0278 U	0.0199 U	0.0167 U	0.00734 U
bis(2-Chloroethoxy)methane	mg/kg	0.00801 U	0.442 U	0.476 U	0.00943 U	0.0107 U	0.0365 U	0.026 U	0.0218 U	0.00962 U
bis(2-Chloroethyl)ether	mg/kg	0.00932 U	0.513 U	0.553 U	0.011 U	0.0124 U	0.0425 U	0.0302 U	0.0254 U	0.0112 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.0125 U	0.688 U	0.741 U	0.0147 U	0.0166 U	0.164 J	0.0404 U	0.0564 J	0.015 U
Butyl benzylphthalate (BBP)	mg/kg	0.0107 U	0.591 U	0.636 U	0.0126 U	0.0143 U	0.0488 U	0.0347 U	0.0292 U	0.0129 U
Caprolactam	mg/kg	0.108 U	5.97 U	6.42 U	0.127 U	0.144 U	0.493 U	0.351 U	0.295 U	0.13 U
Carbazole	mg/kg	0.00545 U	0.301 U	0.324 U	0.00642 U	0.00727 U	0.0351 J	0.0177 U	0.0397 J	0.00654 U
Chrysene	mg/kg	0.00734 J	0.68 J	0.489 J	0.0162 J	0.0395 J	0.343	0.0779 J	0.131	0.0157 J
Dibenz(a,h)anthracene	mg/kg	0.00854 U	0.47 U	0.506 U	0.0101 U	0.0114 U	0.0389 U	0.0276 U	0.0232 U	0.0103 U
Dibenzofuran	mg/kg	0.00539 U	0.297 U	0.32 U	0.00634 U	0.00718 U	0.0464 J	0.0175 U	0.0249 J	0.00647 U
Diethyl phthalate	mg/kg	0.00719 U	0.396 U	0.426 U	0.00846 U	0.00958 U	0.0327 U	0.0233 U	0.0196 U	0.00863 U
Dimethyl phthalate	mg/kg	0.00562 U	0.31 U	0.334 U	0.00661 U	0.00749 U	0.0256 U	0.0182 U	0.0153 U	0.00674 U
Di-n-butylphthalate (DBP)	mg/kg	0.0113 U	0.625 U	0.673 U	0.0133 U	0.0151 U	0.0516 U	0.0367 U	0.0309 U	0.0136 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.00944 U	0.521 U	0.561 U	0.0111 U	0.0126 U	0.043 U	0.0305 U	0.0257 U	0.0113 U
Fluoranthene	mg/kg	0.0117 J	1.27 J	0.998 J	0.0129 J	0.0671	0.643	0.171	0.264	0.0235 J
Fluorene	mg/kg	0.0071 U	0.392 U	0.422 U	0.00835 U	0.00946 U	0.0894 J	0.0352 J	0.0436 J	0.00852 U
Hexachlorobenzene	mg/kg	0.00891 U	0.491 U	0.528 U	0.0105 U	0.0119 U	0.0406 U	0.0288 U	0.0242 U	0.0107 U
Hexachlorobutadiene	mg/kg	0.0104 U	0.574 U	0.618 U	0.0122 U	0.0139 U	0.0474 U	0.0337 U	0.0283 U	0.0125 U
Hexachlorocyclopentadiene	mg/kg	0.0611 U	3.37 U	3.63 U	0.0719 U	0.0814 U	0.278 U	0.197 U	0.166 U	0.0733 U
Hexachloroethane	mg/kg	0.0139 UJ3	0.769 U	0.828 U	0.0164 U	0.0186 U	0.0635 U	0.0452 U	0.038 U	0.0167 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.00803 U	0.443 U	0.477 U	0.00945 U	0.0152 J	0.0923 J	0.026 U	0.0397 J	0.00964 U
Isophorone	mg/kg	0.00543 U	0.3 U	0.323 U	0.00639 U	0.00724 U	0.0248 U	0.0175 U	0.0147 U	0.00652 U
Naphthalene	mg/kg	0.00925 U	0.511 U	0.55 U	0.0109 U	0.0204 J	0.132 J	0.0667 J	0.0734 J	0.0111 U
Nitrobenzene	mg/kg	0.00723 U	0.399 U	0.429 U	0.00851 U	0.00964 U	0.0328 U	0.0234 U	0.0197 U	0.00868 U
N-Nitrosodi-n-propylamine	mg/kg	0.00943 U	0.519 U	0.559 U	0.0111 U	0.0126 U	0.043 U	0.0305 U	0.0257 U	0.0113 U
N-Nitrosodiphenylamine	mg/kg	0.00618 U	0.341 U	0.367 U	0.00727 U	0.00824 U	0.0281 U	0.0201 U	0.0169 U	0.00742 U
Pentachlorophenol	mg/kg	0.0499 U	2.75 U	2.96 U	0.0588 U	0.0666 U	0.227 U	0.162 U	0.136 U	0.0599 U
Phenanthrene	mg/kg	0.00799 J	0.804 J	0.58 J	0.00894 J	0.0501	0.369	0.1 J	0.209	0.0108 J
Phenol	mg/kg	0.00723 U	0.399 U	0.429 U	0.00851 U	0.00964 U	0.0328 U	0.0234 U	0.0197 U	0.00868 U
Pyrene	mg/kg	0.0128 U	1.03 J	0.87 J	0.0223 J	0.0824	0.814	0.151	0.28	0.0238 J
Metals										
Aluminum	mg/kg	877	13600	15200	1150	1210	15300	16100	9300	1320
Antimony	mg/kg	0.78 U	1.72 J	1.87 J	0.918 U	1.04 U	2.82 J	1.26 U	1.86 J	0.937 U
Arsenic	mg/kg	2.33	12.9	13.3	1.11 J	1.39 J	13	12.6	8.41	1.78 J

Table 4.4

Screened Analytical Results
All Soil Samples vs Non-Residential Vapor Intrusion Screening Values
52-Acre Parcel
Mon Valley Works Fairless Hills Complex
U.S. Steel

Sample Location:		**TP-01-2017**	**TP-02-2017**	**TP-03-2017**	**TP-04-2017**	**TP-04-2017**	**TP-05-2017**	**TP-06-2017**	**TP-07-2017**	**TP-08-2017**
Sample ID:		**TP-01-10.5-11.0**	**TP-02-5.0-5.5**	**TP-03-6.5-7.0**	**DUP-01_082317**	**TP-04_10.5-11.0**	**TP-05_9.5-10.0**	**TP-06-5.0-5.5**	**TP-07_9.5-10.0**	**TP-08-9.5-10.0**
Sample Date:		**8/22/2017**	**8/22/2017**	**8/22/2017**	**8/23/2017**	**8/23/2017**	**8/23/2017**	**8/22/2017**	**8/23/2017**	**8/22/2017**
Sample Depth:		**(10.5-11) ft BGS**	**(5-5.5) ft BGS**	**(6.5-7) ft BGS**	**(10.5-11) ft BGS (Duplicate)**	**(10.5-11) ft BGS**	**(9.5-10) ft BGS**	**(5-5.5) ft BGS**	**(9.5-10) ft BGS**	**(9.5-10) ft BGS**
Parameters	**Units**									
Barium	mg/kg	10.1	181	180	9.49	10.1	168	169	106	11.5
Beryllium	mg/kg	0.396	14.1	12.6	0.387	0.306	11.6	12.7	6.88	0.375
Cadmium	mg/kg	0.223 BJ	9.05	8.61	0.168 J	0.147 J	7.83	7.98	4.59	0.348 BJ
Calcium	mg/kg	719	4380	7520	994	708	5350	10100	2690	1050
Chromium	mg/kg	5.48	57.6	72.8	5.65	6.02	62.5	64.1	42.3	8.33
Cobalt	mg/kg	1.76	19.9	21.9	1.9	1.93	23.3	24.3	13.9	2.06
Copper	mg/kg	5.41	102	107	4.15	4.08	102	102	63.5	5.71
Iron	mg/kg	6450	33000	42100	7610	6440	47600	43500	26700	15200
Lead	mg/kg	7.86	172	178	7.46	6.4	157	153	97.2	13.5
Magnesium	mg/kg	411	4210	4860	572	442	3800	4480	2680	557
Manganese	mg/kg	70.9	753	1200	102	87.2	827	911	687	229
Mercury	mg/kg	0.00593 J	0.553	0.609	0.00986 BJ	0.0106 BJ	0.5	0.477	0.349	0.0231 J
Nickel	mg/kg	4.31	46.8	50	4.1	3.55	51.3	49.9	30.8	4.49
Potassium	mg/kg	197	1790	2540	242	264	2580	3010	1460	296
Selenium	mg/kg	0.77 U	1.41 J	1.37 J	0.906 U	1.03 U	1.52 J	1.83 J	1.05 U	0.924 U
Silver	mg/kg	0.291 U	0.856 J	0.897 J	0.343 U	0.388 U	0.767 J	0.579 J	0.491 J	0.35 U
Sodium	mg/kg	18.8 BJ	95.3 BJ	116 BJ	12.1 U	41.2 J	99.3 J	131 BJ	90.7 J	23.4 BJ
Thallium	mg/kg	0.676 U	0.932 U	1 U	0.796 U	0.901 U	1.03 U	1.1 U	0.921 U	0.812 U
Vanadium	mg/kg	5.72	38.4	43.3	5.52 B	8.5 B	48.6	47.5	30.3	9.42
Zinc	mg/kg	58.4	1260	1310	49.4	40.9	1150	1090	710	87.4
MetalsSEM										
Cadmium	umol/g	-	-	-	-	-	-	-	-	-
Copper	umol/g	-	-	-	-	-	-	-	-	-
Lead	umol/g	-	-	-	-	-	-	-	-	-
Mercury	umol/g	-	-	-	-	-	-	-	-	-
Nickel	umol/g	-	-	-	-	-	-	-	-	-
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	-	-	-	-	-	-	-	-	-
Zinc	umol/g	-	-	-	-	-	-	-	-	-
PCBs										
Aroclor-1016 (PCB-1016)	mg/kg	0.00364 U	0.00502 U	0.0054 U	0.00428 U	0.00485 U	0.00553 U	0.0059 U	0.00496 U	0.00437 U
Aroclor-1221 (PCB-1221)	mg/kg	0.00559 U	0.0077 U	0.00829 U	0.00657 U	0.00745 U	0.00848 U	0.00905 U	0.00761 U	0.00671 U
Aroclor-1232 (PCB-1232)	mg/kg	0.00434 U	0.00598 U	0.00644 U	0.00511 U	0.00578 U	0.00659 U	0.00703 U	0.00591 U	0.00521 U
Aroclor-1242 (PCB-1242)	mg/kg	0.00331 U	0.00456 U	0.00491 U	0.00389 U	0.00441 U	0.00502 U	0.00536 U	0.00451 U	0.00397 U
Aroclor-1248 (PCB-1248)	mg/kg	0.00328 U	0.00452 U	0.00486 U	0.00386 U	0.00437 U	0.00497 U	0.00531 U	0.00446 U	0.00393 U
Aroclor-1254 (PCB-1254)	mg/kg	0.00491 U	0.00677 U	0.00729 U	0.00578 U	0.00654 U	0.00745 U	0.00796 U	0.00669 U	0.0203 JP
Aroclor-1260 (PCB-1260)	mg/kg	0.00514 U	0.00709 U	0.00763 U	0.00605 U	0.00685 U	0.0078 U	0.00833 U	0.007 U	0.00617 U
Total PCBs	mg/kg	-	-	-	-	-	-	-	-	-
General Chemistry										
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-
pH	s.u.	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-
Sulfide	mg/kg	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-
Total solids	%	-	-	-	-	-	-	-	-	-

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- Not analyzed.

Appendices

Appendix A
Soil Boring Stratigraphic Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: KEYSTONE INDUSTRIAL PORT COMPLEX
PROJECT NUMBER: 083101
CLIENT: US STEEL
LOCATION: FAIRLESS HILLS, PA

HOLE DESIGNATION: BH200-14
DATE COMPLETED: February 27, 2014
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SW-SAND (FILL), trace fine gravel, compact, fine to medium grained, dark brown, moist			0-2' -005				0.1
2		2.50		1DP		60		
	SLAG (FILL), with fine grained sand, porous, angular, gray, moist, iron staining throughout							0.1
4		5.00	BACKFILLED WITH SOIL CUTTINGS					
	ML-SANDY SILT, compact, very fine grained, brown, moist							0.9
6								
8				2DP		80		
	- increase in sand content at 9.0ft BGS	9.20		8-10' -006				0.9
10	SP-SAND, few silt, compact, fine grained, brown							
								0.2
12				3DP		70		
14	- wet at 14.0ft BGS	14.00						0.3
	SM-SILTY SAND, compact, very fine grained, brown, moist	14.30						
		14.60						
16	ML-SANDY SILT, compact, very fine grained, brown, wet	15.00						
	SM-SILTY SAND, compact, very fine grained, brown, wet							
18	END OF BOREHOLE @ 15.0ft BGS							
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: KEYSTONE INDUSTRIAL PORT COMPLEX
PROJECT NUMBER: 083101
CLIENT: US STEEL
LOCATION: FAIRLESS HILLS, PA

HOLE DESIGNATION: BH201-14
DATE COMPLETED: February 27, 2014
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SW-SAND (FILL), few fine gravel, few silt, compact, fine to coarse grained, orange brown, moist			0-2' -003				0.0
2				1DP		50		
4								0.0
	SLAG (FILL), with fine grained sand, porous, angular, moist, iron staining throughout	4.60	BACKFILLED WITH SOIL CUTTINGS AND BENTONITE CHIPS					
6								0.0
8				2DP		60		
				8-10' -004				0.0
10	- dense at 10.0ft BGS							
				3DP		20		0.0
12	- wet at 12.0ft BGS - REFUSAL at 12.5ft BGS	12.50						
	END OF BOREHOLE @ 12.5ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: KEYSTONE INDUSTRIAL PORT COMPLEX
PROJECT NUMBER: 083101
CLIENT: US STEEL
LOCATION: FAIRLESS HILLS, PA

HOLE DESIGNATION: BH202-14
DATE COMPLETED: February 27, 2014
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
2	SW-SAND (FILL), few fine and coarse gravel, compact, fine to coarse grained, orange brown, moist - quartz at 2.0ft BGS		BACKFILLED WITH SOIL CUTTINGS AND BENTONITE CHIPS	0-2' -001				0.1
				1DP		50		
4								0.0
6	SLAG (FILL), with fines, compact, porous, gray, moist, iron staining throughout	5.70						0.0
8				2DP		70		
								0.0
10	SW-SAND, with silt, few fine gravel, compact, fine to coarse grained, orange brown - wet at 12.0ft BGS	10.00		10-12' -002				0.0
12				3DP		50		
14								0.0
	END OF BOREHOLE @ 15.0ft BGS	15.00						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: KEYSTONE INDUSTRIAL PORT COMPLEX
PROJECT NUMBER: 083101
CLIENT: US STEEL
LOCATION: FAIRLESS HILLS, PA

HOLE DESIGNATION: BH203-14
DATE COMPLETED: February 27, 2014
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SW-SAND (FILL), trace fine gravel, compact, fine to coarse grained, dark brown, moist			0-2' -007				1.0
	SLAG (FILL), with fine grained sand, porous, angular, gray, moist, iron staining throughout	1.30		1DP		60		
	ML-SANDY SILT, very fine grained, compact, brown, moist	3.00						0.8
	SP-SAND, trace silt, compact, fine grained, brown, moist	4.00	BACKFILLED WITH SOIL CUTTINGS					
				5-7' -008				0.0
	- wet at 7.7ft BGS	7.80		2DP		80		
	ML-SANDY SILT, compact, very fine grained, brown, wet							0.4
								0.3
				3DP		80		
								0.3
	SW-SAND, trace fine gravel, compact, fine to coarse grained, brown, wet	14.50						
	END OF BOREHOLE @ 15.0ft BGS	15.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: KEYSTONE INDUSTRIAL PORT COMPLEX
PROJECT NUMBER: 083101
CLIENT: US STEEL
LOCATION: FAIRLESS HILLS, PA

HOLE DESIGNATION: BH204-14
DATE COMPLETED: February 27, 2014
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SW-SAND (FILL), with slag, trace fine gravel, compact, fine to coarse grained sand, brown, moist			0-2' -011				NA
2	SLAG (FILL), with fine sand, porous, angular, gray, moist, iron staining throughout	2.00		1DP		70		
4								NA
			BACKFILLED WITH CUTTINGS AND BENTONITE CHIPS					
6								0.2
8				2DP		20		
				8-10' -013				0.2
10	- wet at 9.9ft BGS							
								NA
12				3DP		20		
14								NA
	END OF BOREHOLE @ 15.0ft BGS	15.00						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: KEYSTONE INDUSTRIAL PORT COMPLEX
PROJECT NUMBER: 083101
CLIENT: US STEEL
LOCATION: FAIRLESS HILLS, PA

HOLE DESIGNATION: BH205-14
DATE COMPLETED: February 27, 2014
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SW-SAND AND SLAG (FILL), fine to coarse sand, porous, angular slag, dark brown, moist			0-2' -009				0.3
2		2.60		1DP		70		
	SP-SAND, trace silt, compact, fine grained, brown, moist	3.00						
4	ML-SANDY SILT, compact, very fine grained, brown, moist		BACKFILLED WITH SOIL CUTTINGS					0.3
6								0.2
8				2DP		80		
				8-10' -010				0.2
10	- wet at 10.0ft BGS	9.70						
	SM-SILTY SAND, compact, very fine grained, brown, moist to wet	11.30						0.1
12	ML-SANDY SILT, trace fine gravel, compact, brown, moist			3DP		65		
14	- slight decrease in sand content, slight plasticity at 13.0ft BGS							0.1
	END OF BOREHOLE @ 15.0ft BGS	15.00						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

Appendix B
Risk Assessment Memorandum

Memorandum

March 9, 2018

To:	Michael H. Leon, William K. Ream (USS)	Ref. No.:	083101
	AG		
From:	Francis C. Ramacciotti/April Gowing/jp/17		
cc:	Mike Tomka, John Garges		
Subject:	**Proposed Site-Specific Standards for Vanadium** **U. S. Steel Mon Valley Works Fairless Hills – 52 Acre Parcel** **Fairless Hills, Pennsylvania**		

1. Introduction

U. S. Steel (USS) has completed an investigation of the 52 Acre Parcel (Site) which is part of the Mon Valley Works Fairless Hills Facility (aka Keystone Industrial Port Complex [KIPC]) (Facility) in order to pursue a relief of environmental liability in accordance with Chapter 250 (Act 2) for soil.

The investigation of the 52 Acre Parcel identified two of nine shallow soil samples exceeding the Pennsylvania Department of Environmental Protection (PADEP) Statewide Health Standard (SHS) Medium-Specific Concentration (MSC) for vanadium (220 milligrams per kilogram [mg/kg]). The soil sample results for vanadium had concentrations ranging from 17.8 to 291 mg/kg with samples exceeding vanadium MSC at concentrations ranging from 280 to 291 mg/kg.

USS has further evaluated vanadium concentrations and potential human health hazards and has developed the following Site Specific Standards (SSSs') for vanadium based on the Site maximum concentrations within soil (0 to 2 and 2 to 15 foot intervals) plus a factor of 10 percent. The remainder of this memorandum presents the calculations and assumptions used to support this proposed SSSs' for vanadium.

2. Site-Specific Standard for Vanadium

The SSS 320 mg/kg (291 mg/kg x 1.10) is proposed for vanadium at the Site. The industry acceptable analytical repeatability of groundwater and soil samples ranges from 20 to 35 percent. Therefore, a 10 percent factor to account for the potential variability of the sampling and analytical methodologies was conservatively selected. To demonstrate that this vanadium concentration will not result in a hazard above PADEP (2016[1]) acceptable levels, the hazard associated with exposure to this SSS was calculated considering all potential exposure routes. The soil exposure routes to concentrations of vanadium in soil at

[1] PADEP, 2016: Chapter 250: Administration of Land Recycling Program, Subchapter C: Statewide Health Standards, Pennsylvania Department of Environmental Protection, August 27, 2016.

the Site considered were incidental ingestion, dermal contact, and inhalation of particulates. The equations used to evaluate the exposure are based on United States Environmental Proctection Agency (USEPA) guidance as noted below which are consistent with the equation presented in PADEP (2016). The equations used to determine the intake via these exposure routes to the soil are presented in the following section.

2.1 Intake Equations

Soil Incidental Ingestion Exposure Pathway

The chronic daily intake equation for calculating chemical intake from the incidental ingestion of soil after USEPA (1989[2]) is:

$$CDI = \frac{CS \times IR \times EF \times ED \times CF}{BW \times AT}$$

Where:

CDI = Chronic daily chemical intake via ingestion (mg/kg body weight/day)

CS = Chemical concentration in soil (mg/kg)

IR = Ingestion rate (mg soil/day)

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

CF = Conversion factor (10^{-6} kg/mg)

BW = Body weight (kg)

AT = Averaging time (averaging period, days)

Soil Dermal Contact Exposure Pathway

The chronic daily intake equation for calculating chemical intake from dermal exposure to soil (USEPA, 1989) is:

$$CDI = \frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$$

Where:

CDI = Chronic daily chemical intake via dermal contact (mg/kg body weight/day)

[2] USEPA, 1989. EPA Risk Assessment Guidance for Superfund (RAGS), Volume I, Human Health Evaluation Manual (Part A) (RAGS), EPA/540/1-89/002, December.

CS = Chemical concentration in soil (mg/kg)

SA = Skin surface area available for contact (cm^2/event)

AF = Soil to skin adherence factor (mg/cm^2)

ABS = Absorption factor - dermal (unitless)

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

CF = Conversion factor (10^{-6} kg/mg)

BW = Body weight (kg)

AT = Averaging time (averaging period, days)

Soil Particulate Inhalation from Soil Exposure Pathway

The intake equation for calculating chemical intake from the inhalation of particulates or vapors originating from soil (USEPA, 2002[3]) is:

$$EC = \frac{CS \times FT \times EF \times ED \times (1/PEF)}{AT}$$

Where:

EC = Exposure concentration via particulate inhalation (mg/kg body weight/day)

CS = Chemical concentration in soil (mg/kg)

FT = Fraction time exposed (unitless)

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

PEF = Soil particulate emission factor (m^3/kg)

AT = Averaging time (averaging period, days)

2.2 Exposure Factors

The generic nonresidential exposure assumptions based on values from PADEP (2016) were used to calculate the incidental ingestion, dermal contact, and inhalation intake exposures for the industrial/commercial worker. The exposure assumptions used in the calculation are presented in Table 1.

[3] USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4 24, December.

2.3 Toxicity Values

Vanadium is not classified as a carcinogen; therefore it was only evaluated for the non-cancer exposures.

The RfD and RfC for vanadium (and compounds) for the incidental ingestion, dermal contact, and inhalation exposures were taken from Regional Screening Level (RSL) Summary Table (2016[4]). For vanadium (and compounds) USEPA factored out an oxide ion from the vanadium pentoxide toxicity value. USEPA factored out the oxide ion because as stated in USEPA 2009 PPRTV for *Vanadium and Its Soluble Inorganic Compounds Other Than Vanadium Pentoxide*, "Although vanadium has six oxidation states (-1, 0, +2, +3, +4, and +5), the most stable oxidation state is +4 (Rydzynski, 2001[5]). In the environment, vanadium is bound to a variety of elements including oxygen, sodium, sulfur, and chloride". Therefore, USEPA factored out the oxide ion to calculate a toxicity value appropriate for evaluating the most stable form of vanadium in the environment. Use of toxicity values for forms of vanadium that are unstable in the environment would not be representative of potential exposure risks at the Site.

2.4 Exposure Concentrations

The exposure point concentration for vanadium used in the above intake equations was based on the Site maximum concentration (291 mg/kg) plus a factor of 10 percent. As previously discussed, the 10 percent factor is conservatively based on potential variability of the sampling and analytical methodologies. As a result the exposure point concentration for vanadium used in the intake equations is 320 mg/kg (291 mg/kg x 1.10).

2.5 Risk Estimate Associated with SSS

Table 2 presents the non-cancer hazard intake results as well as the associated hazard for each exposure route. As shown in Table 2, the cumulative hazard index based on the SSS (maximum concentrations plus the 10 percent factor) is 0.02 which is well below the PADEP's acceptable Hazard Index of 1. In addition, a Non-Use Aquifer Determination is approved for the Site and therefore eliminates the soil to groundwater exposure pathway.

Therefore, the proposed SSS for vanadium of 320 mg/kg, does not result in an unacceptable Hazard Index greater than 1 and is protective of human health and the environment.

3. Closing

Based on the information contained in this memorandum and attachments, the Site characterization data, and evaluation of risk and hazards, the proposed SSS attainment value for vanadium is 320 mg/kg, is acceptable concentrations for use in soil attainment at the Site. Upon PADEP's concurrence with this proposal, U.S. Steel will revise the Notice of Intent for Remediation attainment standard to a SSS for vanadium, and proceed with demonstration of these SSS for vanadium.

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4 USEPA, 2016. Regional Screening Levels (RSL), Last Updated May, http://www.epa.gov/Region9/superfund/prg/.

5 Rydzynski, K. 2001. Vanadium, niobium, and tantalum. In: Patty's Toxicology, Vol. 2, 5th ed., E. Bingham, B. Cohrssen, C.H. Powell, Ed. John Wiley and Sons, Now York, NY.

Table 1

Values Used For Daily Intake Calculations - Industrial/Commercial Worker
US Steel, Pennsylvania

Medium: Surface and Subsurface Soil
Exposure Medium: Soil
Exposure Point: Ingestion, Dermal, and Inhalation
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adults

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	(1)	(1)	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR	Ingestion Rate of Soil	mg soil/day	50	PADEP, 2016	CS x IR x ABS x CF x EF x ED x 1/BW x 1/AT
	CF	Conversion Factor	kg/mg	1.00E-06	--	
	EF	Exposure Frequency	days/year	180	PADEP, 2016	
	ED	Exposure Duration	years	25	PADEP, 2016	
	BW	Body Weight	kg	80	PADEP, 2016	
	AT-C	Averaging Time (cancer)	days	25,550	PADEP, 2016	
	AT-N	Averaging Time (non-cancer)	days	9,125	PADEP, 2016	
	ABS	Absorption Factor	%/100	1	PADEP, 2016	
Dermal	CS	Chemical Concentration in Soil	mg/kg	(1)	(1)	CDI (mg/kg-day) =
	SA	Skin Surface Area Available for Contact	cm^2/event	3,527	USEPA, 2014	CS x CF x SA x AF x ABS x EF x ED x 1/BW x 1/AT
	CF	Conversion Factor	kg/mg	1.00E-06	--	
	EF	Exposure Frequency	days/year	180	PADEP, 2016	
	ED	Exposure Duration	years	25	PADEP, 2016	
	BW	Body Weight	kg	80	PADEP, 2016	
	AT-C	Averaging Time (cancer)	days	25,550	PADEP, 2016	
	AT-N	Averaging Time (non-cancer)	days	9,125	PADEP, 2016	
	AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	USEPA, 2014	
	ABS	Absorption Factor	%/100	0.01	USEPA, 1995	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	(1)	(1)	Exposure Concentration (EC) (mg/m^3) =
	FT	Fraction Time Exposed	unitless	8/24	PADEP, 2016	CS x FT x EF x ED x 1/(PEF) x 1/AT
	EF	Exposure Frequency	days/year	180	PADEP, 2016	
	ED	Exposure Duration	years	25	PADEP, 2016	
	AT-C	Averaging Time (cancer)	days	25,550	PADEP, 2016	
	AT-N	Averaging Time (non-cancer)	days	9,125	PADEP, 2016	
	PEF	Particulate Emission Factor	m^3/kg	1.0E+10	PADEP, 2016	

Notes:

(1) The maximum detected concentration plus ten percent is used as the soil concentration. Ten percent is to allow for sample and analytical variability.

References:

PADEP, 2016: Chapter 250: Administration of Land Recycling Program, Subchapter C: Statewide Health Standards, Pennsylvania Department of Environmental Protection, August 27, 2016.

USEPA, 1995: Assessing Dermal Guidance Exposure from Soil, Region III Technical Guidance Manual Risk Assessment, EPA/903-K-95-003, December 1995.

USEPA, 2014: Human Health Evaluation Manual, Supplemental Guidance: Update to Standard Default Exposure Factors, OSWER Directive 9200.1-120, February 6, 2014.

Table 2

Calculation of Chemical Cancer Risks and Non-Cancern Hazards for Industrial/Commercial Worker
US Steel, Pennsylvania

Receptor Population: Industrial/Commercial Worker
Receptor Age: Adults

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	Maximum		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk (1)		Cancer Risk	Intake/Exposure Concentration		RfD/RfC (1)		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	On-Site	Ingestion	Vanadium	3.20E+02	mg/kg	3.5E-05	mg/kg-d	--	$(mg/kg\text{-}d)^{-1}$	NC	9.9E-05	mg/kg-d	5E-03	mg/kg-d	2.0E-02
			Exp. Route Total								NC					2.0E-02
			Dermal	Vanadium	3.20E+02	mg/kg	3.0E-06	mg/kg-d	--	$(mg/kg\text{-}d)^{-1}$	NC	8.4E-06	mg/kg-d	5E-03	mg/kg-d	1.7E-03
			Exp. Route Total								NC					1.7E-03
		Exposure Point Total									NC					2.1E-02
	Exposure Medium Total										NC					2.1E-02
	Ambient Air	On-Site	Inhalation	Vanadium	3.20E+02	mg/kg	1.9E-09	mg/m^3	--	$(mg/m^3)^{-1}$	NC	5.3E-09	mg/m^3	1E-04	mg/m^3	5.3E-05
			Exp. Route Total								NC					5.3E-05
		Exposure Point Total									NC					5.3E-05
	Exposure Medium Total										NC					5.3E-05
Medium Total											NC					2.1E-02
Total of Receptor Risks Across All Media											**NC**	**Total of Receptor Hazards Across All Media**				**2E-02**

Notes:

NC = Not Calculated

(1) Regional Screening Level (RSL) Summary Table, May 2016 and Appendix A Table 5.B, PADEP, 2016.

Appendix C
95% UCL Calculations

Memorandum

March 9, 2018

To:	Mike Tomka	Ref. No.:	083101
From:	Daniela Araujo/jp/20		

Subject: **Evaluation of Soil Data**
Keystone Industrial Port Complex - 52-Acre Parcel
Fairless Hills, Pennsylvania

1. Introduction

This memorandum presents an evaluation of three analytes in surface and subsurface soil at the 52-Acre Parcel area at the U.S. Steel (USS) Keystone Industrial Port Complex (KIPC), Fairless Hills, Bucks County, Pennsylvania (Facility). Specifically, compliance with Statewide Health Standard (SHS) for soil in accordance with Pennsylvania Chapter 250, the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2), Section 312, was assessed using the 95 percent upper confidence limit of the arithmetic mean.

2. Statistical Evaluation

Statistical Method

The 95 percent upper confidence limit (UCL) of the arithmetic mean represents an estimate of the population mean (measure of central tendency of a data distribution), with 95 percent confidence, and it should be compared to a threshold value also representing an average value such as a mean clean up standard (USEPA, 2015). The determination of UCLs is driven by characteristics of the data. Key factors determining the statistical methodologies employed include: (i) the probability distribution of the observed data (e.g., normal vs. gamma-distributed vs. lognormal, etc.); and (ii) the proportion of censored data (non-detected results) present. USEPA's ProUCL Version 5.1.002 software was used to calculate the UCLs. The methods and decision templates are found in USEPA's ProUCL Technical Guide (USEPA, 2015).

Field duplicates were averaged prior to UCL calculation. Non-detect values were evaluated using the Kaplan-Meier (KM) product limit estimation method (USEPA, 2015).

The UCLs were compared to the Medium-Specific Concentrations (MSC) for surficial samples (0 to 2 feet below ground surface [ft bgs]) and subsurface samples (2 to 15 ft bgs) for non-residential non-use aquifer values.

Data Used for Analysis

Benzo(a)pyrene, iron and lead concentrations were analysed from surface soil samples, and iron concentrations were analysed from subsurface soil samples collected at the 52-Acre Parcel. These analytes had at least one concentration above the MSC value, therefore compliance was assessed using calculated UCLs. Surface soil samples were collected in June 2006, February 2014, September 2016, and August 2017. Subsurface soil samples were collected in October 1996, June 2006, February 2014, and August 2017. Data used to calculate the UCLs are presented in Table 1.

3. Results and Conclusions

Table 2 presents descriptive statistics and UCL calculation results. The output from the USEPA ProUCL showing the UCL calculations is presented in Attachment A. A summary of the UCL comparisons to the MSC value is presented in the Table below:

Analyte	Soil Depth	UCL (mg/Kg)	MSC Value (mg/Kg)	Compliance
Benzo(a)pyrene	(0 – 2 ft bgs)	5.57	11	Attained
Iron	(0 – 2 ft bgs)	149,954	190,000	Attained
Lead	(0 – 2 ft bgs)	527.5	1,000	Attained
Iron	(2 – 15 ft bgs)	56,204	190,000	Attained

Although benzo(a)pyrene concentrations were found to be lognormally distributed, ProUCL recommended a non-parametric UCL. Benzo(a)pyrene concentrations were highly skewed ($\sigma>3.0$) due to the presence of four outliers (identified by the Dixon's test). In addition, benzo(a)pyrene dataset had a small number of samples ($n<20$-50), therefore ProUCL suggests avoiding the use of lognormal-based UCLs (USEPA, 2015).

For iron and lead, the UCL was calculated according to data distribution.

When comparing calculated UCLs to MSC values, compliance was attained in all four datasets.

4. References

USEPA, October 2015. ProUCL Version 5.1.002 Technical Guide. United States Environmental Protection Agency, Office of Research and Development, Washington DC. EPA/600/R-07/041.

Table 1

Data used for Calculation of Upper Confidence Limits
Keystone Industrial Port Complex - 52-Acre Parcel
Fairless Hills, Pennsylvania

Location	Sample ID	Date	Depth (ft BGS)	Benzo(a)pyrene (mg/kg) MSC = 11	Iron (mg/kg) MSC = 190000	Lead (mg/kg) MSC = 1000
BH-200-14	S-83101-022714-BW-005	2/27/2014	0-2	0.0025 U	**201000 J**	12.3 J
BH-201-14	S-83101-022714-BW-003	2/27/2014	0-2	0.0026 U	15300 J	5.4 J
BH-202-14	S-83101-022714-BW-001	2/27/2014	0-2	0.0025 U	16500 J	16.7 J
BH-203-14	S-83101-022714-BW-007	2/27/2014	0-2	0.0025 U	**212000 J**	16.8 J
BH-204-14	S-83101-022714-BW-011/012	2/27/2014	0-2	0.04 J/0.16 J	56500/25700	29.9 /11.9
NATP-1	NATP-1_0.5-1.0	6/12/2006	0.5-1	0.087	-	18.7
NATP-10	NATP-10_1.0-1.5	6/13/2006	1-1.5	0.025	-	3.3
NATP-11	NATP-11_1.0-1.5	6/13/2006	1-1.5	0.0098	-	6.7
NATP-14	NATP-14_1.25-1.75	6/14/2006	1.25-1.75	**16 / 15**	-	53.9
NATP-15	NATP-15_0.25-0.75	6/14/2006	0.25-0.75	0.12	-	17.6
NATP-16	NATP-16_1.5-2.0	6/14/2006	1.5-2	0.38	-	22.8
NATP-17	NATP-17_0.5-1.0	6/14/2006	0.5-1	0.16	-	44.3
NATP-2	NATP-2_1.5-2.0	6/12/2006	1.5-2	0.072	-	10.7
NATP-3	NATP-3_0.5-1.0	6/12/2006	0.5-1	1.3	-	22.8
NATP-4	NATP-4_1.5-2.0	6/12/2006	1.5-2	0.07	-	6.5
NATP-5	NATP-5_0.5-1.0	6/12/2006	0.5-1	3.3	-	12.6
NATP-6	NATP-6_1.5-2.0	6/12/2006	1.5-2	0.032	-	21.2
NATP-7	NATP-7_0.25-0.75	6/12/2006	0.25-0.75	0.0054 J	-	14
NATP-8	NATP-8_0.5-1.0	6/13/2006	0.5-1	0.07	-	19.8
NATP-9	NATP-9_1.5-2.0	6/13/2006	1.5-2	0.0034 J	-	8.2
SD201-16	SD-83101-090916-CJM-017	9/9/2016	0-0.5	3.7	59900	262
SD202-16	SD-83101-090916-CJM-018	9/9/2016	0-0.5	1.1	34200	150
SD203-16	SD-83101-090916-CJM-020	9/9/2016	0-0.5	6.8	91100	**2270**
SD204-16	SD-83101-090916-CJM-019	9/9/2016	0-0.5	1.1	47900	178
STREAM-1	STREAM-1_1.0-1.5	8/24/2017	1-1.5	0.405 J	46800	169

Table 1

Data used for Calculation of Upper Confidence Limits
Keystone Industrial Port Complex - 52-Acre Parcel
Fairless Hills, Pennsylvania

Location	Sample ID	Date	Depth (ft BGS)	Iron (mg/kg) MSC = 190000
BH-200-14	S-83101-022714-BW-006	2/27/2014	8-10	14500 J
BH-201-14	S-83101-022714-BW-004	2/27/2014	8-10	58000 J
BH-202-14	S-83101-022714-BW-002	2/27/2014	10-12	24900 J
BH-203-14	S-83101-022714-BW-008	2/27/2014	5-7	10400 J
BH-204-14	S-83101-022714-BW-013	2/27/2014	7.5-9.5	58600
GP-01-2017	GP-01_11.0-11.5	8/24/2017	11-11.5	123000
GP-02-2017	DUP-02_082317	8/23/2017	10.5-11	6490 /2550
GP-03-2017	GP-03_11.0-11.5	8/24/2017	11-11.5	**194000**
GP-04-2017	GP-04_9.0-9.5	8/24/2017	9-9.5	6450
GP-05-2017	GP-05_9.0-9.5	8/24/2017	9-9.5	1230
GP-06-2017	GP-06_9.5-10.0	8/23/2017	9.5-10	1240
GP-07-2017	GP-07_9.0-9.5	8/24/2017	9-9.5	4540
GP-08-2017	GP-08_9.0-9.5	8/24/2017	9-9.5	4560
GP-09-2017	GP-09_9.0-9.5	8/24/2017	9-9.5	13800
TP-01-2017	TP-01-10.5-11.0	8/22/2017	10.5-11	6450
TP-02-2017	TP-02-5.0-5.5	8/22/2017	5-5.5	33000
TP-03-2017	TP-03-6.5-7.0	8/22/2017	6.5-7	42100
TP-04-2017	DUP-01_082317	8/23/2017	10.5-11	7610 /6440
TP-05-2017	TP-05_9.5-10.0	8/23/2017	9.5-10	47600
TP-06-2017	TP-06-5.0-5.5	8/22/2017	5-5.5	43500
TP-07-2017	TP-07_9.5-10.0	8/23/2017	9.5-10	26700
TP-08-2017	TP-08-9.5-10.0	8/22/2017	9.5-10	15200

Note:

J - Estimated concentration
U - Not detected at the associated reporting limit
56500/25700 - Field duplicates
201000 Concentration is above the MSC value
MSC value: Medium Specific Concentrations

Table 2

Descriptive Statistics of Soil Data and Calculation of Upper Confidence Limits
Keystone Industrial Port Complex - 52 Acre Parcel
Fairless Hills, Pennsylvania

Analyte	Number of Samples	Percent Non-Detect	Minimum (mg/Kg)	Maximum (mg/Kg)	Data Distribution	Upper Confidence Limit Method	Upper Confidence Limit Value (mg/Kg)
(0-2 ft bgs)							
Benzo(a)pyrene	25	16%	0.0025 U	15.5	Lognormal	97.5% KM (Chebyshev)	5.57
Iron	10	0%	15,300 J	212,000 J	Gamma	95% Adjusted Gamma	149,954
Lead	25	0%	3.3	2,270	Not Normal	95% KM (Chebyshev)	528
(2-15 ft bgs)							
Iron	22	0%	1230	194,000	Gamma	95% Adjusted Gamma	56,204

Notes:

Data distribution test result considering detected values only (default ProUCL version 5.1.002 approach).
KM - UCL was calculated based on mean and standard deviation estimates from the Kaplan-Meier (KM) method for non-detects.

Attachment A

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/27/2018 11:01:24 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
mber of Bootstrap Operations	10000

Iron (0-2 ft) - 52-Acre Parcel

General Statistics

Total Number of Observations	10	Number of Distinct Observations	10
		Number of Missing Observations	15
Minimum	15300	Mean	76580
Maximum	212000	Median	47350
SD	71831	Std. Error of Mean	22715
Coefficient of Variation	0.938	Skewness	1.42

Normal GOF Test

Shapiro Wilk Test Statistic	0.762	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.292	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.262	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	118219	95% Adjusted-CLT UCL (Chen-1995)	124844
		95% Modified-t UCL (Johnson-1978)	119919

Gamma GOF Test

A-D Test Statistic	0.507	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.271	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.525	k star (bias corrected MLE)	1.134
Theta hat (MLE)	50223	Theta star (bias corrected MLE)	67529
nu hat (MLE)	30.5	nu star (bias corrected)	22.68
MLE Mean (bias corrected)	76580	MLE Sd (bias corrected)	71912
		Approximate Chi Square Value (0.05)	12.85
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	11.58

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	135168	95% Adjusted Gamma UCL (use when n<50)	149954

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.148	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.262	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	9.636	Mean of logged Data	10.88
Maximum of Logged Data	12.26	SD of logged Data	0.894

Assuming Lognormal Distribution

95% H-UCL	188098	90% Chebyshev (MVUE) UCL	142370
95% Chebyshev (MVUE) UCL	172642	97.5% Chebyshev (MVUE) UCL	214659
99% Chebyshev (MVUE) UCL	297192		

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/27/2018 11:01:24 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
mber of Bootstrap Operations	10000

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL 113943	95% Jackknife UCL 118219
95% Standard Bootstrap UCL 112470	95% Bootstrap-t UCL 184867
95% Hall's Bootstrap UCL 331273	95% Percentile Bootstrap UCL 113720
95% BCA Bootstrap UCL 123780	
90% Chebyshev(Mean, Sd) UCL 144725	95% Chebyshev(Mean, Sd) UCL 175592
97.5% Chebyshev(Mean, Sd) UCL 218435	99% Chebyshev(Mean, Sd) UCL 302591

Suggested UCL to Use

95% Adjusted Gamma UCL	149954

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Lead (0-2 ft) - 52-Acre Parcel

General Statistics

Total Number of Observations	25	Number of Distinct Observations	24
		Number of Missing Observations	0
Minimum	3.3	Mean	135.4
Maximum	2270	Median	18.7
SD	449.8	Std. Error of Mean	89.96
Coefficient of Variation	3.323	Skewness	4.826

Normal GOF Test

Shapiro Wilk Test Statistic	0.299	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.918	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.385	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.173	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	289.3	95% Adjusted-CLT UCL (Chen-1995)	376.1
		95% Modified-t UCL (Johnson-1978)	303.7

Gamma GOF Test

A-D Test Statistic	3.373	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.829	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.346	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.187	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.403	k star (bias corrected MLE)	0.382
Theta hat (MLE)	335.6	Theta star (bias corrected MLE)	354.7
nu hat (MLE)	20.17	nu star (bias corrected)	19.08
MLE Mean (bias corrected)	135.4	MLE Sd (bias corrected)	219.1

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/27/2018 11:01:24 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
mber of Bootstrap Operations	10000

		Approximate Chi Square Value (0.05)	10.18
Adjusted Level of Significance	0.0395	Adjusted Chi Square Value	9.735

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	253.8	95% Adjusted Gamma UCL (use when n<50)	265.4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.876	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.918	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.261	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.173	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.194	Mean of logged Data	3.279
Maximum of Logged Data	7.728	SD of logged Data	1.462

Assuming Lognormal Distribution

95% H-UCL	197.3	90% Chebyshev (MVUE) UCL	148.3
95% Chebyshev (MVUE) UCL	183.1	97.5% Chebyshev (MVUE) UCL	231.4
99% Chebyshev (MVUE) UCL	326.4		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	283.3	95% Jackknife UCL	289.3
95% Standard Bootstrap UCL	280.6	95% Bootstrap-t UCL	1078
95% Hall's Bootstrap UCL	803.2	95% Percentile Bootstrap UCL	311.3
95% BCA Bootstrap UCL	422.4		
90% Chebyshev(Mean, Sd) UCL	405.2	95% Chebyshev(Mean, Sd) UCL	527.5
97.5% Chebyshev(Mean, Sd) UCL	697.2	99% Chebyshev(Mean, Sd) UCL	1030

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	527.5

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.12/27/2018 11:02:30 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
mber of Bootstrap Operations	10000

Benzo(a)pyrene (0-2 ft) - 52-Acre Parcel

General Statistics

Total Number of Observations	25	Number of Distinct Observations	21
Number of Detects	21	Number of Non-Detects	4
Number of Distinct Detects	19	Number of Distinct Non-Detects	2
Minimum Detect	0.0034	Minimum Non-Detect	0.0025
Maximum Detect	15.5	Maximum Non-Detect	0.0026
Variance Detects	12.97	Percent Non-Detects	16%
Mean Detects	1.635	SD Detects	3.601
Median Detects	0.12	CV Detects	2.202
Skewness Detects	3.272	Kurtosis Detects	11.66
Mean of Logged Detects	-1.598	SD of Logged Detects	2.336

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.512	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.908	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.347	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.188	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.374	KM Standard Error of Mean	0.671
KM SD	3.276	95% KM (BCA) UCL	2.639
95% KM (t) UCL	2.523	95% KM (Percentile Bootstrap) UCL	2.558
95% KM (z) UCL	2.478	95% KM Bootstrap t UCL	4.589
90% KM Chebyshev UCL	3.388	95% KM Chebyshev UCL	4.301
97.5% KM Chebyshev UCL	5.567	99% KM Chebyshev UCL	8.055

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.919	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.841	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.21	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.205	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.326	k star (bias corrected MLE)	0.311
Theta hat (MLE)	5.023	Theta star (bias corrected MLE)	5.262
nu hat (MLE)	13.67	nu star (bias corrected)	13.05
Mean (detects)	1.635		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0034	Mean	1.375
Maximum	15.5	Median	0.087
SD	3.343	CV	2.431
k hat (MLE)	0.289	k star (bias corrected MLE)	0.281
Theta hat (MLE)	4.754	Theta star (bias corrected MLE)	4.89
nu hat (MLE)	14.46	nu star (bias corrected)	14.06
Adjusted Level of Significance (β)	0.0395		
Approximate Chi Square Value (14.06, α)	6.613	Adjusted Chi Square Value (14.06, β)	6.266

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.12/27/2018 11:02:30 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
mber of Bootstrap Operations	10000

95% Gamma Approximate UCL (use when n>=50)	2.924	95% Gamma Adjusted UCL (use when n<50)	3.086

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.374	SD (KM)	3.276
Variance (KM)	10.73	SE of Mean (KM)	0.671
k hat (KM)	0.176	k star (KM)	0.181
nu hat (KM)	8.793	nu star (KM)	9.071
theta hat (KM)	7.813	theta star (KM)	7.573
80% gamma percentile (KM)	1.713	90% gamma percentile (KM)	4.145
95% gamma percentile (KM)	7.255	99% gamma percentile (KM)	15.96

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (9.07, α)	3.37	Adjusted Chi Square Value (9.07, β)	3.136
5% Gamma Approximate KM-UCL (use when n>=50)	3.698	95% Gamma Adjusted KM-UCL (use when n<50)	3.974

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.908	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.112	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.188	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.374	Mean in Log Scale	-2.464
SD in Original Scale	3.344	SD in Log Scale	2.952
95% t UCL (assumes normality of ROS data)	2.518	95% Percentile Bootstrap UCL	2.544
95% BCA Bootstrap UCL	3.158	95% Bootstrap t UCL	4.647
95% H-UCL (Log ROS)	190.2		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.301	KM Geo Mean	0.1
KM SD (logged)	2.638	95% Critical H Value (KM-Log)	5.033
KM Standard Error of Mean (logged)	0.541	95% H-UCL (KM -Log)	48.82
KM SD (logged)	2.638	95% Critical H Value (KM-Log)	5.033
KM Standard Error of Mean (logged)	0.541		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.374	Mean in Log Scale	-2.411
SD in Original Scale	3.344	SD in Log Scale	2.856
95% t UCL (Assumes normality)	2.518	95% H-Stat UCL	123.4

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	5.567

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
lowever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/27/2018 11:15:30 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
mber of Bootstrap Operations	10000

Iron (2-15 ft) - 52-Acre Parcel

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
		Number of Missing Observations	20
Minimum	1230	Mean	33696
Maximum	194000	Median	14850
SD	45708	Std. Error of Mean	9745
Coefficient of Variation	1.356	Skewness	2.539

Normal GOF Test

Shapiro Wilk Test Statistic	0.682	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.911	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.239	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.184	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	50465	95% Adjusted-CLT UCL (Chen-1995)	55361
		95% Modified-t UCL (Johnson-1978)	51344

Gamma GOF Test

A-D Test Statistic	0.402	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.782	etected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.133	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.192	etected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.78	k star (bias corrected MLE)	0.704
Theta hat (MLE)	43208	Theta star (bias corrected MLE)	47876
nu hat (MLE)	34.31	nu star (bias corrected)	30.97
MLE Mean (bias corrected)	33696	MLE Sd (bias corrected)	40165
		Approximate Chi Square Value (0.05)	19.26
Adjusted Level of Significance	0.0386	Adjusted Chi Square Value	18.57

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	54193	95% Adjusted Gamma UCL (use when n<50)	56204

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.911	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0882	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.184	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.115	Mean of logged Data	9.662
Maximum of Logged Data	12.18	SD of logged Data	1.35

Assuming Lognormal Distribution

95% H-UCL	97360	90% Chebyshev (MVUE) UCL	73676
95% Chebyshev (MVUE) UCL	90584	97.5% Chebyshev (MVUE) UCL	114051
99% Chebyshev (MVUE) UCL	160147		

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/27/2018 11:15:30 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
ımber of Bootstrap Operations	10000

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	49725	95% Jackknife UCL	50465
95% Standard Bootstrap UCL	49311	95% Bootstrap-t UCL	67082
95% Hall's Bootstrap UCL	129771	95% Percentile Bootstrap UCL	50335
95% BCA Bootstrap UCL	56580		
90% Chebyshev(Mean, Sd) UCL	62931	95% Chebyshev(Mean, Sd) UCL	76173
97.5% Chebyshev(Mean, Sd) UCL	94553	99% Chebyshev(Mean, Sd) UCL	130657

Suggested UCL to Use

95% Adjusted Gamma UCL	56204

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
lowever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia

Appendix D
Data Validation Report

Memorandum

March 9, 2018

To:	Mike Tomka	Ref. No.:	083101
	DLB		
From:	Deborah Brennan/mkd/17-NF	Tel:	513-942-4750
cc:	Jody Vaillancourt, Richard Chatfield		

Subject: **Analytical Results and Reduced Validation**
Soil and Sediment Sampling – 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

1. Introduction

This document details a reduced validation of analytical results for soil and sediment samples collected in support of the 52 Acre Parcel Investigation – Soil and Sediment Sampling at the US Steel Site in Fairless Hills, Pennsylvania during February 2014 and August and September 2016. Samples were submitted to TestAmerica Inc. located in Edison, New Jersey. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Tables 2A (soil) and 2B (sediment). A summary of the analytical methodologies is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i). "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

ii). "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times.

All samples were prepared and analyzed within the required holding times.

All samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of diethyl phthalate, methylene chloride, selenium, and sodium present at low concentrations in one or more method blank for sediment samples. All associated sample results with concentration similar to those detected in the blank were qualified as non-detect (U) as indicated in Table 4.

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC), semi-volatile organic compound (SVOC), and polychlorinated biphenyl (PCB) determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of SVOC analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria with a few exceptions. Where a high recovery was found the associated sample results were non-detect and would not have been impacted. Where low recoveries were found the associated sample results were qualified as estimated (J) and non-detects were qualified as non-detect where the detection limit is estimated (UJ) due to the implied low bias. All non-detects sample results associated with surrogate recoveries of less than 10 percent were rejected (R) (see Table 6).

5. Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS/LCSD contained all analytes of interest. Most LCS recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable). The soil LCS for 2,4-dinitrophenol, bromomethane, and bromoform had low recoveries. Associated sample results were qualified as non-detects where the detection limit is estimated (UJ) as presented in Table 5.

Inorganic Analyses

The LCS contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the extraction process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed as specified in Table 1. The laboratory performed additional site-specific MS/MSD analyses internally. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions for SVOCs and VOCs. Where low recoveries were found the associated sample results were qualified as estimated (J) due to the implied low bias. Where recoveries of less than ten percent were found the associated non-detect results were rejected (R) due to the poor analytical efficiency demonstrated. A summary of the qualifications and exception is presented in Table 6.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the associated control limits, demonstrating

acceptable analytical accuracy and precision with a few exceptions for metals and general chemistry parameters. Where low recoveries were found the associated sample results were qualified as either estimated (J) or non-detect where the detection limit is estimated (UJ) due to the implied low bias. A summary of the qualifications and exceptions is presented in Table 6.

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. For this study, MS samples were prepared and analyzed by the laboratory as specified in Table 1. The laboratory performed additional site-specific MS analyses internally.

The MS results were evaluated per the "Guidelines". In accordance with the "Guidelines", MS recoveries for samples with analyte concentrations significantly greater than the spike concentrations could not be assessed.

All MS analyses performed were acceptable, demonstrating acceptable analytical accuracy with The exception of one low mercury MS recovery. The associated sample result was qualified as estimated (J) due to the implied low bias as presented in Table 6.

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed for metals and general chemistry parameters by the laboratory as specified in Table 1. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision with the exception of those presented in Table 7.

9. Field QA/QC Samples

The field QA/QC consisted of five trip blank samples, two equipment blank samples, and seven field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, three trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Equipment Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, two equipment blanks were submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest with the exception one sodium present at a low concentration. Most investigative samples associated with contaminated equipment blanks yielded either non-detect

concentrations or concentrations greater than five times the associated blank concentrations for the analytes of interest. Qualification of the sample data was not required on this basis. The sample result with a concentration similar to that detected in the equipment blank was qualified as non-detect (U) as shown in Table 8.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 and 100 percent for water and soil (or sediment) samples, respectively. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one or two times the RL value for water and soil (or sediment) samples, respectively.

Most field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision. Several samples and their field duplicates did show some variability for SVOC and metals results. All associated results were qualified as shown in Table 9.

10. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the PQL but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL in Table 2.

All soil and sediment results were reported on a dry weight basis.

11. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific exceptions and qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

						Analysis/Parameters											
Sample Identification	**Matrix**	**Initial Sample Depth (ft. bgs)**	**Final Sample Depth (ft. bgs)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**TOC**	**SVOCs - Total**	**VOCs**	**PCBs**	**Mercury - Total**	**Metals - Total**	**SEM Metals**	**SEM Mercury**	**Black Carbon**	**Cyanide**	**AVS**	**Comments**
Soil Sampling																	
S-83101-022714-BW-001	BH-202-14	0	2	2/27/14	10:15		X	X	X	X	X				X		
S-83101-022714-BW-002	BH-202-14	10	12	2/27/14	11:50		X	X	X	X	X				X		
S-83101-022714-BW-003	BH-201-14	0	2	2/27/14	12:15		X	X	X	X	X				X		
S-83101-022714-BW-004	BH-201-14	8	10	2/27/14	12:40		X	X	X	X	X				X		
S-83101-022714-BW-005	BH-200-14	0	2	2/27/14	13:10		X	X	X	X	X				X		
S-83101-022714-BW-006	BH-200-14	8	10	2/27/14	13:20		X	X	X	X	X				X		
S-83101-022714-BW-007	BH-203-14	0	2	2/27/14	14:40		X	X	X	X	X				X		
S-83101-022714-BW-008	BH-203-14	5	7	2/27/14	15:10		X	X	X	X	X				X		
S-83101-022714-BW-011	BH-204-14	0	2	2/27/14	16:29		X	X	X	X	X				X		
S-83101-022714-BW-012	BH-204-14	0	2	2/27/14	16:39		X	X	X	X	X				X		Field Duplicate of S-83101-022714-BW-011
S-83101-022714-BW-013	BH-204-14	7.5	9.5	2/27/14	17:05		X	X	X	X	X				X		
Trip Blank	-	-	-	2/27/14	17:05			X									TRIP BLANK
Sediment																	
SD-83101-090916-CJM-017	Sediment	-	-	09/09/2016	08:15	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
SD-83101-090916-CJM-018	Sediment	-	-	09/09/2016	08:50	X	X	X	X	X	X	X	X	X	X	X	
SD-83101-090916-CJM-020	Sediment	-	-	09/09/2016	10:05	X	X	X	X	X	X	X	X	X	X	X	
SD-83101-090916-CJM-019	Sediment	-	-	09/09/2016	09:20	X	X	X	X	X	X	X	X	X	X	X	

Notes:

-	- Not Applicable
ft bgs	- Feet below ground surface
DUP	- Laboratory Duplicate
MS/MSD	- Matrix Spike / Matrix Spike Duplicate
VOCs	- Volatile Organic Compounds
SVOCs	- Semi-volatile Organic Compounds
PCBs	- Polychlorinated Biphenyls
AVS	- Acid Volatile Sulfide
SEM	- Simultaneously Extracted Metals
TOC	- Total Organic Carbon

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**	**BH-202-14**
Sample ID:		**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**	**S-83101-022714-BW-001**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	3.2 U	3.8 U	3.1 U	3.9 U	3.1 U
1,1,2,2-Tetrachloroethane	µg/kg	8.2 U	9.7 U	7.9 U	9.9 U	7.7 U
1,1,2-Trichloroethane	µg/kg	9.8 U	12 U	9.4 U	12 U	9.2 U
1,1-Dichloroethane	µg/kg	6.8 U	8.0 U	6.5 U	8.2 U	6.4 U
1,1-Dichloroethene	µg/kg	4.6 U	5.5 U	4.4 U	5.5 U	4.3 U
1,2,4-Trichlorobenzene	µg/kg	18 U	21 U	17 U	21 U	17 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	21 U	25 U	20 U	25 U	20 U
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	14 U	17 U	14 U	17 U	14 U
1,2-Dichlorobenzene	µg/kg	11 U	13 U	10 U	13 U	10 U
1,2-Dichloroethane	µg/kg	9.9 U	12 U	9.5 U	12 U	9.3 U
1,2-Dichloropropane	µg/kg	4.5 U	5.3 U	4.3 U	5.4 U	4.2 U
1,3-Dichlorobenzene	µg/kg	7.1 U	8.3 U	6.8 U	8.5 U	6.6 U
1,4-Dichlorobenzene	µg/kg	12 U	14 U	12 U	15 U	11 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	120 U	140 U	120 U	150 U	110 U
2-Hexanone	µg/kg	26 U	31 U	25 U	31 U	25 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	52 U	61 U	49 U	62 U	48 U
Acetone	µg/kg	140 U	170 U	130 U	170 U	130 U
Benzene	µg/kg	4.3 U	5.1 U	4.1 U	5.2 U	4.1 U
Bromodichloromethane	µg/kg	6.5 U	7.7 U	6.3 U	7.8 U	6.1 U
Bromoform	µg/kg	10 U	12 U	9.6 U	12 U	9.4 U
Bromomethane (Methyl bromide)	µg/kg	9.5 UJ	11 UJ	9.1 UJ	11 UJ	8.9 UJ
Carbon disulfide	µg/kg	6.5 U	7.7 U	6.3 U	7.8 U	6.2 U
Carbon tetrachloride	µg/kg	3.0 U	3.5 U	2.9 U	3.6 U	2.8 U
Chlorobenzene	µg/kg	5.8 U	6.8 U	5.5 U	6.9 U	5.4 U
Chloroethane	µg/kg	8.8 U	10 U	8.5 U	11 U	8.3 U
Chloroform (Trichloromethane)	µg/kg	4.1 U	4.8 U	3.9 U	4.9 U	3.9 U
Chloromethane (Methyl chloride)	µg/kg	5.1 U	6.0 U	4.9 U	6.1 U	4.8 U
cis-1,2-Dichloroethene	µg/kg	9.3 U	11 U	8.9 U	11 U	8.7 U
cis-1,3-Dichloropropene	µg/kg	9.6 U	11 U	9.2 U	12 U	9.0 U
Cyclohexane	µg/kg	8.3 U	9.8 U	8.0 U	9.9 U	7.8 U
Dibromochloromethane	µg/kg	10 U	12 U	10 U	12 U	9.8 U
Dichlorodifluoromethane (CFC-12)	µg/kg	11 U	13 U	11 U	13 U	11 U
Ethylbenzene	µg/kg	5.0 U	5.9 U	4.8 U	6.0 U	4.7 U
Isopropyl benzene	µg/kg	4.0 U	4.7 U	3.8 U	4.8 U	3.8 U
Methyl acetate	µg/kg	9300	21 U	17 U	21 U	16 U
Methyl cyclohexane	µg/kg	7.1 U	8.3 U	6.8 U	8.5 U	6.6 U
Methyl tert butyl ether (MTBE)	µg/kg	7.2 U	8.5 U	6.9 U	8.6 U	6.8 U
Methylene chloride	µg/kg	9.5 U	11 U	9.1 U	11 U	8.9 U
Styrene	µg/kg	6.2 U	7.3 U	5.9 U	7.4 U	5.8 U
Tetrachloroethene	µg/kg	5.1 U	6.0 U	4.9 U	6.1 U	4.8 U
Toluene	µg/kg	7.8 U	9.2 U	7.5 U	9.3 U	7.3 U
trans-1,2-Dichloroethene	µg/kg	6.7 U	7.9 U	6.5 U	8.1 U	6.3 U
trans-1,3-Dichloropropene	µg/kg	13 U	15 U	12 U	15 U	12 U
Trichloroethene	µg/kg	4.8 U	5.7 U	4.6 U	5.8 U	4.5 U
Trichlorofluoromethane (CFC-11)	µg/kg	7.6 U	9.0 U	7.3 U	9.1 U	7.2 U
Trifluorotrichloroethane (Freon 113)	µg/kg	4.3 U	5.1 U	4.1 U	5.1 U	4.0 U
Vinyl chloride	µg/kg	7.6 U	8.9 U	7.3 U	9.0 U	7.1 U
Xylenes (total)	µg/kg	19 U	22 U	18 U	22 U	18 U

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**	**BH-202-14**
Sample ID:		**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**	**S-83101-022714-BW-001**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**					
Semi-volatile Organic Compounds						
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	40 U	40 U	41 U	43 U	39 U
2,4,5-Trichlorophenol	µg/kg	46 U	47 U	47 U	50 U	46 U
2,4,6-Trichlorophenol	µg/kg	42 U	43 U	43 U	45 U	41 U
2,4-Dichlorophenol	µg/kg	53 U	53 U	54 U	56 U	52 U
2,4-Dimethylphenol	µg/kg	89 U	90 U	90 U	95 U	87 U
2,4-Dinitrophenol	µg/kg	200 U	210 U	210 U	220 U	200 U
2,4-Dinitrotoluene	µg/kg	12 U	12 U	12 U	13 U	12 U
2,6-Dinitrotoluene	µg/kg	11 U	11 U	11 U	12 U	11 U
2-Chloronaphthalene	µg/kg	40 U	41 U	41 U	43 U	40 U
2-Chlorophenol	µg/kg	47 U	48 U	48 U	51 U	47 U
2-Methylnaphthalene	µg/kg	46 U	47 U	47 U	49 U	46 U
2-Methylphenol	µg/kg	61 U	62 U	62 U	66 U	60 U
2-Nitroaniline	µg/kg	150 U	150 U	150 U	160 U	150 U
2-Nitrophenol	µg/kg	40 U	41 U	41 U	43 U	40 U
3,3'-Dichlorobenzidine	µg/kg	130 U	130 U	130 U	140 U	120 U
3-Nitroaniline	µg/kg	130 U	130 U	130 U	140 U	130 U
4,6-Dinitro-2-methylphenol	µg/kg	98 U	99 U	100 U	100 U	97 U
4-Bromophenyl phenyl ether	µg/kg	36 U	36 U	36 U	38 U	35 U
4-Chloro-3-methylphenol	µg/kg	54 U	55 U	55 U	58 U	53 U
4-Chloroaniline	µg/kg	95 U	97 U	97 U	100 U	94 U
4-Chlorophenyl phenyl ether	µg/kg	42 U	43 U	43 U	45 U	42 U
4-Methylphenol	µg/kg	71 U	72 U	72 U	76 U	70 U
4-Nitroaniline	µg/kg	110 U	110 U	110 U	120 U	110 U
4-Nitrophenol	µg/kg	230 U	230 U	240 U	250 U	230 U
Acenaphthene	µg/kg	52 U	53 U	53 U	56 U	52 U
Acenaphthylene	µg/kg	42 U	43 U	43 U	46 U	42 U
Acetophenone	µg/kg	55 U	56 U	56 U	59 U	54 U
Anthracene	µg/kg	44 U	44 U	45 U	47 U	43 U
Atrazine	µg/kg	55 U	56 U	57 U	60 U	55 U
Benzaldehyde	µg/kg	42 U	43 U	43 U	45 U	42 U
Benzo(a)anthracene	µg/kg	2.5 U	2.5 U	2.6 U	2.7 U	2.5 U
Benzo(a)pyrene	µg/kg	2.5 U	2.6 U	2.6 U	39	2.5 U
Benzo(b)fluoranthene	µg/kg	2.3 U	2.3 U	2.3 U	39	2.2 U
Benzo(g,h,i)perylene	µg/kg	27 U	27 U	27 U	29 U	26 U
Benzo(k)fluoranthene	µg/kg	2.7 U	2.8 U	2.8 U	23 J	2.7 U
Biphenyl (1,1-Biphenyl)	µg/kg	48 U	49 U	49 U	52 U	47 U
bis(2-Chloroethoxy)methane	µg/kg	46 U	47 U	47 U	50 U	46 U
bis(2-Chloroethyl)ether	µg/kg	4.9 U	5.0 U	5.0 U	5.3 U	4.8 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	120 U	120 U	120 U	130 U	120 U
Butyl benzylphthalate (BBP)	µg/kg	33 U	33 U	34 U	35 U	32 U
Caprolactam	µg/kg	83 U	84 U	84 U	89 U	82 UJ
Carbazole	µg/kg	42 U	43 U	43 U	46 U	42 U
Chrysene	µg/kg	42 U	43 U	43 U	45 U	41 U
Dibenz(a,h)anthracene	µg/kg	4.5 U	4.6 U	4.6 U	4.9 U	4.5 U
Dibenzofuran	µg/kg	42 U	43 U	43 U	45 U	42 U
Diethyl phthalate	µg/kg	43 U	43 U	44 U	46 U	42 U
Dimethyl phthalate	µg/kg	43 U	43 U	43 U	46 U	42 U

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**	**BH-202-14**
Sample ID:		**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**	**S-83101-022714-BW-001**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**					
Semi-volatile Organic Compounds (cont'd)						
Di-n-butylphthalate (DBP)	µg/kg	44 U	45 U	45 U	48 U	44 U
Di-n-octyl phthalate (DnOP)	µg/kg	23 U	23 U	23 U	25 U	23 U
Fluoranthene	µg/kg	48 U	49 U	49 U	51 U	47 U
Fluorene	µg/kg	46 U	47 U	47 U	49 U	45 U
Hexachlorobenzene	µg/kg	4.9 U	5.0 U	5.0 U	5.3 U	4.8 U
Hexachlorobutadiene	µg/kg	8.8 U	8.9 U	8.9 U	9.4 U	8.7 U
Hexachlorocyclopentadiene	µg/kg	42 U	43 U	43 U	45 U	R
Hexachloroethane	µg/kg	4.0 U	4.1 U	4.1 U	4.3 U	3.9 U
Indeno(1,2,3-cd)pyrene	µg/kg	6.7 U	6.8 U	6.8 U	7.2 U	6.6 U
Isophorone	µg/kg	44 U	44 U	44 U	47 U	43 U
Naphthalene	µg/kg	42 U	42 U	42 U	45 U	41 U
Nitrobenzene	µg/kg	5.1 U	5.2 U	5.2 U	5.5 U	5.0 U
N-Nitrosodi-n-propylamine	µg/kg	6.0 U	6.1 U	6.1 U	6.4 U	5.9 U
N-Nitrosodiphenylamine	µg/kg	35 U	36 U	36 U	38 U	35 U
Pentachlorophenol	µg/kg	110 U	110 U	110 U	110 U	110 U
Phenanthrene	µg/kg	46 U	46 U	47 U	49 U	45 U
Phenol	µg/kg	48 U	49 U	49 U	52 U	48 U
Pyrene	µg/kg	30 U	31 U	31 U	32 U	30 U
Metals						
Aluminum	mg/kg	7930	5860	8500	22700	9050
Antimony	mg/kg	0.37 UJ	0.37 UJ	0.39 UJ	0.42 UJ	0.42 UJ
Arsenic	mg/kg	3.1 J	4.1 J	4.6 J	2.1 J	4.9 J
Barium	mg/kg	137	21.2	62.2	379	27.1
Beryllium	mg/kg	0.86	0.30	0.64	8.4	0.45
Cadmium	mg/kg	0.38 U	0.38 U	0.40 U	0.43 U	0.43 U
Calcium	mg/kg	134000	2700	739	137000	1780
Chromium	mg/kg	1900 J	27.3 J	20.2 J	61.8 J	20.4 J
Cobalt	mg/kg	1.7	5.7	4.7	1.0	5.6
Copper	mg/kg	38.9	9.0	6.3	5.1	7.6
Iron	mg/kg	201000 J	14500 J	15300 J	58000 J	16500 J
Lead	mg/kg	12.3 J	5.7 J	5.4 J	10.3 J	16.7 J
Magnesium	mg/kg	49000	3040	926	52900	1230
Manganese	mg/kg	20900	650	81.7	1690	162
Mercury	mg/kg	0.012 U	0.013 U	0.028	0.013 U	0.018
Nickel	mg/kg	9.6	11.7	7.7	2.7	10.6
Potassium	mg/kg	256	514	546	730	619
Selenium	mg/kg	0.40 J	0.39 U	0.41 U	7.9	0.44 U
Silver	mg/kg	0.75 U	0.77 U	0.80 U	0.86 U	0.87 U
Sodium	mg/kg	268	42.3 U	43.8 U	902	47.9 U
Thallium	mg/kg	0.16 U	0.16 U	0.16 U	0.18 U	0.18 U
Vanadium	mg/kg	280	11.1	17.8	26.5	20.7
Zinc	mg/kg	85.9	30.7	25.0	36.5	24.9

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-200-14**	**BH-200-14**	**BH-201-14**	**BH-201-14**	**BH-202-14**
Sample ID:		**S-83101-022714-BW-005**	**S-83101-022714-BW-006**	**S-83101-022714-BW-003**	**S-83101-022714-BW-004**	**S-83101-022714-BW-001**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**	**(8-10) ft BGS**	**(0-2) ft BGS**
Parameters	**Units**					
PCBs						
Aroclor-1016 (PCB-1016)	µg/kg	16 U	17 U	17 U	17 U	16 U
Aroclor-1221 (PCB-1221)	µg/kg	16 U	17 U	17 U	17 U	16 U
Aroclor-1232 (PCB-1232)	µg/kg	16 U	17 U	17 U	17 U	16 U
Aroclor-1242 (PCB-1242)	µg/kg	16 U	17 U	17 U	17 U	16 U
Aroclor-1248 (PCB-1248)	µg/kg	16 U	17 U	17 U	17 U	16 U
Aroclor-1254 (PCB-1254)	µg/kg	21 U	21 U	21 U	22 U	20 U
Aroclor-1260 (PCB-1260)	µg/kg	21 U	21 U	21 U	22 U	20 U
Total PCBs	µg/kg	21 U	21 U	21 U	22 U	20 U
General Chemistry						
Cyanide (total)	mg/kg	0.091 J	0.39	0.061 U	0.69	0.059 U

Notes:

J - Estimated concentration
R - Rejected
U - Not detected at the associated reporting limit
UJ - Not detected; associated reporting limit is estimated

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**
Sample ID:		**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**
Parameters	**Units**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	26 J	2.7 U	3.3 U	6.4 U	3.0 U	3.9 U
1,1,2,2-Tetrachloroethane	µg/kg	10 U	6.8 UJ	8.3 U	16 U	7.5 U	10 U
1,1,2-Trichloroethane	µg/kg	12 U	8.1 U	9.9 U	19 U	9.0 U	12 U
1,1-Dichloroethane	µg/kg	8.6 U	5.6 U	6.9 U	13 U	6.2 U	8.2 U
1,1-Dichloroethene	µg/kg	5.8 U	3.8 U	4.7 U	9.0 U	4.2 U	5.6 U
1,2,4-Trichlorobenzene	µg/kg	23 U	15 U	18 U	35 U	16 U	22 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	26 U	17 U	21 U	41 U	19 U	25 U
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	18 U	12 U	15 U	28 U	13 U	17 U
1,2-Dichlorobenzene	µg/kg	14 U	8.9 U	11 U	21 U	9.8 U	13 U
1,2-Dichloroethane	µg/kg	12 U	8.2 U	10 U	19 U	9.0 U	12 U
1,2-Dichloropropane	µg/kg	5.7 U	3.7 U	4.5 U	8.8 U	4.1 U	5.4 U
1,3-Dichlorobenzene	µg/kg	8.9 U	5.8 U	7.1 U	14 U	6.5 U	8.6 U
1,4-Dichlorobenzene	µg/kg	15 U	10 U	12 U	24 U	11 U	15 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	150 U	100 U	120 U	240 U	110 U	150 U
2-Hexanone	µg/kg	33 U	22 U	26 U	51 U	24 U	32 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	65 U	43 U	52 U	100 U	47 U	62 U
Acetone	µg/kg	180 U	120 U	140 U	270 U	130 U	170 U
Benzene	µg/kg	5.4 U	3.6 U	4.4 U	8.4 U	3.9 U	5.2 U
Bromodichloromethane	µg/kg	8.2 U	5.4 U	6.6 U	13 U	6.0 U	7.9 U
Bromoform	µg/kg	13 U	8.3 UJ	10 UJ	20 UJ	9.2 U	12 U
Bromomethane (Methyl bromide)	µg/kg	12 UJ	7.8 UJ	9.6 U	19 U	8.7 U	11 U
Carbon disulfide	µg/kg	8.3 U	5.4 U	6.6 U	13 U	6.0 U	7.9 U
Carbon tetrachloride	µg/kg	3.8 U	2.5 U	3.0 U	5.8 U	2.7 U	3.6 U
Chlorobenzene	µg/kg	7.3 U	4.8 U	5.8 U	11 U	5.3 U	7.0 U
Chloroethane	µg/kg	11 U	7.3 U	8.9 U	17 U	8.1 U	11 U
Chloroform (Trichloromethane)	µg/kg	5.2 U	3.4 U	4.1 U	8.0 U	3.8 U	5.0 U
Chloromethane (Methyl chloride)	µg/kg	6.4 U	4.2 U	5.1 U	9.9 U	4.6 U	6.1 U
cis-1,2-Dichloroethene	µg/kg	12 U	7.7 U	9.3 U	18 U	8.5 U	11 U
cis-1,3-Dichloropropene	µg/kg	12 U	7.9 U	9.7 U	19 U	8.8 U	12 U
Cyclohexane	µg/kg	10 U	6.9 U	8.4 U	16 U	7.6 U	10 U
Dibromochloromethane	µg/kg	13 U	8.6 UJ	11 U	20 U	9.5 U	13 U
Dichlorodifluoromethane (CFC-12)	µg/kg	14 U	9.3 U	11 U	22 U	10 U	14 U
Ethylbenzene	µg/kg	6.3 U	4.1 U	5.1 U	9.8 U	4.6 U	53 J
Isopropyl benzene	µg/kg	5.1 U	3.3 U	4.0 U	7.8 U	3.7 U	4.8 U
Methyl acetate	µg/kg	22 U	1400	18 U	800	1300	400
Methyl cyclohexane	µg/kg	8.9 U	5.8 U	7.1 U	14 U	6.5 U	8.6 U
Methyl tert butyl ether (MTBE)	µg/kg	9.1 U	6.0 U	7.3 U	14 U	6.6 U	8.7 U
Methylene chloride	µg/kg	12 U	7.9 U	9.6 U	19 U	8.7 U	12 U
Styrene	µg/kg	7.8 U	5.1 U	6.3 U	12 U	5.7 U	7.5 U
Tetrachloroethene	µg/kg	6.4 U	4.2 U	5.1 U	9.9 U	4.6 U	6.1 U
Toluene	µg/kg	9.9 U	6.5 U	7.9 U	15 U	7.1 U	46 J
trans-1,2-Dichloroethene	µg/kg	8.5 U	5.6 U	6.8 U	13 U	6.2 U	8.1 U
trans-1,3-Dichloropropene	µg/kg	16 U	10 U	13 U	25 U	12 U	15 U
Trichloroethene	µg/kg	39 J	4.0 U	4.9 U	9.4 U	4.4 U	5.8 U
Trichlorofluoromethane (CFC-11)	µg/kg	9.6 U	6.3 U	7.7 U	15 U	7.0 U	9.2 U
Trifluorotrichloroethane (Freon 113)	µg/kg	5.4 U	3.5 U	4.3 U	8.4 U	3.9 U	5.2 U
Vinyl chloride	µg/kg	9.5 U	6.2 U	7.6 U	15 U	6.9 U	9.1 U
Xylenes (total)	µg/kg	24 U	16 U	19 U	37 U	17 U	260

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**
Sample ID:		**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**
Parameters	**Units**						
Semi-volatile Organic Compounds							
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	39 U	39 U	39 U	39 U	41 U	41 U
2,4,5-Trichlorophenol	µg/kg	46 U	45 U	45 U	46 U	48 U	47 U
2,4,6-Trichlorophenol	µg/kg	41 U	41 U	41 U	42 U	44 U	43 U
2,4-Dichlorophenol	µg/kg	52 U	51 U	51 U	52 U	55 U	54 U
2,4-Dimethylphenol	µg/kg	87 U	87 U	87 U	88 U	92 U	90 U
2,4-Dinitrophenol	µg/kg	200 U	200 U	200 U	200 U	210 U	210 U
2,4-Dinitrotoluene	µg/kg	12 U	12 U	12 U	12 U	12 U	12 U
2,6-Dinitrotoluene	µg/kg	11 U	11 U	11 U	11 U	11 U	11 U
2-Chloronaphthalene	µg/kg	39 U	39 U	39 U	40 U	42 U	41 U
2-Chlorophenol	µg/kg	46 U	46 U	46 U	47 U	49 U	48 U
2-Methylnaphthalene	µg/kg	45 U	45 U	45 U	46 U	48 U	47 U
2-Methylphenol	µg/kg	60 U	60 U	60 U	61 U	64 U	62 U
2-Nitroaniline	µg/kg	150 U	150 U	150 U	150 U	160 U	150 U
2-Nitrophenol	µg/kg	39 U	39 U	39 U	40 U	42 U	41 U
3,3'-Dichlorobenzidine	µg/kg	120 U	120 U	120 U	120 U	130 U	130 U
3-Nitroaniline	µg/kg	130 U	120 U	120 U	130 U	130 U	130 U
4,6-Dinitro-2-methylphenol	µg/kg	96 U	96 U	96 U	97 U	100 U	100 U
4-Bromophenyl phenyl ether	µg/kg	35 U	35 U	35 U	35 U	37 U	36 U
4-Chloro-3-methylphenol	µg/kg	53 U	53 U	53 U	54 U	56 U	55 U
4-Chloroaniline	µg/kg	94 U	93 U	93 U	94 U	99 U	97 U
4-Chlorophenyl phenyl ether	µg/kg	41 U	41 U	41 U	42 U	44 U	43 U
4-Methylphenol	µg/kg	70 U	69 U	69 U	70 U	74 U	72 U
4-Nitroaniline	µg/kg	110 U	110 U	110 U	110 U	120 U	110 U
4-Nitrophenol	µg/kg	230 U	230 U	230 U	230 U	240 U	240 U
Acenaphthene	µg/kg	52 U	51 U	51 U	52 U	54 U	53 U
Acenaphthylene	µg/kg	42 U	42 U	41 U	42 U	44 U	43 U
Acetophenone	µg/kg	54 U	54 U	54 U	55 U	57 U	56 U
Anthracene	µg/kg	43 U	43 U	43 U	43 U	45 U	45 U
Atrazine	µg/kg	55 U	54 U	54 U	55 U	58 U	57 U
Benzaldehyde	µg/kg	42 U	41 U	41 U	42 U	44 U	43 U
Benzo(a)anthracene	µg/kg	61	2.5 U	2.4 U	2.5 UJ	160 J	2.6 U
Benzo(a)pyrene	µg/kg	56	2.5 U	2.5 U	40 J	160 J	2.6 U
Benzo(b)fluoranthene	µg/kg	79	2.2 U	2.2 U	68 J	230 J	2.3 U
Benzo(g,h,i)perylene	µg/kg	36 J	26 J	26 U	26 U	79 J	27 U
Benzo(k)fluoranthene	µg/kg	34 J	2.7 U	2.7 U	25 J	90 J	2.8 U
Biphenyl (1,1-Biphenyl)	µg/kg	47 U	47 U	47 U	48 U	50 U	49 U
bis(2-Chloroethoxy)methane	µg/kg	46 U	45 U	45 U	46 U	48 U	47 U
bis(2-Chloroethyl)ether	µg/kg	4.8 U	4.8 U	4.8 U	4.9 U	5.1 U	5.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	120 U	120 U	120 U	120 U	120 U	120 U
Butyl benzylphthalate (BBP)	µg/kg	32 U	32 U	32 U	33 U	34 U	34 U
Caprolactam	µg/kg	81 U	81 U	81 U	82 U	86 U	84 U
Carbazole	µg/kg	42 U	42 U	41 U	42 U	44 U	43 U
Chrysene	µg/kg	71 J	41 U	41 U	46 J	220 J	43 U
Dibenz(a,h)anthracene	µg/kg	4.5 U	4.4 U	4.4 U	4.5 U	4.7 U	4.6 U
Dibenzofuran	µg/kg	41 U	41 U	41 U	42 U	44 U	43 U
Diethyl phthalate	µg/kg	42 U	42 U	42 U	42 U	45 U	44 U
Dimethyl phthalate	µg/kg	42 U	42 U	42 U	42 U	44 U	43 U

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**
Sample ID:		**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**
Parameters	**Units**						
Semi-volatile Organic Compounds (cont'd)							
Di-n-butylphthalate (DBP)	µg/kg	44 U	43 U	43 U	44 U	46 U	45 U
Di-n-octyl phthalate (DnOP)	µg/kg	23 U	22 U	22 U	23 U	24 U	23 U
Fluoranthene	µg/kg	81 J	47 U	47 U	56 J	320 J	49 U
Fluorene	µg/kg	45 U	45 U	45 U	45 U	48 U	47 U
Hexachlorobenzene	µg/kg	4.8 U	4.8 U	4.8 U	4.9 U	5.1 U	5.0 U
Hexachlorobutadiene	µg/kg	8.6 U	8.6 U	8.6 U	8.7 U	9.1 U	8.9 U
Hexachlorocyclopentadiene	µg/kg	42 U	41 U	41 U	42 U	44 U	43 U
Hexachloroethane	µg/kg	3.9 U	3.9 U	3.9 U	4.0 U	4.2 U	4.1 U
Indeno(1,2,3-cd)pyrene	µg/kg	52	6.5 U	6.5 U	UJ	110 J	6.8 U
Isophorone	µg/kg	43 U	43 U	43 U	43 U	45 U	44 U
Naphthalene	µg/kg	41 U	41 U	41 U	41 U	43 U	42 U
Nitrobenzene	µg/kg	5.0 U	5.0 U	5.0 U	5.1 U	5.3 U	5.2 U
N-Nitrosodi-n-propylamine	µg/kg	5.9 U	5.9 U	5.9 U	5.9 U	6.2 U	6.1 U
N-Nitrosodiphenylamine	µg/kg	35 U	35 U	35 U	35 U	37 U	36 U
Pentachlorophenol	µg/kg	110 U	100 U	100 U	110 U	110 U	110 U
Phenanthrene	µg/kg	45 U	45 U	45 U	45 U	180 J	47 U
Phenol	µg/kg	47 U	47 U	47 U	48 U	50 U	49 U
Pyrene	µg/kg	72 J	29 U	29 U	42 J	280 J	31 U
Metals							
Aluminum	mg/kg	26200	8970	4800	6210	4570	34200
Antimony	mg/kg	0.37 UJ	0.34 UJ	0.34 UJ	0.32 UJ	0.42 UJ	0.35 UJ
Arsenic	mg/kg	2.5 J	2.2 J	3.2 J	5.2 J	8.7 J	2.4
Barium	mg/kg	523	117	17.5	52.3	27.1	899
Beryllium	mg/kg	10.0	1.5	0.24	0.49	0.62	8.3
Cadmium	mg/kg	0.38 U	0.34 U	0.35 U	0.51	0.43 U	0.36 U
Calcium	mg/kg	155000	139000	138	21300 J	3440 J	142000
Chromium	mg/kg	25.3 J	1920 J	5.6 J	392 J	51.5 J	96.3
Cobalt	mg/kg	0.80 U	1.6	4.9	5.1	3.8	1.1
Copper	mg/kg	4.8	20.5	7.3	18.2	7.1	3.3
Iron	mg/kg	24900 J	212000 J	10400 J	56500	25700	58600
Lead	mg/kg	4.0 J	16.8 J	4.9 J	29.9	11.9	0.22 J
Magnesium	mg/kg	65400	44700	1910	9470 J	1840 J	52600
Manganese	mg/kg	750	15500	319	3350 J	228 J	2020
Mercury	mg/kg	0.020	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U
Nickel	mg/kg	1.7	8.2	9.7	13.9	7.5	2.6
Potassium	mg/kg	720	298	435	483	809	2770
Selenium	mg/kg	7.7	0.90	0.36 U	0.33 U	0.44 U	4.4
Silver	mg/kg	0.75 U	0.69 U	0.70 U	0.65 U	0.87 U	0.71 U
Sodium	mg/kg	756	213	38.7 U	57.3	48.0 U	1440
Thallium	mg/kg	0.16 U	0.14 U	0.14 U	0.13 U	0.18 U	0.15 U
Vanadium	mg/kg	6.5	291	6.1	75.1	33.2	43.5
Zinc	mg/kg	75.0	61.6	25.2	172	177	2.8 U

Table 2

Analytical Results Summary
Soil Sampling
US Steel
February 2014

Sample Location:		**BH-202-14**	**BH-203-14**	**BH-203-14**	**BH-204-14**	**BH-204-14**	**BH-204-14**
Sample ID:		**S-83101-022714-BW-002**	**S-83101-022714-BW-007**	**S-83101-022714-BW-008**	**S-83101-022714-BW-011**	**S-83101-022714-BW-012**	**S-83101-022714-BW-013**
Sample Date:		**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**	**2/27/2014**
Sample Depth:		**(10-12) ft BGS**	**(0-2) ft BGS**	**(5-7) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS (Duplicate)**	**(7.5-9.5) ft BGS**
Parameters	**Units**						
PCBs							
Aroclor-1016 (PCB-1016)	µg/kg	16 U	16 U	16 U	16 U	17 U	17 U
Aroclor-1221 (PCB-1221)	µg/kg	16 U	16 U	16 U	16 U	17 U	17 U
Aroclor-1232 (PCB-1232)	µg/kg	16 U	16 U	16 U	16 U	17 U	17 U
Aroclor-1242 (PCB-1242)	µg/kg	16 U	16 U	16 U	16 U	17 U	17 U
Aroclor-1248 (PCB-1248)	µg/kg	16 U	16 U	16 U	16 U	17 U	17 U
Aroclor-1254 (PCB-1254)	µg/kg	20 U	20 U	20 U	20 U	21 U	21 U
Aroclor-1260 (PCB-1260)	µg/kg	20 U	20 U	20 U	20 U	21 U	21 U
Total PCBs	µg/kg	20 U	20 U	20 U	20 U	21 U	21 U
General Chemistry							
Cyanide (total)	mg/kg	0.059 U	0.059 U	0.39	0.084 J	0.20	0.16

Notes:

J - Estimated concentration
R - Rejected
U - Not detected at the associated reporting limit
UJ - Not detected; associated reporting limit is estimated

Table 2B

Analytial Results Summary - Sediment
Analytical Results and Reduced Validation
32016 Investigation – Soil, Sediment, and Surface Water Sampling
US Steel
Fairless Hills, PA
August and September 2016

	Location ID:	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**
	Sample Name:	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**
	Sample Date:	**09/09/2016**	**09/09/2016**	**09/09/2016**	**09/09/2016**
	Depth:	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**
Parameters	**Unit**				
Volatile Organic Compounds					
1,1,1-Trichloroethane	mg/kg	0.0025 U	0.0019 U	0.0021 U	0.0047 U
1,1,2,2-Tetrachloroethane	mg/kg	0.0094 U	0.0069 U	0.0079 U	0.017 U
1,1,2-Trichloroethane	mg/kg	0.0066 U	0.0049 U	0.0056 U	0.012 U
1,1-Dichloroethane	mg/kg	0.0027 U	0.0020 U	0.0022 U	0.0049 U
1,1-Dichloroethene	mg/kg	0.0034 U	0.0025 U	0.0029 U	0.0064 U
1,2,4-Trichlorobenzene	mg/kg	0.0096 U	0.0071 U	0.0081 U	0.018 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.011 U	0.0079 U	0.0090 U	0.020 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.0051 U	0.0037 U	0.0042 U	0.0094 U
1,2-Dichlorobenzene	mg/kg	0.0077 U	0.0057 U	0.0065 U	0.014 U
1,2-Dichloroethane	mg/kg	0.0026 U	0.0020 U	0.0022 U	0.0049 U
1,2-Dichloropropane	mg/kg	0.0044 U	0.0033 U	0.0037 U	0.0082 U
1,3-Dichlorobenzene	mg/kg	0.0070 U	0.0052 U	0.0059 U	0.013 U
1,4-Dichlorobenzene	mg/kg	0.0070 U	0.0052 U	0.0059 U	0.013 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	0.0071 U	0.0052 U	0.0059 U	0.013 U
2-Hexanone	mg/kg	0.0096 U	0.0071 U	0.0081 U	0.018 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	0.0084 U	0.0062 U	0.0071 U	0.016 U
Acetone	mg/kg	0.024 U	0.018 U	0.020 U	0.045 U
Benzene	mg/kg	0.0072 U	0.0053 U	0.0060 U	0.013 U
Bromodichloromethane	mg/kg	0.0047 U	0.0035 U	0.0040 U	0.0088 U
Bromoform	mg/kg	0.011 U	0.0080 U	0.0091 U	0.020 U
Bromomethane (Methyl bromide)	mg/kg	0.0041 U	0.0030 U	0.0034 U	0.0075 U
Carbon disulfide	mg/kg	0.0050 U	0.0037 U	0.0042 U	0.0093 U
Carbon tetrachloride	mg/kg	0.0032 U	0.0024 U	0.0027 U	0.0060 U
Chlorobenzene	mg/kg	0.0053 U	0.0039 U	0.0044 U	0.0098 U
Chloroethane	mg/kg	0.0050 U	0.0037 U	0.0042 U	0.0093 U
Chloroform (Trichloromethane)	mg/kg	0.0030 U	0.0022 U	0.0025 U	0.0055 U
Chloromethane (Methyl chloride)	mg/kg	0.0063 U	0.0046 U	0.0052 U	0.012 U
cis-1,2-Dichloroethene	mg/kg	0.0032 U	0.0023 U	0.0027 U	0.0059 U
cis-1,3-Dichloropropene	mg/kg	0.0052 U	0.0038 U	0.0043 U	0.0096 U
Cyclohexane	mg/kg	0.0035 U	0.0026 U	0.0029 U	0.0065 U
Dibromochloromethane	mg/kg	0.0059 U	0.0043 U	0.0049 U	0.011 U
Dichlorodifluoromethane (CFC-12)	mg/kg	0.0070 U	0.0051 U	0.0058 U	0.013 U
Ethylbenzene	mg/kg	0.0047 U	0.0035 U	0.0039 U	0.0087 U
Isopropyl benzene	mg/kg	0.0081 U	0.0060 U	0.0068 U	0.015 U
Methyl acetate	mg/kg	0.031 U	0.023 U	0.026 U	0.058 U
Methyl cyclohexane	mg/kg	0.0043 U	0.0032 U	0.0036 U	0.0079 U
Methyl tert butyl ether (MTBE)	mg/kg	0.0059 U	0.0044 U	0.0050 U	0.011 U
Methylene chloride	mg/kg	0.0013 U	0.0030 U	0.0054 U	0.0083 U

Table 2B

Analytial Results Summary - Sediment
Analytical Results and Reduced Validation
32016 Investigation – Soil, Sediment, and Surface Water Sampling
US Steel
Fairless Hills, PA
August and September 2016

	Location ID:	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**
	Sample Name:	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**
	Sample Date:	**09/09/2016**	**09/09/2016**	**09/09/2016**	**09/09/2016**
	Depth:	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**
Parameters	**Unit**				
Styrene	mg/kg	0.0055 U	0.0041 U	0.0046 U	0.010 U
Tetrachloroethene	mg/kg	0.0029 U	0.0022 U	0.0025 U	0.0054 U
Toluene	mg/kg	0.0086 U	0.0063 U	0.0072 U	0.016 U
trans-1,2-Dichloroethene	mg/kg	0.0024 U	0.0018 U	0.0020 U	0.0045 U
trans-1,3-Dichloropropene	mg/kg	0.0057 U	0.0042 U	0.0048 U	0.011 U
Trichloroethene	mg/kg	0.0027 U	0.0020 U	0.0022 U	0.0049 U
Trichlorofluoromethane (CFC-11)	mg/kg	0.0070 U	0.0052 U	0.0059 U	0.013 U
Trifluorotrichloroethane (CFC-113)	mg/kg	0.0033 U	0.0024 U	0.0027 U	0.0061 U
Vinyl chloride	mg/kg	0.0060 U	0.0044 U	0.0051 U	0.011 U
Xylenes (total)	mg/kg	0.011 U	0.0079 U	0.0090 U	0.020 U
Semi-volatile Organic Compounds					
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.13 U	0.056 U	0.14 U	0.032 U
2,4,5-Trichlorophenol	mg/kg	0.65 U	0.27 U	0.68 U	0.16 U
2,4,6-Trichlorophenol	mg/kg	0.92 U	0.39 U	0.95 U	0.22 U
2,4-Dichlorophenol	mg/kg	0.12 U	0.052 U	0.13 U	0.030 U
2,4-Dimethylphenol	mg/kg	0.96 U	0.40 U	1.0 U	0.23 U
2,4-Dinitrophenol	mg/kg	7.3 U	3.1 U	7.6 U	1.8 U
2,4-Dinitrotoluene	mg/kg	0.49 U	0.21 U	0.51 U	0.12 U
2,6-Dinitrotoluene	mg/kg	0.63 U	0.27 U	0.66 U	0.15 U
2-Chloronaphthalene	mg/kg	0.13 U	0.054 U	0.13 U	0.031 U
2-Chlorophenol	mg/kg	0.50 U	0.21 U	0.52 U	0.12 U
2-Methylnaphthalene	mg/kg	0.22 J	0.12 J	0.26 J	0.044 J
2-Methylphenol	mg/kg	0.43 U	0.18 U	0.45 U	0.10 U
2-Nitroaniline	mg/kg	2.7 U	1.2 U	2.9 U	0.67 U
2-Nitrophenol	mg/kg	0.68 U	0.28 U	0.70 U	0.16 U
3,3'-Dichlorobenzidine	mg/kg	0.65 U	0.27 U	0.67 U	0.16 U
3-Nitroaniline	mg/kg	2.5 U	1.1 U	2.6 U	0.62 U
4,6-Dinitro-2-methylphenol	mg/kg	2.5 U	1.0 U	2.6 U	0.60 U
4-Bromophenyl phenyl ether	mg/kg	0.53 U	0.22 U	0.56 U	0.13 U
4-Chloro-3-methylphenol	mg/kg	0.56 U	0.24 U	0.59 U	0.14 U
4-Chloroaniline	mg/kg	0.49 U	0.21 U	0.51 U	0.12 U
4-Chlorophenyl phenyl ether	mg/kg	0.68 U	0.29 U	0.71 U	0.17 U
4-Methylphenol	mg/kg	0.60 U	0.25 U	0.62 U	0.15 U
4-Nitroaniline	mg/kg	2.5 U	1.0 U	2.6 U	0.61 U
4-Nitrophenol	mg/kg	2.2 U	0.94 U	2.3 U	0.55 U
Acenaphthene	mg/kg	0.29 J	0.049 U	0.67 J	0.092 J
Acenaphthylene	mg/kg	0.14 U	0.059 U	0.26 J	0.034 U
Acetophenone	mg/kg	0.50 U	0.21 U	0.52 U	0.12 U

Table 2B

Analytial Results Summary - Sediment
Analytical Results and Reduced Validation
32016 Investigation – Soil, Sediment, and Surface Water Sampling
US Steel
Fairless Hills, PA
August and September 2016

	Location ID:	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**
	Sample Name:	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**
	Sample Date:	**09/09/2016**	**09/09/2016**	**09/09/2016**	**09/09/2016**
	Depth:	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**
Parameters	**Unit**				
Semi-volatile Organic Compounds (cont'd)					
Anthracene	mg/kg	0.53 J	0.24 J	0.92 J	0.21 J
Atrazine	mg/kg	0.60 U	0.25 U	0.62 U	0.15 U
Benzaldehyde	mg/kg	0.92 U	0.39 U	0.96 U	0.22 U
Benzo(a)anthracene	mg/kg	2.7	0.83	6.3	1.0
Benzo(a)pyrene	mg/kg	3.7	1.1	6.8	1.1
Benzo(b)fluoranthene	mg/kg	4.7	1.4	10	1.6
Benzo(g,h,i)perylene	mg/kg	4.1	1.2	6.2	1.1
Benzo(k)fluoranthene	mg/kg	2.2	0.77	3.5	0.56
Biphenyl (1,1-Biphenyl)	mg/kg	0.55 U	0.23 U	0.57 U	0.13 U
bis(2-Chloroethoxy)methane	mg/kg	0.40 U	0.17 U	0.42 U	0.099 U
bis(2-Chloroethyl)ether	mg/kg	0.16 U	0.069 U	0.17 U	0.040 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.99 U	0.42 U	1.0 U	0.24 U
Butyl benzylphthalate (BBP)	mg/kg	0.84 U	0.35 U	0.87 U	0.20 U
Caprolactam	mg/kg	4.6 U	1.9 U	4.8 U	1.1 U
Carbazole	mg/kg	0.51 J	0.047 U	1.2 J	0.19 J
Chrysene	mg/kg	3.5	1.1	7.7	1.3
Di-n-butylphthalate (DBP)	mg/kg	0.77 U	0.32 U	0.80 U	0.19 U
Di-n-octyl phthalate (DnOP)	mg/kg	0.65 U	0.27 U	0.67 U	0.16 U
Dibenz(a,h)anthracene	mg/kg	1.1 J	0.28 J	1.5	0.30
Dibenzofuran	mg/kg	0.60 U	0.25 U	0.63 U	0.15 U
Diethyl phthalate	mg/kg	0.67 U	0.28 U	0.70 U	0.16 U
Dimethyl phthalate	mg/kg	0.67 U	0.28 U	0.70 U	0.16 U
Fluoranthene	mg/kg	5.1	1.6	12	1.9
Fluorene	mg/kg	0.16 U	0.068 U	0.38 J	0.039 U
Hexachlorobenzene	mg/kg	0.13 U	0.055 U	0.14 U	0.032 U
Hexachlorobutadiene	mg/kg	0.14 U	0.058 U	0.14 U	0.033 U
Hexachlorocyclopentadiene	mg/kg	0.66 U	0.28 U	0.69 U	0.16 U
Hexachloroethane	mg/kg	0.44 U	0.18 U	0.46 U	0.11 U
Indeno(1,2,3-cd)pyrene	mg/kg	3.8	0.93	5.0	0.92
Isophorone	mg/kg	0.46 U	0.19 U	0.48 U	0.11 U
N-Nitrosodi-n-propylamine	mg/kg	0.14 U	0.060 U	0.15 U	0.035 U
N-Nitrosodiphenylamine	mg/kg	0.57 U	0.24 U	0.59 U	0.14 U
Naphthalene	mg/kg	0.11 U	0.15 J	0.11 U	0.026 U
Nitrobenzene	mg/kg	0.51 U	0.21 U	0.53 U	0.12 U
Pentachlorophenol	mg/kg	0.55 U	0.23 U	0.57 U	0.13 U
Phenanthrene	mg/kg	2.1	0.79	5.6	0.86
Phenol	mg/kg	0.14 U	0.061 U	0.15 U	0.035 U
Pyrene	mg/kg	4.6	1.6	12	1.9

Table 2B

Analytial Results Summary - Sediment
Analytical Results and Reduced Validation
32016 Investigation – Soil, Sediment, and Surface Water Sampling
US Steel
Fairless Hills, PA
August and September 2016

	Location ID:	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**
	Sample Name:	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**
	Sample Date:	**09/09/2016**	**09/09/2016**	**09/09/2016**	**09/09/2016**
	Depth:	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**
Parameters	**Unit**				
Pesticides/PCBs					
Aroclor-1016 (PCB-1016)	mg/kg	0.0035 U	0.0029 U	0.0037 U	0.0069 U
Aroclor-1221 (PCB-1221)	mg/kg	0.0055 U	0.0046 U	0.0058 U	0.011 U
Aroclor-1232 (PCB-1232)	mg/kg	0.0019 U	0.0016 U	0.0020 U	0.0038 U
Aroclor-1242 (PCB-1242)	mg/kg	0.0028 U	0.0024 U	0.0029 U	0.0055 U
Aroclor-1248 (PCB-1248)	mg/kg	0.0018 U	0.0015 U	0.0019 U	0.0035 U
Aroclor-1254 (PCB-1254)	mg/kg	0.21	0.096	0.18	0.093
Aroclor-1260 (PCB-1260)	mg/kg	0.22	0.12	0.20	0.095
Total PCBs	mg/kg	0.43	0.22	0.38	0.19
Metals					
Aluminum	mg/kg	12700	7460	8910	11100
Antimony	mg/kg	2.6	1.0	5.0	1.7
Arsenic	mg/kg	12.7	4.0	14.3	6.4
Barium	mg/kg	98.2	65.9	226	157
Beryllium	mg/kg	0.96	0.59	2.1	0.98
Cadmium	mg/kg	2.0	1.4	4.9	2.1
Calcium	mg/kg	6370	4460	12400	11700
Chromium	mg/kg	390	237	393	229
Cobalt	mg/kg	11.0	5.8	8.9	8.8
Copper	mg/kg	208	144	307	172
Iron	mg/kg	59900	34200	91100	47900
Lead	mg/kg	262	150	2270	178
Magnesium	mg/kg	3970	2900	3560	4120
Manganese	mg/kg	917	397	776	586
Mercury	mg/kg	0.63	0.19	0.33	0.20
Nickel	mg/kg	91.7	56.4	80.3	34.8
Potassium	mg/kg	1080	585	569	1100
Selenium	mg/kg	10.8	3.3	8.2	6.4
Silver	mg/kg	0.72	0.38	0.94	0.53
Sodium	mg/kg	168 U	90.3 U	116 U	514 U
Thallium	mg/kg	0.26	0.14	0.28	0.26
Vanadium	mg/kg	75.6	36.5	111	77.9
Zinc	mg/kg	638	503	2330	488

Table 2B

Analytial Results Summary - Sediment
Analytical Results and Reduced Validation
32016 Investigation – Soil, Sediment, and Surface Water Sampling
US Steel
Fairless Hills, PA
August and September 2016

	Location ID:	**SD201-16**	**SD202-16**	**SD203-16**	**SD204-16**
	Sample Name:	**SD-83101-090916-CJM-017**	**SD-83101-090916-CJM-018**	**SD-83101-090916-CJM-020**	**SD-83101-090916-CJM-019**
	Sample Date:	**09/09/2016**	**09/09/2016**	**09/09/2016**	**09/09/2016**
	Depth:	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**	**0-0.5 ft BGS**
Parameters	**Unit**				
Metals, SEM					
Simultaneously extracted metals (SEM)/Acid-volatile sulfide ratio (AVS)	none	0.00100 U	56.4	99.2	0.00100 U
Cadmium	umol/g	0.0088	0.0089	0.026	0.012
Copper	umol/g	1.3	1.1	1.8	0.73
Lead	umol/g	0.75	0.54	1.6	0.39
Mercury	umol/g	0.00018	0.00010	0.00013	0.000023 U
Nickel	umol/g	0.45	0.36	0.40	0.15
Zinc	umol/g	2.9	4.2	13.4	4.1
General Chemistry					
Cyanide (total)	mg/kg	0.79	0.18 J	1.8	1.0
Soot carbon	mg/kg	18200	6440	17500	14300
Sulfide	mg/kg	5.5 UJ	4.6 J	6.5 J	10.8 UJ
Total organic carbon (TOC)	mg/kg	161000	22500	122000	113000

Notes:

-- - Not Applicable
U - Not detected at the associated reporting limit
J - Estimated concentration
UJ - Not detected, estimated reporting limit
PCBs - Polychlorinated Biphenyls
ft BGS - Feet below ground surface

Table 3

Analytical Methods
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Method	Matrix	Holding Time: Collection to Extraction (Days)	Holding Time: Collection or Extraction to Analysis (Days)
Volatile Organic Compounds (VOCs)	SW-846 8260B	Water/Soil/Sediment	-	14
Semi-Volatile Organic Compounds (SVOCs) - Total and Dissolved	SW-846 8270D and SIM	Water	7	40
	SW-846 8270D	Soil/Sediment	14	40
Metals - Total and Dissolved	SW-846 6020/6010B	Water/Soil/Sediment	-	180
Mercury - Total and Dissolved	SW-846 7470A/7471A	Water/Soil/Sediment	-	28
Polychlorinated Biphenyls (PCBs)	SW-846 8082	Water	7	40
		Soil/Sediment	14	40
Cyanide, Total and/or Amenable	SW-846 9012B	Water/Soil/Sediment	-	14
TOC	SW-846 9060A	Water	-	28
	Lloyd Kahn	Soil/Sediment	-	28
Black Carbon	Lloyd Kahn	Soil/Sediment	-	28
AVS	SW-846 9034	Soil/Sediment	-	7
SEM Metals	SEM	Soil/Sediment	-	180

Notes:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
AVS - Acid Volatil Sulfide
SEM - Simultaneously Extracted Metals
TOC - Total Organic Carbon
\- - Not Applicable
SIM - Selective Ion Monitoring

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Analyte	Analysis Date	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	Methylene chloride	09/13/2016	0.00244	SD-83101-090916-CJM-017	0.0013 JB	0.0013 U	mg/kg
				SD-83101-090916-CJM-018	0.0030 JB	0.0030 U	mg/kg
				SD-83101-090916-CJM-019	0.0083 JB	0.0083 U	mg/kg
				SD-83101-090916-CJM-020	0.0054 JB	0.0054 U	mg/kg
Metals	Sodium	09/20/2016	347.5	SD-83101-090916-CJM-017	168	168 U	mg/kg
				SD-83101-090916-CJM-018	90.3	90.3 U	mg/kg
				SD-83101-090916-CJM-019	514	514 U	mg/kg

Notes:

*	- Blank result adjusted for sample factors where applicable
U	- Not detected at the associated reporting limit
J	- Estimated concentration
B	- Blank contamination detected in method blank

Table 5

Qualified Sample Results Due to Outlying LCS/LCSD Results
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Analyte	LCS Date	LCS % Recovery	Control Limits % Recovery	Associated Sample ID	Qualified Result	Units
SVOC	2,4-Dinitrophenol	09/11/16	54	56 - 122	SO-83101-083116-RR-017	0.26 UJ	ug/L
					SO-83101-083116-RR-018	0.26 UJ	ug/L
					SO-83101-083116-RR-019	0.29 UJ	ug/L
					SO-83101-083116-RR-020	0.27 UJ	ug/L
VOC	Bromomethane (Methyl bromide)	3/11/2014	30	58 - 164	S-83101-022714-BW-001	8.9 UJ	ug/kg
					S-83101-022714-BW-002	12 UJ	ug/kg
					S-83101-022714-BW-003	9.1 UJ	ug/kg
					S-83101-022714-BW-004	11 UJ	ug/kg
					S-83101-022714-BW-005	9.5 UJ	ug/kg
					S-83101-022714-BW-006	11 UJ	ug/kg
VOC	Bromoform	3/6/2014	74	76 - 133	S-83101-022714-BW-007	8.3 UJ	ug/kg
					S-83101-022714-BW-008	10 UJ	ug/kg
					S-83101-022714-BW-009	9.3 UJ	ug/kg
					S-83101-022714-BW-011	20 UJ	ug/kg
					S-83101-022714-BW-010	11 UJ	ug/kg

Notes:

LCS - Laboratory Control Sample
UJ - Not detected; associated reporting limit is estimated
VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds

Table 6

Qualified Sample Results Due to Outlying MS/MSD Results
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Qualified Result	Units
General Chemistry	SD-83101-090916-CJM-017	Sulfide	63	67	2	75 - 125	20	5.5 UJ	mg/kg
	SD-83101-090916-CJM-018							4.6 J	mg/kg
	SD-83101-090916-CJM-019							10.8 UJ	mg/kg
	SD-83101-090916-CJM-020							6.5 J	mg/kg
Metals	S-83101-022714-BW-002	Antimony	38	--	--	75 - 125	--	0.37 UJ	mg/kg
	S-83101-022714-BW-003							0.39 UJ	mg/kg
	S-83101-022714-BW-004							0.42 UJ	mg/kg
	S-83101-022714-BW-005							0.37 UJ	mg/kg
	S-83101-022714-BW-006							0.37 UJ	mg/kg
	S-83101-022714-BW-007							0.34 UJ	mg/kg
	S-83101-022714-BW-008							0.34 UJ	mg/kg
	S-83101-022714-BW-009							0.35 UJ	mg/kg
	S-83101-022714-BW-010							0.42 UJ	mg/kg
	S-83101-022714-BW-011							0.32 UJ	mg/kg
	S-83101-022714-BW-013							0.35 UJ	mg/kg
	S-83101-022714-BW-012							0.42 UJ	mg/kg
	S-83101-022714-BW-001							0.42 UJ	mg/kg
Metals	S-83101-022714-BW-002	Chromium	142	--	--	75 - 125	--	25.3 J	mg/kg
	S-83101-022714-BW-003							20.2 J	mg/kg
	S-83101-022714-BW-004							61.8 J	mg/kg
	S-83101-022714-BW-006							27.3 J	mg/kg
	S-83101-022714-BW-008							5.6 J	mg/kg
	S-83101-022714-BW-009							1330 J	mg/kg
	S-83101-022714-BW-010							8.1 J	mg/kg
	S-83101-022714-BW-005							1900 J	mg/kg
	S-83101-022714-BW-007							1920 J	mg/kg
	S-83101-022714-BW-001							20.4 J	mg/kg
Metals	S-83101-022714-BW-002	Lead	167	--	--	75 - 125	--	4.0 J	mg/kg
	S-83101-022714-BW-003							5.4 J	mg/kg
	S-83101-022714-BW-004							10.3 J	mg/kg
	S-83101-022714-BW-005							12.3 J	mg/kg
	S-83101-022714-BW-006							5.7 J	mg/kg
	S-83101-022714-BW-007							16.8 J	mg/kg
	S-83101-022714-BW-008							4.9 J	mg/kg
	S-83101-022714-BW-009							32.3 J	mg/kg
	S-83101-022714-BW-010							7.2 J	mg/kg
	S-83101-022714-BW-013							0.22 J	mg/kg
	S-83101-022714-BW-001							16.7 J	mg/kg
SVOCs	S-83101-022714-BW-001	Caprolactam	126	0	200	10 - 120	30	82 UJ	ug/kg
	S-83101-022714-BW-001	Hexachlorocyclopentadiene	9	0	200	43 - 115	30	42 R	ug/kg

Table 6

Qualified Sample Results Due to Outlying MS/MSD Results
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Qualified Result	Units
VOCs	S-83101-022714-BW-007	1,1,2,2-Tetrachloroethane	67	0	200	86 - 145	30	6.8 UJ	ug/kg
	S-83101-022714-BW-007	Bromoform	59	0	200	76 - 133	30	8.3 UJ	ug/kg
	S-83101-022714-BW-007	Bromomethane (Methyl bromide)	36	0	200	58 - 164	30	7.8 UJ	ug/kg
	S-83101-022714-BW-007	Dibromochloromethane	69	0	200	78 - 118	30	8.6 UJ	ug/kg

Notes:

MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
J - Estimated concentration
UJ - Not detected; associated reporting limit is estimated
R - Rejected
VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds

Table 7

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Sample ID	Analyte	RPD (percent)	RPD Control Limit (percent)	Associated Sample IDs	Qualified Result		Units
Metals	S-83101-022714-BW-001	Arsenic	60	20	S-83101-022714-BW-001	4.9	J	mg/kg
					S-83101-022714-BW-002	2.5	J	mg/kg
					S-83101-022714-BW-003	4.6	J	mg/kg
					S-83101-022714-BW-004	2.1	J	mg/kg
					S-83101-022714-BW-006	4.1	J	mg/kg
					S-83101-022714-BW-007	2.2	J	mg/kg
					S-83101-022714-BW-008	3.2	J	mg/kg
					S-83101-022714-BW-009	4.3	J	mg/kg
					S-83101-022714-BW-010	4.7	J	mg/kg
					S-83101-022714-BW-005	3.1	J	mg/kg
					S-83101-022714-BW-011	5.2	J	mg/kg
					S-83101-022714-BW-012	8.7	J	mg/kg
Metals	S-83101-022714-BW-001	Chromium	42	20	S-83101-022714-BW-001	20.4	J	mg/kg
					S-83101-022714-BW-002	25.3	J	mg/kg
					S-83101-022714-BW-003	20.2	J	mg/kg
					S-83101-022714-BW-004	61.8	J	mg/kg
					S-83101-022714-BW-007	1920	J	mg/kg
					S-83101-022714-BW-008	5.6	J	mg/kg
					S-83101-022714-BW-009	1330	J	mg/kg
					S-83101-022714-BW-010	8.1	J	mg/kg
					S-83101-022714-BW-006	27.3	J	mg/kg
					S-83101-022714-BW-005	1900	J	mg/kg
Metals	S-83101-022714-BW-001	Iron	45	20	S-83101-022714-BW-003	15300	J	mg/kg
					S-83101-022714-BW-004	58000	J	mg/kg
					S-83101-022714-BW-005	201000	J	mg/kg
					S-83101-022714-BW-006	14500	J	mg/kg
					S-83101-022714-BW-007	212000	J	mg/kg
					S-83101-022714-BW-009	228000	J	mg/kg

Table 7

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Sample ID	Analyte	RPD (percent)	RPD Control Limit (percent)	Associated Sample IDs	Qualified Result	Units
					S-83101-022714-BW-010	15900 J	mg/kg
					S-83101-022714-BW-002	24900 J	mg/kg
					S-83101-022714-BW-008	10400 J	mg/kg
					S-83101-022714-BW-001	16500 J	mg/kg

Notes:

RPD - Relative Percent Difference

Table 8

Qualified Sample Data Due to Analyte Concentrations in the Equipment Blanks
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Equipment Blank ID	Blank Date	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
Metals	RB-83101-090916-CJM-1	09/19/2016	Sodium	485	SD-83101-090916-CJM-020	116	116 U	mg/kg

Notes:

U - Not detected at the associated reporting limit

Table 9

Qualified Sample Data Due to Variability in Field Duplicate Results
Soil and Sediment Sampling - 52 Acre Parcel
US Steel
Fairless Hills, Pennsylvania
February 2014 and August and September 2016

Parameter	Analyte	RPD	Diff	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
Metals	Calcium	144	17860	S-83101-022714-BW-011	21300 J	S-83101-022714-BW-012	3440 J	mg/kg
Metals	Chromium	154	340.5	S-83101-022714-BW-011	392 J	S-83101-022714-BW-012	51.5 J	mg/kg
Metals	Magnesium	135	7630	S-83101-022714-BW-011	9470 J	S-83101-022714-BW-012	1840 J	mg/kg
Metals	Manganese	175	3122	S-83101-022714-BW-011	3350 J	S-83101-022714-BW-012	228 J	mg/kg
SVOAs	Benzo(a)anthracene	194	157.5	S-83101-022714-BW-011	2.5 UJ	S-83101-022714-BW-012	160 J	µg/kg
SVOAs	Benzo(a)pyrene	120	120	S-83101-022714-BW-011	40 J	S-83101-022714-BW-012	160 J	µg/kg
SVOAs	Benzo(b)fluoranthene	109	162	S-83101-022714-BW-011	68 J	S-83101-022714-BW-012	230 J	µg/kg
SVOAs	Benzo(k)fluoranthene	113	65	S-83101-022714-BW-011	25 J	S-83101-022714-BW-012	90 J	µg/kg
SVOAs	Indeno(1,2,3-cd)pyrene	103	75	S-83101-022714-BW-011	35 UJ	S-83101-022714-BW-012	110 J	µg/kg

Notes:

Diff - Difference (i.e., >1X RL for waters or >2XRL for soils)
RPD - Relative Percent Difference
J - Estimated concentration
UJ - Not detected; associated reporting limit is estimated

Appendix E
Ecological Health Assessment (EHA)

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1. Act 2 Methodology for Ecological Health Assessment (EHA)

The Act 2 guidance for assessing ecological impacts recommends a screening analysis called the Ecological Health Assessment (EHA) (PADEP 2002, 2014; Ogden Environmental 2001). The EHA is intended to prevent un-necessary analyses at contaminated Sites that contain little to no habitat or few compounds at concentrations that could potentially affect ecological receptors. The overall goal of the EHA is to minimize, to the extent practicable, the number of Sites which require detailed ecological risk assessment, while retaining protection of the environment. At the end of Act 2 EHA, a Site will be identified as either:

- Not a source of substantial ecological impact and, therefore, not requiring further ecological evaluation.
- Having the potential to cause substantial ecological impact and, therefore, requiring further ecological evaluation.

More specifically, the EHA has been divided into 9 discrete steps, as described below and following a decision tree summarized in Figure F1, taken from PADEP (2002).

Step 1: Are the primary releases light petroleum products? If yes, no further evaluation necessary. If no, proceed to next step.

Step 2: Is the potentially contaminated area of soil less than two acres of exposed soil or 1000 square feet of contaminated sediment? If yes, no further evaluation necessary. If no, proceed to next step.

Step 3: Are there potentially complete exposure pathways between ecological receptors and Site-related chemicals? If yes, proceed to next step. If factors on the Site eliminate complete exposure pathways, no further evaluation necessary.

Step 4: Are there Constituents of Potential Ecological Concern (CPECs) detected at the Site from Site releases. If no, go to Step 5. If yes, proceed to Step 6.

Step 5: Does a Preliminary Onsite Evaluation identify potential ecological concerns. If no, no further evaluation necessary. If yes, proceed to Step 6.

Step 6: Does a Detailed Onsite Evaluation identify the presence of species or habitats of concern on the Site or, for endangered and threatened species, if those species exist on the Site or within a 2,500-foot radius of the Site in its current or intended use. If no, no further evaluation necessary. If yes, proceed to Step 7.

Step 7: Are there complete exposure pathways between Site-related CPECs and species or habitats of concern? If no, no further evaluation necessary. If yes, proceed to Step 8.

Step 8: Is current information sufficient to document that the standard of no potential for significant ecological effects has been attained. If yes, write a final report documenting this. If no, proceed to more detailed ecological assessment.

Step 9: The findings of the previous steps are documented in final report.

2. Site Description

2.1 Facility and Site Location

The Facility is located on the west bank of the Delaware River, approximately 1 mile west of Bordentown, New Jersey, 2 miles south of Trenton, New Jersey and 3 miles east of Levittown, Pennsylvania (Figure 1.1). The Facility is approximately 2,800-acres. The Facility is bounded to the east and southeast by low-lying wetlands, tidal marshes, and forested areas that represent former farmed fields. To the southwest of the Facility is the Geological Reclamation Operations and Waste Systems Inc. (G.R.O.W.S) landfill, a subsidiary of Waste Management of Pennsylvania (WMPA). To the northwest of the Facility is the New Ford Mill Industrial Park and property belonging to Wheelabrator Environmental Systems, Inc. To the northeast of the Facility is Biles Island (owned by WMPA). U.S. Steel has granted right-of-way across their property to Waste Management, the Philadelphia Electric Company, and the Public Service Electric and Gas Company.

The Site characterized and evaluated as part of this RI/FR consists of an approximately 52-acre parcel as shown on Figure 1.2. The Site is bounded to the north, south, east, and west by former Facility operational areas.

2.2 Facility and Site Background

Facility

Prior to 1952, the Facility was used for agricultural purposes. During construction of the Facility, numerous borrow pits were excavated to provide fill material to raise the Facility above the elevation of the 100-year floodplain. The Facility began operations in 1952. Its primary activities were integrated steel-making and finishing. The majority of the Facility operations were constructed in the early 1950s. Additional development took place in the 1960s and the early 1970s, including the construction of the electric arc furnace, rod mill, and wire mill. In the early 1980s the electric arc furnace and several finishing operations (rod, bar, rolling, and wire mills) were shut down. In 1984, the coke and coal chemical plants were shut down. The sinter plant ceased operations in 1990. Steel-making operations ceased in 1991 when the last blast furnace, open hearths, and primary mills were shut down. Currently, only the galvanizing facility is still operating.

52 Acre Site

The 52-acre parcel includes part of the former Bloom and Billet mills; parts of Slab Yards 1, 2, and 3; the former Reheating Furnace; former Electrical Substations 6 and 13; former Air Separation Plant and the existing outdoor Rolling Mills Electrical Substation. The 52-acre parcel also includes the northern portion BP-2 South. BP-2 South is rectangular in shape and covers an area of approximately 65-acres. BP-2 South was active between 1968 and 1975, and received slag, general wastes, metal scrap, railroad ties and discarded tires. BP-2 South has been filled to grade. The Site includes two stormwater drainage ditches, one along the western boundary and one along

the northern boundary. These ditches drain stormwater from developed portions of the Facility to a NPDES permitted outfall located approximately 3,200 feet south of the Site.

2.3 Physiography and Topography

The Facility is located on a broad alluvial plain of the Delaware River (Figure 1.1). The Facility elevation is approximately 10 to 20 feet (ft) above mean sea level (AMSL). The alluvial plain lies on the inside bend of a major change in the river channel direction from southeast to southwest. The change in direction corresponds to the emergence of the river from the undulating, rolling low relief hills of the Piedmont Physiographic Province to the relatively flat Atlantic Coastal Plain Province. In the northeastern United States, the boundary between these two provinces is commonly termed the "Fall Line" that trends northeast-southwest (NE-SW) and lies approximately 5 miles northwest of the Facility.

The Piedmont Province consists of a series of NE-SW trending uplands composed of rounded hills and plains cut by relatively narrow valleys. The altitude of the region ranges from 40 to 700 ft AMSL, with local relief not greater than 200 ft. The slope of the whole region is gradually to the southeast. The Piedmont Province is underlain by crystalline rocks of Pre-Cambrian and Cambrian age (Kimball, 1976).

The Atlantic Coastal Plain Province is a low-lying, gently rolling plain. At the Facility, the slope is generally to the southeast toward the Delaware River. The Coastal Plain is composed of unconsolidated or poorly consolidated, flat-lying sediment strata consisting of clay, silt, sandy clay, sand, and gravel of the Mesozoic and Cenozoic age. The beds thicken to the southeast and overlie some of the consolidated crystalline rocks that are at or near the surface in the Piedmont Province.

From a review of the Trenton East and Trenton West, New Jersey USGS 7.5-minute series topographic quadrangle maps and Site engineering plans, ground surface across the majority of Site is fairly flat at 18 to 21 ft (ft) Above Mean Sea Level (AMSL).

2.4 Geologic and Hydrogeologic Setting

According to the Soil Survey of Bucks and Philadelphia Counties, Pennsylvania: U.S. Department of Agriculture, Map 73 (Thompkins, Edward A., July 1975), the Facility is covered by Urban Land, 0 to 8 percent slopes. The Urban Land-Howell Complex is the second most predominant soil type at the Facility. Urban land is soil that has been modified by disturbance of the natural layers with addition of fill material to accommodate large industrial and housing installations. The existing surface of the 52-Acre Parcel is composed of steel making slag, some concrete slabs, and course sinters.

Based on data obtained from borings and test pits, the Facility overburden is comprised of fill material overlying fine to coarse sand/gravel, silts, and clays. In general, the fill varied in thickness from 0 to 15 ft. Fill material generally included slag with a few fines. Native soil encountered beneath the fill material appears to be indicative of the Trenton Gravel Series, generally consisting of fine to coarse gravel, sand, and some silt and minor amounts of clay. The upper-most water bearing unit occurs in the unconsolidated native material and is unconfined. The depth to water in the soil borings was encountered at depths ranging from 6 to 15 ft below ground surface (bgs).

Bedrock was not encountered in any of the borings during the remedial investigation; however, the 1997 RCRA Facility Investigation (RFI) Report noted that the Site is underlain by the Wissahickon Schist and bedrock generally is located approximately 80 to 100 ft bgs.

3. Application of Act 2 EHA Methodology to the Site

3.1 Step 1

Step 1 asks whether the primary releases are light petroleum products. The primary releases at the Site are metals, notably chromium and manganese, but there are also some localized areas with elevated concentrations of PCBs and PAHs. Therefore, the EHA must proceed to Step 2.

3.2 Step 2

Step 2 asks whether the area of potentially contaminated soil is less than two acres of exposed soil or 1000 square feet of contaminated sediment. Both the terrestrial area (about 51 acres) and the area of sediments (approximately 1.2 acres) are much larger than these *de minimis* areas defined by Act 2. Therefore, the EHA must proceed to Step 3.

3.3 Step 3

This step asks whether potentially complete exposure pathways exist between ecological receptors and Site-related chemicals. Elevated levels of some chemicals potentially occur in surface material/soils and potentially as well as surface sediments and surface water. Therefore, exposure pathways are potentially complete and the EHA should proceed to Step 4.

3.4 Step 4

Step 4 addresses whether Constituents of Potential Ecological Concern (CPECs) are detected at the Site from Site releases. As noted above, several compounds, mostly metals, PAHs, and PCBs, are found at potentially elevated concentrations in Site soils. Table 1 provides a summary of results of surface soil samples.

However, as naturally occurring compounds, the metals are ubiquitous and found in all soil samples. Similarly, the detected SVOCs and some other organic compounds are also widely dispersed in urban soils. Act 2 guidance specifies that only compounds released by the Site are true CPECs. Therefore, to differentiate naturally occurring and widely dispersed substances from Site-related CPECs resulting from releases, sample data from surface material/soils of the terrestrial area were compared to background concentrations (Table 2).

As indication that a substance was above background and, thus likely to have been released by Site activities, average concentrations of Act 2 CPECs in surface material (top 2 feet) were compared to mean concentrations for metals in soils of Pennsylvania (Ciolkosz et al. 1998 or Boerngen and Shacklette 1981)[1]. If the average concentration for the Site's surface material was

[1] Act 2 guidance for background analyses was not followed for two reasons. First, the intent of this background analysis is not to attain a "background standard" for soils. Rather, the intent of this analysis is to identify CPECs

more than 1.5 times mean/median background value, the metal was considered to be elevated above background. The rationale for this decision criterion is both statistical and toxicological. Given natural variability, many locations will naturally have concentrations that are above average. In addition, it was assumed that concentrations <1.5 times the mean/median natural background values would not pose significant risk to ecological resources. This assumption is based on the common sense that widely occurring background concentrations are not expected to pose toxicity to biota.

Site-specific CPECs were selected as those chemicals that were both Act 2 potential CPECs and whose average concentrations were 1.5 times or more of background concentrations. Resulting Site-related metal CPECs are presented in Table 2. Concentrations of chromium, copper, iron, and manganese show evidence of being due to Site releases, as they are over 1.5 times background concentrations. However, only chromium and manganese concentrations, which are about 22 and 15 times, respectively, average background concentrations, could be considered evidence of a significant potential for having been released at the Site. Concentrations of copper and iron are only marginally above background. Moreover, it should be understood that even for chromium and manganese, the term “release” means only that surface material/soil is elevated above background concentrations. It does not mean that chromium is actually released, i.e., is bioavailable and actually being released from surface material to groundwater and transported to nearby surface water and sediments. Chromium is typically extremely insoluble such that it has very low bioavailability and very low potential to be transported as soluble chromium in surface water or groundwater. Similarly, manganese in surface material/soils is also fairly insoluble and, thus, not likely to be transported as dissolved manganese in groundwater or surface runoff. In addition, these comparisons to background are conservative since the background values are taken from non-urban areas. Many of the metals in urban soil, notably copper, are elevated above naturally occurring background by urban activities. Nonetheless, these four metals were retained as Site-specific CPECs.

In addition to metals, slag and generic fill material can sometimes contain elevated concentrations of organic contaminants, especially PAHs associated with coke. Detectable levels of a small number of organics, mostly PAHs, were found in samples of the Site's surface material, albeit infrequently and generally at low concentrations (Table 1). PCBs were also detected in about 1/3rd of soil locations, although only 2 of 19 locations (NATP-3 and NATP-8), had concentrations above 1 mg/kg. Many of these organics, notably the PAHs, tend to have much higher concentrations in urban areas, and the high urban background concentration of these organics has been recognized by local regulatory agencies, e.g., Pennsylvania Department of Health (PDOH 2013); PADEP (cited in PDOH 2013); MADEP 2000; and BEM 1997. To differentiate between Site releases of these chemicals and high urban background values, available data for PAHs in the nearby urban Piedmont of New Jersey (BEM 1997) were used as an indicator of background concentrations near the Facility. As with the metals, these urban background samples were

for consideration in surface water and sediments. Because the exposure pathways from surface material/soil to ecological receptors are functionally incomplete, there is no need to attain a background standard for soils/surface materials themselves. Second, the guidance recommends that nearby uncontaminated soils that are similar in texture to contaminated site soils should be sampled to determine local background concentrations. However, the surface material at the Site is mostly slag and fill, which has no natural soil equivalents, near or distant from the Site.

compared to sample results from surface material to determine if PAHs in the Site's surface material were sufficiently elevated to constitute a release. The New Jersey data (BEM 1997) only pertain to the seven most carcinogenic PAHs. As in PDOH (2013), background levels for other PAHs were obtained from Massachusetts DEP. Lastly, there were a number of other Act 2 CPECs (some phthalates, some volatiles, dibenzofuran, and cyanide) that were infrequently detected, usually at very low concentrations. Background values for these were assumed to be 0.05 mg/kg, which, based on professional judgement and experience, was assumed to be a very conservative threshold for urban background and potential ecotoxicity.

As shown in Table 2, the Site's surface material/soils had several PAH concentrations higher than the urban background values, although just barely. On average, Act 2 CPEC PAHs in the surface fill at the Site had about 175% of average PAH concentration typical for urban soils. Consequently, the slightly elevated concentrations of most PAHs in the Site's surface material/soils are considered to be above background concentrations. These PAH concentrations are considered evidence of significant Site-releases. Similarly, one other Act 2 organic CPEC, dibenzofuran, was also detected, usually at very low concentrations. Dibenzofuran is often associated with releases of PAHs. Its concentration was on average above 0.05 mg/kg. Thus, dibenzofuran was also identified as a Site-Specific CPEC.

Two other organic compounds, carbazole and methyl acetate, were detected above the assumed default background concentration for organics of 0.05 mg/kg. However, these chemicals were not considered further for the following reasons. First, neither compound is a potential CPEC identified by Act 2. Second, neither chemical is very toxic and methyl acetate is not likely to be persistent in surface soil.

In summary, a number of Site-specific CPECs were identified. These include a number of compounds often associated with steel-making, slag, and sinters: several PAHs and organics associated with PAHs and several heavy metals (chromium, copper, iron, and manganese). PCBs were also found in elevated concentrations at limited number of locations, and these were also identified as Site-related CPECs. Therefore, as recommended by PaDEP guidance, the EHA skips Step 5 and proceeds to Step 6, the detailed Onsite Evaluation.

3.5 Step 5

Because CPECs are found on-Site, this step is skipped.

3.6 Step 6

A detailed on-Site evaluation was completed for the Site to determine if ecological receptors occur on the 52 acre Site. According to Section 250.311(a), the "ecological receptors" that should be considered in an EHA for protection are:

"*(1) Individuals of threatened or endangered species as designated by the United States Fish and Wildlife Service under the Endangered Species Act (16 U.S.C.A. § § 1531—1544).*

(2) Exceptional value wetlands as defined in § 105.17 (relating to wetlands).

(3) Habitats of concern.

(4) Species of concern"[2]

"Habitats of concern" are defined in Subchapter A, General Provisions of Act 2 as one of the following:

"(i) Typical wetlands with identifiable function and value, except for exceptional value wetlands as defined in § 105.17 (relating to wetlands).

(ii) Breeding areas for species of concern.

(iii) Migratory stopover areas for species of concern.

(iv) Wintering areas for species of concern.

(v) Habitat for State endangered plant and animal species.

(vi) Federal, State and local parks and wilderness areas, and areas designated as wild, scenic or recreational.

(vii) Areas otherwise designated as critical or of concern by the Game Commission, the Fish and Boat Commission or the Department of Conservation and Natural Resources."

The Site is approximately 52 acres and is relatively flat. The majority of the Site topography ranges in elevation from approximately 10 to 20 feet AMSL. A GHD ecologist, Scott E. Bush, conducted a Site visit in January 2018 to examine and evaluate existing Site habitats and existing Site conditions.

The Site is almost entirely terrestrial habitat. The substrate from 0 to 18 inches was observed to be mostly granular slag and sinters on leveled ground, except for two facility stormwater ditches. Due to the lack of well-developed soil, vegetation is sparse in most areas. The terrestrial vegetation present consisted of patchy areas of eastern cottonwood (Populus deltoides) saplings and Morrow's honeysuckle (Lonicera morrowii) and a herbaceous stratum containing yellow sweet clover (*Melilotus officinalis*), spotted knapweed (*Centaurea maculosa*), green foxtail (*Setaria viridis*), common mullein (*Verbascum thapsus*), and Virginia broomsedge (*Andropogon virginicus*).

Given the high level of disturbance and lack of well-developed soils, the terrestrial area provides very limited habitat for plant and animal species. GHD ecologists observed no evidence that Site-related compounds are causing toxicity to the flora or fauna on the Site. Rather, the sparsely vegetated and depauperate plant communities present are attributable to ongoing industrial activities, the poor growing conditions afforded by the surface material, which is mostly slag with little to no soil. In the limited areas where soils are present, the tree and shrub communities are present but are comprised of early colonizing species typical of previously disturbed sites.

A stormwater ditch occurs along the western Site boundary, referred to as the Central Canal, and conveys Facility stormwater south to a NPDES permitted stormwater outfall to the Delaware River. The Central Canal has steep slag banks and has a substrate consisting of slag and variable sediments. The vegetation in and along the ditch consists of Morrow's honeysuckle (*Lonicera morrowii*), poison ivy (*Toxicodendron radicans*), false indigo (*Amorpha fruticosa*), common reed (*Phragmites australis*), and purple loosestrife (*Lythrum salicaria*). A second stormwater ditch,

[2] Species of concern are "*Species designated as of special concern, rare, endangered, threatened or candidate by the Game Commission, the Fish and Boat Commission or the Department of Conservation and Natural Resources, if the species has not also been designated threatened or endangered by the Federal government."*

running east to west, is present in the northern part of the parcel and drains to the Central Canal near the parcel's northwest boundary. The east-west ditch is dominated by common reed.

Both the Central Canal and east-west ditch are part of the Facility's NPDES permitted stormwater management system. As such, both ditches intermittently convey Facility stormwater to a NPDES permitted stormwater outfall following rain events. NPDES permitted stormwater management facilities are typically not regulated as wetlands under Federal or Commonwealth law unless they were constructed in wetlands and are abandoned or are abandoned and revert to wetland conditions. The Central Canal and east-west stormwater ditch are maintained by U.S. Steel for permitted stormwater management at the Facility and neither ditch is abandoned. Neither ditch would be considered as "exceptional value wetlands" pursuant to PA Chapter 105.17, explicitly mentioned in Act 2 regulations as an important ecological receptor, and both ditches lack habitats suitable to support any of the state-listed species of concern. Notwithstanding these caveats, the bottom material of the east-west drainage ditch and Central Canal were sampled, and these samples were treated as sediments in the following analysis. In addition, while the east-west ditch and Central Canal are not likely to be regulated as wetlands on the Federal or State levels, they were conservatively considered functionally as stormwater management features and considered as a "habitat of concern" in the EHA.

As part of the EHA process, an assessment of the Site was conducted to determine if any of the sensitive receptors listed at PA Chapter 250.311 (a) were present on the Site. A Pennsylvania Natural Diversity Inventory (PNDI) database search (Appendix E) indicates no potential conflicts with any Federally-listed threatened or endangered species as designated by the United States Fish and Wildlife Service (USFWS) under the Endangered Species Act (16 U.S.C.A. § § 1531-5544).

The PNDI lists six potential conflicts with State-listed reptile and amphibian species under the jurisdiction of the Pennsylvania Fish and Boat Commission (PFBC) including the eastern redbelly turtle (*Pseudemys rubriventris*) and several frog and toad species. All of these species are water/wetland dependent and also rely on suitable adjoining habitats for their life cycle. A habitat assessment for the species of concern was completed for the Site and concluded that the habitats in the east-west ditch and Central Canal on the Site were not suitable to support any of the species of concern. The PFBC reviewed the habitat assessment and issued a letter concurring with the results of the habitat assessment. The PFBC concurrence letter is provided in Appendix F. No other species of concern were listed on the PNDI.

Based on the detailed Site evaluation, none of the terrestrial area is a habitat of concern or sensitive environmental area. Thus, exposure pathways between CPEC's in soil and ecological receptors in terrestrial areas are incomplete. The on-Site stormwater management features are small, less than 1.2 acres, and are of very low habitat quality. However, exposure pathways between Site -related chemicals and organisms in these stormwater management ditches will be considered complete in the analyses below.

3.7 Step 7

Step 7 addresses whether complete exposure pathways occur between Site-related CPECs and environmental receptors, i.e., species or habitats of concern. As described in Step 4, five metals, PCBs, several PAHs and one PAH-associated compound were identified as Site-related CPECs in

surface material/soil. Previous steps in the decision chain have shown that direct exposure pathways between CPECs and terrestrial ecological receptors are incomplete; the terrestrial area is highly disturbed, poorly vegetated area that constitutes neither a habitat of concern nor does it serve as habitat for species of concern. There is also the potential that much of the terrestrial area will be placed under impermeable covers (parking lots and buildings) in the future when the Site is redeveloped. Thus, direct exposure pathways from CPECs in soil to terrestrial biota and terrestrial habitats of concern are incomplete. Soil data are not, therefore, screened for ecological risks.

However, it is possible that these Site-related CPECs could have migrated from terrestrial areas to the on-Site stormwater ditches. Although these areas are poor habitat, they may conservatively be considered habitats of concern. Consequently, there are potentially complete exposure pathways between Site-related CPECs and ecological receptors in the stormwater ditches. Because all of the potentially Site-related CPECs are naturally occurring or widely dispersed compounds, the existence of complete exposure pathways was determined by screening concentrations of Site-related CPECs observed and sediments versus Ecological Screening Values (ESV). ESVs are conservative concentrations below which ecological effects are unlikely[3]. Chemical concentrations in sediments below ESVs constitutes strong evidence of that exposure pathways, between Site-related CPECs and ecological receptors, are functionally incomplete. That is, too limited to cause ecological impacts.

Note that screening of sediments should technically be limited to the Site-related CPECs: the four metals, PCBs, dibenzofuran, and the limited number of PAHs. However, to be conservative and make use of the available data, this screening of chemicals in sediments was expanded in two ways. First, all the PAHs were considered in the screening of Site-related CPECs even though only about a third were found to be significantly elevated above urban background. Evidence of Site-related releases of some PAHs was considered good evidence that all of the PAHs were based on Site-related releases. In addition, PAHs associated with coke production and use are common contaminants at steelmaking facilities. Lastly, different PAHs have a similar mode of toxicity and, therefore, contribute additively to toxicity (USEPA 2003). Thus, it is necessary to consider all of the PAHs at the same time when assessing potential ecotoxicity.

Secondly, an additional screening was conducted for chemicals that were detected in sediments but were not identified as Site-related CPECs due to site releases. This additional screening conservatively makes use of available data to determine whether or not there are potential ecological impacts from chemicals that are not Site-related.

3.7.1 Sources of ESVs

The following describes the sources of ESVs for sediment.

[3] Because ESVs are very conservative, exceedance of an ESV does not imply any reasonable potential for risk. As used above, exceedance of an ESV simply means that exposure pathways, between Site-related CPECs and ecological receptors, are functionally complete. More investigation is necessary to determine whether or not those functionally complete exposure pathways are problematic.

3.7.1.1 Sources of ESVs for Stormwater Ditch Sediments

A number of metals, PAHs and a PAH-related organic, and PCBs were identified as Site-related CPECs and detected in sediments. Carbazole, another PAH-related chemical, was also detected in sediments and above background concentrations in surface material/soils, but it was not identified as Site-specific CPEC because this chemical is not an Act 2 CPEC. No other organics were detected in sediments. In addition, most of the other naturally occurring metals were also detected in sediments, but their concentrations is the Site's surface material/soils were not sufficiently elevated to be identified as being due to Site releases. To determine whether concentrations of these chemicals were potentially significant, observed concentrations were compared to conservative ESVs. As a first choice for ESVs, sediment concentrations were screened against ER-M (Effects Range Median) produced by NOAA or equivalent values. According to conventional wisdom and wide-spread use, the ER-Ms represent threshold concentrations above which toxicity is expected.[4] These values were obtained from NJDEP (2009). Some detected metals and PCBs have no ER-M values, so rescreening values from EPA Region 4 (2016) were used. These rescreening values are similar in derivation and intended use as ER-M values. No reliable sediment ESVs exist for vanadium. USEPA's (2013) assessment of safe concentration of vanadium in sediments, 57 mg/kg, generated for assessing the effects of the Deepwater Horizon oil spill, was assumed to be a valid ESV and used to screen for potential toxicity of vanadium. After these sources were considered, a few chemicals detected in sediments still lacked sediment ESVs. For these, Act 2 ecological criteria, 1/10th the human health criteria, were used as ESVs.

Although neither lead nor zinc are Site-related CPECs, both were found in elevated concentrations above their ER-M values. The ER-M for lead and zinc are based on the co-occurrence methods described above and in the associated footnote. Because of the inherent methodological problems with the ER-Ms and the more general problem that these ESVs do not consider bioavailability, 2016 sediment samples were also analyzed for AVS/SEM (acid volatile sulfide/simultaneously extractable metals). As described in USEPA (2005), the AVS/SEM method is the current state-of-the-science method to screen sediments for metals' toxicity to benthic invertebrates, and is therefore a reliable method for use. As opposed to ESVs that are based on bulk sediment chemistry, AVS/SEM methods specifically estimates differences in metals' bioavailability across different sediments. In sediments, a number of ligands or binding substances bind metals and render them insoluble and/or non-toxic. In sediments, the primary binding agents for divalent metals are sulfides and organic carbon. Sulfides readily combine with most divalent metals (e.g., cadmium, copper, lead, mercury, nickel, silver, zinc) to form insoluble metal-sulfide complexes. The stability constants for

[4] The ERMs are co-occurrence sediment quality guidelines (Co-SQGs). Co-SQGs are problematic in two ways. First, they are not based on good science methods, i.e., controlled experiments or reliable epidemiological analyese. At best, the Co-SQGs are thought to be based on the coincidence of chemical concentrations and impacts on benthos. Coincidence has been rejected as an appropriate scientific method for almost 400 years (since Bacon, 1620). At worst, however, recent analyses indicate that Co-SQGs are simply background values (Smith and Jones, 2005, 2006; Smith, 2007, 2008), rather than toxicologically-based endpoints. More detailed analyses suggest that the Co-SQGs are based on technical artifact, pseudoscience, and analyst error rather than science (Smith and Jones, 2012). The second significant problem is that the Co-SQGs are based on bulk sediment chemistry, and, thus, do not account for factors that might reduce bioavailability. Thus, USEPA (2003, 2008) and USEPA (2005) have proposed alternate method that specifically address bioavailability for non-polar organics and metals, respectively.

most of these metal-sulfide associations are very high; consequently, minimal releases occur from insoluble metal sulfides to soluble and toxic metals in sediment pore water.

It has been suggested that normalizing concentrations of metals in sediment to AVS might provide a universal explanation of metal availability from sediments (DiToro et al. 1990; Hansen et al. 1996; USEPA 2005). In turn, the equilibrium partitioning theory for sediment toxicity assumes that low pore water concentrations of metals will translate into limited bioavailability and, by extension, low toxicity. Given this mechanistic understanding, early versions of the AVS/SEM methodology focused on comparing molar concentrations of AVS to molar concentrations of SEM. If the molar concentrations of the former were higher than the latter, excess sulfides were assumed to be present in the sediments and all divalent metals were assumed to be bound, rendering them non-bioavailable. Thus, sediments in which molar concentrations of AVS exceeded molar concentrations of SEM were assumed to be non-toxic. In general practice, the decision rule was expressed as a ratio, such that ratios of SEM/AVS less than 1.0 were assumed to be non-toxic.

Since this early work on AVS/SEM, understanding of sediment and water column geochemistry has progressed further (NAS 2003; USEPA 2005). Currently, theory and empirical data suggest that factors in addition to AVS will influence the concentrations of metals in pore water. Notably, in sediments, freely dissolved, and potentially toxic metals will distribute among organic ligands, iron oxides, manganese oxides, and perhaps clay surfaces. Typically, organic carbon is the most important of these other binding agents, so most recent AVS/SEM guidance (USEPA 2005) has focused on the additional binding capacity of organic carbon. This newer approach assumes that the potential toxicity of divalent metals that are not bound by AVS and, thus, potentially dissolved in sediment pore water will be further attenuated by binding to organic carbon. To predict potential toxicity from divalent metals, USEPA (2005) focuses on what is called the carbon-normalized excess SEM. This is the simply the difference between SEM and AVS divided by the concentration of organic carbon (OC). Based on both empirical and mechanistic considerations, USEPA (2005) concludes that:

> *"Any sediments in which (SEM – AVS)/foc < 130 µmols/g OC should pose low risk of adverse ecological effects due to cadmium, copper, lead, nickel, and zinc."*

Thus, the AVS/SEM method generates screening numbers that predict when sediments will likely be non-toxic. Based on empirical results, USEPA suggests that toxicity is uncertain for sediments with carbon normalized excess SEM values between 130 µmols/g OC and 3,000 µmols/g OC. At concentrations greater than 3,000 µmol/g OC, sediment toxicity becomes more likely than not, although some sediments were non-toxic even above this threshold.

No sediment ESV for cyanide could be found. However, cyanide was not detected at elevated concentrations in terrestrial samples, so this compound was not identified as a Site CPEC. In addition, total cyanide in sediments is the sum of toxic free cyanide, which is usually quite rare, along with non-toxic bound simple cyanides and metallo- and organo-cyanide complexes. Free cyanides, in general, "are not persistent in the environment due to their volatility, low adsorption to sediment particles, and high water solubility" (WDNR 2003). Therefore, if significant amounts of free cyanide were contained in sediments, these would not be expected to persist without significant ongoing sources. No significant sources of cyanide were observed in nearby soils, suggesting that

little of the total cyanide in sediments was free cyanide and/or that the cyanide in sediments was not Site-related. Thus, total cyanide was not considered to be toxic in sediments.

3.7.2 Screening Results from Habitats of Concern: Sediments

Tables 3a and 3b present the screening of detected chemicals in sediments for Site-related CPECs and for other detected concentrations, respectively. For reasons described above, all PAHs, not just Site-related PAHs, are considered in the first screening. Even though it is not a Site-specific CPEC, carbazole was also considered in the first screening because it is typically associated with PAHs. The screening assessment relies on the quotient method, in which an ecological screening quotient (SQ) for each chemical is estimated as:

$$SQ = \frac{EEC}{ESV}$$

Where EEC is the estimated exposure concentration and ESV is the ecological screening value, which is also a concentration. In the following analyses, the EEC and SQ values are based on both the maximum and mean concentrations of each chemical. In a typical screening assessment, values of SQ > 1.0 would be flagged to identify chemicals as potentially problematic. This general rule is modified as follows, as recommended by USEPA (USEPA 2004): SQ values are rounded to one significant digit, and SQs of 1.5 or less should not be considered sufficient evidence of exceedance. USEPA recommended this to reflect the uncertainty concerning both the quantification of chemical concentrations and other sources of uncertainty in the risk screening process. Thus, SQ values less than 1.5 are not considered ecologically significant and noteworthy in screening.

Of the Site-related CPECs, only iron, and several PAHs, and total PAHs exceeded their ER-M (Table 3a). However, iron is not typically toxic in aquatic sediments; thus, this exceedance is not considered significant. The exceedances of individual PAHs and Total PAHs are not considered noteworthy for the following reasons. First, because all PAHs contribute to additive toxicity (USEPA, 2003), assessments about potential toxicity should be based on Total PAHs, not individual PAHs. Only one sediment sample exceeded the Total PAH ER-M value, and then only marginally above the threshold, 151% versus 150% of the ESV, considered noteworthy. More importantly, PAH bioavailability and potential toxicity are strongly dependent upon the binding capacity of the sediments, and these sediments have much higher binding capacity than typical aquatic sediments. Thus, for example, binding capacity for organics is usually based on the concentrations of total organic carbon (TOC). The sediments in the Site's ditches average 10.5% total organic carbon. In contrast, the ER-M values are based on average sediments that probably had 1% to 2% TOC. Thus, the bioavailability of the PAHs at the Site will be much lower than those upon which the ER-M values are based. To reflect this disparate binding capacity, the Site's PAH concentrations are normalized to a more average TOC concentration of 1.5%. When total PAH concentrations are thereby adjusted to reflect the high binding capacity of the Site's sediments, total PAHs concentrations are well below ER-M values. Thus, exposures to PAHs in sediment are judged to be functionally incomplete.

Note that PCB bioavailability is also an inverse function of TOC concentrations in sediment. Hence, PCB concentrations were also normalized to 1.5% TOC. As shown in Table 3a, concentrations of

PCBs, both un-normalized and normalized, are below the ESV. This demonstrates that exposure pathways between PCBs in sediments and ecological receptors are functionally incomplete.

The normalization to TOC is very conservative because these high TOC concentrations contained appreciable amounts of soot carbon, also called black carbon. Sediment samples averaged 1.4% soot/black carbon. Soot/black carbon has much higher binding affinity for hydrophobic organic compounds, like PAHs and PCBs, than typical organic carbon (Jonker and Koelmans 2001, Cornelissen et al. 2005, Driscoll et al. 2009, Shrestha et al. 2010). Binding affinities to soot carbon can be 10 or more times higher than that of typical organic carbon (USEPA 2012). Assuming that the black carbon had a 10 fold high binding capacity than regular TOC would about double the effective binding capacity compared to regular TOC concentrations. Consequently, the bioavailable concentrations of PCBs in these black-carbon-rich sediments are even less than the negligible concentrations estimated at an average sediment concentration of 1.5% organic carbon.

Chemicals that were detected but not likely due to Site-releases are screened in Table 3b. Six metals significantly exceeded their ER-M or equivalent value: barium, beryllium, vanadium and three divalent metals (lead, nickel, zinc). Potential effects of the first three are due to too conservative ESVs: all of these values are lower than average background values for soils in PA. None of the sediment concentrations are significantly elevated above most Pennsylvania soils.

Exceedances of the ER-M values by three divalent metals, especially zinc and lead, are more difficult to dismiss. However, more robust screening of the divalent metals, with AVS/SEM analyses, showed that lead and zinc in sediments are largely insoluble and bound to organic carbon. However, the CNE-SEM was essentially equal to the safe threshold in one sediment sample and about twice the threshold in the second sample. These slight exceedances were not considered significant for three reasons. First, the exceedances of the safe threshold were small and never approached the threshold for more certain toxicity, 3,000 µmol/g OC. Second, these exceedances were largely due to SEM contributed by zinc and lead. Neither of these metals were elevated in the Site's soils, so neither was identified as a Site CPEC. Lastly, the stormwater ditches on Site are poor habitat and do not contain true aquatic sediment that would support a well-developed benthic community. Thus, the potential effects of non-CPECs in sediments can also be dismissed.

In summary, no compound was found in sediments at a level that might be injurious to aquatic life. Thus, exposure pathways from Site-related CPECs, and detected chemicals that are not Site-related CPECs, to sensitive habitats and sensitive organisms are found to be incomplete.

3.7.3 Weight of Evidence Assessment

The weight of evidence indicates that potential ecological risks can be dismissed with available information. A number of PAHs, PAH-associated organics, metals, and PCBs were identified as Site-related CPECs in soils. All but the PCBs are typically associated with steelmaking and the fill material of slag and sinters. However, the terrestrial area is not a sensitive ecological area. Thus, direct exposure pathways from CPECs in soil to ecological receptors is incomplete.

The Site contains a very area, about 1.2 acres, of poor quality stormwater ditch habitat. No water was present when samples were taken, but sediment samples were taken and compared to conservative ESVs to determine whether exposure pathways were functionally complete. None of the Site-related CPECs were found in ecologically significant concentrations in the Site's sediments.

Some other metals, which are not Site-related CPECs, were detected in sediments. These detected but not Site-related CPECs were also screened to conservative ESVs. Thus, exposure pathways between sediment biota and Site-related CPECs, and other detected chemicals, were found to be functionally incomplete.

3.8 Step 8

Current information is sufficient to document that there is no potential for significant ecological effects. This analyses described above document this finding.

4. Conclusions and Recommendations

The surrounding Site is industrial in nature and highly disturbed by previous activities. Under current and future Site uses, complete exposure pathways between chemicals in surface material/soils to ecological receptors are functionally incomplete. To determine whether there is evidence of Site releases of CPECs, the chemicals detected in surface soils were compared to background concentrations for metals from Pennsylvania and New Jersey. PAHs were also detected in surface soils. PAH concentrations were compared to background concentrations for urban soils from New Jersey as a first choice and Massachusetts as a second choice. The screening against background showed that a number of PAHs, one PAH-associated compound, PCBs, and four metals were identified as Site-related CPECs. That is, concentrations of these chemicals were more than 150 percent background concentrations suggesting that they were released at the Site and there are also listed Act 2 CPECs.

The sediments of the on-Site stormwater management ditches were sampled, and concentrations of Site-related CPECs detected in sediments were compared to conservative ESVs. This screening showed no exceedances of ESVs for Site-related chemicals. Consequently, there is no potential for ecological risk from Site-related chemicals to aquatic biota living in the sediments. Many other metals were also detected in sediments. To be conservative, these non-CPECs in sediment were also screened against ESVs. None of these chemicals was found at ecologically significant concentrations. Therefore, ecological risks from Site-related and non-Site-related chemicals can be dismissed as unlikely with available information. Additional ecological evaluation of this Site is not warranted.

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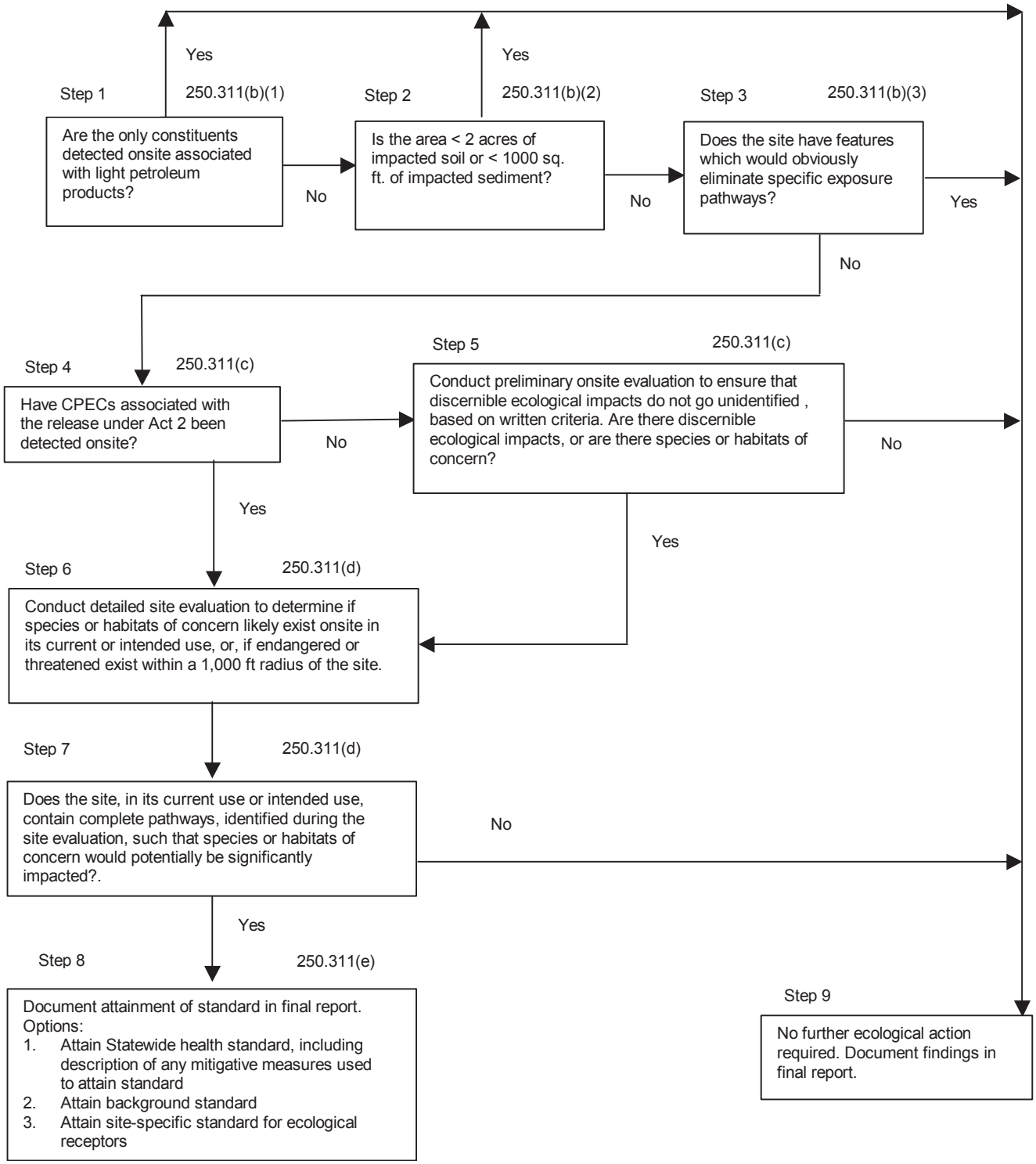
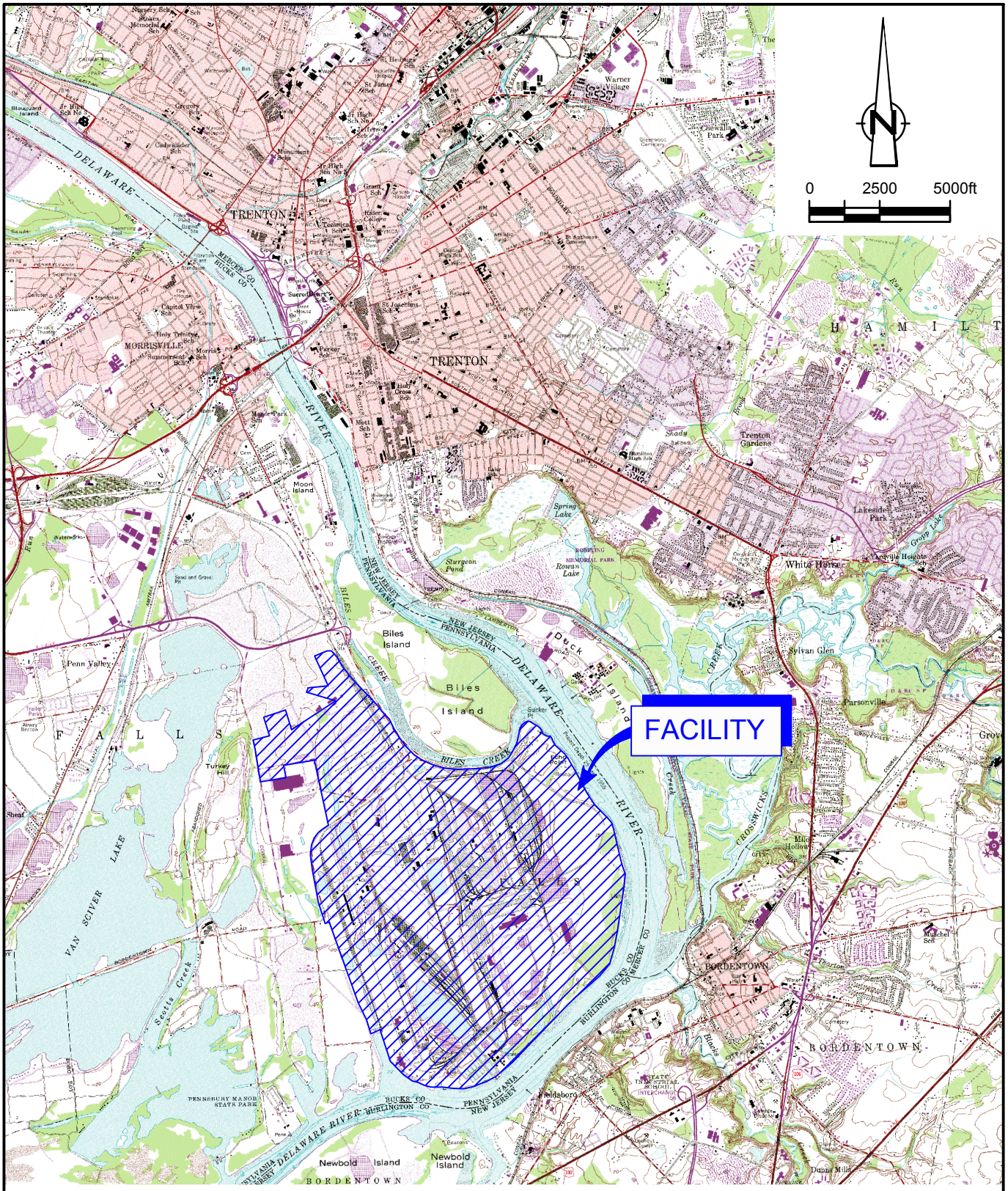
FIGURE F.1
ECOLOGICAL SCREENING FLOW CHART
KEYSTONE INDUSTRIAL PORT COMPLEX
FAIRLESS HILLS, PA





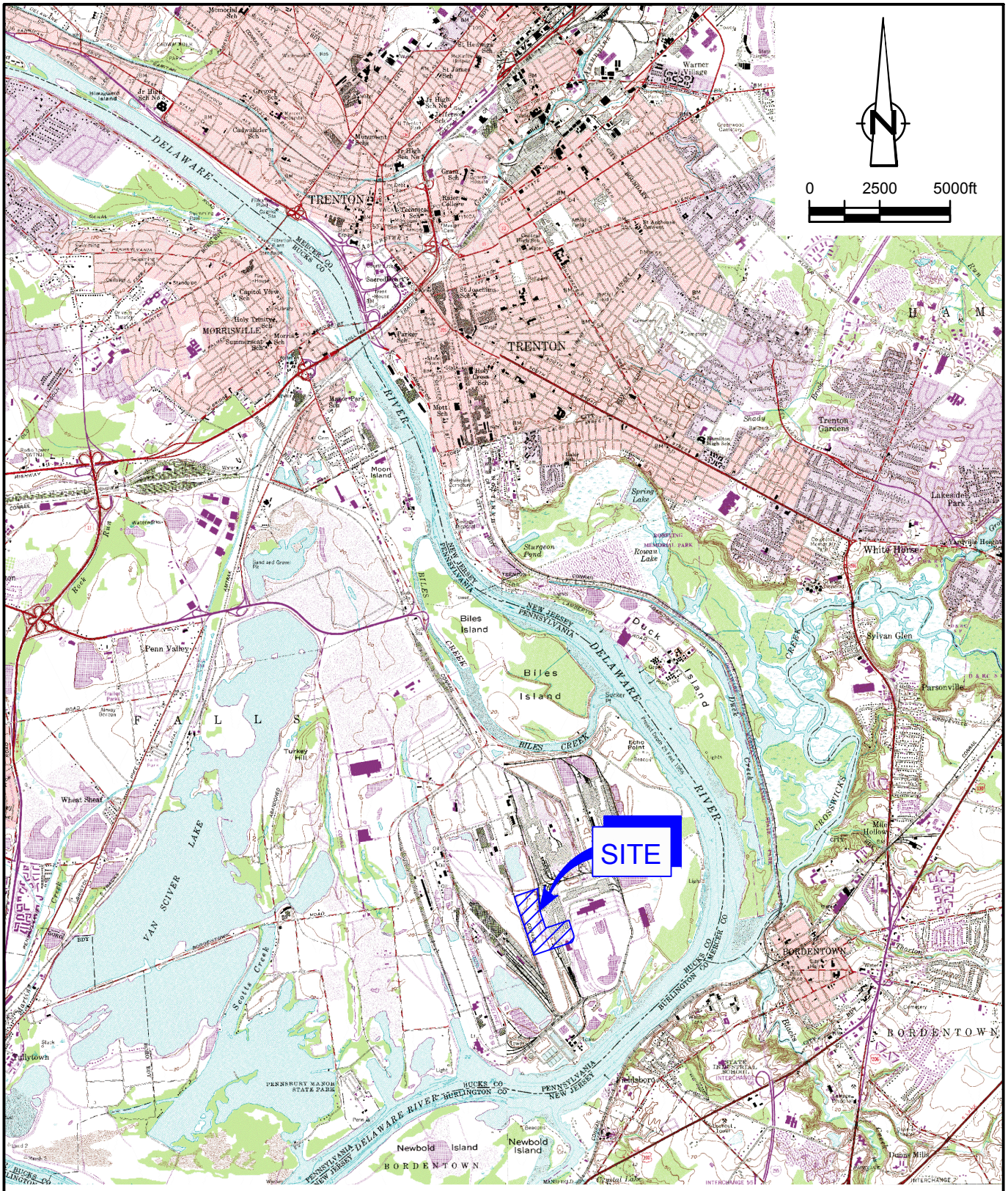
SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA
PHOTOREVISED 1981.

figure 1.1

FACILITY LOCATION
52-ACRE AREA
US STEEL
Fairless Hills, PA

GHD

83101-00(011)GN-WA001 MAY 29, 2017



SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA
PHOTOREVISED 1981.

figure 1.2

SITE LOCATION
52-ACRE PARCEL
U. S. STEEL
Fairless Hills, PA

GHD

83101-00(011)GN-WA002 MAY 29, 2017

Table 1

Summary of Surface Soil Results
52 Acre Parcel
U.S. Steel
Fairless Hills, Bucks County, Pennsylvania

Parameters	Units	Act 2 CPEC?	# of Samples	Frequency of Detection	Max Detection	Mean Detection (ND = 1/2 DL)	Mean Detection (ND = 0)
Volatile Organic Compounds							
cis-1,2-Dichloroethene	mg/kg	No	19	5%	0.01	0.003	0.0002
Methyl acetate	mg/kg	No	19	21%	9.30	0.68	0.67
Methylene chloride	mg/kg	No	19	21%	0.01	0.003	0.001
Trichloroethene	mg/kg	Yes	19	5%	0.005	0.003	0.0001
Semi-volatile Organic Compounds							
2-Methylnaphthalene	mg/kg	Yes	19	37%	3.45	0.45	0.03
Acenaphthene	mg/kg	Yes	19	63%	3.90	0.24	0.22
Acenaphthylene	mg/kg	Yes	19	47%	0.14	0.03	0.01
Anthracene	mg/kg	Yes	19	58%	6.50	0.38	0.37
Benzo(a)anthracene	mg/kg	Yes	19	74%	18	1.39	1.39
Benzo(a)pyrene	mg/kg	Yes	19	79%	16	1.15	1.15
Benzo(b)fluoranthene	mg/kg	Yes	19	79%	16	1.07	1.07
Benzo(g,h,i)perylene	mg/kg	Yes	19	79%	10	0.84	0.84
Benzo(k)fluoranthene	mg/kg	Yes	19	42%	12	0.67	0.66
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	Yes	19	11%	3.45	0.50	0.01
Butyl benzylphthalate (BBP)	mg/kg	Yes	19	16%	3.45	0.51	0.003
Carbazole	mg/kg	No	19	5%	3.60	0.67	0.19
Chrysene	mg/kg	Yes	19	79%	20	2.11	2.10
Dibenz(a,h)anthracene	mg/kg	Yes	19	68%	4.30	0.35	0.35
Dibenzofuran	mg/kg	Yes	19	21%	3.45	0.55	0.09
Di-n-octyl phthalate (DnOP)	mg/kg	Yes	19	5%	3.45	0.51	0.03
Fluoranthene	mg/kg	Yes	19	79%	35	2.07	2.07
Fluorene	mg/kg	Yes	19	42%	2.20	0.14	0.12
Indeno(1,2,3-cd)pyrene	mg/kg	Yes	19	74%	9.90	0.64	0.64
Isophorone	mg/kg	No	19	5%	3.45	0.54	0.01
Naphthalene	mg/kg	Yes	19	63%	1.10	0.08	0.07
Phenanthrene	mg/kg	Yes	19	74%	24	1.37	1.36
Pyrene	mg/kg	Yes	19	79%	26	2.01	2.01
Metals							
Aluminum	mg/kg	No	6	100%	9050	7538.33	7538.33
Antimony	mg/kg	No	19	63%	3.65	0.41	0.16
Arsenic	mg/kg	Yes	19	100%	8.70	3.71	3.71
Barium	mg/kg	Yes	6	100%	137	70.45	70.45
Beryllium	mg/kg	Yes	19	100%	3.10	0.98	0.98
Cadmium	mg/kg	Yes	19	74%	1	0.40	0.35
Calcium	mg/kg	No	6	100%	139000	50043.17	50043.17
Chromium	mg/kg	Yes	19	100%	1920	613.97	613.97
Cobalt	mg/kg	Yes	6	100%	5.60	3.75	3.75
Copper	mg/kg	Yes	19	100%	76.20	25.77	25.77
Iron	mg/kg	Yes	6	100%	212000	87833.33	87833.33
Lead	mg/kg	Yes	19	100%	53.90	19.27	19.27
Magnesium	mg/kg	No	6	100%	49000	17861.00	17861.00
Manganese	mg/kg	Yes	6	100%	20900	6703.62	6703.62
Mercury	mg/kg	Yes	19	74%	1.90	0.12	0.12
Nickel	mg/kg	Yes	19	100%	56	14.44	14.44
Potassium	mg/kg	No	6	100%	809	501.83	501.83
Selenium	mg/kg	Yes	19	79%	2.70	0.72	0.68
Silver	mg/kg	No	19	63%	3.75	0.38	0.06
Sodium	mg/kg	No	6	50%	268	101.36	89.72
Thallium	mg/kg	No	19	68%	0.19	0.07	0.04
Vanadium	mg/kg	Yes	6	100%	291	119.63	119.63
Zinc	mg/kg	Yes	19	100%	247	88.15	88.15
PCBs							
Aroclor-1248 (PCB-1248)	mg/kg	Yes	19	21%	14	1.09	0.87
Aroclor-1260 (PCB-1260)	mg/kg	Yes	19	32%	42	2.59	2.37
Total PCBs	mg/kg	Yes	19	32%	56	3.24	3.24
General Chemistry							
Cyanide (total)	mg/kg	Yes	6	50%	0.20	0.08	0.06
Total solids	%	n/a	13	100%	96.20	91.48	91.48

Table 2

Comparison of Surface Soil Results to Background
52 Acre Parcel
U.S. Steel
Fairless Hills, Bucks County, Pennsylvania

Parameters	Units	Background	Source	On Site Mean (ND =0)	Ratio On-Site to Background	Act 2 Potential CPEC?	Site CPEC?
Volatile Organic Compounds							
cis-1,2-Dichloroethene	mg/kg	0.05	Assumed	0.0002	0.004	No	No
Methyl acetate	mg/kg	0.05	Assumed	0.67	13.47	No	No
Methylene chloride	mg/kg	0.05	Assumed	0.001	0.01	No	No
Trichloroethene	mg/kg	0.05	Assumed	0.0001	0.002	Yes	No
Semi-volatile Organic Compounds							
2-Methylnaphthalene	mg/kg	0.121	MADEP	0.03	0.29	Yes	No
Acenaphthene	mg/kg	0.128	MADEP	0.22	1.75	Yes	Yes
Acenaphthylene	mg/kg	0.133	MADEP	0.01	0.09	Yes	No
Anthracene	mg/kg	0.184	MADEP	0.37	2.01	Yes	Yes
Benzo(a)anthracene	mg/kg	0.6	NJDEP mean	1.39	2.31	Yes	Yes
Benzo(a)pyrene	mg/kg	0.61	NJDEP mean	1.15	1.88	Yes	Yes
Benzo(b)fluoranthene	mg/kg	0.72	NJDEP mean	1.07	1.49	Yes	No
Benzo(g,h,i)perylene	mg/kg	0.461	MADEP	0.84	1.81	Yes	Yes
Benzo(k)fluoranthene	mg/kg	0.58	NJDEP mean	0.66	1.13	Yes	No
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	0.05	Assumed	0.01	0.20	Yes	No
Butyl benzylphthalate (BBP)	mg/kg	0.05	Assumed	0.003	0.05	Yes	No
Carbazole	mg/kg	0.05	Assumed	0.19	3.79	No	No
Chrysene	mg/kg	0.84	MADEP	2.10	2.50	Yes	Yes
Dibenz(a,h)anthracene	mg/kg	0.25	NJDEP mean	0.35	1.40	Yes	No
Dibenzofuran	mg/kg	0.05	Assumed	0.09	1.82	Yes	Yes
Di-n-octyl phthalate (DnOP)	mg/kg	0.05	Assumed	0.03	0.62	Yes	No
Fluoranthene	mg/kg	1.38	MADEP	2.07	1.50	Yes	No
Fluorene	mg/kg	0.141	MADEP	0.12	0.85	Yes	No
Indeno(1,2,3-cd)pyrene	mg/kg	0.27	NJDEP mean	0.64	2.38	Yes	Yes
Isophorone	mg/kg	0.05	Assumed	0.01	0.29	No	No
Naphthalene	mg/kg	0.0917	MADEP	0.07	0.77	Yes	No
Phenanthrene	mg/kg	0.788	MADEP	1.36	1.73	Yes	Yes
Pyrene	mg/kg	1.54	MADEP	2.01	1.30	Yes	No
Metals							
Aluminum	mg/kg	55000	B&S	7538.33	0.14	No	No
Antimony	mg/kg	2.2	NJDEP median	0.16	0.07	No	No
Arsenic	mg/kg	12.75	B&S	3.71	0.29	Yes	No
Barium	mg/kg	365.6	B&S	70.45	0.19	Yes	No
Beryllium	mg/kg	1.66	B&S	0.98	0.59	Yes	No
Cadmium	mg/kg	0.29	Ciolkosz	0.35	1.21	Yes	No
Chromium	mg/kg	27.9	Ciolkosz	613.97	22.01	Yes	Yes
Cobalt	mg/kg	14.7	B&S	3.75	0.26	Yes	No
Copper	mg/kg	16.9	Ciolkosz	25.77	1.52	Yes	Yes
Iron	mg/kg	36360	B&S	87833.33	2.42	Yes	Yes
Lead	mg/kg	27	Ciolkosz	19.27	0.71	Yes	No
Manganese	mg/kg	442	B&S	6703.62	15.17	Yes	Yes
Mercury	mg/kg	0.091	B&S	0.12	1.31	Yes	No
Nickel	mg/kg	13.7	Ciolkosz	14.44	1.05	Yes	No
Selenium	mg/kg	0.51	B&S	0.68	1.33	Yes	No
Silver	mg/kg	0.1	NJ Median	0.06	0.58	No	No
Thallium	mg/kg	0.41	NJ Median	0.04	0.11	No	No
Vanadium	mg/kg	80.3	B&S	119.63	1.49	Yes	No
Zinc	mg/kg	64.7	Ciolkosz	88.15	1.36	Yes	No
PCBs							
Aroclor-1248 (PCB-1248)	mg/kg	0.05	Assumed	0.87	17.33	Yes	Yes
Aroclor-1260 (PCB-1260)	mg/kg	0.05	Assumed	2.37	47.42	Yes	Yes
Total PCBs	mg/kg	0.05	Assumed	3.24	64.75	Yes	Yes
General Chemistry							
Cyanide (total)	mg/kg	0.05	Assumed	0.06	1.25	Yes	No

Notes:
Site CPECs selected as those chemicals that are both >150% of background and an Act 2 CPEC.
Ratio On-Site to Background > 1.5

Table 3a

Screening of Site-related CPECs in Sediment
52 Acre Parcel
U.S. Steel
Fairless Hills, Bucks County, Pennsylvania

Parameters	Units	ESV	Source	# of Samples	Frequency of Detection	Max Detection	Mean Detection (ND = 1/2 DL)	Max SQ	Mean SQ (ND=1/2 DL)	Frequency of Exceedance
Volatile Organic Compounds										
None Detected										
Semi-volatile Organic Compounds										
2-Methylnaphthalene	mg/kg	0.67	ERM	4	100%	0.26	0.16	0.39	0.24	0%
Acenaphthene	mg/kg	.5	ERM	4	75%	0.67	0.27	1.34	0.54	25%
Acenaphthylene	mg/kg	0.64	ERM	4	25%	0.26	0.09	0.41	0.15	0%
Anthracene	mg/kg	1.10	ERM	4	100%	0.92	0.48	0.84	0.43	0%
Benzo(a)anthracene	mg/kg	1.60	ERM	4	100%	6.30	2.71	3.94	1.69	50%
Benzo(a)pyrene	mg/kg	1.60	ERM	4	100%	6.80	3.18	4.25	1.98	50%
Benzo(b)fluoranthene	mg/kg	1.80	ERM	4	100%	10.00	4.43	5.56	2.46	50%
Benzo(g,h,i)perylene	mg/kg	18	Act 2	4	100%	6.20	3.15	0.34	0.18	0%
Benzo(k)fluoranthene	mg/kg	7.6	Act 2	4	100%	3.50	1.76	0.46	0.23	0%
Carbazole	mg/kg	76.00	Act 2	4	75%	1.20	0.48	0.02	0.01	0%
Chrysene	mg/kg	2.80	ERM	4	100%	7.70	3.40	2.75	1.21	50%
Dibenz(a,h)anthracene	mg/kg	0.26	ERM	4	100%	1.50	0.80	5.77	3.06	100%
Fluoranthene	mg/kg	5.10	ERM	4	100%	12.00	5.15	2.35	1.01	50%
Fluorene	mg/kg	0.54	ERM	4	25%	0.38	0.13	0.70	0.24	0%
Indeno(1,2,3-cd)pyrene	mg/kg	7.6	Act 2	4	100%	5.00	2.66	0.66	0.35	0%
Naphthalene	mg/kg	2.10	ERM	4	25%	0.15	0.07	0.07	0.03	0%
Phenanthrene	mg/kg	1.50	ERM	4	100%	5.60	2.34	3.73	1.56	50%
Pyrene	mg/kg	2.60	ERM	4	100%	12.00	5.03	4.62	1.93	50%
Total PAH	mg/kg	45.00	ERM	4	100%	67.78	30.62	1.51	0.68	25%
Total PAHs at 1.5% OC	mg/kg	45.00	ERM	4	100%	8.33	4.90	0.19	0.11	0%
Metals										
Chromium	mg/kg	370.00	ERM	4	100%	393.00	312.25	1.06	0.84	50%
Copper	mg/kg	270.00	ERM	4	100%	307.00	207.75	1.14	0.77	25%
Iron	mg/kg	40000.00	Region 4	4	100%	91100.00	58275.00	2.28	1.46	75%
Manganese	mg/kg	1100.00	Region 4	4	100%	917.00	669.00	0.83	0.61	0%
PCBs										
Aroclor-1254 (PCB-1254)	mg/kg	0.68	Region 4	4	100%	0.21	0.14	0.31	0.21	0%
Aroclor-1260 (PCB-1260)	mg/kg	0.68	Region 4	4	100%	0.22	0.16	0.33	0.23	0%
Total PCBs	mg/kg	0.68	Region 4	4	100%	0.43	0.31	0.64	0.45	0%
Total PCBs at 1.5% OC	mg/kg	0.68	Region 4	4	100%	0.15	0.06	0.22	0.10	0%
General Chemistry										
Cyanide (total)	mg/kg	Not Toxic	See Text	4	100%	1.80	0.94	--	--	--
Soot carbon	mg/kg	Not Toxic	See Text	4	100%	1.8%	1.4%	--	--	--
Total organic carbon (TOC)	mg/kg	Not Toxic	See Text	4	100%	16.1%	10.5%	--	--	--

Notes:
SQ = Screening Quotient
Max SQ = Max Detection / ESV
Mean SQ = Mean Detection / ESV
SQ > 1.5

Table 3b

Screening of Other Detected Chemicals (non-CPECs) in Sediment
52 Acre Parcel
U.S. Steel
Fairless Hills, Bucks County, Pennsylvania

Parameters	Units	ESV	Source	Frequency of Detection	# of Samples	Max Detection	Mean Detection (ND = 1/2 DL)	Max SQ	Mean SQ (ND=1/2 DL)	Frequency of Exceedance
Total Metals										
Aluminum	mg/kg	58000	Region 4	100%	4	12700	10042.50	0.22	0.17	0%
Antimony	mg/kg	9.30	ERM	100%	4	5	2.58	0.54	0.28	0%
Arsenic	mg/kg	70	ERM	100%	4	14.30	9.35	0.20	0.13	0%
Barium	mg/kg	60	Region 4	100%	4	226	136.78	3.77	2.28	100%
Beryllium	mg/kg	1.1	Act 2	100%	4	2.10	1.16	1.91	1.05	25%
Cadmium	mg/kg	9.60	ERM	100%	4	4.90	2.60	0.51	0.27	0%
Calcium	mg/kg	Nutrient	--	100%	4	12400	8732.50			
Cobalt	mg/kg	50	Region 4	100%	4	11	8.63	0.22	0.17	0%
Lead	mg/kg	218	ERM	100%	4	2270	715.00	10.41	3.28	50%
Magnesium	mg/kg	Nutrient	--	100%	4	4120	3637.50			
Mercury	mg/kg	0.71	ERM	100%	4	0.63	0.34	0.89	0.48	0%
Nickel	mg/kg	52	ERM	100%	4	91.70	65.80	1.76	1.27	75%
Potassium	mg/kg	Nutrient	--	100%	4	1100	833.50			
Selenium	mg/kg	20	Region 4	100%	4	10.80	7.18	0.54	0.36	0%
Silver	mg/kg	3.70	ERM	100%	4	0.94	0.64	0.25	0.17	0%
Sodium	mg/kg	Nutrient	--	0%	4	257	111.04			
Thallium	mg/kg	3.2	Act 2	100%	4	0.28	0.24	0.09	0.07	0%
Vanadium	mg/kg	57	ERM	100%	4	111	75.25	1.95	1.32	75%
Zinc	mg/kg	410	ERM	100%	4	2330	989.75	5.68	2.41	100%
Metals - SEM										
Cadmium	umol/g	--	--	100%	4	0.03	0.01	--	--	--
Copper	umol/g	--	--	100%	4	1.80	1.23	--	--	--
Lead	umol/g	--	--	100%	4	1.60	0.82	--	--	--
Mercury	umol/g	--	--	75%	4	0.0002	0.00	--	--	--
Nickel	umol/g	--	--	100%	4	0.45	0.34	--	--	--
Zinc	umol/g	--	--	100%	4	13.40	6.15	--	--	--
Total SEM	umol/g	--	--	100%	4	17.23	8.56	--	--	--
Total AVS	umol/g	--	--	50%	4	0.20	0.15	--	--	--
CNE-SEM	umol/g OC	130	USEPA 2005	100%	4	268.40	121.72	2.06	0.94	50%

Notes:
SQ = Screening Quotient
Max SQ = Max Detection / ESV
Mean SQ = Mean Detection / ESV
SQ > 1.5

Appendix F
Pennsylvania Natural Diversity Inventory (PNDI) Records

February 6, 2018 Reference No. 083101

Ms. Kathy Gipe
Pennsylvania Fish and Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

Dear Ms. Gipe:

Re: PNDI# 616289
52-Acre Parcel Act 2 Investigation
U. S. Steel Mon Valley Works Fairless Hills
Falls Township, Bucks County, Pennsylvania

GHD was retained by U. S. Steel (USS) to conduct a habitat assessment for species of concern for a 52-acre parcel (Site) at the Mon Valley Works Fairless Hills (aka Keystone Industrial Port Complex) (Facility) in Falls Township, Bucks County, Pennsylvania. GHD completed a Pennsylvania Natural Diversity Inventory (PNDI) data base search for the project area which indicates a potential conflict with six (6) threatened or endangered species (species of concern) under the jurisdiction of the Pennsylvania Fish and Boat Commission (PFBC). A copy of the PNDI search is provided in Attachment 1. Based on previous experience related to the species likely to occur in this area, the species of concern listed on the PNDI are assumed to include the eastern redbelly turtle (*Pseudemys rubriventris*), eastern mud turtle (*Kinosternon subrubrum*), eastern spadefoot (*Scaphiopus holbrookii*), southern leopard frog (*Lithobates sphenocephalus utricularius*), northern cricket frog (*Acris crepitans*), and New Jersey chorus frog (*Pseudacris kalmi*). USS is in the process of investigating various parcels at the Facility under Pennsylvania Act 2 (Act 2) pursuant to RCRA requirements in order to facilitate brownfield redevelopment. Under Act 2, an ecological screening to determine the presence or absence of sensitive receptors is required.

The location of the Site is shown on the USGS map presented as Figure 1. As shown on Figure 1, the Site is an L-shaped parcel located east and south of Middle Drive and north of Energy Drive. The Site contained the former Air Separation Plant and portions of the Hot Strip Mill and Slab Yards, which have been demolished. A portion of Borrow Pit 2, which was filled with slag occupies a large portion of the Site. An aerial photograph showing the Site is provided as Figure 2. As shown on Figure 2, the Site is mostly vacant barren industrial land. The Site is generally surrounded by other industrial lands associated with the former steel mill.

Mr. Scott Bush of GHD conducted a Site visit on February 5, 2018 to evaluate the project area for habitats suitable to support any of the species of concern that could potentially occur on the Site. The existing features on the Site are identified on Figure 3. As shown on Figure 3, the Central Stormwater Canal is located along the western parcel boundary and a stormwater ditch drains to the central canal near the Site's northern boundary. The Central Canal conveys stormwater from the Site to the Delaware River.

The stormwater ditch is usually dry and does not contain aquatic habitats. The section of the Central Canal that is on the Site has been colonized by common reed (*Phragmites australis*) and does not contain permanent water but can contain shallow water during heavy rain events. The sides of the Central Canal are composed of slag and have been colonized primarily by tree-of-heaven (*Ailanthus altissima*), (poison ivy (*Toxicodendron radicans*), staghorn sumac (*Rhus typhina*), bush honeysuckle (*Diervilla lonicera*), mugwort (*Artemesia vulgaris*), and spotted knapweed (*Centaurea maculosa*). The areas bordering the canal (the remainder of the site), are generally barren industrial land with sparse vegetation on slag and sinter material. Photographs of the habitats onsite are provided in Attachment 2.

The central canal at this location lacks permanent water and is bordered by barren industrial land. It is our opinion that it is highly degraded and is poor habitat for the species of concern. Given the highly industrialized nature of the Site and that no activities are proposed in the Central Canal, it is GHD's opinion that future redevelopment of the Site will not impact species of concern. Figure 4 presents currently anticipated redevelopment plans for a portion of the 52-acres. We are requesting your review, recommendations, and project clearance.

If you have any questions, please feel free to contact me at (610) 646-7486 or scott.bush@GHD.com.

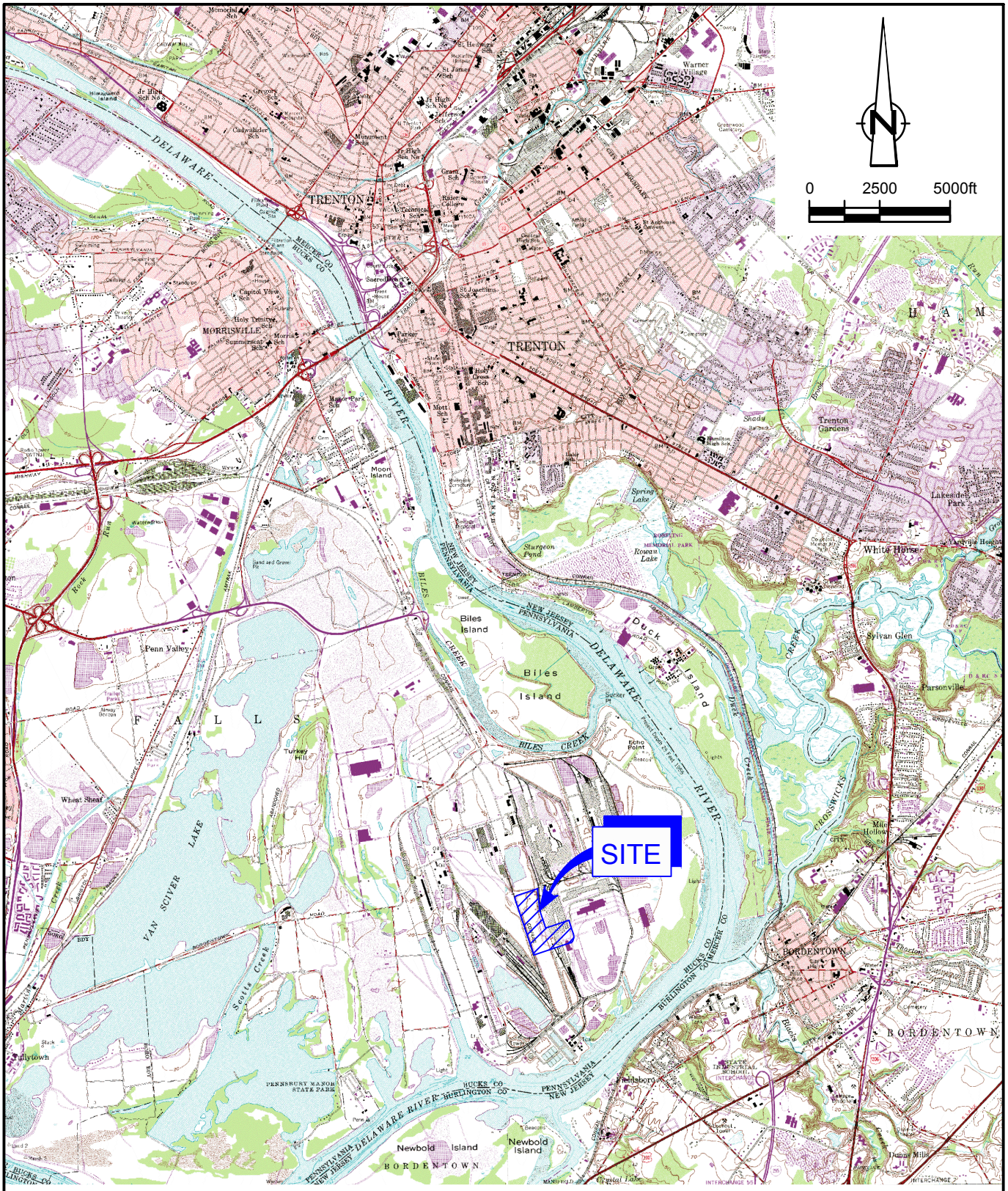
Yours truly,

Scott E. Bush, PWS

SEB/kf/1

cc: William Ream, Michael Leon, and Dennis Jones, USS

FIGURES



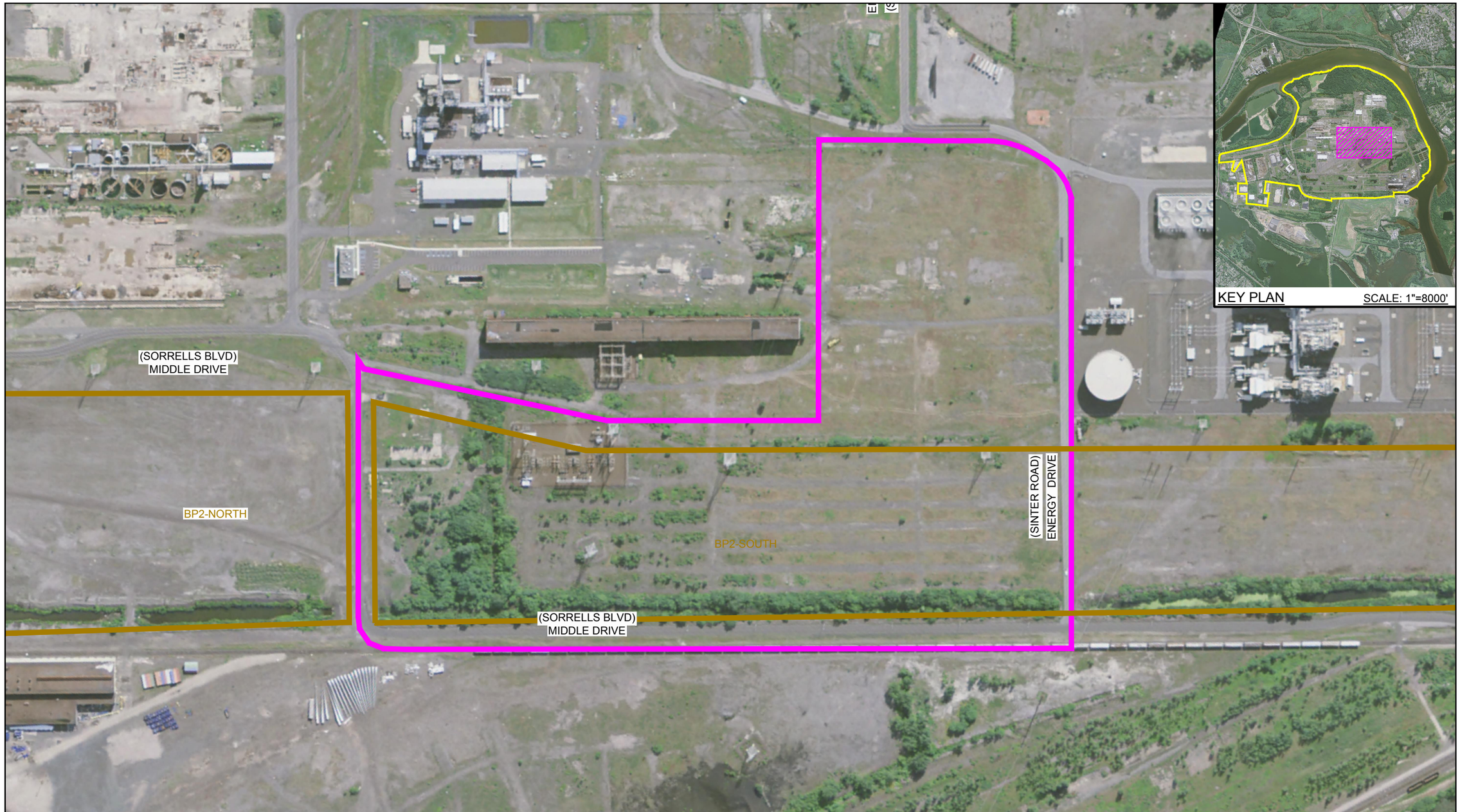
SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA
PHOTOREVISED 1981.

figure 1

SITE LOCATION
52-ACRE PARCEL
U. S. STEEL
Fairless Hills, PA

GHD

83101-00(GIPE003)GN-WA001 JUN 29, 2017



TRUE NORTH

0 150 300ft

LEGEND

PARCEL

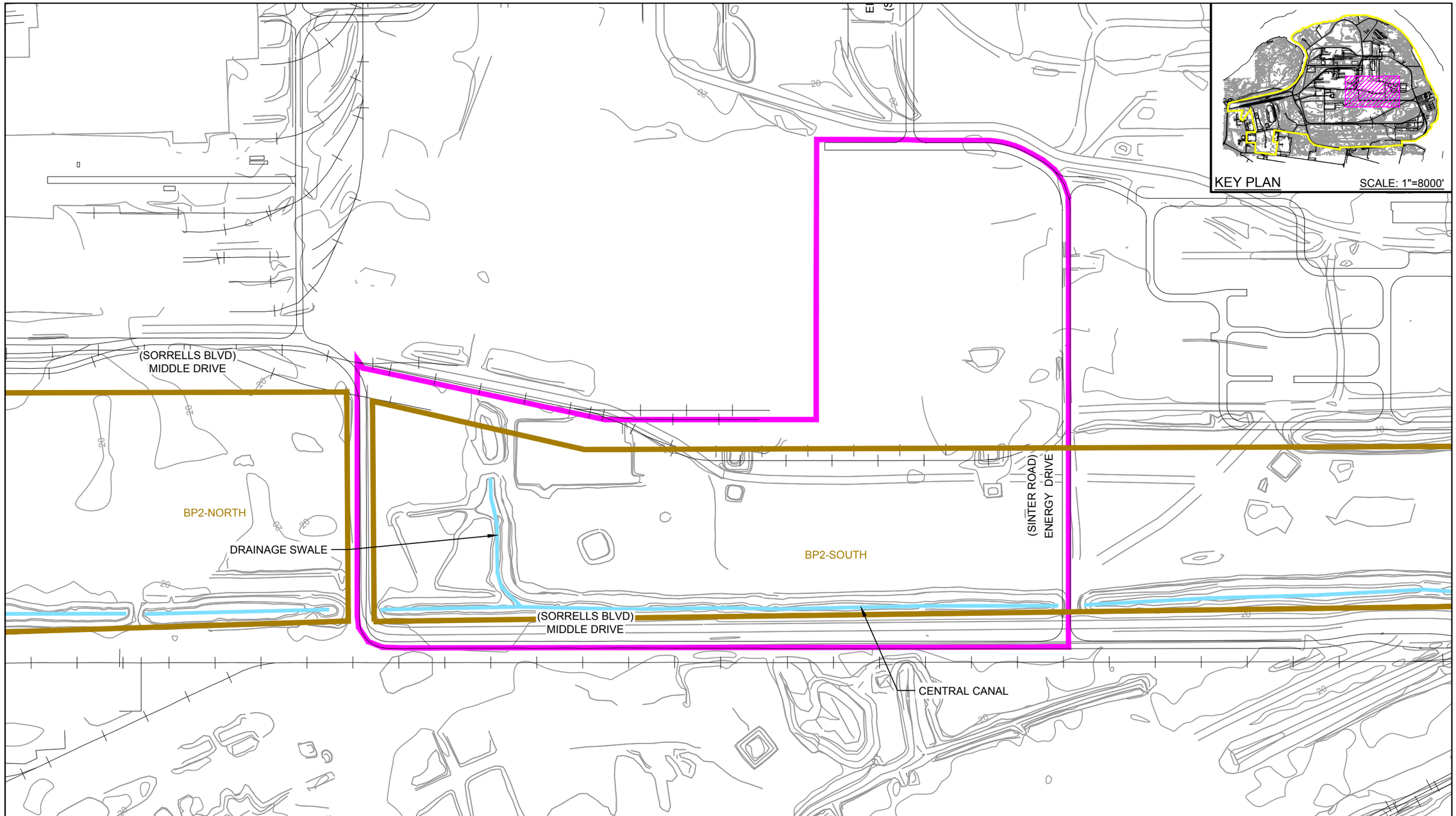
BORROW PIT AREA

SOURCES:
SHOWALTER AND ASSOCIATES, FILE 90413 recd September 4, 2013,
7022REIS.PRO (dated March 30, 2012), and 7022ROAD (dated April 23, 2013);
MR112613 recd November 26, 2013.
AERIAL IMAGE SOURCE: NAIP, 2013.

figure 2

SITE PLAN
52-ACRE PARCEL
U.S. STEEL
Fairless Hills, PA

83101-00(GIPE003)GN-WA004 JAN 31, 2018



TRUE NORTH

LEGEND

PARCEL

BORROW PIT AREA

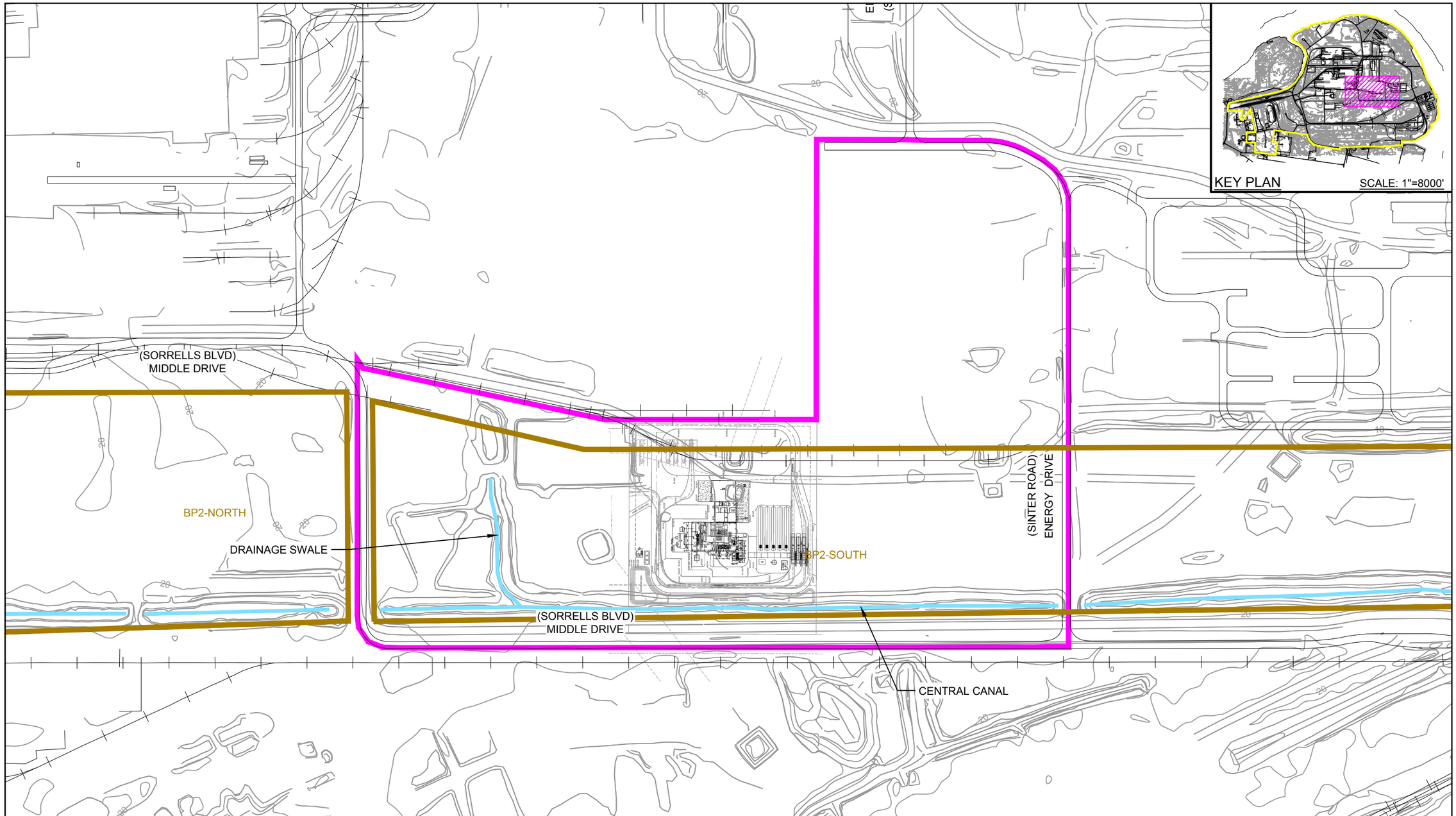
0 150 300ft

SOURCES:
SHOWALTER AND ASSOCIATES, FILE 90413 recd September 4, 2013, 7022REIS.PRO (dated March 30, 2012), and 7022ROAD (dated April 23, 2013); MR112613 recd November 26, 2013.

figure 3

TOPOGRAPHY
52-ACRE PARCEL
U.S. STEEL
Fairless Hills, PA

83101-00(GIPE003)GN-WA003 JAN 31, 2018



SOURCES:
SHOWALTER AND ASSOCIATES, FILE 90413 recd September 4, 2013,
7022REIS.PRO (dated March 30, 2012), and 7022ROAD (dated April 23, 2013);
MR112613 recd November 26, 2013.

figure 4

PROPOSED REDEVELOPMENT AREA
52-ACRE PARCEL
U.S. STEEL
Fairless Hills, PA

83101-00(GIPE003)GN-WA005 JAN 31, 2018

ATTACHMENT 1

PNDI

1. PROJECT INFORMATION

Project Name: **52 Acre Parcel**
Date of Review: **2/7/2018 11:33:28 AM**
Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation, Spill (e.g., oil, chemical)**
Project Area: **51.89 acres**
County(s): **Bucks**
Township/Municipality(s): **FALLS**
ZIP Code: **19030**
Quadrangle Name(s):
Watersheds HUC 8: **Crosswicks-Neshaminy**
Watersheds HUC 12: **Van Sciver Lake-Delaware River**
Decimal Degrees: **40.151046, -74.745022**
Degrees Minutes Seconds: **40° 9' 3.7651" N, 74° 44' 42.774" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

52 Acre Parcel

Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user

52 Acre Parcel

Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

RESPONSE TO QUESTION(S) ASKED

Q1: Will the entire project occur within an existing building, parking lot, driveway, road, street, or maintained (periodically mowed) lawn?
Your answer is: No

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats?
Your answer is: Yes

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission
RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Sensitive Species**		Threatened
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Sensitive Species**		Endangered

U.S. Fish and Wildlife Service
RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).
***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:
X Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
X A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
X **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
X Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
X Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Scott Bush
Company/Business Name: GHD Services, Inc.
Address: 410 Eagleview Blvd, STE 110
City, State, Zip: Exton, PA 19341
Phone: (610) 321-1800 Fax: (610) 321-2763
Email: scott.bush@ghd.com

8. CERTIFICATION

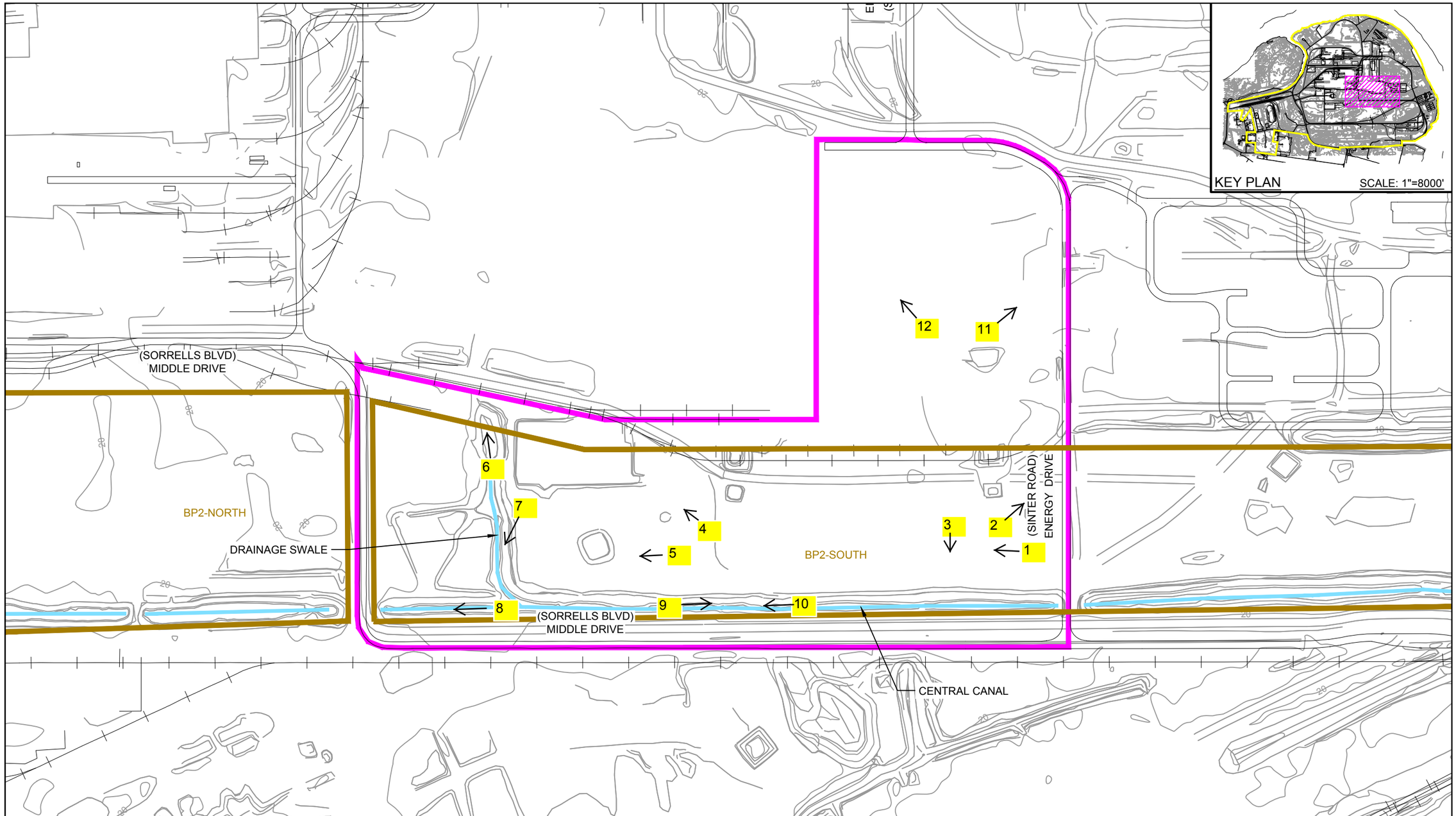
I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Scott E. Bush — 2-6-2018

applicant/project proponent signature — date

ATTACHMENT 2

COLOR PHOTOGRAPHS



TRUE NORTH

LEGEND

PARCEL

BORROW PIT AREA

0 150 300ft

SOURCES:
SHOWALTER AND ASSOCIATES, FILE 90413 recd September 4, 2013, 7022REIS.PRO (dated March 30, 2012), and 7022ROAD (dated April 23, 2013); MR112613 recd November 26, 2013.

PHOTO KEY MAP
52-ACRE PARCEL

U.S. STEEL
Fairless Hills, PA

83101-00(GIPE003)GN-WA003 JAN 31, 2018

Photo 1 – Looking north from southern end of the 52-acre parcel..

Photo 2 – Looking east at southern end of the parcel.

Site Photographs

Photo 3 – Looking west at southern end of the parcel.

.

Photo 4 – Looking north at industrial lands in the northern portion of the parcel.

Photo 5 – Looking north at typical industrial habitats at northern end of the parcel.

Photo 6 – Looking east at stormwater ditch dominated by common reed.

Photo 7 – Looking west at stormwater ditch along the northern end of the parcel. About 0.8 inch of rain fell the day before this photo was taken. About 1 inch of water was in the ditch. This ditch is usually dry except after heavy rain events.

Photo 8 – Looking north at Central Canal.

Photo 9 – Looking south at Central Canal.

Photo 10 – Looking north at central canal.

Photo 11 – Looking southeast at southeastern part of the parcel.

Photo 12 – Looking northeast at southeastern part of the parcel.

Pennsylvania Fish & Boat Commission

established 1866

Division of Environmental Services
Natural Diversity Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823
814-359-5237

February 23, 2018

IN REPLY REFER TO
SIR# 49021

GHD Services, Inc.
Scott Bush
410 Eagleview Blvd.
Exton, Pennsylvania 19341

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 616289_1
52 Acre Parcel
BUCKS County: Falls Township

Dear Scott Bush:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search "potential conflict" or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

You evaluated the habitats on site to determine their potential to support the species of concern. According to the report, the site does not contain potential habitat for the Atlantic Sturgeon (*Acipenser oxyrinchus*), Shortnose Sturgeon (*Acipenser brevirostrum*), Eastern Mud Turtle (*Kinosternon subrubrum subrubrum*), Eastern Redbelly Turtle (*Pseudemys rubriventris*), Northern Cricket Frog (*Acris crepitans*) and Southern Leopard Frog (*Lithobates sphenocephalus utricularius*). I concur with the results of your evaluation; therefore, I do not foresee the proposed project resulting in adverse impacts to the species of concern listed above.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Kathy Gipe at 814-359-5186 and refer to the SIR # 49021. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief
Natural Diversity Section

CAU/KDG/dn

Appendix G
Act 2 Documentation

February 21, 2018 Reference No. 083101

Mr. Tom Canigiani
PA Department of Environmental Protection - SERO
2 East Main Street
Norristown, Pennsylvania
U.S.A. 19401-4915

Dear Mr. Canigiani:

Re: Transmittal - Notice of Intent to Remediate and Final Report under Pennsylvania Act 2 for U. S. Steel – Mon Valley Works Fairless Hills
52-Ace Parcel
One Ben Fairless Drive, Fairless Hills
Falls Township, Buck County, Pennsylvania

Enclosed is a copy of the Act 2 Notice of Intent to Remediate (NIR) and Final Report Summary for the 52-Acre Parcel at the U. S. Steel Mon Valley Works Fairless Hills (aka KIPC) property. Also enclosed is a copy of the public notice which was placed in the Bucks County Courier Times, and the municipal notification letter to Falls Township.

Should you have any questions or comments regarding the proposed remediation, please contact John Garges at 610-321-1800.

Sincerely,

GHD

John A. Garges

John Garges, P.G.

GM/wg/3

Encl.

cc: Linda Matyskiela, EPA
Michael Leon, U. S. Steel

2610-FM-BECB0010 6/2014

pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

For DEP Use Only
PF #_____
Rem ID #_____

NOTICE OF INTENT TO REMEDIATE

Act 1995-2 requires four general information items to be included in the NIR: the general location, listing of contaminants, intended use of property, and proposed remediation measures. In addition, indicate the standard(s) to be obtained (if known) and attach a scaled site map (if available).

Property Name United States Steel Corporation - Keystone Industrial Port Complex (KIPC)

Former Name(s) / AKA 52-Acre Parcel, Keystone Industrial Port Complex (KIPC)

Address / Location One Ben Fairless Drive

City Fairless Hills Zip Code 19030

Municipality(s) Falls Township County(ies) Bucks

Latitude 40 º (deg). 9 ‘ (min) 3.76 “ (sec) Longitude 74 º (deg). 44 ‘ (min) 44.11 “ (sec)

Horizontal Collection Method Interpolation - Satellite

Horizontal Reference Datum NAD83 Reference Point Center of the Property

☐ Wish to participate in the DEP/EPA MOA. Contact the Land Recycling Program Manager at landrecycling@pa.gov for details.

EPA ID#, if known PAD002375376

DEP ID#(s), if known _____
(i.e., eFACTS site ID#, storage tank facility ID#, water quality permit #, watershed permit, air quality permit #, etc.)

Date Release Occurred (if known) Unknown

Provide a brief description of the site contamination in plain language (e.g. fuel oil spill, historical chemical industrial area contamination), the names of any know primary contaminants to be addressed, and the intended future use of the property.

The Site is approximately 52 acres. This is an area where former industrial operations occured.

The Site has a Non-Use Aquifer Determination for groundwater approved by PADEP on April 9, 1999.

To complement historical soil concentrations at 16 sampling locations, additional soil and sediment sampling on the Site. GHD collected soil samples on February 27, 2014, and sediment samples on September 9, 2016.
Four soil borings (BH 200 14 to BH 204 14) were advanced using a Geoprobe® rig. Locations were selected based on a review of historical operations and aerial photographs, as well as the locations of historical investigative samples, to provide representative coverage across the parcel. Each boring was advanced to the top of the water table. From each boring, two soil samples were collected. Soil samples were submitted to TestAmerica for chemical analysis. Soil samples were analyzed for Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Metals, Cyanide, and Polychlorinated Biphenyls (PCBs).
Three sediment samples (SD201 16 through SD204 16) were collected from the ditch that runs along the northern and western portions of BP 2 South. Standing water was not observed at the time of sampling in September 2016. Sediment samples were submitted to TestAmerica for chemical analysis. Sediment samples were analyzed for VOCs, SVOCs, Metals, Acid volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM), PCBs, Cyanide, Soot Carbon, Sulfide, and TOC.

Soil sampling at the Site resulted in concentrations of COCs below the applicable MSCs for direct contact in a non-residential use scenario (for both surface and subsurface soil) except for one constituent. To assess the direct contact pathway for vanadium, a site specific standard was developed to ensure no unacceptable risk under Act 2.

Soil sampling at the Site resulted in concentrations of COCs below the applicable MSCs soil to groundwater criteria for non-use aquifers and the non-residential vapor intrusion screening values.

The KIPC Facility and the Site is currently zoned for Materials Processing and Manufacturing (MPM) use and the future use is nonresidential involving storage, manufacturing, and industrial uses.

Based on current Site conditions, the results for the remedial investigation, evaluation of potential receptors and exposure pathways, USS has demonstrated attainment with the SHS and SSS for Site COCs in soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2).

Provide a general description of proposed remediation measures.

No proposed remediation measures beyond the Environmental Covenant proposed

Remediation Standard(s) planned (if known at this time):

☐ Unknown at this time	☐ Soil	☐ Groundwater
☐ Background Contaminants:	☐ Soil	☐ Groundwater
☐ Statewide Health - Residential Contaminants:	☐ Soil	☐ Groundwater
☒ Statewide Health – Non-Residential Contaminants: VOCs, SVOCs, Metals, and PCBs	☒ Soil	☐ Groundwater
☒ Site Specific Contaminants: Vanadium	☒ Soil	☐ Groundwater
☐ Special Industrial Area* Contaminants:	☐ Soil	☐ Groundwater

*NOTE: Specific standard or Special Industrial Area require a 30-day municipal comment period

Remediator / Property Owner / Consultant. Complete the form below for *each* recipient obtaining a release of liability upon approval of the final report. Attach additional sheets as necessary.

Remediator

Contact Person/Title Michael H. Leon / Senior Environmental Engineer eFACTS Client ID* _____

Relationship to Site Representative for Owner Client Type* _____
(e.g. owner, remediator, participant in cleanup, consultant, etc.)

Phone Number (412) 433-5900 Email Address mhleon@uss.com

Company Name United States Steel Corporation EIN or Federal ID # _____

Address (street, city, state, zip) 1350 Penn Avenue, Suite 200, Pittsburgh, PA 15222

Property Owner

Contact Person/Title Michael H. Leon / Senior Environmental Engineer eFACTS Client ID* _____

Relationship to Site Representative for Owner Client Type* _____
(e.g. owner, remediator, participant in cleanup, consultant, etc.)

Phone Number (412) 433-5900 Email Address mhleon@uss.com

Company Name United States Steel Corporation EIN or Federal ID # _____

Address (street, city, state, zip) 1350 Penn Avenue, Suite 200, Pittsburgh, PA 15222

Consultant

Contact Person/Title John Garges / Project Manager eFACTS Client ID* Not applicable

Relationship to Site Consultant Client Type* Other
(e.g. owner, remediator, participant in cleanup, consultant, etc.)

Phone Number (610)321-1800 Email Address john.garges@ghd.com

Company Name GHD Services Inc. EIN or Federal ID # _____

Address (street, city, state, zip) 410 Eagleview Blvd., Suite 110, Exton PA 19341

*Include eFACTS Client ID (if known) – "Client Types" below:

Association/Organization	Limited Liability company	Partnership-General
Authority	Limited Liability Partnership	Partnership-Limited
County	Municipality	School District
Estate/Trust	Non-Pennsylvania Government	Sole Proprietorship
Federal Agency	Other (Non-Government)	State Agency
Individual	Pennsylvania Corporation	

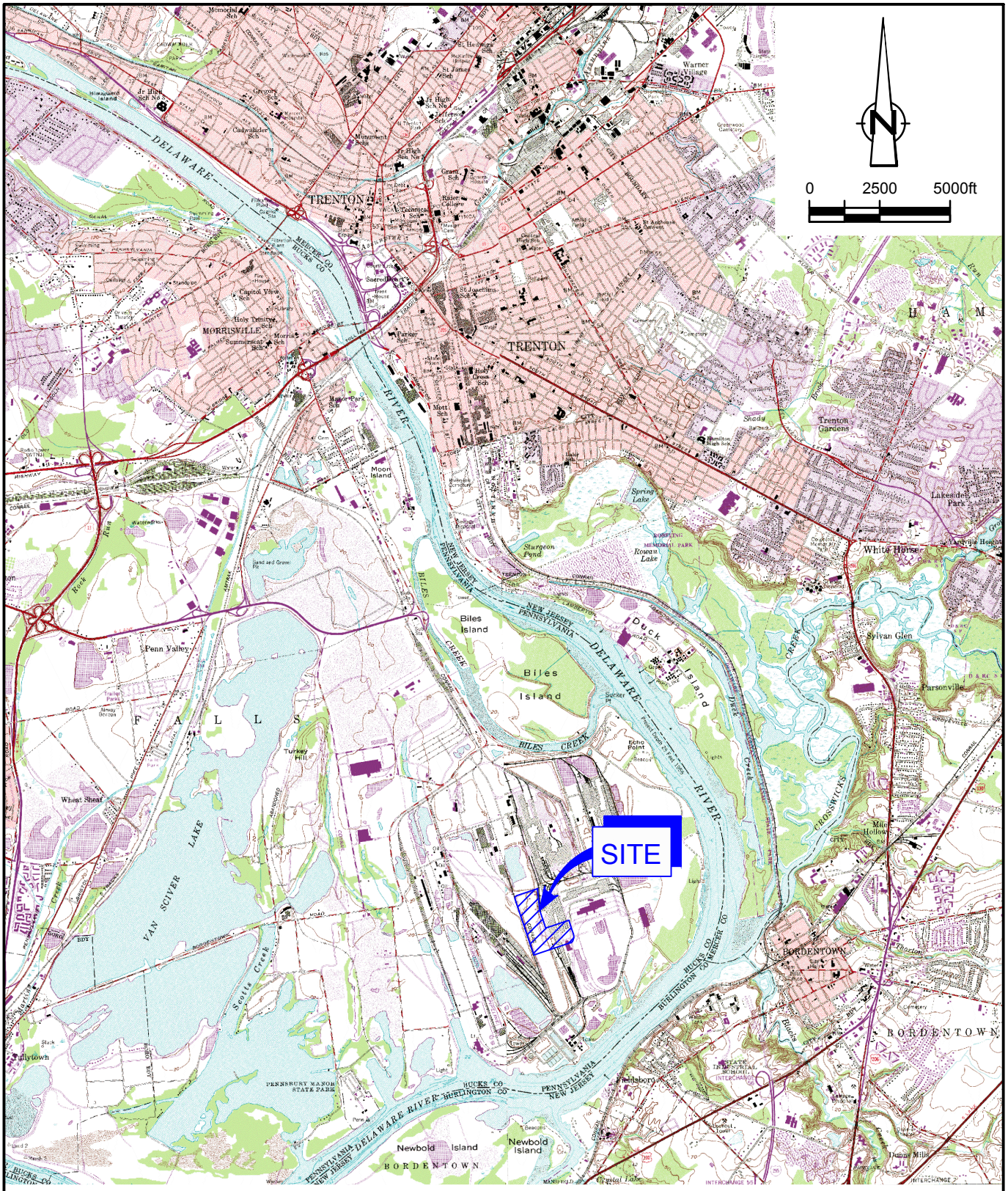
Preparer of Notice of Intent to Remediate

Name John Garges Title Consultant Project Manager

Phone Number (610) 321-1800 Email Address john.garges@ghd.com

Company Name GHD Services Inc. eFACTS Client ID Not applicable

Address (street, city, state, zip) 410 Eagleview Blvd., Suite 110, Exton PA 19341



SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA
PHOTOREVISED 1981.

figure 1.2

SITE LOCATION
52-ACRE PARCEL
U. S. STEEL
Fairless Hills, PA

GHD

83101-00(011)GN-WA002 MAY 29, 2017

2610-FM-BECB0011 Rev. 12/2015

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

For DEP Use Only
PF #_____
Rem ID #_____

FINAL REPORT SUMMARY

The Final Report Summary (FRS) is a brief report consisting of set of data required in addition to the Act 2 Final Report. The summary is used in part as a reference to the Final Report Approval Letter which conveys liability relief to the remediator and other applicable persons. It is of value long after the remediation to be used by the public and Department in understanding key information about the site and remediation.

This use is increased by the fact that it will ultimately be merged into the Department's eFACTS system, which allows the public to have the ease of computer access to environmental information at sites. For more information, see www.ahs.dep.pa.gov/eFACTSWeb/default.aspx. Finally, the summary will be used by the Department to help to better assess the status and the level of success of the program. In the past, numbers of sites remediated has been tracked. With the inclusion of this summary information, progress can be tracked in many specific ways, including identification of individual chemical constituents, and the mass treated, removed or managed safely in place.

Identification

Property Name United States Steel Corporation - Keystone Industrial Port Complex (KIPC)

Property Descriptor 52-Acre Parcel, Keystone Industrial Port Complex (KIPC)

Address / Location

Address One Ben Fairless Drive

City Fairless Hills Zip Code 19030

Municipality(s) Falls Township County(ies) Bucks County

Latitude 40 º (deg). 9 ' (min) 3.76 " (sec) Longitude 74 º (deg). 44 ' (min) 44.11 " (sec)

Horizontal Collection Method Interpolation - Satellite

Horizontal Reference Datum NAD83 Reference Point Center of the Property

Property Specifics

Size of Property 52 Acres Number of Sites One

Combined acreage of sites 52 Acres

Remediation

Standards attained or special industrial area attainment. (Check all that apply. Can use multiple.)

☐ Background ☒ Statewide Health ☒ Site-Specific ☐ Special Industrial Area

Proposed future property use - scenario for which the attainment of Statewide Health standard is demonstrated

☐ Residential ☒ Non-residential

List of contaminants

Soils

Chemical Name	CAS Number	Mass Contaminant Treated or Removed (lbs.)	Mass Contaminant Managed on Site (lbs.)
See attached Table 1			

Groundwater

Chemical Name	CAS Number	Mass Contaminant Treated or Removed (lbs.)	Mass Contaminant Managed on Site (lbs.)
Not Applicable			

Remediation

Number of sampling rounds for groundwater attainment: N/A

Special Features

Non-use aquifer approval date: April 9, 1999

Area-wide background approval date: N/A

Amount of waste removed other than soil or groundwater (cubic yards): N/A

☐ **Municipal ordinance prohibiting groundwater use:**

Not Applicable

☒ **Post remediation care plan:**

No post-remediation care beyond the Environmental Covenant is proposed.

Other Programs

☐ Key Site

☐ Multi-site Agreement; Date: _____

☐ Enterprise Zone

☒ Keystone Opportunity Zone

Administrative

☐ Municipality request for public involvement plan

Deed notification

☒ Deed acknowledgment:

Nonresidential use.

☒ Environmental covenant:

By environmental covenant, the use of the property will be restricted to nonresidential purposes.

Cleanup cost ($): N/A

Jobs created/saved: 25 (see below)

Narrative: Provide property history and description, site characterization findings, site description, summary of remediation, summary of attainment demonstration, description of pathway elimination, engineering and institutional controls, and benefits of land reuse, when applicable.

The Site is approximately 52 acres. This is an area where former industrial operations occured. Approximately 9 acres of the land will be used for the installation of multimillion dollar air separation unit to produce value added products - oxygen, nitrogen and argon in liquid form, to support local and regional businesses, manufacturers and healthcare facilities. The facility will employ 25 people once operation and fully loaded.

To complement historical soil concentrations at 16 sampling locations, additional soil and sediment sampling on the Site. GHD collected soil samples on February 27, 2014, and sediment samples on September 9, 2016.
Four soil borings (BH 200 14 to BH 204 14) were advanced using a Geoprobe® rig. Locations were selected based on a review of historical operations and aerial photographs, as well as the locations of historical investigative samples, to provide representative coverage across the parcel. Each boring was advanced to the top of the water table. From each boring, two soil samples were collected. Soil samples were submitted to TestAmerica for chemical analysis. Soil samples were analyzed for Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Metals, Cyanide, and Polychlorinated Biphenyls (PCBs).

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Soil sampling at the Site resulted in concentrations of COCs below the applicable MSCs for direct contact in a non-residential use scenario (for both surface and subsurface soil) except for one constituent. To assess the direct contact pathway for vanadium, a site specific standard was developed to ensure no unacceptable risk under Act 2.

Soil sampling at the Site resulted in concentrations of COCs below the applicable MSCs soil to groundwater criteria for non-use aquifers and the non-residential vapor intrusion screening values.

The KIPC Facility and the Site is currently zoned for Materials Processing and Manufacturing (MPM) use and the future use is nonresidential involving storage, manufacturing, and industrial uses.

Based on current Site conditions, the results for the remedial investigation, evaluation of potential receptors and exposure pathways, USS has demonstrated attainment with the SHS and SSS for Site COCs in soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2).

The Site has a Non-Use Aquifer Determination for groundwater approved by PADEP on April 9, 1999.

Remediator / Property Owner / Consultant. Complete the form below for *each* recipient obtaining a release of liability upon approval of the final report. Attach additional sheets as necessary.

Remediator

Contact Person/Title Michael H. Leon / Senior Environmental Engineer
eFACTS Client ID* _____

Relationship to Site Representative for Owner
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Client Type* _____

Phone Number (412)433-5900
Email Address mhleon@uss.com

Company Name United States Steel Corporation
EIN or Federal ID # _____

Street Address 1350 Penn Avenue, Suite 200

City Pittsburgh
State PA
Zip Code 15222

Property Owner

Contact Person/Title Michael H. Leon / Senior Environmental Engineer
eFACTS Client ID* _____

Relationship to Site Representative for Owner
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Client Type* _____

Phone Number (412)433-5900
Email Address mhleon@uss.com

Company Name United States Steel Corporation
EIN or Federal ID # _____

Street Address 1350 Penn Avenue, Suite 200

City Pittsburgh
State PA
Zip Code 15222

Consultant

Contact Person/Title John A. Garges / Project Manager
eFACTS Client ID* _____

Relationship to Site Consultant
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Client Type* _____

Phone Number (610) 321-1800 ext.13
Email Address john.garges@ghd.com

Company Name GHD
EIN or Federal ID # _____

Street Address 410 Eagleview Blvd., Suite 110

City Exton
State PA
Zip Code 19341

*Include eFACTS Client ID (if known) – "Client Types" below:

Association/Organization	Limited Liability Company	Partnership-General
Authority	Limited Liability Partnership	Partnership-Limited
County	Municipality	School District
Estate/Trust	Non-Pennsylvania Government	Sole Proprietorship
Federal Agency	Other (Non-Government)	State Agency
Individual	Pennsylvania Corporation	

Attachments: In addition to the data entered in this FRS, the Department requests scanned image(s) of a map view of the site indicating, at a minimum, the boundaries of the "site" relative to the locations of the adjacent property boundaries. The location of the site (as defined by Act 2) is that which will receive the liability relief conveyed by Act 2, Chapter 5. The maps may portray other features but should clearly show the Act 2 site boundaries. You may also attach other applicable image files or attachments. These files should be in Adobe Acrobat (*.pdf), GIF (*.gif) or JPEG file interchange format (*.jpg).

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
Volatile Organic Compounds	
1,1,1-Trichloroethane	71-55-6
1,1,2,2-Tetrachloroethane	79-34-5
1,1,2-Trichloroethane	79-00-5
1,1-Dichloroethane	75-34-3
1,1-Dichloroethene	75-35-4
1,2,4-Trichlorobenzene	120-82-1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8
1,2-Dibromoethane (Ethylene dibromide)	106-93-4
1,2-Dichlorobenzene	95-50-1
1,2-Dichloroethane	107-06-2
1,2-Dichloropropane	78-87-5
1,3-Dichlorobenzene	541-73-1
1,4-Dichlorobenzene	106-46-7
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3
2-Hexanone	591-78-6
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	108-10-1
Acetone	67-64-1
Benzene	71-43-2
Bromodichloromethane	75-27-4
Bromoform	75-25-2
Bromomethane (Methyl bromide)	74-83-9
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroethane	75-00-3
Chloroform (Trichloromethane)	67-66-3
Chloromethane (Methyl chloride)	74-87-3
cis-1,2-Dichloroethene	156-59-2
cis-1,3-Dichloropropene	10061-01-5
Cyclohexane	110-82-7
Dibromochloromethane	124-48-1
Dichlorodifluoromethane (CFC-12)	75-71-8
Ethylbenzene	100-41-4
Isopropyl benzene	98-82-8
Methyl acetate	79-20-9
Methyl cyclohexane	108-87-2
Methyl tert butyl ether (MTBE)	1634-04-4
Methylene chloride	75-09-2
Styrene	100-42-5
Tetrachloroethene	127-18-4
Toluene	108-88-3
trans-1,2-Dichloroethene	156-60-5
trans-1,3-Dichloropropene	10061-02-6
Trichloroethene	79-01-6
Trichlorofluoromethane (CFC-11)	75-69-4
Trifluorotrichloroethane (Freon 113)	76-13-1

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
Vinyl chloride	75-01-4
Xylenes (total)	1330-20-7
Semi-volatile Organic Compounds	
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) eth	108-60-1
2,4,5-Trichlorophenol	95-95-4
2,4,6-Trichlorophenol	88-06-2
2,4-Dichlorophenol	120-83-2
2,4-Dimethylphenol	105-67-9
2,4-Dinitrophenol	51-28-5
2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2
2-Chloronaphthalene	91-58-7
2-Chlorophenol	95-57-8
2-Methylnaphthalene	91-57-6
2-Methylphenol	95-48-7
2-Nitroaniline	88-74-4
2-Nitrophenol	88-75-5
3,3'-Dichlorobenzidine	91-94-1
3-Nitroaniline	99-09-2
4,6-Dinitro-2-methylphenol	534-52-1
4-Bromophenyl phenyl ether	101-55-3
4-Chloro-3-methylphenol	59-50-7
4-Chloroaniline	106-47-8
4-Chlorophenyl phenyl ether	7005-72-3
4-Methylphenol	106-44-5
4-Nitroaniline	100-01-6
4-Nitrophenol	100-02-7
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Acetophenone	98-86-2
Anthracene	120-12-7
Atrazine	1912-24-9
Benzaldehyde	100-52-7
Benzo(a)anthracene	56-55-3
Benzo(a)pyrene	50-32-8
Benzo(b)fluoranthene	205-99-2
Benzo(g,h,i)perylene	191-24-2
Benzo(k)fluoranthene	207-08-9
Biphenyl (1,1-Biphenyl)	92-52-4
bis(2-Chloroethoxy)methane	111-91-1
bis(2-Chloroethyl)ether	111-44-4
bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7
Butyl benzylphthalate (BBP)	85-68-7
Caprolactam	105-60-2
Carbazole	86-74-8
Chrysene	218-01-9

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
Dibenz(a,h)anthracene	53-70-3
Dibenzofuran	132-64-9
Diethyl phthalate	84-66-2
Dimethyl phthalate	131-11-3
Di-n-butylphthalate (DBP)	84-74-2
Di-n-octyl phthalate (DnOP)	117-84-0
Fluoranthene	206-44-0
Fluorene	86-73-7
Hexachlorobenzene	118-74-1
Hexachlorobutadiene	87-68-3
Hexachlorocyclopentadiene	77-47-4
Hexachloroethane	67-72-1
Indeno(1,2,3-cd)pyrene	193-39-5
Isophorone	78-59-1
Naphthalene	91-20-3
Nitrobenzene	98-95-3
N-Nitrosodi-n-propylamine	621-64-7
N-Nitrosodiphenylamine	86-30-6
Pentachlorophenol	87-86-5
Phenanthrene	85-01-8
Phenol	108-95-2
Pyrene	129-00-0
Metals	
Aluminum	7429-90-5T
Antimony	7440-36-0T
Arsenic	7440-38-2T
Barium	7440-39-3T
Beryllium	7440-41-7T
Cadmium	7440-43-9T
Calcium	7440-70-2T
Chromium	7440-47-3T
Cobalt	7440-48-4T
Copper	7440-50-8T
Iron	7439-89-6T
Lead	7439-92-1T
Magnesium	7439-95-4T
Manganese	7439-96-5T
Mercury	7439-97-6T
Nickel	7440-02-0T
Potassium	7440-09-7T
Selenium	7782-49-2T
Silver	7440-22-4T
Sodium	7440-23-5T
Thallium	7440-28-0T
Vanadium	7440-62-2T
Zinc	7440-66-6T

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
PCBs	
Aroclor-1016 (PCB-1016)	12674-11-2
Aroclor-1221 (PCB-1221)	11104-28-2
Aroclor-1232 (PCB-1232)	11141-16-5
Aroclor-1242 (PCB-1242)	53469-21-9
Aroclor-1248 (PCB-1248)	12672-29-6
Aroclor-1254 (PCB-1254)	11097-69-1
Aroclor-1260 (PCB-1260)	11096-82-5
Total PCBs	1336-36-3
General Chemistry	
Cyanide (total)	57-12-5T

Notice of Intent to Remediate, Risk Assessment, and Final Report to an Environmental Standard

Pursuant to the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. 4, No. 1995-2, notice is hereby given that United States Steel Corporation (US Steel) has submitted to the Pennsylvania Department of Environmental Protection (PADEP) a Notice of Intent to Remediate (NIR), Risk Assessmnet (RA), and a Final Report (FR) for a 52-Acre parcel Fairless Hills, Pennsylvania.

The NIR/RA/FR states that the parcel was used for operations that supported the former industrial operations. The current and anticipated future use of the site is commercial/industrial. US Steel has indicated that the remediation measures taken have attained compliance with the non-residential Statewide Health cleanup standard and Site Specific standard established under the Land Recycling and Environmental Remediation Standards Act.

U.S. Steel plans to use the site-specific standard at the site. The Act provides for a 30-day public comment period for site-specific standard remediations. The 30-day comment period is initiated with the publication of this notice. Until February 22, 2018, Falls Township may submit a request to U. S. Steel to be involved in the development of the remediation and reuse plans for the site. The Township may also submit a request to U. S. Steel during this 30-day comment period to develop and implement a public involvement plan. Copies of these requests will be submitted to the Department of Environmental Protection at 2 East Main Street, Norristown, PA, 19401-4915.

This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. #4, No. 2.

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Tom Canigiani
PA DEP
2 East Main Street
Norristown, PA 19401-4915

9590 9402 1947 6123 4889 68

2. Article Number *(Transfer from service label)*

7017 0660 0000 3185 9047

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Mrs. N. Campbell ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Nakia Campbell

C. Date of Delivery 2-26-18

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☑ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☑ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

February 21, 2018 Reference No. 083101

Mr. Peter Gray, Township Manager
Falls Township
Municipal Building
188 Lincoln Highway, Suite 100
Fairless Hills, PA 19030

Dear Mr. Gray:

Re: Notice of Intent to Remediate and Final Report Under Pennsylvania Act 2 for U. S. Steel – 52-Acre Parcel Falls Township, Buck County Fairless Hills, Pennsylvania

The Land Recycling and Environmental Remediation Standards Act (Act 2) requires that a Notice of Intent to Remediate (NIR) and Notice of Final Report for a site be provided to the municipality in which the site is located. Act 2 also provides that when a site is being remediated to a Site-specific Standard, the municipality is afforded a 30-day comment period. In accordance with this provision of Act 2 and on behalf of United States Steel Corporation (U. S. Steel), GHD is providing notification of our intent to remediate the 52-Acre Parcel at the U. S. Steel Mon Valley Works Fairless Hills (aka, KIPC). GHD is also providing the notification of submittal of the Final Report. The area included operations that supported the former industrial operations. A copy of the NIR and Final Report Summary, which will be sent to the Pennsylvania Department of Environmental Protection (PADEP), is enclosed. This notice will also be published in the Pennsylvania Bulletin, and a summary of the notice will be placed in a local newspaper (e.g., Bucks County Courier Times).

Publication of this notice in a local newspaper initiates the 30-day public and municipal comment period. During this time, your municipality may request to become involved in the development of the remediation and reuse plans for the site. If the municipality wishes to become involved in this project, please send your comments to U. S. Steel with copies submitted to the Department of Environmental Protection at 2 East Main Street, Norristown, PA, 19401-4915.

Should you have any questions or comments regarding the proposed remediation, please contact Mr. John Garges at 610-321-1800.

Yours truly,

GHD

John A. Garges, P.G.

GM/kf/8

Encl.

cc: Tom Canigiani, PADEP
Linda Matyskiela, EPA
Michael Leon, U. S. Steel

2610-FM-BECB0010 6/2014

pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

For DEP Use Only
PF #_____
Rem ID #_____

NOTICE OF INTENT TO REMEDIATE

Act 1995-2 requires four general information items to be included in the NIR: the general location, listing of contaminants, intended use of property, and proposed remediation measures. In addition, indicate the standard(s) to be obtained (if known) and attach a scaled site map (if available).

Property Name United States Steel Corporation - Keystone Industrial Port Complex (KIPC)

Former Name(s) / AKA 52-Acre Parcel, Keystone Industrial Port Complex (KIPC)

Address / Location One Ben Fairless Drive

City Fairless Hills Zip Code 19030

Municipality(s) Falls Township County(ies) Bucks

Latitude 40 º (deg). 9 ‘ (min) 3.76 “ (sec) Longitude 74 º (deg). 44 ‘ (min) 44.11 “ (sec)

Horizontal Collection Method Interpolation - Satellite

Horizontal Reference Datum NAD83 Reference Point Center of the Property

☐ Wish to participate in the DEP/EPA MOA. Contact the Land Recycling Program Manager at landrecycling@pa.gov for details.

EPA ID#, if known PAD002375376

DEP ID#(s), if known _____
(i.e., eFACTS site ID#, storage tank facility ID#, water quality permit #, watershed permit, air quality permit #, etc.)

Date Release Occurred (if known) Unknown

Provide a brief description of the site contamination in plain language (e.g. fuel oil spill, historical chemical industrial area contamination), the names of any know primary contaminants to be addressed, and the intended future use of the property.

The Site is approximately 52 acres. This is an area where former industrial operations occured.

The Site has a Non-Use Aquifer Determination for groundwater approved by PADEP on April 9, 1999.

To complement historical soil concentrations at 16 sampling locations, additional soil and sediment sampling on the Site. GHD collected soil samples on February 27, 2014, and sediment samples on September 9, 2016.
Four soil borings (BH 200 14 to BH 204 14) were advanced using a Geoprobe® rig. Locations were selected based on a review of historical operations and aerial photographs, as well as the locations of historical investigative samples, to provide representative coverage across the parcel. Each boring was advanced to the top of the water table. From each boring, two soil samples were collected. Soil samples were submitted to TestAmerica for chemical analysis. Soil samples were analyzed for Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Metals, Cyanide, and Polychlorinated Biphenyls (PCBs).
Three sediment samples (SD201 16 through SD204 16) were collected from the ditch that runs along the northern and western portions of BP 2 South. Standing water was not observed at the time of sampling in September 2016. Sediment samples were submitted to TestAmerica for chemical analysis. Sediment samples were analyzed for VOCs, SVOCs, Metals, Acid volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM), PCBs, Cyanide, Soot Carbon, Sulfide, and TOC.

Soil sampling at the Site resulted in concentrations of COCs below the applicable MSCs for direct contact in a non-residential use scenario (for both surface and subsurface soil) except for one constituent. To assess the direct contact pathway for vanadium, a site specific standard was developed to ensure no unacceptable risk under Act 2.

Soil sampling at the Site resulted in concentrations of COCs below the applicable MSCs soil to groundwater criteria for non-use aquifers and the non-residential vapor intrusion screening values.

The KIPC Facility and the Site is currently zoned for Materials Processing and Manufacturing (MPM) use and the future use is nonresidential involving storage, manufacturing, and industrial uses.

Based on current Site conditions, the results for the remedial investigation, evaluation of potential receptors and exposure pathways, USS has demonstrated attainment with the SHS and SSS for Site COCs in soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2).

Provide a general description of proposed remediation measures.

No proposed remediation measures beyond the Environmental Covenant proposed

Remediation Standard(s) planned (if known at this time):

☐ Unknown at this time	☐ Soil	☐ Groundwater
☐ Background Contaminants:	☐ Soil	☐ Groundwater
☐ Statewide Health - Residential Contaminants:	☐ Soil	☐ Groundwater
☒ Statewide Health – Non-Residential Contaminants: VOCs, SVOCs, Metals, and PCBs	☒ Soil	☐ Groundwater
☒ Site Specific Contaminants: Vanadium	☒ Soil	☐ Groundwater
☐ Special Industrial Area* Contaminants:	☐ Soil	☐ Groundwater

*NOTE: Specific standard or Special Industrial Area require a 30-day municipal comment period

Remediator / Property Owner / Consultant. Complete the form below for *each* recipient obtaining a release of liability upon approval of the final report. Attach additional sheets as necessary.

Remediator

Contact Person/Title Michael H. Leon / Senior Environmental Engineer eFACTS Client ID* _____

Relationship to Site Representative for Owner Client Type* _____
(e.g. owner, remediator, participant in cleanup, consultant, etc.)

Phone Number (412) 433-5900 Email Address mhleon@uss.com

Company Name United States Steel Corporation EIN or Federal ID # _____

Address (street, city, state, zip) 1350 Penn Avenue, Suite 200, Pittsburgh, PA 15222

Property Owner

Contact Person/Title Michael H. Leon / Senior Environmental Engineer eFACTS Client ID* _____

Relationship to Site Representative for Owner Client Type* _____
(e.g. owner, remediator, participant in cleanup, consultant, etc.)

Phone Number (412) 433-5900 Email Address mhleon@uss.com

Company Name United States Steel Corporation EIN or Federal ID # _____

Address (street, city, state, zip) 1350 Penn Avenue, Suite 200, Pittsburgh, PA 15222

Consultant

Contact Person/Title John Garges / Project Manager eFACTS Client ID* Not applicable

Relationship to Site Consultant Client Type* Other
(e.g. owner, remediator, participant in cleanup, consultant, etc.)

Phone Number (610)321-1800 Email Address john.garges@ghd.com

Company Name GHD Services Inc. EIN or Federal ID # _____

Address (street, city, state, zip) 410 Eagleview Blvd., Suite 110, Exton PA 19341

*Include eFACTS Client ID (if known) – "Client Types" below:

Association/Organization	Limited Liability company	Partnership-General
Authority	Limited Liability Partnership	Partnership-Limited
County	Municipality	School District
Estate/Trust	Non-Pennsylvania Government	Sole Proprietorship
Federal Agency	Other (Non-Government)	State Agency
Individual	Pennsylvania Corporation	

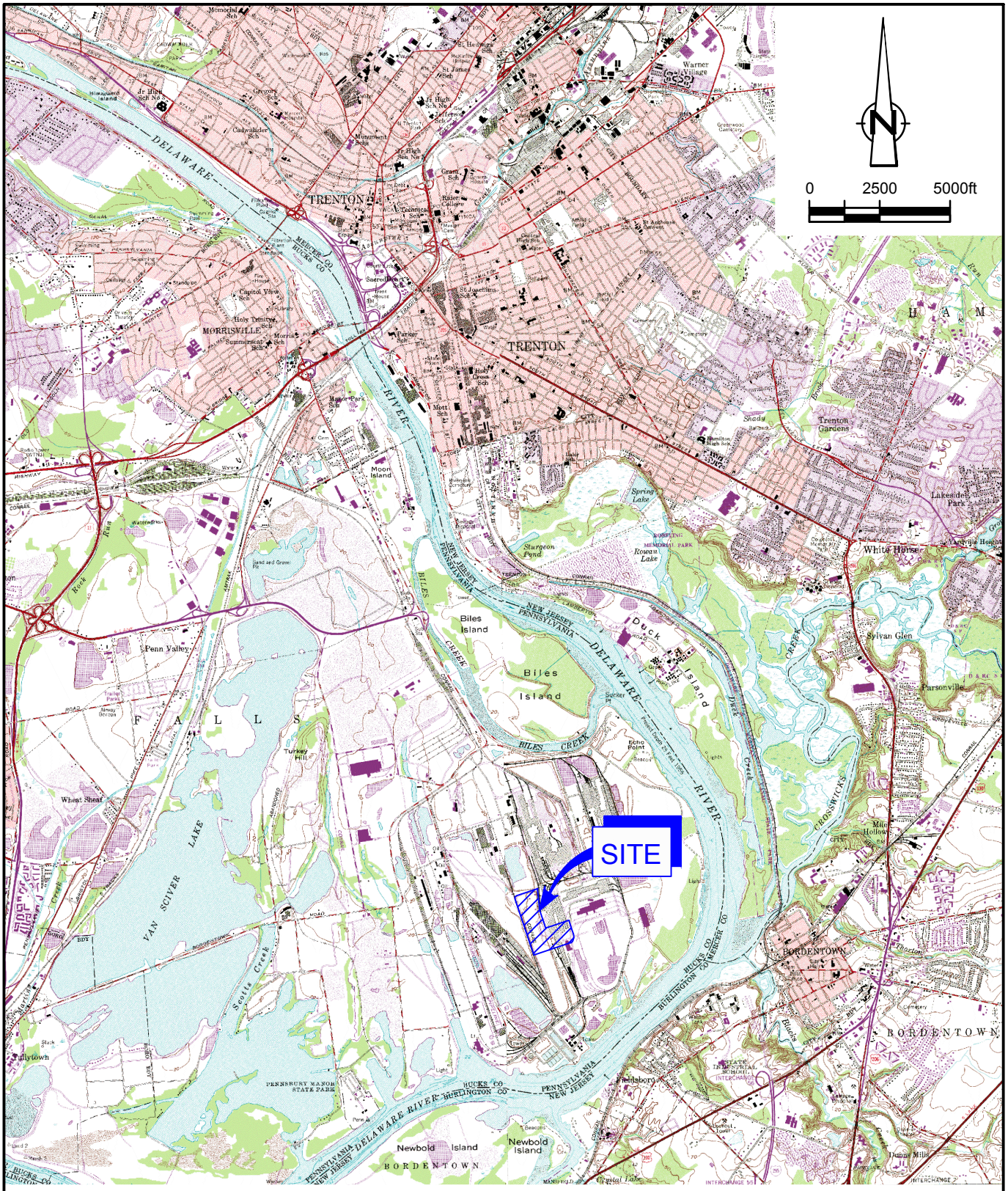
Preparer of Notice of Intent to Remediate

Name John Garges Title Consultant Project Manager

Phone Number (610) 321-1800 Email Address john.garges@ghd.com

Company Name GHD Services Inc. eFACTS Client ID Not applicable

Address (street, city, state, zip) 410 Eagleview Blvd., Suite 110, Exton PA 19341



SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA
PHOTOREVISED 1981.

figure 1.2

SITE LOCATION
52-ACRE PARCEL
U. S. STEEL
Fairless Hills, PA

GHD

83101-00(011)GN-WA002 MAY 29, 2017

2610-FM-BECB0011 Rev. 12/2015

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

For DEP Use Only
PF #_____
Rem ID #_____

FINAL REPORT SUMMARY

The Final Report Summary (FRS) is a brief report consisting of set of data required in addition to the Act 2 Final Report. The summary is used in part as a reference to the Final Report Approval Letter which conveys liability relief to the remediator and other applicable persons. It is of value long after the remediation to be used by the public and Department in understanding key information about the site and remediation.

This use is increased by the fact that it will ultimately be merged into the Department's eFACTS system, which allows the public to have the ease of computer access to environmental information at sites. For more information, see www.ahs.dep.pa.gov/eFACTSWeb/default.aspx. Finally, the summary will be used by the Department to help to better assess the status and the level of success of the program. In the past, numbers of sites remediated has been tracked. With the inclusion of this summary information, progress can be tracked in many specific ways, including identification of individual chemical constituents, and the mass treated, removed or managed safely in place.

Identification

Property Name United States Steel Corporation - Keystone Industrial Port Complex (KIPC)

Property Descriptor 52-Acre Parcel, Keystone Industrial Port Complex (KIPC)

Address / Location

Address One Ben Fairless Drive

City Fairless Hills Zip Code 19030

Municipality(s) Falls Township County(ies) Bucks County

Latitude 40 º (deg). 9 ' (min) 3.76 " (sec) Longitude 74 º (deg). 44 ' (min) 44.11 " (sec)

Horizontal Collection Method Interpolation - Satellite

Horizontal Reference Datum NAD83 Reference Point Center of the Property

Property Specifics

Size of Property 52 Acres Number of Sites One

Combined acreage of sites 52 Acres

Remediation

Standards attained or special industrial area attainment. (Check all that apply. Can use multiple.)

☐ Background ☒ Statewide Health ☒ Site-Specific ☐ Special Industrial Area

Proposed future property use - scenario for which the attainment of Statewide Health standard is demonstrated

☐ Residential ☒ Non-residential

List of contaminants

Soils

Chemical Name	CAS Number	Mass Contaminant Treated or Removed (lbs.)	Mass Contaminant Managed on Site (lbs.)
See attached Table 1			

Groundwater

Chemical Name	CAS Number	Mass Contaminant Treated or Removed (lbs.)	Mass Contaminant Managed on Site (lbs.)
Not Applicable			

Remediation

Number of sampling rounds for groundwater attainment: N/A

Special Features

Non-use aquifer approval date: April 9, 1999

Area-wide background approval date: N/A

Amount of waste removed other than soil or groundwater (cubic yards): N/A

☐ **Municipal ordinance prohibiting groundwater use:**

Not Applicable

☒ **Post remediation care plan:**

No post-remediation care beyond the Environmental Covenant is proposed.

Other Programs

☐ Key Site

☐ Multi-site Agreement; Date: _____

☐ Enterprise Zone

☒ Keystone Opportunity Zone

Administrative

☐ Municipality request for public involvement plan

Deed notification

☒ Deed acknowledgment:

Nonresidential use.

☒ Environmental covenant:

By environmental covenant, the use of the property will be restricted to nonresidential purposes.

Cleanup cost ($): N/A

Jobs created/saved: 25 (see below)

Narrative: Provide property history and description, site characterization findings, site description, summary of remediation, summary of attainment demonstration, description of pathway elimination, engineering and institutional controls, and benefits of land reuse, when applicable.

The Site is approximately 52 acres. This is an area where former industrial operations occured. Approximately 9 acres of the land will be used for the installation of multimillion dollar air separation unit to produce value added products - oxygen, nitrogen and argon in liquid form, to support local and regional businesses, manufacturers and healthcare facilities. The facility will employ 25 people once operation and fully loaded.

To complement historical soil concentrations at 16 sampling locations, additional soil and sediment sampling on the Site. GHD collected soil samples on February 27, 2014, and sediment samples on September 9, 2016.
Four soil borings (BH 200 14 to BH 204 14) were advanced using a Geoprobe® rig. Locations were selected based on a review of historical operations and aerial photographs, as well as the locations of historical investigative samples, to provide representative coverage across the parcel. Each boring was advanced to the top of the water table. From each boring, two soil samples were collected. Soil samples were submitted to TestAmerica for chemical analysis. Soil samples were analyzed for Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Metals, Cyanide, and Polychlorinated Biphenyls (PCBs).

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Soil sampling at the Site resulted in concentrations of COCs below the applicable MSCs soil to groundwater criteria for non-use aquifers and the non-residential vapor intrusion screening values.

The KIPC Facility and the Site is currently zoned for Materials Processing and Manufacturing (MPM) use and the future use is nonresidential involving storage, manufacturing, and industrial uses.

Based on current Site conditions, the results for the remedial investigation, evaluation of potential receptors and exposure pathways, USS has demonstrated attainment with the SHS and SSS for Site COCs in soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2).

The Site has a Non-Use Aquifer Determination for groundwater approved by PADEP on April 9, 1999.

Remediator / Property Owner / Consultant. Complete the form below for *each* recipient obtaining a release of liability upon approval of the final report. Attach additional sheets as necessary.

Remediator

Contact Person/Title Michael H. Leon / Senior Environmental Engineer
eFACTS Client ID* _____

Relationship to Site Representative for Owner
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Client Type* _____

Phone Number (412)433-5900
Email Address mhleon@uss.com

Company Name United States Steel Corporation
EIN or Federal ID # _____

Street Address 1350 Penn Avenue, Suite 200

City Pittsburgh
State PA
Zip Code 15222

Property Owner

Contact Person/Title Michael H. Leon / Senior Environmental Engineer
eFACTS Client ID* _____

Relationship to Site Representative for Owner
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Client Type* _____

Phone Number (412)433-5900
Email Address mhleon@uss.com

Company Name United States Steel Corporation
EIN or Federal ID # _____

Street Address 1350 Penn Avenue, Suite 200

City Pittsburgh
State PA
Zip Code 15222

Consultant

Contact Person/Title John A. Garges / Project Manager
eFACTS Client ID* _____

Relationship to Site Consultant
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Client Type* _____

Phone Number (610) 321-1800 ext.13
Email Address john.garges@ghd.com

Company Name GHD
EIN or Federal ID # _____

Street Address 410 Eagleview Blvd., Suite 110

City Exton
State PA
Zip Code 19341

*Include eFACTS Client ID (if known) – "Client Types" below:

Association/Organization	Limited Liability Company	Partnership-General
Authority	Limited Liability Partnership	Partnership-Limited
County	Municipality	School District
Estate/Trust	Non-Pennsylvania Government	Sole Proprietorship
Federal Agency	Other (Non-Government)	State Agency
Individual	Pennsylvania Corporation	

Attachments: In addition to the data entered in this FRS, the Department requests scanned image(s) of a map view of the site indicating, at a minimum, the boundaries of the "site" relative to the locations of the adjacent property boundaries. The location of the site (as defined by Act 2) is that which will receive the liability relief conveyed by Act 2, Chapter 5. The maps may portray other features but should clearly show the Act 2 site boundaries. You may also attach other applicable image files or attachments. These files should be in Adobe Acrobat (*.pdf), GIF (*.gif) or JPEG file interchange format (*.jpg).

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
Volatile Organic Compounds	
1,1,1-Trichloroethane	71-55-6
1,1,2,2-Tetrachloroethane	79-34-5
1,1,2-Trichloroethane	79-00-5
1,1-Dichloroethane	75-34-3
1,1-Dichloroethene	75-35-4
1,2,4-Trichlorobenzene	120-82-1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8
1,2-Dibromoethane (Ethylene dibromide)	106-93-4
1,2-Dichlorobenzene	95-50-1
1,2-Dichloroethane	107-06-2
1,2-Dichloropropane	78-87-5
1,3-Dichlorobenzene	541-73-1
1,4-Dichlorobenzene	106-46-7
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3
2-Hexanone	591-78-6
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	108-10-1
Acetone	67-64-1
Benzene	71-43-2
Bromodichloromethane	75-27-4
Bromoform	75-25-2
Bromomethane (Methyl bromide)	74-83-9
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroethane	75-00-3
Chloroform (Trichloromethane)	67-66-3
Chloromethane (Methyl chloride)	74-87-3
cis-1,2-Dichloroethene	156-59-2
cis-1,3-Dichloropropene	10061-01-5
Cyclohexane	110-82-7
Dibromochloromethane	124-48-1
Dichlorodifluoromethane (CFC-12)	75-71-8
Ethylbenzene	100-41-4
Isopropyl benzene	98-82-8
Methyl acetate	79-20-9
Methyl cyclohexane	108-87-2
Methyl tert butyl ether (MTBE)	1634-04-4
Methylene chloride	75-09-2
Styrene	100-42-5
Tetrachloroethene	127-18-4
Toluene	108-88-3
trans-1,2-Dichloroethene	156-60-5
trans-1,3-Dichloropropene	10061-02-6
Trichloroethene	79-01-6
Trichlorofluoromethane (CFC-11)	75-69-4
Trifluorotrichloroethane (Freon 113)	76-13-1

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
Vinyl chloride	75-01-4
Xylenes (total)	1330-20-7
Semi-volatile Organic Compounds	
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) eth	108-60-1
2,4,5-Trichlorophenol	95-95-4
2,4,6-Trichlorophenol	88-06-2
2,4-Dichlorophenol	120-83-2
2,4-Dimethylphenol	105-67-9
2,4-Dinitrophenol	51-28-5
2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2
2-Chloronaphthalene	91-58-7
2-Chlorophenol	95-57-8
2-Methylnaphthalene	91-57-6
2-Methylphenol	95-48-7
2-Nitroaniline	88-74-4
2-Nitrophenol	88-75-5
3,3'-Dichlorobenzidine	91-94-1
3-Nitroaniline	99-09-2
4,6-Dinitro-2-methylphenol	534-52-1
4-Bromophenyl phenyl ether	101-55-3
4-Chloro-3-methylphenol	59-50-7
4-Chloroaniline	106-47-8
4-Chlorophenyl phenyl ether	7005-72-3
4-Methylphenol	106-44-5
4-Nitroaniline	100-01-6
4-Nitrophenol	100-02-7
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Acetophenone	98-86-2
Anthracene	120-12-7
Atrazine	1912-24-9
Benzaldehyde	100-52-7
Benzo(a)anthracene	56-55-3
Benzo(a)pyrene	50-32-8
Benzo(b)fluoranthene	205-99-2
Benzo(g,h,i)perylene	191-24-2
Benzo(k)fluoranthene	207-08-9
Biphenyl (1,1-Biphenyl)	92-52-4
bis(2-Chloroethoxy)methane	111-91-1
bis(2-Chloroethyl)ether	111-44-4
bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7
Butyl benzylphthalate (BBP)	85-68-7
Caprolactam	105-60-2
Carbazole	86-74-8
Chrysene	218-01-9

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
Dibenz(a,h)anthracene	53-70-3
Dibenzofuran	132-64-9
Diethyl phthalate	84-66-2
Dimethyl phthalate	131-11-3
Di-n-butylphthalate (DBP)	84-74-2
Di-n-octyl phthalate (DnOP)	117-84-0
Fluoranthene	206-44-0
Fluorene	86-73-7
Hexachlorobenzene	118-74-1
Hexachlorobutadiene	87-68-3
Hexachlorocyclopentadiene	77-47-4
Hexachloroethane	67-72-1
Indeno(1,2,3-cd)pyrene	193-39-5
Isophorone	78-59-1
Naphthalene	91-20-3
Nitrobenzene	98-95-3
N-Nitrosodi-n-propylamine	621-64-7
N-Nitrosodiphenylamine	86-30-6
Pentachlorophenol	87-86-5
Phenanthrene	85-01-8
Phenol	108-95-2
Pyrene	129-00-0
Metals	
Aluminum	7429-90-5T
Antimony	7440-36-0T
Arsenic	7440-38-2T
Barium	7440-39-3T
Beryllium	7440-41-7T
Cadmium	7440-43-9T
Calcium	7440-70-2T
Chromium	7440-47-3T
Cobalt	7440-48-4T
Copper	7440-50-8T
Iron	7439-89-6T
Lead	7439-92-1T
Magnesium	7439-95-4T
Manganese	7439-96-5T
Mercury	7439-97-6T
Nickel	7440-02-0T
Potassium	7440-09-7T
Selenium	7782-49-2T
Silver	7440-22-4T
Sodium	7440-23-5T
Thallium	7440-28-0T
Vanadium	7440-62-2T
Zinc	7440-66-6T

Table 1

List of Contaminants - Soil
U.S. Steel
52-Acre Parcel

Chemical Name	CAS Number
PCBs	
Aroclor-1016 (PCB-1016)	12674-11-2
Aroclor-1221 (PCB-1221)	11104-28-2
Aroclor-1232 (PCB-1232)	11141-16-5
Aroclor-1242 (PCB-1242)	53469-21-9
Aroclor-1248 (PCB-1248)	12672-29-6
Aroclor-1254 (PCB-1254)	11097-69-1
Aroclor-1260 (PCB-1260)	11096-82-5
Total PCBs	1336-36-3
General Chemistry	
Cyanide (total)	57-12-5T

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Peter Gray, Twp. Mgr.
Falls Township Municipal Bldg.
188 Lincoln Highway, Ste. 100
Fairless Hills, PA 19030

9590 9402 1947 6123 4889 51

7017 0660 0000 3185 9054

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

Helen Shetz

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☑ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
Mail
Mail Restricted Delivery
(over $500)

☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

Bucks County, SS.

GHD
410 EAGLEVIEW BLVD., SUITE 110
EXTON, PA 19341

6103211800
0007200316-01

Kristen Smith being duly affirmed according to law, deposes and says that he/she is the Legal Billing Co-ordinator of the COURIER TIMES INCORPORATED, Publisher of The Bucks County Courier Times, a newspaper of general circulation, published and having its place of business at Levittown, Bucks County, Pa; that said newspaper was established in 1910; that securely attached hereto is a facsimile of the printed notice which is exactly as printed and published in said newspaper on

February 28, 2018

and is a true copy thereof; and that this affiant is not interested in said subject matter of advertising; and all of the allegations in this statement as to the time, place and character of publication are true.

LEGAL BILLING CO-ORDINATOR

Affirmed and subscribed to me before me this 28th day of February 2018 A.D.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Ann Clark, Notary Public
Tullytown Boro, Bucks County
My Commission Expires April 30, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

NOTICE OF INTENT TO REMEDIATE, RISK ASSESSMENT, AND FINAL REPORT TO AN ENVIRONMENTAL STANDARD

Pursuant to the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. 4, No. 1995-2, notice is hereby given that United States Steel Corporation (US Steel) has submitted to the Pennsylvania Department of Environmental Protection (PADEP) a Notice of Intent to Remediate (NIR), Risk Assessment (RA), and a Final Report (FR) for a 52-Acre parcel Fairless Hills, Pennsylvania.

The NIR/RA/FR states that the parcel was used for operations that supported the former industrial operations. The current and anticipated future use of the site is commercial/industrial. US Steel has indicated that the remediation measures taken have attained compliance with the non-residential Statewide Health cleanup standard and Site Specific standard established under the Land Recycling and Environmental Remediation Standards Act.

U.S. Steel plans to use the site-specific standard at the site. The Act provides for a 30-day public comment period for site-specific standard remediations. The 30-day comment period is initiated with the publication of this notice. Until February 22, 2018, Falls Township may submit a request to U. S. Steel to be involved in the development of the remediation and reuse plans for the site. The Township may also submit a request to U. S. Steel during this 30-day comment period to develop and implement a public involvement plan. Copies of these requests will be submitted to the Department of Environmental Protection at 2 East Main Street, Norristown, PA, 19401-4915.

This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. #4, No. 2.

1t F 28 7200316

www.ghd.com