Current Conditions Report
Perth Amboy 1160, LLC
Perth Amboy, New Jersey

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Prepared for: Perth Amboy 1160, LLC.
1550 Des Peres Road, Suite 300 St.
Louis, Missouri 63131

Eport Phase II Urban Renewal, LLC
One Gatehall Drive, Suite 201
Parsippany, New Jersey 07054

Prepared by: First Environment, Inc.
10 Park Place
Building 1A, Suite 504
Butler, New Jersey 07405

FIRST ENVIRONMENT

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Executive Summary and Introduction

First Environment, Inc. (First Environment), on behalf of Perth Amboy 1160, LLC (Perth Amboy 1160) and Eport Phase II Urban Renewal, LLC (Bridge), has prepared this Current Conditions Report for the remediation of polychlorinated biphenyl (PCB) contaminated material for the property located at 1160 State Street, Perth Amboy, Middlesex County, New Jersey (the “Site”). The Site is designated as Block 430, Lots 1.02 and 1.03 on the Middlesex County tax map. Lot 1.02 portion of the Site is owned by (Bridge); Lot 1.03 portion of the Site is owned by Perth Amboy 1160. This report is based on the United States Environmental Protection Agency (USEPA) May 2017 Facility Approval Streamlining Toolbox (EPA530-F-17-002) Tool 4, TSCA Risk-Based PCB Cleanups Checklist to address the requirements of 40 CFR 761.61(c).

This Current Conditions Report is being submitted as per the recommendation stated in Section II.A of the Facility Approval Streamlining Toolbox, in order to expedite the review of the forthcoming Application for Risk Based Closure in accordance with 40 CFR 761.61(c). This report addresses the information presented in Sections III.B.1 (Executive Summary), III.B.2 (Site Description), III.B.3 (Description of PCB “Cleanup Site”), III.B.4 (Proposed Risk-Based PCB Cleanup Levels), and III.B.5 (Site Characterization and Data Gaps) in the Checklist in Section III of the Facility Approval Streamlining Toolbox.

Site Address

The Site is located in a commercial/industrial area at 1160 State Street, Perth Amboy, Middlesex County, New Jersey. The Site is designated as Block 430 Lots 1.02 and 1.03 on the Middlesex County tax map. The Site was previously designated as Block 428 Lot 1.04 and Block 430 Lots 1, 1.01, 2, 3, and 4. The Site subdivision was approved by Middlesex County in April 2018. A Site Location map has been provided as Figure 1; current parcel boundaries are depicted on Figure 2.

Owner and/or Operator Name and Contact Informationz

The Site is currently owned by Bridge and Perth Amboy 1160. The Lot 1.02 portion of the Site was purchased by Bridge from Perth Amboy 1160 on December 30, 2020. Perth Amboy 1160 retains ownership of the Lot 1.03 portion of the Site.

Owner (Lot 1.02): Contact:	Eport Phase II Urban Renewal, LLC Jeffrey J. Milanaik, Manager One Gatehall Drive, Suite 201 Parsippany, New Jersey 07054 Phone: (973)998-9890, Fax: (973)998-9889 Email: JMilanaik@BridgeIndustrial.com
Owner (Lot 1.03): Contact:	Perth Amboy 1160, LLC Thomas Roberts, Member; Michael Roberts, Member 1515 Des Peres Road, Suite 300 Saint Louis, Missouri 63131 Phone: (314)835-1515, Fax: (314)835-1616 Email: troberts@cdcco.com mroberts@cdcco.com

Consultant Name and Contact Information:

Consultant (Lot 1.02): Contact:	Excel Environmental Resources, Inc. Ronald A. Harwood, P.G., LSRP, Vice President 111 North Center Drive North Brunswick, New Jersey 08902 Phone: (732)545-9525, Fax: (732)545-9425 Email: rharwood@excelenv.com
Consultant (Lot 1.03): Contact:	First Environment, Inc. Thomas Bambrick, LSRP, Director 10 Park Place, Bldg. 1A, Suite 504 Butler, New Jersey 07405 Phone: (973) 334-0003, Fax: (973) 334-0928 Email: tcb@firstenvironment.com

Summary of PCB Impacts (Impacted Media and Maximum PCB Levels)

During 2010, remedial investigation activities identified PCB impacted material in eight areas of concern (AOCs) at the Site including: AOC D4-1: Parting Plant Rubble; AOC D4-2: Copper Tank House Basement; AOC D2-1: Slag Dump; AOC D2-2: NL Industries Baghouse Rubble Outside Southern Fence Line; AOC D2-3: Crushed Building Debris at the South Fence Line; AOC D4-5: Laboratory Building Rubble; AOC E1-1: Former Transformer Enclosure and Electrical Building; and AOC G2: Former Power House. A Self-Implementing Plan (SIP) for the remediation of PCB contamination was submitted to the USEPA on November 4, 2011. This plan was implemented in 2014 and involved the excavation and off-site disposal of PCB impacted material above 100 ppm and the relocation of PCB impacted material between 10 ppm and 100 ppm to an area to be designated as a Low Occupancy Area (LOA). Due to recent redevelopment plans for the property, however, a LOA is not suitable in its original proposed location. Therefore, in 2017 and 2018, additional delineation activities were conducted in AOC

D4-2: Copper Tank House Basement and AOC G2: Former Power House (which was the former proposed LOA). Analytical results revealed additional impacted material that exhibit PCB concentrations above 100 ppm.

The source of PCBs for each of these AOCs is unknown. PCB impacts are primarily associated with building rubble/fill from former Site buildings that have been demolished and used as backfill. Further details for each AOC are provided under The Sources of PCBs and Historic Operations section below. The impacted media is the fill material and the surrounding soils. To date, 449 sample locations represent current soil conditions with respect to PCBs. These samples were collected during site/remedial investigation activities conducted in 2006 and 2010, delineation activities performed in 2011 and 2013, post-excavation sampling in 2014, and further delineation activities performed in 2017/2018. The sample depths with detectable concentrations of PCBs above 1 ppm range from near surface to 9.0 feet below ground surface (bgs). A summary of the analytical results is provided on Table 1. The soil sample locations are illustrated on Figure 2.

Out of the 449 samples that were collected site-wide, 146 samples (approximately 30 percent of the samples) were determined to be either non-detect (ND) for PCBs or had PCB concentrations below the NJDEP non-residential direct contact soil remediation standard (NRDCSRS) of 1.0 ppm; 129 samples (approximately 29 percent of the samples) revealed concentrations of PCBs between 1.0 and 10 ppm; 151 samples (approximately 34 percent of the samples) revealed PCB concentrations between 10 ppm and 100 ppm; and 22 samples (approximately 5 percent of the samples) revealed PCB concentrations between 100 and 500 ppm. One sample was detected at a concentration above 500 ppm. Samples which revealed PCB concentrations greater than 100 ppm are located on the Lot 1.02 portion of the Site. All PCB samples located on the Lot 1.03 portion of the Site revealed concentrations below 100 ppm.

In order to assess the leachability of the PCBs identified in the soils, synthetic precipitation leaching procedure (SPLP) was utilized in accordance with the NJDEP “Development of Site-Specific Impact to Groundwater Soil Remediation Standards Using the Synthetic Precipitation Leaching Procedure” guidance document dated November 2013. A total of six soil samples were re-collected from within the 2017/2018 delineation area and submitted for SPLP analysis. Selected samples were of the highest contaminant concentrations and representative of the different characteristics of the donor material that would affect the mobility of any given contaminant into groundwater (e.g., pH, soil texture, composition of fill)." Total PCB concentrations for the six samples that were recollected range from 50 ppm to 250 ppm. The Total PCB leachate concentration was ND in each of the six soil samples that were submitted for SPLP analysis.

In order to evaluate potential groundwater impacts, comprehensive groundwater sampling was conducted in 2018 and 2019. PCB concentrations were not detected above the laboratory reporting limit (ND) for all wells sampled, with the exception of MW-23 and MW-12SR which revealed concentrations of PCBs below the NJDEP Groundwater Quality Standard (GWQS) of 0.5 ppb. These wells are both located along the eastern portion of the Site, along the Arthur Kill. A summary of the analytical results for groundwater is provided as Table 2. The monitoring well locations are illustrated on Figure 3.

Proposed Cleanup Summary

The Site is designated as a Brownfields site and is currently in the process of remediation for other non-PCB related AOCs that have been identified during remedial investigations. The final remedy for soil at the Site will include the establishment of institutional (Deed Notice) and engineering (capping) controls. It should be noted that the engineering controls will include a site-wide cap and a cutoff wall/permeable reactive cell (PRC) funnel gate system to address groundwater contamination and Classification Exception Area (CEA). An institutional control in the form of a Deed Notice will restrict the use of the property to commercial/industrial purposes (i.e., not residential). Current plans call for the Site to be redeveloped for industrial/commercial purposes only. Development plans for the Site include raising the elevation a minimum of four feet to a level above the FEMA flood hazard elevation and construction of an 800,000 square foot warehouse, a 237,000 square foot warehouse, and associated paved driveways and parking areas. A figure depicting redevelopment plans including the cutoff wall/PRC is provided as Figure 4.

In light of the planned remedial action and Site re-development plans, it is proposed that PCB material with concentrations of 500 ppm or less be allowed to remain in place on site. Samples which revealed PCB concentrations between100 ppm and 500 ppm and a single soil sample, DTP-100 (0.5-1.0) detected at a concentration of PCBs greater than 500 ppm, are located on the Lot 1.02 portion of the Site. All PCB samples located on the Lot 1.03 portion of the Site revealed concentrations below 100 ppm and will remain on Lot 1.03. In the unanticipated event that post-excavation sampling reveals PCB concentrations up to 500 ppm on Lot 1.03, Perth

Amboy 1160 will leave the PCB impacted material in place and address via capping and deed notice as described below. To support the proposed cleanup level of 500 ppm, a Pathway Analysis Report (PAR) has been prepared by ARM Group, Inc. and is provided as Appendix A.

The PCB material remaining on-site will be capped by a minimum of four feet of approved, non-PCB impacted alternative fill overlain by a minimum of six inches of pavement or concrete or two feet of certified clean fill (landscaped areas). As noted, the overall remedy for the Site will include the implementation of institutional (deed notice) and engineering (site-wide cap) controls. The deed restriction will be placed for all areas where PCB concentrations are greater than 1 ppm and will encompass the entire Site to address impacts from historic fill. The deed notice will include the requirement to maintain the cap in perpetuity. In accordance with 40 CFR § 761.61(a)(8)(i)(B), a certification that the deed notice has been recorded will be submitted by Perth Amboy 1160 and Bridge to the EPA Regional Administrator upon completion of the remedy.

All material exhibiting total PCB concentrations above 500 ppm will be excavated and disposed of off-site. PCBs were detected in one sample on Lot 1.02 at a concentration greater than 500 ppm. Accordingly, Bridge will be responsible for the excavation, disposal, and post-excavation sampling of the material represented by this sample. No other excavation or soil sampling is proposed for Lot 1.02. All PCB samples located on the Lot 1.03 portion of the Site revealed concentrations below 100 ppm, as such, no excavation or soil sampling is proposed for Lot 1.03. In the unanticipated event that post-excavation sampling reveals PCB concentrations greater than 500 ppm on Lot 1.03 or elsewhere on Lot 1.02, the PCB impacted material will be excavated and disposed of by Perth Amboy 1160 (if on Lot 1.03) or Bridge (if on Lot 1.02) as described below.

A single soil sample, DTP-100 (0.5-1.0) on Lot 1.02, detected a concentration of PCBs greater than 500 ppm. Soil sample DTP-100 (3.5-4.0) revealed PCB concentrations of 21 ppm. Accordingly, Bridge will address DTP-100 (0.5-1.0) by a 20-foot by 20-foot square excavation (400 square feet) with DTP-100 at the center. The excavation will extend to a depth of 4.0 feet bgs. A figure of the proposed excavation is provided as Figure 5.

All soils excavated for off-site disposal will be disposed of in a RCRA Sec. 3004 or 3006 permitted hazardous waste landfill or other approved PCB disposal facility. The transportation and disposal of the PCB contaminated soils will be tracked under hazardous waste manifest.

All equipment utilized in the remediation will be decontaminated in accordance with 40 CFR § 761.79, including swabbing surfaces that have contacted PCBs with acetone and a double wash/rinse as defined in subpart S. All on-site storage of PCB remediation waste will be in accordance with 40 CFR § 761.65(c)(9).

Following soil removal, post-excavation sampling will be conducted to characterize post-remediation conditions. Post-excavation sampling will be conducted in accordance with the NJDEP "Coordination of NJDEP and USEPA PCB Remediation Policies" dated March 3, 2011. The sampling frequency will be conducted as specified in the NJDEP Technical Guidance for Remedial Action Verification Sampling for Soil dated March 2015; in accordance with 40 CFR Part 761, Subpart O; and in accordance with the sampling protocol as specified in the approved 2011 SIP to document the effectiveness of the remedial action.

As noted previously, PCBs have not been identified in groundwater at concentrations above the NJDEP GWQS. In addition, the Impact to Groundwater pathway has been evaluated through SPLP sampling as discussed previously in this submission. Notwithstanding, it should be noted that site wide groundwater is being addressed via the cutoff wall/PRC funnel gate system that has been installed to address metals contamination in groundwater. Furthermore, a CEA will be established as an institutional control restricting any use of groundwater at the Site. The CEA will also serve as a Well Restriction Area (WRA). Groundwater monitoring in association with the groundwater system will be performed in perpetuity in accordance with a sampling schedule outlined in a pending Remedial Action Permit.

It is anticipated that the remedial action specified above will be initiated upon approval of this Risk-Based application by the USEPA. The Site will be subsequently developed as shown in Figure 4.

State Agency Interests

The Site is designated as a Brownfields site and is subject to the New Jersey Industrial Site Recovery Act (ISRA) and New Jersey Site Remediation Program (SRP PI No. 003619). Accordingly, Mr. Thomas Bambrick has been retained to provide Licensed Site Remediation Professional (LSRP) services under license No. 573505. A Preliminary Assessment and Site Investigation were conducted in 2007 which identified 155 AOCs. Remedial Investigation Reports (RIR) and Remedial Action Work Plans (RAWP) were submitted to NJDEP in 2010, 2011, and 2013. A RAWP Addendum was submitted to the NJDEP in February 2017. The Site is currently undergoing remediation in accordance with the 2013 RAWP and the 2017 RAWP Addendum to address non-PCB contamination associated with Site-wide fill, concrete building debris, a former cooling pond, Site groundwater, and sediments of the Arthur Kill. A Waterfront Development Permit, Freshwater Wetland General Permit #4, a Flood Hazard Area Individual Permit, and a Flood Hazard Area Verification were approved by NJDEP Division of Land Use Regulation for the above-referenced remediation and filling activities.

Site Description

Surrounding Land Uses

The Site is located in a commercial/ industrial area of Perth Amboy, Middlesex County, New Jersey and is bounded by State Street on the west, a petroleum bulk storage facility on the north, the Arthur Kill on the east, and a former industrial site on the south. A portion of the Site's southern property line is adjacent to Cranes Creek which is located on the adjacent property. Cranes Creek is a manmade channel which serves as a storm drain and discharge point for groundwater from surrounding properties as well as State Street. The location of the Site is illustrated on a portion of the United States Geologic Survey (USGS) 7.5 Minute Topographic Map (Perth Amboy Quadrangle) provided as Figure 1. A Site Vicinity Map has been provided as Figure 6.

Current and Planned Future Uses

The Site is currently developed with paved and gravel parking areas on the western portion of the property and paved or slag covered areas over the majority of the eastern portion of the Site. The Site's northeast corner is currently occupied by a marine construction company. No other operations currently exist on site. The Site was formerly leased to multiple tenants. The most recent operations include the storage of shipping containers, storage of trucks and warehousing, manufacturing of marine fenders, manufacturing and recycling of wooden pallets, marine construction services, marine spill response services, and security services.

Planned future uses for the Site include redevelopment for industrial and/or commercial purposes. Development plans of the Site include raising the elevation a minimum of four feet, and the construction of an 800,000 square foot warehouse, a 237,000 square foot warehouse, and associated paved drive and parking areas.

On-site Buildings

No buildings currently exist on site as all former buildings have been demolished in anticipation of site redevelopment.

Hydrogeology and Depth-to-Groundwater

The Site depth-to-groundwater has been measured generally from 5.0 to 10.0 feet bgs. At the eastern end of the Site, the groundwater surface elevation generally varies between 2 and 8 feet above mean sea level (msl) and is influenced by tidal effects at some locations. The groundwater surface rises toward the west to approximately 17 feet above msl along State Street. Based on contours previously prepared by First Environment and others, the groundwater flow is generally in the direction of Arthur Kill and Cranes Creek.

Proximity to Surface Water

The Site waterfront is approximately 1,000 feet long along the Arthur Kill, which generally flows north-south. Cranes Creek, located on the adjacent property along the southern portion of the Site, is approximately 2,500 feet long and generally flows west-east.

Stormwater Runoff and Any Collection System and Discharges to Surface Water and Other Areas

The Site generally drains to four distinct stormwater runoff outfalls from the property. A stormwater pipe is located at the southwest corner of the property and outlets to the municipal storm sewer system south of the property. This stormwater pipe conveys runoff from the western portion of the Site that formerly consisted of commercial buildings and paved areas. Post-redevelopment, it is expected that the area that drains to this discharge point will include lawn/landscaped areas and paved parking/access driving areas.

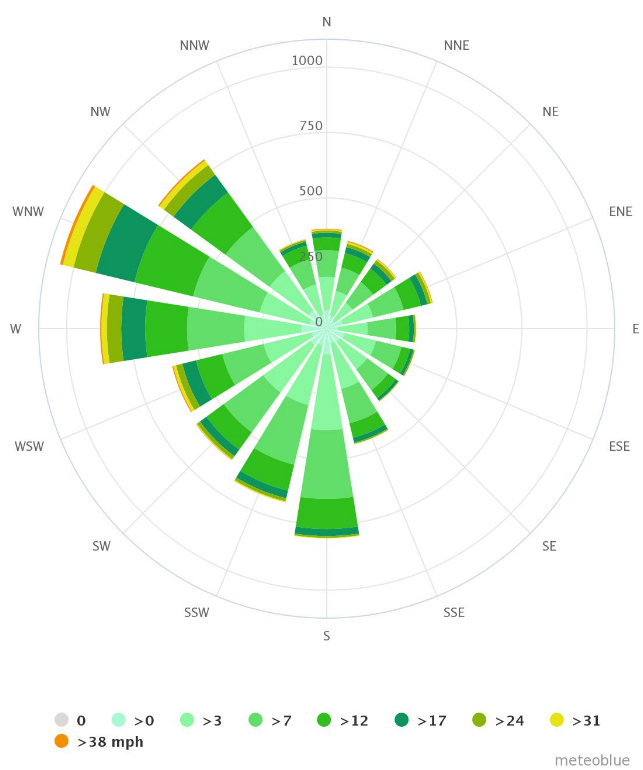
The second runoff outfall is a drainage channel located along the north property boundary that drains the entire length of the property and outlets to the Arthur Kill. The area that drains to this discharge point includes various paved areas. It is expected that post-development the drainage area to this discharge point will be limited to lawn/landscaped areas along the north property line.

The majority of the Site drains through a stormwater outfall to the Arthur Kill. Currently, this outfall drains the runoff from the eastern three-quarters of the Site. It is expected that following redevelopment, the majority of the runoff from the Site will be directed via drainage ditches and closed storm drain systems to an outlet to the Arthur Kill along with a stormwater management basin to help attenuate peak flows from the Site.

The fourth discharge point is runoff which drains the south of the property to the wetland area and Cranes Creek. The area draining to this point includes paved, gravel and compacted slag areas. Post-redevelopment, the area draining to Cranes Creek will be limited to include only lawn landscaped areas along the south property line.

Typical Weather Patterns, Climate, and Wind Rose Depicting Wind Direction and Speed

Perth Amboy is located in northern New Jersey and therefore experiences a fairly moderate climate with cold winters and warm, humid summers. According to the National Oceanic and Atmospheric Administration (NOAA, Newark data), average temperature ranges from a July average of 77°F (25°C) to 32°F (0°C) in January. The average annual precipitation is about 46 inches. Average precipitation is approximately 122 days per year and generally ranges from 8.6 days to 11.5 days per month with autumn (September through November) being the drier months. The average annual wind speed is 12.89 miles per hour (mph) and generally blows from a west-northwest direction. A wind rose is provided below.



Perth Amboy, NJ Wind Rose. Source: Meteoblue.com

Soil Types and Geological Features and Characteristics at the Site

The geology of the Site generally consists of a layer of site-wide fill, slag residuals from historical metals refining and other anthropogenic filling underlain by organic rich Holocene Sediments. A thin layer of glacial till is sometimes present. These surface materials are all underlain by the Woodbridge Clay formation. The Woodbridge Clay underlies the entire Site from near the ground surface on the west to depths of more than 30.0 feet bgs on the east.

Sources of PCBs and Historic Operations

Historical Maps indicated that the Site consisted of agricultural land and coastal marshland until 1858. Between 1858 and 1875, a clay pit was opened on the upland portion of the Site. The American Smelting and Refining Company (ASARCO) acquired the operations in 1901 and expanded them until operations ceased in 1976. Between 1981and 1991, the Site was owned by Neuburne Brown until there was a rescission of sale and ASARCO regained ownership. The property was purchased out of bankruptcy court by Perth Amboy 1160 in September 2009.

Historical operations at the ASARCO facility included the reduction of non-ferrous metal ore to their metallic form. From 1981 to near present day, the Site has been leased to and operated by various tenants. Most recent operations include the storage of shipping containers, storage of trucks and warehousing, manufacturing of marine fenders, manufacturing and recycling of wooden pallets, marine construction services, marine spill response services, and security services.

As discussed previously, the presence of PCBs was confirmed during RI and delineation activities that were conducted at the Site. PCB impacted material was identified in eight AOCs including AOC D4-1: Parting Plant Rubble; AOC D4-2: Copper Tank House Basement; AOC D2-1: Slag Dump; AOC D2-2: NL Industries Baghouse Rubble Outside Southern Fence Line; AOC D2-3: Crushed Building Debris at the South Fence Line; AOC D4-5: Laboratory Building Rubble; AOC E1-1: Former Transformer Enclosure and Electrical Building; and AOC G2: Former Power House. A summary of each AOC impacted by PCBs is provided below. The location of each AOC is provided on Figure 7.

AOC D2-1: Slag Dump

The southeast corner of the Site was designated as the Slag Dump by ASARCO from as early as 1919. This area was leveled between 1940 and 1951, with the surplus slag being relocated to the south side of Cranes Creek. At the same time, Cranes Creek became channelized and straightened. The former slag dump was then used for the construction of oil bulk storage tanks, the brick storage shed, and the salvage building. Open areas were used for yard storage on the graded slag surface. The slag dump occupied approximately 5.3 acres.

This AOC was investigated concurrently with AOC D4-8 (site-wide fill). One test pit was advanced for every acre of the fill material (six test pits total: K4-TP1, L4-TP1, L5-TP1, M4-TP1, N3-TP1, and N4-TP1). One sample was collected at each location at a depth corresponding to the former plant surface and was analyzed for target analyte list (TAL) metals, semi-volatile organic compounds (SVOCs) plus a forward library search for 15 tentatively identified compounds (SVOC+15), volatile organic compounds (VOCs) plus a forward library search for 10 tentatively identified compounds (VOC +10), and PCBs analyses.

The analytical results of the slag fill material revealed concentrations of PCBs (Aroclor-1254) above the NJDEP impact to groundwater soil screening levels (IGWSSL) of 0.2 ppm. Only N3-TP1 exceeded the PCB NRDCSRS of 1 ppm, with a concentration of 7 ppm. Analytical results also revealed concentrations of several metals and SVOCs above the IGWSSL and/or NRDCSRS.

Only one sample (N3-TP1) collected from this AOC revealed a concentration of PCBs above 1 ppm. This is believed to be a result of a discharge from a transformer that was previously stored in this area. Therefore, in accordance with the USEPA approved 2011 SIP, no excavation, additional sampling or use restrictions were implemented for this AOC. A site-wide cap will be installed that meets the requirements set forth in 40 CFR Part 761.61(a)(7).

AOC D2-2: NL Industries Baghouse Rubble Outside Southern Fence Line

Between 1980 and 1990, during the ownership by Neuburne Brown, a large pile of baghouse demolition debris was placed outside the ASARCO fence line and adjacent to the NL right-of-way. The baghouse rubble consists of large pieces of concrete, bricks, rebar, steel beams, and used filter bags. Dutch Boy paint pigment containers were identified in this debris by JMZ Geology (JMZ), confirming the origin was from the NL site. The area occupies approximately 22,000 square feet.

During previous RI activities, three test pits were advanced through the fill material. Two samples were collected from each test pit to characterize the nature of the fill material and to delineate native soils. The soil samples were analyzed for TAL Metals, SVOC+15, VOC+10, and PCBs. During the completion of the third test pit (O4-TP1), a paint can stockpile was encountered beneath the building rubble.

The soil analytical results from the samples collected from the building rubble revealed concentrations of PCBs above the IGWSSL of 0.2 ppm. Only N4-TP3 (0 to 0.5 feet) exceeded the PCB NRDCSRS of 1 ppm, with a concentration of 15 ppm. Analytical results also revealed concentrations of several metals and SVOCs above IGWSSL and NRDCSRS.

The debris at this location, where concentrations of PCBs exceeded 1.0 ppm but were less than 100 ppm, were crushed and used as backfill within the Copper Tank House Basement and Former Power House excavation areas in accordance with the approved 2011 SIP during the 2014 remediation activities. One post-excavation sample location from this AOC (PEX-121W) exhibited concentrations of PCBs above 100 ppm; therefore, additional materials were excavated for off-site disposal. The analytical results for the final post-excavation samples collected revealed PCB concentrations ranging from 0.1 ppm to 4.4 ppm. A surface cap will be installed where residual concentrations of PCBs exceed 1 ppm. The presence of paint cans identified at this AOC was addressed via excavation and off-site disposal and is the subject of a NJDEP-approved Remedial Action Work Plan (RAWP). The final area excavated is depicted on Figure 7. A summary of the post-excavation sample analytical results is included in Table 1.

AOC D2-3: Crushed Building Debris at the South Fence Line

At the close of plant demolition in the 1990s, excess crushed building debris from various former buildings was stockpiled along the southern property boundary for future beneficial reuse.

This material was previously sampled at 10 locations (DPS-1 through DPS-10) by JMZ for characterization and eventual on-site reuse. The crushed building debris was sampled by JMZ on June 16, 2006 for Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP SVOCs, PCBs, priority pollutant (PP) metals, TCLP metals, TCLP herbicides, TCLP pesticides, and total petroleum hydrocarbons (TPHC).

PCBs were detected in nine of the samples above the IGWSSL of 0.2 ppm. Six of the locations exceeded the NRDCSRS of 1.0 ppm. Only two locations exceeded 10 ppm, with the highest concentration of 52 ppm detected in sample DPS-9. Analytical results also revealed concentrations of several metals above the IGWSSL and NRDCSRS. Only two sample locations (DPS-9 and DPS-10) exhibited PCBs at a concentration above 10 ppm. As such, the pile of crushed building debris that these samples were collected from was segregated and relocated for use as backfill within AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House. The remaining material from AOC D2-3, where PCB concentrations were below 10 ppm, has been used for backfill material elsewhere on-site with the provision that a surface cap will be installed where residual concentrations of PCBs exceed 1 ppm.

AOC D4-1: Parting Plant Building Rubble

The Parting Plant had occupied the same location from 1898 to 1976 for precious metals recovery. During plant shutdown, the Parting Plant was demolished and the rubble was placed into the southeast portion of the former Cooling Pond. This rubble was subsequently covered with clean soil by Bridgeview Management in the 1990s and planted with grass and trees.

The Parting Plant rubble area occupies approximately 24,000 square feet. During 2010 RI activities, four soil borings (D3-F1, E3-3, E3-4, and E4-1) were advanced through the rubble. Two samples were collected from each boring to vertically delineate the extent of fill material for target analyte list/target compound list with a forward library search of 30 compounds (TAL/TCL+30). The fill material generally consisted of building debris mixed with medium- to fine-grained sand with small gravel.

The analytical results for the eight samples of the Parting Plant rubble material revealed PCBs in four of the samples at concentrations ranging from 1.5 to 260 ppm. Only two samples exceeded 10 ppm for total PCBs. PCBs were not detected above the IGWSSLS of 0.2 ppm in the samples collected from the native soil immediately underlying the fill material. Native soils were generally encountered between 9.0 and 14.0 feet bgs.

During the 2014 remedial activities, the soils that exhibited concentrations of PCBs above 100 ppm were excavated for off-site disposal. The soils that exhibited PCB concentrations above 10 ppm but below 100 ppm, were excavated and used as backfill material within AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House. The analytical results for the final post-excavation samples collected revealed PCB concentrations ranging from 0.063 to 8.0 ppm. The final area excavated is depicted on Figure 7. A summary of the post-excavation sample analytical results is included in Table 1.

AOC D4-2: Copper Tank House Basement

The 4.5-acre Copper Tank House was formerly evaluated for rehabilitation in the late 1990s. During the evaluation period, the basement of the building was filled with on-site debris and some structural fill brought from off-site sources in preparation for pouring a concrete floor at grade level. The evaluation showed the Copper Tank House did not meet modern architectural standards and it was subsequently demolished. The filled basement was then covered with crushed building debris and road millings.

During 2010 RI activities, eight test pits/trenches were completed in this area to evaluate the fill materials present. The fill material generally consisted of building debris mixed with medium- to fine-grained sand with small gravel. The fill material was visually evaluated and screened with a photoionization detector (PID). One sample per test pit was collected to characterize the fill, with the exception of G3-TP1which was sampled at two depths. Samples were biased towards accumulations of fill whose physical characteristics suggested material other than or inconsistent with site derived slag and building rubble or fill that has been affected by a secondary discharge. A total of nine samples were collected for TAL/TCL+30 analyses.

The analytical results for the nine samples of the Copper Tank House basement fill material revealed the presence of PCBs in all nine samples, ranging from 0.5 to 160 ppm. Analytical results also revealed concentrations of several metals and SVOCs above the IGWSSL and/or NRDCSRS. In 2013, additional samples were collected in the vicinity of this AOC, AOC D4-1: Parting Plant Rubble; AOC G2: Former Power House; and AOC D2-2: NL Industries Baghouse Rubble Outside Southern Fence Line in order to further define the PCB impacted areas as well as provide in situ end points for remediation activities. A total of 137 samples were collected and analyzed for PCBs resulting in concentrations range from ND to 520 ppm.

During 2014 remediation activities, the soils that exhibited concentrations of PCBs above 100 ppm were excavated for off-site disposal. The analytical results for the final post-excavation samples collected revealed PCB concentrations ranging from 0.85 to 98.0 ppm. Material from other AOCs where concentrations of PCBs were greater than 10 ppm but less than 100 ppm was used as backfill. The final area excavated is depicted on Figure 7. A summary of the post-excavation sample analytical results is included in Table 1.

AOC D4-5: Laboratory Building Rubble

In 1976, immediately after plant shutdown, ASARCO demolished the laboratory building because it was deteriorated. The building was pushed east, leveling the ground surface at the former building site and bladed to create a gentle slope to the east. The former laboratory site was leased to Koch Asphalt for redevelopment in 1980. The building rubble is buried under soil and gravel outside the former Koch fence area and is overgrown with trees and brush. Large slabs of concrete are visible on the southern embankment of this fill.

During 2010 RI activities, two test pits were installed in this area (D1-TP1 and D1-TP2) to evaluate the fill materials present and to inspect for possible indications of discharges associated with former laboratory operations. The fill material from each test pit was sampled. No indications of discharges or fill material inconsistent with site-derived materials was encountered. One sample was also collected from each test pit from the native soils beneath the fill material. All four samples were analyzed for TAL/TCL+30 analyses.

Concentrations of PCBs were detected in the two samples of the rubble, ranging from 1.5 to 1.7 ppm. PCBs were not detected above the IGWSSL of 0.2 ppm in the samples collected from the native soil immediately underlying the fill material. Native soils were encountered between 3.5 and 5.0 feet bgs. Analytical results also revealed concentrations of several metals and SVOCs above the IGWSSL and/or NRDCSRS.

The building rubble at this location, which exhibited PCB concentrations above 1 ppm but less than 10 ppm, was excavated, crushed, and put back into place. A surface cap will be installed across the entire area of this AOC occupied by the debris. No additional excavation, sampling, or use restrictions were proposed for this AOC.

AOC E1-1: Former Transformer Enclosure and Electrical Building

This AOC is located at the west end of the Site, to the west of the former alloy plant. It formerly consisted of a fenced enclosure that contained four transformers and a brick building. The exterior transformers are no longer present nor is the exterior transformer mounting pad. The former enclosure has been covered with crushed brick and graded.

During 2010 RI activities, a series of four shallow test pits (B3-TP1 through B3-TP4) were completed to remove the crushed brick cover and expose the original surface within the formerly enclosed area. A single soil sample was collected from each test pit for diesel range organics (DRO) and PCB analyses. Samples were biased towards areas exhibiting staining, discoloration, or odors indicative of possible contamination. In general, the fill material consisted of wood, brick, and concrete fragments, which extended to 3.0 feet bgs where a concrete pad was encountered. No significant breaches or cracks in the concrete pad were identified. Each sample was analyzed for DRO and PCBs.

The analytical results revealed concentrations of PCBs ranging from ND at the laboratory MDL in sample B3-TP4 (1.5 to 2.0 feet) to 2.6 ppm in sample B3-TP1 (1.0 to 1.5 feet).

Only one sample at this location exhibited concentrations of PCBs above 1 ppm but less than 10 ppm. A surface cap will therefore be installed over the fill material surrounding the former enclosure at this location. No additional sampling or use restrictions were proposed for this AOC.

AOC G2: Former Power House

The Former Powerhouse was located immediately adjacent to the south side of the Copper Tank House. The Powerhouse used steam to generate the DC electrical current necessary for electrolytic metal refining operations. DC current was used in both the Copper Tank House and the Parting Plant. AC power was purchased from Public Service Electric and Gas. Later site maps show a group of rectifiers located to the west of the powerhouse. The presence of the rectifiers indicates that power conversion was performed on site at that time.

The powerhouse contained a series of steam-powered generators which consisted of a belt-driven dynamo connected to a steam engine. Steam was originally generated in a coal-fired boiler house and pumped to the Powerhouse. This was later replaced (about 1937) by an oil-fired boiler system. In 1976, the Powerhouse was taken out-of-service and the building was slated for demolition.

During 2010 RI activities, four test pits (G3-TP2, G3-TP3, H3-TP1, and H3-TP2) were installed through the location of the Former Powerhouse, which occupied approximately 30,000 square feet. The purpose of the test pits was to evaluate the fill materials present and to inspect for possible indications of impacts associated with the Former Powerhouse operations. One sample was collected from each test pit for TAL/TCL+30 analyses to characterize the fill material.

Concentrations of PCBs were detected ranging from 0.054 ppm to 23 ppm. Analytical results also revealed concentrations of several metals and SVOCs above the IGWSSL and/or NRDCSRS.

In 2013, additional samples were collected in the vicinity of this AOC, AOC D4-1: Parting Plant Rubble; AOC D4-2: Copper Tank House Basement; and AOC D2-2: NL Industries Baghouse

Rubble Outside Southern Fence Line, in order to further define the PCB impacted areas as well as provide in situ end points for remediation activities. A total of 137 samples were collected and analyzed for PCBs resulting in concentrations range from ND to 520 ppm.

During 2014 remediation activities, soils were encountered that exhibited concentrations of total PCBs above 100 ppm and were therefore excavated for off-site disposal. The analytical results for the final post-excavation samples collected revealed PCB concentrations ranging from non-detect (ND) to 70 ppm. The final area excavated is depicted on Figure 7. A summary of the post-excavation sample analytical results is included in Table 1. Material from other AOCs where concentrations of PCBs were greater than 10 ppm but less than 100 ppm was used as backfill to the extent possible.

Other Contaminants Present

Other contaminants present include metals and SVOCs associated with site-wide fill and EPH associated with several specific AOCs. Concentrations of metals including mercury, aluminum, antimony, arsenic, beryllium, cadmium, copper, lead, manganese, nickel, selenium, silver, thallium, and zinc have been detected in the soil and groundwater above their respective IGWSSL and GWQS. Mercury, antimony, arsenic, and lead have also been detected above their respective NJDEP NRDCSRS. Several PAHs including benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene have been detected in the soil and groundwater above their respective NJDEP IGWSSL, NRDCSRS and GWQS.

EPH is also present in the soils in the vicinity of 35K AST Fuel Area-AOC A1-37 No. 6 Fuel Area-AOC D5, Total EPH concentration AOC A1-6: Three 10,528-gallon Light Oil Tanks in Tank House South of Lead Refinery/Parting Plant, AOC E5-5 Staining by Building 1, and AOC A1-36: Former Gas Producer House. Total EPH concentrations range from ND to 3,100 ppm.

The above-mentioned contaminates will remain on site and will be addressed via engineering (site-wide cap and groundwater containment system) and institutional controls (Deed Notice and CEA). The mobility of the PCBs is unlikely to be affected by these contaminates. Regardless, engineering and institutional controls which will be implemented for the Site will prohibit the migration of any PCB impacted material off site.

Current Site Environmental Conditions Including Extent of PCB Contamination On-Site and Beyond the Property Boundary

In 2017 and 2018, additional PCB delineation activities were completed in the vicinity of AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House (which was the former proposed LOA). A figure illustrating the current extent of PCB impacts is provided as Figure 2. A summary of the analytical results is provided as Table 1.

Details of previous site investigations and each AOC identified can be found in the 2010 RIR, 2010 RAWP, 2013 RAWP, and 2017 RAWP Addendum. Each of these reports has been submitted to the NJDEP and can be provided upon request. As discussed under Sources of PCBs and Historic Operations section above, the presence of PCBs was confirmed during RI and delineation activities that were conducted at the Site. A SIP for the remediation of PCB contamination was submitted to the USEPA on November 4, 2011 SIP. In 2013, additional samples were collected in the vicinity of this AOC; AOC D4-1: Parting Plant Rubble; AOC D4-1: Parting Plant Rubble; and AOC D2-2: NL Industries Baghouse Rubble Outside Southern Fence Line in order to further define the PCB impacted areas as well as provide in situ end points for remediation activities which were completed in 2014. In accordance with the 2011 SIP, materials impacted by PCB concentrations greater than 10 ppm up to 100 ppm were relocated to AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House (which was the former proposed LOA), while materials impacted by PCB concentrations greater than 100 ppm were disposed of off-site.

Other Site Conditions

Threatened or Endangered Species (Endangered Species Act)

Findings of the Natural Heritage Request indicate that the Site lies within the Landscape Project 3.1 Species Based Patches for Rare Wildlife Species or Wildlife Habitat for bird species. The species include the Black-crowned Night Heron and the Osprey, which are classified in the State Protection Status as State Threatened species and Peregrine Falcon, a State Endangered species. The remaining species, the Glossy Ibis, Little Blue Heron and Snowy Egret are classified as species of Special Concern. The proposed remediation measures (capping and groundwater containment system) propose to protect these species by preventing contact.

Historic or Culturally Sensitive Landmarks (National Historic Preservation Act)

Proposed activities will not adversely affect a property which is listed or is eligible for listing on the New Jersey or National Register of Historic Places.

Potentially Impacted Environments and Receptors

No additional environments or receptors have been identified.

Sensitive Environments

A freshwater wetlands inventory and assessment report was prepared for the Site by Eastern States Environmental Associates, Inc. in November of 2014 and was included in the permit application that was submitted to the NJDEP Division of Land Use and Regulation in February 2017. The Wetlands Report identified the mean high water/bulkhead of the Arthur Kill as state open water (SOW) and a small tidal wetland area of intermediate resource value along the southeast portion of the property.

As discussed under the Proximity to surface water section above, the Site waterfront is approximately 1,000 feet long along Arthur Kill, which generally flows north-south. Cranes Creek, located on the adjacent property along the southern portion of the Site, is approximately 2,500 feet long and generally flows west-east. Cranes Creek is a manmade channel which serves as a storm drain and discharge point for groundwater from surrounding properties.

Sensitive Receptors

The Site is located in an industrial/commercial area of Perth Amboy and will be redeveloped for industrial/commercial purposes only. As such, no sensitive receptors are in the vicinity of the Site.

Brief Summary of Comprehensive Site-Specific Conceptual Site Model and Data Quality Objectives

The Conceptual Site Model (CSM) describes possible migration of potential contaminants through the primary pathways in soil, water, and utilities. Finally, human and ecological exposure pathways are described using: (1) information on chemicals found and their associated migration pathways, (2) understanding of each chemical's fate and transport characteristics, and (3) current and anticipated future uses of the Site.

(1) PCBs have been identified in the fill/soils associated with eight AOCs on Site. Potential exposure routes include direct contact, ingestion, wind entrainment, leaching, stormwater overland flow and underground utility corridors.

(2) PCBs typically have a slow rate of adsorption and desorption between sedimentary particles and surrounding water. They tend to migrate very little from their initial release point and are not likely to leach from surface soils to subsurface soils and groundwater.

(3) The Site will be redeveloped for commercial/industrial purposes only. The remediation/redevelopment plan includes engineering controls (site-wide cap and groundwater containment/treatment system) and institutional controls (Deed Notice and CEA). These controls will address each of the potential exposure routes listed above by eliminating the potential for direct contact and the migration of PCBs.

The Data Quality Objectives (DQO) includes the need to verify the removal of PCBs with concentrations greater than 500 ppm. Accordingly, following any soil removal, post-excavation sampling will be conducted in accordance with the sampling protocol and frequency as specified in the approved 2011 SIP Description of PCB “Cleanup Site.”

As discussed, PCBs have been identified in eight AOCs at various locations on site and, as such, the “Cleanup Site” is essentially the property boundaries currently designated as Block 430 Lots 1.02 and 1.03 on the Middlesex County tax map. Materials exhibiting PCB concentrations above 10 ppm are generally limited to AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House which are centrally located on the Site and together comprise approximately 245,214 square feet.

There is no need for investigations or access beyond the property boundary to address PCB impacts associated with the Site.

Proposed Risk-Based PCB Cleanup Levels

Description and Justification of PCB Cleanup Goals to be Applied

PCB material revealing concentrations of 500 ppm or less is proposed to remain in place on-site. Soil samples which revealed PCB concentrations between 100 ppm and 500 ppm are located on the Lot 1.02 portion of the Site. All PCB samples located on the Lot 1.03 portion of the Site revealed concentrations below 100 ppm and will remain on Lot 1.03. In the unanticipated event that post-excavation sampling reveals PCB concentrations up to 500 ppm on Lot 1.03, Perth Amboy 1160 will leave the PCB impacted material in place and address via capping and deed notice as described below. PCBs have been identified in a total of eight AOCs; however, materials impacted by PCB concentrations greater than 10 ppm are generally limited to AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House which are centrally located on the Site on Lot 1.02. This area was originally proposed to be designated as a LOA; however, due to the central location and the proposed redevelopment plans, a LOA is not suitable at this location. Furthermore, NJDEP rules prohibit the relocation of PCB material to an area of the property where there are no PCBs impacts ("Like-on-Like" rule). As such, relocating the LOA to a more suitable area on site is not an option as this time.

A single soil sample, DTP-100 (0.5-1.0), on Lot 1.02 detected a concentration of PCBs greater than 500 ppm. Accordingly, Bridge will be responsible for the excavation, disposal, and post-excavation sampling of the material represented by this sample. No other excavation or soil sampling is proposed for Lot 1.02 or 1.03. In the unanticipated event that post-excavation sampling reveals PCB concentrations greater than 500 ppm on Lot 1.03 or elsewhere on Lot 1.02, the PCB impacted material will be excavated and disposed of by Perth Amboy 1160 (if on Lot 1.03) or Bridge (if on Lot 1.02) as described below and in the Application and Cleanup Plan section of this report.

Bridge will address soil sample DTP-100 (0.5-1.0) by a 20-foot by 20-foot square excavation (400 square feet) with DTP-100 at the center. The excavation will extend to a depth of 4.0 feet bgs, utilizing soil sample DTP-100 (3.5-4.0) as a post-excavation base sample. A figure of the proposed excavation is provided as Figure 5. Post-excavation sampling will be conducted as described in the Sampling and Analysis Plan (SAP) section of this report.

As part of the Site remediation/redevelopment plan, a site-wide cap will be installed consisting of a minimum of two feet of certified clean fill for landscaped areas, or six inches of asphalt for parking lots/roadways, or six inches of concrete for building slabs. Further, the grade of majority of the Site will be raised a minimum of four feet utilizing non-PCB impacted alternative fill as approved by the NJDEP. As such, areas impacted by total PCB concentrations greater than 10 ppm and less than 500 ppm will be capped with a minimum of four feet of alternative fill in addition to the cap components as described above. A groundwater containment system comprised of a cutoff wall and a PRC has been installed to address groundwater impacts associated with non-PCB contaminates (primarily metals). The groundwater containment system will also address any potential PCB impacts to groundwater. Finally, institutional controls will be implemented for the Site including a Deed Notice to ensure ongoing protectiveness of the site-wide cap and a groundwater CEA and associated groundwater monitoring which will continue in perpetuity. The Site will only be redeveloped and utilized for commercial and/or industrial purposes only.

In light of the planned remedial action and Site redevelopment plans, as described above, the proposed risk-based cleanup level is 500 ppm as remediation and development plans will not pose a risk to human health or the environment. Furthermore, based on discussions with the NJDEP, a maximum cleanup level of 500 ppm would be acceptable given the engineering and institutional controls as described above. To support the proposed cleanup level of 500 ppm, a Pathway Analysis Report (PAR) has been prepared by ARM Group Inc. and is provided as Appendix A.

Site Characterization and Data Gaps

Detailed Comprehensive Site-Specific Conceptual Site Model and Data Quality Objectives

The Conceptual Site Model (CSM) describes possible migration of potential contaminants through the primary pathways in soil, water, and utilities. Finally, human and ecological exposure pathways are described using: (1) information on chemicals found and their associated migration pathways, (2) understanding of each chemical's fate and transport characteristics, and (3) current and anticipated future uses of the Site.

Potential Sources and Migration Pathways

Sources of contamination include past industrial operations by ASARCO and others. Details of previous site investigations and each AOC identified can be found in the 2010 RIR, 2010 RAWP, 2013 RAWP, and 2017 RAWP Addendum. Each of these reports has been submitted to NJDEP and can be provided upon request. PCBs have been identified in the soils in eight AOCs and a description of each of these eight AOCs is discussed under the Sources of PCBs and Historic Operations section, above. As detailed in the PAR, a complete exposure pathway from the contaminated medium to the potential receptors must exist in order for exposure to humans or ecological receptors to occur. The following potential exposure routes and primary chemical migration pathways have been identified:

- Direct dermal contact with surface soil, subsurface soils, surface water, and groundwater.
- Ingestion of soil and subsurface soils.
- Wind entrainment of dust-size particles from surface soils to the atmosphere or to surface water.
- Leaching from soil to groundwater by infiltrating precipitation.
- Migration from groundwater to surface water through direct discharge.
- Transport of soil or sediment to surface water with overland flow of stormwater.
- Transport of contaminants throughout the site via underground utility corridors.

PCBs typically have a slow rate of adsorption and desorption between sedimentary particles and surrounding water. They tend to migrate very little from their initial release point and are not likely to leach from surface soils to subsurface soils and groundwater. As discussed in the Description and Justification of PCB Cleanup Goals to be Applied section above, engineering controls (site-wide cap and groundwater containment/treatment system) and institutional controls (Deed Notice and CEA) will be implemented as part of the Site remediation/redevelopment plan. These controls will address each of the potential exposure routes listed above by eliminating the potential for direct contact and the migration of PCBs.

Data Quality Objectives (DQO)

DQO have been developed in accordance with the EPA Guidance on Systematic Planning Using the Data Quality Objectives Process (February 2006). Seven steps as presented in the guidance document are as follows:

1. The problem: verification for removal of PCBs greater than 500 ppm.
2. Goals of the study: characterize post-excavation conditions.
3. Information inputs: collect and analyze post-excavation soil samples.
4. Boundaries of the study: excavations where PCBs greater than 500 ppm have been removed.
5. Analytic approach: samples will be collected in accordance with previously approved sampling frequency and analyzed for PCBs.
6. Performance or acceptance criteria: samples will be collected in accordance with the sampling protocol as specified in the approved 2011 SIP.
7. Plan for obtaining data: following any soil removal, post-excavation sampling will be conducted to characterize post-remediation conditions and verify that materials impacted by PCB concentrations greater than 500 ppm have been removed.

Sampling and Analysis Plan (SAP)

Justification for Sampling Approaches to be Followed

As previously stated, the objective of the Site, with respect to PCBs, is to leave in place materials impacted by PCBs at concentrations less than or equal to 500 ppm and removal of any material impacted by PCBs at concentrations greater than 500 ppm. PCBs were detected in one sample (sample DTP-100) on Lot 1.02 at a concentration greater than 500 ppm. Accordingly, Bridge will be responsible for the excavation, disposal, and post-excavation sampling of the material represented by this sample. No other excavation or soil sampling is proposed. Following the soil removal, post-excavation sampling will be conducted to characterize post-remediation conditions and verify that materials impacted by PCB concentrations greater than 500 ppm have been removed.

In order to achieve this goal, all sampling will be conducted in accordance with the NJDEP "Coordination of NJDEP and USEPA PCB Remediation Policies" dated March 3, 2011. The sampling frequency will be conducted as specified in the NJDEP Technical Guidance for

Remedial Action Verification Sampling for Soil dated March 2015; in accordance with 40 CFR Part 761, Subpart O; and in accordance with the sampling protocol as specified in the approved 2011 SIP to document the effectiveness of the remedial action. Specifically, for excavations less than 20 feet in perimeter, at least one bottom and one sidewall sample will be collected biased in the direction of surface runoff. For excavations 20 to 300 feet in perimeter, one sample will be collected from the bottom of each sidewall for every 30 linear feet of sidewall, and one sample from the excavation bottom for every 400 square feet of bottom area. The final number and locations of post-excavation soil samples will be determined in the field based on the final excavation dimensions and biased to the suspected location of greatest contamination.

Please note that in order to better comply with EPA PCB sampling requirements, the number of base samples is proposed to be increased from one sample per 900 square feet of excavation (as specified in the "NJDEP Technical Guidance for Remedial Action Verification Sampling for Soil" document) to one base sample per 400 square feet of excavation. This sampling frequency is consistent with previous SIP approvals including the original Perth Amboy 1160 LLC SIP; Veterans Field SIP; and ELT Harmony, LLC, SIP. This sampling frequency affords a feasible approach to effectively provide a complete verification sampling program.

Description of Sampling Methods for PCB Remediation Waste

Perth Amboy 1160 will be responsible for all subsurface sampling work on the Lot 1.03 portion of the Site. Bridge will be responsible for all subsurface sampling work on the Lot 1.02 portion of the Site. PCBs were detected in one sample on Lot 1.02 at a concentration greater than 500 ppm. Accordingly, Bridge will be responsible for the excavation, disposal, and post-excavation sampling of the material represented by this sample. No other excavation or soil sampling is proposed.

All subsurface work will be conducted in a manner that produces reliable information of subsurface conditions. A degreed hydrogeologist, geologist, engineer, or equivalent will supervise all soil sampling procedures. Sampling gloves will be worn during all sample collection activities.

Soil samples will be collected from discrete six-inch intervals (grab samples) directly from the bottom or sidewalls of the excavation/test pits and samples will be transferred into dedicated glass jars via pre-cleaned plastic scoops. No composite samples will be collected. All samples will be placed in a laboratory cooler chilled to 4ºC with a completed chain-of-custody. Samples will be analyzed by a NJDEP-certified laboratory and handled and analyzed in compliance with sample holding times, method detection limits, and precision and accuracy criteria for EPA Method 8082A analysis.

All equipment utilized in the remediation will be decontaminated in accordance with 40 CFR § 761.79, including swabbing surfaces that have contacted PCBs with acetone and a double wash/rinse as defined in subpart S. All on-site storage of PCB remediation waste will be in accordance with 40 CFR § 761.65(c)(9).

Cleanup Levels and Detection Limits

The proposed cleanup level for this Site is 500 ppm. Reporting limits will be at or below regulatory criteria or screening level (NJDEP IGWSSL and RDCSRS of 0.2 ppm), in accordance with NJDEP Data of Known Quality Protocols Technical Guidance document dated April 2014. This detection limit will allow for both the comparison of the analytical results for both the cleanup level as well as the standard regulatory criteria.

Description of Methods and Procedures

Laboratory Methods for Sample Extraction and Procedures for Cleanup of Sample Extracts

Samples will be analyzed by a NJDEP-certified laboratory and handled and analyzed in compliance with sample holding times, method detection limits, and precision and accuracy criteria for PCB EPA Method 8082A via extraction Method 3550B analysis.

Sample Collection Methods for Cleanup Verification Samples

Soil samples will be collected from discrete six-inch intervals (grab samples) directly from the bottom or sidewalls of the excavation. The samples will be placed in laboratory-supplied glassware and will have the following information recorded on it:

- Job Name and Location,
- Sample Location,
- Time and Date of Sampling,
- Depth of Sampling,
- Analysis,
- Boring Number.

The sample container will then be placed in a cooler and kept at 4°C until transported to the laboratory.

Types of Quality Control Samples That Will Be Used for the Analyses

Field Duplicates

Field Duplicate samples are collected to evaluate the field laboratory's performance by comparing two separate samples that were collected from the same location. The number of duplicates will, at a minimum, equal five percent of the samples collected for that media. For each duplicate, a pre-cleaned plastic scoop will be utilized to transfer a six-inch interval of soil from the acetate liner to a properly decontaminated stainless steel mixing bowl. The recovered soil will then be thoroughly mixed and placed into two separate glass jars. The duplicate sample will be labeled as "DUP" and will include the data of collection.

Field Blanks

Field Blanks will be collected in accordance with the 2005 NJDEP Field Sampling Procedures Manual and as a mechanism of control on sample equipment handling, preparation, storage, and shipment. Field Blanks will be collected for PCB analysis and will be performed at a rate of 10 percent of the total number of PCB samples collected throughout the remediation project, not to exceed one sample per day.

Field Blank water will be analyte free water provided by the analytical laboratory. The Field Blank water will be transported to the field in bottles that are of the same type as that which is used to contain the Field Blank sample. All Field Blank and sample containers will be transported to and from the field and handled in a manner that is identical, in every practical aspect, to the manner in which environmental samples and sample containers are handled.

Tables and Figures Summarizing the Number/Location of Samples

The final number and locations of post-excavation soil samples will be determined in the field based on the final excavation dimensions and biased to the suspected location of greatest contamination. Based on current Site data, one soil sample, DTP-100 (0.5-1.0) exhibited concentrations of total PCBs exceeding 500 ppm.

Description of PCB Aroclors That Will be Used for Site Characterization and/or Cleanup Verification

Total PCBs will be used for site characterization and cleanup verification. Specific Aroclors identified at the Site primarily consist of Aroclor-1254 with some Aroclor-1242 and fewer Aroclor-1260.

Description of Laboratory Analytical Data Validation Methods

Precision, accuracy, representativeness, comparability, completeness, and sensitivity of the laboratory data will be evaluated based upon adherence to sample holding times and the analysis of QA/QC samples (i.e., duplicates, spikes, and blanks). Data validation of non-CLP full data deliverables will be based upon method-specific QC criteria similar to the criteria of Section 8 of the USEPA 600 series methods provided in 40 CFR Part 136.

Vertical and Horizontal Extent of PCB Contamination

Soil samples used to characterize the Site with respect to PCBs were collected during 2006 preliminary assessment activities, 2010 RI activities, 2011 delineations, 2013 delineation/in-situ post-excavation samples, 2014 post-excavation samples, and 2017/2018 delineation samples as shown on Figure 2.

As discussed under the Sources of PCBs and Historic Operations section above, PCB impacted material was identified in eight AOCs during 2010 RI sampling activities. Remedial activities were conducted in accordance with the approved 2010 SIP which relocated materials impacted by PCB concentrations greater than 10 ppm up to 100 ppm to AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House (which was the former proposed LOA). As such, PCBs at concentrations above 10 ppm are primarily located at AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House while PCBs at concentrations of 10 ppm and below remain in place at the respective AOCs. Post-excavation samples were collected in accordance with the sampling protocol as specified in the approved 2012 SIP. Specifically, for excavations 20 to 300 feet in perimeter, one sample was collected from the bottom of each sidewall for every 30 linear feet of sidewall, and one sample from the excavation bottom for every 400 square feet of bottom area. Final post-excavation results revealed total PCB concentrations of 10 ppm or less.

In 2017 and 2018, additional delineation activities were conducted in the vicinity of AOC D4-2: Copper Tank House Basement and AOC G2: Former Power House to further characterize PCB impacts in this area in light of the proposed redevelopment plans. Soil samples were collected at nodes along a grid pattern established on 50-foot centers with additional step outs collected at 15 to 20 feet intervals. The investigated area covers approximately 245,214 square feet. The extent of PCB impacts was delineated to samples revealing a total PCB concentration of 10 ppm or less in all directions with the exception of several samples along the northern extent and a few samples along the southern extent (which were delineated up to 100 ppm). The vertical extent of the contamination varies from near surface (0.5 - 1.0 feet bgs) to 9.5 - 10.0 feet bgs.

In 2018, an additional 16 soil samples were collected at eight locations along the northern property boundary in order to assess the soil conditions for potential relocation of the PCB impacted material. Samples were spaced linearly at 200-foot spacing along the proposed access road as shown on Figure 2. Two samples were collected at each location at the surface (0.0-0.5 feet bgs) and 2.0-2.5 feet bgs. The sample results revealed concentrations of PCBs above the NJDEP IGWSSL/RDCSRS of 0.2 ppm in five samples at three locations (NAC-1, NAC-2 and NAC-7), four of which exceeded the NRDCSRs of 1.0 ppm. One sample (NAC-7 (0-0.5')) revealed concentrations of PCBs above 10 ppm.

A depiction of all sample locations that remain on site is provided as Figure 2 and a depiction of the 2017/2018 soil delineation is proved as Figure 8. A summary of the analytical results is provided as Table 1.

In order to assess the leachability of the PCBs identified in the soils, synthetic precipitation leaching procedure (SPLP) was utilized in accordance with "Development of Site-Specific Impact to Groundwater Soil Remediation Standards Using the Synthetic Precipitation Leaching Procedure" guidance document dated November 2013. A total of six soil samples were re-collected from within the 2017/2018 delineation area and submitted for SPLP analysis. Selected samples were of the highest contaminant concentrations and representative of the different characteristics of the donor material that would affect the mobility of any given contaminant into groundwater (e.g., pH, soil texture, composition of fill)." Total PCB concentrations for the six samples that were recollected range from 50 ppm to 250 ppm. The leachate concentration was ND in each of the six soil samples that were submitted for SPLP analysis.

In order to assess groundwater conditions with respect to PCBs, groundwater samples were collected in October 2018 and January 2019. All sampling activities were performed in accordance with the NJDEP Field Sampling Procedures Manual dated August 2005 and the NJDEP Groundwater Technical Guidance for Site Investigation, Remedial Investigation, and Remedial Action Performance Monitoring dated April 3, 2012. The groundwater samples were transferred into laboratory containers using dedicated Teflon bailers. All samples were placed into a cooler with ice and submitted to Hampton Clarke-Veritech (HCV) of Fairfield, New Jersey, a NJDEP-certified laboratory (No. 07010), under proper chain-of-custody procedures for analysis for PCBs.

Concentrations of PCBs were not detected in any of the samples with the exception of samples collected from MW-23, which revealed concentrations of PCB at 0.38 parts per billion (ppb) in January and MW-12SR which revealed a concentration of total PCBs at 0.46 ppb in October, and 0.42 ppb in January which is below the NJDEP Groundwater Quality Standard (GWQS) of 0.5 ppb. Monitoring well locations are provided on Figure 3. A summary of the groundwater analytical results is provided as Table 2.

Identification and Description of Data Gaps

Both the vertical and horizontal extent of the PCB contamination has been difficult to define as PCB impact seems to be associated with pockets of subsurface building rubble/fill material that has historically been utilized as fill at the Site. Generally, PCB concentrations have been delineated to total PCB concentrations of less than 10 ppm; however, in several areas it has been delineated to total PCB concentrations of less than 100 ppm. PCB impacts are primarily associated with former buildings that were historically used as fill on site; therefore, it is unlikely that PCB contamination has migrated off site. As previously discussed, engineering and institutional controls will be implemented at the Site which include a site-wide cap, groundwater cutoff/PRC system, Deed Notice, and CEA. In light of this information, continuing delineation beyond the proposed cleanup level of 500 ppm does not appear to be necessary. As such, no further action is proposed.

Conclusion

Based on the existing Site data including soil and groundwater sampling results; the proposed final remedy including the implementation of engineering controls (site-wide cap and groundwater cutoff wall/PRC) and institutional controls (Deed Notice and CEA); and the PAR, no significant data gaps have been identified that would require to be addressed prior to the submission of the Application for Risk Based Closure.

TABLES

TABLE 1
Compiled PCB Sample Results
Former ASARCO Facility
1160 State Street, Perth Amboy, NJ

SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	**PCBS**	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
DPS-1	745597	6/16/2006	Soil	*ppm*	**0.99**	ND	ND	ND	ND	ND	**0.99**	ND	ND	ND
DPS-2	745598	6/16/2006	Soil	*ppm*	**1.1**	ND	ND	ND	ND	ND	**1.1**	ND	ND	ND
DPS-3	745599	6/16/2006	Soil	*ppm*	**3.1**	ND	ND	ND	ND	ND	**3.1**	ND	ND	ND
DPS-4	745600	6/16/2006	Soil	*ppm*	**0.97**	ND	ND	ND	ND	ND	**0.97**	ND	ND	ND
DPS-5	745601	6/16/2006	Soil	*ppm*	**4.1**	ND	ND	ND	ND	ND	**4.1**	ND	ND	ND
DPS-6	745602	6/16/2006	Soil	*ppm*	**2.5**	ND	ND	ND	ND	ND	**2.5**	ND	ND	ND
DPS-7	745603	6/16/2006	Soil	*ppm*	**0.42**	ND	ND	ND	ND	ND	**0.42**	ND	ND	ND
DPS-8	745604	6/16/2006	Soil	*ppm*	0.17	ND	ND	ND	ND	ND	0.17	ND	ND	ND
A5-3 (2-2.5)	AC50749-003	4/2/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F5-1 (2.5-3')	AC50800-007	4/6/2010	Soil	*ppm*	0.048	ND	ND	ND	ND	ND	0.048	ND	ND	ND
G4-2 (2-2.5')	AC50800-009	4/6/2010	Soil	*ppm*	0.18	ND	ND	ND	ND	ND	0.18	ND	ND	ND
D3-F1 (5-5.5)	AC50822-007	4/7/2010	Soil	*ppm*	**0.44**	ND	ND	ND	ND	ND	**0.44**	ND	ND	ND
D3-F1 (9-9.5)	AC50822-006	4/7/2010	Soil	*ppm*	0.063	ND	ND	ND	ND	ND	0.063	ND	ND	ND
E3-3 (12-12.5)	AC50822-008	4/7/2010	Soil	*ppm*	**1.5**	ND	ND	ND	ND	ND	**1.5**	ND	ND	ND
E3-3 (14-14.5)	AC50822-009	4/7/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K3-2 (5-5.5)	AC50935-010	4/13/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K4-2(6.5-7)	AC51053-013	4/16/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B6-1 (2.0-2.5)	AC51072-010	4/18/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B6-1 (7.0-7.5)	AC51072-011	4/18/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I4-8 (6.5-7)	AC51142-006	4/21/2010	Soil	*ppm*	0.15	ND	ND	ND	ND	ND	0.15	ND	ND	ND
I4-9 (8.5-9)	AC51142-005	4/21/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B3-TP1 (1.0-1.5')	AC51524-001	5/7/2010	Soil	*ppm*	**2.6**	ND	ND	ND	ND	ND	**2.6**	ND	ND	ND
B3-TP2 (0.5-1.0')	AC51524-002	5/7/2010	Soil	*ppm*	**0.35**	ND	ND	ND	ND	ND	ND	ND	**0.35**	ND
B3-TP3 (0.5-1.0')	AC51524-003	5/7/2010	Soil	*ppm*	**0.22**	ND	ND	ND	ND	ND	**0.22**	ND	ND	ND
B3-TP4 (1.5-2.0')	AC51524-004	5/7/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D1-TP1 (1.5-2')	AC51594-004	5/11/2010	Soil	*ppm*	**1.5**	ND	ND	ND	ND	ND	**1.5**	ND	ND	ND
D1-TP1 (4.5-5')	AC51594-006	5/11/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D1-TP2 (1.5-2')	AC51594-009	5/11/2010	Soil	*ppm*	**1.7**	ND	ND	ND	ND	ND	**1.7**	ND	ND	ND
D1-TP2 (3.5-4')	AC51594-007	5/11/2010	Soil	*ppm*	0.13	ND	ND	ND	ND	ND	0.13	ND	ND	ND
M4-TP1 (0.5-1)	AC51759-001	5/18/2010	Soil	*ppm*	0.074	ND	ND	ND	ND	ND	0.074	ND	ND	ND
M4-TP1 (14-14.5)	AC51759-002	5/18/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N3-TP1 (0.5-1)	AC51759-005	5/18/2010	Soil	*ppm*	**7**	ND	ND	ND	ND	ND	**7**	ND	ND	ND
N4-TP1 (0.5-1)	AC51759-004	5/18/2010	Soil	*ppm*	0.092	ND	ND	ND	ND	ND	0.092	ND	ND	ND
N4-TP1 (9-9.5)	AC51759-003	5/18/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I4-TP2 (1.5-2.0')	AC51785-007	5/19/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G2-TP1(3-3.5')	AC51812-007	5/20/2010	Soil	*ppm*	**12**	ND	ND	ND	ND	ND	**12**	ND	ND	ND
G2-TP2(2-2.5')	AC51812-008	5/20/2010	Soil	*ppm*	**54**	ND	ND	ND	ND	ND	**54**	ND	ND	ND
H3-TP1(1-1.5')	AC51812-004	5/20/2010	Soil	*ppm*	**9.9**	ND	ND	ND	ND	ND	**9.9**	ND	ND	ND
H3-TP2(0.5-1')	AC51812-002	5/20/2010	Soil	*ppm*	**14**	ND	ND	ND	ND	ND	**14**	ND	ND	ND
H3-TP2(8.5-9')	AC51812-003	5/20/2010	Soil	*ppm*	0.054	ND	ND	ND	ND	ND	0.054	ND	ND	ND
J3-TP1(0.5-1')	AC51812-001	5/20/2010	Soil	*ppm*	**0.46**	ND	ND	ND	ND	ND	**0.46**	ND	ND	ND
I2-TP1(1.0-1.5')	AC51865-002	5/21/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G3-TP2 (0.5-1.0')	AC51876-003	5/24/2010	Soil	*ppm*	**23**	ND	ND	ND	ND	ND	**23**	ND	ND	ND
G3-TP3 (0.5-1.0')	AC51876-004	5/24/2010	Soil	*ppm*	**16**	ND	ND	ND	ND	ND	**16**	ND	ND	ND
F2-TP1 (2.5-3.0')	AC51900-002	5/25/2010	Soil	*ppm*	**7**	ND	ND	ND	ND	ND	**7**	ND	ND	ND
F2-TP2 (1-1.5')	AC51900-001	5/25/2010	Soil	*ppm*	**1.1**	ND	ND	ND	ND	ND	**1.1**	ND	ND	ND
F3-TP2 (2-2.5')	AC51950-008	5/26/2010	Soil	*ppm*	**97**	ND	ND	ND	ND	ND	**97**	ND	ND	ND
L5-TP1 (1-1.5')	AC51950-005	5/26/2010	Soil	*ppm*	**0.21**	ND	ND	ND	ND	ND	**0.21**	ND	ND	ND
N4-TP2 (0-0.5')	AC51950-001	5/26/2010	Soil	*ppm*	**0.4**	ND	ND	ND	ND	ND	**0.23**	ND	ND	0.17
N4-TP2 (12.5-13')	AC51950-002	5/26/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
O4-TP1 (0-0.5')	AC51950-003	5/26/2010	Soil	*ppm*	0.13	ND	ND	ND	ND	ND	ND	0.13	ND	ND
O4-TP1 (9.5-10')	AC51950-004	5/26/2010	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E2-TP2 (1-1.5')	AC51988-001	5/27/2010	Soil	*ppm*	**0.5**	ND	ND	ND	ND	ND	**0.5**	ND	ND	ND
I3-TP2 (0.5-1')	AC51988-002	5/27/2010	Soil	*ppm*	**0.84**	ND	ND	ND	ND	ND	**0.84**	ND	ND	ND
K4-TP1 (1-1.5')	AC52042-005	5/28/2010	Soil	*ppm*	**0.7**	ND	ND	ND	ND	ND	**0.7**	ND	ND	ND

TABLE 1
Compiled PCB Sample Results
Former ASARCO Facility
1160 State Street, Perth Amboy, NJ

SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	**PCBS**	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
F2-GP1(2-2.5')	AC57846-013	3/16/2011	Soil	*ppm*	**4.8**	ND	ND	ND	ND	ND	**4.8**	ND	ND	ND
F2-GP1(6-6.5')	AC57846-014	3/16/2011	Soil	*ppm*	**20**	ND	ND	ND	ND	ND	**20**	ND	ND	ND
F3-GP1(2.5-3')	AC57846-001	3/16/2011	Soil	*ppm*	**17**	ND	ND	ND	ND	ND	**17**	ND	ND	ND
F3-GP1(6-6.5')	AC57846-002	3/16/2011	Soil	*ppm*	**17.4**	ND	ND	ND	**6.4**	ND	**11**	ND	ND	ND
F3-GP2(2-2.5')	AC57846-003	3/16/2011	Soil	*ppm*	**2.6**	ND	ND	ND	ND	ND	**2.6**	ND	ND	ND
F3-GP2(6.5-7')	AC57846-004	3/16/2011	Soil	*ppm*	**32**	ND	ND	ND	ND	ND	**32**	ND	ND	ND
F3-GP3(6-6.5')	AC57846-010	3/16/2011	Soil	*ppm*	**39**	ND	ND	ND	ND	ND	**39**	ND	ND	ND
F3-GP4(4.5-5')	AC57846-011	3/16/2011	Soil	*ppm*	**0.5**	ND	ND	ND	0.19	ND	**0.31**	ND	ND	ND
F3-GP4(6.5-7')	AC57846-012	3/16/2011	Soil	*ppm*	**4.3**	ND	ND	ND	ND	ND	**4.3**	ND	ND	ND
G2-GP2(4.5-5')	AC57846-006	3/16/2011	Soil	*ppm*	**25**	ND	ND	ND	ND	ND	**25**	ND	ND	ND
G2-GP2(7-7.5')	AC57846-007	3/16/2011	Soil	*ppm*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G2-GP3(3-3.5')	AC57846-008	3/16/2011	Soil	*ppm*	**4.2**	ND	ND	ND	**0.4**	ND	**3.8**	ND	ND	ND
G2-GP3(9.5-10')	AC57846-009	3/16/2011	Soil	*ppm*	**36**	ND	ND	ND	ND	ND	**36**	ND	ND	ND
G3-GP1(2.5-3')	AC57846-015	3/16/2011	Soil	*ppm*	**71**	ND	ND	ND	ND	ND	**71**	ND	ND	ND
PE-1 (2-2.5)	AC72112-001	4/29/2013	Soil	ppm	**18**	ND	ND	ND	ND	ND	**18**	ND	ND	ND
PE-2 (2-2.5)	AC72112-002	04/29/2013	Soil	ppm	**5.2**	ND	ND	ND	ND	ND	**5.2**	ND	ND	ND
PE-23 (2-2.5)	AC72112-019	04/29/2013	Soil	ppm	**14**	ND	ND	ND	ND	ND	**14**	ND	ND	ND
PE-24 (2-2.5)	AC72112-020	04/29/2013	Soil	ppm	**38**	ND	ND	ND	ND	ND	**38**	ND	ND	ND
PE-3 (2-2.5)	AC72112-003	04/29/2013	Soil	ppm	**18**	ND	ND	ND	ND	ND	**18**	ND	ND	ND
PE-4 (2-2.5)	AC72112-004	4/29/2013	Soil	ppm	**47**	ND	ND	ND	ND	ND	**47**	ND	ND	ND
PE-5 (2-2.5)	AC72112-005	4/29/2013	Soil	ppm	**16**	ND	ND	ND	ND	ND	**16**	ND	ND	ND
PE-8 (4-4.5)	AC72112-008	4/29/2013	Soil	ppm	0.16	ND	ND	ND	ND	ND	0.16	ND	ND	ND
PE-9 (2.5-3)	AC72112-009	4/29/2013	Soil	ppm	**0.64**	ND	ND	ND	ND	ND	**0.64**	ND	ND	ND
PE-25 (2-2.5)	AC72135-001	04/30/2013	Soil	ppm	**8.9**	ND	ND	ND	ND	ND	**8.9**	ND	ND	ND
PE-30 (2-2.5)	AC72135-006	04/30/2013	Soil	ppm	**4**	ND	ND	ND	ND	ND	**4**	ND	ND	ND
PE-31 (2-2.5)	AC72135-007	04/30/2013	Soil	ppm	**4.5**	ND	ND	ND	ND	ND	**4.5**	ND	ND	ND
PE-32 (2-2.5)	AC72135-008	04/30/2013	Soil	ppm	**0.85**	ND	ND	ND	ND	ND	**0.85**	ND	ND	ND
PE-33 (2-2.5)	AC72135-009	04/30/2013	Soil	ppm	**5.3**	ND	ND	ND	ND	ND	**5.3**	ND	ND	ND
PE-34 (2-2.5)	AC72135-010	04/30/2013	Soil	ppm	**1.56**	ND	ND	ND	**0.46**	ND	**1.1**	ND	ND	ND
PE-35 (2-2.5)	AC72135-011	04/30/2013	Soil	ppm	**8.4**	ND	ND	ND	ND	ND	**8.4**	ND	ND	ND
PE-36 (2-2.5)	AC72135-012	04/30/2013	Soil	ppm	**3.19**	ND	ND	ND	**0.49**	ND	**2.7**	ND	ND	ND
PE-37 (2-2.5)	AC72135-013	04/30/2013	Soil	ppm	**2.13**	ND	ND	ND	**0.33**	ND	**1.8**	ND	ND	ND
PE-38 (2-2.5)	AC72135-014	4/30/2013	Soil	ppm	**10**	ND	ND	ND	**1.2**	ND	**8.8**	ND	ND	ND
PE-39 (2-2.5)	AC72135-015	4/30/2013	Soil	ppm	**6.2**	ND	ND	ND	ND	ND	**6.2**	ND	ND	ND
PE-40 (2-2.5)	AC72135-016	4/30/2013	Soil	ppm	**1.3**	ND	ND	ND	ND	ND	**1.3**	ND	ND	ND
PE-41 (2-2.5)	AC72135-017	4/30/2013	Soil	ppm	**1.1**	ND	ND	ND	ND	ND	**1.1**	ND	ND	ND
PE-42 (2-2.5)	AC72135-018	4/30/2013	Soil	ppm	**0.32**	ND	ND	ND	ND	ND	**0.32**	ND	ND	ND
PE-43 (1.5-2)	AC72135-019	4/30/2013	Soil	ppm	**21**	ND	ND	ND	ND	ND	**21**	ND	ND	ND
PE-44 (1.9-2.4)	AC72135-020	4/30/2013	Soil	ppm	**13**	ND	ND	ND	ND	ND	**13**	ND	ND	ND
PE-45 (0.5-1)	AC72192-001	05/01/2013	Soil	mg/Kg	**36**	ND	ND	ND	ND	ND	**36**	ND	ND	ND
PE-47 (0.5-1)	AC72192-003	05/01/2013	Soil	mg/Kg	**27**	ND	ND	ND	ND	ND	**27**	ND	ND	ND
PE-49 (0.5-1)	AC72192-005	05/01/2013	Soil	mg/Kg	**35**	ND	ND	ND	ND	ND	**35**	ND	ND	ND
PE-50 (0.5-1)	AC72192-006	05/01/2013	Soil	mg/Kg	0.12	ND	ND	ND	ND	ND	0.12	ND	ND	ND
PE-51 (0.5-1)	AC72192-007	05/01/2013	Soil	mg/Kg	**16**	ND	ND	ND	ND	ND	**16**	ND	ND	ND
PE-52 (0.5-1)	AC72192-008	05/01/2013	Soil	mg/Kg	**1.3**	ND	ND	ND	ND	ND	**1.3**	ND	ND	ND
PE-53 (0.5-1)	AC72192-009	05/01/2013	Soil	mg/Kg	**6.8**	ND	ND	ND	ND	ND	**6.8**	ND	ND	ND
PE-54 (0.5-1)	AC72192-010	05/01/2013	Soil	mg/Kg	**1.2**	ND	ND	ND	ND	ND	**1.2**	ND	ND	ND
PE-55 (0.5-1)	AC72192-011	05/01/2013	Soil	mg/Kg	**13**	ND	ND	ND	ND	ND	**13**	ND	ND	ND
PE-56 (2-2.5)	AC72192-012	05/01/2013	Soil	mg/Kg	**0.55**	ND	ND	ND	ND	ND	**0.55**	ND	ND	ND
PE-57 (2-2.5)	AC72192-013	05/01/2013	Soil	mg/Kg	**5.6**	ND	ND	ND	ND	ND	**5.6**	ND	ND	ND
PE-58 (2-2.5)	AC72192-014	05/01/2013	Soil	mg/Kg	**53**	ND	ND	ND	ND	ND	**53**	ND	ND	ND
PE-59 (2-2.5)	AC72192-015	05/01/2013	Soil	mg/Kg	**5.1**	ND	ND	ND	ND	ND	**5.1**	ND	ND	ND

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SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	**PCBS**	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
PE-60 (2-2.5)	AC72192-016	05/01/2013	Soil	mg/Kg	**1.4**	ND	ND	ND	ND	ND	**1.4**	ND	ND	ND
PE-61 (2-2.5)	AC72192-017	05/01/2013	Soil	mg/Kg	**7.7**	ND	ND	ND	ND	ND	**7.7**	ND	ND	ND
PE-62 (2-2.5)	AC72192-018	05/01/2013	Soil	mg/Kg	**42.4**	ND	ND	ND	**2.4**	ND	**40**	ND	ND	ND
PE-63(2-2.5)	AC72192-019	05/01/2013	Soil	mg/Kg	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
PE-64 (0.5-1)	AC72193-001	5/2/2013	Soil	ppm	**1.5**	ND	ND	ND	ND	ND	**1.5**	ND	ND	ND
PE-65 (0.5-1)	AC72193-002	5/2/2013	Soil	ppm	**20**	ND	ND	ND	ND	ND	**20**	ND	ND	ND
PE-66 (0.5-1)	AC72193-003	5/2/2013	Soil	ppm	**5**	ND	ND	ND	ND	ND	**5**	ND	ND	ND
PE-67 (0.5-1)	AC72193-004	5/2/2013	Soil	ppm	**22**	ND	ND	ND	ND	ND	**22**	ND	ND	ND
PE-68 (0.5-1)	AC72193-005	5/2/2013	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
PE-69 (0.5-1)	AC72193-006	5/2/2013	Soil	ppm	0.096	ND	ND	ND	ND	ND	0.096	ND	ND	ND
PE-70 (0.5-1)	AC72193-007	5/2/2013	Soil	ppm	**3.9**	ND	ND	ND	ND	ND	ND	**3.9**	ND	ND
PE-71 (0.5-1)	AC72193-008	5/2/2013	Soil	ppm	**20**	ND	ND	ND	ND	ND	**20**	ND	ND	ND
PE-72 (0.5-1)	AC72193-009	5/2/2013	Soil	ppm	**8.2**	ND	ND	ND	ND	ND	**8.2**	ND	ND	ND
PE-73 (0.5-1)	AC72193-010	5/2/2013	Soil	ppm	**0.86**	ND	ND	ND	ND	ND	**0.86**	ND	ND	ND
PE-74 (0.5-1)	AC72193-011	5/2/2013	Soil	ppm	**8.5**	ND	ND	ND	ND	ND	**8.5**	ND	ND	ND
PE-76 (0.5-1)	AC72193-013	5/2/2013	Soil	ppm	**69**	ND	ND	ND	ND	ND	**69**	ND	ND	ND
PE-77 (0.5-1)	AC72193-014	5/2/2013	Soil	ppm	**33**	ND	ND	ND	ND	ND	**33**	ND	ND	ND
PE-78 (0.5-1)	AC72193-015	5/2/2013	Soil	ppm	**37**	ND	ND	ND	ND	ND	**37**	ND	ND	ND
PE-79 (3-3.5)	AC72208-001	5/3/2013	Soil	ppm	**12**	ND	ND	ND	ND	ND	**12**	ND	ND	ND
PE-80 (4-4.5)	AC72208-002	5/3/2013	Soil	ppm	**0.91**	ND	ND	ND	ND	ND	**0.91**	ND	ND	ND
PE-81 (3.5-4)	AC72208-003	5/3/2013	Soil	ppm	**13**	ND	ND	ND	ND	ND	**13**	ND	ND	ND
PE-84 (3-3.5)	AC72208-006	5/3/2013	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
PE-85 (3-3.5)	AC72208-007	5/3/2013	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
PE-86 (3-3.5)	AC72208-008	5/3/2013	Soil	ppm	**12**	ND	ND	ND	ND	ND	**12**	ND	ND	ND
PE-87 (3-3.5)	AC72208-009	5/3/2013	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
PE-88 (3-3.5)	AC72208-010	5/3/2013	Soil	ppm	**41**	ND	ND	ND	ND	ND	**41**	ND	ND	ND
PE-100(4-4.5)	AC72239-012	05/06/2013	Soil	ppm	0.058	ND	ND	ND	ND	ND	0.058	ND	ND	ND
PE-101(4-4.5)	AC72239-013	05/06/2013	Soil	ppm	0.088	ND	ND	ND	ND	ND	0.088	ND	ND	ND
PE-102(4-4.5)	AC72239-014	05/06/2013	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PE-103(4-4.5)	AC72239-015	05/06/2013	Soil	ppm	**43**	ND	ND	ND	ND	ND	**43**	ND	ND	ND
PE-104(4-4.5)	AC72239-016	05/06/2013	Soil	ppm	**9.6**	ND	ND	ND	ND	ND	**9.6**	ND	ND	ND
PE-90 (4-4.5)	AC72239-002	5/6/2013	Soil	ppm	**13**	ND	ND	ND	ND	ND	**13**	ND	ND	ND
PE-91 (4-4.5)	AC72239-003	5/6/2013	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
PE-93 (4-4.5)	AC72239-005	5/6/2013	Soil	ppm	**84**	ND	ND	ND	ND	ND	**84**	ND	ND	ND
PE-96 (4-4.5)	AC72239-008	5/6/2013	Soil	ppm	**1.7**	ND	ND	ND	ND	ND	**1.7**	ND	ND	ND
PE-97 (4-4.5)	AC72239-009	5/6/2013	Soil	ppm	**14**	ND	ND	ND	ND	ND	**14**	ND	ND	ND
PE-98 (4-4.5)	AC72239-010	5/6/2013	Soil	ppm	**0.53**	ND	ND	ND	ND	ND	**0.53**	ND	ND	ND
PE-99 (4-4.5)	AC72239-011	5/6/2013	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PE-113(5.5-6)	AC72272-005	5/7/2013	Soil	ppm	**2.5**	ND	ND	ND	ND	ND	**2.5**	ND	ND	ND
PE-114(5.5-6)	AC72272-006	5/7/2013	Soil	ppm	**1**	ND	ND	ND	ND	ND	**1**	ND	ND	ND
PE-115(5.5-6)	AC72272-007	5/7/2013	Soil	ppm	**0.42**	ND	ND	ND	ND	ND	**0.42**	ND	ND	ND
PE-117(0-0.5)	AC72272-009	5/7/2013	Soil	ppm	**0.53**	ND	ND	ND	ND	ND	**0.53**	ND	ND	ND
PE-123(0-0.5)	AC72272-014	5/7/2013	Soil	ppm	**0.41**	ND	ND	ND	ND	ND	**0.41**	ND	ND	ND
PE-125(4.5-5)	AC72422-001	5/14/2013	Soil	ppm	**0.56**	ND	ND	ND	ND	ND	**0.56**	ND	ND	ND
PE-128(4-4.5)	AC72422-004	5/14/2013	Soil	ppm	**2.1**	ND	ND	ND	ND	ND	**2.1**	ND	ND	ND
PE-133(2-2.5)	AC72422-009	5/14/2013	Soil	ppm	**52**	ND	ND	ND	ND	ND	**52**	ND	ND	ND
PE-134(2-2.5)	AC72422-010	5/14/2013	Soil	ppm	**69**	ND	ND	ND	ND	ND	**69**	ND	ND	ND
PE-135(2-2.5)	AC72422-011	5/14/2013	Soil	ppm	**12**	ND	ND	ND	ND	ND	**12**	ND	ND	ND
PE-136(2-2.5)	AC72422-012	5/14/2013	Soil	ppm	**20**	ND	ND	ND	ND	ND	**20**	ND	ND	ND
PE-137(2-2.5)	AC72422-013	5/14/2013	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
PE-138(0.5-1)	AC72442-001	05/15/2013	Soil	ppm	**6.5**	ND	ND	ND	ND	ND	**6.5**	ND	ND	ND
PE-148(4-4.5)	AC72442-011	05/15/2013	Soil	ppm	0.08	ND	ND	ND	ND	ND	0.08	ND	ND	ND
PE-149(4-4.5)	AC72442-012	05/15/2013	Soil	ppm	**0.7**	ND	ND	ND	ND	ND	**0.7**	ND	ND	ND
PE-139 (0.5-1)	AC72442-002	5/16/2013	Soil	ppm	**5.6**	ND	ND	ND	ND	ND	**5.6**	ND	ND	ND

TABLE 1
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Former ASARCO Facility
1160 State Street, Perth Amboy, NJ

SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	PCBS	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
PE-140 (0.5-1)	AC72442-003	5/17/2013	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
PE-141 (0.5-1)	AC72442-004	5/18/2013	Soil	ppm	**81**	ND	ND	ND	ND	ND	**81**	ND	ND	ND
PE-142 (0.5-1)	AC72442-005	5/19/2013	Soil	ppm	**74**	ND	ND	ND	ND	ND	**74**	ND	ND	ND
PE-143 (0.5-1)	AC72442-006	5/20/2013	Soil	ppm	**14**	ND	ND	ND	ND	ND	**14**	ND	ND	ND
PE-144 (0.5-1)	AC72442-007	5/21/2013	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PE-146 (0.5-1)	AC72442-009	5/23/2013	Soil	ppm	**0.73**	ND	ND	ND	ND	ND	**0.73**	ND	ND	ND
PE-147 (0.5-1)	AC72442-010	5/24/2013	Soil	ppm	**0.85**	ND	ND	ND	ND	ND	**0.85**	ND	ND	ND
PE-150 (4-4.5)	AC72442-013	5/27/2013	Soil	ppm	**9.2**	ND	ND	ND	ND	ND	**9.2**	ND	ND	ND
PEX-145N	AC80297-002	8/13/2014	Soil	ppm	**46**	ND	ND	ND	ND	ND	**46**	ND	ND	ND
PEX-46N	AC80297-001	8/13/2014	Soil	ppm	**21**	ND	ND	ND	ND	ND	**21**	ND	ND	ND
PEX-48E	AC80297-003	8/13/2014	Soil	ppm	**1.9**	ND	ND	ND	ND	ND	**1.9**	ND	ND	ND
PEX-94N	AC80335-003	8/14/2014	Soil	ppm	**8.8**	ND	ND	ND	ND	ND	**8.8**	ND	ND	ND
PEX-94S	AC80335-004	8/14/2014	Soil	ppm	**20**	ND	ND	ND	ND	ND	**20**	ND	ND	ND
PEX-94W	AC80335-002	8/14/2014	Soil	ppm	**23.2**	ND	ND	ND	**7.2**	ND	**16**	ND	ND	ND
PEX-126N	AC80417-002	8/19/2014	Soil	ppm	**8**	ND	ND	ND	ND	ND	**8**	ND	ND	ND
PEX-12E	AC80417-001	8/21/2014	Soil	ppm	0.063	ND	ND	ND	ND	ND	0.063	ND	ND	ND
PEX-121E	AC80631-012	9/4/2014	Soil	ppm	**2.8**	ND	ND	ND	ND	ND	**2.8**	ND	ND	ND
PEX-121S	AC80631-010	9/4/2014	Soil	ppm	**4.4**	ND	ND	ND	ND	ND	**4.4**	ND	ND	ND
PEX-75E	AC80631-008	9/4/2014	Soil	ppm	**70**	ND	ND	ND	ND	**70**	ND	ND	ND	ND
PEX-75N	AC80631-006	9/4/2014	Soil	ppm	**3**	ND	ND	ND	ND	ND	**3**	ND	ND	ND
PEX-75S	AC80631-007	9/4/2014	Soil	ppm	**9.7**	ND	ND	ND	ND	ND	**9.7**	ND	ND	ND
PEX-75W	AC80631-009	9/4/2014	Soil	ppm	**31**	ND	ND	ND	ND	ND	**31**	ND	ND	ND
PEX-82E	AC80631-005	9/4/2014	Soil	ppm	**14**	ND	ND	ND	ND	ND	**14**	ND	ND	ND
PEX-82N	AC80631-003	9/4/2014	Soil	ppm	**36**	ND	ND	ND	ND	ND	**36**	ND	ND	ND
PEX-82S	AC80631-004	9/4/2014	Soil	ppm	**0.85**	ND	ND	ND	ND	ND	**0.85**	ND	ND	ND
PEX-83N	AC80631-001	9/4/2014	Soil	ppm	**28**	ND	ND	ND	ND	ND	**28**	ND	ND	ND
PEX-83S	AC80631-002	9/4/2014	Soil	ppm	**98**	ND	ND	ND	ND	ND	**98**	ND	ND	ND
PEX-118E	AC80777-004	9/10/2014	Soil	ppm	0.2	ND	ND	ND	ND	ND	0.2	ND	ND	ND
PEX-118S	AC80777-003	9/10/2014	Soil	ppm	0.1	ND	ND	ND	ND	ND	0.1	ND	ND	ND
PEX-26W	AC80777-005	9/10/2014	Soil	ppm	**8.9**	ND	ND	ND	ND	ND	**8.9**	ND	ND	ND
PEX-29S	AC80777-008	9/10/2014	Soil	ppm	**5.2**	ND	ND	ND	ND	ND	**5.2**	ND	ND	ND
PEX-10N	AC80804-002	9/12/2014	Soil	ppm	0.16	ND	ND	ND	ND	ND	0.16	ND	ND	ND
PEX-129S	AC80916-003	9/18/2014	Soil	ppm	**5.5**	ND	ND	ND	ND	ND	**5.5**	ND	ND	ND
PEX-130E	AC80916-004	9/18/2014	Soil	ppm	**1.9**	ND	ND	ND	ND	ND	**1.9**	ND	ND	ND
PEX-130S	AC80916-005	9/18/2014	Soil	ppm	**1.4**	ND	ND	ND	ND	ND	**1.4**	ND	ND	ND
PEX-121B-2	AC81026-003	9/24/2014	Soil	ppm	**0.29**	ND	ND	ND	ND	**0.29**	ND	ND	ND	ND
PEX-121W-3	AC81026-002	9/24/2014	Soil	ppm	**0.95**	ND	ND	ND	ND	ND	**0.95**	ND	ND	ND
PEX-118N-2	AC81132-003	9/29/2014	Soil	ppm	0.16	ND	ND	ND	ND	ND	0.16	ND	ND	ND
PEX-19E4	AC81132-001	9/29/2014	Soil	ppm	**0.26**	ND	ND	ND	ND	ND	**0.26**	ND	ND	ND
DTP-1 (2.5-3)	AD00216-001	9/25/2017	Soil	ppm	**0.44**	ND	ND	ND	ND	ND	**0.44**	ND	ND	ND
DTP-1 (4.5-5)	AD00216-002	9/25/2017	Soil	ppm	0.088	ND	ND	ND	ND	ND	0.088	ND	ND	ND
DTP-10 (3.5-4)	AD00216-017	9/25/2017	Soil	ppm	**9.2**	ND	ND	ND	**3.6**	ND	**5.6**	ND	ND	ND
DTP-11 (2.5-3)	AD00216-018	9/25/2017	Soil	ppm	**1.5**	ND	ND	ND	**0.37**	ND	**1.1**	ND	ND	ND
DTP-11 (6.5-7)	AD00216-019	9/25/2017	Soil	ppm	**3.2**	ND	ND	ND	ND	ND	**3.2**	ND	ND	ND
DTP-12 (2.5-3)	AD00216-020	9/25/2017	Soil	ppm	**0.67**	ND	ND	ND	**0.32**	ND	**0.25**	ND	0.1	ND
DTP-12 (7.5-8)	AD00216-021	9/25/2017	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
DTP-13 (2.5-3)	AD00216-022	9/25/2017	Soil	ppm	**3.1**	ND	ND	ND	ND	ND	**3.1**	ND	ND	ND
DTP-13 (6.5-7)	AD00216-023	9/25/2017	Soil	ppm	**8.5**	ND	ND	ND	**1.4**	ND	**7.1**	ND	ND	ND
DTP-14 (2.5-3)	AD00216-024	9/25/2017	Soil	ppm	**1.4**	ND	ND	ND	0.19	ND	**1.2**	ND	ND	ND
DTP-14 (7.5-8)	AD00216-025	9/25/2017	Soil	ppm	**6.2**	ND	ND	ND	ND	ND	**6.2**	ND	ND	ND
DTP-15 (2.5-3)	AD00216-026	9/25/2017	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
DTP-15 (4.5-5)	AD00216-027	9/25/2017	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
DTP-16 (1.5-2)	AD00216-028	9/25/2017	Soil	ppm	**62**	ND	ND	ND	ND	ND	**62**	ND	ND	ND
DTP-16 (4.5-5)	AD00216-029	9/25/2017	Soil	ppm	**34**	ND	ND	ND	ND	ND	**34**	ND	ND	ND
DTP-17 (1.5-2)	AD00216-030	9/25/2017	Soil	ppm	**39**	ND	ND	ND	ND	ND	**39**	ND	ND	ND
DTP-18 (2.5-3)	AD00216-031	9/25/2017	Soil	ppm	**38**	ND	ND	ND	ND	ND	**38**	ND	ND	ND
DTP-19 (2.5-3)	AD00216-032	9/25/2017	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
DTP-19 (8.5-9)	AD00216-033	9/25/2017	Soil	ppm	0.12	ND	ND	ND	ND	ND	0.12	ND	ND	ND

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SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	PCBS	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
DTP-2 (2.5-3)	AD00216-003	9/25/2017	Soil	ppm	0.039	ND	ND	ND	ND	ND	0.039	ND	ND	ND
DTP-2 (4.5-5)	AD00216-004	9/25/2017	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-20 (2.5-3)	AD00216-034	9/25/2017	Soil	ppm	150	ND	ND	ND	ND	ND	150	ND	ND	ND
DTP-3 (2.5-3)	AD00216-005	9/25/2017	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-3 (3.5-4)	AD00216-006	9/25/2017	Soil	ppm	66	ND	ND	ND	ND	ND	66	ND	ND	ND
DTP-4 (2.5-3)	AD00216-007	9/25/2017	Soil	ppm	3.6	ND	ND	ND	ND	ND	3.6	ND	ND	ND
DTP-4 (4.5-5)	AD00216-008	9/25/2017	Soil	ppm	0.12	ND	ND	ND	ND	ND	0.12	ND	ND	ND
DTP-5 (0.5-1)	AD00216-009	9/25/2017	Soil	ppm	330	ND	ND	ND	ND	ND	330	ND	ND	ND
DTP-6 (1.5-2)	AD00216-010	9/25/2017	Soil	ppm	130	ND	ND	ND	ND	ND	130	ND	ND	ND
DTP-7 (2.5-3)	AD00216-011	9/25/2017	Soil	ppm	210	ND	ND	ND	ND	ND	210	ND	ND	ND
DTP-7 (4.5-5)	AD00216-012	9/25/2017	Soil	ppm	110	ND	ND	ND	ND	ND	110	ND	ND	ND
DTP-8 (2.5-3)	AD00216-013	9/25/2017	Soil	ppm	6.9	ND	ND	ND	ND	ND	6.9	ND	ND	ND
DTP-8 (5.5-6)	AD00216-014	9/25/2017	Soil	ppm	48	ND	ND	ND	ND	ND	48	ND	ND	ND
DTP-9 (2.5-3)	AD00216-015	9/25/2017	Soil	ppm	0.76	ND	ND	ND	ND	ND	0.76	ND	ND	ND
DTP-9 (4-4.5)	AD00216-016	9/25/2017	Soil	ppm	2.9	ND	ND	ND	ND	ND	2.9	ND	ND	ND
DTP-21 (1.5-2)	AD00266-001	9/27/2017	Soil	ppm	9.1	ND	ND	ND	0.45	ND	8.7	ND	ND	ND
DTP-22 (2.5-3)	AD00266-002	9/27/2017	Soil	ppm	0.61	ND	ND	ND	ND	ND	0.61	ND	ND	ND
DTP-22 (8.5-9)	AD00266-003	9/27/2017	Soil	ppm	40	ND	ND	ND	ND	ND	40	ND	ND	ND
DTP-23 (2.5-3)	AD00266-004	9/27/2017	Soil	ppm	0.69	ND	ND	ND	ND	ND	0.69	ND	ND	ND
DTP-23 (9.5-10)	AD00266-005	9/27/2017	Soil	ppm	110	ND	ND	ND	ND	ND	110	ND	ND	ND
DTP-24 (2.5-3)	AD00266-006	9/27/2017	Soil	ppm	0.14	ND	ND	ND	ND	ND	0.14	ND	ND	ND
DTP-24 (6.5-7)	AD00266-007	9/27/2017	Soil	ppm	6.1	ND	ND	ND	ND	ND	6.1	ND	ND	ND
DTP-25 (1-1.5)	AD00266-008	9/27/2017	Soil	ppm	5.5	ND	ND	ND	ND	ND	5.5	ND	ND	ND
DTP-26 (2.5-3)	AD00266-012	9/27/2017	Soil	ppm	1.1	ND	ND	ND	ND	ND	1.1	ND	ND	ND
DTP-27 (0-0.5)	AD00266-009	9/27/2017	Soil	ppm	4.9	ND	ND	ND	0.73	ND	4.2	ND	ND	ND
DTP-28 (14.5-15)	AD00266-011	9/27/2017	Soil	ppm	0.077	ND	ND	ND	ND	ND	0.077	ND	ND	ND
DTP-28 (2.5-3)	AD00266-010	9/27/2017	Soil	ppm	2.9	ND	ND	ND	0.37	ND	2.5	ND	ND	ND
DTP-29 (2.5-3)	AD00309-001	9/28/2017	Soil	ppm	35	ND	ND	ND	ND	ND	35	ND	ND	ND
DTP-30 (14.5-15)	AD00309-003	9/28/2017	Soil	ppm	1.8	ND	ND	ND	0.63	ND	1.2	ND	ND	ND
DTP-30 (2.5-3)	AD00309-002	9/28/2017	Soil	ppm	2.7	ND	ND	ND	1.1	ND	1.6	ND	ND	ND
DTP-31 (2.5-3)	AD00309-004	9/28/2017	Soil	ppm	420	ND	ND	ND	ND	ND	420	ND	ND	ND
DTP-31 (8.5-9)	AD00309-005	9/28/2017	Soil	ppm	17	ND	ND	ND	4.9	ND	12	ND	ND	ND
DTP-32 (1.5-2)	AD00309-006	9/28/2017	Soil	ppm	22	ND	ND	ND	9.5	ND	13	ND	ND	ND
DTP-33 (1-1.5)	AD00317-001	9/29/2017	Soil	ppm	21	ND	ND	ND	7	ND	14	ND	ND	ND
DTP-34 (1.5-2)	AD00317-002	9/29/2017	Soil	ppm	32	ND	ND	ND	17	ND	15	ND	ND	ND
DTP-35 (0.5-1)	AD00317-003	9/29/2017	Soil	ppm	0.065	ND	ND	ND	ND	ND	0.065	ND	ND	ND
DTP-36 (0.5-1)	AD00317-004	9/29/2017	Soil	ppm	110	ND	ND	ND	ND	ND	110	ND	ND	ND
DTP-37 (1-1.5)	AD00317-005	9/29/2017	Soil	ppm	0.77	ND	ND	ND	ND	ND	0.77	ND	ND	ND
DTP-38 (1-1.5)	AD00317-006	9/29/2017	Soil	ppm	12	ND	ND	ND	ND	ND	12	ND	ND	ND
DTP-40 (2-2.5)	AD00317-007	9/29/2017	Soil	ppm	0.06	ND	ND	ND	ND	ND	0.06	ND	ND	ND
DTP-40 (6-6.5)	AD00317-008	9/29/2017	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-41 (2.5-3)	AD00317-009	9/29/2017	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-42 (3.5-4)	AD00317-010	9/29/2017	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-43 (1.5-2)	AD00358-001	10/2/2017	Soil	ppm	280	ND	ND	ND	ND	ND	280	ND	ND	ND
DTP-44 (3.5-4)	AD00358-002	10/2/2017	Soil	ppm	0.75	ND	ND	ND	ND	ND	0.75	ND	ND	ND
DTP-45 (1.5-2)	AD00358-003	10/2/2017	Soil	ppm	56	ND	ND	ND	ND	ND	56	ND	ND	ND
DTP-45 (5.5-6)	AD00358-004	10/2/2017	Soil	ppm	3.4	ND	ND	ND	ND	ND	3.4	ND	ND	ND
DTP-45 (7.5-8)	AD00358-005	10/2/2017	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-46 (1-1.5)	AD00358-006	10/2/2017	Soil	ppm	76	ND	ND	ND	ND	ND	76	ND	ND	ND
DTP-46 (2.5-3)	AD00358-007	10/2/2017	Soil	ppm	0.46	ND	ND	ND	ND	ND	0.46	ND	ND	ND
DTP-46 (7-7.5)	AD00358-008	10/2/2017	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-47 (0.5-1)	AD00358-009	10/2/2017	Soil	ppm	49	ND	ND	ND	15	ND	34	ND	ND	ND
DTP-48 (2-2.5)	AD00358-010	10/2/2017	Soil	ppm	210	ND	ND	ND	210	ND	ND	ND	ND	ND
DTP-49 (3-3.5)	AD00433-001	10/5/2017	Soil	ppm	0.13	ND	ND	ND	ND	ND	0.13	ND	ND	ND
DTP-50 (2.5-3)	AD00433-002	10/5/2017	Soil	ppm	41	ND	ND	ND	ND	ND	41	ND	ND	ND
DTP-50 (7.5-8)	AD00433-003	10/5/2017	Soil	ppm	91	ND	ND	ND	ND	ND	91	ND	ND	ND

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1160 State Street, Perth Amboy, NJ

SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	**PCBS**	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
DTP-51 (1-1.5)	AD00433-004	10/5/2017	Soil	ppm	**47**	ND	ND	ND	ND	ND	**47**	ND	ND	ND
DTP-52 (0.5-1)	AD00433-005	10/5/2017	Soil	ppm	**24**	ND	ND	ND	ND	ND	**24**	ND	ND	ND
DTP-53 (1-1.5)	AD00433-006	10/5/2017	Soil	ppm	**5.4**	ND	ND	ND	ND	ND	**5.4**	ND	ND	ND
DTP-54 (1.5-2)	AD00433-007	10/5/2017	Soil	ppm	**27**	ND	ND	ND	ND	ND	**27**	ND	ND	ND
DTP-55 (1-1.5)	AD00433-008	10/5/2017	Soil	ppm	**23**	ND	ND	ND	ND	ND	**23**	ND	ND	ND
DTP-56 (1-1.5)	AD00433-009	10/5/2017	Soil	ppm	**50**	ND	ND	ND	ND	ND	**50**	ND	ND	ND
DTP-57 (1.5-2)	AD00433-010	10/5/2017	Soil	ppm	**41**	ND	ND	ND	ND	ND	**41**	ND	ND	ND
DTP-58 (0.5-1)	AD00433-011	10/5/2017	Soil	ppm	**25**	ND	ND	ND	ND	ND	**25**	ND	ND	ND
DTP-59 (2.5-3)	AD00433-012	10/5/2017	Soil	ppm	**270**	ND	ND	ND	**150**	ND	**120**	ND	ND	ND
DTP-60 (1-1.5)	AD00433-013	10/5/2017	Soil	ppm	**71**	ND	ND	ND	ND	ND	**71**	ND	ND	ND
DTP-61 (0.5-1)	AD00433-014	10/5/2017	Soil	ppm	**40**	ND	ND	ND	ND	ND	**40**	ND	ND	ND
DTP-62 (1-1.5)	AD00433-015	10/5/2017	Soil	ppm	**55**	ND	ND	ND	ND	ND	**55**	ND	ND	ND
DTP-62 (3-3.5)	AD00433-016	10/5/2017	Soil	ppm	**1.8**	ND	ND	ND	ND	ND	**1.8**	ND	ND	ND
DTP-63 (2.5-3)	AD00459-001	10/6/2017	Soil	ppm	**130**	ND	ND	ND	ND	ND	**130**	ND	ND	ND
DTP-64 (2.5-3)	AD00459-002	10/6/2017	Soil	ppm	**19**	ND	ND	ND	ND	ND	**19**	ND	ND	ND
DTP-65 (3-3.5)	AD00459-003	10/6/2017	Soil	ppm	**21**	ND	ND	ND	ND	ND	**21**	ND	ND	ND
DTP-66 (2-2.5)	AD00459-004	10/6/2017	Soil	ppm	**1.5**	ND	ND	ND	ND	ND	**1.5**	ND	ND	ND
DTP-67 (1.5-2)	AD00459-005	10/6/2017	Soil	ppm	**10**	ND	ND	ND	ND	ND	**10**	ND	ND	ND
DTP-68 (3.5-4)	AD00459-006	10/6/2017	Soil	ppm	**6.8**	ND	ND	ND	ND	ND	**6.8**	ND	ND	ND
DTP-69 (1.5-2)	AD00459-007	10/6/2017	Soil	ppm	**180**	ND	ND	ND	ND	ND	**180**	ND	ND	ND
DTP-70 (0.5-1)	AD04480-001	5/30/2018	Soil	ppm	0.11	ND	ND	ND	ND	ND	0.11	ND	ND	ND
DTP-70 (3.5-4)	AD04480-002	5/30/2018	Soil	ppm	0.12	ND	ND	ND	ND	ND	0.12	ND	ND	ND
DTP-70 (8.5-9)	AD04480-003	5/30/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-71 (0.5-1)	AD04480-004	5/30/2018	Soil	ppm	**4.4**	ND	ND	ND	ND	ND	**4.4**	ND	ND	ND
DTP-72 (0.5-1)	AD04480-005	5/30/2018	Soil	ppm	**0.28**	ND	ND	ND	ND	ND	**0.28**	ND	ND	ND
DTP-72 (3.5-4)	AD04480-006	5/30/2018	Soil	ppm	**78**	ND	ND	ND	ND	ND	**78**	ND	ND	ND
DTP-73 (0.5-1)	AD04480-007	5/30/2018	Soil	ppm	**9**	ND	ND	ND	ND	ND	**9**	ND	ND	ND
DTP-74 (0.5-1)	AD04480-008	5/30/2018	Soil	ppm	**130**	ND	ND	ND	ND	ND	**130**	ND	ND	ND
DTP-75 (0.5-1)	AD04480-009	5/30/2018	Soil	ppm	0.18	ND	ND	ND	ND	ND	0.18	ND	ND	ND
DTP-75 (3.5-4)	AD04480-010	5/30/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-75 (8.5-9)	AD04480-011	5/30/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-76 (0.5-1)	AD04480-012	5/30/2018	Soil	ppm	**0.26**	ND	ND	ND	ND	ND	**0.26**	ND	ND	ND
DTP-76 (3.5-4)	AD04480-013	5/30/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-76 (8.5-9)	AD04480-014	5/30/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-77 (0.5-1)	AD04480-015	5/30/2018	Soil	ppm	**110**	ND	ND	ND	ND	ND	**110**	ND	ND	ND
DTP-77 (3.5-4)	AD04480-016	5/30/2018	Soil	ppm	**3.5**	ND	ND	ND	ND	ND	**3.5**	ND	ND	ND
DTP-78 (0.5-1)	AD04499-001	5/31/2018	Soil	ppm	0.062	ND	ND	ND	ND	ND	0.062	ND	ND	ND
DTP-78 (3.5-4)	AD04499-002	5/31/2018	Soil	ppm	**8.3**	ND	ND	ND	ND	ND	**8.3**	ND	ND	ND
DTP-79 (0.5-1)	AD04499-003	5/31/2018	Soil	ppm	0.098	ND	ND	ND	ND	ND	0.098	ND	ND	ND
DTP-79 (3.5-4)	AD04499-004	5/31/2018	Soil	ppm	**1.4**	ND	ND	ND	ND	ND	**1.4**	ND	ND	ND
DTP-80 (0.5-1)	AD04499-005	5/31/2018	Soil	ppm	**0.56**	ND	ND	ND	ND	ND	**0.56**	ND	ND	ND
DTP-80 (3.5-4)	AD04499-006	5/31/2018	Soil	ppm	**80**	ND	ND	ND	ND	ND	**80**	ND	ND	ND
DTP-81 (0.5-1)	AD04499-007	5/31/2018	Soil	ppm	**37**	ND	ND	ND	**11**	ND	**26**	ND	ND	ND
DTP-81 (3.5-4)	AD04499-008	5/31/2018	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
DTP-82 (0.5-1)	AD04499-009	5/31/2018	Soil	ppm	**0.41**	ND	ND	ND	ND	ND	**0.41**	ND	ND	ND
DTP-82 (3.5-4)	AD04499-010	5/31/2018	Soil	ppm	**2.8**	ND	ND	ND	ND	ND	**2.8**	ND	ND	ND
DTP-83 (0.5-1)	AD04499-011	5/31/2018	Soil	ppm	**4.3**	ND	ND	ND	ND	ND	**4.3**	ND	ND	ND
DTP-83 (3.5-4)	AD04499-012	5/31/2018	Soil	ppm	**13**	ND	ND	ND	ND	ND	**13**	ND	ND	ND
DTP-84 (0.5-1)	AD04499-013	5/31/2018	Soil	ppm	**30**	ND	ND	ND	ND	ND	**30**	ND	ND	ND
DTP-84 (3.5-4)	AD04499-014	5/31/2018	Soil	ppm	**2.3**	ND	ND	ND	0.17	ND	**2.1**	ND	ND	ND
DTP-85 (0.5-1)	AD04499-015	5/31/2018	Soil	ppm	**57**	ND	ND	ND	ND	ND	**57**	ND	ND	ND
DTP-86 (0.5-1)	AD04499-016	5/31/2018	Soil	ppm	**33**	ND	ND	ND	ND	ND	**33**	ND	ND	ND
DTP-87 (0.5-1)	AD04499-017	5/31/2018	Soil	ppm	**5.3**	ND	ND	ND	ND	ND	**5.3**	ND	ND	ND
DTP-87 (3.5-4)	AD04499-018	5/31/2018	Soil	ppm	**1.7**	ND	ND	ND	ND	ND	**1.7**	ND	ND	ND
DTP-87 (8.5-9)	AD04499-019	5/31/2018	Soil	ppm	**18**	ND	ND	ND	ND	ND	**18**	ND	ND	ND

TABLE 1
Compiled PCB Sample Results
Former ASARCO Facility
1160 State Street, Perth Amboy, NJ

SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	**PCBS**	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
DTP-88 (3.5-4)	AD04499-021	5/31/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-88 (0.5-1)	AD04499-020	5/31/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-88 (8.5-9)	AD04499-022	5/31/2018	Soil	ppm	**4.7**	ND	ND	ND	ND	ND	**4.7**	ND	ND	ND
DTP-89 (0.5-1)	AD04499-023	5/31/2018	Soil	ppm	0.098	ND	ND	ND	ND	ND	0.098	ND	ND	ND
DTP-90 (0.5-1)	AD04533-001	6/1/2018	Soil	ppm	**25**	ND	ND	ND	ND	ND	**25**	ND	ND	ND
DTP-91 (0.5-1)	AD04533-002	6/1/2018	Soil	ppm	**5.6**	ND	ND	ND	ND	ND	**5.6**	ND	ND	ND
DTP-91 (3.5-4)	AD04533-003	6/1/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-91 (8.5-9)	AD04533-004	6/1/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-92 (0.5-1)	AD04533-005	6/1/2018	Soil	ppm	**110**	ND	ND	ND	ND	ND	**110**	ND	ND	ND
DTP-93 (0.5-1)	AD04533-006	6/1/2018	Soil	ppm	**3.3**	ND	ND	ND	ND	ND	**3.3**	ND	ND	ND
DTP-94 (0.5-1)	AD04533-007	6/1/2018	Soil	ppm	**30**	ND	ND	ND	ND	ND	**30**	ND	ND	ND
DTP-100 (0.5-1.0	AD05104-013	7/2/2018	Soil	ppm	**1,200**	ND	ND	ND	**1,200**	ND	ND	ND	ND	ND
DTP-100 (3.5-4.0	AD05104-014	7/2/2018	Soil	ppm	**21**	ND	ND	ND	ND	ND	ND	**21**	ND	ND
DTP-101 (0.5-1.0	AD05104-015	7/2/2018	Soil	ppm	**0.25**	ND	ND	ND	ND	ND	**0.25**	ND	ND	ND
DTP-101 (3.5-4.0	AD05104-016	7/2/2018	Soil	ppm	**0.97**	ND	ND	ND	ND	ND	**0.97**	ND	ND	ND
DTP-101 (6.5-7.0	AD05104-017	7/2/2018	Soil	ppm	**7.1**	ND	ND	ND	ND	ND	**7.1**	ND	ND	ND
DTP-102 (0.5-1.0	AD05104-018	7/2/2018	Soil	ppm	0.13	ND	ND	ND	ND	ND	0.13	ND	ND	ND
DTP-102 (2-2.5)	AD05104-019	7/2/2018	Soil	ppm	**24**	ND	ND	ND	ND	ND	**24**	ND	ND	ND
DTP-103 (0.5-1.0	AD05104-020	7/2/2018	Soil	ppm	**23**	ND	ND	ND	ND	ND	**23**	ND	ND	ND
DTP-103 (2-2.5)	AD05104-021	7/2/2018	Soil	ppm	**9.6**	ND	ND	ND	ND	ND	**9.6**	ND	ND	ND
DTP-104 (0.5-1.0	AD05104-022	7/2/2018	Soil	ppm	**6.5**	ND	ND	ND	ND	ND	**6.5**	ND	ND	ND
DTP-104 (3-3.5)	AD05104-023	7/2/2018	Soil	ppm	**12**	ND	ND	ND	ND	ND	**12**	ND	ND	ND
DTP-105 (0.5-1.0	AD05104-024	7/2/2018	Soil	ppm	**0.36**	ND	ND	ND	ND	ND	**0.36**	ND	ND	ND
DTP-105 (2.5-3.0	AD05104-025	7/2/2018	Soil	ppm	**0.32**	ND	ND	ND	ND	ND	**0.32**	ND	ND	ND
DTP-106 (0.5-1.0	AD05104-026	7/2/2018	Soil	ppm	**13**	ND	ND	ND	**3.8**	ND	**9.1**	ND	ND	ND
DTP-106 (3.5-4.0	AD05104-027	7/2/2018	Soil	ppm	**0.65**	ND	ND	ND	**0.26**	ND	**0.39**	ND	ND	ND
DTP-107 (0.5-1.0	AD05104-028	7/2/2018	Soil	ppm	0.13	ND	ND	ND	ND	ND	0.13	ND	ND	ND
DTP-107 (3.5-4.0	AD05104-029	7/2/2018	Soil	ppm	**9.4**	ND	ND	ND	ND	ND	**9.4**	ND	ND	ND
DTP-95 (0.5-1.0)	AD05104-001	7/2/2018	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
DTP-95 (3.5-4.0)	AD05104-002	7/2/2018	Soil	ppm	**6.9**	ND	ND	ND	ND	ND	**6.9**	ND	ND	ND
DTP-96 (0.5-1.0)	AD05104-003	7/2/2018	Soil	ppm	**27**	ND	ND	ND	ND	ND	**27**	ND	ND	ND
DTP-96 (3.5-4.0)	AD05104-004	7/2/2018	Soil	ppm	**22**	ND	ND	ND	ND	ND	**22**	ND	ND	ND
DTP-96 (4.5-5.0)	AD05104-005	7/2/2018	Soil	ppm	**66**	ND	ND	ND	ND	ND	**66**	ND	ND	ND
DTP-97 (0.5-1.0)	AD05104-006	7/2/2018	Soil	ppm	**16**	ND	ND	ND	**7.8**	ND	**7.8**	ND	ND	ND
DTP-97 (3.5-4.0)	AD05104-007	7/2/2018	Soil	ppm	**5.7**	ND	ND	ND	ND	ND	**5.7**	ND	ND	ND
DTP-97 (5.5-6.0)	AD05104-008	7/2/2018	Soil	ppm	**2.9**	ND	ND	ND	ND	ND	**2.9**	ND	ND	ND
DTP-98 (0.5-1.0)	AD05104-009	7/2/2018	Soil	ppm	**6.2**	ND	ND	ND	ND	ND	**6.2**	ND	ND	ND
DTP-98 (3.5-4.0)	AD05104-010	7/2/2018	Soil	ppm	**15**	ND	ND	ND	ND	ND	ND	**15**	ND	ND
DTP-99 (0.5-1.0)	AD05104-011	7/2/2018	Soil	ppm	**20**	ND	ND	ND	ND	ND	**20**	ND	ND	ND
DTP-99 (3.5-4.0)	AD05104-012	7/2/2018	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
DTP-108 (0.5-1.0	AD05118-003	7/3/2018	Soil	ppm	**5.1**	ND	ND	ND	ND	ND	**5.1**	ND	ND	ND
DTP-108 (3.5-4.0	AD05118-004	7/3/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-109 (0.5-1.0	AD05118-005	7/3/2018	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
DTP-109 (3.5-4.0	AD05118-006	7/3/2018	Soil	ppm	**1.2**	ND	ND	ND	ND	ND	**1.2**	ND	ND	ND
DTP-110 (0.5-1.0	AD05118-007	7/3/2018	Soil	ppm	**1.6**	ND	ND	ND	ND	ND	**1.6**	ND	ND	ND
DTP-110 (2.5-3.0	AD05118-008	7/3/2018	Soil	ppm	**1.5**	ND	ND	ND	ND	ND	**1.5**	ND	ND	ND
DTP-111 (0.5-1.0	AD05118-001	7/3/2018	Soil	ppm	0.14	ND	ND	ND	ND	ND	0.14	ND	ND	ND
DTP-111 (3.5-4.0	AD05118-002	7/3/2018	Soil	ppm	**0.22**	ND	ND	ND	ND	ND	**0.22**	ND	ND	ND
DPT-112 (0.5-1.0	AD05909-001	8/9/2018	Soil	ppm	**0.25**	ND	ND	ND	ND	ND	**0.25**	ND	ND	ND
DPT-112 (3.5-4.0	AD05909-002	8/9/2018	Soil	ppm	**110**	ND	ND	ND	ND	ND	**110**	ND	ND	ND
DPT-113 (0.5-1.0	AD05909-003	8/9/2018	Soil	ppm	**6.8**	ND	ND	ND	ND	ND	**6.8**	ND	ND	ND
DPT-113 (3.5-4.0	AD05909-004	8/9/2018	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
DPT-114 (0.5-1.0	AD05909-005	8/9/2018	Soil	ppm	**13**	ND	ND	ND	ND	ND	**13**	ND	ND	ND
DPT-114 (3.5-4.0	AD05909-006	8/9/2018	Soil	ppm	**110**	ND	ND	ND	ND	ND	**110**	ND	ND	ND
DPT-115 (0.5-1.0	AD05909-007	8/9/2018	Soil	ppm	**11**	ND	ND	ND	ND	ND	**11**	ND	ND	ND
DPT-115 (3.5-4.0	AD05909-008	8/9/2018	Soil	ppm	**6.1**	ND	ND	ND	ND	ND	**6.1**	ND	ND	ND

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SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	PCBS	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS	*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
DPT-116 (0.5-1.0	AD05909-009	8/9/2018	Soil	ppm	**29**	ND	ND	ND	ND	ND	**29**	ND	ND	ND
DPT-116 (3.5-4.0	AD05909-010	8/9/2018	Soil	ppm	**1.8**	ND	ND	ND	ND	ND	**1.8**	ND	ND	ND
DPT-117 (0.5-1.0	AD05909-011	8/9/2018	Soil	ppm	**220**	ND	ND	ND	ND	ND	**220**	ND	ND	ND
DPT-117 (3.5-4.0	AD05909-012	8/9/2018	Soil	ppm	**6.2**	ND	ND	ND	**0.69**	ND	**5.5**	ND	ND	ND
DPT-118 (0.5-1.0	AD05909-013	8/9/2018	Soil	ppm	**33**	ND	ND	ND	ND	ND	**33**	ND	ND	ND
DPT-118 (3.5-4.0	AD05909-014	8/10/2018	Soil	ppm	**86**	ND	ND	ND	ND	ND	**86**	ND	ND	ND
DPT-119 (0.5-1.0	AD05909-015	8/10/2018	Soil	ppm	**25**	ND	ND	ND	ND	ND	**25**	ND	ND	ND
DPT-120 (0.5-1.0	AD05909-016	8/10/2018	Soil	ppm	**3.4**	ND	ND	ND	**0.51**	ND	**2.9**	ND	ND	ND
DPT-121 (0.5-1.0	AD05909-017	8/10/2018	Soil	ppm	**8**	ND	ND	ND	**0.77**	ND	**7.2**	ND	ND	ND
DPT-121 (3.5-4.0	AD05909-018	8/10/2018	Soil	ppm	**1.5**	ND	ND	ND	**0.75**	ND	**0.61**	ND	0.19	ND
DPT-122 (0.5-1.0	AD05909-019	8/10/2018	Soil	ppm	**4.9**	ND	ND	ND	ND	ND	**4.9**	ND	ND	ND
DPT-122 (3.5-4.0	AD05909-020	8/10/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DTP-123 (0.5-1.0	AD06393-001	9/7/2018	Soil	ppm	0.082	ND	ND	ND	ND	ND	0.082	ND	ND	ND
DTP-123 (3.5-4.0	AD06393-002	9/7/2018	Soil	ppm	**17**	ND	ND	ND	ND	ND	**17**	ND	ND	ND
DTP-124 (0.5-1.0	AD06393-003	9/7/2018	Soil	ppm	**0.4**	ND	ND	ND	ND	ND	**0.4**	ND	ND	ND
DTP-124 (3.5-4.0	AD06393-004	9/7/2018	Soil	ppm	**40**	ND	ND	ND	ND	ND	**40**	ND	ND	ND
DTP-125 (0.5-1.0	AD06393-005	9/7/2018	Soil	ppm	**4**	ND	ND	ND	ND	ND	**4**	ND	ND	ND
DTP-125 (3.5-4.0	AD06393-006	9/7/2018	Soil	ppm	**32**	ND	ND	ND	ND	ND	**32**	ND	ND	ND
DTP-126 (0.5-1.0	AD06393-007	9/7/2018	Soil	ppm	**76**	ND	ND	ND	ND	ND	**76**	ND	ND	ND
DTP-126 (3.5-4.0	AD06393-008	9/7/2018	Soil	ppm	**0.88**	ND	ND	ND	0.13	ND	**0.75**	ND	ND	ND
DTP-127 (0.5-1.0	AD06393-009	9/7/2018	Soil	ppm	**21**	ND	ND	ND	ND	ND	**21**	ND	ND	ND
DTP-127 (3.5-4.0	AD06393-010	9/7/2018	Soil	ppm	**12**	ND	ND	ND	ND	ND	**12**	ND	ND	ND
DTP-128 (0.5-1.0	AD06393-011	9/7/2018	Soil	ppm	**63**	ND	ND	ND	ND	ND	**63**	ND	ND	ND
DTP-128 (3.5-4.0	AD06393-012	9/7/2018	Soil	ppm	**13**	ND	ND	ND	ND	ND	**13**	ND	ND	ND
DTP-129 (0.5-1.0	AD06393-013	9/7/2018	Soil	ppm	**54**	ND	ND	ND	ND	ND	**54**	ND	ND	ND
DTP-129 (3.5-4.0	AD06393-014	9/7/2018	Soil	ppm	**0.25**	ND	ND	ND	ND	ND	**0.25**	ND	ND	ND
DTP-130 (0.5-1.0	AD06393-015	9/7/2018	Soil	ppm	**8.6**	ND	ND	ND	ND	ND	**8.6**	ND	ND	ND
DTP-130 (3.5-4.0	AD06393-016	9/7/2018	Soil	ppm	**17**	ND	ND	ND	ND	ND	**17**	ND	ND	ND
DTP-131 (0.5-1.0	AD06393-017	9/7/2018	Soil	ppm	**71**	ND	ND	ND	ND	ND	**71**	ND	ND	ND
DTP-131 (3.5-4.0	AD06393-018	9/7/2018	Soil	ppm	0.15	ND	ND	ND	ND	ND	0.15	ND	ND	ND
DTP-132 (0-0.5')	AD06808-001	9/28/2018	Soil	ppm	**1.6**	ND	ND	ND	ND	ND	ND	**1.6**	ND	ND
DTP-133 (0-0.5')	AD06808-004	9/28/2018	Soil	ppm	0.078	ND	ND	ND	ND	ND	0.078	ND	ND	ND
DTP-133 (2-2.5')	AD06808-005	9/28/2018	Soil	ppm	**15**	ND	ND	ND	ND	ND	**15**	ND	ND	ND
DTP-134 (0-0.5')	AD06808-010	9/28/2018	Soil	ppm	**34**	ND	ND	ND	ND	ND	**34**	ND	ND	ND
DTP-134 (2-2.5')	AD06808-011	9/28/2018	Soil	ppm	**12**	ND	ND	ND	ND	ND	**12**	ND	ND	ND
DTP-135 (0-0.5')	AD06808-016	9/28/2018	Soil	ppm	**1.1**	ND	ND	ND	ND	ND	**1.1**	ND	ND	ND
DTP-135 (2-2.5')	AD06808-017	9/28/2018	Soil	ppm	**23**	ND	ND	ND	ND	ND	**23**	ND	ND	ND
DTP-136 (0-0.5')	AD06808-022	9/28/2018	Soil	ppm	**5.6**	ND	ND	ND	ND	ND	**5.6**	ND	ND	ND
DTP-136 (2-2.5')	AD06808-023	9/28/2018	Soil	ppm	**72**	ND	ND	ND	ND	ND	**72**	ND	ND	ND
DTP-137 (0-0.5')	AD06808-028	9/28/2018	Soil	ppm	**9.3**	ND	ND	ND	ND	ND	**9.3**	ND	ND	ND
DTP-137 (2-2.5')	AD06808-029	9/28/2018	Soil	ppm	**5.5**	ND	ND	ND	ND	ND	**5.5**	ND	ND	ND
DTP-138 (0-0.5')	AD06808-034	9/28/2018	Soil	ppm	**110**	ND	ND	ND	ND	ND	**110**	ND	ND	ND
DTP-138 (2-2.5')	AD06808-035	9/28/2018	Soil	ppm	**9.9**	ND	ND	ND	ND	ND	**9.9**	ND	ND	ND
DTP-139 (0-0.5')	AD06808-040	9/28/2018	Soil	ppm	**5.9**	ND	ND	ND	ND	ND	**5.9**	ND	ND	ND
DTP-139 (2-2.5')	AD06808-041	9/28/2018	Soil	ppm	**0.64**	ND	ND	ND	ND	ND	**0.64**	ND	ND	ND
NAC-1 (0-0.5')	AD06587-001	9/19/2018	Soil	ppm	**1.8**	ND	ND	ND	ND	ND	**1.8**	ND	ND	ND
NAC-1 (2-2.5')	AD06587-002	9/19/2018	Soil	ppm	**0.95**	ND	ND	ND	ND	ND	**0.95**	ND	ND	ND
NAC-2 (0-0.5')	AD06587-003	9/19/2018	Soil	ppm	**6.2**	ND	ND	ND	ND	ND	**6.2**	ND	ND	ND
NAC-2 (2-2.5')	AD06587-004	9/19/2018	Soil	ppm	**2.9**	ND	ND	ND	ND	ND	**2.9**	ND	ND	ND
NAC-3 (0-0.5')	AD06587-005	9/19/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAC-3 (2-2.5')	AD06587-006	9/19/2018	Soil	ppm	0.052	ND	ND	ND	ND	ND	0.052	ND	ND	ND
NAC-4 (0-0.5')	AD06587-007	9/19/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAC-4 (2-2.5')	AD06587-008	9/19/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAC-5 (0-0.5')	AD06587-009	9/19/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAC-5 (2-2.5')	AD06587-010	9/19/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 1
Compiled PCB Sample Results
Former ASARCO Facility
1160 State Street, Perth Amboy, NJ

SAMPLE ID:	LAB ID:	SAMPLE DATE:	MATRIX	**PCBS**	Aroclor (Total)	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
			NJDEP NRSRS		*ppm*	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***1***	***NA***	***NA***
			NJDEP IGWSRS	*ppm*	***NA***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***NA***	***NA***
NAC-6 (0-0.5')	AD06587-011	9/19/2018	Soil	ppm	0.2	ND	ND	ND	ND	ND	0.2	ND	ND	ND
NAC-6 (2-2.5')	AD06587-012	9/19/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAC-7 (0-0.5')	AD06587-013	9/19/2018	Soil	ppm	**40**	ND	ND	ND	ND	ND	**40**	ND	ND	ND
NAC-7 (2-2.5')	AD06587-014	9/19/2018	Soil	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAC-8 (0-0.5')	AD06587-015	9/19/2018	Soil	ppm	0.076	ND	ND	ND	ND	ND	0.076	ND	ND	ND
NAC-8 (2-2.5')	AD06587-016	9/19/2018	Soil	ppm	0.11	ND	ND	ND	ND	ND	0.11	ND	ND	ND

Notes:

Exceeds NJDEP Nonresidential Direct Contact Soil Remediation Standard (NRSRS)

Exceeds NJDEP Default Impact to Groundwater Soil Remediation Standard (IGWSRS)

NA = No criterion derived for this contaminant.

ND - The compound was not detected above the laboratory reporting limit.

All results are in parts per million (ppm) unless otherwise noted

TABLE 2
Groundwater Analytical Results
Former ASARCO Facility
1160 State Street, Perth Amboy, NJ

CLIENT ID:			MW-1		MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7		MW-8		MW-8		MW-8		MW-9		MW-22		MW-24		MW-12SR		MW-26	
LAB ID:		NJ Vapor	~		~		~		~		~		~		~		~		~		~		~		~		AD07333-001		AD07333-002		AD07333-003		AD07333-004	
COLLECTION DATE:	GWQS	Intrusion	6/25/1989		7/1/1989		7/25/1989		7/25/1989		7/25/1989		7/1/1989		7/1/1989		7/1/1989		7/1/1989		11/1/2002		12/2/2002		7/9/1989		10/25/2018		10/25/2018		10/25/2018		10/25/2018	
SAMPLE MATRIX:		Guidelines	Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous	
SAMPLE UNITS:			ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	ug/L	ug/L	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
PCBs																																		
Aroclor (Total)	0.5	NA	ND	~	ND	~	ND	~	ND	~	ND	~	ND	~	ND	~	ND	~	ND	~	ND	~	ND	~	ND	~	ND	0.25	ND	0.25	0.46	0.25	ND	0.25
Aroclor-1016	0.5	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1221	0.5	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1232	0.5	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1242	0.5	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1248	0.5	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1254	0.5	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	0.46	0.25	ND	0.25
Aroclor-1260	0.5	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1262	NA	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1268	NA	NA	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	ND	0.25	ND	0.25	ND	0.25	ND	0.25

Notes:

Exceeds Groundwater Quality Standard

Exceeds NJDEP Vapor Intrusion Guideline

NA = No criterion derived for this contaminant.

ND - The compound was not detected above the laboratory reporting limit.

All results are in parts per billion (ppb) unless otherwise noted

TABLE 2
Groundwater Analytical Results
Former ASARCO Facility
1160 State Street, Perth Amboy, NJ

CLIENT ID:	GWQS	NJ Vapor Intrusion Guidelines	MW-28		MW-29		MW-7R		MW-9R		MW-12SR		MW-12DR		MW-26		MW-27		MW-28		MW-29		MW-22		MW-23		MW-24	
LAB ID:			AD07333-005		AD07333-006		AD08834-001		AD08834-002		AD08834-003		AD08834-004		AD08834-005		AD08834-006		AD08834-007		AD08834-008		AD08834-009		AD08834-010		AD08834-011	
COLLECTION DATE:			10/25/2018		10/25/2018		1/29/2019		1/29/2019		1/29/2019		1/29/2019		1/29/2019		1/29/2019		1/29/2019		1/29/2019		1/29/2019		1/29/2019		1/29/2019	
SAMPLE MATRIX:			Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous	
SAMPLE UNITS:			ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	ug/L	ug/L	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
PCBs																												
Aroclor (Total)	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	0.42	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	0.38	0.25	ND	0.25
Aroclor-1016	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1221	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1232	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1242	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1248	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1254	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	0.42	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	0.38	0.25	ND	0.25
Aroclor-1260	0.5	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1262	NA	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Aroclor-1268	NA	NA	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25	ND	0.25

Notes:

Exceeds Groundwater Quality Standard

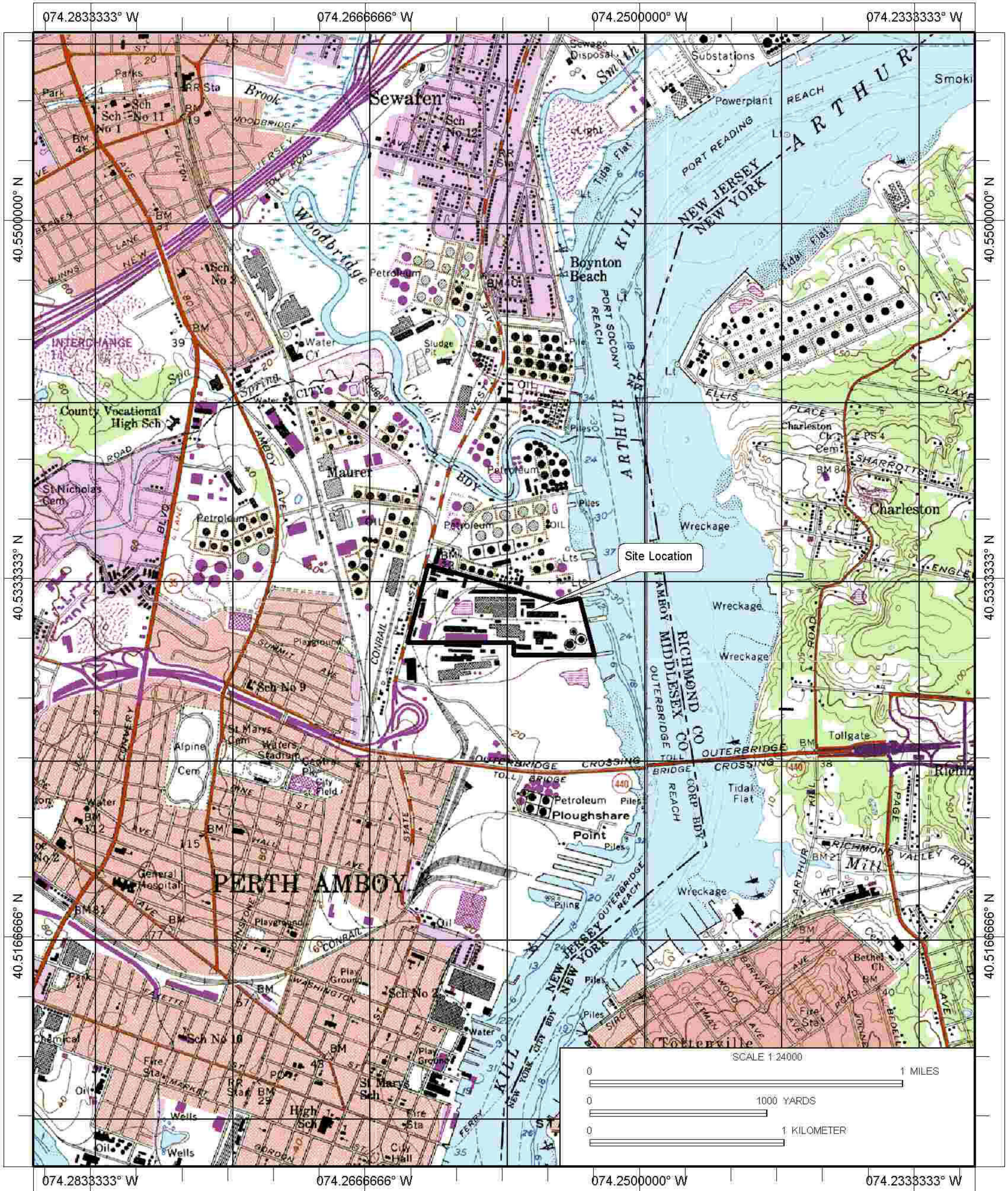
Exceeds NJDEP Vapor Intrusion Guideline

NA = No criterion derived for this contaminant.

ND - The compound was not detected above the laboratory reporting limit.

All results are in parts per billion (ppb) unless otherwise noted

FIGURES



Name: PERTH AMBOY
Date: 9/27/2010
Scale: 1 inch equals 2000 feet

Location: 040.5323695° N 074.2582501° W NAD 83
Caption: Figure 1: Site Location Map
1160 State Street
Perth Amboy, New Jersey

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LEGEND
82 2018 Delineation Soil Sample Location
PEX-48E Post Excavation Sample Location (2014)
PE-146 Post Excavation Sample Location (2013)
G3-TP1 Test Pit/Trench Location (First Environment Inc. 2010)
E3-3 Soil Sample Location (First Environment Inc. 2010 and 2011)
DPS-1 Soil Sample Location (JMZ GEOLOGY)
Sample PCB <1 ppm
Sample PCB 1-10 ppm
Sample PCB 10-100 ppm
Sample PCB 100+ ppm
Parcel Boundaries
STATE STREET
LOT 1.02
LOT 1
LOT 1.03
BLOCK 481
LOT 1
PROPOSED ACCESS ROAD
FORMER COPPER CASTING HOUSE
FORMER COPPER TANK HOUSE
FORMER POWER HOUSE
FORMER LEAD REFINERY
FORMER COOLING POND
FLOOD ZONE AE
WETLANDS 'B'
WETLANDS 'A'
WETLANDS 'C'
WETLAND 50' BUFFER
RIPARIAN 150' BUFFER
APPROXIMATE FLOOD LIMIT LINE
ARTHUR KILL
15' WIDE TRANSPORTATION EASEMENT DBK 2499 PG 855
20' WIDE PIPELINE EASEMENT DBK 3282 PG 190
15' WIDE GAS LINE EASEMENT DEED BOOK 4306 PAGE 780
LOT 1.04
BLOCK 428
LOT 1
BLOCK 429
GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.
1 inch = 100 ft.
BASEMAP SOURCE: TOPOGRAPHIC BASE DRAWING LANDS OF PERTH AMBOY 1160 LLC, STIRES ASSOCIATES, P.A., 1/15/2011
FORMER ASARCO FACILITY
1160 STATE STREET
BLOCK 430, LOTS 1-4
BLOCK 428, LOT 1.04
MIDDLESEX COUNTY
PERTH AMBOY
NEW JERSEY
TITLE:
SITEWIDE PCB RESULTS
FIGURE
2
REVISED LS
DATE 2/26/2021
DRAWN TSC/JLB
DATE 2/9/17
CHECKED TCB
DATE 2/26/2021
SCALE AS SHOWN
PROJECT ENVLT001
FIRST ENVIRONMENT
91 FULTON STREET
BOONTON, NEW JERSEY 07005
PHONE: 973-334-0003
FAX: 973-334-0928

BASEMAP SOURCE: TOPOGRAPHIC BASE DRAWING LANDS OF PERTH AMBOY 1160 LLC, STIRES ASSOCIATES, P.A., 1/15/2011

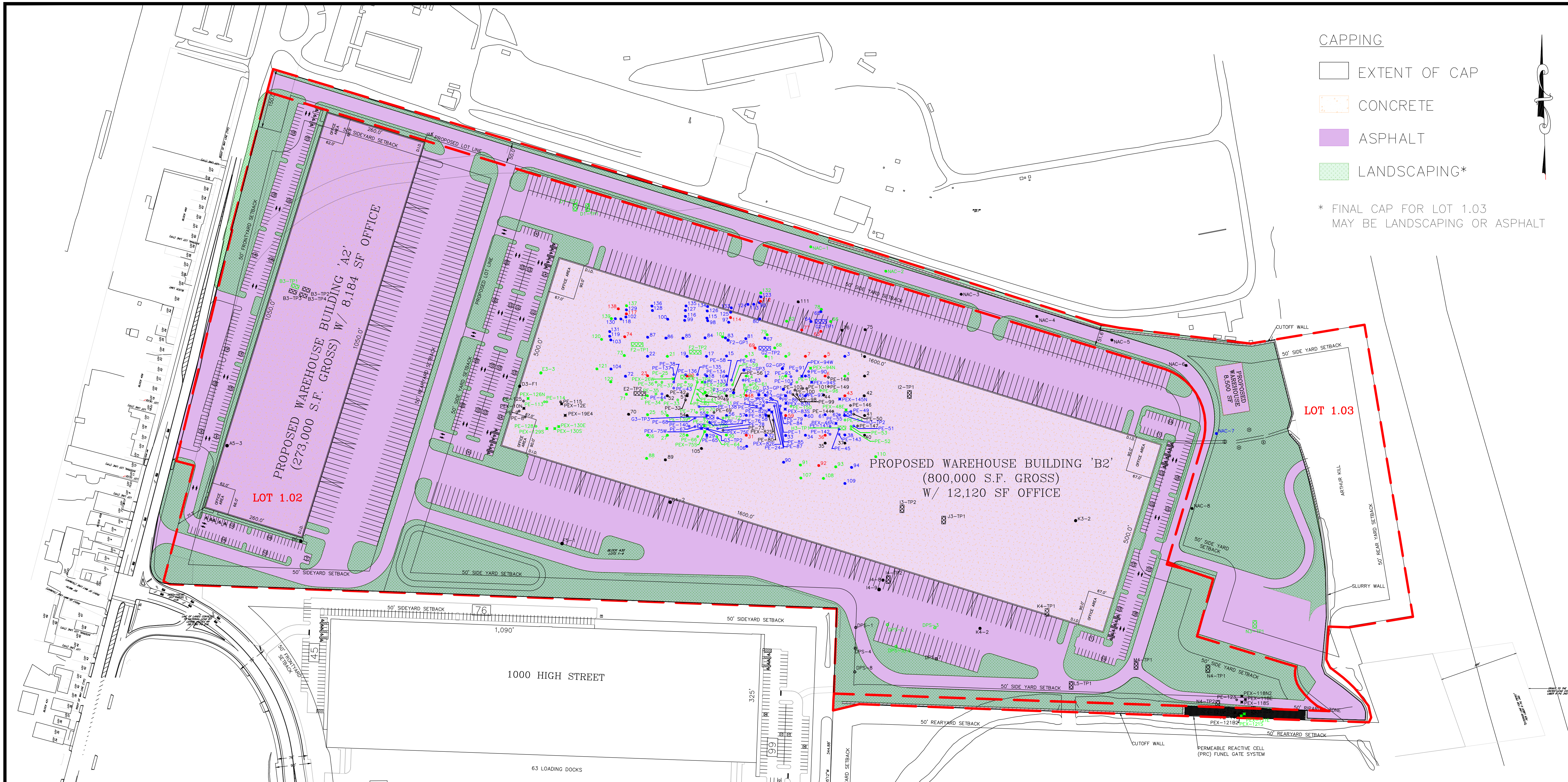
FORMER ASARCO FACILITY
1160 STATE STREET
BLOCK 430, LOTS 1-4
BLOCK 428, LOT 1.04
MIDDLESEX COUNTY
PERTH AMBOY NEW JERSEY

TITLE:
MONITORING WELL LOCATIONS

FIGURE 3

REVISED LS	DRAWN TSC/JLB	CHECKED TCB
DATE 9/30/2021	DATE 2/9/17	DATE 9/30/2021
	SCALE AS SHOWN	PROJECT ENVLT001

FIRST ENVIRONMENT
10 PARK PL. BLDG 1A, SUITE 504
BUTLER, NEW JERSEY 07405
PHONE: 973-334-0003
FAX: 973-334-0928



LEGEND

	Parcel Boundaries
82	2018 Delineation Soil Sample Location
PEX–48E	Post Excavation Sample Location (2014)
PE–146	Post Excavation Sample Location (2013)
G3–TP1	Test Pit/Trench Location (First Environment Inc. 2010)
E3–3	Soil Sample Location (First Environment Inc. 2010 and 2011)
DPS–1	Soil Sample Location (JMZ GEOLOGY)

Sample PCB <1 ppm

Sample PCB 1–10 ppm

Sample PCB 10–100 ppm

Sample PCB 100+ ppm

SCALE

0 10 20 40

(FEET)

FORMER ASARCO FACILITY
1160 STATE STREET

PERTH AMBOY MIDDLESEX COUNTY NEW JERSEY

CAPPING EXTENT WITH PCB OVERLAY

FIGURE 4	REVISED: CJM	DRAWN: LS	CHECKED: CJM
		SCALE: AS SHOWN	
	DATE: 10/1/2021	DATE: 9/17/2021	DATE: 9/17/2021

FIRST ENVIRONMENT

BUTLER NEW JERSEY

Legend

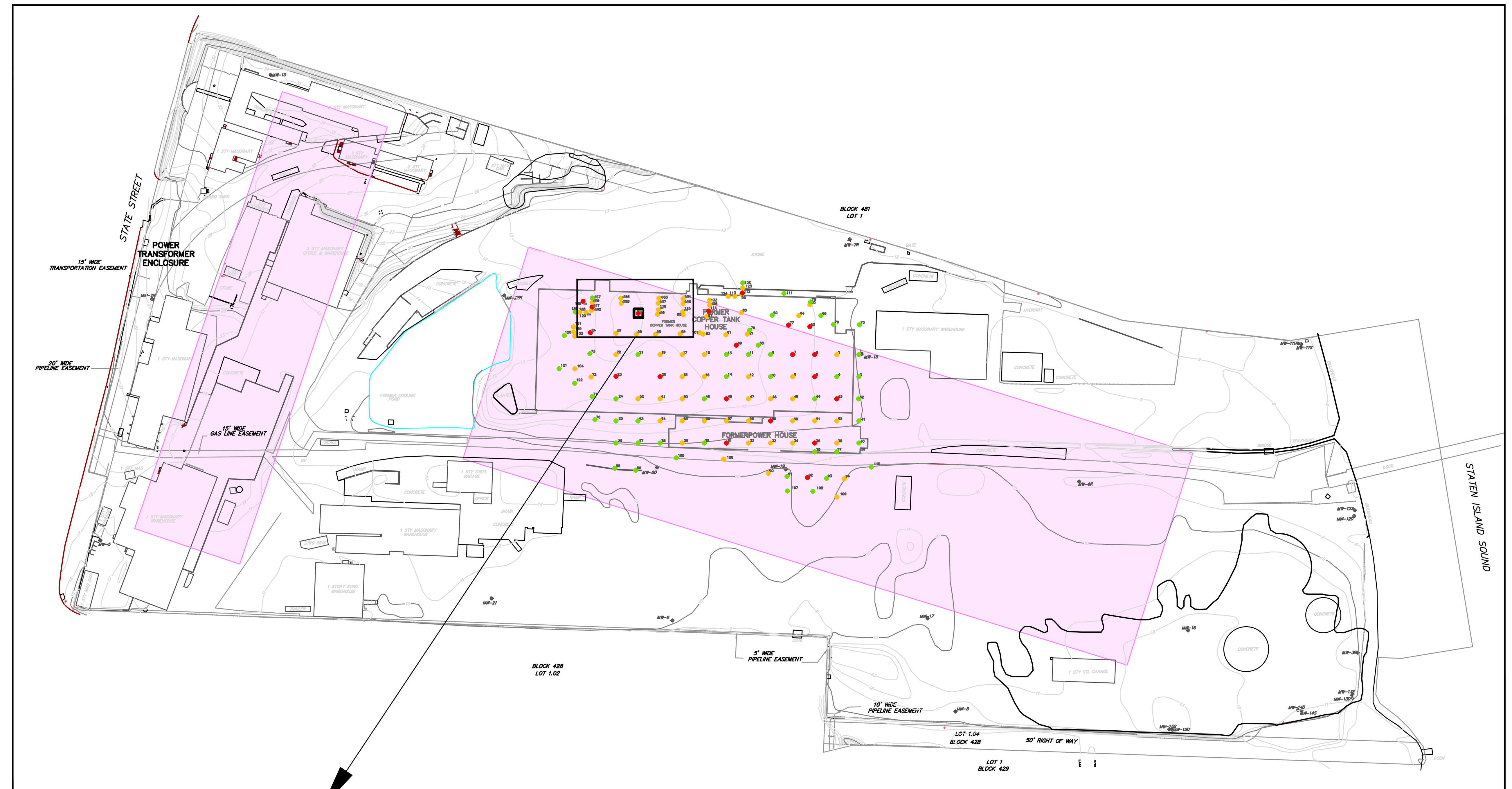
Existing Delineation Soil Boring Locaitons

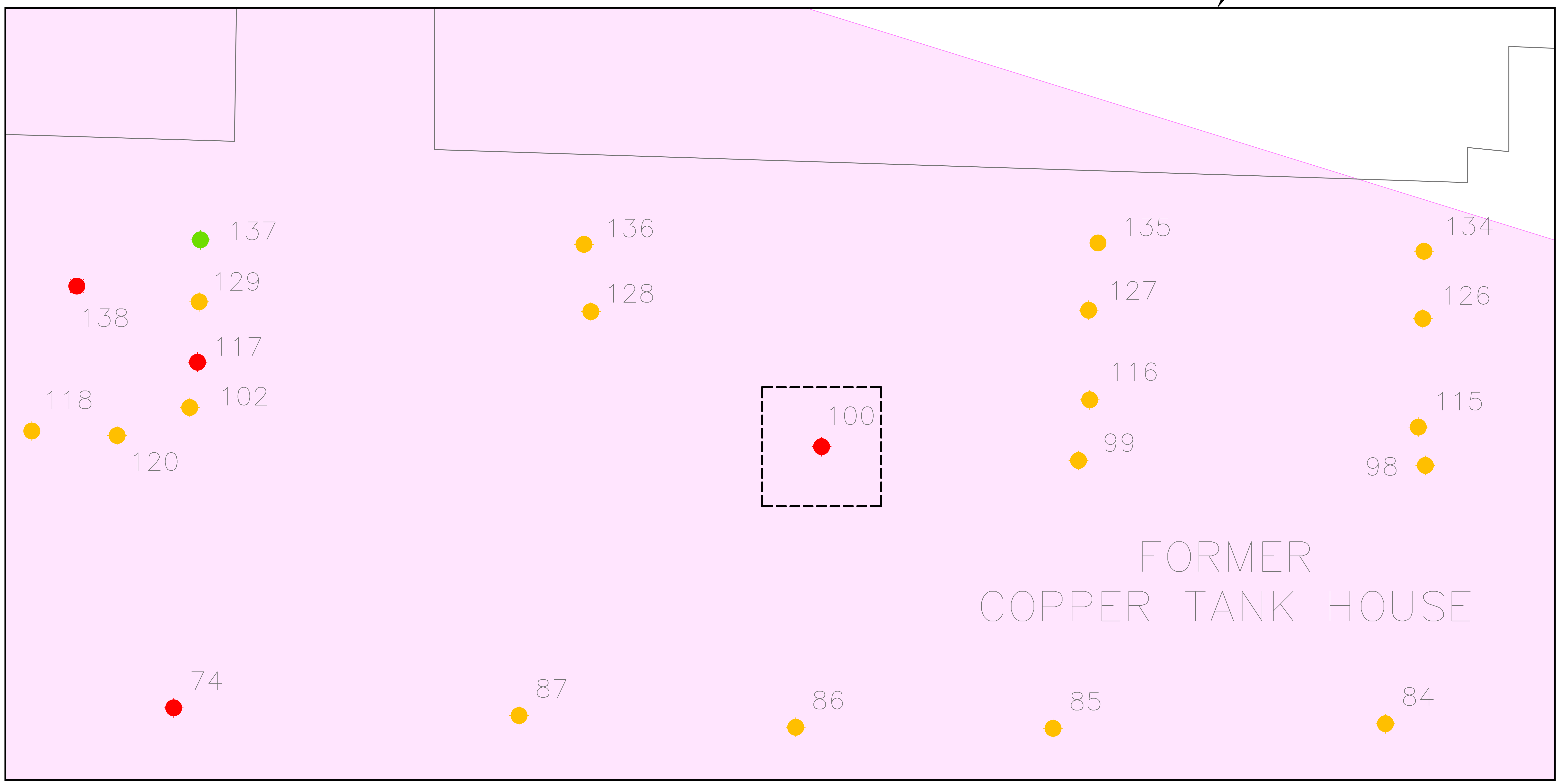
- PCB Concentration: >100 ppm
- PCB Concentration: 10–100 ppm
- PCB Concentration: <10 ppm
- Proposed Building Footprint
- Proposed Excavation Area

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

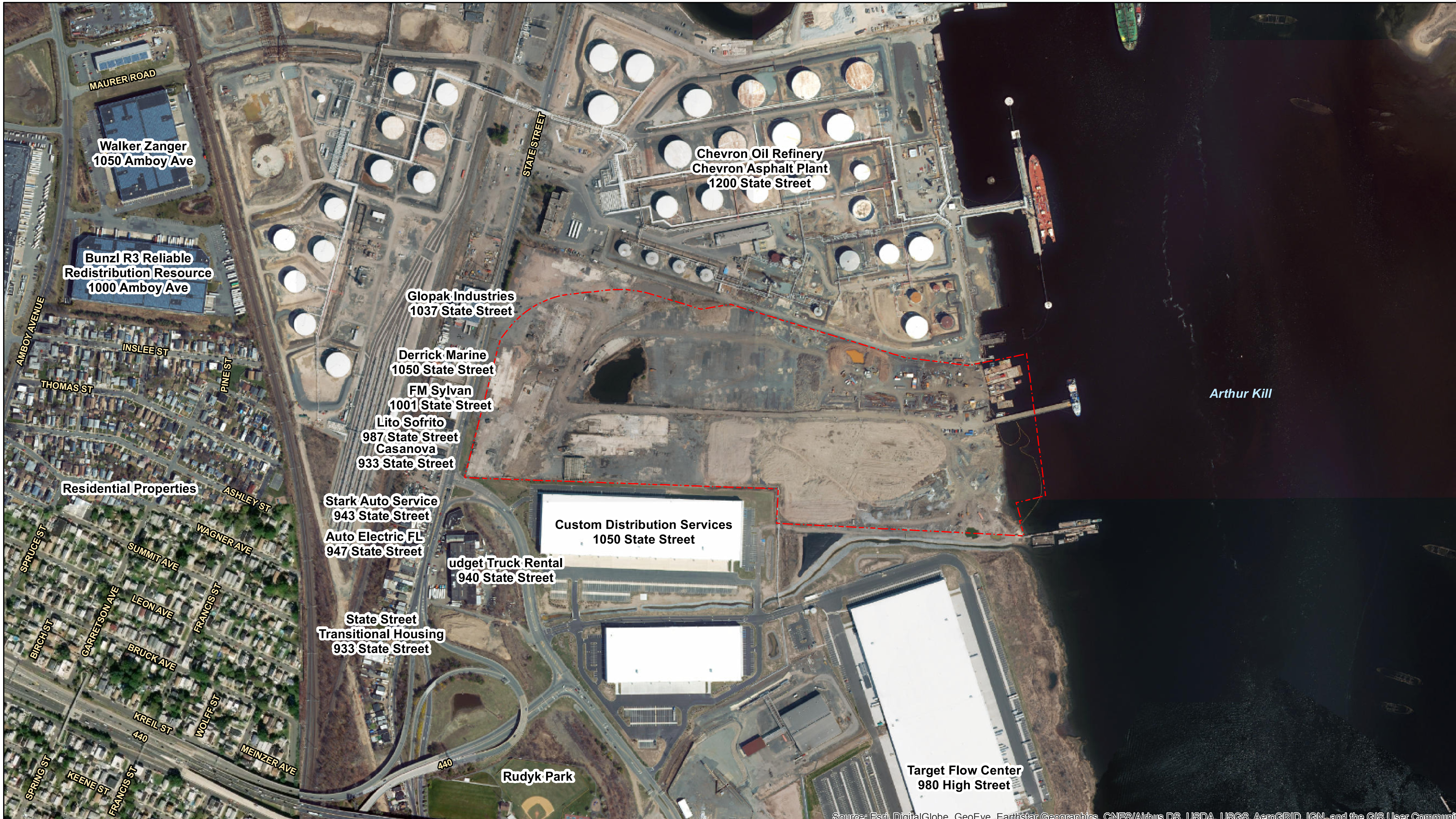




SOURCE:
STIRES ASSOCIATES, P.A., TOPOGRAPHIC BASE MAP: LANDS OF PERTH AMBOY 1160 LLC,DRAWING NO. 10186, 1/15/11
MENLO ENGINEERING ASSOCIATES, INC. CONCEPTUAL SITE PLAN–CP3 4/7/17.

FORMER ASARCO FACILITY 1160 STATE STREET BLOCK 430, LOTS 1–4 BLOCK 428, LOT 1.04 MIDDLESEX COUNTY CITY OF PERTH AMBOY, NEW JERSEY			
TITLE: PROPOSED EXCAVATION AREA			
FIGURE 5	DRAWN LS DATE 6/15/2021 SCALE 1"=100'	CHECKED TCB DATE 6/15/2021 PROJECT ENVLT001	

FIRST ENVIRONMENT
91 FULTON STREET
BOONTON, NEW JERSEY 07005
PHONE: 973-334-0003
FAX: 973-334-0928



Legend

Property Boundary

N W E S

1 inch = 500 feet

FIRST ENVIRONMENT

91 Fulton Street
Boonton, New Jersey 07005

FORMER ASARCO FACILITY
1160 STATE STREET
Perth Amboy, Middlesex County, New Jersey

FIGURE 6
SITE VICINITY MAP

Revised	Drawn	Checked	Approved	Date
	LS	CJM	TCB	3/1/2019

LEGEND

POST EXCAVATION SAMPLE LOCATION (2014)

- PEX-94N SAMPLE PCBs < 10 ppm
- PEX-94N SAMPLE PCBS > 10 ppm and <100 ppm

POST EXCAVATION SAMPLE LOCATION (2013)

- PE-1 SAMPLE PCBs < 10 ppm
- PE-1 SAMPLE PCBs > 10 ppm and <100 ppm
- MW-13D DEEP MONITORING WELL
- MW-13S SHALLOW MONITORING WELL
- MW-7R REPLACEMENT MONITORING WELL
- PCB REMEDIATION AREA
- FINAL PCB EXCAVATION AREA

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

BASEMAP SOURCE: TOPOGRAPHIC BASE DRAWING LANDS OF PERTH AMBOY 1160 LLC, STIRES ASSOCIATES, P.A., 1/15/2011

FORMER ASARCO FACILITY
1160 STATE STREET
BLOCK 430, LOTS 1-4
BLOCK 428, LOT 1.04
MIDDLESEX COUNTY
PERTH AMBOY NEW JERSEY

TITLE:
FINAL PCB EXCAVATION AREAS

FIGURE 7	REVISED –	DRAWN TSC/JLB	CHECKED CJM
	DATE –	DATE 2/9/17	DATE 2/9/17
		SCALE AS SHOWN	PROJECT ENVLT001

FIRST ENVIRONMENT
91 FULTON STREET
BOONTON, NEW JERSEY 07005
PHONE: 973-334-0003
FAX: 973-334-0928

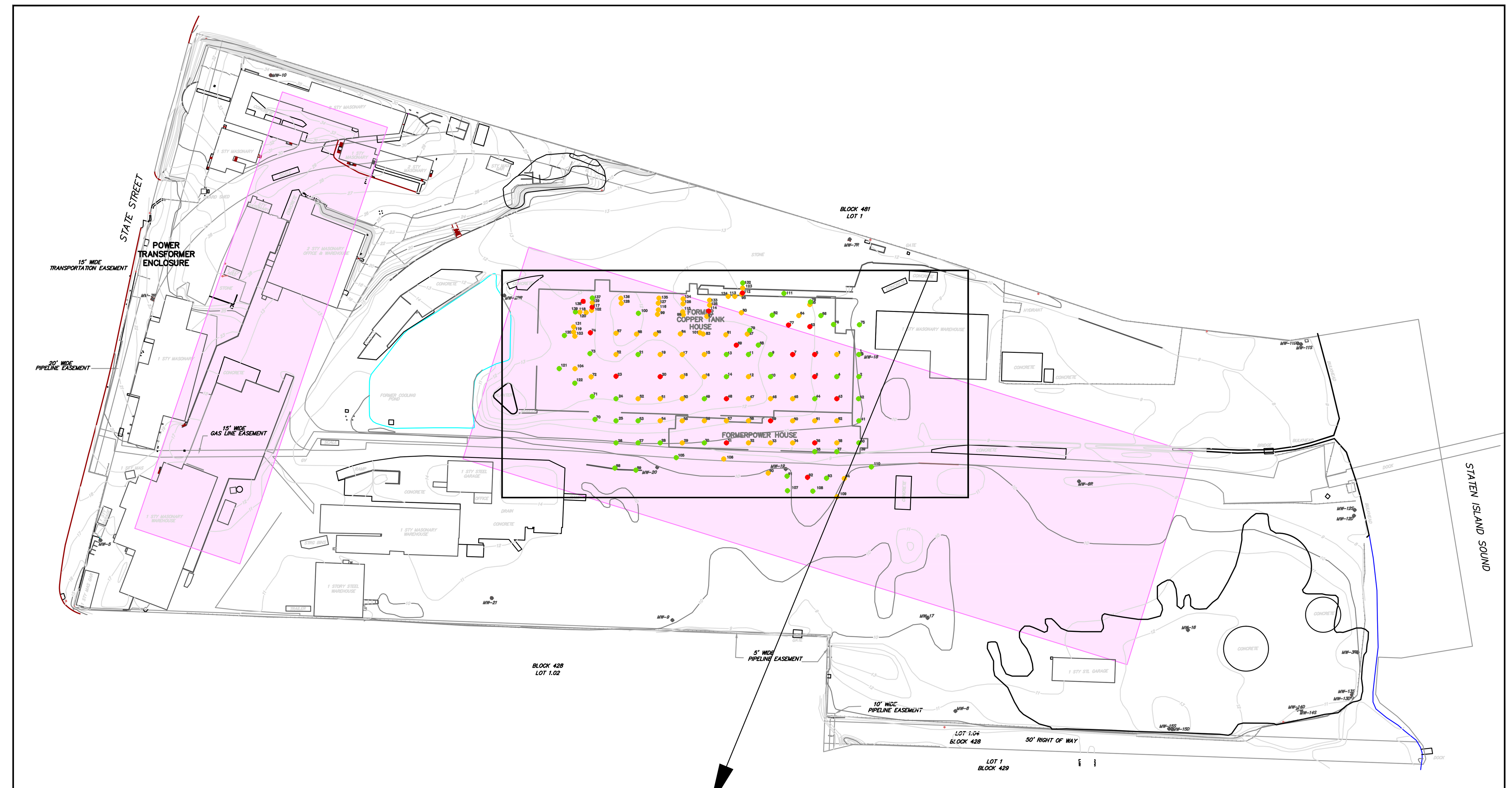
Legend

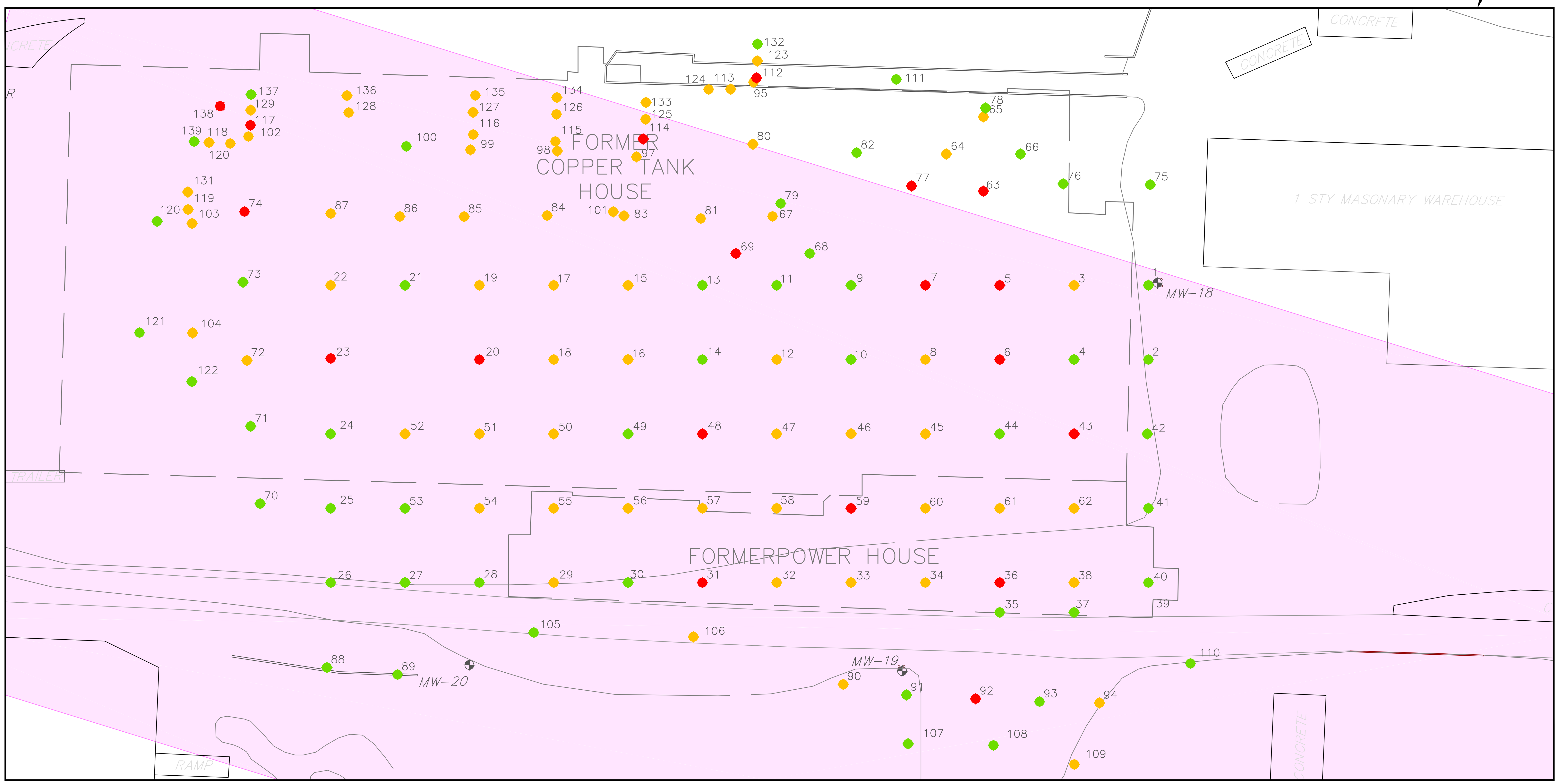
- Proposed Delineation Soil Boring Locations
- Existing Delineation Soil Boring Locaitons
- PCB Concentration: >100 ppm
- PCB Concentration: 10–100 ppm
- PCB Concentration: <10 ppm
- Proposed Building Footprint

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.





SOURCE:
STIRES ASSOCIATES, P.A., TOPOGRAPHIC BASE MAP: LANDS OF PERTH AMBOY 1160 LLC,DRAWING NO. 10186, 1/15/11
MENLO ENGINEERING ASSOCIATES, INC. CONCEPTUAL SITE PLAN-CP3 4/7/17.

FORMER ASARCO FACILITY
1160 STATE STREET
BLOCK 430, LOTS 1-4
BLOCK 428, LOT 1.04
MIDDLESEX COUNTY
CITY OF PERTH AMBOY, NEW JERSEY

TITLE:
DELINEATION SOIL BORING LOCATIONS

FIGURE	DRAWN LS	CHECKED TCB
8	DATE 10/22/2018	DATE 10/22/2018
	SCALE 1"=100'	PROJECT ENVLT001

FIRST ENVIRONMENT
91 FULTON STREET
BOONTON, NEW JERSEY 07005
PHONE: 973-334-0003
FAX: 973-334-0928

APPENDIX A

PATHWAY ANALYSIS REPORT

FORMER ASARCO SITE
PERTH AMBOY, NEW JERSEY

Prepared For:

ENVIROANALYTICS GROUP
1515 Des Peres Road, Suite 300
Saint Louis, Missouri 63131

Prepared By:

ARM GROUP INC.
9175 Guilford Road
Suite 310
Columbia, Maryland 20146

ARM Project No. 190268M

Respectfully Submitted,

T. Neil Peters, P.E.
Vice President

Revision 0 – April 15, 2019

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APPENDICES

1.0 INTRODUCTION

The purpose of this Pathway Analysis Report (PAR) is to assess the potential risk associated with PCBs in on-site soils and groundwater at the property located at 1160 State Street, Perth Amboy, Middlesex County, New Jersey (the "Site"). The PAR was prepared in accordance with the United States Environmental Protection Agency (USEPA) May 2017 Facility Approval Streamlining Toolbox (EPA530-F-17-002) Tool 4, TSCA Risk-Based PCB Cleanups Checklist to address the requirements of 40 CFR 761.61(c). It was developed following the EPA Risk Assessment Guidelines for Superfund (RAGS; EPA 1989, 2001, 2004, 2009) and more recent applicable guidance (e.g., EPA 2014, 2018).

The PAR includes the following three steps:

1. Hazard Identification
2. Exposure Assessment
3. Toxicity Assessment

Each of these steps is described in the following report sections and detailed in tables in the format of EPA RAGS, Part D (EPA 2001) Tables 1 through 6.

2.0 HAZARD IDENTIFICATION

The Site is located in a commercial/industrial area at 1160 State Street, Perth Amboy, Middlesex County, New Jersey. A Site Location map has been provided as **Figure 1**.

During 2010, remedial investigation activities identified PCB impacted material in eight areas of concern (AOCs) at the Site. A Self-Implementing Plan (SIP) for the remediation of PCB contamination was submitted to the USEPA on November 4, 2011. This plan was implemented in 2014 and involved the excavation and off-site disposal of PCB impacted material above 100 ppm and the relocation of PCB impacted material between 10 ppm and 100 ppm to an area to be designated as a Low Occupancy Area (LOA). Due to recent redevelopment plans for the property, however, a LOA is not suitable in its original proposed location.

To date, 449 sample locations represent current soil conditions with respect to PCBs. These samples were collected during site/remedial investigation activities conducted in 2006 and 2010, delineation activities performed in 2011 and 2013, post-excavation sampling in 2014, and further delineation activities performed in 2017/2018. Analytical results revealed additional impacted material that exhibit PCB concentrations above 100 ppm.

The investigations and results are summarized in the Current Conditions Report prepared by First Environment, Inc. in April 2019.

The PAR evaluated Site-wide data with respect to Total PCBs as well as individual Aroclors as constituents of potential concern (COPCs).

3.0 EXPOSURE ASSESSMENT

The Site is located in a commercial/ industrial area of Perth Amboy and is bounded by State Street on the west, a petroleum bulk storage facility on the north, the Arthur Kill on the east, and a former industrial site on the south. A portion of the Site's southern property line is adjacent to Cranes Creek which is located on the adjacent property.

The Site is currently developed with paved parking areas on the western portion of the property and gravel, paved or slag covered areas over the majority of the eastern portion of the Site. The Site is fully fenced and has 24/7 security supervision. No buildings currently exist on site as all former buildings have been demolished in anticipation of site redevelopment. Drinking water for the Site and the surrounding area is provided by the public utility.

The Site's northeast corner is currently occupied by a marine construction company. No other operations currently exist on site.

A risk assessment conceptual site model (CSM) allows for a broader understanding of the potential exposure pathways and receptors and how contaminants migrate between environmental media. A CSM that presents the contamination sources, fate and transport, exposure pathways and receptors for the site in its current condition is presented in **Figure 2**.

As indicated in the CSM, under the current condition there is a potential for "low occupancy" exposure of industrial workers to direct contact with impacted surface soil. The exposed surface soil can potentially be transported as wind-blown dust to on-site workers, or to workers on the adjacent industrial properties or other off-site receptors. In addition, the impacted soil may be transported by stormwater to adjacent surface water and sediment. Since public water is available in the area, use of groundwater is not a potential exposure pathway. As noted, all buildings on the site have been demolished so there is no potential indoor air exposure. A construction worker could come in direct contact with impacted soil during intrusive activities. The construction worker could also come in direct contact with shallow groundwater. However, exposure to groundwater is not considered significant since the maximum Total PCB concentration detected in groundwater on-site is below the drinking water Maximum Contaminant Level (MCL).

The proposed remedy for the Site will include the establishment of institutional (Deed Notice) and engineering (capping) controls. The engineering controls will include a site-wide cap to prevent contact with surface and subsurface soil. An institutional control in the form of a Deed Notice will restrict the use of the property to commercial/industrial purposes (i.e., not residential).

A CSM that presents potential future exposure pathways and receptors, following the implementation of the proposed remedy, is presented in **Figure 3**. As noted, the site-wide capping remedy eliminates the potential for direct contact exposure to impacted soil by a future industrial worker. The proposed cap also eliminates the potential for exposures associated with the migration of impacted soil in blowing dust or stormwater. The potential remains for direct contact exposure to soil by a future construction worker conducting intrusive activities. A potential exists for future worker exposure through migration of vapor into proposed future buildings on the site. As noted above, use of groundwater is not a potential future exposure pathway due to public water supply in the area and the implementation of a groundwater use restriction for the site. The potential remains for direct contact exposure to shallow groundwater by a future construction worker conducting intrusive activities. However, as noted above, exposure to groundwater is not considered significant since the maximum Total PCB concentration detected in groundwater on-site is below the MCL.

Table 1 presents a summary of the selection of exposure pathways and indicates which pathways are excluded as being incomplete and which are potentially complete pathways for each current and future receptor population.

The soil PCB data were screened against the USEPA Regional Screening Level (RSL) values for the composite worker scenario, with a target cancer risk of 1e-6 and a target non-cancer hazard quotient of 0.1, to determine whether individual Aroclors, as well as Total PCBs represent constituents of potential concern (COPCs) in the site soils. Similarly, the site groundwater data were screened against both the MCL for Total PCBs and the Vapor Intrusion Screening Level (VISL) target concentration determined using the USEPA VISL calculator for a target cancer risk of 1e-6. While there are RSLs established for the individual Aroclors for cancer risk, non-cancer RSLs are available only for Aroclor 1016 and 1254. The non-cancer RSL for PCB-1016 was applied for PCB-1221, 1232 and 1242 while the PCB-1254's RSL was applied for PCB-1248, and 1260. The cancer and non-cancer RSLs for PCB-1254 were used for PCB-1262 and 1268. This is consistent with methodology used for risk assessments on Superfund sites in Region 2 (EPA 2017).

Table 2.1 summarizes the screening of soil PCB data. As indicated, six individual Aroclors were detected in the soil. Four Aroclors (PCB-1242, 1248, 1254 and 1260) were present at a maximum concentration in excess of the relevant COPC screening value. Two of the individual Aroclors (PCB-1248 and 1260) were eliminated as COPCs because the detection frequency is less than 5% in a dataset with a minimum of 20 samples. Thus only two individual Aroclors (PCB-1242 and 1254) are considered to be COPCs. Total PCBs can serve as a representative COPC for the sum of the individual Aroclors. **Table 2.2** presents the screening for COPCs in groundwater. Only PCB-1254 was detected in the groundwater. The maximum concentration of Total PCBs in groundwater is less than the MCL or the VISL. Therefore, no COPCs have been identified in groundwater.

A statistical analysis was performed using the ProUCL software (version 5.0) developed by the USEPA to determine representative reasonable maximum exposure (RME) values for the exposure point concentration (EPC) for Total PCBs in soil. EPCs are the 95 percent upper confidence limit (UCL) of the arithmetic mean or maximum observed concentration of an individual COPC, whichever is lower. **Table 3** summarizes the result of the statistical evaluation. The output from the ProUCL run is provided in Appendix A.

The USEPA RSL On-line Calculator (https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) was used to derive relevant risk-based cleanup levels. **Table 4.1** summarizes the exposure factors for the current industrial worker exposure to the sole COPC identified in the soil (Total

PCBs). As noted, the proposed capping remedy eliminates the potential for future industrial worker exposure to site soil. The only identified potentially complete exposure pathway for the future industrial worker is volatilization from soil to indoor air. The EPA VISL Calculator does not provide target concentrations for screening volatilization from soil. However, due to the low volatility of PCBs and the expected attenuation from the proposed soil cap and building floor slab, this pathway is considered insignificant. **Table 4.2** summarizes the exposure factors to derive used for the current and future construction worker. As discussed, there were no COPCs identified in groundwater.

4.0 TOXICITY ASSESSMENT

Current toxicity values for the COPCs were identified using the database in the USEPA on-line RSL calculator, which provides values from a hierarchy of established sources (EPA 2003, 2019). Subchronic toxicity values are provided for use in the construction worker scenario. The relevant non-cancer toxicity values are summarized in **Tables 5.1** and **5.2**. The cancer toxicity values are provided in **Tables 6.1** and **6.2**.

5.0 SUMMARY

Under the current condition there is a potential for “low occupancy” exposure of industrial workers to direct contact with impacted surface soil. The exposed surface soil can potentially be transported as wind-blown dust to on-site workers, or to workers on the adjacent industrial properties or other off-site receptors. In addition, the impacted soil may be transported by stormwater to adjacent surface water and sediment. Since public water is available in the area, use of groundwater is not a potential exposure pathway. All buildings on the site have been demolished so there is no potential indoor air exposure.

A construction worker could come in direct contact with impacted soil during intrusive activities. The construction worker could also come in direct contact with shallow groundwater. However, exposure to groundwater is not considered significant since the maximum Total PCB concentration detected in groundwater on-site is below the drinking water Maximum Contaminant Level (MCL).

The proposed remedy for the Site will include the establishment of institutional (Deed Notice) and engineering (capping) controls. The engineering controls will include a site-wide cap to prevent contact with surface and subsurface soil. The cap will include at least a two-foot thickness of material that meets the New Jersey standards for alternate fill over the entire site, covered by asphalt paving or concrete floor over most of the site. An institutional control in the form of a Deed Notice will restrict the use of the property to commercial/industrial purposes (i.e., not residential).

The proposed site-wide capping remedy would eliminate the potential for direct contact exposure to impacted soil by a future industrial worker. The proposed cap also eliminates the potential for exposures associated with the migration of impacted soil in blowing dust or stormwater. Use of groundwater is not a potential future exposure pathway due to public water supply in the area and the implementation of a groundwater use restriction for the site.

The potential remains for direct contact exposure to soil or shallow groundwater by a future construction worker conducting intrusive activities. However, as noted above, exposure to groundwater is not considered significant since the maximum Total PCB concentration detected in groundwater on-site is below the MCL.

A potential exists for future worker exposure through migration of vapor into proposed future buildings on the site. However, due to the low volatility of PCBs and the expected attenuation from the proposed soil cap and building floor slab, this pathway is considered insignificant.

Therefore, it is our conclusion that the proposed remedy of capping and institutional controls addresses all potentially complete exposure pathways for industrial workers. Work practices, such as a requirement to use OSHA 1910.120 trained workers, are necessary to mitigate risk to current and future construction workers that could come in direct contact with site soils.

6.0 REFERENCES

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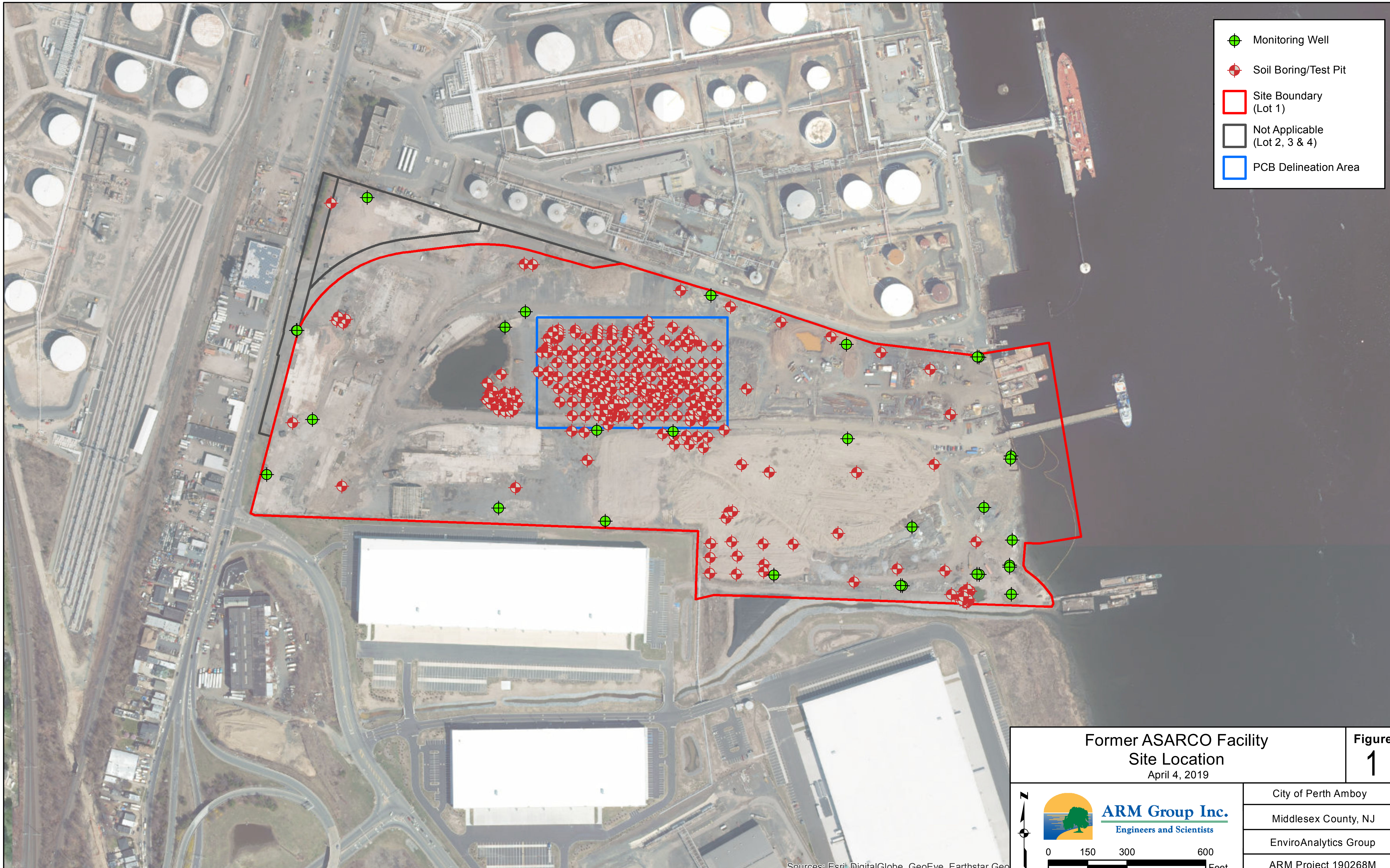
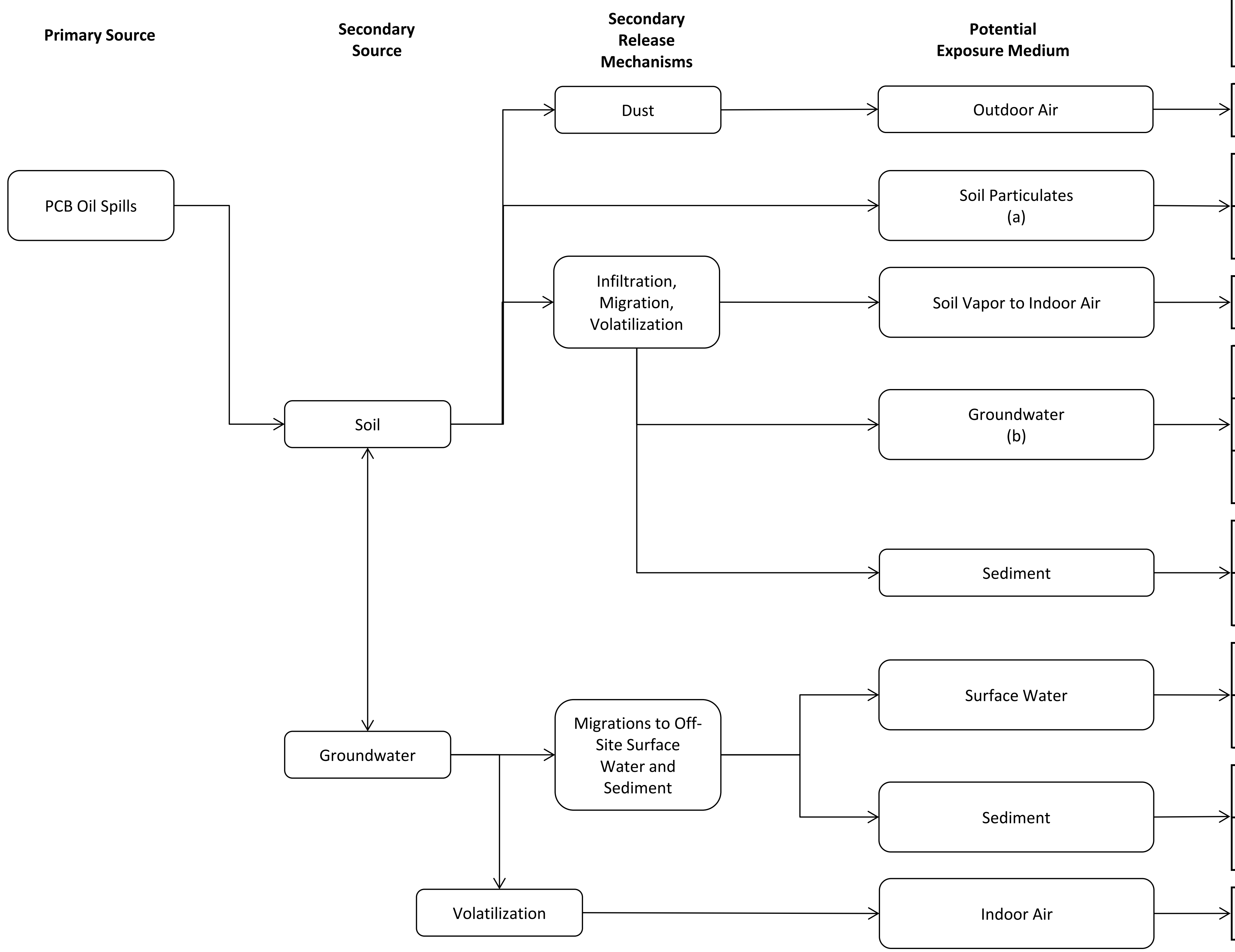
First Environment, Inc. 2019. Current Conditions Report – Perth Amboy1160, LLC. April 2019.

FIGURES



Monitoring Well
Soil Boring/Test Pit
Site Boundary (Lot 1)
Not Applicable (Lot 2, 3 & 4)
PCB Delineation Area
Former ASARCO Facility
Site Location
April 4, 2019
Figure
1
ARM Group Inc.
Engineers and Scientists
City of Perth Amboy
Middlesex County, NJ
EnviroAnalytics Group
ARM Project 190268M
0
150
300
600
Feet
Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geo

Figure 2
Human Health Conceptual Site Model
Current Condition



Potential Human Health Receptors				
Potential Exposure Route	**On-Site Worker**	**Off-Site Resident Adult/Child**	**Off-Site Recreator**	**On-Site Construction Worker**
Inhalation	●	●	○	●
Incidental Ingestion	●	○	○	●
Dermal Contact	●	○	○	●
Inhalation	●	○	○	○
Drinking Water Ingestion	○	○	○	●
Dermal Contact	○	○	○	●
Inhalation	○	○	○	●
Incidental Ingestion	○	○	●	○
Dermal Contact	○	○	●	○
Incidental Ingestion	○	○	○	○
Dermal Contact	○	○	○	○
Incidental Ingestion	○	○	○	○
Dermal Contact	○	○	○	○
Inhalation	○	○	○	○

NOTES

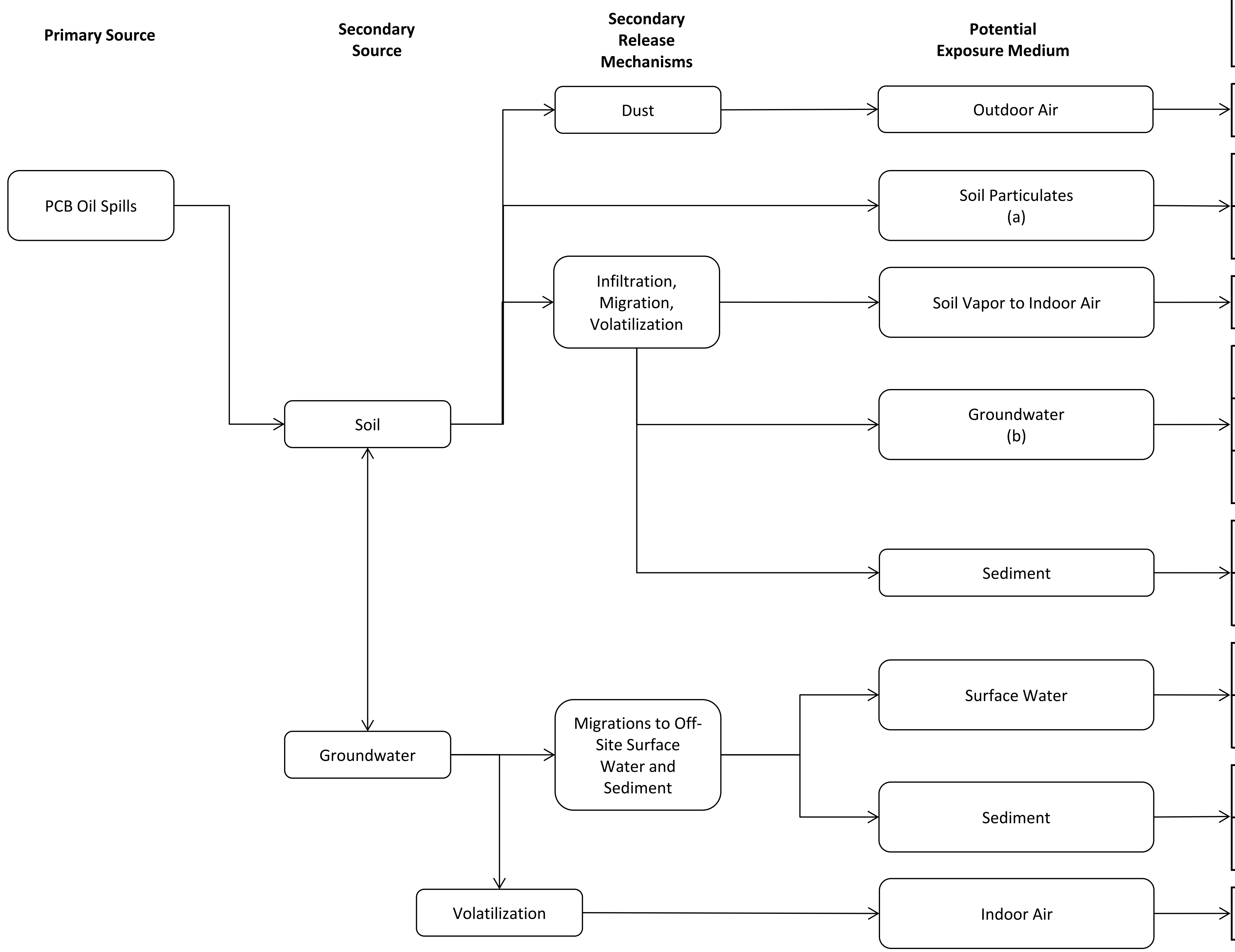
● Pathway assumed to be complete.

○ Pathway assumed to be incomplete.

(a) On-site worker assumes exposure to cap only, while a construction worker assumes underlying

(b) Although public water is supplied for potable use, there is a potential for dermal contact with groundwater for the construction worker

Figure 3
Human Health Conceptual Site Model
After Capping



Potential Human Health Receptors				
Potential Exposure Route	**On-Site Worker**	**Off-Site Resident Adult/Child**	**Off-Site Recreator**	**On-Site Construction Worker**
Inhalation	○	○	○	●
Incidental Ingestion	○	○	○	●
Dermal Contact	○	○	○	●
Inhalation	●	○	○	○
Drinking Water Ingestion	○	○	○	●
Dermal Contact	○	○	○	●
Inhalation	○	○	○	●
Incidental Ingestion	○	○	○	○
Dermal Contact	○	○	○	○
Incidental Ingestion	○	○	○	○
Dermal Contact	○	○	○	○
Incidental Ingestion	○	○	○	○
Dermal Contact	○	○	○	○
Inhalation	○	○	○	○

NOTES

● Pathway assumed to be complete.
○ Pathway assumed to be incomplete.
(a) On-site worker assumes exposure to cap only, while a construction worker assumes underlying
(b) Although public water is supplied for potable use, there is a potential for dermal contact with groundwater for the construction worker

TABLES

TABLE 1

SELECTION OF EXPOSURE PATHWAYS

Former Asarco Site

Perth Amboy, New Jersey

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Surface Soil	Surface Soil	On-Site	Industrial Worker	Adult	Ingestion	Quant	Retained
	Surface Soil	Surface Soil	On-Site	Industrial Worker	Adult	Dermal	Quant	Retained
	Particulates in On-site Air	Air	On-site	Industrial Worker	Adult	Inhalation	Quant	Retained
	Volatilization to Ambient Air	Air	On-site	Industrial Worker	Adult	Inhalation	Qual	Retained
	On-Site Groundwater	Groundwater	On-site	Industrial Worker	Adult	None	None	Excluded
	Off-Site Groundwater	Groundwater	None	Off-site Receptor	NA	None	None	Excluded-area supplied by public water
	On-Site Groundwater	Off-Site Surface Water	Off-site Surface Water	Off-Site Recreator	Adult	None	None	Excluded-Groundwater concentrations below MCLs-no off-site migration
	Particulates in Off-site Air	Air	Air	Off-Site Worker	Adult	Inhalation	Qual	Retained
Future	Surface Soil	Surface Soil	On-Site	Industrial Worker	Adult	None	None	Excluded-Entire Site to be capped
	Particulates in On-site Air	Air	On-site	Industrial Worker	Adult	Inhalation	None	Excluded-Entire Site to be capped
	Volatilization to Indoor Air	Air	On-site	Industrial Worker	Adult	Inhalation	Quant	Retained
	On-Site Groundwater	Groundwater	None	Industrial Worker	Adult	None	None	Excluded-site supplied by public water
	Surface/Sub-suface Soil	Surface/Sub-suface Soil	On-site	Construction Worker	Adult	Incidental Ingestion	Quant	Retained
	Surface/Sub-suface Soil	Surface/Sub-suface Soil	On-site	Construction Worker	Adult	Dermal	Quant	Retained
	Particulates in On-site Air	Air	On-site	Construction Worker	Adult	Inhalation	Quant	Retained
	Volatilization to Ambient Air	Air	On-site	Construction Worker	Adult	Inhalation	Qual	Retained
	Off-Site Groundwater	Groundwater	None	Off-site Receptor	NA	None	None	Excluded-Groundwater concentrations below MCLs-no off-site migration
	On-Site Groundwater	Off-Site Surface Water	Off-site Surface Water	Off-Site Recreator	Adult	None	None	Excluded-Groundwater concentrations below MCLs-no off-site migration
	Particulates in Off-site Air	Air	Air	Off-Site Worker	Adult	Inhalation	None	Excluded-Entire Site to be capped

TABLE 2.1

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Former Asarco Site

Perth Amboy, New Jersey

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
On-site	53469-21-9	Aroclor 1242	ND	1,200	mg/kg	DTP-100 (0.5-1.0)	0.08	NA	1,200	NA	5.1/0.95	1	NJDEP NRSRS	N	Included in Total PCBs
	12672-29-6	Aroclor 1248	ND	70	mg/kg	PEX-75E	0.004	NA	70	NA	1.5/0.95	1	NJDEP NRSRS	N	Included in Total PCBs
	11097-69-1	Aroclor 1254	ND	520	mg/kg	PE-16 (5-5.5)	0.90	NA	520	NA	1.5/0.97	1	NJDEP NRSRS	N	Included in Total PCBs
	11096-82-5	Aroclor 1260	ND	21	mg/kg	DTP-100 (3.5-4.0)	0.01	NA	21	NA	1.5/0.99	1	NJDEP NRSRS	N	Included in Total PCBs
	37324-23-5	Aroclor 1262	ND	0.35	mg/kg	B3-TP2 (0.5-1.0')	0.006	NA	0.35	NA	1.5/0.97	NA	NA	N	Included in Total PCBs
	11100-14-4	Aroclor 1268	ND	0.17	mg/kg	N4-TP2 (0-0.5')	0.002	NA	0.17	NA	1.5/0.97	NA	NA	N	Included in Total PCBs
	1336-36-3	Total PCBs	ND	1,200	mg/kg	DTP-100 (0.5-1.0)	0.91	0.027-0.06	1,200	NA	1.5/0.95	1	NJDEP NRSRS	Y	Retained
	12674-11-2	Aroclor 1016	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	11104-28-2	Aroclor 1221	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	11141-16-5	Aroclor 1232	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected

Footnote Instructions:

(2) Maximum value used for screening.

(3) No background values.

(4) Screening toxicity values obtained from the EPA Composite Worker Soil RSL Table (https://semspub.epa.gov/work/HQ/197422.pdf). Total PCBs uses Aroclor 1254 non-cancer screening toxicity value.

TABLE 2.2

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Former Asarco Site

Perth Amboy, New Jersey

Scenario Timeframe:	Current
Medium:	Groundwater
Exposure Medium:	Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
On-site	11097-69-1	Aroclor 1254	ND	0.46	ug/L	MW-12SR	0.18	0.25	0.46	NA	1.9	0.5	MCL	N	Below Screening Value
	1336-36-3	Total PCBs	ND	0.46	ug/L	MW-12SR	0.18	0.25	0.46	NA	1.9	0.5	MCL	N	Below Screening Value
	12674-11-2	Aroclor 1016	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	11104-28-2	Aroclor 1221	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	11141-16-5	Aroclor 1232	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	53469-21-9	Aroclor 1242	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	12672-29-6	Aroclor 1248	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	11096-82-5	Aroclor 1260	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	37324-23-5	Aroclor 1262	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected
	11100-14-4	Aroclor 1268	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Not Detected

Footnote Instructions:

(2) Maximum value used for screening.

(3) No background values.

(4) Screening toxicity value obtained from EPA Vapor Intrusion Screening Levels (VISL - https://www.epa.gov/vaporintrusion/vapor-intrusion-database).

TABLE 3 RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

Former Asarco Site

Perth Amboy, New Jersey

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
On-site	Total PCBs	mg/kg	36.17	59.76	1,200	59.76	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL

TABLE 4.1 RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Former Asarco Site
Perth Amboy, New Jersey

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Receptor Population	Exposure Route	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Composite Worker	Dermal (Carcinogenic/Non-Carcinogenic)	Adult	On-site	TR	Target Risk	1.00E-06	unitless	EPA RSL Calculator Default	EPA RSL Calculator
				THQ	Target Hazard Quotient	0.1	unitless	EPA RSL Calculator Default	
				AT-C	Averaging Time - Carcinogenic	25550	days	EPA RSL Calculator Default	
				AT-N	Averaging Time - Noncarcinogenic	365	days	EPA RSL Calculator Default	
				LT	Lifetime	70	yr	EPA RSL Calculator Default	
				ED	Exposure Duration	25	yr	EPA RSL Calculator Default	
				BW	Body Weight	80	kg	EPA RSL Calculator Default	
				EF	Exposure Frequency	250	days/yr	EPA RSL Calculator Default	
				RfD	Ingestion Reference Dose	Chemical Specific	mg/kg-day	EPA RSL Calculator	
				CSF	Ingestion Slope Factor	Chemical Specific	$(mg/kg\text{-}day)^{-1}$	EPA RSL Calculator	
				GIABS	Gastrointestinal Absorbance	Chemical Specific	unitless	EPA RSL Calculator	
				SA	Exposed Skin Surface Area	3527	cm2/day	EPA RSL Calculator Default	
				AF	Adherence Factor	0.12	mg/cm2	EPA RSL Calculator Default	
				ABS	Dermal Absorbance	Chemical Specific	unitless	EPA RSL Calculator	
				CF1	Conversion Factor	1.00E-06	kg/mg	EPA RSL Calculator	
	Ingestion (Carcinogenic/Non-Carcinogenic)	Adult	On-site	TR	Target Risk	1.00E-06	unitless	EPA RSL Calculator Default	EPA RSL Calculator
				THQ	Target Hazard Quotient	0.1	unitless	EPA RSL Calculator Default	
				AT-C	Averaging Time - Carcinogenic	25550	days	EPA RSL Calculator Default	
				AT-N	Averaging Time - Noncarcinogenic	365	days	EPA RSL Calculator Default	
				LT	Lifetime	70	yr	EPA RSL Calculator Default	
				ED	Exposure Duration	25	yr	EPA RSL Calculator Default	
				BW	Body Weight	80	kg	EPA RSL Calculator Default	
				EF	Exposure Frequency	250	days/yr	EPA RSL Calculator Default	
				RfD	Ingestion Reference Dose	Chemical Specific	mg/kg-day	EPA RSL Calculator	
				CSF	Ingestion Slope Factor	Chemical Specific	(mg/kg-day)-1	EPA RSL Calculator	
				RBA	Relative Bioavailability Factor	Chemical Specific	unitless	EPA RSL Calculator	
				IR	Soil Ingestion Rate	100	mg/day	EPA RSL Calculator Default	
				CF1	Conversion Factor	1.00E-06	kg/mg	EPA RSL Calculator	
	Inhalation (Carcinogenic/Non-Carcinogenic)	Adukt	On-site	TR	Target Risk	1.00E-06	unitless	EPA RSL Calculator Default	EPA RSL Calculator
				THQ	Target Hazard Quotient	0.1	unitless	EPA RSL Calculator Default	
				AT-C	Averaging Time - Carcinogenic	25550	days	EPA RSL Calculator Default	
				AT-N	Averaging Time - Noncarcinogenic	365	days	EPA RSL Calculator Default	
				LT	Lifetime	70	yr	EPA RSL Calculator Default	
				ED	Exposure Duration	25	yr	EPA RSL Calculator Default	
				EF	Exposure Frequency	250	days/yr	EPA RSL Calculator Default	
				ET	Exposure Time	8	hours/day	EPA RSL Calculator Default	
				RfC	Inhalation Reference Concentration	Chemical Specific	mg/m^3	EPA RSL Calculator	
				IUR	Inhalation Unit Risk	Chemical Specific	$(ug/m^3)^{-1}$	EPA RSL Calculator	
				VF	Volatilization Factor	Calculated Value	m^3/kg	EPA RSL Calculator	
				PEF	Particulate Emission Factor	Calculated Value	m^3/kg	EPA RSL Calculator	

TABLE 4.2 RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

Former Asarco Site

Perth Amboy, New Jersey

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Receptor Population	Exposure Route	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Construction Worker	Dermal (Carcinogenic/Non-Carcinogenic)	Adult	On-site	TR	Target Risk	1.00E-06	unitless	EPA RSL Calculator Default	EPA RSL Calculator
				THQ	Target Hazard Quotient	0.1	unitless	EPA RSL Calculator Default	
				AT-C	Averaging Time - Carcinogenic	25550	days	EPA RSL Calculator Default	
				AT-N	Averaging Time - Noncarcinogenic	365	days	EPA RSL Calculator Default	
				LT	Lifetime	70	yr	EPA RSL Calculator Default	
				ED	Exposure Duration	1	yr	EPA RSL Calculator Default	
				BW	Body Weight	80	kg	EPA RSL Calculator Default	
				EF	Exposure Frequency	250	days/yr	EPA RSL Calculator Default	
				RfD	Ingestion Reference Dose	Chemical Specific	mg/kg-day	EPA RSL Calculator	
				CSF	Ingestion Slope Factor	Chemical Specific	$(mg/kg\text{-}day)^{-1}$	EPA RSL Calculator	
				GIABS	Gastrointestinal Absorbance	Chemical Specific	unitless	EPA RSL Calculator	
				SA	Exposed Skin Surface Area	3527	cm2/day	EPA RSL Calculator Default	
				AF	Adherence Factor	0.3	mg/cm2	EPA RSL Calculator Default	
				ABS	Dermal Absorbance	Chemical Specific	unitless	EPA RSL Calculator	
				CF1	Conversion Factor	1.00E-06	kg/mg	EPA RSL Calculator	
	Ingestion (Carcinogenic/Non-Carcinogenic)	Adult	On-site	TR	Target Risk	1.00E-06	unitless	EPA RSL Calculator Default	EPA RSL Calculator
				THQ	Target Hazard Quotient	0.1	unitless	EPA RSL Calculator Default	
				AT-C	Averaging Time - Carcinogenic	25550	days	EPA RSL Calculator Default	
				AT-N	Averaging Time - Noncarcinogenic	365	days	EPA RSL Calculator Default	
				LT	Lifetime	70	yr	EPA RSL Calculator Default	
				ED	Exposure Duration	1	yr	EPA RSL Calculator Default	
				BW	Body Weight	80	kg	EPA RSL Calculator Default	
				EF	Exposure Frequency	250	days/yr	EPA RSL Calculator Default	
				RfD	Ingestion Reference Dose	Chemical Specific	mg/kg-day	EPA RSL Calculator	
				CSF	Ingestion Slope Factor	Chemical Specific	(mg/kg-day)-1	EPA RSL Calculator	
				RBA	Relative Bioavailability Factor	Chemical Specific	unitless	EPA RSL Calculator	
				IR	Soil Ingestion Rate	330	mg/day	EPA RSL Calculator Default	
				CF1	Conversion Factor	1.00E-06	kg/mg	EPA RSL Calculator	
	Inhalation (Carcinogenic/Non-Carcinogenic)	Adukt	On-site	TR	Target Risk	1.00E-06	unitless	EPA RSL Calculator Default	EPA RSL Calculator
				THQ	Target Hazard Quotient	0.1	unitless	EPA RSL Calculator Default	
				AT-C	Averaging Time - Carcinogenic	25550	days	EPA RSL Calculator Default	
				AT-N	Averaging Time - Noncarcinogenic	365	days	EPA RSL Calculator Default	
				LT	Lifetime	70	yr	EPA RSL Calculator Default	
				ED	Exposure Duration	1	yr	EPA RSL Calculator Default	
				EF	Exposure Frequency	250	days/yr	EPA RSL Calculator Default	
				ET	Exposure Time	8	hours/day	EPA RSL Calculator Default	
				RfC	Inhalation Reference Concentration	Chemical Specific	mg/m^3	EPA RSL Calculator	
				IUR	Inhalation Unit Risk	Chemical Specific	$(ug/m^3)^{-1}$	EPA RSL Calculator	
				VF	Volatilization Factor	Calculated Value	m^3/kg	EPA RSL Calculator	
				PEF	Particulate Emission Factor	Calculated Value	m^3/kg	EPA RSL Calculator	

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

Perth Amboy, New Jersey

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units	(1)	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Aroclor 1254	Chronic	2.00E-05	mg/kg-day	1	2.00E-05	mg/kg-day	Whole Body		EPA RSL Calculator	4/4/2019
Aroclor 1254	Subchronic	3.00E-05	mg/kg-day	1	2.00E-05	mg/kg-day	Whole Body		EPA RSL Calculator	4/4/2019
PCBs Total	Chronic	-	mg/kg-day	1	-	mg/kg-day	NA		EPA RSL Calculator	4/4/2019

Footnote Instructions:

(1) EPA RSL Calculator output - Gastrointestinal Absorption (GIABS).

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

Perth Amboy, New Jersey

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Aroclor 1254	Chronic	-	mg/m^3	-		NA		EPA RSL Calculator	4/4/2019
PCBs Total	Chronic	-	mg/m^3	-		NA		EPA RSL Calculator	4/4/2019

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

Perth Amboy, New Jersey

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal	Absorbed Cancer Slope Factor for Dermal		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units	(1)	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Aroclor 1254	2	$(mg/kg\text{-}day)^{-1}$	1	2	$(mg/kg\text{-}day)^{-1}$		EPA RSL Calculator	4/4/2019
PCBs Total	2	$(mg/kg\text{-}day)^{-1}$	1	2	$(mg/kg\text{-}day)^{-1}$		EPA RSL Calculator	4/4/2019

Footnote Instructions:

(1) EPA RSL Calculator output - Gastrointestinal Absorption (GIABS).

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

Perth Amboy, New Jersey

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Aroclor 1254	5.71E-04	$(ug/m^3)^{-1}$	2.284	$(mg/kg*day)^{-1}$		EPA RSL Calculator	4/4/2019
PCBs Total	5.71E-04	$(ug/m^3)^{-1}$	2.284	$(mg/kg*day)^{-1}$		EPA RSL Calculator	4/4/2019

APPENDIX A

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	3/13/2019 3:40:34 PM
From File	PCB Table_revised w500 (sitewide).xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aroclor (Total)

General Statistics

Total Number of Observations	512	Number of Distinct Observations	244
Number of Detects	468	Number of Non-Detects	44
Number of Distinct Detects	232	Number of Distinct Non-Detects	13
Minimum Detect	0.036	Minimum Non-Detect	0.027
Maximum Detect	1200	Maximum Non-Detect	0.06
Variance Detects	7859	Percent Non-Detects	8.594%
Mean Detects	39.56	SD Detects	88.65
Median Detects	9.8	CV Detects	2.241
Skewness Detects	6.493	Kurtosis Detects	67.39
Mean of Logged Detects	1.903	SD of Logged Detects	2.276

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.486	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.328	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.041	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

Mean	36.17	Standard Error of Mean	3.778
SD	85.39	95% KM (BCA) UCL	41.77
95% KM (t) UCL	42.39	95% KM (Percentile Bootstrap) UCL	42.33
95% KM (z) UCL	42.38	95% KM Bootstrap t UCL	44.05
90% KM Chebyshev UCL	47.5	95% KM Chebyshev UCL	52.63
97.5% KM Chebyshev UCL	59.76	99% KM Chebyshev UCL	73.76

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.34	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.853	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0861	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0451	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)	0.375	k star (bias corrected MLE)	0.374
Theta hat (MLE)	105.6	Theta star (bias corrected MLE)	105.9
nu hat (MLE)	350.7	nu star (bias corrected)	349.8
MLE Mean (bias corrected)	39.56	MLE Sd (bias corrected)	64.72

Gamma Kaplan-Meier (KM) Statistics

53	k hat (KM)	0.179	nu hat (KM)	183.7
54	Approximate Chi Square Value (183.70, α)	153.4	Adjusted Chi Square Value (183.70, β)	153.3
55	95% Gamma Approximate KM-UCL (use when n>=50)	43.33	95% Gamma Adjusted KM-UCL (use when n<50)	43.35
56				
57	**Gamma ROS Statistics using Imputed Non-Detects**			
58	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
59	GROS may not be used when kstar of detected data is small such as < 0.1			
60	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
61	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
62	Minimum	0.01	Mean	36.17
63	Maximum	1200	Median	7.05
64	SD	85.47	CV	2.363
65	k hat (MLE)	0.306	k star (bias corrected MLE)	0.306
66	Theta hat (MLE)	118.1	Theta star (bias corrected MLE)	118.3
67	nu hat (MLE)	313.6	nu star (bias corrected)	313.1
68	MLE Mean (bias corrected)	36.17	MLE Sd (bias corrected)	65.41
69			Adjusted Level of Significance (β)	0.0495
70	Approximate Chi Square Value (313.06, α)	273.1	Adjusted Chi Square Value (313.06, β)	273
71	95% Gamma Approximate UCL (use when n>=50)	41.46	95% Gamma Adjusted UCL (use when n<50)	41.48
72				
73	**Lognormal GOF Test on Detected Observations Only**			
74	Lilliefors Test Statistic	0.0775	**Lilliefors GOF Test**	
75	5% Lilliefors Critical Value	0.041	Detected Data Not Lognormal at 5% Significance Level	
76	**Detected Data Not Lognormal at 5% Significance Level**			
77				
78	**Lognormal ROS Statistics Using Imputed Non-Detects**			
79	Mean in Original Scale	36.17	Mean in Log Scale	1.47
80	SD in Original Scale	85.47	SD in Log Scale	2.602
81	95% t UCL (assumes normality of ROS data)	42.39	95% Percentile Bootstrap UCL	42.95
82	95% BCA Bootstrap UCL	43.66	95% Bootstrap t UCL	43.78
83	95% H-UCL (Log ROS)	200.9		
84				
85	**DL/2 Statistics**			
86	**DL/2 Normal**		**DL/2 Log-Transformed**	
87	Mean in Original Scale	36.17	Mean in Log Scale	1.384
88	SD in Original Scale	85.47	SD in Log Scale	2.759
89	95% t UCL (Assumes normality)	42.39	95% H-Stat UCL	293.2
90	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
91				
92	**Nonparametric Distribution Free UCL Statistics**			
93	**Data do not follow a Discernible Distribution at 5% Significance Level**			
94				
95	**Suggested UCL to Use**			
96	97.5% KM (Chebyshev) UCL	59.76		
97				
98	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
99	Recommendations are based upon data size, data distribution, and skewness.			
100	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
101	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
102				