Prepared for:
Pepco and Pepco Energy Services
Washington, D.C.

Prepared by:
AECOM
Beltsville, Maryland
September 2016

TECHNICAL MEMORANDUM #1
CONCEPTUAL SITE MODEL

Benning Road Facility
3400 Benning Road, NE
Washington, DC 20019

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List of Acronyms

ANS	Academy of Natural Sciences
AST	Aboveground Storage Tank
AWTA	Anacostia Watershed Toxics Alliance
BMP	Best Management Practice
BRS	Biennial Reporting System
BTAG	Biological Technical Assistance Group
CCTV	Closed Circuit Television
COI	Constituent of Interest
CSM	Conceptual Site Model
CSO	Combined Sewer Overflow
cu. ft.	cubic feet
DCWASA	District of Columbia Water and Sewer Authority
DOEE	Department of Energy and Environment
DPW	Department of Public Works
EDR	Environmental Data Resources, Inc.
ESA	Environmental Site Assessment
ESTCP	Environmental Security Technology Certification Program
FS	Feasibility Study
gal	Gallons
ICP	Integrated Contingency Plan
KPN	Kenilworth Park North
KPS	Kenilworth Park South
mg/kg	milligrams per kilogram
MTBE	Methyl tert-butyl ether
MW	Megawatts
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge and Elimination System
NPS	National Parks Service
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
Pepco	Potomac Electric Power Company and Pepco Energy Services, Inc.
PHI	Pepco Holdings, Inc.
POTW	Publicly Owned Treatment Works
ppb	parts per billion
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SI	Site Inspection
SQGs	Sediment Quality Guidelines
SVOC	Semi-Volatile Organic Compound
T&D	Transportation and Distribution
TA	Target Area

TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substances Control Act
µg/100cm^2	micrograms per 100 centimeters squared
µg/kg	micrograms per kilogram
USEPA	United State Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WMATA	Washington Metropolitan Area Transit Authority

1 Introduction

AECOM has prepared this Conceptual Site Model (CSM) Technical Memorandum on behalf of Potomac Electric Power Company (Pepco) and Pepco Energy Services, Inc. (collectively "Pepco") in support of a Remedial Investigation/Feasibility Study (RI/FS) for the Benning Road facility (the Site), located at 3400 Benning Road NE, Washington, DC. The general site location is shown on **Figure 1-1**.

The Remedial Investigation (RI) Study Area consists of a "Landside" component focused on the Site itself, and a "Waterside" component focused on the shoreline and sediments in the segment of the River adjacent to and immediately downstream of the Site. The Landside and Waterside Investigation Areas are depicted on **Figure 1-2**. During the development of the RI/FS Work Plan (AECOM, 2012), eighteen on-Site "Target Areas" were identified to guide the sampling effort, based on historical cleanups and areas of known or suspected contamination resulting from historical Site operations. The eighteen Target Areas are depicted on **Figure 1-3** and described in **Table 1-1**. The target areas are a key consideration in the CSM but are not the only consideration, and other areas of potential concern arising from a historical records review are discussed later in this document. The current and historical building numbers and site areas are shown on **Figure 1-4**, and current and historical site operations areas are shown on **Figure 1-5**.

This document provides a detailed description of the operational history of the Site and surrounding areas, with a focus on the past and present industrial processes and activities and the use, storage, disposal, release and cleanup of various materials and chemicals, and then presents a conceptual framework for the likely sources and transport mechanisms for contaminants identified at the Site as a result of the RI activities completed to date. This preliminary CSM is based on the knowledge gained from review of previous studies, historical company records and the extensive data collected as part of the RI field activities conducted within the Study Area between January 25, 2013 and December 31, 2014, and documented in the Draft RI Report, dated February 2016 (AECOM, 2016). This CSM is an interim document and will be revised following additional field investigation activities to address remaining Site data gaps and uncertainties. A revised CSM will be included in the Final RI Report.

1.1 Report Organization

This technical memorandum is organized into the following seven sections:

- Section 1 – Introduction
- Section 2 – Site Background and History
- Section 3 – Physical Setting
- Section 4 – Off-Site Source Areas
- Section 5 – Historical Onsite Removal Actions and Investigations
- Section 6 – Conceptual Site Model
- Section 7 – References

Figures, tables, and appendices are provided as stand-alone sections following **Section 7**.

2 Site Background

2.1 Site Location and Description

The 77-acre Site is bordered by a District of Columbia Solid Waste Transfer Station to the north, Kenilworth Maintenance Yard (owned by the National Park Service, NPS) to the northwest, the Anacostia River to the west, Benning Road to the south and residential areas to the east and south (across Benning Road). A Site Plan is provided as **Figure 1-2**. Most of the Site is comprised of the Benning Service Center, which involves activities related to construction, operation and maintenance of Pepco's electric power transmission and distribution system serving the Washington, DC area. The Site is also the location of three substations serving Pepco's transmission and distribution system. The Site also included the Benning Road power plant until it ceased operation in June 2012.

The Service Center occupies the largest part of the property, and accommodates approximately 700 Pepco employees. Service Center employees work in maintenance and construction of Pepco's electric transmission and distribution system; system engineering; vehicle fleet maintenance and refueling; and central warehousing for all the materials, supplies and equipment needed to operate the Pepco electrical distribution system. The Site is completely enclosed by a fence with two guarded entrances, staffed 24 hours a day, 7 days a week.

Three active substations are located on the Site, two in the eastern portion (Substation 41 and Substation 7) and one in the western portion (Substation 45). The site of former Substation 14 is located adjacent to the southern Site boundary, to the east of Building 32. To the south of Substation 7 is a large asphalt-covered Pepco employee parking lot. To the south of this area are railroad tracks and Buildings 56, 57, and the transformer staging area. The staging area is used for processing used electrical equipment and associated materials brought to the Site for reconditioning, recycling and/or disposal. The center of the Site is occupied by buildings used for office space, fleet services maintenance, warehouses and storage of hazardous and non-hazardous waste and materials. Areas located outside of the buildings are used for storage of new equipment and also temporary storage of used electrical equipment prior to disposal.

Warehousing facilities at the Site include the following:

- Central Storage Warehouse Facility (Building 88);

- Stock and non-stock storage warehouses (Buildings 35, 40, 41, 42, 60 and 66);
- PCB containment building (Building 68);
- Maintenance storage area (Building 36);
- Salt storage (Building 45); and
- Several outside storage/laydown areas.

The following office/shop complexes are located at the Site:

- Kenilworth Office Building Complex (Buildings 54, 56, 57 and 59);
- Vehicle Resource Management and General Shops Services (Building 75);
- Stores and Facility and Security Services Department Administration Offices (Building 44);
- Fleet Maintenance Facility and Former Print Shop (Building 32); and
- Office trailers located between the former power plant footprint and Building 32.

There are three active underground storage tanks (USTs) at the Site. One is a 15,000-gallon double-walled steel and fiberglass tank installed in 1988 to hold new non-PCB transformer oil. The 15,000-gallon double-walled new transformer oil UST is located within the paved yard surrounded by Buildings 54, 56 and 57. A 20,000-gallon fiberglass tank, installed in 1975, contains gasoline, and a second 20,000-gallon double-walled tank, installed in 1991, holds diesel fuel. All three tanks have leak detection monitoring devices which test the tanks and underground piping for leaks on a monthly basis. These tanks are registered with the District Department of Energy & Environment (DOEE) and are operated in compliance with the District's UST regulations. The locations of these USTs are shown on **Figure 1-3**.

Building 56 in the southeast corner of the Site is used for the service and repair of transformers and other electrical equipment. As a result of Pepco's longstanding program to remove PCB equipment in the course of system repairs and upgrades, there are no known PCB transformers (i.e., PCB concentration in transformer oil equal to or greater than 500 ppm) in Pepco's electrical distribution system (USEPA, 1997). However, pole-mounted transformers within Pepco's distribution system which have not been tested are assumed to contain between 50 and 499 ppm PCBs until they are removed from service and tested.

All untested transformers taken out of service and brought to the Site are staged at the Transportation and Distribution (T&D) Holding Area, a covered structure located outside of Building 56, with an approximately 42 ft by 22 ft concrete pad surrounded by a one-foot concrete berm. All materials delivered to this area are tested for PCB content. Recovered oil containing 50 ppm PCBs or greater is drummed and moved to a Toxic Substances Control Act (TSCA) approved storage facility in Building 68 in the western portion of the

Site for storage pending off-site disposal at an audited and approved disposal facility. Recovered oil containing ≤49 ppm PCBs is pumped to one of two 10,000 gallon holding tanks designated for accumulating oil containing ≤49 ppm PCBs in Building 57. These tanks are installed in concrete vaults, which act as secondary containment. This waste oil is removed as needed by tanker truck to an approved off-site disposal facility. The concrete vault containing the waste oil tanks and the tanker truck loading area are both marked with PCB M_L labels. Recovered oil containing >49 ppm PCBs is drummed and stored in Building 68 for offsite disposal.

Approximately 70% of the Site is covered by impervious material such as concrete or asphalt. Active storage areas not covered by impervious material are covered in gravel. One of the gravel-covered areas is located in the western portion of the Site, directly south of the concrete basins for the former cooling towers. This area was used for the storage of coal during the period when the power plant used coal to generate electricity. Later, this area was used to dewater sludge from the clarifiers associated with the cooling towers. The area is no longer used for either purpose and is now covered by gravel. Railroad tracks enter the Site from the east and run to the west. The tracks were formerly used to transport coal to the power plant and are no longer active.

The Site topography slopes generally towards west, and reaches topographic high point in the south-central area of the Site along Benning Road. Surface elevations range from about 11 ft NAVD88 near the River along the western Site perimeter to about 36 ft NAVD88 in the east of the Site and at the topographic high along the southern Site boundary.

2.2 Site History

2.2 Site History

Pepco has compiled a detailed Site history from a number of sources, including: (1) a thorough review of historical topographic maps and aerial photographs; (2) a review of historical documents; (3) interviews with long-standing personnel familiar with Pepco's Benning Road Facility operations; and (4) historical Site figures. A summary of the historical development of the Site based on review of aerial photographs and historic literature is provided in **Table 2-1**. A set of historical aerial photos and topographic maps from a 2015 Environmental Data Resources, Inc. (EDR) package, and Google Earth software showing the Site's historical development since 1937 is provided as **Appendix A**. Historical Site figures are provided as **Appendix D**.

Pepco acquired eleven acres of land (Parcel A) in 1906 abutting the Anacostia River. Prior to this time, the Site was primarily undeveloped and used for farming. Construction of the original Benning power plant

began in April of 1906. A Pepco publication, the "Pepconian," published in December 1956 commemorating the 50th anniversary of the Benning power plant described the expansion of the Benning facility from 1906 through 1956. The property expanded to the current size of 77 acres by 1956 through the acquisition of seven other parcels of land (Parcel B through Parcel H) to accommodate growing infrastructure needs. A map from the Pepco publication showing the boundaries of these different parcels is provided in **Appendix D**.

The site history is discussed in the following sections by major operation – including power plant operations, historical railroad operations, stores and warehouse operations, fleet services and general shops, and transformer shop operations. The historical and current aspects of stormwater management, and materials and waste management are discussed in Sections 2.3 and 2.4, respectively.

2.2.1 Power Plant Operations

The original power plant was built in 1906 in the southwest portion of the Site. Construction for an expandable power plant began in April of 1906. A 5,000-Kw generating unit was placed in operation in 1906. A second 5,000-Kw unit and two 2,000-Kw units were placed in operation in 1907. Benning's generating capacity increased from 5,000-Kw to 37,000-Kw in 1916. Additions to the power plant were constructed in the 1920s, 1930s, 1940s, 1950s, and circa 1968, which extended the plant northward. The generating capacity of the plant reached 280,000-Kw with the addition of Unit 14 in 1956. A detailed account of plant expansion is provided in Pepconian excerpts in **Appendix D**.

The plant originally burned coal from 1906 to circa 1976, and at times in the past burned No. 6 fuel oil (from 1942 or possibly earlier to circa 1970). Coal piles are seen in aerial photographs from 1937 and 1949 to the north and northeast of the power plant. In circa 1950, the coal pile area was reduced to occupy approximately 2.8 acre area to the northeast of the power plant building. Coal burning units discontinued operations in circa 1976 when coal burning was stopped. Several of the original units were decommissioned and dismantled over the years.

The power plant installed two new oil-fired steam turbine units, Unit 15 and Unit 16, on the northern most end of the power plant to meet Pepco's peak load demands. A railroad spur divided the north end of the power plant building from the rest of the plant. These units were installed in 1968 and 1972, respectively and operated on No.4 fuel oil. Two auxiliary boilers were also installed around the same time. These boilers were installed to provide start-up steam for Units 15 and 16, and to provide for building heat. The auxiliary boilers operated on No. 2 fuel oil. Since 1976, the facility exclusively burned fuel oil and was operated only 10 to 15 days annually to ensure sufficient available power during peak demand periods. The

power plant was permanently shut down on June 1, 2012. The power plant buildings and structures were demolished and removed in late 2014 and early 2015 under the oversight of DOEE and in accordance with permits issued by the D.C. Department of Consumer and Regulatory Affairs (DCRA). Backfilling and site restoration activities were completed by mid-May 2015.

Several electrical transformers supporting the power plant and power transmission functions were located to the west of the power plant building. This was known as "transformer row." Structures resembling the transformer row were noticed on the 1952 aerial photograph. It is not clear if the containment structures around the transformers were present when the transformers were originally built due to low resolution of the photograph. Secondary containment structures were present around the transformers at the time of their decommissioning and demolition in 2014. Based on the SPCC Plan, all of the large power transformers were surrounded by a concrete berm. The PCB content of oil within these transformers has not been documented historically. Based on the Benning property map from 1950, former Substation 14 was located immediately to the east of the plant at the southern end of the plant. The Pepconian publication notes that Substation 14 was constructed in 1907. According to the URS Phase I report of 1999, the deactivated substation contained two transformers and metal switch gears that were reportedly installed in the 1930s or 1940s. PCBs were not detected in oil samples collected from the two transformers.

Structures associated with the power plant included four fuel oil aboveground storage tanks (ASTs), two cooling towers, and storage buildings. The three largest of the four ASTs (labeled 1, 2, and 3) were located in the former AST area in the center-west area of the Site. The three tanks were constructed between 1941 and 1968, and were surrounded by a circular reinforced concrete dike designed to contain 110 percent of the tank volume from as early as 1952 according to the historic aerial photos. AST 1 (618,000 gal capacity) was constructed in 1942, AST 2 (1,847,000 gal capacity) was constructed in 1951, and AST 3 (1,984,000gal capacity) was constructed in 1968. New bottoms were installed in ASTs 1 and 2 in 1997. The fourth fuel oil AST (AST 4), with a capacity of 50,000 gal, was constructed prior to 1970 in the northwest of the Site.

The three bulk oil ASTs (Tanks 1, 2, and 3) were supplied with No. 4 fuel oil by a pipeline until the mid-1980s. The No. 4 fuel oil was directly pumped via a pipeline (not owned by Pepco) from a terminal located at 1333 M Street on the east side of the Anacostia River to the three bulk fuel ASTs. The pipeline's on-Site route is shown on **Figure 1-4**. From the mid-1980s, No. 4 fuel oil was shipped to the property via truck and pumped into the ASTs. No. 2 fuel oil was delivered via truck and pumped into a 50,000 gallon AST (AST 4) located east of the plant building, south of the cooling towers (URS, 1999). The No. 2 fuel oil was used as fuel for the auxiliary boilers.

To avoid the possibility of any thermal pollution to the Anacostia River from the installation of generating units #15 and #16, Pepco installed cooling tower #15 and cooling tower #16 in 1969 and circa 1970, respectively. Each unit was equipped with an eight-cell cooling tower designed to remove heat from the recycled condenser circulating water. Makeup water for the tower system was taken from the Anacostia River. The makeup water was treated in clarifiers associated with each cooling tower to remove suspended solids and chlorinated prior to its use in the cooling towers. Clarified water was also used as boiler feed water after it was treated by softeners and in an ion exchange-type treatment system located inside the power plant building. The boiler feed water system was later replaced by city water followed by a demineralizer. The non-contact cooling tower blowdown, boiler blowdown, regeneration process water, and clarifier blowdown flowed to the lift station and through an oil/water separator before being discharged to the Anacostia River in accordance with an existing National Pollutant Discharge Elimination System (NPDES) permit.

Prior to the construction of the cooling towers in circa 1970, the facility had a once-through cooling system for Units 10, 11, 12, 13 and 14. These once through systems drew River water through the intake channel connected to a series of below-grade inlet tunnels, ultimately discharging through a discharge tunnel. The intake and discharge tunnels are shown on the 1950 Pepco drawing (**Appendix D**). All the connections from and to the River were isolated at plant entry points during the plant decommissioning.

The closing of the power plant in 2012 eliminated the need for the ASTs and cooling towers. Consequently, the four ASTs were demolished in early 2013, and the superstructures of the two cooling towers were demolished in early 2014. The removal of the cooling tower basins and adjacent PCB-impacted soils is expected to be completed in the summer of 2016.

A review of historic aerial photos (**Appendix A**) revealed the former storage of timber poles in the central and eastern portions of the Site (locations depicted on **Figure 1-5**) between approximately 1950 and 1970. It is presumed that the timber poles were chemically treated with a preservative, but it is not known where the treatment occurred, and further information regarding the timber poles is not available.

Since the Site's inception in 1906, several areas were used as equipment storage, staging, and laydown areas, as annotated on the historic aerial photos in **Appendix A**, and depicted in **Figure 1-5**. Based on available information, these areas were variously used for storage of timber poles, cable reels, switchgear, circuit breakers, batteries, transformers, capacitors, and other electrical distribution system components. Further information regarding the specific nature of the materials and activities in these laydown areas is not available.

2.2.2 Historical Railroad Operations

Several railroad spurs appear in the aerial photographs and topographic maps (starting in 1937). Pepco's 1950 map clearly shows the railroad spurs on the Site and notes a Pennsylvania Railroad outdoor station (also the location of the former railroad switch yard and current Substation 45). It appears that the railroad entered the Site from the east and encircled the coal pile area and the power plant building for supplying coal to the power plant. Multiple spurs in the southeast portion of the Site indicate a railroad yard for parking coal cars. The former switchyard contained two out-of-service transformers, a small control building, two banks of resistors, and an approximately 15-foot tall empty storage tank at the time of URS's Phase 1 inspection in 1999. The switchyard was leased to railroad companies such as Conrail and Norfolk Southern or their predecessors starting in 1934. Based on the 1950 Pepco map, approximately 3.15 acres of property located in the southeastern portion of the property was leased to D.C. Transit Company at least through circa 1950. This area contained an engine shed, shops, warehouse and a substation (Pepco drawings, 1950). Currently, buildings 54 and 56 occupy much of this area. The Pepconian publication noted that this parcel was re-purchased by Pepco in 1955.

2.2.3 Stores and Warehouse Operations

Building 32 is the first and the oldest warehouse building on Site constructed in 1926 (Pepconian, 1956) and first appears on the 1937 aerial photo (**Appendix A**). Pepco's drawing from circa 1950 also notes this building as a warehouse. It appears that this building was converted in circa 1950 to house a print shop and fleet services. It is not known when this conversion took place. Additional warehouse facilities constructed in 1951-52 include former warehouse 33, Buildings 38 and 39 (Pepco, circa 1950, **Appendix D**), and existing warehouse Building 35.

Former warehouse Buildings 38 and 39 were demolished and stores and warehouse operations were moved to new stores Building 88 in the mid-1980s (between 1981 and 1988 as shown on the aerial photos, **Appendix A**). Approximately 10,000 stock items (e.g., nuts, bolts, new transformers, personal protective equipment, non-PCB mineral oil drums, non-hazardous cleaning solvents, etc.) are stored in Building 88 and issued to Pepco's transmission and distribution personnel. The URS Phase I (1999) study noted that Building 33 consisted of bathrooms, locker rooms, and storage areas. The northern portion of this building reportedly was used to store furniture. Building 35 has always been used as non-stock storage warehouse. This warehouse was reported to stores tires, drums of oil, antifreeze, and batteries.

Five small warehouse buildings (Buildings 40, 41, 42, 60, and 61) located to the east of Building 88 were constructed between 1951 and 1968. These buildings have been used for storing non-stock items including

electrical components and non-PCB mineral oil drums. The URS Phase I (1999) noted that the warehouse Building 65 was constructed in 1979-80. This building appeared first on the 1982 aerial (**Appendix A**). Building 65 was used to store Power Plant chemicals (including solvents) and overflow items from the Stores warehouse (e.g., stationery). Plant chemicals were moved into the Power Plant building in 2004. Building 65 has been used for general stores since 2004. One half of Building 65 now stores high-value cable and the other half stores telecom equipment, smart meters and LED lights.

2.2.4 Fleet Services and General Shops

A Fleet Maintenance facility was historically located in Building 32. This building consisted of several maintenance bays and a vehicle wash bay (in the northern most portion of the building). Hydraulic lifts (reported to be aboveground), and materials and wastes typical to vehicle maintenance were located in the building (URS, 1999). Fleet services operations (except the wash bay) moved to Building 75 in circa 2003. The wash bay is still located in Building 32. Wash water passes through an oil water separator and is discharged to the sanitary sewer.

Building 75 was constructed between 1981 and 1988, and is located next to the Stores building (Building 88). One portion of the building serves as general shops and includes the following operations: steel fabrication, tool repair, carpentry shop, high voltage glove testing, and rubber blanket testing. Formerly the building also included a paint shop and concrete forming processes. Materials used in this portion of the building include acetone, lacquer thinner, aerosol paints, cleaner degreaser (non-hazardous), mineral oil, lubricants and hydraulic fluids. The fleet operations portion of the building has three new aboveground hydraulic lifts and provides tire change, oil change, and transmission services to the Pepco fleet. The fleet operations use or store a number of materials including motor oils, diesel exhaust fuel (DEF), Biosolv (a non-hazardous, biodegradable solvent), transmission fluid, parts cleaners, lead acid batteries, antifreeze, and diesel fuel. The parts cleaner uses an aqua-based cleaner. Scrap tires are picked up by a tire disposal service. Used oil is collected in a 300-gallon double walled used oil tank located outside the building. All operations are conducted indoors on a concrete floor with no floor drains. Spills kits are readily available.

2.2.5 Print Shop

Historically a print shop operated in the southern portion of Building 32. It appears that the print shop started operation sometime after 1950. During interviews, Pepco personnel noted that the print shop was outsourced and related operations in Building 32 were moved out in circa 2003. Print shop operations reportedly included printing of overhead signs, packaging labels, and brochures. The URS Phase I report noted that the print shop stored small quantities of various solvents and chemicals (< 5 gal), a silver

recovery unit which extracted silver from used developing chemicals, and small containers of hazardous wastes (solvent and ink-contaminated rags). There were no floor drains in the print shop area.

2.2.6 Transformer Shop

During interviews, Pepco personnel noted that Buildings 38 and 39 formerly housed the transformer shops which were moved to Building 56 in the mid-1980s. A predecessor of current Building 56 appears first on a 1943 topographic map (**Appendix A**). The Pepconian publication (**Appendix D**) notes that the parcel containing these buildings was re-purchased by Pepco in 1955. It is not known what the buildings were used for between 1955 and the mid-1980s. The transformer shop activities include processing used electrical equipment and associated materials brought to the Site for reconditioning, recycling or disposal. Outside Building 56 is a bermed concrete pad covered by a roof. This area serves as a temporary holding area for electrical equipment and associated materials. All materials delivered to this area are tested for PCBs. Once PCB concentrations are determined, the materials are routed to other areas of the facility for reuse or appropriate disposal.

2.2.7 Historical Activities in the River

In 1967, Pepco may have dredged the cooling water intake channel to the southwest of the Site, north of the Benning Road Bridge, to expand the generating station's cooling water inlet pipe. Pepco proposed to stage the dredged sediment on the National Park Service (NPS) property to the west of the Site, as shown on the historic Pepco drawings provided in **Appendix E**. It is unknown whether Pepco did in fact stage dredge spoils on NPS property, and if so, over what areal extent. Based on a comparison of the proposed dredge spoils area shown in the historic aerial photos from 1963 and 1968 provided in **Appendix A**, there does not appear to be any significant disturbance to the area, and the tree line along the river bank is clearly present in the 1968 aerial, suggesting the emplacement of dredged material may not have occurred to the extent proposed in the 1967 Pepco drawings. This presents a data gap and will be further investigated.

In 1995 and 1996, Pepco conducted dredging of the Anacostia River to the west of the Site (extending north from the Benning Road bridge for approximately 900 ft) for the installation of a new water intake pipe for the power plant. Dredged sediments were used to construct a wetland in the vicinity of the intake. The District of Columbia Department of Consumer and Regulatory Affairs requested that Pepco collect sediment samples before and after dredging for use in evaluating the potential impacts of future larger scale dredging projects in the River. Pre-dredging sediment samples exhibited PCB concentrations of 717 to 895 parts per billion (ppb). Post-dredging sediment samples exhibited PCB concentrations of 119 to 934 ppb. (Pepco, 1997)

2.2.8 Historical UST Removals

A 20,000-gallon epoxy-coated steel gasoline tank, installed in 1979 to the northwest of Building 56, was removed in August 2012. The DOEE UST Branch inspected the tank site after the removal took place. The soil and groundwater samples, which were collected following DOEE's inspection, did not show any detectable levels of constituents of concern. Accordingly, DOEE issued a letter of permanent tank closure for this case. A total of six UST removals/closures in place occurred at the facility between 1989 and 1997 in accordance with the District's UST regulations and under DOEE oversight. The tanks ranged in size from 250 gallons to 15,000 gallons. Two fuel oil USTs (250 and 550 gal) and one UST containing used oil (2,000 gal) were removed in the area of the former ASTs (Target Area 13). Two diesel-containing USTs (4,000 and 10,000 gal) were removed from the area of the Benning Fuel Island (Target Area 2). A single UST containing fuel oil (15,000 gal) was removed from the area to the east of power plant units 13 and 14.

Sampling was conducted following the tank removals and UST closure reports were submitted to DOEE in each case. These former UST locations fall within the Target Areas identified in **Table 1-1** and **Figure 1-3**. Please refer to **Table 1-1** for further details regarding the USTs and **Figure 1-3** for the locations of active and former USTs.

2.3 Storm Water Management

As shown in the storm sewer drainage map provided in **Appendix B**, there are two storm drain systems at the Site. The majority of the Site is drained by the main storm sewer system that traverses the Site from southeast to northwest and discharges to the River at Outfall 013. The area to the west of the former Power Plant building is drained by a smaller storm sewer system that discharges to the River at Outfall 101. The 1937 aerial appears to show a drainage feature (resembling an open ditch) extending from the southeast corner of the site, through the central portion, then north/northwest toward a narrow inlet discharging to the Anacostia River. This drainage feature is most likely Piney Run, which is present in topographic maps through 1956. The current storm drain system discharging to Outfall 013 appears to approximately follow this drainage feature. The drainage feature is visible in the 1949 aerial photograph, but not the 1952 aerial photograph. Records indicate the portion of Piney Run on the Benning Road property was replaced by the underground storm drain system in the early 1950s. The onsite storm drain system appears to have been initially connected to the city storm sewer along Kenilworth Avenue in the vicinity of Building 57, and was plugged to eliminate discharge from Kenilworth Avenue circa 1987.

Storm water collected in storm drain inlets at the facility is discharged to the River via Outfall 013 and Outfall 101 (**Figure 1-3**) under the facility's National Pollutant Discharge and Elimination System (NPDES) permit

(DC0000094). The majority of this stormwater runoff from the facility is conveyed through a 48 inch concrete pipe which widens to 54 inch before it discharges to the River via Outfall 013. The Site employs various Best Management Practices (BMPs) to control sediments and contaminants in stormwater discharged from the Site, including the use of filters, screens and absorbent booms at all storm drain inlets. Storm drain BMPs were first put into practice circa early 1990s, and a Stormwater Pollution Prevention Plan for the Site was in place by 1995. In addition, Outfall 013 also received cooling tower blow down and cooling tower basin wash water when the power plant was in operation. As described above, these towers are no longer operational, as Pepco ceased the operations at Benning Road Power Plant effective June 1, 2012. Outfall 101 receives storm water runoff from inlets in the southwest corner of the property. Outfall 101 also received storm water collected in secondary containment basins for transformers associated with the former power plant. The transformers and their containment areas have been demolished and removed as part of the power plant demolition, eliminating the secondary containment discharges to Outfall 101.

Outfall 013 discharges to a cove of the Anacostia river just north of the Site. There are three additional non-Pepco outfalls that discharge into this same cove in close proximity to the discharge pipe for Outfall 013. These additional outfalls appear to drain properties adjacent to the Benning Road site or adjacent roadways (e.g., the DC Department of Public Works Solid Waste Transfer Station and the NPS Kenilworth Maintenance Yard). There is also a city storm sewer outfall located adjacent to and approximately 20 feet downstream of Outfall 101.

2.4 Chemicals Used or Stored Onsite

A table providing a summary of current and historic Site chemical use is provided as Table 2-2. According to previous environmental site assessments for the Site and interviews with Pepco personnel, the majority of chemicals historically or currently used or stored in bulk quantities at the Site are PCB-containing transformer oils, non-PCB transformer mineral oil, fuel oil for power generation, and motor fuels for vehicles. Available lists of chemicals were reviewed as provided in three reports: 1999 URS Phase I Environmental Site Assessment (ESA) of the Benning Generating Station, 2013 Benning Integrated Contingency Plan (ICP), and 2014 Tier II Emergency and Hazardous Chemical Inventory for calendar year 2014. In addition, a search was conducted of the Biennial Reporting System (BRS) database for records reported to USEPA of hazardous waste shipped from the Benning Road Facility during the period 1989-2013. Copies of the three chemical lists and the results of the BRS database search are provided as **Appendix C.** Copies of three historic drawings showing the Site layout and chemical storage locations are included in **Appendix D**.

In addition to the chemicals discussed above, coal was stored and used onsite from 1906 until the conversion to fuel oil in 1976. Fly ash and bottom ash produced from coal burning were always disposed of

off-Site. Boiler ash was dewatered in settling tanks, treated chemically, then disposed of offsite. Hydrazine, a rust inhibitor used for boiler water treatment, was known to be stored on site as well.

The documents reviewed confirm that the materials used or stored at the Site in significant quantities are limited to mainly PCB-containing materials and petroleum products. A number of other chemicals have been used or stored onsite in relatively small quantities and with no recorded history of significant leaks or spills. Pepco records do not indicate the use or storage of organochlorine pesticides or heat transfer fluids, at the Site. In-person interviews revealed the use of degreasers SS25 and XL99, which are chlorinated solvents, in area 34 in the southern portion of the power plant building. Their use was discontinued in the 1980s and the Site switched to non-chlorinated solvents. A listing of hazardous waste solvents in the 2013 ICP was reviewed with Pepco and determined to indicate the use of isopropyl alcohol, methyl alcohol, iso-Octane, hexane, heptane, and xylenes.

The generating station used coal from its inception in 1906 to its transition to burning fuel oil in 1976. Infiltration of rainwater through the coal pile may have contributed to the migration of metals (including As, Cr, Co, Pb, and V) into the soils below it. Coal storage can be seen in the 1937 aerial at the north and northwest of the plant building, in two equal-sized piles covering approximately 4.5 acres. The footprint of the coal storage area decreases as the plant building expands to the north and decreases further when cooling tower construction appears to begin in the late 1960s. The shrinking of coal pile area is related to retiring of older generation units and replacement of coal with oil.

The former sludge dewatering area was located to the south of the cooling towers and east of Units 15 and 16 in the area of the former coal pile. The dewatering area appears to be put in place following the removal of coal piles to handle the sludge from the clarifiers associated with the cooling towers. The sludge dewatering area remained in place, adjacent and north of Building #65, gradually shrinking in size until 2010, when it is no longer visible in aerial photographs and appears to be replaced with a gravel-surfaced parking area. Per the 2011 Conestoga-Rovers Decommissioning Plan, aluminum sulfate and sodium hydroxide were used for water treatment in the clarifier houses associated with the cooling towers. Sludge from the clarifiers was initially placed in the drying ponds and was allowed to dry through evaporation. Upon drying, sludge was removed for off-site disposal. Eventually, clarifier sludge was dewatered in a filter house for off-site disposal. This change eliminated the need for the drying area over the years.

Through approximately 1970, extensive lay down areas were present in the east, central, and southern portions of the site, as seen in the aerial photographs. These areas were likely used for storage of construction equipment, construction materials, cable spools, and electrical equipment. One former lay

down area is Target Area 7, where a 1988 PCB removal action occurred. The PCB source at this area was likely leaking capacitor banks awaiting disposal.

As described in Section 2.1, there are three active USTs at the Site, one containing non-PCB transformer oil (adjacent to Building 56) and the other two containing, respectively, gasoline and diesel fuel (Benning Fuel Island). Several former USTs and ASTs at the Site contained gasoline, diesel fuel and fuel oils for power generation. These tanks were closed in accordance with applicable DOEE regulations.

Building 32 was constructed in 1926 to serve as the first warehouse. This building was noted as a warehouse on a circa 1950 Pepco drawing. The building may have been converted to Fleet Maintenance Shop and Print Shop sometime after 1950. A Safety Kleen parts washer was used in Building 32, as well as aerosol sprays. Fleet shop operations were relocated to Building 75 in 2003. Circa 2003-2004, Fleet Shop operations replaced the parts cleaning service with a water-based parts cleaner. In addition to the aboveground lifts containing hydraulic fluids, materials observed in the Fleet Maintenance portion of Building 32 during the 1999 URS Phase I ESA included batteries, motor oil stored in double-walled tanks, two flammable storage lockers, used oil contaminated debris (likely rags or other absorbents used for oil removal), antifreeze, and a hazardous waste container for storage of lead-containing vehicle lamps. The southern portion of this building (the Print Shop) was found to store small quantities (<5 gal) of various solvents and chemicals. The Print Shop was used to print signs, brochures, and other materials. The Print Shop formerly included a silver recovery unit, which extracted silver from used developing chemicals. After the silver was extracted, the remaining non-hazardous fluids were discharged into the sanitary sewer with the approval of the Publicly Owned Treatment Works (POTW). The Print Shop ceased operations in 2003 and printing operations were outsourced to an external contractor. The Stores Department currently uses the southern portion of Building 32 for storage.

Fleet maintenance operations were moved from Building 32 to Building 75 in 2003. Building 75 currently houses three aboveground hydraulic lifts. Building 75 currently contains two 300 gal motor oil ASTs, two 300 gal diesel ASTs, and one 300 gal antifreeze AST. There is also one double-walled 300 gal used oil AST outside the building.

According to the 1999 URS ESA, the Former Railroad Switchyard located east of Building 32 contained deactivated transformers, outdoor metal switchgear, oil-filled circuit breakers, and a battery storage area, some of which appeared to be in disrepair. Staining was observed on the stone beneath one of the existing transformers and also near a transformer that had been removed. The location of the former railroad switchyard is shown on **Figure 1-4**.

These and other areas of known or suspected contamination at the Site, as well as former PCB cleanup areas, were identified during the development of the RI/FS Work Plan as Target Areas to guide the sampling effort. The Target Areas are shown on **Figure 1-3**, and detailed descriptions of the Target Areas, including their reason for inclusion and target constituents, are provided in **Table 1-1**. The principal target constituents at the Target Areas were PCBs, PAHs, TPH, and metals; these constituents are consistent with the available information regarding historical operations and releases at the Site. Additional information regarding recorded chemical spills and associated cleanups at the Site is provided in **Section 5**.

In 1967, Pepco may have dredged the inlet to the southwest of the Site, north of the Benning Road Bridge, to expand the generating station's cooling water inlet pipe. Pepco proposed to stage the dredged sediment on the National Park Service (NPS) property to the west of the Site, as shown on the historic Pepco drawings provided in **Appendix E**. It is unknown whether Pepco did in fact stage dredge spoils on NPS property, and if so, over what areal extent. Based on a comparison of the proposed dredge spoils area shown in the historic aerial photos from 1963 and 1968 provided in **Appendix A**, there does not appear to have been any significant disturbance to the area, and the tree line along the river bank is clearly present in the 1968 aerial, suggesting the emplacement of dredged material may not occurred to the extent proposed in the 1967 Pepco drawings.

3 Physical Setting

3.1 Land Use and Demography

The Site is located in Ward 7 in the District of Columbia, within the 20019 zip code. Ward 7 is typified by single-family homes and parks. It is home to a number of Civil War fort sites that have since been turned into parkland, including Fort Mahan Park, Fort Davis Park, Fort Chaplin Park and Fort Dupont Park. Ward 7 is also home to green spaces such as Kenilworth Aquatic Gardens, Watts Branch Park, Anacostia River Park and Kingman Island.

Ward 7 also has an extensive waterfront along the Anacostia River with riverfront neighborhoods. River Terrace, Mayfair and Eastland Gardens abut the east side of the river, while Kingman Park sits to the west.

This area is primarily urban with the Anacostia River bordering the area to the west. The Anacostia Freeway is the main north-south highway and East Capitol Street NE is the main east-west highway. Transportation in the vicinity of the Site takes the form of light rail or motorized vehicles. The Washington Metropolitan Area Transit Authority (WMATA) operates the light rail system in Washington, DC (known as Metrorail). The Minnesota Avenue Metrorail Station is located immediately to the east of the Site. Approximately 19% of the population in the 20019 zip code uses Metrorail to commute to and from work, with an average of 3,274 people using the Minnesota Avenue Station per day. A large percentage of the local residents use automobiles, either singly or in carpools, to commute to and from work.

Minnesota Avenue in the vicinity of the Site is zoned as commercial. In addition, a commercial light manufacturing corridor exists along the Kenilworth Ave/Metrorail tracks. Property along Benning Road is zoned sporadically as commercial. All other surrounding areas are largely residential. Most of the houses in the area were built between 1940 and 1969. The majority of the housing units are either single-family detached or single-family attached units. There are three high schools, 21 public primary/middle schools, and five private primary/middle schools within the boundaries of zip code 20019. Of the schools reported being within the 20019 zip code, four are located within a 0.25-mile radius of the boundary of the Site: Thomas Elementary School, Cesar Chavez Middle and High School, Benning Elementary School, and River Terrace Elementary School (Google Earth).

According to a USEPA 2009 Site Inspection Report, there are no drinking water intakes located within 15 miles of the Site. Based on a review of the Environmental Data Resources, Inc. (EDR) Report dated January 2015, no water supply wells are located within 0.5-mile of the Site. The District of Columbia Water and Sewer Authority (DC Water) provides drinking water to the surrounding area by drawing raw water from intakes located at Great Falls and Little Falls on the Potomac River, upstream from the confluence of the Potomac River with the Anacostia River (http://www.dcwater.com/about/facilities.cfm).

3.2 Surface-Water Hydrology

The Anacostia River watershed encompasses an area of approximately 456 square kilometers (km^2) (176 square miles, mi^2) within the District of Columbia and Maryland, and lies within two physiographic provinces, the Piedmont Plateau and the Coastal Plain. The Anacostia River begins in Bladensburg, MD, at the confluence of its two major tributaries, the Northwest Branch and the Northeast Branch, and flows a distance of approximately 8.4 miles before it discharges into the Potomac River in Washington, DC (Sullivan and Brown, 1988). Because of its location in the Washington metropolitan area, the majority of the watershed is highly urbanized. An analysis of geographic information system (GIS) layers prepared by the Metropolitan Washington Council of Governments (MWCG) indicates that land use in the watershed is approximately 43% residential, 11% industrial/commercial, and 27% forest or wetlands, with 22.5% of the area of the watershed covered by impervious surfaces (MWCG, 2007).

The Anacostia River is subject to tidal influence. River surface elevations in the Study Area generally range from approximately -1.7 ft to 3.3 ft MLLW. The average variation in the river's stage over a tidal cycle is about 1 meter (3.3 ft). The width of the river varies from approximately 60 m (197 ft) in some upstream reaches to approximately 500 m (1640 ft) near the confluence with the Potomac, and average depths across a transect vary from about 1.6 m (5.2 ft) near Bladensburg to about 6.2 m (20.3 ft) just downstream of the South Capitol Street Bridge. During base flow conditions, measured flow velocities during the tidal cycle have been in the range of 0 to 0.3 meters per second (m/sec) (0 to 1 feet per second, ft/sec) (Katz et al., 2001).

Based on a review of NOAA's Office of Coast Survey Navigation Chart #12289 dated October 2010, the navigable Anacostia channel ends before the Pennsylvania Avenue Bridge, which is approximately 1.6 miles downstream of the Site. According to information provided by the USACE, the most recent navigational dredging was performed prior to 2002, and included dredging up to Bolling Air Force Base. Pepco conducted cooling water intake dredging adjacent to the Site in 1995 and 1996, and the Maryland National Capital Parks and Planning Commission is known to conduct dredging of the River in the Bladensburg area.

At mid-tide conditions, the navigational channel in the Study Area ranges in depth from about 5 to 17 ft. The deepest part of the channel is generally the outside of each bend, where flow velocity and erosional forces are greater. A sand bar is in evidence directly south of the Benning Road Bridge, likely due to greater sediment deposition in this area caused by the interruption in flow downstream of the bridge pier.

Mud flats are exposed at low tide along the eastern bank of the River on either side of the Benning Road Bridge and in the area of the cove into which Outfall 013 and three adjacent non-Pepco outfalls discharge. Two constructed wetlands surrounded by sheet piling exist along the eastern bank of the River in the Waterside Investigation Area: one directly west of the Site, and another approximately 325 ft south of the Benning Road Bridge. There is also a sea wall along the eastern bank of the River to the west of the Site, as shown in **Figure 1-3**.

Geologic logs for the River coring locations collected during the RI activities revealed the presence of primarily silt deposits in the sediment column from zero to ten feet below top of sediment. Silt was in many cases underlain by sandy sediments between five and ten feet below top of sediment. Trace organic material was ubiquitous within the surficial two feet, including leaves, twigs, and macroinvertebrates.

3.3 Geology

3.3.1 Regional Geology

The facility is located within the Coastal Plain Physiographic Province, which is characterized by eastward thickening sequences of unconsolidated deposits. The western limit of the Coastal Plain Province is referred to as the Fall Line, where the metamorphic and igneous bedrock of the Piedmont Physiographic Province dips to the southeast beneath the younger sediments of the Coastal Plain (Johnston, 1964). The Fall Line is located approximately five miles west of the Site.

The Coastal Plain consists of an eastward-thickening wedge of unconsolidated sedimentary deposits ranging in geologic age from Cretaceous to Recent. These unconsolidated sediments consist of gravels, sands, silts, and clays that have been deposited upon the consolidated crystalline bedrock which slopes towards the southeast. Many different depositional environments existed during the formation of the Coastal Plain sediments. Glacially influenced periods of erosion and deposition, fluvial (river) processes, and structural deformations of the sedimentary deposits have all played a part in the evolution of the Coastal Plain. As a result of these processes, the presence, thickness, and lateral continuity of these sedimentary deposits in the Coastal Plain are highly variable.

3.3.2 Site Specific Geology

The soils underlying the Site consist primarily of (from shallowest to deepest): artificial fill material; the Patapsco Formation; the Arundel Clay unit; and the Patuxent Formation. The Patuxent Formation overlies the crystalline bedrock. The RI/FS subsurface investigation principally targeted the artificial fill material and the Patapsco Formation at the Site, while confirming the depth of the Arundel Clay at several locations.

The artificial fill material at the Site primarily consists of infrastructure (utilities and structures), historical fill material used to level the Site, and relatively impermeable pavement (asphalt and concrete). Fill material thickness averages about 5 to 8 ft across much of the Site. Areas with thicker layers of fill material include the former sludge dewatering area, and areas where subterranean tunnels and storm drains exist. Fill material in the former sludge dewatering area to the south of the cooling towers is approximately 14 ft thick, fill material surrounding the intake and discharge tunnels to the west of the former power plant are approximately 20 ft deep, and fill associated with the underground Metro line underlying the southeast portion of the Site along Benning Road is approximately 25 to 30 ft deep. The main 54-inch storm drain that traverses the Site from southeast to northwest reaches up to 20 ft bgs where it exits to the north of the Site at Outfall 013.

The Patapsco Formation in the area of the Site consists of a highly variegated mixture of brown and gray clays, silts, and graded sands, with lenticular beds of coarse sands and minor gravels. The subsurface investigation identified a silt-clay semi-confining layer underlying much of the Site and dividing the Patapsco Formation aquifer into an upper water-bearing zone (UWZ) and lower water-bearing zone (LWZ). The top of the silt-clay layer was encountered between 25 and 40 ft bgs, and the layer averaged about 6 ft in thickness.

Underlying the Patapsco Formation is the Arundel Clay, a distinct regional confining layer, comprised of very stiff, fat, mottled maroon and dark grey clay. The Arundel Clay underlies the Site at a depth of between 45 and 85 ft bgs, and generally dips toward the west. The thickness of the Arundel Clay varies, but has been observed to be as much as 100 feet thick (USGS, 2002).

Beneath the Arundel Clay are the unconsolidated gravels, sands, and clays of the Patuxent Formation. The top of the Patuxent Formation has been reported to be located at approximately 125 to 180 feet below ground surface (ft bgs) in nearby environmental assessments (NPS, 2008). The crystalline bedrock underneath the Patuxent Formation is located at approximately 400 feet beneath the Site.

Geologic data from RI/FS and historical borings were used to create a generalized geologic cross section for the Site. Cross section C-C' (**Figure 3-1**) traverses the length of the Site from west to east, and includes RI/FS borings as well as historic geotechnical borings installed by Geomatrix, Inc. in 1988 (GEO-B-3 and GEO-B-36) and CTI Consultants, Inc. in 2009 (CTI-B-5 and CTI-B-3). The cross section shows a surficial fill layer, the silt-clay semi-confining layer, a deeper silt-clay deposit that overlies the Arundel Clay, and several silt or clay lenses. The water table generally follows the surface topography.

3.4 Hydrogeology

3.4.1 Regional Hydrogeology

Based on the literature reviews and information from adjacent sites, aquifers underneath the Site consist of saturated sand layers within the Patapsco and Patuxent Formation and include (from shallowest to deepest): the Upper Patapsco Aquifer; the Lower Patapsco Aquifer; the Upper Patuxent Aquifer; and the Lower Patuxent Aquifer. The Lower Patapsco and upper Patuxent Aquifers are separated by the thick Arundel Clay unit. The Arundel clay has very low conductivity and acts as a regional aquitard between the Patapsco and Patuxent Formations. A geotechnical analysis of Arundel Clay samples collected during the RI/FS indicated the Clay's hydraulic conductivity is on the order of 10^{-9} ft/sec. The Patuxent Aquifer, located beneath the Arundel Clay, flows under confined conditions towards the east (DC Water Resources, 1993).

3.4.2 Site Specific Hydrogeology

The water table aquifer (upper water-bearing zone, UWZ) generally ranges from 9 to 16 ft bgs, but reaches as deep as 26 ft bgs in the vicinity of the topographic high in the south-central portion of the Site. The piezometric surface of the lower water-bearing zone (LWZ) aquifer at the Site generally averages 0 to 2 ft deeper than the UWZ water table.

Groundwater contour maps have been prepared for average (mid-tide) groundwater levels in the UWZ and LWZ (**Figures 3-2** and **3-3**, respectively). Mid-tide groundwater levels were computed from gaging measurements collected during mid-tide conditions in the Anacostia River. Based on the results of the tidal study, there is little variation in water levels (1-3 inches) across much of the Site (excluding the southwest corner near the dredged inlet [MW-01]) between low and high tides. The direction of groundwater flow in both aquifers is generally toward the River to the west. In both aquifers, groundwater flow in the northern and eastern portions of the Site is toward the northwest, while groundwater flow in the western and southern portions of the Site is toward the west or southwest. In both the UWZ and LWZ, horizontal hydraulic gradients become shallower nearer the River. During high tide conditions, hydraulic

gradients in the southwestern portion of the Site may flatten completely or temporarily change directionality. Horizontal hydraulic gradients ranged from about 0.004 to 0.01 in the UWZ, and from about 0.005 to 0.008 in the LWZ.

A 48-hour tidal study conducted in six well pairs showed evidence of tidal influence across the Site in both upper and lower aquifers. The greatest influence by far was observed at MW-1 in the southwest corner of the Site, where groundwater levels in both the UWZ and LWZ varied by approximately 3 ft over a tidal cycle. MW-1 is directly adjacent to the inlet of the River that was dredged by Pepco in 1996 to provide cooling water to the Power Plant via intake/discharge tunnels. Groundwater levels across the rest of the site in both the UWZ and LWZ fluctuated by only 1 to 3 inches over a tidal cycle, and exhibited less variation with increasing distance from the River. The results of the tidal influence study indicate a hydraulic connection between the River and the UWZ and LWZ aquifers at the Site, but with the exception of the southwest corner of the Site the degree of tidal influence by the River on the Site water table is minimal.

The results of the aquifer testing conducted in eight well pairs distributed evenly across the Site indicate that hydraulic conductivities in the UWZ and LWZ range from approximately 10^{-6} to 10^{-5} m/sec, which is consistent with unconsolidated deposits of silty sands or fine sands (Freeze and Cherry, 1979; Fetter, 1988).

4 Off-Site Sources

4.1 Potential Sources of Contamination in the Immediate Vicinity of the Site

Potential sources of contamination to the river in the immediate vicinity of the Site include the Kenilworth Park Landfill, the Langston Golf Course, the former DPW trash incinerator facility, and the NPS Kenilworth Maintenance Yard. The following paragraphs describe these sites.

The Kenilworth Park Landfill is one of several properties along the Anacostia River that are suspected sources of contamination. Kenilworth Park landfill is separated into two areas: the Kenilworth Park North (KPN) landfill and Kenilworth Park South (KPS) landfill separated by Watts Branch, a tributary to the Anacostia River, with the southern portion of the KPS being immediately adjacent to the Study Area. KPS and KPN are part of the 700-acre, Kenilworth Park and Aquatic Gardens, which is part of the National Park Service. KPN operated from 1942 to 1968 and in 1968 the operations moved to KPS. By the 1970s, the entire landfill was closed and capped (with a vegetative cap), and the land was converted for use as a park (NPS, 2008). Wastes deposited in the landfills included municipal waste, incinerator ash, and sewage sludge. During its operation between 1950s and 1970s, the landfill extended into the Anacostia River and no barriers were constructed to prevent migration of wastes mixed with soil into the water (AWTA, 2009). Ecology and Environment, Inc. completed separate remedial investigations (RIs) at KPN and KPS in 2007 and 2008 respectively for NPS (NPS, 2007; NPS, 2008). Constituents of Potential Concern (COPCs) identified by the two RIs included: PCBs, PAHs, dieldrin, arsenic, lead and methane. The KPN RI concluded that groundwater probably is impacting some sediments adjacent to the Site (NPS, 2007). A Feasibility Study (FS) was prepared for all of Kenilworth Park (KPN and KPS) by The Johnson Company, Inc. and dated April 2012 (JCO, 2012). In February 2013, NPS proposed a plan for the cleanup of Operating Unit 1 (OU1) at the Kenilworth Park Landfill, comprised of surface and subsurface soils, including waste material disposed of within the landfill, but not the groundwater, sediments or surface water (NPS, 2013).

Ecology & Environment, Inc. also performed a Preliminary Assessment/Site Inspection (PA/SI) of Langston Golf Course for NPS in 2001 (NPS, 2001). Langston Golf Course is located along the west bank of the River across from the Site. The Langston Golf Course Landfill is one of a number of sites along the Anacostia River that were used by the District as open burning/open dumps for municipal waste disposal from approximately 1910 to 1970 (NPS, 2001). An open dump with open burning existed at the

landfill on the west bank of the River until the early 1950s. The former District landfill was placed directly into the Kingman Lake without any barrier, and landfill wastes mixed with soil extended into the water. The PA/SI report identified the presence of chemicals (PAHs, antimony, arsenic, iron, and lead) exceeding action levels in the fill material under the Site. Lead showed elevated levels and was identified as the greatest concern among the identified chemicals. The PA/SI report concluded that there are no current exposure pathways by which the landfill wastes buried under the golf course can affect the public. The study also concluded that groundwater impacts on adjoining surface water are extremely slight. The study recommended that the Site be maintained in its current use as a golf course and be reevaluated if site use changes (NPS, 2001).

Another potential source of contamination in the immediate vicinity of the Site is a former trash incinerator facility located to the north of the site within the D.C. Department of Public Works Solid Waste Transfer Station property. The incinerator reportedly operated from 1972 to 1994 and at a capacity of 250 tons/day. Ash from the incinerator was reportedly disposed of at the Lorton landfill. No documentation of any environmental studies or sampling was available.

NPS Kenilworth Maintenance Yard is located to the northwest of the Site on the eastern shore of the Anacostia River. A vehicle refueling island is visible at the Kenilworth Maintenance Yard. The site is also on a 2014 DOEE list of known facilities with active USTs in the District. No documentation of any environmental studies or sampling was available.

Another off-site source of contamination in the immediate vicinity of the Site is a former dry cleaner (Terrace Dry Cleaners) adjacent to the Site across Benning Road to the south (3427 Benning Road). This facility was in operation for at least 15 years between 1969 and 1983. Dry cleaning facilities are prominent sources of groundwater contamination, especially with chlorinated solvents including tetrachloroethylene (PCE).

4.2 Regional Assessment of Anacostia River and Suspected Area-Wide Sources of Impact

This section provides an overview of sediment quality data from the Anacostia River from a regional perspective and considers data available from the general vicinity of the Benning Road Site, including recently collected data presented in the Draft Phase 1 Remedial Investigation Report for the Anacostia River Sediment Project (Tetra Tech, 2016). For decades, there has been a broad recognition that the water quality and sediment quality in the Anacostia River are degraded due to a variety of factors, including shoreline habitat degradation, point sources, non-point sources, combined sewer system overflows, storm sewer outfalls, input from tributaries, atmospheric deposition, storm water runoff, and

refuse disposal practices (Anacostia Watershed Toxics Alliance [AWTA], undated; Tetra Tech, 2016). The problems in the river are exacerbated by the tidal nature of the lower Anacostia River; much of the flow in this portion of the river is tidal, freshwater flows into the tidal waters are relatively small (Velinsky et al., 2011), and the slow-moving water tends to allow contaminants that might otherwise be flushed from the system to settle into the sediment column.

Numerous sediment quality studies have been completed within the Anacostia River. According to Tetra Tech (2016), environmental investigation and remediation activities are either completed, underway, or contemplated at the following 13 properties:

- Kenilworth Park Landfill
- Pepco Benning Road Facility
- CSX Transportation (CSX) Benning Yard
- Steuart Petroleum Company Terminal adjacent to the Washington Gas Light Company (WGL) East Station Site
- WGL East Station
- Washington Navy Yard (WNY)
- Poplar Point
- Active Capping Pilot Study Site at O Street Combined Sewer Outfall (CSO)
- General Services Administration (GSA) Southeast Federal Center (SEFC)
- Former Steuart Petroleum Company/Hess Oil Corporation(Hess)/Gulf Oil Corporation (Gulf) Former Petroleum Terminals
- Joint Base Myer – Henderson Hall (Fort McNair)
- Joint Base Anacostia – Bolling
- Firth – Sterling Steel Company

Studies on several of these specific sites, as well as broader literature relative to Anacostia River ecology and the Tetra Tech (2016) Draft Phase 1 Remedial Investigation Report, were reviewed to assist in understanding prevailing background sediment and water quality conditions and to provide context for development of the work to be performed as part of the Benning Road RI/FS. Available reports and sampling data reviewed included:

- Sediment concentrations and toxicity information from 35 databases that were compiled by the National Oceanic and Atmospheric Administration (NOAA) (http://mapping.orr.noaa.gov/website/portal/AnacostiaRiver);
- A 2001 report from the Academy of Natural Science (ANS) entitled “Sediment Transport: Additional Chemical Analysis Study Phase II”;
- An undated document from the AWTA, entitled “A Toxic Chemical Management Strategy for the Anacostia River”;

- A peer-reviewed paper by Velinsky et al. (2011) entitled “Historical Contamination of the Anacostia River, Washington, DC;
- A 2009 document from the AWTA entitled “White Paper on PCB and PAH Contaminated Sediment in the Anacostia River”; and
- The USEPA 2009 SI Report for the Pepco Benning Road Site, Washington DC.
- Results from the Environmental Security Technology Certification Program (ESTCP), Demonstration Program—The Determination of Sediment PAH Bioavailability using Direct Pore Water Analysis by Solid Phase Micro-extraction (http://www.serdp-estcp.org/Program-Areas/Environmental-Restoration/Risk-Assessment/ER-200709/ER-200709)
- Results presented in the Draft Phase 1 Remedial Investigation Report for the Anacostia River Sediment Project (Tetra Tech, 2016)

The findings of these studies consistently showed the presence of inorganic constituents, PCBs, PAHs, organochlorine pesticides, metals and to a lesser degree dioxins and volatile organic compounds (VOCs) in sediment samples collected from up and down the entire Anacostia River (Velinsky et al, 2011; Tetra Tech, 2016). Velinsky et al. (2011) reported that the surficial sediment concentrations of many contaminants in Anacostia River sediments have decreased during the past few decades due to a combination of factors, including improved environmental practices, restrictions on the manufacture and use of PCBs, and the encapsulation of historic impacted sediment by the more recent deposit of cleaner sediment. For instance, based on the results of six cores collected from the lower Anacostia River, total PCB concentrations in surficial sediment fell from as much as 3000 micrograms per kilogram (µg/kg) in the late 1950’s to 100-200 µg/kg in 2011. This finding was generally confirmed in the Tetra Tech (2016) RI, which included an evaluation of paired samples collected in recently (2014/2015) and historically (samples collected in 2000 by the Academy of Natural Sciences (ANS). The results of this paired statistical analysis, which was limited to 16 sampling locations, suggests that there are significant differences between the current and the 2000 data set, and that generally the constituent concentrations in the current data set are lower than in the historic data set.

In addition to the pairwise analysis of co-located sediment samples reported by Tetra Tech (2016), this report also included a geospatial kriging analysis which was conducted in an attempt to elucidate temporal changes in chemical concentrations. This analysis evaluated differences and similarities between 137 surficial sediment samples collected by ANS (2000) and 173 surficial sediments collected by DOEE in 2014/2015 over a common area: the nine-mile main stem of the Anacostia River and the Washington Channel. Tetra Tech (2016) reported that the results of their analysis suggest that “the 2000 dataset appears to represent historical conditions and therefore should be excluded from evaluating current surface

sediment conditions in the river." Pepco believes that the pairwise comparison of current vs historic data is more certain than the geospatial analysis.

Further, it is Pepco's understanding that the historic and current laboratory methods for some constituents differed markedly making direct comparison of sampling results inappropriate: For instance, relative to PCBs, the ANS (2000) study used methods which (1) employ a solvent which is much less efficient at extracting PCBs from sediment than EPA 1668, (2) uses GC/ECD which is selective but much less sensitive and not specific for PCB congeners like the EPA 1668 HRMS technique, (3) did not recover correctly for labeled standard by isotope dilution like EPA 1668, and (4) quantified only 108 out of 209 congeners. Combined these factors could all contribute to a substantial inherent low bias in the ANS (2000) dataset relative to the 2014/2015 results and render it not suitable for inferences of changes in total PCB concentrations over time.

The Tetra Tech RI (2016) included an evaluation of surficial vs sub-surficial concentrations of constituents in the 2014/2015 data sets. For much of the Anacostia River (with the exception of Kingman Lake and the Washington Channel), subsurface concentrations of constituents tend to be more elevated than surficial concentrations of these same constituents, suggesting that natural recovery is taking place in the river.

In addition to the recently completed Tetra Tech (2016) RI Report, which by design only provides limited data in the vicinity of the Benning Road facility, the USEPA 2009 SI Report provides a detailed analysis of surficial sediments in the vicinity of the Site. According to this report:

- Analytical results obtained during the SI sampling event indicate that the constituents of potential concern associated with Anacostia River sediments are PAHs, PCBs and inorganic compounds (metals);
- PAHs are essentially ubiquitous in sediments of Anacostia River in the vicinity of the Site. The 2009 USEPA report also notes potential PAH sources located upstream of the Site, including numerous combined sewer outfalls;
- PCBs, specifically, Aroclor-1254 and Aroclor-1260 were detected in sediment samples above the screening concentrations established by the USEPA Biological Technical Assistance Group (BTAG) and NOAA for aquatic life. Several metals were also reported above these screening concentrations;
- No VOCs, semi-volatile organic compounds (SVOCs), pesticides or PCBs were reported above detection limits in the surface water samples collected during the SI. Of the inorganic constituents, only copper was detected at a concentration slightly above the corresponding USEPA Region III fresh water quality criterion; and

- USEPA concluded that historical releases from the Site contributed to the contamination in the Anacostia River sediments in the vicinity of the Site based on residue samples USEPA collected from the Benning storm water system during USEPA's 1997 multi-media inspection.

The AWTA (2000) report regarding the Anacostia River indicates that concentrations of PAHs and PCBs in sediments exceeded conservative screening-level ecological benchmarks throughout the entire river with areas of relatively greater contamination primarily oriented to depositional areas of the lower half of the river (below Kingman Lake), plus some additional, isolated locales of the river where sediment is being deposited. The AWTA (2000) report identified the following six areas of interest recommended for further investigation including the vicinity of the Benning Road Site:

- Area 1: Near O Street/SEFC/WNY (PCBs, PAHs, and metals);
- Area 2: Upstream from CSX lift bridge (PCBs and PAHs);
- Area 3: Between the 11th Street and CSX bridges (PAHs);
- Area 4: Off Poplar Point (PAHs and some PCBs);
- Area 5: Outfall 013 cove adjacent to the Pepco Benning Road facility (PCBs); and
- Area 6: the area in between the "hot-spots" identified in Areas 1-5 above, and within the depositional zone of the lower river extending roughly between the South Capitol and 11th Street Bridges.

The AWTA (2000) report identified approximately 60 acres of PAH or PCB contaminated "hot spots" recommended for capping (hot spots were identified as areas with concentrations exceeding the mean plus two standard deviations; 879 µg/kg for PCBs and 35,440 µg/kg for PAHs). One hot spot was identified in the vicinity of Outfall 013.

A review of the data presented in the Tetra Tech (2016) RI report, as well as historically collected sediment data summarized in the summary of 35 databases that were compiled by the National Oceanic and Atmospheric Administration (NOAA) (http://mapping.orr.noaa.gov/website/portal/AnacostiaRiver), suggests that USEPA 2009 SI Report data must be considered within the overall construct of the urbanized Anacostia River corridor. USEPA's 1997 Multi-media Inspection Report notes that PCB concentrations in storm sewer residue at the Site were above the SQG, but less than concentrations found in similar samples collected at WNY and SEFC. As noted above, the USEPA 2009 SI Report indicates that PAH contaminated sediments are located upstream and downstream of the Site, and that "PAHs are essentially ubiquitous in sediments of the Anacostia River in the vicinity of the site" and that

"…sources of PAHs are located upstream of the Benning Road facility. These potential sources included numerous combined sewer storm water outfalls located upstream of the site."

Although many stakeholders are engaged in concerted efforts to prevent contaminant loading into the Anacostia River, one of the more substantial challenges is related to the combined sewer overflow (CSO) systems that serve approximately one third of the District of Columbia (AWTA, undated; http://www.dcwasa.com/wastewater_collection/css/default.cfm). According to the Tetra Tech RI Report (2016), up to 16 CSO outfalls routinely discharge raw sewage and storm water to the Anacostia River. The District's CSOs are antiquated systems (many of which date back to the 1880's) that allow urban runoff and raw sewage to bypass treatment systems during rain events. During dry periods, sanitary wastes collected in the CSO system are treated at the Blue Plains Advanced Wastewater Treatment Plant; however, during periods of significant rainfall, the capacity of the CSO system is exceeded, and a mixture of storm water and sanitary wastes is directly discharged into the District's water bodies, including the Anacostia River. There are currently 53 permitted CSO outfalls in the District operated by DC Water. The locations of the CSO outfalls on the Anacostia River are depicted in Appendix C of the Draft RI Report.

According to AWTA (undated), an average of 82 releases of combined stormwater and sanitary wastes occur per year due to this outdated system. At the time of AWTA report publication, these releases were reported to allow a discharge volume of approximately 2.14 billion gallons of contaminated waste-water from 11 major CSOs to enter the river system on an annual basis. The recently completed Tetra Tech RI report (2016) suggests that CSO releases are even more frequent, and that even after relatively minor storm events (0.27 inches over a 24-hour period), the sanitary flow capacity is exceeded and raw sewage is discharged to the river. During 2013, a total of 92 CSO releases comprising 1.8 billion gallons of total CSO overflow volume were reported.

DC Water recently developed a model that predicted that in excess of 93% of CSO flow volume was contributed by two CSO systems, at Main and O Street (CSO 010, the O Street Pumping Station) approximately 3.4 miles downstream from the Site, and at the Northeast Boundary (CSO 019), approximately 1.2 miles downstream from the Site.

More recent data from the DC Water website highlights the CSO concern on the Anacostia River (http://www.dcwater.com/wastewater_collection/css/CSO%20Predictions.pdf). During October to December 2014, approximately 68.2 million gallons (MG) of CSO overflow were released into the River. Approximately 81.5% (55.6 MG) was attributable to CSO 019 (the Northeast Boundary CSO), while an additional 6.5% (4.44 MG) were attributable to CSO 010 (the O Street Pumping Station).

AECOM incorporated the findings from various studies discussed above, and response actions conducted by Pepco into the development of the RI/FS Work Plan and CSM for the Study Area.

4.3 Background Sources of Contamination

There are several background sources of contamination impacting the Site media, including regional transportation and fossil fuel burning, historical open burning of trash, urban stormwater runoff, and pesticide residues from regional pest control practices. Vehicle exhaust (incomplete combustion products) in particular is a known source of PAHs in surface soils in cities, including Washington, DC (Takada et al., 1990; Hwang and Foster, 2006). Studies have found evidence for the atmospheric deposition of PCBs, PAHs, and other compounds (Leister and Baker, 1994; Van Ry et al., 2002). Background levels of dioxins are known to be present at significant concentrations in urban and industrial areas (Lester, 1998; Urban et al., 2014). A separate Technical Memorandum is being prepared to addressing background sources.

5 Historical Onsite Cleanups and Investigations

There have been several documented instances of chemical releases at the Site. A summary of documented historical environmental investigations and response actions conducted on the Site by Pepco and the USEPA is presented in **Table 5-1**. In each case, Pepco promptly cleaned up the releases in accordance with applicable legal requirements. Nonetheless, it is suspected that these releases, and possibly other historical operations or activities at the Site, may have contributed to contamination in the Site media. As noted in Section 1 above, 18 Target Areas were identified in the preparation of the RI/FS Work Plan to guide the sampling effort, many of which were subjected to historical environmental investigations and/or response. The Target Areas are presented on **Figure 1-3** and described in **Table 1-1**. The following sections further summarize each of the recorded onsite removal actions and investigations.

5.1 Petroleum Hydrocarbon Releases and Cleanups

According to the 1999 URS ESA, there were six documented spills of petroleum products greater than 100 gal between 1992 and 1999. Each of these instances is discussed below:

- On July 9, 1993, approximately 200-300 gal of No. 4 fuel oil was discharged within the Generating Station building on the floor and into the sump. The spill was cleaned up.
- On August 31, 1993, approximately 300-500 gal of No. 4 fuel oil was discharged at the No. 4 fuel tank due to a stuck open valve. The spill was fully recovered.
- On October 19, 1993, diesel fuel from a fixed fire pump engine fuel tank was spilled due to the rusted condition of the tank. The cleanup was completed in 1993.
- On December 20, 1994, approximately 100 gal of No. 4 fuel oil from a strainer assembly was spilled within a diked area and was cleaned up.
- On January 6, 1995, approximately 1,000 gal of No. 4 fuel oil was released at Oil Tank 1 due to a cracked valve. The spill was completely contained within the containment dike and was cleaned up.
- On February 17, 1995, approximately 2,000 gal of No. 4 fuel oil was released from Fuel Oil Tank 1 due to a malfunctioning level indicator. The spill was completely contained within the dike and was cleaned up.

In addition, a documented release of approximately 10 gallons of No. 4 fuel oil from the Generating Station building occurred on June 11, 2013. The release flowed into the Site storm drain system and was ultimately discharged to the Anacostia River via Outfall 013. The release occurred during decommissioning of the power plant and was due to a heavy rain event which caused fuel oil-impacted water in an oil-water separator to exceed its capacity. Over the following days, approximately 4,670 gal of oil/water mixture were recovered from the area of Outfall 013 using absorbent pads, skimmers, and wet vacuums at Outfall 013.

5.1.1 Kenilworth Fuel Island UST Spill and Remediation

In 1979, a 20,000-gallon gasoline underground storage tank (UST) was installed in the southeastern portion of the Pepco Benning Road Facility to supply regular unleaded gasoline to two dispensing pumps for refueling of company-owned vehicles. On August 29, 1995, an inspection of the submerged turbine pump (STP) manhole for the UST discovered gasoline in the manhole. The observed product was pumped into 55-gallon drums and the manhole was cleaned. Approximately 220 gallons of product were recovered (TPH, 1996).

The cause of the release was determined to be a failed fuel line, which was isolated and capped upon discovery (TPH, 1996). During the release, gasoline emptied into the STP manhole of the UST, which resulted in overfilling of the manhole until gasoline reached the exterior of the UST system (TPH,1997a). An inventory reconciliation on August 30, 1995 indicated a gasoline shortage of approximately 3,100 gallons. Because approximately 220 gallons were pumped from the manhole, the total volume released to the environment was estimated to be 2,880 gallons (TPH, 1996).

Between October 3 and 31, 1995, a temporary remediation system was operated to recover free product and allow for the evaluation of pump-and-treat methods as a remedial alternative. Approximately 40,000 gallons of gasoline-impacted groundwater and 1,870 gallons of product were recovered from three recovery wells located downgradient of the UST. The three wells initially contained up to 2.5 feet of product during September and October, 1995. By the end of the quick-response remediation program in October 1995, free product thicknesses in the wells were reduced to 0.01 feet or less. The highest detected BTEX concentration in the recovery wells from a May 1996 sampling event was 28.36 mg/L (TPH, 1996).

A groundwater and soil vapor treatment system was installed at the site in July 1996. Groundwater was pumped from one recovery well and treated via filtration through two granular activated carbon (GAC) units before being discharged to the sanitary sewer. Free product removed from the top of the water

column was transferred to a holding tank by a product-only pump. A soil vapor extraction (SVE) system was applied to three monitoring wells in addition to the recovery well. The vapor stream was treated via a catalytic oxidizer unit prior to being released to the atmosphere. Groundwater discharge and SVE emissions were sampled and analyzed monthly (TPH, 1997a). The chemical constituents monitored during the spill remediation were Total Petroleum Hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylene (BTEX).

The groundwater and soil gas treatment system was deactivated in February 1997 with the permission of the District Department of Consumer and Regulatory Affairs (DCRA) Environmental Regulation Administration. Following deactivation, a soil boring assessment was performed in April 1997 to verify that complete remediation had been accomplished (TPH, 1997b). BTEX in groundwater at one of the ten temporary sampling points was detected at a concentration of 20.02 mg/L. A monitoring well was installed at this location in July 1997 and a combined pump and treat/SVE system was operated at this location for a period of one month. Following one week of equilibration without active remediation, the monitoring well was sampled and groundwater BTEX concentrations had been reduced to 0.234 mg/L.

Through the close of remedial system operations in August 1997, it was estimated that at least 2,445 gallons of product were recovered via product pumping, SVE, and pump-and-treat activities (TPH, 1997b). Accounting for contaminant mass removal via biodegradation, greater than 99% of the suspected release volume was estimated to have been removed. A case closure letter was issued by DCRA on September 17, 1997. In August 2012, the UST was removed, and the District Department of the Environment (DDOE) issued a Permanent Tank Closure Letter to Pepco on November 1, 2012.

5.2 PCB Cleanups

5.2.1 1985 PCB Cleanup

An underground pipe that transferred transformer oil from decommissioned transformers within the Transformer Shop (Building 56) to an aboveground storage tank prior to filling oil tankers in the mid-1980s leaked an unknown amount of waste transformer oil containing PCBs. The leak was observed on May 19, 1985. Cleanup activities were initiated immediately upon observation of oil on the ground surface. Total cleanup and removal actions included the removal of an aboveground storage tank, associated underground piping, and excavation of approximately 288 cu. ft. of material contaminated with >5 ppm PCBs. (Pepco, 1985) This area was identified in the RI/FS as **Target Area 8**.

5.2.2 1988 Parking Lot PCB Cleanup

Prior to the paving of an area for a parking lot adjacent to Substation 7, soil contamination up to 115 ppm PCBs was detected around a concrete pad that had been used to prepare off-line PCB capacitor banks for disposal. The concrete pad and surrounding soil (approximately 2,500 cu. ft. of material) was removed to a depth of 12 inches below grade. The area was subsequently paved. (Pepco, 1988) This area was identified in the RI/FS as **Target Area 7**.

5.2.3 1991 PCB Cleanup

A PCB capacitor in storage between Buildings 42 and 61 developed a small crack causing the leak of approximately 8 lbs of PCB-containing oil onto the concrete surface and seeped through the expansion joints. The leak was observed and stopped on February 22, 1991. The contaminated concrete and approximately 126 cu. ft. of underlying contaminated soil (>25 ppm PCBs) were removed. (Pepco, 1991) This area was identified in the RI/FS as **Target Area 6**.

5.2.4 1995 Cooling Towers PCB Cleanup

PCB-containing caulk and joint filler was found to be impacting the cooling tower basin materials and soils adjacent to the expansion joints of the two basins (Units 15 and 16) and sampling and cleanup actions were undertaken in 1995. (Pepco, 1995) The area of the former cooling towers was identified in the RI/FS as **Target Area 5**.

5.2.4.1 Cooling Tower Unit 15

An initial double wash/rinse was conducted on the basin and ten random wipe samples of the concrete were collected. The highest concentration of PCBs detected in wipe samples was 1,275 micrograms per 100 centimeters squared (µg/100cm^2).

Eight exterior subsurface soil samples were taken from the northern and southern sides of the basin, adjacent to the wall expansion joints. An approximate 1 ft by 1 ft by 3 ft deep area was excavated at each sampling location and the excavated soil was homogenized, from which a sample was collected. Two surface soil samples were taken at the east and west ends of the basin, about one foot from the wall and at a depth of one-half inch to one inch below grade. The highest level of PCBs detected in the excavated soil was 30 ppm.

The cleanup method involved the caulk and joint filler being removed to a depth of approximately 3 to 6 inches. The expansion joints and basin were double washed with AFCO 5248-APPLAUSE (heavy duty concentrated liquid cleaner containing water soluble solvents) and rinsed twice with high pressure water.

The standing water inside the joints was removed by wet vacuum. The basin was then encapsulated in the following manner: Sikadur 62 sealant was applied to the expansion joints, then new backer rod, joint sealant, and Hypalon expansion joint tape were installed. Finally, two coats of Sikadur concrete sealant were rolled onto the basin. A total of approximately 42 cu. ft. of soil was excavated from the perimeter of the basin adjacent to the expansion joints.

5.2.4.2 Cooling Tower Unit 16

Pre-cleanup sampling in the basin of cooling tower 16 was more extensive than sampling at CT15 due to the greater number of wall expansion joints in unit 16 (32 wall joints in unit 16 versus 8 wall joints in unit 15). Wipe samples of concrete at 57 locations in CT16 were collected, and the highest concentration of PCBs detected was 95 µg/100cm^2.

Thirty locations around the basin's perimeter were sampled in the same manner as at CT 15, with approximate 1 ft wide by 1 ft long by 3 ft deep areas excavated at each location. The highest level of PCBs detected in the excavated soil was 975 ppm. Post-excavation soil sample results ranged from <1 ppm to 8 ppm PCBs.

The basin and expansion joints were double washed and rinsed using the same method as on Unit 15. The basin was then encapsulated with two coats of Sikadur concrete sealant. Approximately 132 cubic feet of soil was excavated from the perimeter of the basin adjacent to the expansion joints.

5.2.5 2016 Cooling Tower Basin and Soil Removal

The superstructures of the power plant cooling towers were demolished in early 2014 leaving only the foundational concrete basins. In April 2014, USEPA approved a Self-Implementing Plan (SIP) for the removal of the concrete basins and basin materials, including PCB-contaminated caulk (AECOM, 2014c). In July 2015, DOEE approved a Soil Removal Action Plan for PCB-impacted soils adjacent to and below the basins, with the remediation goal for remaining soils of ≤1 ppm PCBs (AECOM, 2015). The Action Plan called for the excavation, at a minimum, of a strip of soil 15 ft wide and 3 ft deep around the perimeters of the basins. Localized areas of deeper contamination indicated by previous soil sampling would be addressed with more extensive excavations. A total of 5,269 cubic yards or approximately 7,900 tons of soil were proposed to be excavated from the vicinity of the basins. In addition, a program of confirmatory post-excavation sampling was put forth for locations where contamination remained vertically or horizontally unbounded at the close of pre-excavation sampling activities. Upon completion of the soil and concrete basin removal, the excavations would be backfilled with certified clean backfill material.

Removal of the cooling tower basins and adjacent soil in accordance with the SIP and Action Plan is expected to be completed in the spring or summer of 2016.

5.3 Site Investigations

5.3.1 EPA 1997 Multi-Media Inspection

USEPA conducted a multi-media inspection at the Site in 1997 in connection with the renewal of Pepco's NPDES permit (USEPA, 1997). The inspection also included compliance determinations under the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA). No compliance issues were noted under RCRA. One spill involving PCB oil was noted inside Building #57; however, the release was fully contained in a secondary containment vault and no release into the environment occurred. The cause of the spill was corrected through implementing appropriate management/operating procedures. USEPA also collected two liquid samples and six residue samples from the storm drain system. A liquid sample collected at Outfall 013 failed the acute toxicity test due to the presence of chlorine-treated city drinking water, which leaked to the storm drain from the onsite fire suppression system. The residue samples collected from the storm drain system indicated PCB and metal concentrations that exceeded USEPA Sediment Quality Guidelines (SQGs). The metals exhibiting the highest concentrations were zinc and lead (>1000 ppm) and chromium and nickel (>100 ppm). The storm drain system was identified in the RI/FS as Target Area 17.

5.3.2 1999 Phase I Environmental Site Assessment

Pepco conducted a Phase I site assessment in anticipation of a property transaction (URS, 1999). Recognized or potential environmental concerns included the two fuel oil ASTs located east of the power plant building (Target Area 3), the storm drain system (Target Area 17), the former railroad switchyard and Substation #14 (Target Area 14), transformers in the vicinity of the generating station building (Target Area 15), and three bulk storage fuel oil ASTs between the Benning Fueling Island and Building #65 (Target Area 13).

5.3.3 2003 Salvage Yard Investigation

A surface soil investigation and spot excavations were conducted in the salvage yard area formerly used for storing electrical equipment (Jacques Whitford Company, 2003). Twenty surface samples were collected, of which seven exhibited lead concentrations above the EPA Region III Risk Based Criterion of 400 mg/kg and as high as 3400 mg/kg. Elevated levels of Total Petroleum Hydrocarbons (TPH) were also widely detected. Six locations were excavated and had dimensions, on average, of approximately eight by six feet by two feet deep. However, one location was excavated to approximately 14 feet deep due to qualitative

(visual and olfactory) and quantitative (sample) evidence of TPH impacts. The Salvage Yard was identified in the RI/FS as Target Area 4.

5.3.4 EPA 2009 Site Inspection

Tetra Tech EM, Inc. conducted a Site Inspection at the Site for the USEPA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program in 2008 and issued a report in 2009 (USEPA, 2009). Thirteen soil samples were collected from the former sludge dewatering area, located south of the power plant cooling towers. This area was identified in the RI/FS as Target Area 1. An additional 16 sediment samples and five surface water samples were collected from the Anacostia River, upstream and downstream of the site. Several metals, polycyclic aromatic hydrocarbons (PAHs) and PCBs were detected at elevated concentrations in the former sludge dewatering area and the Anacostia River sediments. With the exception of copper, no other compounds were detected in the surface water samples above the corresponding USEPA and NOAA freshwater screening criteria. The USEPA 2009 SI Report concluded that the current management and handling of waste streams, including PCB-containing equipment and material is well organized and supervised, but linked PCBs and inorganic constituents detected in the Anacostia River sediments to possible historical discharges from the Site.

5.3.5 2010 Phase I Environmental Site Assessment

In 2010 Pepco conducted a Phase I Environmental Site Assessment for an 18.5-acre area in the eastern and southern portions of the Site in connection with the planned expansion of Substation #7 and #45 (Greenhorne and O'Mara, 2010). The assessment noted possible environmental concerns associated with Buildings #54, 56, and 57, which historically serviced and repaired PCB-containing transformers. Building 57, which houses two 10,000 gal holding tanks for waste oil containing <49 ppm PCBs, was identified in the RI/FS as **Target Area 12**. The 2010 Site Assessment also identified the Kenilworth Fueling Island (**Target Area 18**) as a potential environmental concern. The report recommended soil sampling at the Site for petroleum constituents, metals, and PCBs to develop appropriate worker health and safety plans and soil management procedures.

5.3.6 2015 Storm Drain Inspection and Clean Out

In June 2015, Pepco conducted a closed-circuit television (CCTV) inspection of the storm drains and identified several areas with accumulated sediments. Pepco subsequently completed a clean out of the entire storm drain system, and removed accumulated sediments (approximately 47 cubic yards) for off-site disposal. Waste characterization results for the removed storm drain sediments are provided in **Appendix F**.

6 Conceptual Site Model

Based on the information presented above regarding past and present activities at the Site and surrounding areas, this section presents a conceptual model of the sources and transport mechanisms for the contaminants in the Study Area identified from the RI activities completed to date.[1]

6.1 Preliminary Remedial Investigation Findings

The principal RI field activities in the Study Area were conducted between January 25, 2013 and December 31, 2014. A detailed description of the RI field activities and preliminary findings regarding contaminant nature and extent, and fate and transport within the Study Area was provided in the Draft Remedial Investigation Report, submitted to DOEE on February 26, 2016. The following is a high level summary of the preliminary RI results.

The RI included sampling of Landside soils, groundwater, storm drains, and Anacostia River sediment and surface water. The RI samples were analyzed for a broad suite of analytes, including metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), pesticides, polychlorinated biphenyls (PCBs) and dioxins and furans. Constituents of Interest (COI) were identified based on comparison of Study Area sampling results to conservative risk-based screening values.

A limited number of metals, PAHs, and dioxins and furans were widely detected in most Target Areas and exceeded screening values in surface soils across the Site. A similar distribution was noted for these compounds in subsurface soils, except that dioxin and furans in subsurface soils were present at concentrations below their screening levels. PCBs were detected in soils at concentrations above screening levels at six surface sampling locations and two shallow subsurface sampling locations. Three of these detections were at former PCB cleanup areas, and the remaining detections are potentially related to historical leaks/spills.

[1] A separate Conceptual Site Model showing contaminant exposure pathways and receptors at the Site will be presented in the Risk Assessment Technical Memorandum.

A limited number of metals, VOCs (primarily PCE and its daughter products), PAHs, pesticides, dioxins and furans, and PCBs were detected in groundwater above screening levels. PCE in the vicinity of boring DP-09 on the southern Site boundary is not considered to be Site-related. However, the source of PCE concentrations observed in monitoring wells MW-01 and MW-02 in the southwest corner of the Site is not known. The low levels of hydrophobic organics (i.e., PAHs, pesticides, PCBs, and dioxins and furans) observed may be related to turbidity in the groundwater samples.

Several metals, PAHs, TPH, low levels of pesticides, and PCBs were detected in storm drain residue and water samples. In general, the PCB levels in the storm drain residue samples were significantly lower than levels detected during previous investigations. Additionally, due to the 2015 storm drain clean out, contaminants detected in storm drain residues during the RI are not representative of current Site conditions.

Preliminary forensic analysis suggests that PAHs in site soils are predominantly from combustion-related sources (pyrogenic) rather than fuels (petrogenic). This predominantly pyrogenic pattern is consistent with PAHs from urban background sources, such as vehicular exhaust and road runoff that have been reported in other urban rivers and waterways. Preliminary forensic analysis also indicated that the composition of PCBs detected at the Site differs from the composition of PCBs detected in Anacostia River sediments.

Based on the RI preliminary findings, two new Target Areas were identified at the Site. **Target Area 19** includes elevated levels of PCE and naphthalene detected in groundwater in the southwest corner of the Site. **Target Area 20** includes elevated concentrations of PAHs detected in soil between 1.5 and 10.5 feet below grade in DP-19 in the southeast corner of the Site. In addition, the existing Target Area 18 (Kenilworth Fueling Island) was extended approximately 600 feet to the northwest to include a potential MTBE groundwater plume detected in DP-32 and MW-13, suspected to have originated with the former UST at the Kenilworth Fueling Island. These new target areas are shown on **Figure 1-3** and described in **Table 1-1**. Hydrophobic organics detected in groundwater (including TCDD) are suspected to be the result of excessive turbidity. The monitoring wells will be redeveloped and resampled to confirm these concentrations.

6.2 Revised Conceptual Site Model

Pepco has updated the Preliminary Conceptual Model presented in the Draft RI report dated February 26, 2016 based on the findings of additional research performed since the publishing of the Draft RI Report. This additional research included: (1) a thorough review of historical topographic maps and additional aerial photographs; (2) a thorough search of additional documents; (3) additional interviews with knowledgeable personnel familiar with Pepco's Benning Road Facility historical operations; and (4) additional information

provided by the NPS. The findings from these activities were used to update the Site History in Section 2.0, and current and former site buildings and operations areas are depicted on **Figures 1-4** and **1-5**, respectively.

Based on review of previous studies and the preliminary findings of the RI field activities, the potential on-Site sources of contamination at the Benning Road facility site include the following:

- Former sludge dewatering area (TA 1);
- Former coal pile area;
- Former cooling towers (TA 5);
- Former ASTs/USTs (TAs 2, 3, 13, and 18);
- Historical PCB cleanup areas (TAs 5, 6, 7, and 8);
- Diffuse leaks/drips and industrial runoff (TA 17);
- Historical process water discharges (TA 17);
- Historical transformer handling at former Buildings 38 and 39 and Former Substation #14;
- Historical timber pole storage areas;
- Chlorinated solvent handling areas (southern portion of former power plant and Building #65);
- Current/former vehicle fleet servicing facilities (Building #32 and others); and
- Current/former fuel storage areas (Building #75 and others)

River sediment is a key component of the CSM. Over the history of site operations, surface water runoff and storm drain discharges have resulted in the release of site constituents to the Anacostia River. Elevated concentrations of PCBs and PAHs attributable to the Pepco site have been observed in subsurface sediment and potentially in surface sediment. Although the preliminary forensic analysis in the Draft RI Report suggests that the composition of PCBs detected at the Site differs from the composition of PCBs detected in Anacostia River sediments, additional sampling is needed determine the degree to which site releases have contributed to the contamination of sediments and other media in the river as compared to the contributions from offsite sources. Bottom and suspended sediment in the river are pathways for exposure of site constituents such as PCBs, PAHs, and metals to ecological and human health receptors.

Power plant coal/oil combustion process could generate two potential sources of emissions, air emissions and ash from coal burning. Combustion processes in coal-fired power plants can contribute to common pollutants found in the environment such as PAHs and metals. The extent of contribution depends on many factors such as the quality of coal or fuel, type of emission controls, process efficiency, etc.

Emissions from air deposition are not included in the scope of this RI/FS sampling program due to the following reasons. Health effects from power plant emissions have been the subject of extensive, long-term studies by EPA, as documented in a report to Congress that has formed the basis for EPA's subsequent regulatory actions: Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units – Final Report to Congress, EPA-453/R-98-004a, February 1998. This study identified inhalation as the primary exposure route of concern, and the deposition of materials via the smoke stacks was not a significant pathway affecting human health. The Benning power plant ceased operating in June of 2012 and therefore no longer contributes to any potential exposure from inhalation of airborne contaminants. Since 1976 (for nearly 40 years), the facility exclusively burned fuel oil and was operated only 10 to 15 days annually to ensure sufficient available power during peak demand periods. Fuel oil burns much cleaner than coal, and produces air emissions similar to many other sources (e.g., automobiles, combustion engines). According to Pepco personnel, fly ash and bottom ash generated at the facility were always transported to an off-site disposal facility. Therefore, power plant operations have not been identified as one of the potential sources.

An updated CSM graphic showing potential on-Site sources and transport mechanisms is provided as **Figure 6-1**.

Potential off-site sources contributing to contamination at the Benning Road site and in the Anacostia River include the following:

- Regional transportation and fossil fuel burning;
- Historical open burning;
- Former trash incinerator adjacent to the north;
- Former dry cleaners adjacent to the south; and
- Urban runoff/combined sewer overflows.

A CSM graphic for off Site sources is provided as **Figure 6-2**. A detailed background sampling study is being planned to generate additional data to evaluate potential offsite sources of contamination.

6.3 Data Gaps and Uncertainties

The additional research performed by Pepco put in a good faith effort to put together as complete a picture as possible of the historical site operations. Our research did not reveal any major or catastrophic pollution events and in general has indicated that the processes and operations on the Site are no different from what is expected of a typical industrial operation with a long history. As can be expected for a facility with over a

100-year history, there are some gaps in the information. Data gaps needing further investigation are discussed in the following paragraphs.

Landside Delineation

There are number of data gaps and uncertainties in delineation of Landside impacts as a result of the RI activities conducted to date. These data gaps will be addressed in a Work Plan Addendum (Addendum #3) that will be prepared outlining an additional phase of sampling at the Site.

The majority of detections requiring additional investigation are isolated, low level PCB and dioxin impacts in surface soils. Detections in surface and subsurface soils and associated Target Areas (TAs) that will require additional investigation include but are not limited to the following:

- PCBs in surface soils at isolated locations across the site, including in TAs 3, 4, 5 , 7, 9, 10, 11, 12 and 14;
- Dioxins in surface soils in portions of TAs 1, 5, 9 and 10;
- Vanadium in surface soils in the former sludge dewatering area (TA 1) expanded to cover the former coal pile area footprint; and
- PAHs in subsurface soils in DP-19 in the southeast of the Site.

Detections in groundwater that will require additional investigation include but are not limited to the following:

- PCE and naphthalene detected in monitoring wells in the southwest corner of the Site (additional research revealed PCE use in the southwest corner of the power plant);
- MTBE detected downgradient of the Kenilworth Fueling Island; and
- TCDD TEQ detected in monitoring wells in the southern and southeastern portions of the Site.

New areas requiring additional investigation as a result of a historical records review include but are not limited to the following:

- Historical transformer handling area at former Buildings 38 and 39 in the central portion of the Site, north of current Building 88;
- Historical fleet vehicle maintenance facilities identified at the site; and
- Historical timber pole storage area in the central portion of the Site, adjacent to current Building 75.

A table outlining additional Site characterization needs based on a similar table provided by DOEE is provided as **Table 6-1**.

Uncertainty in Groundwater Data

The Draft RI noted that several hydrophobic organic compounds (e.g., PAHs, PCBs and dioxins) detected in groundwater could be related to turbidity noticed in groundwater samples. This data gap will be addressed in the additional field investigation by redeveloping and resampling select monitoring wells.

Impacts to NPS Property

Groundwater from beneath the Pepco facility discharges to the Anacostia River. In this process any groundwater contaminants discharging from Pepco property would migrate on the NPS Kenilworth Maintenance Yard (KMY) property. Further, the nature and extent of impacts resulting from the alleged staging of dredged spoils on NPS property adjacent to the Site is a data gap, and a field investigation will be required in this area.

Waterside Investigation Uncertainty

Additional characterization sampling is necessary to more completely delineate the nature and extent of site contamination in surface and subsurface sediment. Specifically, uncertainty exists regarding the downstream extent of PCB and PAH contamination attributable to Pepco. Existing characterization and forensic results suggest that impact of these constituents may exist up to 0.8 miles downstream from Pepco at sampling location AR25D.

Expanded Forensic Investigation

The preliminary forensic analysis indicates that several contaminants on Site and in the river sediment are potentially attributable to a variety of off-site sources. Additional background and forensic sampling is needed to confirm these preliminary findings.

The additional sampling program described in this section and the additional sampling included in the Background Evaluation Technical Memorandum (Tech Memo #2) and the Risk Assessment Work Plan (Tech memo #3) will be designed to address the data gaps and either confirm or eliminate the potential source areas presented in the CSM (**Figure 6-1 and 6-2**). The CSM will be updated upon completion of the additional field investigation.

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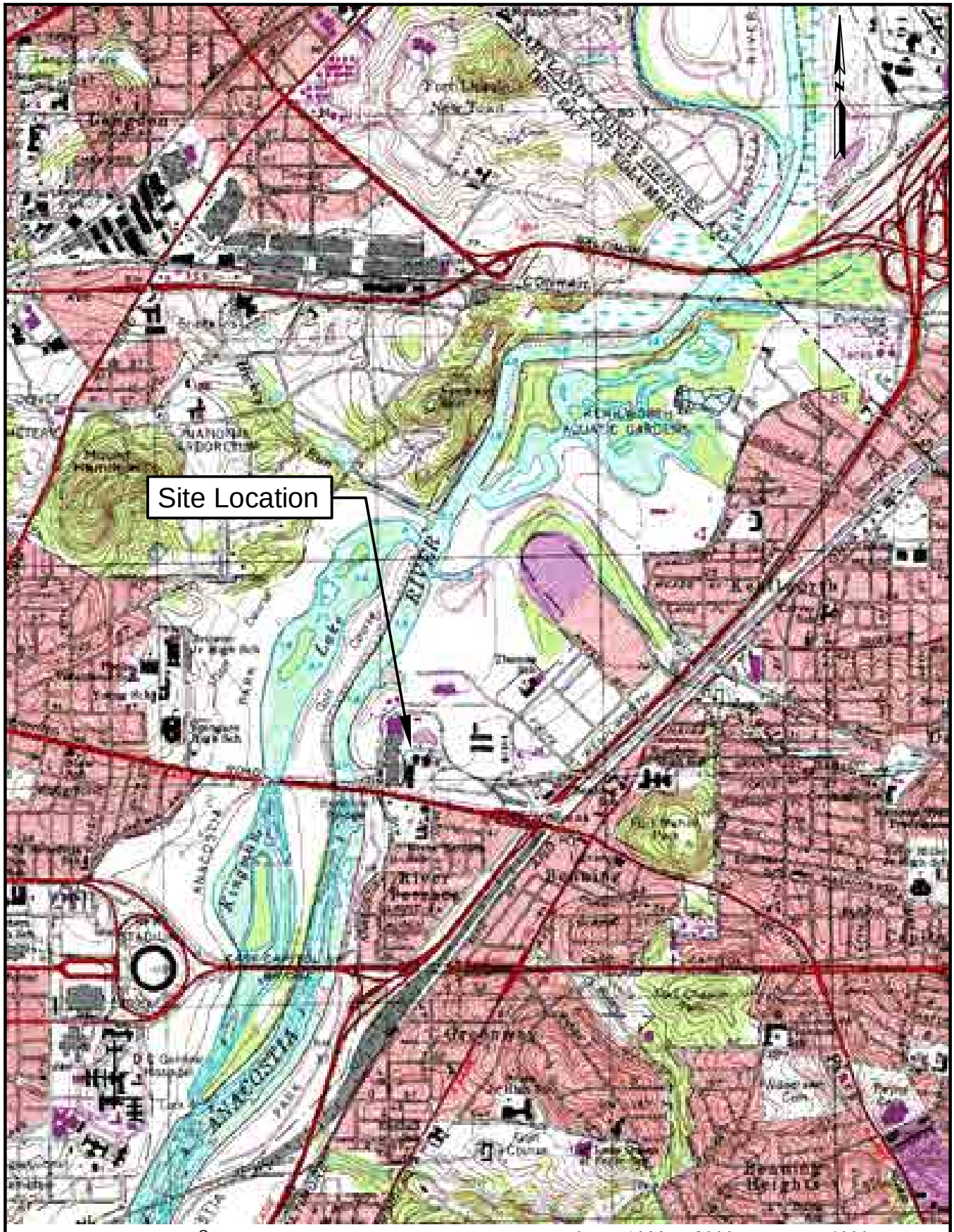
Figures



AECOM

Source:
USGS 7.5 Minute Topographic Map
Washington East Quadrangle

0 1000 2000 4000
SCALE IN FEET

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

Site Location Map

DATE: 03/09/2015	DRAWN BY: LAD	CHECKED BY: RD	FIGURE 1-1

LEGEND:

- INVESTIGATION AREA
- BENNING ROAD FACILITY PROPERTY BOUNDARY
- PROPERTY BOUNDARY

0 200 400 800

SCALE IN FEET

AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

Site Plan
And Investigation Areas
(Pre-Power Plant Demolition)

DATE: 09/21/2016 | DRAWN BY: LAD | CHECKED BY: RD

FIGURE 1-2

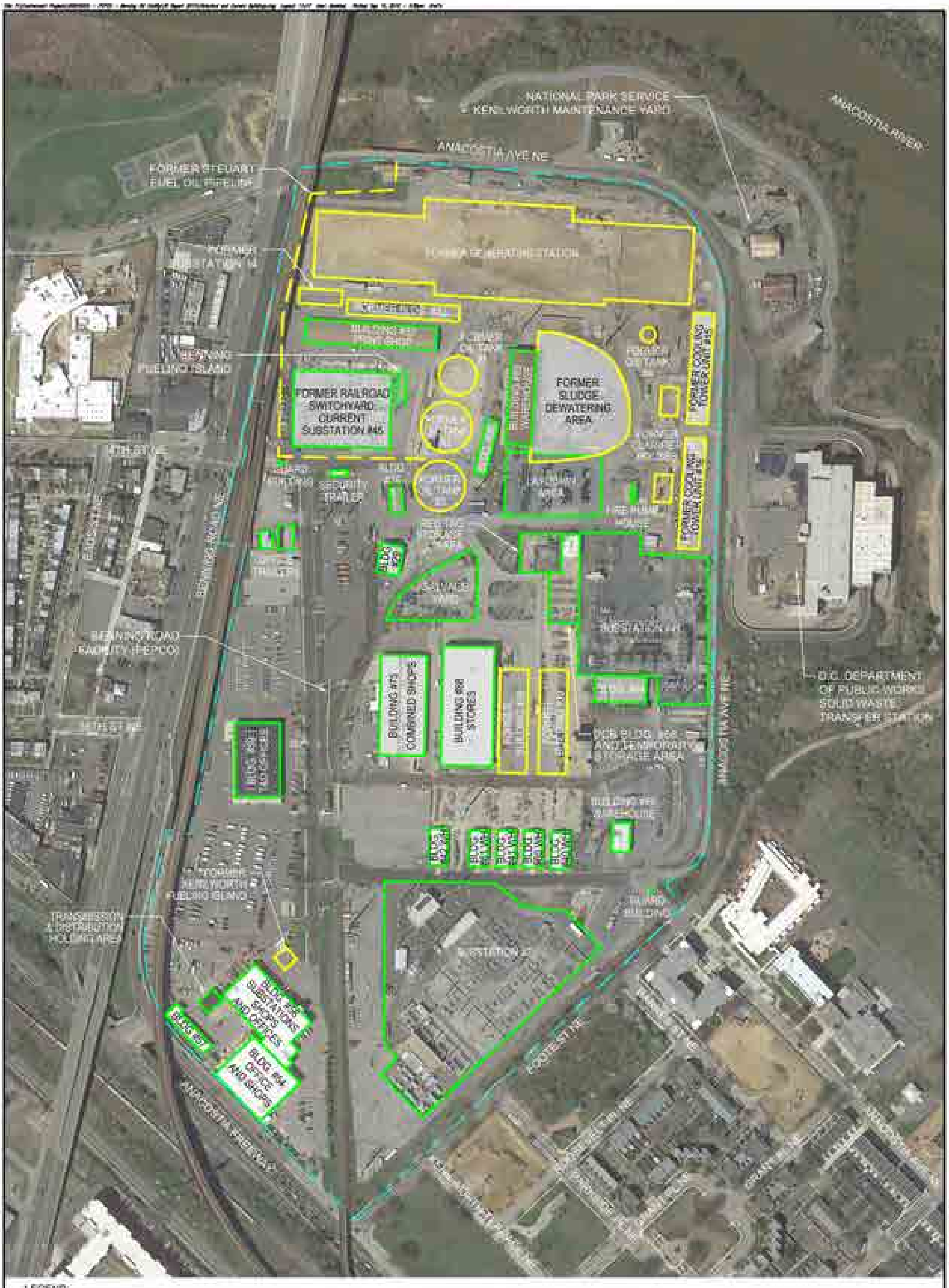
AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

DATE: 09/21/2016 | DRAWN BY: LAD | CHECKED BY: RD

Target Investigation Areas (Current Site Plan)

FIGURE 1-3



LEGEND:

- CURRENT BUILDING, STRUCTURE, OR AREA
- FORMER BUILDING, STRUCTURE, OR AREA
- PROPERTY BOUNDARY

0 125 250 500

SCALE IN FEET

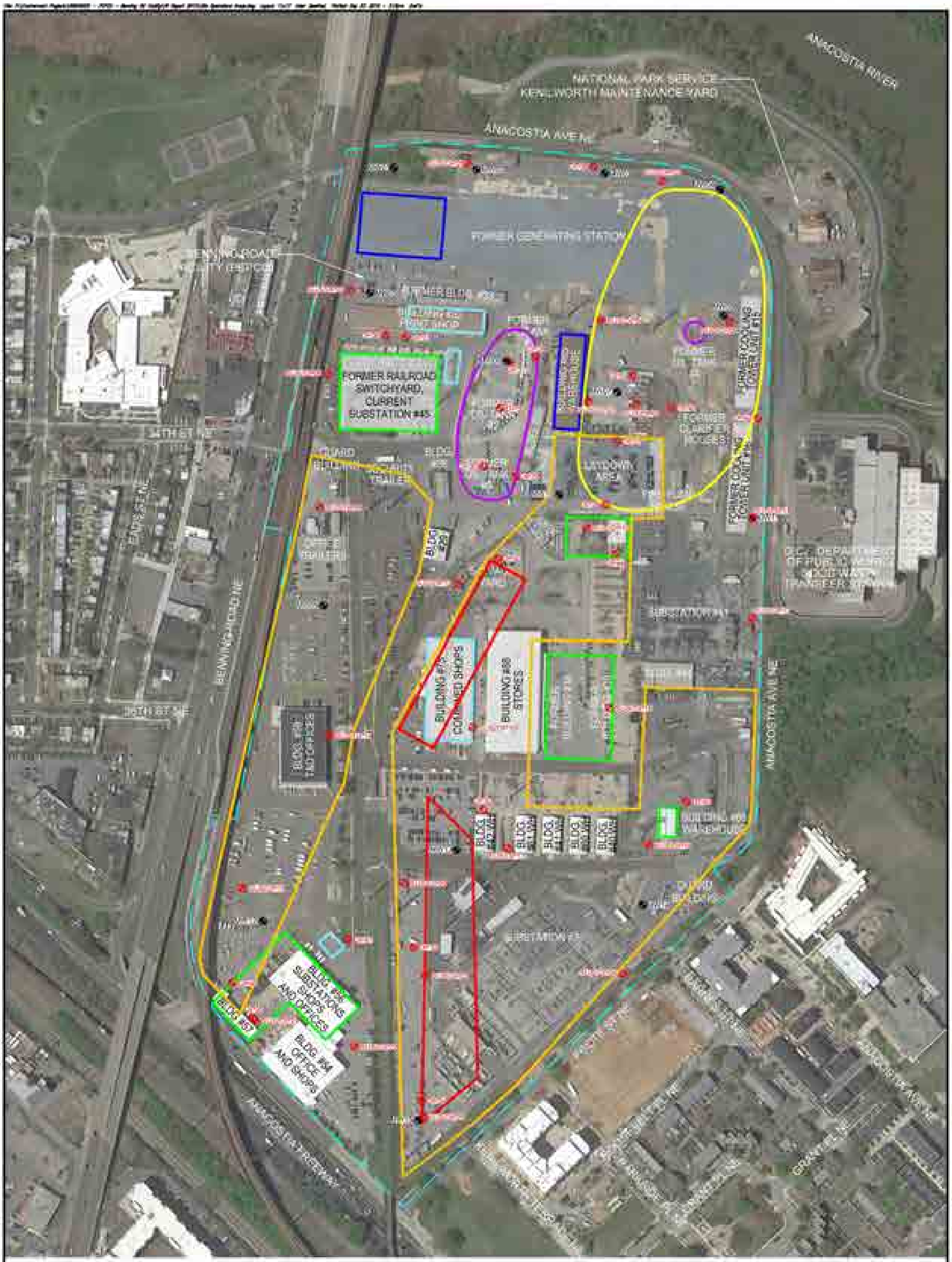
AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

Current and Historical Site Buildings

DATE: 09/15/2016 | DRAWN BY: LAD | CHECKED BY: RD

FIGURE 1-4



AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

Current and Former Site Operations Areas

DATE: 09/27/2016	DRAWN BY: LAD	CHECKED BY: RD		FIGURE 1-5

C
West

C'
East

MW-3 MW-6 MW-10 GEO-B-3 G&O-B-36 MW-13 CTI-B-3 CTI-B-5 SB-5 SB-4 MW-15

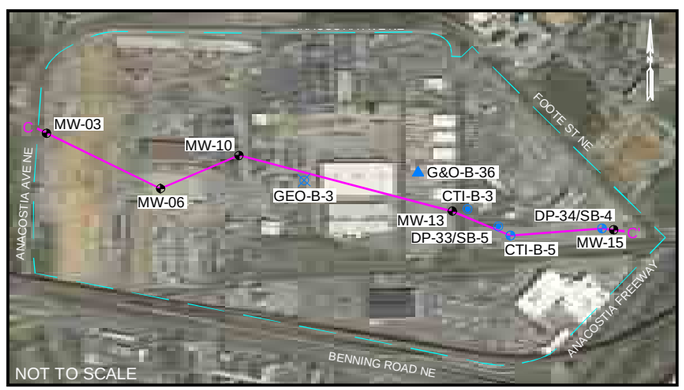
30 20 10 0 -10 -20 -30 -40 -50 -60

50 40 30 20 10 0 -10 -20 -30 -40 -50 -60

DATUM: NAVD88

Cross Section C-C'

10
5
0 25 50
Graphic Scale (ft)



Cross Section Location

Legend:

- MW-15 — Boring Location And ID
- Alluvium/Fill
- Sand
- Sand/Gravel
- Clay, Silt, and Sand Intermixed
- Arundel Clay
- Inferred Lithology
- NAVD88 North American Vertical Datum of 1988
- Depth To Water (Encountered during drilling.)
- Approximate Water Table

NOTE: GEOLOGIC CROSS-SECTIONS ARE GENERALIZED

AECOM

Benning Road Facility RI/FS Project 3400 Benning Rd., NE Washington, DC 20019			Geologic Cross Section C-C'
DATE: 03/14/2016	DRAWN BY: LAD	CHECKED BY: RD	**FIGURE 3-1**

File: P:\Environment Projects\60248205 - PEPCO - Benning RI Facility\RI Report 2015\Cross Sections.dwg Layout: C User: Dunkiel Plotted: Mar 14, 2016 - 2:55pm Xref's:

File: P:\Environment Projects\60240035 - PEPCO - Benning Rd Facility\RI Report 2015\GW UWZ.dwg Layout: GW UWZ User: Desktop Plotted: Mar 14, 2016 - 3:37pm Xref's:

LEGEND:

MW-12 21.6 MONITORING WELL LOCATION, ID, AND GROUNDWATER ELEVATION IN FEET

GROUNDWATER CONTOUR

DIRECTION OF GROUNDWATER FLOW

SITE BOUNDARY

NOTE:
VERTICAL DATUM IS IN REFERENCE TO MEAN LOWER LOW WATER (MLLW). MLLW IS 1.46 FEET BELOW THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).

0 125 250 500
SCALE IN FEET

AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

Upper Water-Bearing Zone Groundwater Contour Map

DATE: 03/14/2016 | DRAWN BY: LAD | CHECKED BY: RD

FIGURE 3-2

File: P:\Environment Projects\60240035 - PEPCO - Benning Rd Facility\RI Report 2015\GW LBZ.dwg Layout: GW LBZ User: Dewkinat Plotted: Mar 14, 2016 - 3:36pm Xref's:

LEGEND:

- MW-12 21.5 — MONITORING WELL LOCATION, ID, AND GROUNDWATER ELEVATION IN FEET
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW
- SITE BOUNDARY

NOTE:
VERTICAL DATUM IS IN REFERENCE TO MEAN LOWER LOW WATER (MLLW). MLLW IS 1.46 FEET BELOW THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).

0 125 250 500
SCALE IN FEET

AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

Lower Water-Bearing Zone Groundwater Contour Map

DATE: 03/14/2016 | DRAWN BY: LAD | CHECKED BY: RD

FIGURE 3-3

Figure 6-1
Preliminary Conceptual Site Model - Onsite Sources
Benning Road Facility RI/FS Project

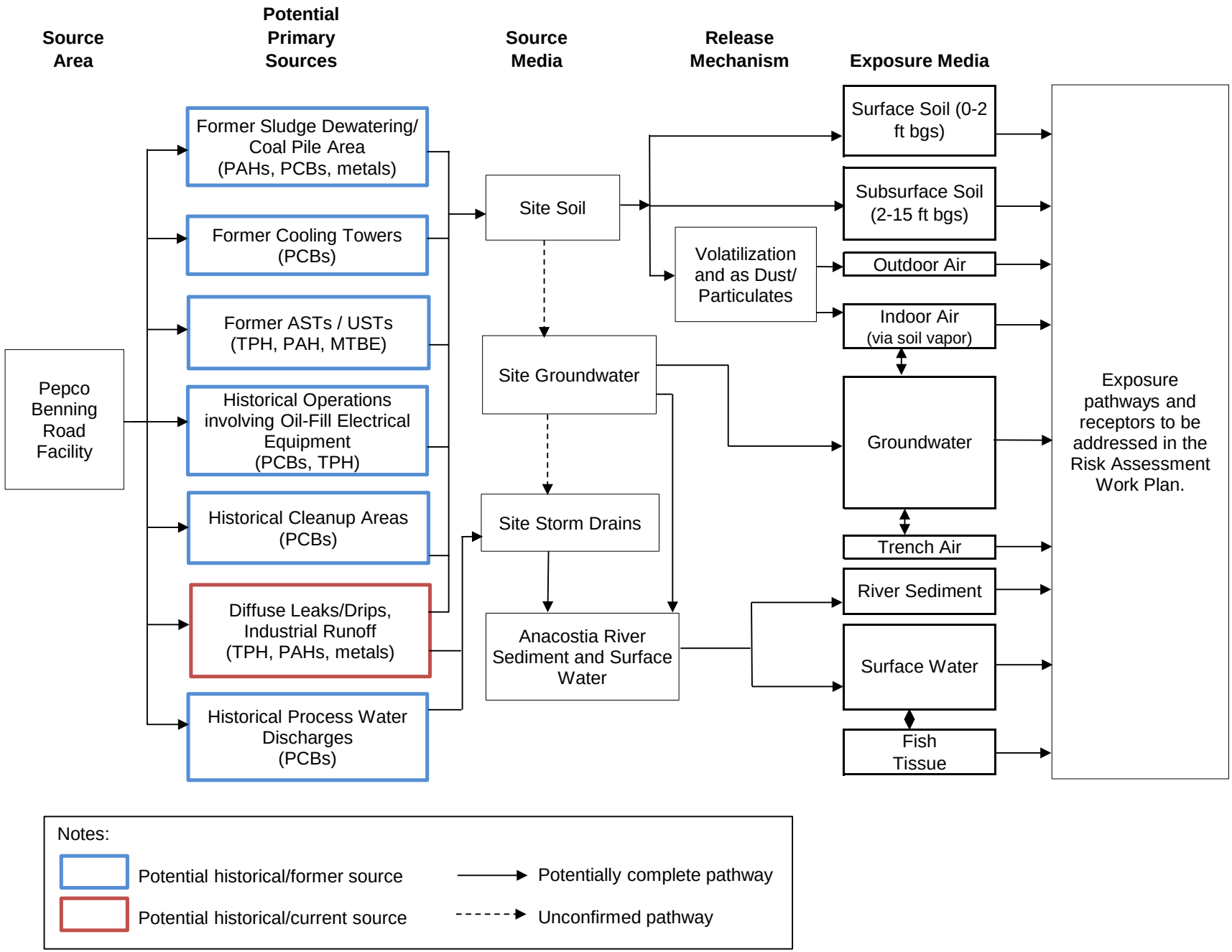
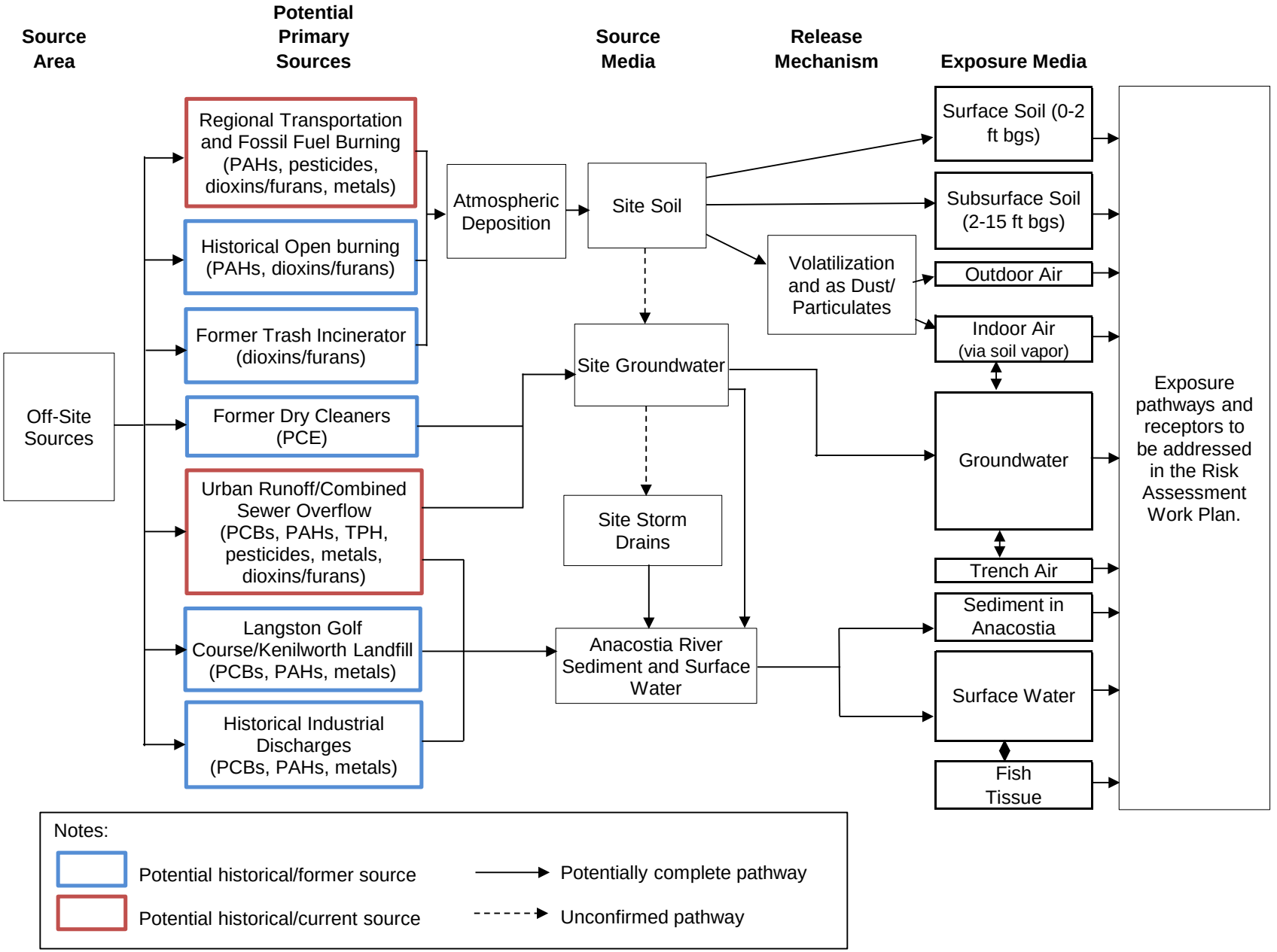


Figure 6-2
Preliminary Conceptual Site Model - Off-Site Sources
Benning Road Facility RI/FS Project



Tables

Table 1-1
Target and Operational Areas
Benning Road Road Facility RI/FS Project

Area #	Name	Location	Comments	Samples Collected In or Near Area
Target Areas				
1	Former Sludge Dewatering Area	Between Building 65 and Cooling Towers	Area exists in the former coal yard and was used as a decanting area for boiler fireside wash down for river sediment sludge from the clarifiers. In September 2008, TetraTech completed sampling to a depth of 1 ft bgs as part of a Site Inspection for USEPA. (USEPA, 2009; referred to as "USEPA SI Report")	SUS/DP07, SUS/DP08, DP27, DP40, DP41, MW07
2	Benning Fueling Island	Located east of Building # 32	A 20,000 gallon gasoline UST and a 20,000 gallon diesel UST currently hold fuel for fleet vehicles at the Benning Fueling Island. These tanks are provided with leak detection monitoring systems. According to the 1999 URS Phase I ESA, there have been no tank tightness failures. A 4,000 gallon diesel UST was removed in this area in 1991. Soil was found to be impacted and was removed according to a letter submitted by Pepco to DC DDOE. A 10,000 gallon diesel UST was removed in June 1991 with soil impact identified in the excavation. The impacted soil was reportedly excavated and the cases were closed with District approval. (URS, 1999)	None
3	Former 15,000 Gal UST and 50,000 Gal AST (No. 2 Fuel Oil)	East of Generating Station, south of cooling tower unit 15	The UST was removed in 1989 and confirmatory samples showed TPH levels in excess of 100 mg/kg. A 20 ft by 20 ft area was excavated to 15 ft bgs where groundwater was encountered. An oil sheen was noted on the water table and the oil/water mixture was pumped out to the plant oil/water separator. The excavation was backfilled and a recovery well installed to recover any residual oil. DDOE issued Pepco a written notice of case closure on February 5, 1992. The 50,000 gallon AST was constructed in 1968 and drained, cleaned, and removed in early 2013.	SUS/DP05
4	2003 Salvage Yard Investigation	Salvage yard located west of Buildings #75 and #88	Soil investigation and soil removal were completed in area formerly used for storing used electrical equipment. Jacques Whitford Company completed soil sampling down to a maximum depth of 5 feet. (Jacques Whitford Company, 2003)	SUS/DP12, DP43
5	1995 Cleanup Area	Unit 15 and 16 cooling tower basins and surrounding soil	PCB containing caulk and joint filler located inside cooling tower structures were found to be impacting the cooling tower concrete basins, sludge and water inside the basins, and soil adjacent to the basin's wall expansion joints. Pre-cleanup sediment sampling results from cooling tower blowdown discharge location upstream of Outfall 013 indicated no PCBs above 1 ppm. (Pepco, 1995)	SUS/DP05, SUS/DP11, DP42, MW11, Addendum #2 CT Soil Sampling
6	1991 Cleanup Area	Between Buildings # 41 and # 61	PCB capacitor leaked approximately 8 pounds onto concrete surface and seeped through expansion joints.1991 report stated that there were multiple excavations and that PCB concentrations were not detected. (Pepco, 1991)	SUS/DP17, DP32
7	1988 Parking Lot Cleanup Area	Parking lot located in the eastern portion of facility.	Soil contamination detected under concrete pad used to prepare off-line PCB capacitor banks for disposal in area formerly used to store used electrical equipment. The concrete pad was demolished and disposed followed by removal of soil to a depth of 12 inches below grade. The cleanup was performed and 19 truckloads of PCB impacted materials were disposed of at a Waste Management facility located in Model City, New York. (Pepco, 1988)	SUS/DP20, SUS/DP23, DP33, DP34, MW15
8	1985 Excavation Area	Underground pipe leading from Kenilworth Transformer Shop (Current Building # 56)	Underground pipe leaked waste transformer oil containing PCBs. (Pepco, 1985)	SUS/DP22
9	Green Tag Storage Area	Storage Building #66	Building utilized for temporary storage of drums containing sludge removed from manholes while they await analysis for PCB content. An area located outside and in front of building 66 is used to store empty transformer casings that were previously identified as non-PCB. At the time of the EPA inspection, all of the casings were marked with a green tag that indicated they were less than 50 mg/kg PCB. (USEPA, 1997).	SUS/DP18, DP45
10	Red Tag Storage Area	South of Building # 68 (PCB Storage Building)	The area is concrete and used for storage of empty transformer casings which had previously been identified with red tags as PCB contaminated (50 to 499 mg/kg). The casings are stored in this area until they are shipped off site for recycling. The EPA inspector noted no indications of spills or leaks in the area around the casings. (USEPA, 1997)	SUS/DP10, DP26
11	Building #68 (PCB Building)	Building #68	Building used for storage of PCBs and hazardous waste in drums. The floor is concrete with a continuous concrete curb one foot high providing containment for 22,443 gallons. There were no leaks observed by the EPA inspector on or around the containers. Additionally, no staining was observed by the EPA inspector in Building 68. (USEPA, 1997)	DP44
12	Building #57	Building #57	Building houses two 10,000 gallon holding tanks for accumulating waste oil. All waste oil with a PCB concentration of less than 49 mg/kg is pumped to these tanks. Both tanks are located in a large concrete vault inside of the building. These tanks are reportedly inspected daily by Pepco personnel. Currently, accumulated oil is taken to a permitted off-site facility for disposal/recycling. In the past, oil was transported to Pepco's Morgantown Generating plant to be burned in their boilers. At the time of the EPA inspection, oil stains were observed on the outside of tank 1 and on the concrete floor in the vault area. A concrete sump located in the back corner of the vault area was also observed to be full of oil. The loading area is located on the ground level of the building just above the storage tank area. The loading area slopes downward from the front and drains back into the tanks via a drain. No cracks were observed in the concrete loading ramp. (USEPA, 1997)	SUS/DP21, DP35, DP46
13	Bulk Storage ASTs and Loading Rack	East of the Generating Station Building	Three ASTs located within dikes and on a clay floor with initial construction dates ranging from 1942 to 1968. Tank capacities ranged from 618,000 gallons to 1,984,000 gallons. In 1995 a HDPE liner covered with flowable fill was installed on the top of the clay floor. The tanks were upgraded with new steel bottoms in 1997 and 1999. TPH GRO and/or DRO was identified in soil samples collected in this area in January 2012 in connection with the proposed demolition of the tanks. (AECOM, 2012a). The three ASTs were demolished in early 2013.	DP37, DP38, DP39, MW06
14	Former Railroad Switchyard	Adjacent to southern property boundary and east of Building # 32.	According to the URS Phase I ESA dated December 1999, four transformers likely existed in this area. Soil staining was observed by URS during Site reconnaissance. PCBs were not reported by URS in two oil samples collected by Pepco from each of the transformers that remained. Additionally, a soil sample was collected by Pepco prior to demolition activities in the switchyard and no PCBs were reported. URS could not confirm the location or rationale for the soil sample collected by Pepco. (URS, 1999)	SUS/DP06
15	Generating Station Transformers	West of the Generating Station	According to the URS Phase I ESA dated December 1999, approximately 22 transformers with a total capacity of approximately 64,000 gallons were present in the vicinity of the Generating Station Building. Nineteen of these transformers were located on the exterior of the west side of the Generating Station. Pepco's 1993 SPCC-ERP indicates all large power transformers are surrounded by a concrete berm or pit capable of containing all the oil. In addition, the SPCC-ERP indicates some of the smaller service station transformers do not have containment pits or berms. No spills were reported in this area by URS (URS, 1999). All transformers were de-energized, drained to remove oil, and removed as part of the Power Plant building demolition.	SUS/DP01, SUS/DP02, DP36, MW02, MW03, MW04
16	Print Shop	Southern portion of Building # 32	According to the URS Phase I ESA dated December 1999, the Print Shop stored small quantities (<5 gallons) of various solvents and chemicals. URS could not confirm how long the Print Shop had been in operation. URS reported that Pepco replaced hazardous products with non-hazardous substitutes as they became available. URS did not identify any floor drains in the print shop area. The facility had a silver recovery unit, which extracts silver from used developing chemicals. After the silver was extracted, the remaining non-hazardous fluids were discharged into the sanitary sewer with the approval of the POTW. Print Shop was dismantled and removed. Print Shop operations were relocated or contracted out.	SUS/DP03, DP30, DP31
17	Storm Drain System	Across the site	Based on a review of the USEPA 2009 SI Report, all process water generated on the Site is discharged into the main storm drain that extends across the Site from the southeast corner to the northwest. This pipe discharges through the main outfall (#013) leaving the facility into a pipe that goes under Anacostia Avenue and drains into the Anacostia River. According to the USEPA SI report, there have been no NPDES violations. However, sediment sampling in the discharge location closest to the former Sludge Dewatering Area is needed to evaluate potential for discharge of contaminants to the Anacostia River. A review of the First Quarter 2012 Discharge Monitoring Reports (DMR) indicates excursions of copper, zinc and iron, and no excursions of PCBs. Pepco is implementing a Total Maximum Daily Load (TMDL) Implementation Plan approved by the USEPA to identify and reduce the sources of metals in the storm water discharges from the facility. Pepco also analyzes for PCB congeners as required by the NPDES permit, for monitoring purposes only.	Storm drain surface water and sediment samples
18	Kenilworth Fueling Island	Approximately 105 feet west of Building # 56	In 1996, a leaking UST case was reported in this area resulting from a leaking pressurized pipe associated with the UST. A remediation system was installed to recover free product and the case was closed by DDOE in September 1997. The tank was removed in August 2012 and DDOE issued Pepco a Permanant Tank Closure Letter on November 1, 2012.	DP47
19*	PCE and Naphthalene in Groundwater	Southwest of former Power Plant footprint	During RI sampling, PCE was detected in groundwater in MW-01B at 110 µg/l. Naphthalene was detected above its screening level in MW-01A/B and MW-02A/B.	SUS/DP01, MW01, MW02
20*	PAHs in Soil	Southeast parking lot	During RI sampling, PAHs were detected above screening levels at 1.5-2.5 ft bgs and 9.5-10.5 ft bgs in DP-19.	DP19

Table 1-1
Target and Operational Areas
Benning Road Road Facility RI/FS Project

Area #	Name	Location	Comments	Samples Collected In or Near Area
Operational Areas				
1	Timber Pole Storage Areas	Central portion (near Building #75) and eastern portion (south of Substation #7)	Timber poles appear to have been stored in these areas between approximately 1950 and 1970. No information exists on whether the timber poles were treated, and if so, where and with what chemicals.	SUS/DP12, SUS/DP15, DP43
2	Equipment Laydown Areas	Majority of eastern half of Site	Many open areas of the Site were historically used for equipment staging and storage. These laydown areas varied in shape, location, and the materials stored there. It is suspected that many different materials related to the electric transmission and distribution were stored in these areas, including timber poles, cable reels, switchgear, circuit breakers, batteries, transformers, capacitors, and other electrical distribution system components.	SUS/DP09, SUS/DP10, SUS/DP12, SUS/DP14, SUS/DP15, SUS/DP17, SUS/DP18, SUS/DP19, SUS/DP20, SUS/DP21, SUS/DP23, SUS/DP24, SUS/DP25, DP26, DP27, DP32, DP33, DP34, DP35, DP43, DP44, DP45, DP46, MW09, MW10, MW12, MW13, MW14, MW15
3	Vehicle Fleet Servicing Areas	Building #32, Building #75, Benning Fuel Island, Kenilworth Fuel Island	A fleet maintenance facility was historically located in Building #32, but was moved to Building #75 circa 2003. Both buildings either currently or formerly contained aboveground hydraulic lifts, lead acid batteries, motor oil, transmission fluid, antifreeze, and other materials and wastes typical to vehicle maintenance. The Benning and Kenilworth Fuel Islands are designated as Target Areas #2 and 18, respectively, and are discussed above.	DP31, SUS/DP15, DP47
4	Coal Pile Area	Northwest corner of the Site	Coal was stored and used onsite from 1906 until the conversion to fuel oil in 1976. The coal pile was located in the northwest corner of the Site, but its size and approximate location changed over time.	SUS/DP02, SUS/DP04, SUS/DP05, SUS/DP07, SUS/DP08, DP26, DP27, DP40, DP41, DP42, MW04, MW07, MW08
5	Fuel Oil Storage Area	East of Building #32 and south of Cooling Tower #15	These two former bulk fuel oil storage areas are designated Target Areas #3 and #13, and are discussed above.	SUS/DP05, DP37, DP38, DP39, MW06
6	Transformer Operations Areas	Four locations in the north-central and souteastern portions of the Site	Two of these areas (the Green Tag and Red Tag Storage Areas, designated Target Areas #9 and 10, respectively) are discussed above. Former Buildings #38 and 39 to the north of Building #88 housed the onsite transformer shops from the 1950s to mid-1980s, when they were moved to Building #56 in the southeast of the Site. Associated with the transformer shops, Building #57, which houses two 10,000 gal holding tanks for waste transformer oil, is designated Target Area #12 and is discussed above.	SUS/DP10, SUS/DP16, SUS/DP18, SUS/DP21, DP26, DP35, DP45, DP46
7	Chlorinated Solvent Storage and Usage Area	Southern portion of the former power plant building	In-person interviews revealed the use of degreasers SS25 and XL99, which are chlorinated solvents, in the southern portion of the former power plant building. Their use was discontinued in the 1980s.	SUS/DP01, MW01, MW02

Notes:
TA - Target Areas
ft bgs - feet below ground surface
UST - underground storage tank
LUST - leaking underground storage tank
mg/kg - milligrams per kilogram
TPH - Total Petroleum Hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
PCBs - polychlorinated biphenyl s
TSS - total suspended solids
ft - feet
mg/L - milligrams/liter
HDPE - high density polyethylene liner
ASTs - Aboveground Storage Tanks
SPCC-ERP - Spill Prevention Control and Countermeasures - Emergency Response Plan
PPE - Probable Point of Entry
µg/kg - micrograms per kilogram
µg/L - micrograms per Liter
COPC - Contaminant of Potential Concern
NPDES - National Pollutant Discharge Elimination System
PAHs - Polycyclic aromatic hydrocarbons
SI - Site Inspection
USEPA - United States Environmental Protection Agency
DDOE - District Department of the Environment
*These Target Areas added as a result of preliminary RI findings.

Table 2-1
Summary of Historical Development
Benning Road Facility RI/FS Project

Date	Information Source	Summary
1906	Greenhorne & O'Mara, 2010 Topographic Map, 1906 URS,1999 Pepconian, 1956	Eleven acres of land (Parcel A) acquired by Pepco in the western portion of the current Site. Original generating station constructed in the southern portion of this parcel. Railroad spur constructed entering the Site from the east. Surrounding properties primarily underdeveloped.
1937	Pepco, 1950 URS, 1999 Pepconian, 1956	Generating station has been extended northward, and in 1907 Substation 14 was constructed at the southeast corner of the generating station. Building 32 to the east of the generating station was the first warehouse built onsite, constructed in 1926. A railroad switchyard was constructed to the east of Building 32 prior to 1937. The switchyard was leased to railroad companies such as Conrail and Norfolk Southern starting in 1934. Parcels B, C, and D, which form the majority of the current Site, were purchased in 1921, 1926, and 1929, respectively. Two coal piles are apparent in the aerial to the north and northeast of the generating station. The south-central portion of the Site appears to have been a staging area and primarily undeveloped. A rail yard has been constructed in the southeast portion of the Site. The aerial photograph appears to show a drainage feature (resembling an open ditch) extending from the southeast corner of the site, through the central portion, then north/northwest toward a narrow inlet discharging to the Anacostia River. This drainage feature is most likely Piney Run, which first appears on the 1906 topographic map.
1943	Topographic Map, 1943 URS, 1999	Aboveground storage tank (AST) #1 constructed to the east of the generating station in 1942. According to the 1943 topographic map, Buildings 54 and 56 appear to be in place in the southeast of the Site. Several railroad spurs cross the Site from east to west. A fuel oil pump house on the east side of the plant was likely put into place at approximately this year in order to pump fuel oil from the AST.
1949	Topographic Map, 1943 Pepco, 1950 Pepconian, 1950	Additions to the Site apparent in the 1949 aerial photograph are Building 33 between the generating station and Building 32, AST 1 and possible fuel oil pump house, Substation 14, and residential structures to the northeast. Buildings 54 and 56 were constructed in the southeast of the Site between 1937 and 1943. The triangular area at the southeast boundary of the Site was leased by Pepco to D.C. Transit Company through at least 1950, and repurchased by Pepco in 1955. The generating station was expanded northward in 1947 to provide additional generating capacity. A small rail engine shed has been constructed northwest of Building 56. The coal pile appears in the aerial as a single irregularly shaped pile to the north and northeast of the generating station.
1951		No. 6 fuel oil AST #2 constructed.
1952	Pepco, 1950	The generating station has expanded northward to accommodate Unit 14. No.

Table 2-1
Summary of Historical Development
Benning Road Facility RI/FS Project

Date	Information Source	Summary
	URS, 1999 Conestoga Rovers (CRA), 2011	6 fuel oil AST #2 was constructed in 1951 to the east of AST #1. Two warehouse buildings (Buildings 38 and 39) located in the center of the Site were constructed in 1951 and 1952. Building 44 (utility building) was constructed in the north of the Site in 1952. Building 35 (warehouse) to the north of AST #2 and the fire pump house to the southeast of AST #2 were constructed circa 1952. The southern and central portions of the Site were used for parking, and as a laydown area for cable spools and utility poles. A strip of transformers known as "transformer row" has been constructed to the west of the generating station. The coal pile in the aerial appears as a single approximately circular pile to the northeast of the generating station. In 1950, the coal pile was approximately 2.8 acres in size. Piney Run is no longer visible on the Benning Road property, although it is present in topographic maps through 1956. This indicates that the portion of Piney Run within the Benning Road property was converted to a storm sewer in the early 1950s. An oblique photograph taken circa mid-1950s provided by Pepco shows many of these features. Three transformers in the railroad switchyard are apparent. This photograph is provided and annotated in Appendix A.
1957	Pepco, 1950 Topographic Map, 1956 URS, 1999	The residential structures in the northeast corner of the Site have been demolished and that area has been converted into a laydown area. The area to the west of Building 44 has been cleared and appears to be Substation #41 under construction. Generating station expansion to the north was completed between 1952 and 1956. This photo also shows construction of submarine cables to the northwest of the property. Pepco completed acquisition of Parcels E, F, and G in 1956, bringing the Site up to its current 77 acres.
1963	AECOM, 2016 Pepco, 1950	Substation 41 has been constructed. Timber poles north and adjacent to the railroad tracks are no longer in place. The equipment storage area on the east of the Site between Foote Street and Foote Place has decreased in size; the eastern half appears to be a parking area. The southwest corner of the laydown area east of the railroad switchyard has been converted into a parking area. Buildings 40 and 41 (warehouses) were constructed to the east of Buildings 38 and 39 to store non-stock items.
1965	Topographic Map, 1965	This aerial photograph is not available. Based on a 1965 topographic map no significant changes were noted.
1968		Three additional warehouse buildings (Buildings 42, 60, and 61) have been constructed east of Buildings 38 and 39. AST #3 was constructed to the east of AST #2 in 1968. The plant building was expanded northward to accommodate combustion turbine Unit 15 in 1968, and Unit 15 cooling tower was constructed to the northeast of the plant building. The area to the west of Buildings 54 and 56 appears to have been used as a lay down area. The coal pile now appears as a half-circle shape to the east of the northern end of the power plant building.

Table 2-1
Summary of Historical Development
Benning Road Facility RI/FS Project

Date	Information Source	Summary
1970	AECOM, 2016 Conestoga-Rovers, 2011 Greenhorne & O'Mara, 2010 URS, 1999	Construction of Generating Unit 16 and related components is under way at the northern end of the power plant. AST #4 has been constructed. An ash handling area used for ash collection from fuel oil combustion is now visible between the power plant building and the coal pile. The tanks in this area received boiler washings from the Unit 15 and Unit 16 boilers. The National Parks Service Kenilworth Maintenance Yard has been developed to the northwest of the Site, and the DC Department of Public Works Solid Waste Transfer Station is under construction to the north of the Site. Six visible laydown areas were most likely construction and electrical equipment storage.
Circa 1972	Pepco	The Generating Unit 16 construction has been completed, and the Unit 16 cooling tower has been constructed. Construction of the DC Waste Transfer Station to the north of the Site has been completed. The pump houses and clarifier structures associated with the two cooling towers are in place.
1976	URS, 1999	Pepco stops using coal circa 1976. A sludge dewatering pond is constructed in place of the former coal storage area.
1981	Conestoga-RoversCRA, 2011 Pepco, Undated	The sludge dewatering area was constructed in place of the former coal pile circa 1976. Substation #7 has been constructed in the east of the Site. The southeastern corner of the power plant building was demolished. Building 65 (warehouse) was constructed to the northwest of Building 35. Ash settling tanks housing ash from oil combustion in units 15 and 16 are visible in the ash handling area, and a second fuel oil pump house between the plant building and Building 65 is now visible.
1988	AECOM, 2016	Buildings 38 and 39 have been demolished and replaced by Buildings 88 and 75. Transformer Shop operations were moved to Building 65, which was expanded. Building 57 in the southeast of the Site was constructed primarily to house waste transformer oil tanks. Building 66 (warehouse) has been constructed to store PCB-free transformers. Substation #14 has been dismantled. Building 59 (Administrative offices) and surrounding parking lots have been constructed in the south-center portion of the Site. The sludge dewatering area ceased to be used for dewatering and is now a pond.
1994		Building 29 (warehouse) was constructed to the southeast of AST #3. Substation #7 in the east of the Site was expanded.
1996	Pepco, 1997	Pepco conducts cooling water intake dredging and wetland construction in the Anacostia River to the southwest of the Site.
1998	Pepco, 1997	Dredging and wetland construction complete to the southwest of the site, north and adjacent to the Benning Road Bridge.
1999	URS, 1999	Demolition of Former Railroad Switchyard takes place from August through October
2000	URS, 1999	Completion of Former Railroad Switchyard demolition is visible. This area used for parking and as a staging area.
2001-2004		No observable changes

Table 2-1
Summary of Historical Development
Benning Road Facility RI/FS Project

Date	Information Source	Summary
2005		Building 33 has been demolished.
2006-2009		No observable changes
2010		Cooling tower sludge dewatering pond area appears re-graded. Substation 14 transformers removed. Substation 7 expands southwest into former equipment storage area.
2011		Substation #45 constructed in Former Railroad Switchyard area.
2012		No observable changes
March 2013		ASTs #1 and #2 are removed.
April 2013		ASTs #3 and #4 are removed.
April 2014		Cooling tower superstructures demolished.
October 2014		Demolition of power plant main building is approximately two months underway.
April 2015		Plant building demolition complete.

Note: Information compiled primarily from aerial photos sourced from an EDR package, Google Earth, and Pepco records. Information from previous reports and interviews is used to supplement and/or in lieu of aerials.

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Pepco, 1950. Bennings – Gen. Sta. "A" Property Plan.

Pepco, 1997. Pepco Intake Dredging and Sampling Report.

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Table 2-2
Summary of Site Chemicals and Wastes
Benning Road Road Facility RI/FS Project

Storage Location Information		Chemicals/Materials Stored/Used		Waste Disposal	References
Building #/Location Name	**Curent/Former**	**Historical**	**Current**		
29	Current	Unknown	Propane Gas	Offsite	Pepco, 2013
		beginning date of use unknown; ASTs installed in 1988 and 1991	Transformer Mineral Oil	N/A	
32	Current	Used Oil - beginning date of use unknown; used oil tank removed in 1997	No oil or hazardous chemicals	Offsite	URS, 1999
		Motor Oil			
		Batteries			
		Hydraulic Oil			
		Lead-Containing Vehicle Lamps			
		Antifreeze			
38 and 39	Former - Replaced by 88 circa mid 1980s	Used as Warehouse from circa early 1950s through mid 1980s. Contents of buildings likely resembled that of Building 88.	N/A	Offsite	Pepco, 1950; Pepco, 2013
35	Current	Oil, Batteries, Antifreeze, Fire Suppressant Foam	No oil or hazardous chemicals	N/A	URS, 1999; Pepco, 2013
54	Current	Office Supplies, Rags and Cans	Office Suplies, Rags and Cans	Offsite	Pepco, 2013
54 - Front of bldg.	Current	Diesel Fuel	Diesel Fuel	N/A	Pepco, 2013
54 - Loading dock behind bldg.	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
54 - Next to loading dock, rear	Current	Diesel Fuel and Nitrogen Gas	Diesel Fuel and Nitrogen Gas	N/A	Pepco, 2013
56	Currently used as Transformer Shop - replaced Former Transformer Shop at Building 88 circa 1985	Ni-Cd Batteries and Lab Chemicals	Ni-Cd Batteries and Lab Chemicals	Offsite	Pepco, 2013
		Transformer Mineral Oil (PCB and non-PCB) and Lab Chemicals - starting circa 1985	Transformer Mineral Oil (PCB and non-PCB) and Lab Chemicals	Offsite	AECOM, 2016
56 - loading dock	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
56 - Next to loading dock, rear	Current	Diesel Fuel	Diesel Fuel	N/A	Pepco, 2013
56 - Northwest of bldg.	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
56 – Rear of bldg., tow motor & fork lift	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
56 - South of bldg.	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
56 - UST Near Building	Former	Gasoline	N/A	N/A	URS, 1999

Table 2-2
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Benning Road Road Facility RI/FS Project

Storage Location Information		Chemicals/Materials Stored/Used		Waste Disposal	References
Building #/Location Name	**Curent/Former**	**Historical**	**Current**		
57	Current	Hazardous Waste Solid - starting circa 1980	Hazardous Waste Solid	Offsite	Pepco, 2013; AECOM 2016
		Hazardous Waste Liquid - starting circa 1980	Hazardous Waste Solid	Offsite	
		non-PCB Solid Waste (0-49 ppm) - starting circa 1980	non-PCB Solid Waste (0-49 ppm)	Offsite	
		non-PCB Used Oil (0-49 ppm) - starting circa 1980, ASTs installed in 1988	non-PCB Used Oil (0-49 ppm)	Offsite	
		PCB and Haz Solvent Wastes - starting circa 1980	PCB and Haz Solvent Wastes	Offsite	
		PCB (>500 ppm) Mineral Oils - starting circa 1980	PCB (>500 ppm) Mineral Oils	Offsite	
		PCB Solid Waste (> 500 ppm) - starting circa 1980	PCB Solid Waste (> 500 ppm)	Offsite	
		PCB Solid Waste (> 500 ppm) - starting circa 1980	PCB Solid Waste (> 500 ppm)	Offsite	
		Rags and Cans	Rags and Cans	Offsite	Pepco, 2013
		Used Oil	Used Oil	Offsite	
57 - behind bldg.	Current	Propane Gas	Propane Gas	Offsite	Pepco, 2013
59 - roof	Current	Diesel Fuel	Diesel Fuel	N/A	Pepco, 2013
65	Current	DF 100	Non-Stock Material and Gas Cyliners	N/A	Pepco, 2013
		Nitrogen Gas			Pepco, 2013
		Aqua Ammonia			URS, 1999
		Alumina (Aluminum Oxide)			URS, 1999
		Combustible Electrical Cleaning Fluid			URS, 1999
		TCE Replacement and Dielectric Solvent			URS, 1999
66	Former - Demolished in 2013	Sodium Hydroxide - use likely started with construction of cooling towers in later 1960s	N/A	Unreacted components eventually released as cooling tower blow-down water under NPDES permit	Conestoga-Rovers, 2011; Pepco Map (Undated)
68		Aluminum Sulfate - use likely started with construction of cooling towers in late 1960s			
68	Current	PCB (50-499 ppm) Mineral Oils - likely starting circa 1980	PCB (50-499 ppm) Mineral Oils	Offsite	Pepco, 2013; AECOM 2016
		PCB (50-499 ppm) Mineral Oils - likely starting circa 1980	PCB (50-499 ppm) Mineral Oils		
		PCB (50-499 ppm) Solid Waste - likely starting circa 1980	PCB (50-499 ppm) Solid Waste		
		RCRA Haz Waste	RCRA Haz Waste	Offsite	Pepco, 2013

Table 2-2
Summary of Site Chemicals and Wastes
Benning Road Road Facility RI/FS Project

Storage Location Information		Chemicals/Materials Stored/Used		Waste Disposal	References
Building #/Location Name	**Curent/Former**	**Historical**	**Current**		
75	Current - Replaced Building 32 for fleet maintenance in 2003	Ethylene Glycol	Ethylene Glycol (Antifreeze)	Offsite	Pepco, 2013
		Propane Gas	Propane Gas	Offsite	
		Lacquer Thinner	Lacquer Thinner	Offsite	AECOM, 2016
		Spray Paint	Spray Paint	Offsite	
		Cleaner/Degreaser (Safety Kleen)	Cleaner/Degreaser (Biocircle Products and Aquabase)	Offsite	
		Lubricants	Lubricants	Offsite	
		Hyrdaulic Fluid	Hyrdaulic Fluid	Offsite	
		Diesel Exhaust Fluid	Diesel Exhaust Fluid	N/A	
		Motor Oil	Motor Oil	Offsite	
		Grease	Grease	Offsite	
		Transmission Fluid	Transmission Fluid	Offsite	
		Bulbs and Lead Acid Batteries for Recycle	Bulbs and Lead Acid Batteries for Recycle	Offsite	
		Antifreeze	Antifreeze	N/A	
		Used Oil	Used Oil	Offsite	
75 - North side of bldg.	Current	Diesel Fuel	Diesel Fuel	N/A	Pepco, 2013
75 - Outside bldg., tow motors	Current	Propane Gas	Propane Gas	N/A	
75 - Training Booth outside bldg.	Current	Propane Gas	Propane Gas	N/A	
82	Current	Diesel Fuel - AST removed in 2015	None	N/A	URS, 1999; AECOM, 2016
83	Former - Demolished in 2013	Aluminum Sulfate - use likely started with construction of cooling towers in late 1960s	N/A	Unreacted components eventually released as cooling tower blow-down water under NPDES permit	Conestoga-Rovers, 2011; Pepco Map (Undated)
		Sodium Hydroxide - use likely started with construction of cooling towers in later 1960s			

Table 2-2
Summary of Site Chemicals and Wastes
Benning Road Road Facility RI/FS Project

Storage Location Information		Chemicals/Materials Stored/Used		Waste Disposal	References
Building #/Location Name	**Curent/Former**	**Historical**	**Current**		
88	Current - Replaced Former Warehouses 38 and 39 circa mid 1980s	Acetylene	Acetylene	N/A	Pepco, 1950; Pepco, 2013
		Argon	Argon	N/A	
		Ethylene Glycol	Ethylene Glycol	Offsite	
		Freon #12, #22	Freon #12, #22	N/A	
		Oxygen Gas	Oxygen Gas	N/A	
		Propane Gas	Propane Gas	N/A	
		Solvent - Intech 200 Non Haz Elec Solvent	Solvent - Intech 200 Non Haz Elec Solvent	Offsite	
		Sulfur Hex 0 SF6	Sulfur Hex 0 SF6	N/A	
		Non-Haz Mineral Oil	Non-Haz Mineral Oil	N/A	AECOM, 2016
		Non-Haz Cleaners	Non-Haz Cleaners	Offsite	
88 - East of bldg.	Current	Diesel Fuel	Diesel Fuel	Offsite	Pepco, 2013
ASTs 1 through 4; transferred by pump houses on east side of plant building	Former	No. 2, 4, and 6 Fuel Oil - AST 1 dates back to 1942; all ASTs demolished in 2013	None - ASTs demolished	N/A	URS, 1999
Benning Fuel Island (east of Building 32)	Current	Biodiesel - UST installed in 1991	Biodiesel	N/A	URS,1999; Pepco 2013
		Gasoline (Unleaded) - UST installed in 1975	Biodiesel	N/A	URS, 1999; Pepco, 2013
Benning Garage	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
Benning gas pumps – generator	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
Electrical equipment throughout site	Current	Transformer Mineral Oil - dating back to beginning of site operations; stored in transfromers, capacitors, breakers, 2 operating tanks in Bldg. 73 (Substation 41) and associated underground pipe cable	Transformer Mineral Oil	Offsite	Pepco, 2013
Cooling Towers	Former	Aluminum Sulfate - use likely started with construction of cooling towers in late 1960s			
Foam Pump House west and adjacent to Bldg. 35	Current	Chemical Foam - Building visible as early as 1951 aerial photograph	Chemical Foam	N/A	URS, 1999; Environmental Data Resources, Inc.
Former Railroad Switchyard and Former Substation 14 east of Building 32	Former - Replaced by new substation in 2011	Transformer Mineral Oil, possibly containing PCBs	non-PCB Transformer Oil	Offsite	URS, 1999; Environmental Data Resources, Inc.
		Sulfuric Acid Batteries	Sulfuric Acid Batteries	Offsite	URS, 1999; Environmental Data Resources, Inc.

Table 2-2
Summary of Site Chemicals and Wastes
Benning Road Road Facility RI/FS Project

Storage Location Information		Chemicals/Materials Stored/Used		Waste Disposal	References
Building #/Location Name	**Curent/Former**	**Historical**	**Current**		
Hazardous Waste Trailer southeast of Bldg. 59	Current	Lighting wastes, cable splicing debris, and lead-contaminated flushing oil	Lighting wastes, cable splicing debris, and lead-contaminated flushing oil	Offsite	Pepco, 2013
Kenilworth gas pumps – generator	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
Mobile Substation 501 near Substation 7	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
Mobile Substation 502 near Substation 7	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
Oil pump station in between Bldgs. 56 and 57	Current	Virgin Transformer Mineral Oil	Virgin Transformer Mineral Oil	N/A	Pepco, 2013
Oil pumping station (bermed and covered) adjacent to Bldg. 56	Current	PCB (< 500 ppm) Mineral Oils - 55 -gallon drum	PCB (< 500 ppm) Mineral Oils - 55-gallon drum	Offsite	Pepco, 2013
Paint Spray Building west and adjacent to Bldg. 57	Current	Paint - building is first visible in 1981 aerial	Paint	Offsite	Pepco Map (Undated); Environmental Data Resources, Inc.
Former Plant Building - Interior	Former - demolished in 2014-2015, current area is vacant lot	Asbestos-Containing Material - likely dating to original construction in 1906	None	Offsite	URS, 1999
		Eliminox (carbohydrazide) - boiler water treatment dating back to 1970s		N/A	URS, 1999
		Grease/Lube Oil - likely dating to original construction in 1906		Offsite	URS, 1999
		Coal and Fuel Oil - dating back to beginning of plant operations for coal in 1906, 1942 for fuel oil		Offsite	URS, 1999
		Fuel Oil - dating back to 1942		N/A	URS, 1999
		Hydrazine - corrosion inhibitor		N/A	URS, 1999; AECOM, 2016
		Mercury - from broken measurement instruments		Unknown	AECOM, 2016
		Transformer Mineral Oil - dating back to original construction in 1906		Offsite	URS, 1999
		Solvents - SS25, then XL99, then ZAP; SS25 use discontinued in 1980s		Unknown	AECOM, 2016
		Ammonium Hydroxide - used for water treatment, stored adjacent to plant		N/A	Conestoga-Rovers, 2011
		Sulfuric Acid - used for water treatment, stored adjacent to plant		N/A	Conestoga-Rovers, 2011
Retired Substation 14	Former - Replaced by new substation in 2011	Propane Gas	Propane Gas	N/A	Pepco, 2013
Substation 41	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
Substation 41	Current	Diesel Fuel	Diesel Fuel	N/A	Pepco, 2013
Substation Control Houses	Current	Sulfuric Acid (Battery Acid)	Sulfuric Acid (Battery Acid)	Offsite	Pepco, 2013
Tankers 12823, 12835, 12837, 12849	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
W. A. Chester yard/splice vans	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
W.A. Chester splice vans	Current	Propane Gas	Propane Gas	N/A	Pepco, 2013
Possibly Plant	Former	Sodium Bisulfite - used for dechlorination and oxygen scavenging	None	Offsite	1989 - 2013 Hazardous Waste (BRS) Data

Table 2-2
Summary of Site Chemicals and Wastes
Benning Road Road Facility RI/FS Project

Storage Location Information		Chemicals/Materials Stored/Used		Waste Disposal	References
Building #/Location Name	**Curent/Former**	**Historical**	**Current**		
Possibly Plant, Cooling Towers, or Building 65	Building 65 is Current	Hydrochloric Acid - likely used for water treatment	None	Offsite	1989 - 2013 Hazardous Waste (BRS) Data
Possibly Plant, Cooling Towers, or Building 65	Building 65 is Current	Dibromoacetonitrile and Sodium Bromide - biocide used for the cleaning of reverse osmosis systems	None	Offsite	1989 - 2013 Hazardous Waste (BRS) Data
Possibly Plant, Cooling Towers, or Building 65	Building 65 is Current	Ammonium Chloride - acidic, used for water treatment, likely for pH adjustment	None	Offsite	1989 - 2013 Hazardous Waste (BRS) Data
Possibly Plant, Cooling Towers, or Building 65	Building 65 is Current	1-Bromo-3-Chloro-5,5-Dimethylhydantoin - used for water treatment	None	Offsite	1989 - 2013 Hazardous Waste (BRS) Data
Building 56 - Chemistry Lab	Current	Potassium Persulfate, Sulfuric Acid, Perchloric Acid, Sulfaver 4 Sulfate, Mercury Thiocyanate, Ethyl Alcohol - starting likely in 1985		Offsite	1989 - 2013 Hazardous Waste (BRS) Data; AECOM, 2016; URS, 1999
Possibly Buildings 32, 56, and 75	Building 32 is no longer used for maintenance, all others are current	Rubber and Gasket Adhesive, Asphalt Paint, Sealflex (leak stop), PVC Cement	Rubber and Gasket Adhesive, Asphalt Paint, Sealflex (leak stop), PVC Cement	N/A	URS, 1999

Sources

1989 - 2013 Hazardous Waste (BRS) Data

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Aerial Maps: Google Earth and Environmental Data Resrouces, Inc.

Note: If start date of chemical use is not included in historical details, then start date is unknown.

Table 5-1
Historical Removal Actions and Investigations
Benning Road Facility RI/FS Project

Date	Incident / Investigation	Location	Activities
May-85	**PCB Cleanup**: Underground pipe leaked waste transformer oil containing PCBs.	Underground pipe leading from Kenilworth Transformer Shop (Current Building 56) (See Target Area #8 in Table 1-3)	Removal of aboveground storage tank, associated piping, and excavation of PCB-contaminated material >5 ppm (approximately 288 cu ft)
Sep-88	**PCB Cleanup**: Soil contamination detected under concrete pad used to prepare off-line PCB capacitor banks for disposal in area formerly used to store used electrical equipment.	Parking lot located in the northeast portion of facility (See Target Area #7 in Table 1-3)	Removal of approximately 2500 cu ft (389 tons) of PCB-contaminated material (>5 ppm), including concrete slab.
1989-91	**UST Removals**: A total of 6 USTs were removed/closed in place during this period	550-gal #4 (south of bulk tank #1) 4,000-gal diesel (fuel island) 15K-gal #2 (est of Units 13 and 14) 2,000-gal used oil (Fleet Main.) 250-gal #4 10K-gal Diesel (Fuel Island) (See Target Area #3 in Table 1-3)	All UST removals were inspected and approved for closure by the District.
Mar-91	**PCB Cleanup**: PCB capacitor leaked approximately 8 pounds onto concrete surface and seeped through expansion joints.	Concrete covered area located between Buildings 42 and 61 (See Target Area #6 in Table 1-3)	Approximately 126 cu ft PCB contaminated soil (>25 ppm PCBs) were removed and backfilled. Concrete replaced.
Apr-95	**PCB Cleanup**: PCB containing caulk and joint filler located inside colling tower structures were found to be impacting the cooling tower concrete basins, sludge and water inside the basins, and soil adjacent to the basin's wall expansion joints. Pre-cleanup sediment sampling results from cooling tower blowdown discharge location upstream of Outfall 013 indicated no PCBs above 1 ppm.	Unit 15 and 16 cooling tower basins and surrounding soil (See Target Area #5 in Table 1-3)	Approximately 185 cu ft of soil (>1-3 ppm) PCB was exacavated. Old joint filler and caulk were removed and the expansion joints and basin were double washed and rinsed. The basin was encapsulated with concrete sealant after all rinse water was removed.
Sep-96 to Mar-97	**Intake Dredging**: Dredging of Station Intake for creation of wetlands	Generating station intake and points up- and downstream	Intake area in the Anacostia River was dredged and the dredge spoils were used to construct wetlands. Pre- and post-dredge sediment samples exhibited total PCBs of 119-934 ppb.
Apr-97	**USEPA Multi-media Inspection**: NPDES, RCRA and TSCA compliance inspection conducted by USEPA.	Entire facility	No compliance problems noted. PCBs at 0.25-3.13 ppm detected in residue samples from storm sewers inlets and outfalls. Elevated concentrations of heavy metals were also detected.
Dec-99	**Phase I Environmental Site Assessment**: conducted by PHI in anticipation of property transaction.	Entire facility	Recognized environmental concerns noted. Oil staining at two #4 and #2 fuel oil recirculation ASTs located east of the generating station. No concrete bottom noted in the containment areas.
Nov-03	**Salvage Yard Investigation**: Soil investigation was completed in area formerly used for storing used electrical equipment.	Salvage yard located west of Buildings 75 and 88 (See Target Area #4 in Table 1-3)	Approximately 296 cu ft of PCB contaminated material (>1 ppm) was removed from the site. TPH-DRO was detected, but were below DCDOH requirements upon final excavation.
Jun-09	**USEPA Site Inspection Report**: Site Inspection conducted during 2008-09 to determine further actions under CERCLA.	Former sludge dewatering area and the Anacostia River water and sediments (See Target Area #1 in Table 1-3)	Metals, PAHs and PCBs were detected in the former sludge dewatering area and in Anacostia River sediments at concentrations exceeding the screening levels. USEPA links the historical discharges at the site to contamination found in river sediments.
Jan-10	**Phase I ESA**: conducted in connection with substation expansion.	18.5-acre area in the eastern and southern portions of the site that will be impacted by the substation expansion.	Conclusions noted potential for petroleum, metals and PCB impacts of subsurface soils and recommended sampling to develop proper health and safety and soils management procedures during construction.

Table 6-1
Additional Site Characterization Needs
Benning Road Road Facility RI/FS Project

Location	Target Area	Medium	Chemical	Concentration	Unit	Comments	Proposed Action
SUS08	1	surface soil	Vanadium	1700	mg/kg	17,100 ppm detected in 2009 USEPA SI Report	Delineate surface soils for V, PCBs, and Dioxins
			PCBs	840	ug/kg	2.7 ppm (Aroclor 1254) detected in 2009 USEPA SI Report	
			Dioxin	36.4	pg/g	Above PSL of 22 pg/g	
SUS05	5	surface soil	PCBs	5700	µg/kg	Above PSL of 1.0 mg/kg	Delineate surface soils for PCBs
SUS06	14	surface soil	PCBs	1900	µg/kg	Above PSL of 1.0 mg/kg	Delineate surface soils for PCBs
SUS10	10	surface soil	PCBs	1000	µg/kg	Exactly at the PSL of 1.0 mg/kg	Delineate surface soils for PCBs and dioxins
			Dioxin	27	pg/g	Above PSL of 22 pg/g	
SUS12	4	surface soil	PCBs	2,900	µg/kg	Above PSL of 1.0 mg/kg	Delineate surface soils for PCBs
SUS18	9	surface soil	PCBs	1400	µg/kg	Above PSL of 1.0 mg/kg	Delineate surface soils for PCBs and dioxins
			Dioxin	22.3	pg/g	Above PSL of 22 pg/g	
SUS20	7	surface soil	PCBs	5100	µg/kg	Above PSL of 1.0 mg/kg	Delineate surface soils for PCBs
SUS21	12	surface soil	PCBs	7200	µg/kg	Above PSL of 1.0 mg/kg	Delineate surface soils for PCBs
SUS11	5	surface soil	Dioxin	58.7	pg/g	Within cooling tower excavation area	None
SUS/DP19	20	surface and subsurface soil	Benzo(a)pyrene	2300 (1.5-2.5) 14000 (9.5-10.5)	ug/kg	Vertically delineated at 14.5 ft bgs.	Horizontally delineate surface and subsurface soils for PAHs
SB-3	5	shallow subsurface soil (2.5-3.5 ft bgs)	TPH-DRO	4700	mg/kg	Within cooling tower excavation area	Confirmatory sidewall and bottom excavation samples will be collected for during CT removal to horizontally and vertically bound contamination
			TPH-ORO	17000	mg/kg		
DP44	11	shallow subsurface soil (2.5-3.5 ft bgs)	PCBs	3100	µg/kg	Vertically delineated at 9.5 ft bgs.	Horizontally delineate shallow subsurface soils for PCBs
MW-01B	19	Groundwater	PCE	110	µg/L	Above PSL of 5 µg/l	Horizontally and vertically delineate groundwater for PCE
MW-01A MW-01B MW-02A MW-02B	19	Groundwater	Naphthalene	0.2 0.27 13 J 2.6	µg/L	Above PSL of 0.17 µg/l	Horizontal and vertical delineation of groundwater for naphthalene
MW-13B SB-32	18	Groundwater	MTBE	190 740	µg/L	Above PSL of 14 µg/l	Horizontal delineation of lower aquifer for MTBE
MW-09A MW-09B MW-12A MW-12B	N/A	Groundwater	TCDD TEQ	2.65 0.122 14.1 3.34	pg/L	Detections may be due to turbid samples	Redevelop and resample wells
Building 75 Area	Former Timber Pole Storage Area	surface and subsurface soil	Full Suite	N/A	N/A	Possible soil impacts from treated utility poles require investigation	Sample surface soils for full suite of analytes
Former Buildings 38 and 39	Former Transformer Shops	surface and subsurface soil	Full Suite	N/A	N/A	Possible soil impacts from former transformer operations require investigation	Sample surface soils for full suite of analytes

Appendices

Appendix A

Historic Aerial Photos and Topographic Maps

Historical Topographic Map

N

TARGET QUAD NAME:	PATUXENT	SITE NAME:	PepCo/Benning Road
MAP YEAR:	1906	ADDRESS:	2900 Benning Road NE Washington, DC 20019
SERIES:	30	LAT/LONG:	38.8974 / 76.9524
SCALE:	1:125000		

CLIENT:	Greenhorne & O'Mara
CONTACT:	Duncan Simpson
INQUIRY#:	2598844.4
RESEARCH DATE:	09/24/2009


Piney Run
Coal Pile
Non-Pepco Land
Kenilworth Ave.
Plant Building
Baltimore and Ohio Railroad
Railroad Spurs
Possible Staging Area and Undeveloped Land
Rail Yard
Substation 14
Building 32
Railroad Switchyard
Benning Rd.
34th St.
INQUIRY #: 4184983.9
YEAR: 1937
= 500'
N

Historical Topographic Map

N	TARGET QUAD NAME: WASHINGTON AND VICINITY 4 OF 4 MAP YEAR: 1943 SERIES: 7.5 SCALE: 1:31680	SITE NAME: PepCo/Benning Road ADDRESS: 2900 Benning Road NE Washington, DC 20019 LAT/LONG: 38.8974 / 76.9524	CLIENT: Greenhorne & O'Mara CONTACT: Duncan Simpson INQUIRY#: 2598844.4 RESEARCH DATE: 09/24/2009

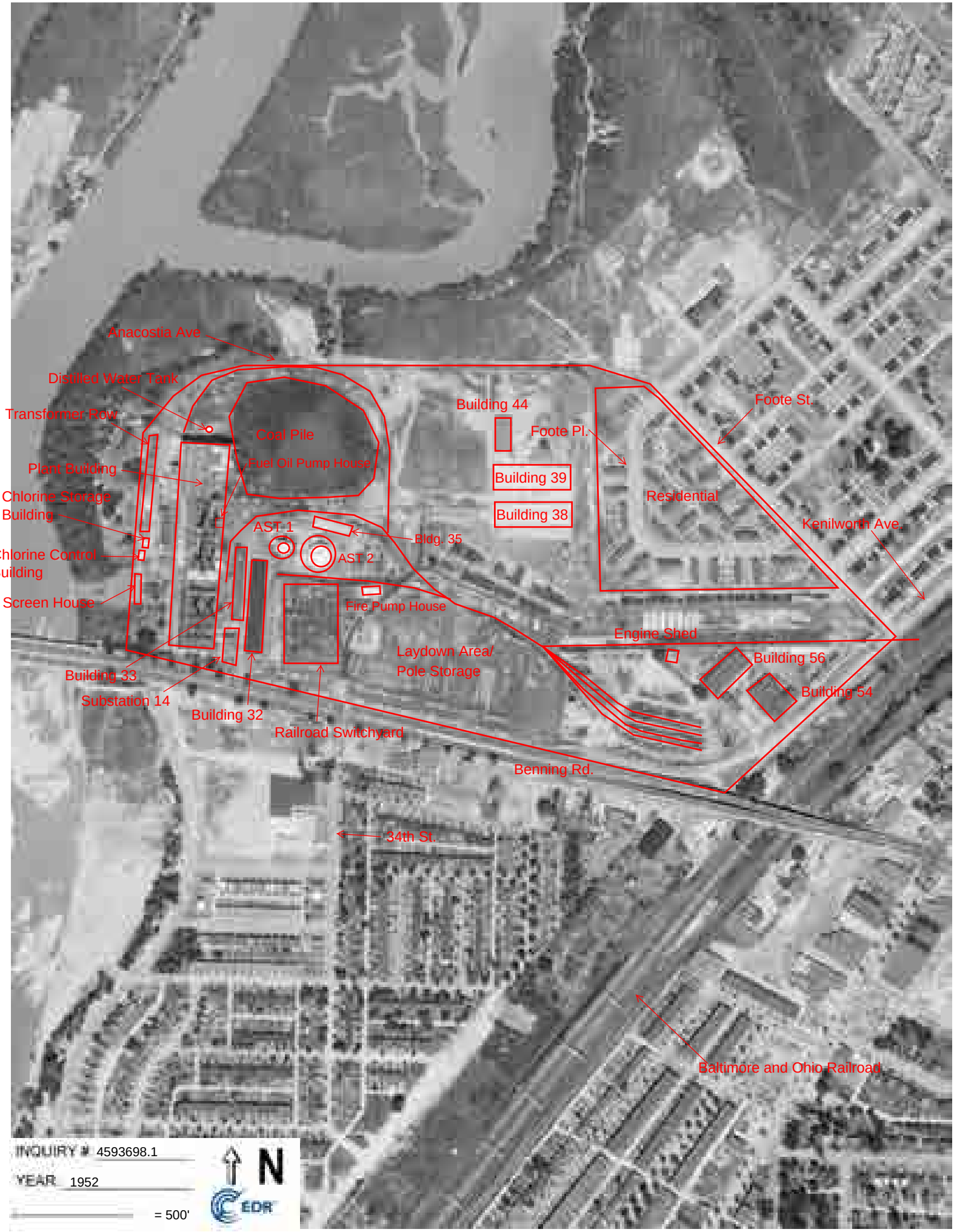

Piney Run
Foote St.
Coal Pile
Foote Pl.
Kenilworth Ave.
Possible Fuel
Pump House
Residential
Plant Building
AST 1
Building 33
Railroad Spurs
Engine Shed
Building 56
Railroad Switchyard
Substation 14
Building 32
Building 54
Benning Rd.
34th St.
Baltimore and Ohio Railroad
INQUIRY #: 4184983.9
YEAR: 1949
= 500'
N

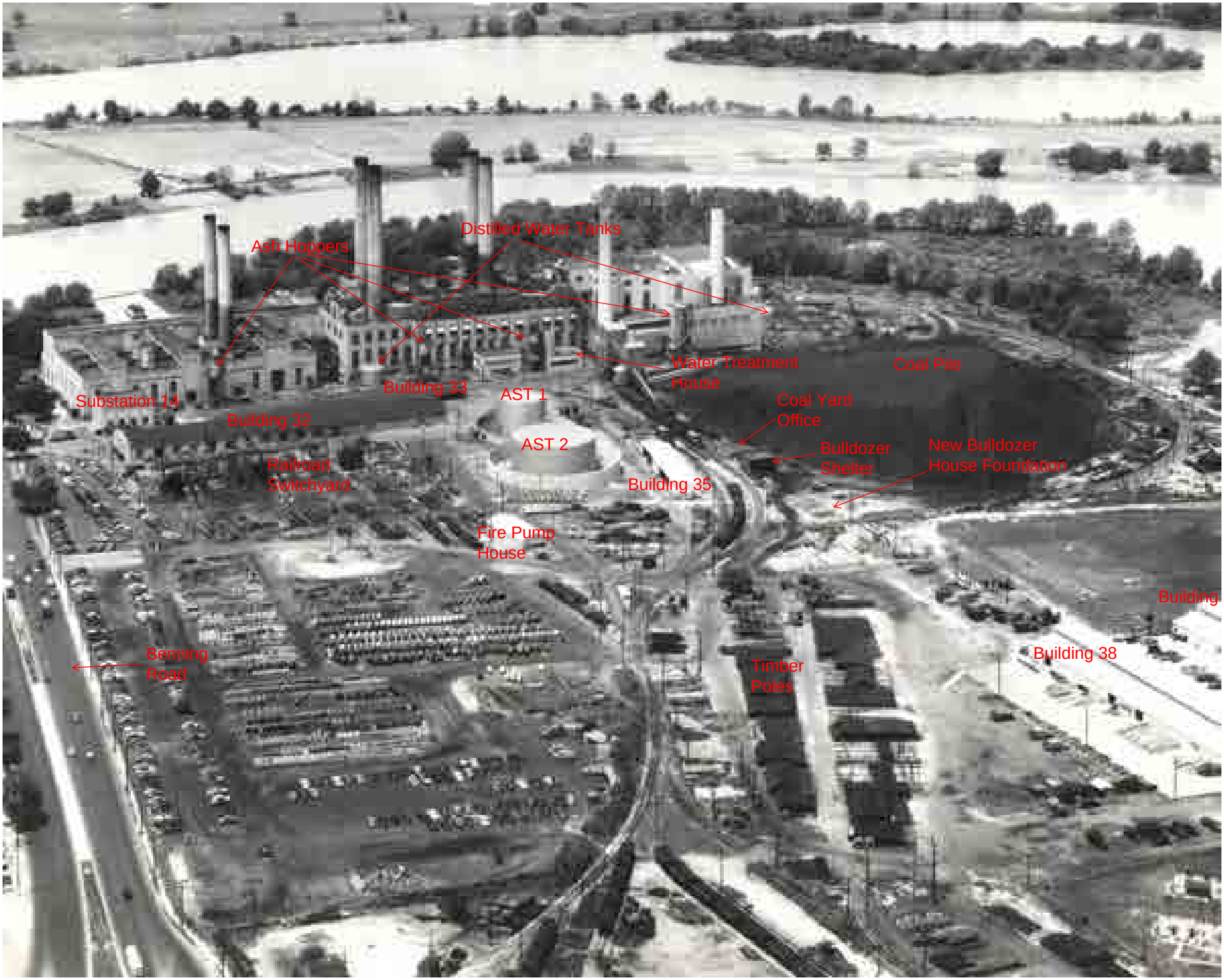
Historical Topographic Map

N	TARGET QUAD NAME: WASHINGTON EAST MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:25000	SITE NAME: PepCo/Benning Road ADDRESS: 2900 Benning Road NE Washington, DC 20019 LAT/LONG: 38.8974 / 76.9524	CLIENT: Greenhorne & O'Mara CONTACT: Duncan Simpson INQUIRY#: 2598844.4 RESEARCH DATE: 09/24/2009

Historical Topographic Map

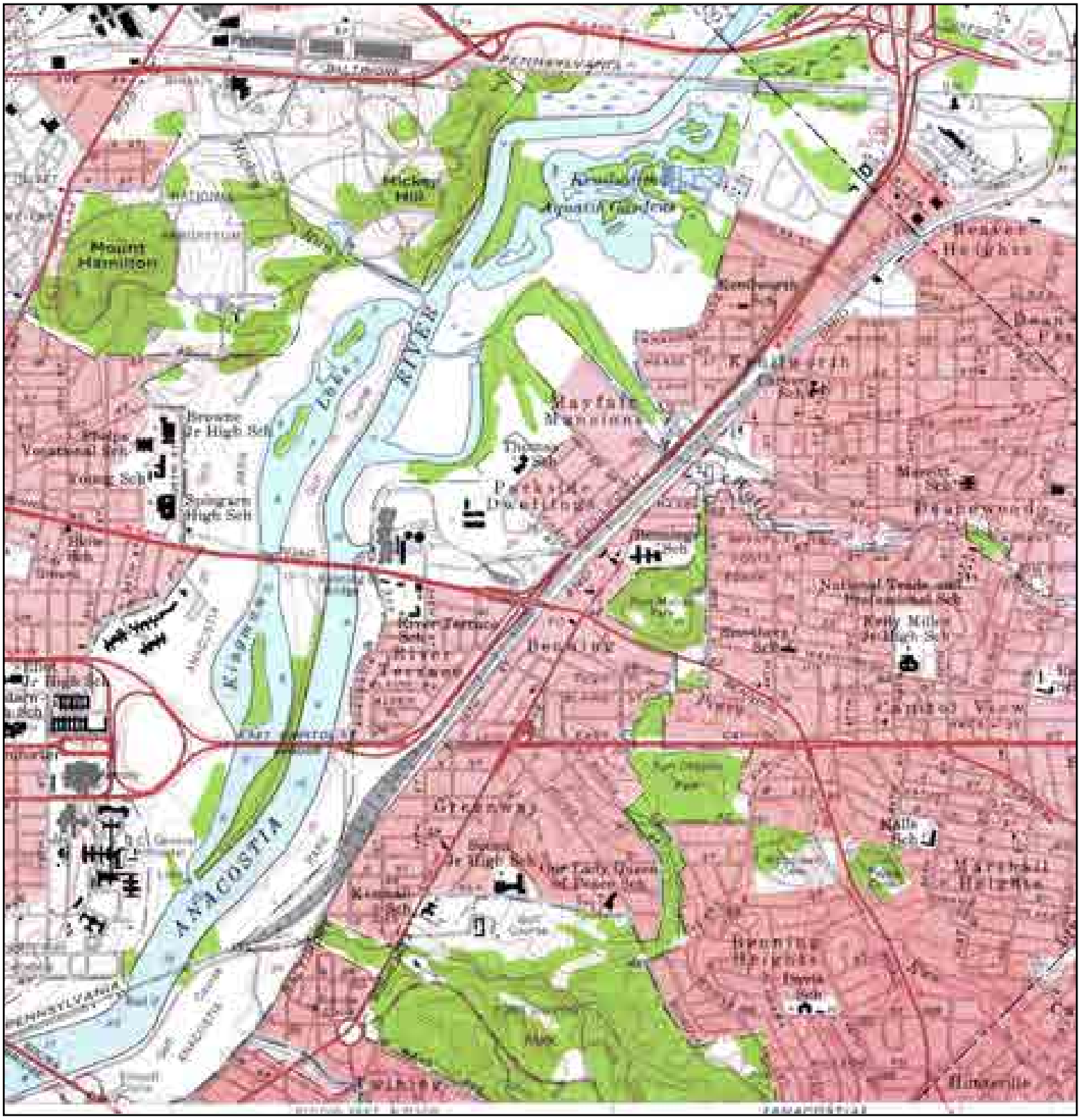
N	TARGET QUAD NAME: WASHINGTON EAST MAP YEAR: 1951 SERIES: 7.5 SCALE: 1:24000	SITE NAME: PepCo/Benning Road ADDRESS: 2900 Benning Road NE Washington, DC 20019 LAT/LONG: 38.8974 / 76.9524	CLIENT: Greenhorne & O'Mara CONTACT: Duncan Simpson INQUIRY#: 2598844.4 RESEARCH DATE: 09/24/2009


Anacostia Ave
Distilled Water Tank
Transformer Row
Coal Pile
Fuel Oil Pump House
Plant Building
Chlorine Storage Building
Chlorine Control Building
Screen House
AST 1
AST 2
Bldg. 35
Fire Pump House
Building 44
Foote Pl.
Building 39
Building 38
Residential
Foote St.
Kenilworth Ave.
Engine Shed
Laydown Area/ Pole Storage
Building 56
Building 54
Building 33
Substation 14
Building 32
Railroad Switchyard
Benning Rd.
34th St.
Baltimore and Ohio Railroad
INQUIRY # 4593698.1
YEAR 1952
= 500'
N
EDR



Year: circa 1950s Source: Pepco

Historical Topographic Map



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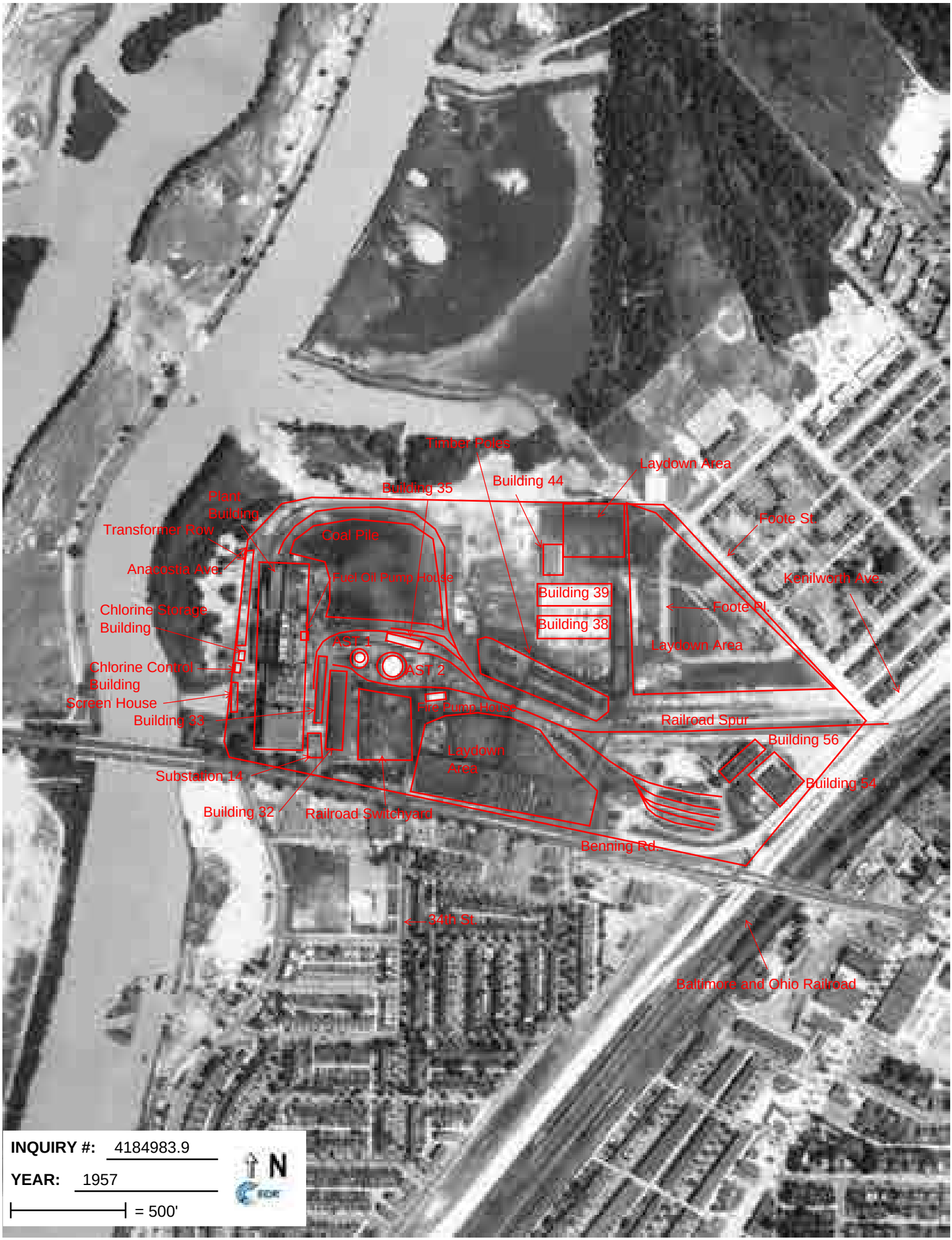
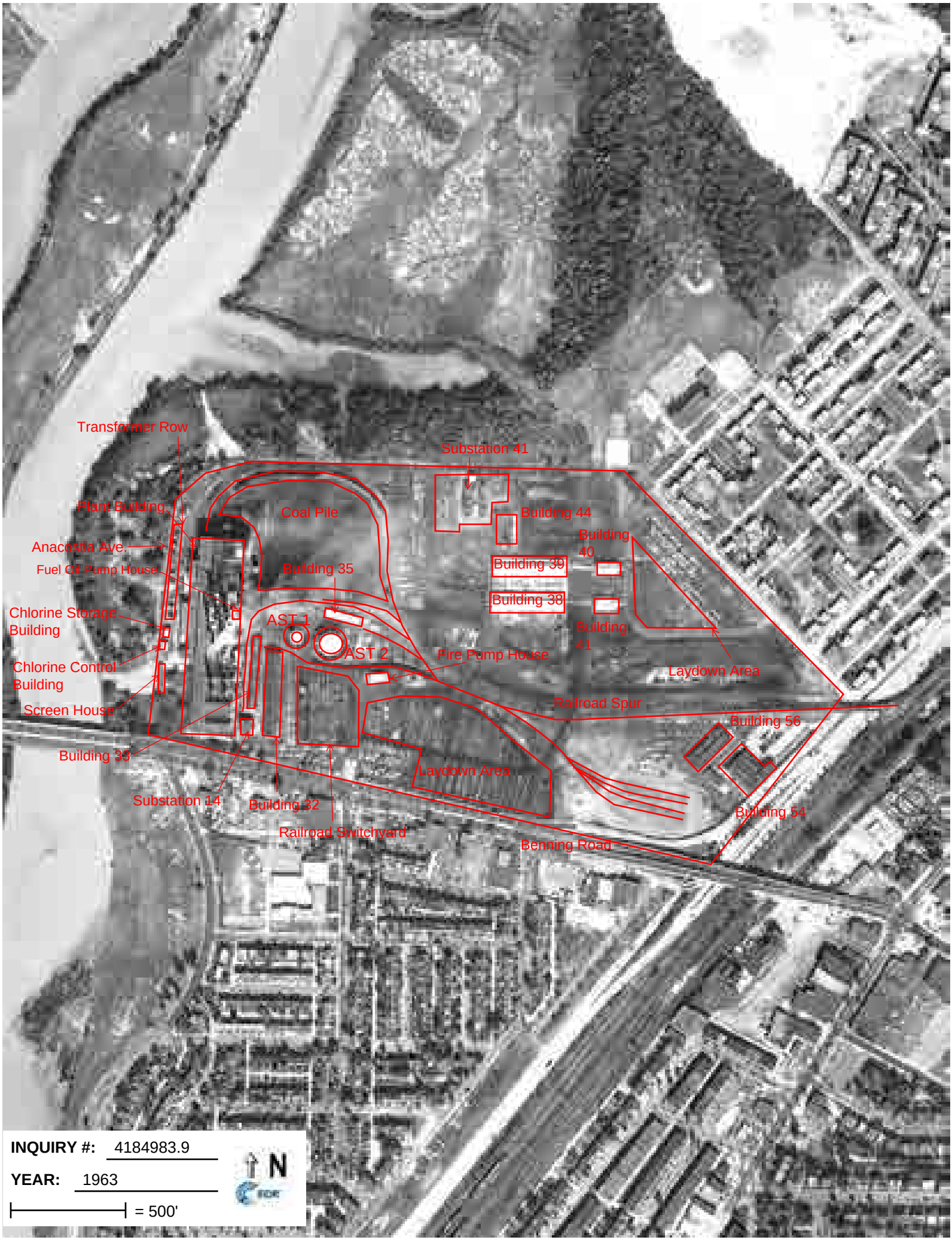


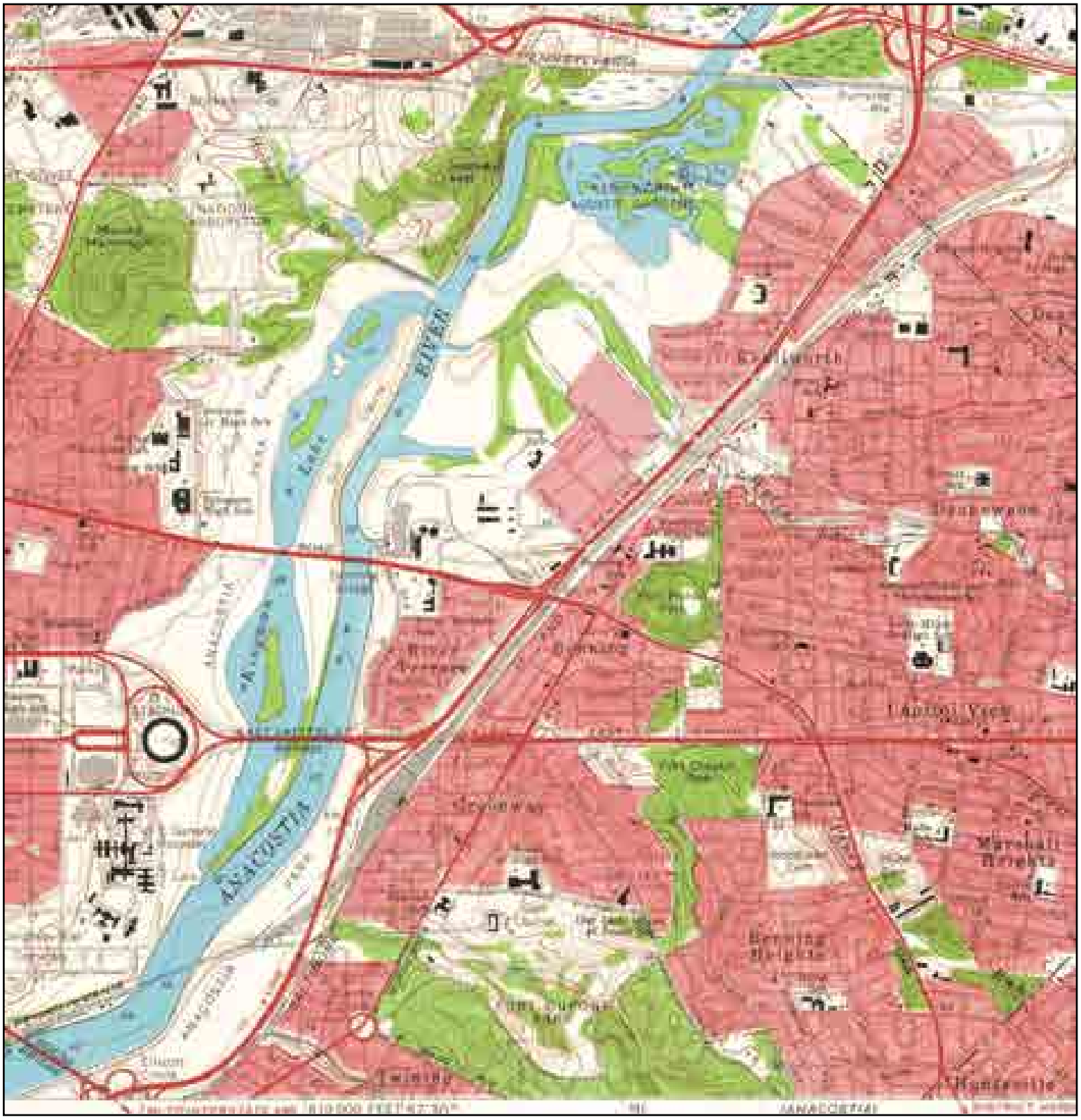
INQUIRY #: 4184983.9

YEAR: 1957

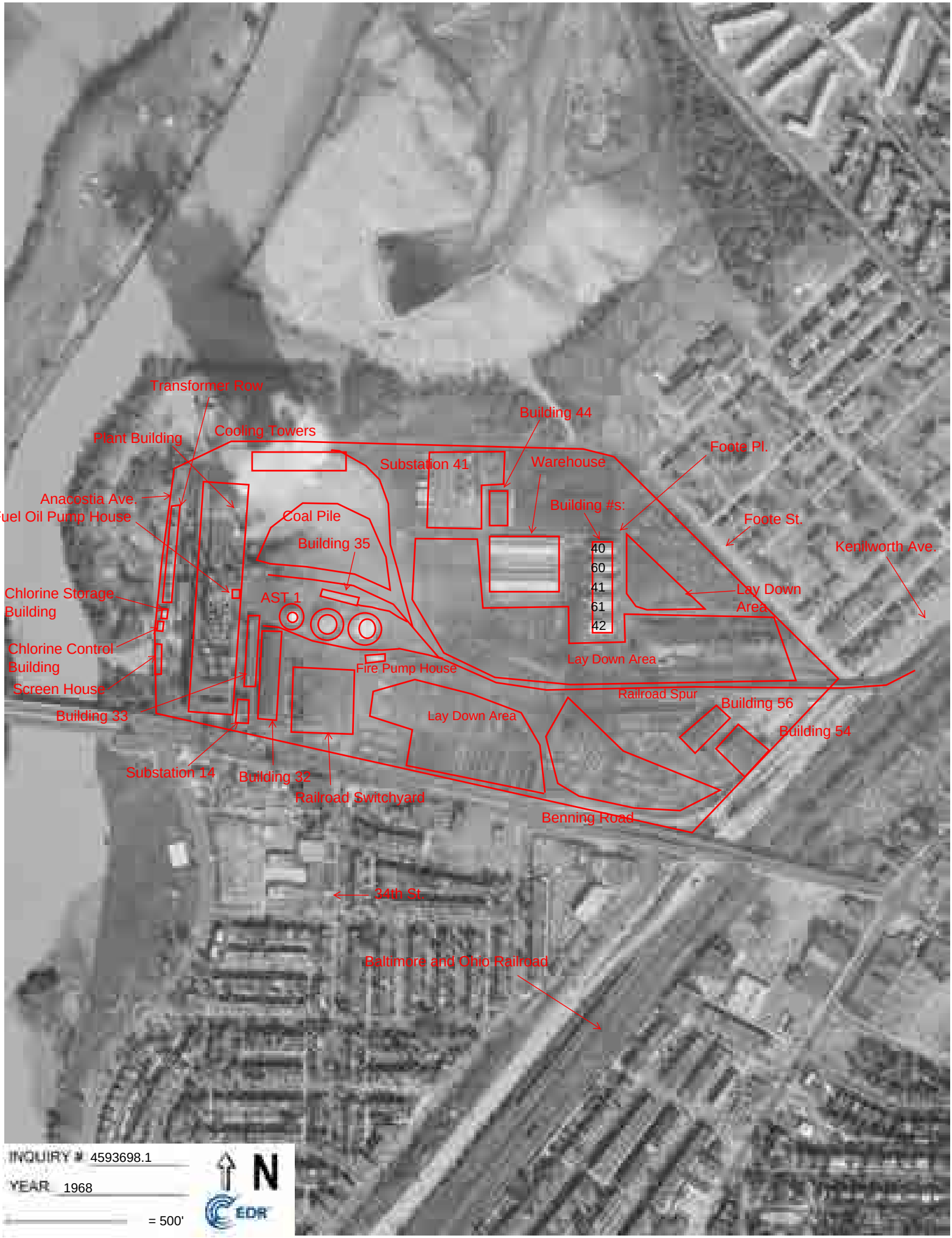
= 500'

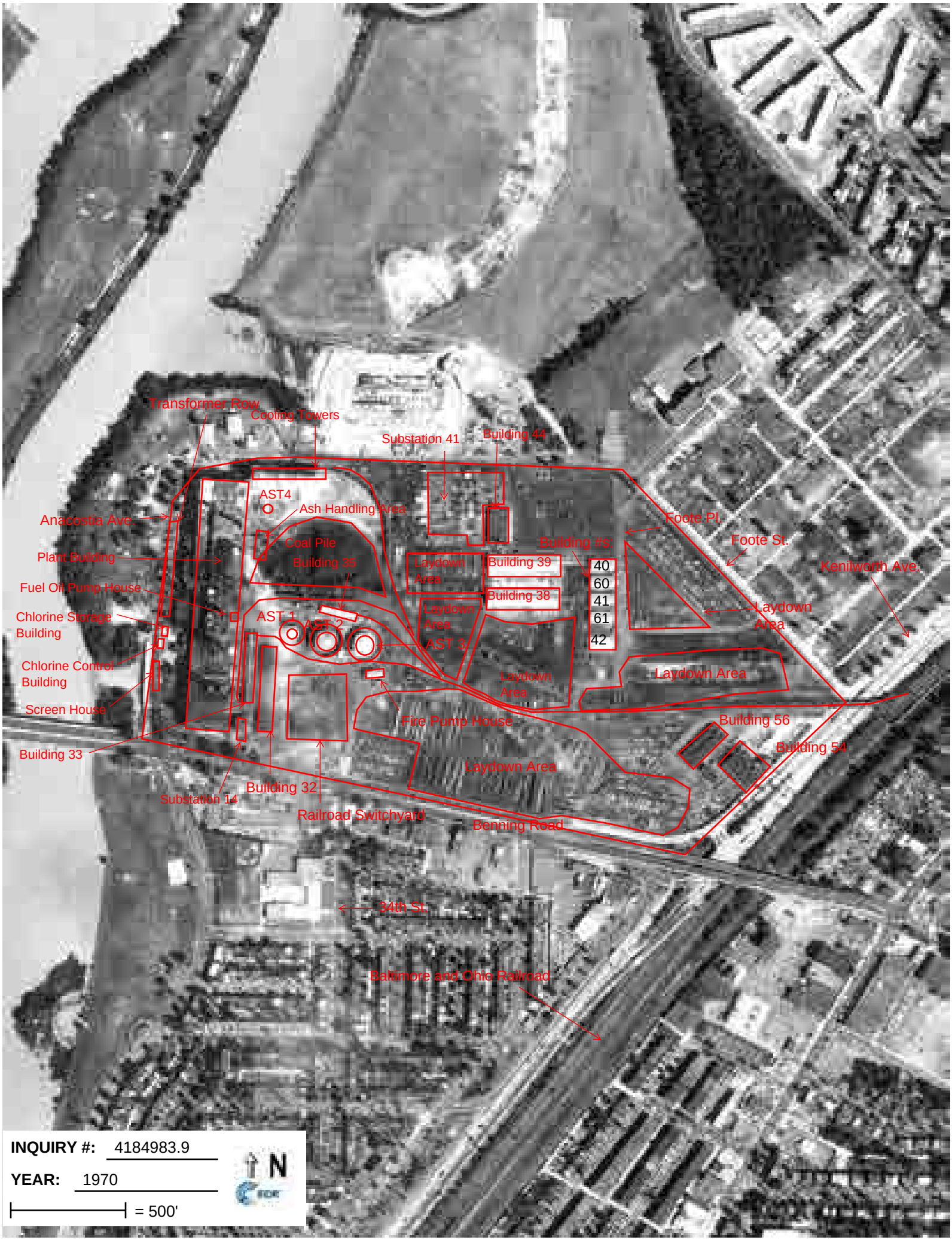

Transformer Row
Substation 41
Plant Building
Coal Pile
Building 44
Building 40
Anacostia Ave.
Fuel Oil Pump House
Building 35
Building 39
Building 38
Chlorine Storage Building
AST 1
AST 2
Building 41
Chlorine Control Building
Fire Pump House
Laydown Area
Screen House
Railroad Spur
Building 56
Building 33
Laydown Area
Substation 14
Building 32
Railroad Switchyard
Building 54
Benning Road
INQUIRY #: 4184983.9
YEAR: 1963
N
= 500'

Historical Topographic Map



N	TARGET QUAD NAME: WASHINGTON EAST MAP YEAR: 1965 SERIES: 7.5 SCALE: 1:24000	SITE NAME: PepCo/Benning Road ADDRESS: 2900 Benning Road NE Washington, DC 20019 LAT/LONG: 38.8974 / 76.9524	CLIENT: Greenhorne & O'Mara CONTACT: Duncan Simpson INQUIRY#: 2598844.4 RESEARCH DATE: 09/24/2009


Transformer Row
Cooling Towers
Plant Building
Building 44
Foote Pl.
Substation 41
Warehouse
Anacostia Ave.
Fuel Oil Pump House
Coal Pile
Building #s:
Foote St.
Building 35
40
60
41
61
42
Kenilworth Ave.
Chlorine Storage Building
AST 1
Lay Down Area
Chlorine Control Building
Lay Down Area
Fire Pump House
Screen House
Railroad Spur
Building 56
Building 33
Lay Down Area
Building 54
Substation 14
Building 32
Railroad Switchyard
Benning Road
34th St.
Baltimore and Ohio Railroad
INQUIRY # 4593698.1
YEAR 1968
= 500'
N
EDR



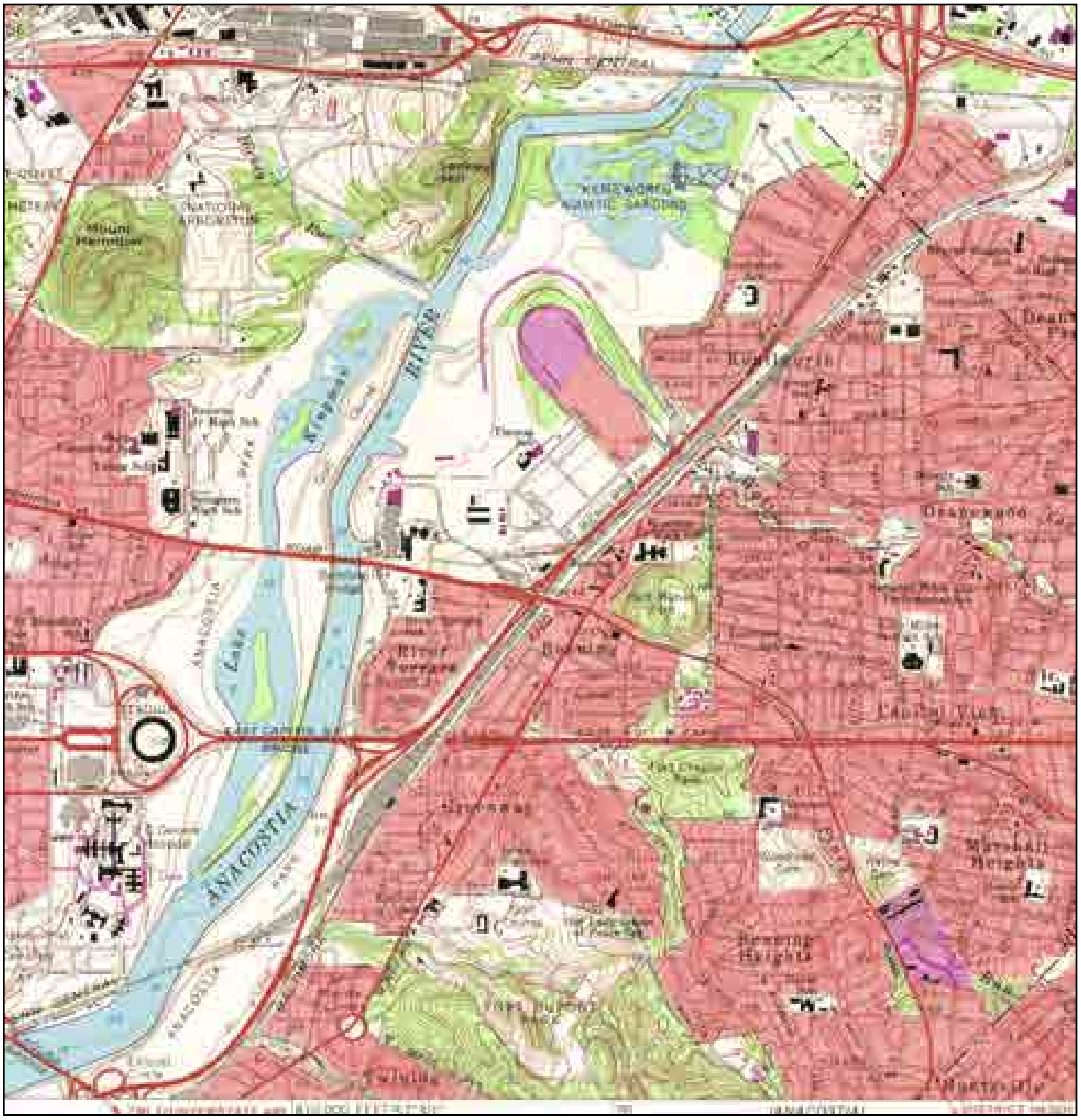
INQUIRY #: 4184983.9

YEAR: 1970

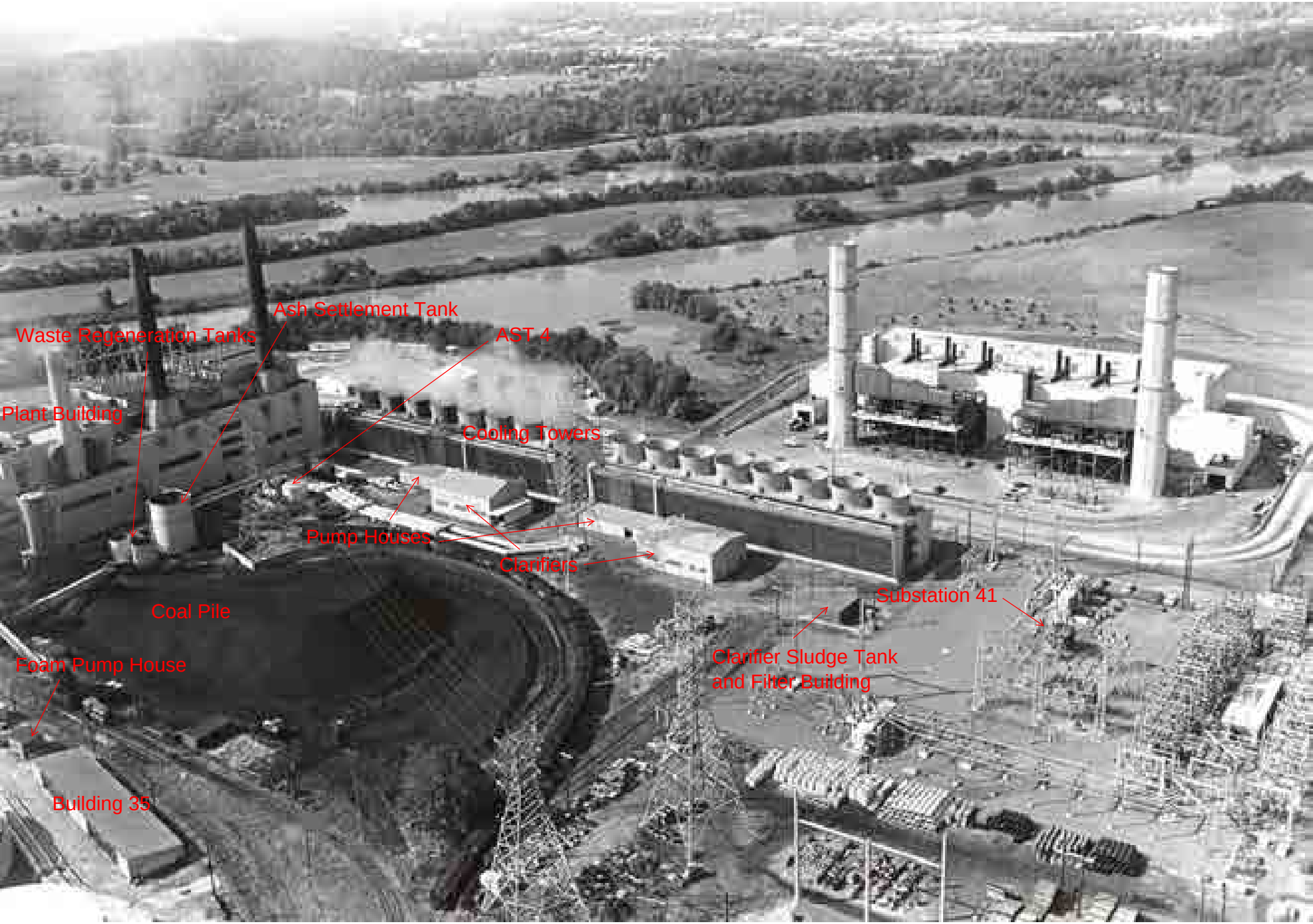
= 500'

N

Historical Topographic Map

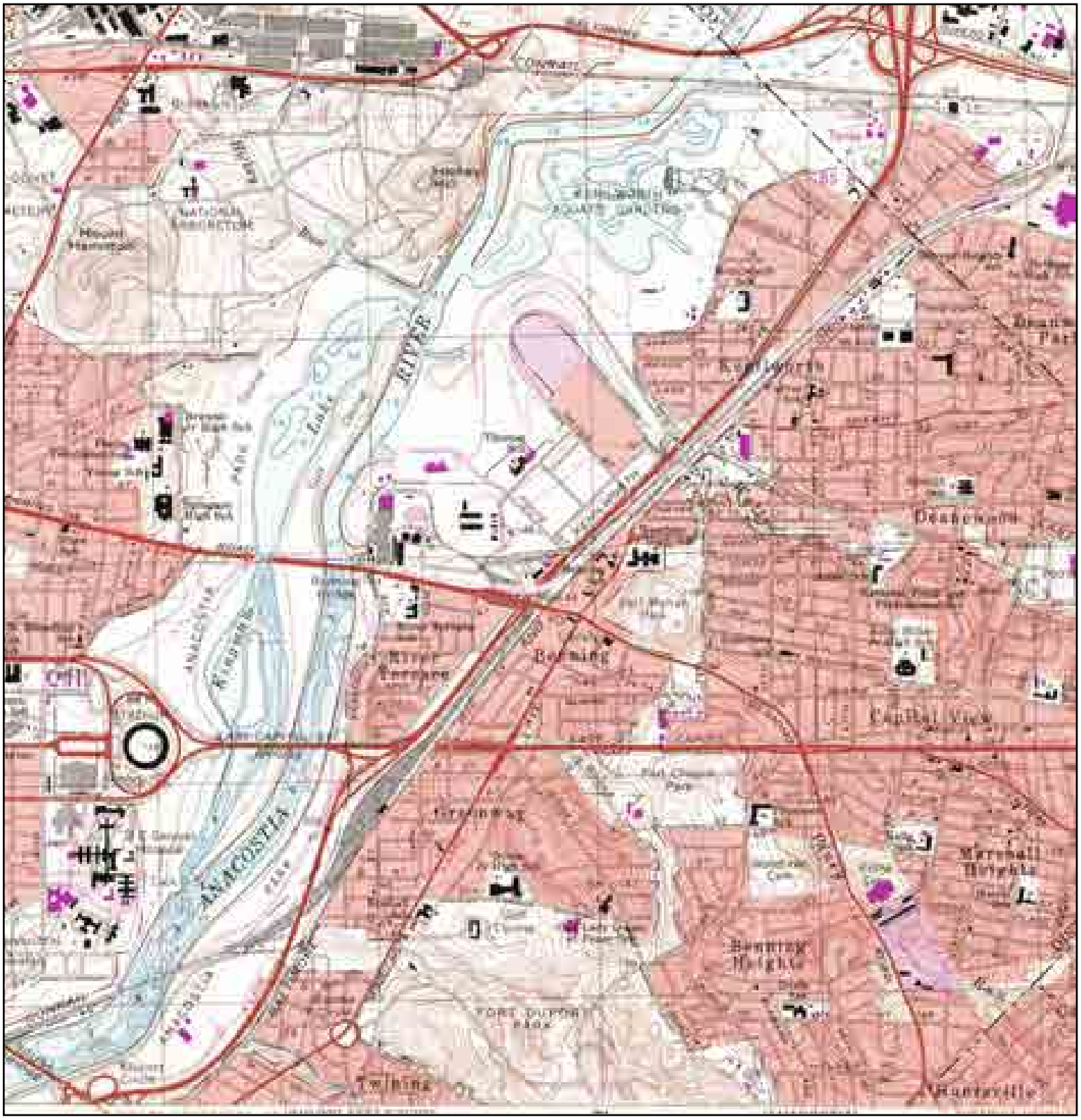


N	TARGET QUAD NAME: WASHINGTON EAST MAP YEAR: 1971 PHOTOREVISED FROM:1965 SERIES: 7.5 SCALE: 1:24000	SITE NAME: PepCo/Benning Road ADDRESS: 2900 Benning Road NE Washington, DC 20019 LAT/LONG: 38.8974 / 76.9524	CLIENT: Greenhorne & O'Mara CONTACT: Duncan Simpson INQUIRY#: 2598844.4 RESEARCH DATE: 09/24/2009



Year: circa 1972 Source: Pepco

Historical Topographic Map



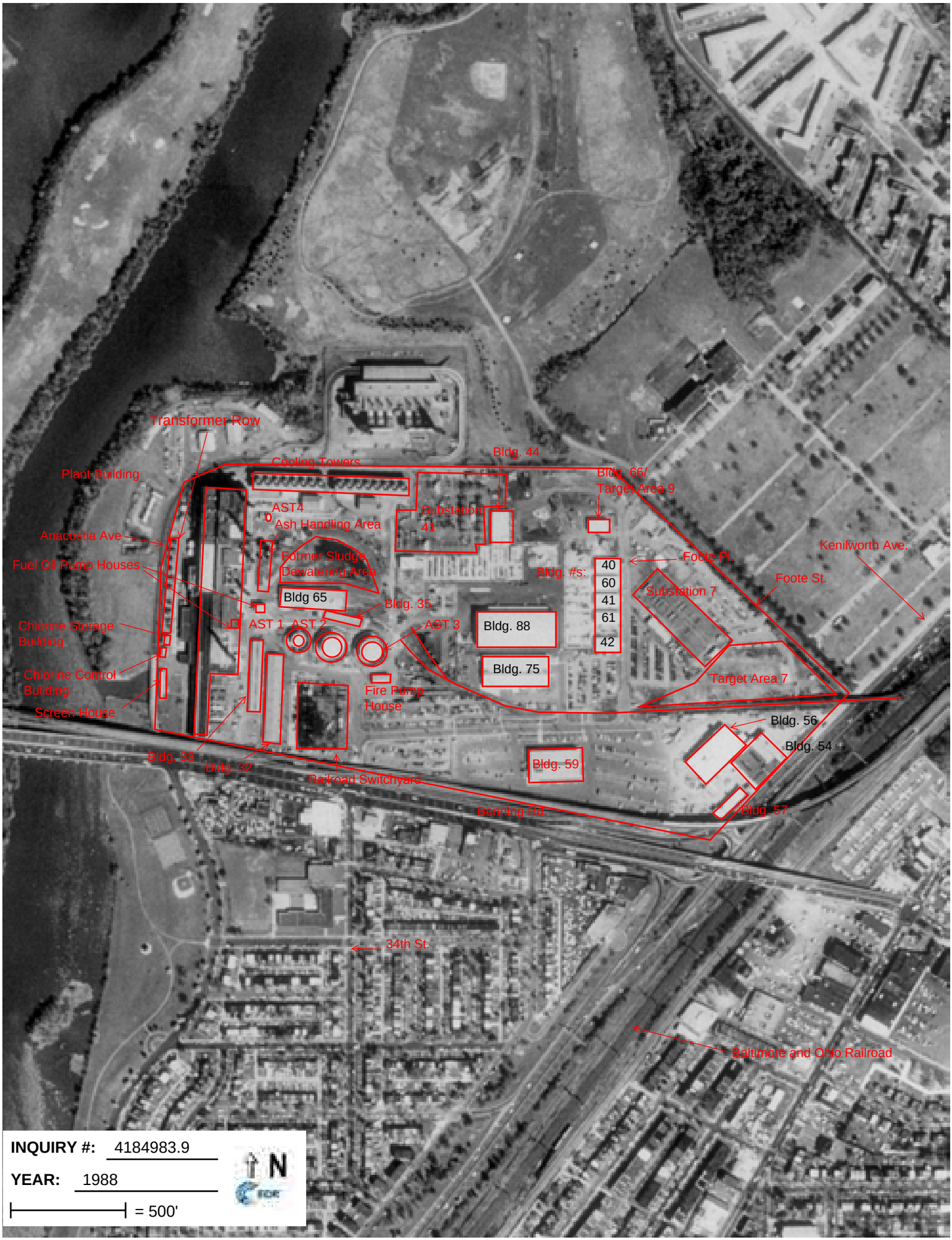
N			
	TARGET QUAD NAME: WASHINGTON EAST MAP YEAR: 1979 PHOTOREVISED FROM:1965 SERIES: 7.5 SCALE: 1:24000	SITE NAME: PepCo/Benning Road ADDRESS: 2900 Benning Road NE Washington, DC 20019 LAT/LONG: 38.8974 / 76.9524	CLIENT: Greenhorne & O'Mara CONTACT: Duncan Simpson INQUIRY#: 2598844.4 RESEARCH DATE: 09/24/2009

INQUIRY #: 4184983.9

YEAR: 1981

= 500'

N



INQUIRY #: 4184983.9

YEAR: 1988

= 500'

N

Google Earth Prc

feet 2000

meters 700

Year: 1994


Transformer Row
Ash Handling Area
Anacostia Ave.
Substation 41
Bldg. 44
Bldg. 66
Target Area 9
Kenilworth Ave.
Cooling Towers
Plant Building
Foote Pl.
Fuel Oil Pump Houses
AST4
Foote St.
Chlorine Storage Building
Former Sludge Dewatering Area
Bldg #s:
40
60
41
61
42
Chlorine Control Building
Bldg. 65
Bldg. 35
Substation 7
Bldg. 88
Constructed Wetland
ASTs 1, 2, 3
Water Intake
Bldg. 75
Railroad Spur
Fire Pump House
Bldg. 29
Bldg. 59
Bldg. 56
Bldg. 54
Bldg. 33
Bldg. 32
Railroad Switchyard
Bldg. 57
Benning Rd.
34th St.
Baltimore and Ohio Railroad
INQUIRY #: 4184983.9
YEAR: 1998
= 750'
N

Google Earth Prc

feet 2000

meters 700

Year: 1999

Google Earth Prc

feet 2000

meters 700

Year: 2000

Google Earth Prc

feet 2000

meters 700

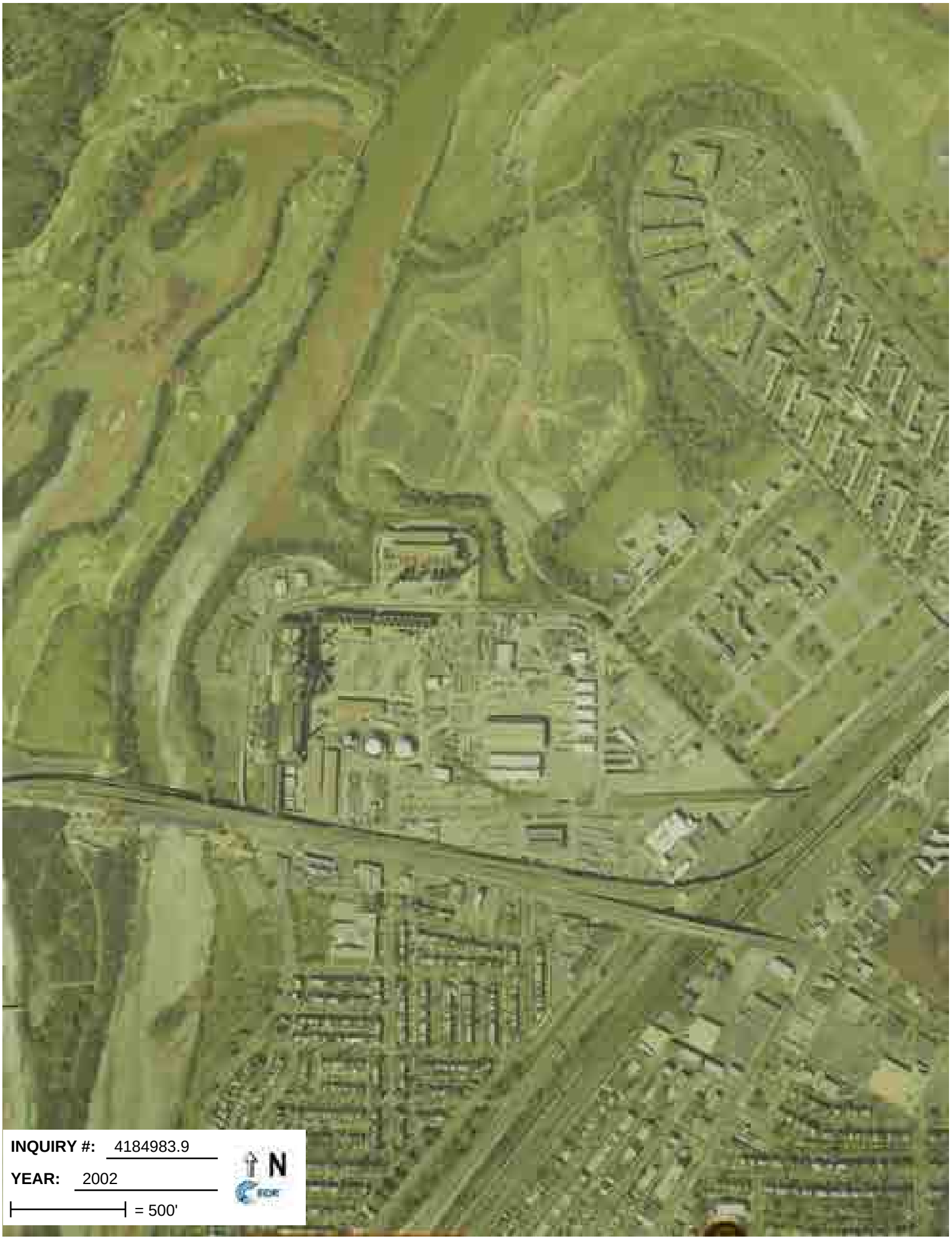
Year: 2001

Google Earth Prc

feet 2000

meters 700

Year: 2002


INQUIRY #: 4184983.9
YEAR: 2002
= 500'
N

Google Earth Prc

feet 2000

meters 700

Year: 2004

Google Earth Prc

feet 2000
meters 700

Year: 2005

Google Earth Prc

feet 2000

meters 700

Year: 2006


INQUIRY #: 4184983.9
YEAR: 2007
= 500'
N

Google Earth Prc

feet 2000

meters 700

Year: 2007

Google Earth Prc

feet 2000

meters 700

Year: 2008

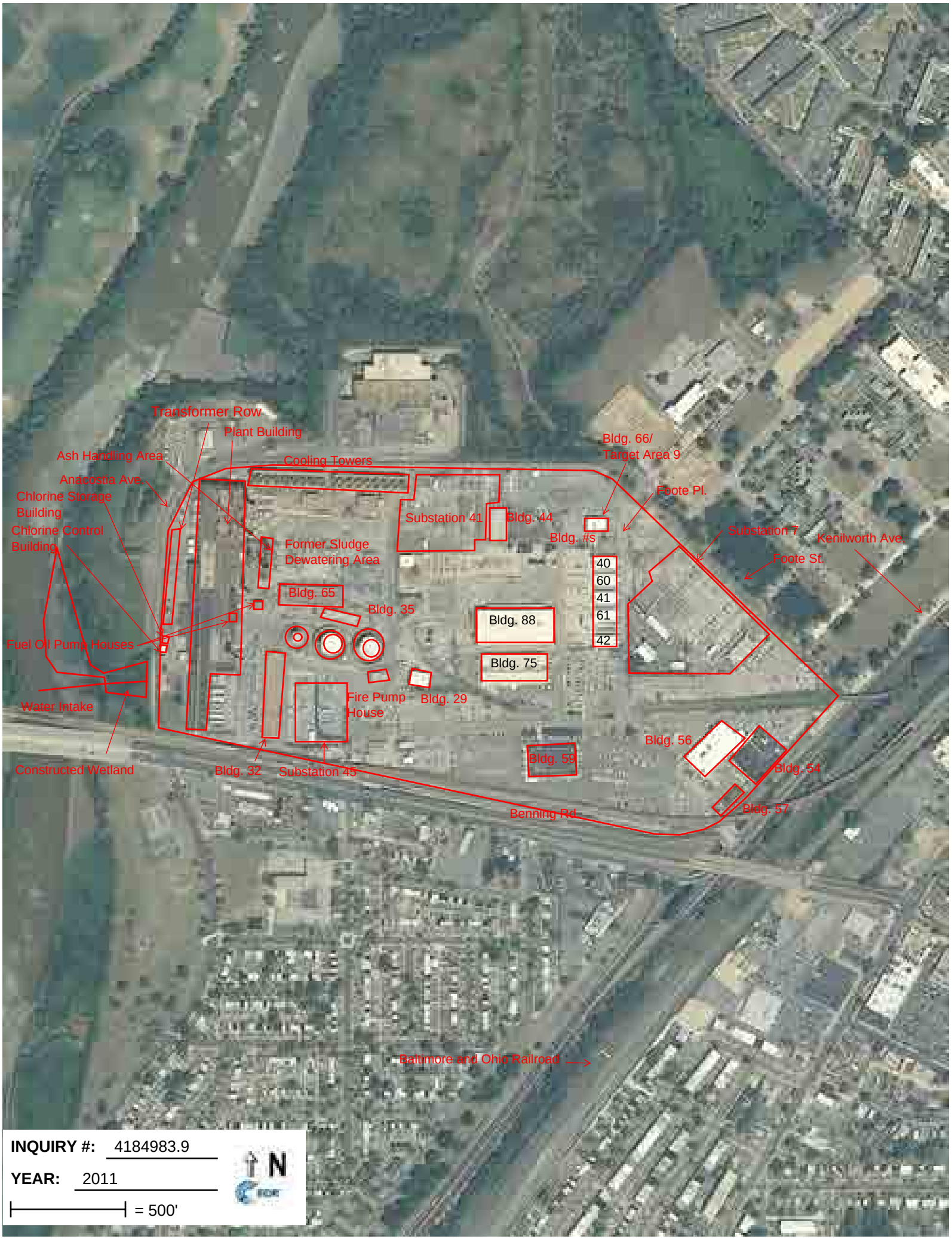

INQUIRY #: 4184983.9
YEAR: 2009
= 500'
N

Google Earth Prc

feet 2000

meters 700

Year: 2010



INQUIRY #: 4184983.9

YEAR: 2011

= 500'

N

Google Earth Prc

feet 2000

meters 700

Year: 2012

Google Earth Prc

feet 2000

meters 700

Year: March 2013

Google Earth Prc

feet 2000

meters 700

Year: April 2013

Google Earth Prc

feet 2000

meters 700

Year: October 2013

Google Earth Prc

feet 2000

meters 700

Year: April 2014

Google Earth Prc

feet 2000

meters 700

Year: October 2014

Google Earth Prc

feet 2000

meters 700

Year: April 2015

Appendix B

Benning Road Facility
Drainage Map

Washington DC Municipal Incinerator
Anacostia Avenue
Discharge Anacostia River
Outfall 412
Outfall 013
Discharge 207
Cooling Tower Unit #15
Discharge 202
Cooling Tower Unit #16
Discharge 206
Discharge 203
Building #65
Building #66
Building #85
Building #83
Discharge 703
Discharge 420
Discharge 413
MP 201
Oil Water Seperator
Lift Station
Discharge 201
Discharge 204
Discharge 414
Fire Pump House
Substation #41
Bulk Salt Shed
Outfall 014
Hydrogen Storage Building
Generating Station
Area Enlarged
Transformer StorageYard
Office Building #44
Storage Building #66
Outfall 015
Transformers
PCB Building #68
Discharge 415
Discharge 416
Discharge 417
Discharge 419
Storage Building #40
Storage Building #60
Storage Building #41
Storage Building #61
Storage Building #65
New Pump House
Foam House
Building #35
Storage Building #88
Discharge 425
Storage Building #42
Substation #7
Possible Outfall
Outfall 401
Possible Overland Discharge to City Storm Sewer
Oil Tank #1
Oil Tank #2
Oil Tank #3
Anacostia River
Offsite Wetland
Substation Building
Transformer Containment Area (Drains to outfall 401)
Outfall 005
Discharge 406
Discharge 408
Discharge 418
Fleet Services Building #75
Discharge 407
Under Demolition Building #33
Buiding and Office Services Facilites Management Building 32
Building #36
Building #29
Substation #45
Parking
Oil Water Seperator
Discharge 003
Rain Garden (4b) LID Demonstration Project
Infiltration Swale (4a) LID Demonstration Project
LID Project 3
Transmission and Distribution Office Building #59
Discharge 403
Discharge 010
Discharge 404
Discharge 405
Transformer Test Shop Building #56
Kenilworth Office Building #58
Kenilworth Ave
Discharge 402
Building #57
Outfall 011
Outfall 101
Outfall 016
Outfall 006
Main Entrance
Benning Rd

Legend

- Chemical Tank
- Drum Storage
- Fuel or Transfer Facility
- Gasoline Pumping Facility
- PCB Building
- Propane Refueling
- Transformer or Switches Storage
- Stormwater Quality Structure
- Discharge
- Lift Station
- Stormwater Inlet
- Oil Water Seperator
- Outfall
- Stormwater Drainage Lines
- Building/Fence Line/Structure
- Drainage Area

N

INSET

Figure1 Notes:
The map layout is derived from the drainage area map created by Malcolm Pirnie during the NPDES permit renewal.

Source of Aerial: ESRI/BING Web Map Service

0 100 200 400 Feet

Path: T:\Town Point\Victor\PEPCO_Benning\mxd\site map.mxd

PCB and Iron Source Tracking Pollutant Minimization Plan

Drainage Area Map

Benning Generating Station
Potomac Electric Power Company, Inc.
Washington, DC

Prepared by - Date: THP - 11/21/11	amec	Figure Number: 1
Checked by - Date: LRP - 11/21/11		
Project Number: 6123100052		

Appendix C

Lists of Facility Chemicals

Chemical List excerpted from:

1999 URS Phase I Environmental Site Assessment of the Benning Generating Facility

TABLE 2

LISTING OF MATERIALS
BENNING GENERATING STATION, WASHINGTON D.C.

TYPE	USE
Non-Hazardous Materials	
1500 Thinner	Equipment Maintenance
Aerokroil 331	lubricant (petroleum based)
Aluminum Sulfate	Water Treatment
Anti-Seize Lubricant	Site Equipment Maintenance
AO Superclear Lens Cleaning Fluid-Liquid	Cleanser for safety glasses
Asphalt Paint Black	Site Maintenance
Bug Barrier 341, Bee Bopper	Insect Control
Burn Ointment	Emergency Burn Treatment
Creosote Burn Wash	Emergency Burn Treatment
D5OH15 Grease	Site Equipment Maintenance
Diesel Fuel	Fueling vehicles
Duxseal	putty for sealing leaks in ducts
Electrical Joint Compound No. 2	Eletrical-Wire Insulation
Elimin-ox	Water Treatment
Ethyl Alcohol, denatured	laboratory
Foille Ointment	Emergency Burn Treatment
Gasoline	Fueling vehicles
Glyptal 1201	Equipment Maintenance
Glyptal 1202	Equipment Maintenance
Glyptal Thinner 1500 242	Equipment Maintenance
Graphol Penetrating Lubricant	Site Equipment Maintenance
Greases and Lubricants	Site Equipment Maintenance
Household Ammonia	Cleanser
Institutional Pack Comet with Clorinol Ci.	Cleanser
Kroil	lubricant (petroleum based)
Kwik Liquid No Wash Remover	Cleanser
Leak-Tec 372E	unknown
Liquid Paper Pen and Ink Correction Fluid	secretarial
Lysol Brand Disenfectant Spray	Cleanser
Magic Lens Cleaning Fluid	Cleanser
Marchem All-Purpose Absorbent	Spill Clean-Up
MS-230 Contact RE-NU	electrical contact cleaner
Nitrogen	Equipment Maintenance
No. 2 Fuel Oil	Combustion
No. 4 Fuel Oil	Combustion

TABLE 2

LISTING OF MATERIALS
BENNING GENERATING STATION, WASHINGTON D.C.

TYPE	USE
Oil/Grease Absorbent	Spill Clean-Up
Penetrox A	unknown
Pipe Sealant with Teflon	Equipment Maintenance
Powerline Deposit Control - PEP01	Water Treatment
Propane	Fuel Site Equipment
PVC Cement AA-1104	Equipment Maintenance
Red Metal Primer	Equipment Maintenance
Rubber and Gasket Adhesive	Equipment Maintenance
SBS-30 Waterless Skin Cleanser	personal cleaner
Sealflex	Equipment Maintenance
Hazardous Materials	
Ammonium Hydroxide	Boiler Water Treatment
Hydrazine Anhydrous	Water Treatment
Sulfuric Acid	Water Treatment

TABLE 3

LISTING OF ABOVEGROUND AND UNDERGROUND STORAGE TANKS BENNING GENERATING STATION, WASHINGTON D.C.

PRODUCT STORED	LOCATION	TANK VOLUME (gallons)
Aboveground Storage Tanks		
Aluminum Sulfate	Generating Station	4,000
Aluminum Sulfate	Generating Station	3,800
Ammonium Hydroxide	Generating Station	5,000
Sodium Hydroxide	Generating Station	5,000
Sodium Hydroxide	Generating Station	5,000
Sodium Hydroxide	Generating Station	2,500
Sulfuric Acid	Generating Station	5,000
Sulfuric Acid	Generating Station	5,000
Elimin-ox	Generating Station	200
Powerline Deposit Control - PEP01	Generating Station	500
Powerline Deposit Control - PEP01	Generating Station	500
Propane	East of the Generating Station, adjacent to the Auxiliary Boilers	1,000
Propane	West of the Generating Station, north of the administration offices	500
Waste Oil	East of the Generating Station	6,000
Nitrogen	Generating Station	1,400
No. 6 Fuel Oil	East of the Generating Station	1,984,000
No. 6 Fuel Oil	East of the Generating Station	1,847,000
No. 6 Fuel Oil	East of the Generating Station	618,000
No. 2 Fuel Oil	East of the Generating Station	50,000
New Oil	Building #32	500
New Oil	Building #32	500
New Oil	Building #32	500
Used Oil	Building #32	500
Underground Storage Tanks		
Diesel Fuel	Adjacent to the northern portion of Building 32	20,000
Gasoline	Adjacent to the northern portion of Building 32	20,000

Chemical List excerpted from:

2013 Benning Integrated Contingency Plan

Table 4-2
Chemical Storage Tank Summary for the Banning Service Center

Stored Chemical Products	Map Location (Fig. A-2)	Storage Tank Location	Tank Volume	Construction Type	Secondary Containment
Aboveground Storage Tanks					
Generating Station ASTs					
Vehicle Resource Management ASTs					
Propane gas	12	Northwest of Building 56	1,650 gallons	Carbon steel	NA
Field Operations & Restoration					
Propane gas	31	South of Bldg. 56	2 x 500 gallons	Carbon steel	NA
Stores (propane)	36	Building 88 – Tow motor/sweeper	22 – 33 lb.	Portable	
	36	Building 88- Miscellaneous	43- 20 lb	Portable	
	36	Building 88- Not in use/to be disposed of	68-20 lb	portable	
Stores (Nitrogen)		Building 65	1	cylinder	
(Freon #12, #22)	36	Building 88	6	cylinders	
(DF 100)		Building 65	1	drums	
(Acetylene)	36	Building 88	9	cylinders	
(Argon)	36	Building 88	5	cylinders	
(Oxygen)	36	Building 88	7	cylinders	
(Sulfur Hex – SF6)	36	Building 88	12	cylinders	

Table 4-2
Chemical Storage Tank Summary for the Benning Service Center

Stored Chemical Products	Map Location (Fig.A-2)	Storage Tank Location	Tank Volume	Construction Type/ Year of Installation	Secondary Containment
Aboveground Storage Tanks					
Field Ops & Rest (propane)	12	Rear of Building 56 – Tow motor & fork lift	8- 80 lb	portable	
Field Ops & Rest (Nitrogen)	31	Building 56 loading dock	1 cylinder	steel	
General Shops (propane)	41	Outside Building 75- tow motors	11-33.5 lb	portable	
	41	Inside Building 75 – heat solder pots	3- 20 lb	portable	
	41	Inside Building 75 – solder pots	1-100 lb	portable	
Underground Lines (propane)	41	Training Booth outside Bldg. 75 – solder pots	10 – 20 lb	portable	
	41	Inside Bldg 75 – pre-cast area – Conduit pipe maintenance	4- 20 lb	portable	
Electric Maintenance (propane)		Kenilworth gas pumps – generator	4- 100 lb	portable	
		Benning gas pumps – generator	4- 100 lb	portable	
	41	Behind Building 57 - for emergency generators	6- 100 lb	portable	
Electric Maintenance - Nitrogen	7	Loading Dock behind Bldg. 54	1 cylinder	steel	
		Bldg 29 – A, B, C, D tanks	8 cylinders	steel	
		Tankers 12823, 12835, 12837, 12849	8 cylinders	steel	
	16	Retired Sub 14	2 cylinders	steel	
	13	Sub 41.69kv 4 TR, 7TR	2 cylinders	steel	
	14	Mobile Substation 501 near Sub 7	1 cylinder	steel	
	14	Mobile Substation 502 near Sub 7	1 cylinder	steel	
Vehicle Resource Mgmt (propane)		Benning Garage	1- 65 lb (empty)	Tow motor #81787	
W. A. Chester (propane)		W. A. Chester yard/splice vans	30 – 20 lb	Cable splicing	
		Splice vans	10 – 100 lb	Cable splicing	

Table 4-3
Hazardous Waste Storage Locations for the Benning Service Center

Stored Chemical Products	Map Location (Fig. A-2)	Storage Tank and/or Drum Location	Tank Volume	Construction Type/ Year of Installation	Secondary Containment
Power Delivery Group					
Electric Maintenance Department					
Non-PCB used oil (< 50 ppm)	32	Underground concrete vault at west end of Bldg. 57	2 x 10,000 gallons	Steel/1989	Yes
PCB (greater than 499 ppm) - solid materials	40	Bldg. 57	1 x 55 gallon drum	Steel/-	No
Hazardous waste liquid	40	Bldg. 57	1 x 55 gallon drum	Steel	Yes
Hazardous waste solid	40	Bldg. 57	1 x 55 gallon drum	Steel	Yes
PCB solid waste (≥ 500 ppm)	40	Bldg. 57	1 x 55 gallon drum	Steel	No
Non-PCB solid waste (0–49 ppm)	40	Bldg. 57	1 x 55 gallon drum	Steel	No
Used oil	40	Bldg. 57	1 x 55 gallon drum	Steel	Yes
Non-PCB used oil (0 – 49 ppm)	40	Bldg. 57 vault	1 x 55 gallon drum	Steel	Yes (vault)
Oil & Gas Analysis Lab					
PCB mineral oils (≥ 500 ppm)	40	Bldg. 57 - Oil & Gas Analysis Lab	1 – 5 gallon	Steel/-	Yes (in lined cart)
PCB solids (≥ 500 ppm)		Bldg. 57 - Oil & Gas Analysis Lab	1 – 5 gallon	Plastic	Yes (in lined cart)
PCB & Hazardous solvent wastes	40	Bldg 57 – Oil & Gas Analysis Lab	1- 5 gallon	Plastic	Yes (in flammable storage cabinet)
Equipment Test and Repair Department					
PCB-contaminated (less than 499 ppm) mineral oils	33	Oil pumping station (bermed and covered) adjacent to Bldg. 56	1 x 55 gallon drum	Steel/-	
Lighting wastes, cable splicing debris, and lead-contaminated flushing oil	34	Hazardous Waste Trailer southeast of Bldg. 59	55 gallon drums	Steel/-	
Rags and cans	38	Bldg. 54	55 gallon drums	Steel/-	
Ni-Cd batteries and lab chemicals	39	Bldg. 56	55 gallon drums	Steel/-	
Waste Management Department					
PCB-contaminated (less than 500 ppm) mineral oils	35	PCB Containment Bldg (Bldg. 88)	55 gallon drums 1 cy containers or transformers	Steel/-	Yes
PCB (greater than 500 ppm) - mineral oils mineral oils			55 gallon drums 1 cy containers or transformers	Steel/-	Yes

Table 4-3 Hazardous Waste Storage Locations for the Benning Service Center					
Stored Chemical Products	**Map Location (Fig. A-2)**	**Storage Tank and/or Drum Location**	Tank **Volume**	**Construction Type/ Year of Installation**	**Secondary Containment**
PCB (greater than 500 ppm) – solid materials			55 gallon drums, 1 cy containers or transformers	Steel/-	Yes
PCB (less than 500 ppm) – solid material			55 gallon drums, 1 cy containers or transformers	Steel/-	Yes
RCRA-listed hazardous wastes			55 gallon drums, 1 cy containers or transformers	Steel/-	Yes
Lighting wastes	37	Bldg. 36	7 x 55 gallon drums	Steel/-	
General Services/Materials Support Department					

Chemical List excerpted from:

2014 Tier II Emergency and Hazardous Chemical Inventory for CY 2014

Tier II Emergency and Hazardous Chemical Inventory

Reporting Period From: January 1, 2014 to December 31, 2014

☑ Annual ☐ Update ☐ Revised ☑ Facility Information has changed from the last submission

Facility Identification

Name	Benning Service Center		
Street	3400 NE Benning Rd	City	Washington
State	DC	Zip	20019
County	District Of Columbia	Municipality	
Fire Department			
Lat/Long	38.8884/-76.9083	FTE	487
		Phone	202-396-3413
Fax		Email	
Maximum Occupants	500	☑ Manned ☐ Unmanned	
SIC Code			
NAICS Code	221121, 221122		
EIN ID(Tax Number)		Facility ID	Mill
RMP Facility ID		TRI Facility ID	
Dun and Brad No	006920384		
Nature of Business	Service Center for Utility Operations		

Subject to EPCRA Section 312 (Annual Inventory)? ☑ Yes ☐ No

Subject to Emergency Planning under Section 302 of EPCRA (40 CFR part 355)? ☐ Yes ☑ No

Subject to Section 112r of Clean Air Act (CAA)? ☐ Yes ☑ No

Subject to EPCRA Section 313 (Toxic Release Inventory - TRI)? ☐ Yes ☑ No

Owner/Operator Details

Name	Pepco		
Address	701 Ninth Street NW - EP8220		
	Washington, DC,20068,US		
Phone	202-331-6467	Email	cadanville@pepco.com

Parent Company Details

Name			
Dun and Brad No	006920384		
Address			
Phone		Email	

Tier II Information Contact

Name	Colin Danville		
Title	Lead Environmental Engineer		
Phone	202-331-6467	24 Hr Phone	202-327-4869
Email	cadanville@pepco.com		

Mailing Address

Company Name	Pepco		
Attention	Colin Danville		
Street Address 1	701 Ninth Street NW - EP8220		
Street Address 2			
City	Washington	State	DC
Zip	20068	Phone	202-331-6467
Country	United States		

Facility Emergency Planning Coordinator

Emergency Contacts

Name	Title	Phone	24 Hr Phone	Email
Mary Pelot	Mgr. Electric Maintenance	202-388-2625	301-705-1757	mgpelot@pepco.com
Michael Nappi	Manager Safety Services	202-388-2413	301-469-5374	mjnappi@pepco.com

Certification: I certify under penalty of law that I have personally examined and am familiar with the information submitted in pages one through 5, and that based on my inquiry of those individuals responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

Colin Danville, Lead Environmental Engineer	3/26/2015 2:39:36 PM	202-331-6467	
Name and official title of owner/operator or authorized representative	Date Signed	Telephone Number	Signature

Optional Attachments

☑ Site Plan

☑ Site Coordinate Abbreviations

☐ Other Safeguard measures

☐ Facility Emergency Response Plan

Tier II Emergency and Hazardous Chemical Inventory

Facility Name : Benning Service Center ID : 158

Reporting Period: From January 1 2014 to December 31, 2014

Chemical Description		Physical and Health Hazards		Inventory		Storage Codes and Location						
Chemical ID	445	☐ Fire	1745	Max Daily Amt (lbs)	Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location(lbs)
Check if Chemical Information is changed from the last submission	☐	☐ Pressure	04	Max Daily Amt Code	R:Other	1:Ambient pressure	4:Ambient temperature	A:Ambient	Combo Houses	32.3884/-84.9529	1745
CAS #	N/A	☑ Reactivity	1745	Avg Daily Amount (lbs)							
Trade Secret	☐	☑ Immediate	04	Avg Daily Amount Code							
Chemical Name	Battery Acid	☐ Delayed (Chronic)	1745	Max Amt in Largest Container (lbs)							
EHS ☐ Contains EHS ☑ Exceeds TPQ ☐			365	No. of days onsite							
EHS Name											
☐ Pure ☑ Mix ☐ Solid ☑ Liquid ☐ Gas											
Chemical Added On	Exceed TPQ On										
Check if the chemical is below reporting threshold	☑										

MIXTURE COMPONENTS

Chemical Name	%	CAS #	EHS	EHS Name	Max Daily Amount (lbs)	Max Daily Amount Code
Sulfuric acid	35	7664939	☑	Sulfuric acid	529.6	03

Chemical Description		Physical and Health Hazards		Inventory		Storage Codes and Location						
Chemical ID	441	☑ Fire	155842	Max Daily Amt (lbs)	Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location(lbs)
Check if Chemical Information is changed from the last submission	☐	☐ Pressure	38		B:Below ground tank	1:Ambient pressure	4:Ambient temperature	Various locations		32.3915/-84.9582	155842.238
CAS #	68476-34-6	☐ Reactivity	1558422	Max Daily Amt Code							
Trade Secret	☐	☑ Immediate	38	Avg Daily Amount (lbs)							
Chemical Name	DIESEL FUEL	☑ Delayed (Chronic)	12	Avg Daily Amount Code							
EHS ☐ Contains EHS ☐ Exceeds TPQ ☐			123544	Max Amt in Largest Container (lbs)							
EHS Name			365	No. of days onsite							
☑ Pure ☐ Mix ☐ Solid ☑ Liquid ☐ Gas											
Chemical Added On 02/24/2015	Exceed TPQ On										
Check if the chemical is below reporting threshold	☐										

Chemical Description		Physical and Health Hazards	Inventory	
Chemical ID	505	☑ Fire	5200	Max Daily Amt (lbs)
Check if Chemical Information is changed from the last submission	☐	☐ Pressure	05	Max Daily Amt Code
CAS #	107-21-1	☐ Reactivity	5200	Avg Daily Amount (lbs)
Trade Secret	☐	☐ Immediate	05	Avg Daily Amount Code
Chemical Name	ETHYLENE GLYCOL	☑ Delayed (Chronic)	525,000 / 25	Max Amt in Largest Container (lbs)
EHS ☐ Contains EHS ☐ Exceeds TPQ ☐			365	No. of days onsite
EHS Name				
☑ Pure ☐ Mix ☐ Solid ☑ Liquid ☐ Gas				
Chemical Added On	03/25/2015 Exceed TPQ On			
Check if the chemical is below reporting threshold	☑			

Storage Codes and Location

Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location(lbs)
(D)Steel drum	(1)Ambient pressure	(4)Ambient temperature	Building 68 [illegible] Building 75		36.5??? -76.3??	5200

Chemical Description		Physical and Health Hazards	Inventory	
Chemical ID	507	☑ Fire	345	Max Daily Amt (lbs)
Check if Chemical Information is changed from the last submission	☐	☐ Pressure	02	Max Daily Amt Code
CAS #	N/A	☐ Reactivity	345	Avg Daily Amount (lbs)
Trade Secret	☐	☑ Immediate	02	Avg Daily Amount Code
Chemical Name	Intect 200 Non Haz Elec Solvent	☑ Delayed (Chronic)	345	Max Amt in Largest Container (lbs)
EHS ☐ Contains EHS ☐ Exceeds TPQ ☐			365	No. of days onsite
EHS Name				
☑ Pure ☐ Mix ☐ Solid ☑ Liquid ☐ Gas				
Chemical Added On	03/25/2015 Exceed TPQ On			
Check if the chemical is below reporting threshold	☑			

Storage Codes and Location

Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location(lbs)
(D)Steel drum	(1)Ambient pressure	(4)Ambient temperature	Building 55		36.8084 -76.3332	345

Chemical Description		Physical and Health Hazards	Inventory	
Chemical ID	508	☑ Fire	10	Max Daily Amt (lbs)
Check if Chemical Information is changed from the last submission	☐	☐ Pressure	01	Max Daily Amt Code
CAS #	N/A	☐ Reactivity	10	Avg Daily Amount (lbs)
Trade Secret	☐	☑ Immediate	01	Avg Daily Amount Code
Chemical Name	Kinney Type A Oil	☑ Delayed (Chronic)	10	Max Amt in Largest Container (lbs)
EHS ☐ Contains EHS ☐ Exceeds TPQ ☐			365	No. of days onsite
EHS Name				
☑ Pure ☐ Mix ☐ Solid ☑ Liquid ☐ Gas				
Chemical Added On	03/25/2015 Exceed TPQ On			
Check if the chemical is below reporting threshold	☑			

Storage Codes and Location

Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location(lbs)
(F)Can	(1)Ambient pressure	(4)Ambient temperature	Building 55		36.8084 -76.3332	10

Chemical Description

Chemical ID: 556
Check if Chemical Information is changed from the last submission: ☐
CAS #: 13[illegible]-93-2
Trade Secret: ☐
Chemical Name: Oil and Grease Adsorbent
EHS: ☐ Contains EHS: ☐ Exceeds TPQ: ☐
EHS Name:
☑ Pure ☐ Mix ☑ Solid ☐ Liquid ☐ Gas
Chemical Added On: 12/25/2015 Exceed TPQ On:
Check if the chemical is below reporting threshold: ☑

Physical and Health Hazards

☑ Fire	600	Max Daily Amt (lbs)	
☐ Pressure	00	Max Daily Amt Code	
☐ Reactivity	600	Avg Daily Amount (lbs)	
☐ Immediate	00	Avg Daily Amount Code	
☑ Delayed (Chronic)	40	Max Amt in Largest Container (lbs)	
	365	No. of days onsite	

Inventory

Storage Codes and Location

Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location (lbs)
1/Bag	1/Ambient pressure	4/Ambient temperature	Building 55, Building 54		38.83847 -76.965	600

Chemical Description

Chemical ID: 502
Check if Chemical Information is changed from the last submission: ☐
CAS #: 74-98-6
Trade Secret: ☐
Chemical Name: PROPANE
EHS: ☐ Contains EHS: ☐ Exceeds TPQ: ☐
EHS Name:
☑ Pure ☐ Mix ☐ Solid ☐ Liquid ☑ Gas
Chemical Added On: Exceed TPQ On:
Check if the chemical is below reporting threshold: ☐

Physical and Health Hazards

☑ Fire	15519	Max Daily Amt (lbs)	
☑ Pressure	08	Max Daily Amt Code	
☐ Reactivity	15519	Avg Daily Amount (lbs)	
☑ Immediate	05	Avg Daily Amount Code	
☑ Delayed (Chronic)	7644	Max Amt in Largest Container (lbs)	
	365	No. of days onsite	

Inventory

Storage Codes and Location

Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location (lbs)
9/Above ground tank	1/Ambient pressure	4/Ambient temperature	Various locations		38.85757 -76.9527	1651[illegible]

Chemical Description

Chemical ID: 444
Check if Chemical Information is changed from the last submission: ☐
CAS #: N/A
Trade Secret: ☐
Chemical Name: Unleaded Gasoline
EHS: ☐ Contains EHS: ☐ Exceeds TPQ: ☐
EHS Name:
☑ Pure ☐ Mix ☐ Solid ☑ Liquid ☐ Gas
Chemical Added On: 02/24/2015 Exceed TPQ On:
Check if the chemical is below reporting threshold: ☐

Physical and Health Hazards

☑ Fire	139944	Max Daily Amt (lbs)	
☐ Pressure	10	Max Daily Amt Code	
☐ Reactivity	139944	Avg Daily Amount (lbs)	
☑ Immediate	15	Avg Daily Amount Code	
☑ Delayed (Chronic)	139944	Max Amt in Largest Container (lbs)	
	365	No. of days onsite	

Inventory

Storage Codes and Location

Container Type	Pressure	Temperature	Storage Location	Description	Lat/Long	Max Amt At Location (lbs)
9/Below ground tank	1/Ambient pressure	4/Ambient temperature	Storage tanks near Sub 45		38.85757 -76.958	139944

Checklist Amount Range Code & Description

#	Code	Amount Range
1	01	[illegible]
2	02	[illegible]
3	03	[illegible]
4	04	[illegible]
5	05	[illegible]
6	06	[illegible]
7	07	[illegible]
8	08	[illegible]
9	09	[illegible]
10	10	[illegible]
11	11	[illegible]
12	12	[illegible]
13	13	[illegible]

Results of Biennial Reporting System (BRS) Database Search for Hazardous Wastes Shipped from Benning Road Facility, 1989-2013

PEPCO BENNING GENERATING STATION (1989-2013)

Search Criteria Used (More)	
Reporting Year	ALL GO
Level of Detail	Complete GO
Type of Report Output	Text (HTML) GO

Reporting Year: 2013

Facility #1 : PEPCO BENNING GENERATING STATI

Basic Facility Info

Handler ID	DCR000500157
Facility Name	PEPCO BENNING GENERATING STATION
Street Number	3400
Address Line 1	BENNING ROAD NE
City	WASHINGTON
State	DC
Zip Code	20019
FIPS County Code	DC001
113th Congressional District	DC98: District of Columbia nonvoting
First NAICS Code	221112: Fossil Fuel Electric Power Generation
Current Owner	POTOMAC POWER RESOURCES
Site Land Type	Private
State District	DC
Facility Notes	9A. Potomac Power Resources, LLC owns equipment. 1300 N. 17th Street, Suite 1500, Arlington, VA 22209. Potomac Power Company owns the land. 701 9th Street, NW, Washington DC 20068. DCB

Mailing Address and Contact Info

Mailing Street Number	3400
Mailing Address Line 1	BENNING ROAD NE
Mailing City	WASHINGTON
Mailing State	DC
Mailing Zip Code	20019
Contact First Name	MICHAEL
Contact Last Name	WILLIAMS
Contact Street Number	1300
Contact Address Line 1	N. 17TH STREET, SUITE 1500
Contact City	WASHINGTON
Contact State	DC
Contact Zip Code	20019
Contact Phone	2023882521
Contact Email	MWILLIAMS@PEPCOENERGY.COM
Contact Title	POWER PLANT ASSET MANAGER
Contact Fax	2023882398

Basic Submission Info (Facility #1 : PEPCO BENNING GENERATING STATI)

Reporting Year	2013
Facility in National Report	Yes
Receive Date	02/16/2014

Facility Waste Totals

Total Tons Generated	8.857
Total Tons Generated, Managed	8.857
Total Tons Generated, Shipped	8.857
Total Tons Received, Managed	0
Total Tons Transfer Storage	0
Total Tons Imported	0
Total Tons Exported	8.857
Total Tons Managed	8.857
Fed. Tons Generated	8.857

Fed. Tons Generated, Managed	8.857
Fed. Tons Generated, Shipped	8.857
Fed. Tons Received, Managed	0
Fed. Tons Transfer Storage	0
Fed. Tons Imported	0
Fed. Tons Exported	8.857
Fed. Tons Managed	8.857
Total Haz. Secondary Material Tons	0

National Report Totals (facility waste total #1)

All data fields in this section were blank.

Facility NAICS Codes

NAICS Code
221112: Fossil Fuel Electric Power Generation

Facility Status

Generator Status	Large Quantity Generator (LQG)
State Generator Status	Invalid code: E
Importer (Yes/No)	No
Radioactive Waste (Yes/No)	No
Transporter (Yes/No)	No
Treater/Storer/Disposer (Yes/No)	No
Recycler (Yes/No)	No
SQG Onsite Burner Exemption	No
Smelting/Refining Furnace Exemption	No
Underground Injection (Yes/No)	No
Short Term Generation	No
Transfer Facility	No
Received Waste From Offsite	No
Subpart K College	No
Subpart K Hospital	No
Subpart K Nonprofit	No
Subpart K Withdrawal	No

Owners and Operators (Facility #1 : PEPCO BENNING GENERATING STATI, owner or operator #1)

Owner or Operator Ind.	Current owner
Owner / Operator Name	POTOMAC POWER RESOURCES
Owner / Operator Date	12/15/2000
Owner / Operator Type	Private
Owner / Operator Street Number	1300
Owner / Operator Street 1	N. 17TH STREET, SUITE 1500
Owner / Operator City	ARLINGTON
Owner / Operator State	VA
Owner / Operator Zip	22209
Owner / Operator Phone	2023882521
Owner / Operator Notes	9A. Potomac Power Resources, LLC owns equipment. 1300 N. 17th Street, Suite 1500, Arlington, VA 22209. Potomac Power Company owns the land. 701 9th Street, NW, Washington DC 20068.

Owners and Operators

Owner or Operator Ind.	Current operator
Owner / Operator Name	POTOMAC POWER RESOURCES
Owner / Operator Date	12/15/2000

Owner / Operator Type	Private
Owner / Operator Street Number	1300
Owner / Operator Street 1	N. STREET, SUITE 1500
Owner / Operator City	ARLINGTON
Owner / Operator State	VA
Owner / Operator Zip	22209
Owner / Operator Notes	9A. Potomac Power Resources, LLC owns equipment. 1300 N. 17th Street, Suite 1500, Arlington, VA 22209. Potomac Power Company owns the land. 701 9th Street, NW, Washington DC 20068.

Universal Waste (Facility #1 : PEPCO BENNING GENERATING STATI)

Universal Waste Destination	No

Used Oil

Used Oil Transporter (Yes/No)	No
Used Oil Transfer Fac. (Yes/No)	No
Used Oil Processor (Yes/No)	No
Used Oil Re-refiner (Yes/No)	No
Used Oil Burner (Yes/No)	No
Used Oil Marketer, Type 1	No
Used Oil Marketer, Type 2	No

Reason for No Generation

All data fields in this section were blank.

Source Reduction and Recycling

All data fields in this section were blank.

Certification(s) (Facility #1 : PEPCO BENNING GENERATING STATI, certification #1)

Cert. First Name	MICHAEL
Cert. Last Name	WILLIAMS
Cert. Title	POWER PLANT ASSET MANAGER
Certification Date	01/21/2014

EPA Waste Codes for Facility

EPA Waste Code
D001: Ignitable waste
D002: Corrosive waste
D008: Lead
D018: Benzene

Facility Comments

Facility Comments
9A. Potomac Power Resources, LLC owns equipment. 1300 N. 17t
h Street, Suite 1500, Arlington, VA 22209. Potomac Power Com
pany owns the land. 701 9th Street, NW, Washington DC 20068.

DCB

Generated Waste Basics (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #1 : IGNITABLE WASTE PAINT RELATED)

Page Number	1
Waste Description	IGNITABLE WASTE PAINT RELATED MATERIAL INCLUDING GASOLINE, PAINT THINNER AND PAINT WITH PERTROLEUM DISTILLATES.
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Lab packs with no acute hazardous waste - Mixed Media
Form of Waste	W001: Lab packs with no acute hazardous waste - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	230
Tons Generated Current Year	0.115
Tons Managed	0.115
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.115
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #1 : IGNITABLE WASTE PAINT RELATED , EPA waste code: all)

EPA Waste Code
D001: Ignitable waste
D018: Benzene

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Storage and Transfer
Offsite System Type (Regularized)	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite System Type	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite Handler ID	OHD093945293
Amount of Waste Shipped	230
Tons of Waste Shipped	0.115
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	WEST CARROLLTON
Offsite State	OH
Offsite Info. Source	BRS

Generated Waste Basics (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #2 : OXIDIZING LIQUID, 1-BROMO-3-CH)

Page Number	2
Waste Description	OXIDIZING LIQUID, 1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN.
Form of Waste Category	Organic Liquids
Form of Waste (Regularized)	Other organic liquid (specify in comments) - Organic Liquids
Form of Waste	W219: Other organic liquid (specify in comments) - Organic Liquids

Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Process equipment change-out or discont. of equipment use - Intermittent Events
Waste Source Type	G15: Process equipment change-out or discont. of equipment use - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	SECTION 1E: 1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN (CONTAINS 0-3 INCHES OF SOLIDS IN EACH DRUM. N
Amount Generated Current Year	1,600
Tons Generated Current Year	0.8
Tons Managed	0.8
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.8
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #2 : OXIDIZING LIQUID, 1-BROMO-3-CH, EPA waste code: all)

EPA Waste Code
D001: Ignitable waste

Generated Waste Comments

Gen. Waste Comment
SECTION 1E: 1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN (CONTAINS
0-3 INCHES OF SOLIDS IN EACH DRUM.
N

Generated Waste Transfers Offsite

Offsite System Type Category	Storage and Transfer
Offsite System Type (Regularized)	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite System Type	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite Handler ID	NCD986166338
Amount of Waste Shipped	1,600
Tons of Waste Shipped	0.8
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS, LLC
Offsite City	CREEDMOOR
Offsite State	NC
Offsite Info. Source	BRS

Generated Waste Basics

(Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #3 : FLAMMABLE, WASTE AEROSOL CANS)

Page Number	3
Waste Description	FLAMMABLE, WASTE AEROSOL CANS CONTAING SPRAY PAINT.
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Compressed gases - Mixed Media
Form of Waste	W801: Compressed gases - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	20
Tons Generated Current Year	0.01

Tons Managed	0.01
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.01
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #3 : FLAMMABLE, WASTE AEROSOL CANS , EPA waste code: all)

EPA Waste Code
D001: Ignitable waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Storage and Transfer
Offsite System Type (Regularized)	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite System Type	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite Handler ID	NCD986166338
Amount of Waste Shipped	20
Tons of Waste Shipped	0.01
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS, LLC
Offsite City	CREEDMOOR
Offsite State	NC
Offsite Info. Source	BRS

Generated Waste Basics

(Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #4 : CORROSIVE LIQUID, HYDROCHLORIC)

Page Number	4
Waste Description	CORROSIVE LIQUID, HYDROCHLORIC ACID SOLUTION, LESS THAN 10%
Form of Waste Category	Inorganic Liquids
Form of Waste (Regularized)	Other inorganic liquid (specify in comments) - Inorganic Liquids
Form of Waste	W119: Other inorganic liquid (specify in comments) - Inorganic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	1E: HYDROCHLORIC ACID SOLUTION LESS THAN 10%. N
Amount Generated Current Year	800
Tons Generated Current Year	0.4
Tons Managed	0.4
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.4
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #4 : CORROSIVE LIQUID, HYDROCHLORIC, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
1E: HYDROCHLORIC ACID SOLUTION LESS THAN 10%.
N

Generated Waste Transfers Offsite

Offsite System Type Category	Storage and Transfer
Offsite System Type (Regularized)	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite System Type	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite Handler ID	OHD093945293
Amount of Waste Shipped	800
Tons of Waste Shipped	0.4
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	WEST CARROLLTON
Offsite State	OH
Offsite Info. Source	BRS

Generated Waste Basics (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #5 : CORROSIVE LIQUID, SODIUM HYDRO)

Page Number	5
Waste Description	CORROSIVE LIQUID, SODIUM HYDROXIDE SOLUTION 1-50%
Form of Waste Category	Inorganic Liquids
Form of Waste (Regularized)	Caustic aqueous waste without cyanides - Inorganic Liquids
Form of Waste	W110: Caustic aqueous waste without cyanides - Inorganic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	9,800
Tons Generated Current Year	4.9
Tons Managed	4.9
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	4.9
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #5 : CORROSIVE LIQUID, SODIUM HYDRO, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Reclamation and Recovery
Offsite System Type (Regularized)	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite System Type	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite Handler ID	NJD002454544
Amount of Waste Shipped	9,800
Tons of Waste Shipped	4.9
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC

Offsite City	MIDDLESEX
Offsite State	NJ
Offsite Info. Source	BRS

Generated Waste Basics (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #6 : CORROSIVE LIQUID, ALUMINUM SUL)

Page Number	6
Waste Description	CORROSIVE LIQUID, ALUMINUM SULFATE
Form of Waste Category	Inorganic Liquids
Form of Waste (Regularized)	Spent concentrated acid - Inorganic Liquids
Form of Waste	W103: Spent concentrated acid - Inorganic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	5,200
Tons Generated Current Year	2.6
Tons Managed	2.6
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	2.6
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #6 : CORROSIVE LIQUID, ALUMINUM SUL, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Unknown
Offsite System Type	H070: Chemical treatment (reduction/destruction/oxidation/precipitation) - Trtmt
Offsite Handler ID	PAD010154045
Amount of Waste Shipped	5,200
Tons of Waste Shipped	2.6
Offsite Facility Name	ENVIRITE OF PENNSYLVANIA INC
Offsite City	YORK
Offsite State	PA
Offsite Info. Source	BRS

Generated Waste Basics (Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #7 : LEAD PAINT CHIPS)

Page Number	7
Waste Description	LEAD PAINT CHIPS
Form of Waste Category	Unknown
Form of Waste	Invalid code: W406
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Other one-time or intermittent processes (specify in comments)

Waste Source Type	G19: Other one-time or intermittent processes (specify in comments)
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	1D: INTERMITTENT CLEAN-UP OF LEAD PAINT CHIPS. N
Amount Generated Current Year	64
Tons Generated Current Year	0.032
Tons Managed	0.032
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.032
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #7 : LEAD PAINT CHIPS , EPA waste code: all)

EPA Waste Code
D008: Lead

Generated Waste Comments

Gen. Waste Comment
1D: INTERMITTENT CLEAN-UP OF LEAD PAINT CHIPS.
N

Generated Waste Transfers Offsite

Offsite System Type Category	Storage and Transfer
Offsite System Type (Regularized)	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite System Type	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite Handler ID	OHD093945293
Amount of Waste Shipped	12
Tons of Waste Shipped	0.006
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	WEST CARROLLTON
Offsite State	OH
Offsite Info. Source	BRS

Generated Waste Transfers Offsite

(Facility #1 : PEPCO BENNING GENERATING STATI, Generated waste #7 : LEAD PAINT CHIPS , off-site waste transfer #2)

Offsite System Type Category	Reclamation and Recovery
Offsite System Type (Regularized)	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite System Type	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite Handler ID	NJD002454544
Amount of Waste Shipped	52
Tons of Waste Shipped	0.026
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	MIDDLESEX
Offsite State	NJ
Offsite Info. Source	BRS

Total records for reporting year 2013: 1
Total Waste Tons Generated: 8.857
Total Waste Tons Managed: 8.857
Total Waste Tons Received and Managed: 0

Reporting Year: 2011

Facility #2 : PEPCO BENNING GENERATING STATI

Basic Facility Info (Facility #2 : PEPCO BENNING GENERATING STATI)

Handler ID	DCR000500157
Facility Name	PEPCO BENNING GENERATING STATION
Street Number	3400
Address Line 1	BENNING ROAD NE
City	WASHINGTON
State	DC
Zip Code	20019
FIPS County Code	DC001
113th Congressional District	DC98: District of Columbia nonvoting
First NAICS Code	221112: Fossil Fuel Electric Power Generation
Current Owner	POTOMAC ELECTRIC POWER COMPANY
Site Land Type	Private

Mailing Address and Contact Info

Mailing Street Number	3400
Mailing Address Line 1	BENNING ROAD NE
Mailing City	WASHINGTON
Mailing State	DC
Mailing Zip Code	20019
Contact First Name	MICHAEL
Contact Last Name	WILLIAMS
Contact Street Number	1300
Contact Address Line 1	NORTH 17TH STREET, SUITE 1600
Contact City	ARLINGTON
Contact State	VA
Contact Zip Code	22209
Contact Phone	7032531787
Contact Email	MWILLIAMS@PEPCOENERGY.COM
Contact Title	POWER PLANT ASSET MANAGER
Contact Fax	7032531799

Basic Submission Info (Facility #2 : PEPCO BENNING GENERATING STATI)

Reporting Year	2011
Facility in National Report	Yes
Receive Date	03/01/2012

Facility Waste Totals

Total Tons Generated	7.423
Total Tons Generated, Managed	7.423
Total Tons Generated, Shipped	7.423
Total Tons Received, Managed	0
Total Tons Transfer Storage	0
Total Tons Imported	0
Total Tons Exported	7.423
Total Tons Managed	7.423
Fed. Tons Generated	7.423
Fed. Tons Generated, Managed	7.423
Fed. Tons Generated, Shipped	7.423
Fed. Tons Received, Managed	0
Fed. Tons Transfer Storage	0
Fed. Tons Imported	0
Fed. Tons Exported	7.423
Fed. Tons Managed	7.423
Total Haz. Secondary Material Tons	0

National Report Totals (facility waste total #1)

All data fields in this section were blank.

Facility NAICS Codes

NAICS Code
221112: Fossil Fuel Electric Power Generation

Facility Status

Generator Status	Large Quantity Generator (LQG)
State Generator Status	Large Quantity Generator (LQG)
Importer (Yes/No)	No
Radioactive Waste (Yes/No)	No
Transporter (Yes/No)	No
Treater/Storer/Disposer (Yes/No)	No
Recycler (Yes/No)	No
SQG Onsite Burner Exemption	No
Smelting/Refining Furnace Exemption	No
Underground Injection (Yes/No)	No
Short Term Generation	No
Transfer Facility	No
Received Waste From Offsite	No
Subpart K College	No
Subpart K Hospital	No
Subpart K Nonprofit	No
Subpart K Withdrawal	No

Owners and Operators (Facility #2 : PEPCO BENNING GENERATING STATI, owner or operator #1)

Owner or Operator Ind.	Current owner
Owner / Operator Name	POTOMAC ELECTRIC POWER COMPANY
Owner / Operator Date	12/15/2000
Owner / Operator Type	Private
Owner / Operator Street Number	701
Owner / Operator Street 1	NINTH STREET NW
Owner / Operator City	WASHINGTON
Owner / Operator State	DC
Owner / Operator Zip	20068
Owner / Operator Phone	7032531787
Owner / Operator Notes	SHARMON@PEPCOENERGY.COM F

Owners and Operators

Owner or Operator Ind.	Current operator
Owner / Operator Name	POTOMAC POWER RESOURCES, LLC
Owner / Operator Date	12/15/2000
Owner / Operator Type	Private
Owner / Operator Street Number	1300
Owner / Operator Street 1	NORTH 17TH STREET, SUITE 1600
Owner / Operator City	ARLINGTON
Owner / Operator State	VA
Owner / Operator Zip	22209
Owner / Operator Phone	7032531787
Owner / Operator Notes	SHARMON@PEPCOENERGY.COM F

Universal Waste (Facility #2 : PEPCO BENNING GENERATING STATI)

Universal Waste Destination	No

Used Oil

Used Oil Transporter (Yes/No)	No
Used Oil Transfer Fac. (Yes/No)	No
Used Oil Processor (Yes/No)	No
Used Oil Re-refiner (Yes/No)	No
Used Oil Burner (Yes/No)	No
Used Oil Marketer, Type 1	No
Used Oil Marketer, Type 2	No

Reason for No Generation

All data fields in this section were blank.

Source Reduction and Recycling

All data fields in this section were blank.

Certification(s) (Facility #2 : PEPCO BENNING GENERATING STATI, certification #1)

Cert. First Name	MICHAEL
Cert. Last Name	WILLIAMS
Cert. Title	POWER PLANT ASSET MANAGER
Certification Date	02/27/2012

EPA Waste Codes for Facility

EPA Waste Code
D001: Ignitable waste
D002: Corrosive waste
D005: Barium
D008: Lead
D009: Mercury

Facility Comments

Facility Comments

Generated Waste Basics (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #1 : OXIDIZING WASTE POTASSIUM PERS)

Page Number	1
Waste Description	OXIDIZING WASTE POTASSIUM PERSULFATE, OUT OF SPEC CHEMICALS FROM LAB.
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Lab packs with no acute hazardous waste - Mixed Media
Form of Waste	W001: Lab packs with no acute hazardous waste - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Pollution Control and Waste Management
Waste Source Type (Regularized)	Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Source Type	G22: Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	5
Tons Generated Current Year	0.003
Tons Managed	0.003
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.003
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #1 : OXIDIZING WASTE POTASSIUM PERS, EPA waste code: all)

EPA Waste Code
D001: Ignitable waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Destruction or Treatment Prior to Disposal at Another Site
Offsite System Type (Regularized)	H040: Incineration - thermal destruction other than use as a fuel
Offsite System Type	H040: Incineration - thermal destruction other than use as a fuel
Offsite Handler ID	NCD986166338
Amount of Waste Shipped	5
Tons of Waste Shipped	0.003
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS, LLC
Offsite City	CREEDMOOR
Offsite State	NC
Offsite Info. Source	BRS

Generated Waste Basics (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #2 : OXIDIZING CORROSIVE LIQUID WAS)

Page Number	2
Waste Description	OXIDIZING CORROSIVE LIQUID WASTE CONTAINS SULFURIC ACID AND PERCHLORIC ACID, OUT OF SPEC CHEMICALS FROM LAB.
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Lab packs with no acute hazardous waste - Mixed Media
Form of Waste	W001: Lab packs with no acute hazardous waste - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Pollution Control and Waste Management
Waste Source Type (Regularized)	Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Source Type	G22: Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	12
Tons Generated Current Year	0.006
Tons Managed	0.006
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.006
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #2 : OXIDIZING CORROSIVE LIQUID WAS, EPA waste code: all)

EPA Waste Code
D001: Ignitable waste
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Destruction or Treatment Prior to Disposal at Another Site
Offsite System Type (Regularized)	H040: Incineration - thermal destruction other than use as a fuel
Offsite System Type	H040: Incineration - thermal destruction other than use as a fuel
Offsite Handler ID	NCD986166338

Amount of Waste Shipped	12
Tons of Waste Shipped	0.006
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS, LLC
Offsite City	CREEDMOOR
Offsite State	NC
Offsite Info. Source	BRS

Generated Waste Basics (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #3 : TOXIC, CORROSIVE LIQUID WASTE)

Page Number	3
Waste Description	TOXIC, CORROSIVE LIQUID WASTE CONTAINS SULFAVER 4 SULFATE REAGENT, OUT OF SPEC CHEMICALS FROM LAB.
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Lab packs with no acute hazardous waste - Mixed Media
Form of Waste	W001: Lab packs with no acute hazardous waste - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Pollution Control and Waste Management
Waste Source Type (Regularized)	Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Source Type	G22: Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	8
Tons Generated Current Year	0.004
Tons Managed	0.004
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.004
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #3 : TOXIC, CORROSIVE LIQUID WASTE , EPA waste code: all)

EPA Waste Code
D002: Corrosive waste
D005: Barium

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Destruction or Treatment Prior to Disposal at Another Site
Offsite System Type (Regularized)	H040: Incineration - thermal destruction other than use as a fuel
Offsite System Type	H040: Incineration - thermal destruction other than use as a fuel
Offsite Handler ID	NCD986166338
Amount of Waste Shipped	8
Tons of Waste Shipped	0.004
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS, LLC
Offsite City	CREEDMOOR
Offsite State	NC
Offsite Info. Source	BRS

Generated Waste Basics (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #4 : INORGANIC, BASIC CORROSIVE LIQ)

Page Number	4
Waste Description	

	INORGANIC, BASIC CORROSIVE LIQUID WASTE CONTAINS CHLORINE WATER, OUT OF SPEC CHEMICALS FROM LAB.
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Lab packs with no acute hazardous waste - Mixed Media
Form of Waste	W001: Lab packs with no acute hazardous waste - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Pollution Control and Waste Management
Waste Source Type (Regularized)	Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Source Type	G22: Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	11
Tons Generated Current Year	0.006
Tons Managed	0.006
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.006
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #4 : INORGANIC, BASIC CORROSIVE LIQ, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Destruction or Treatment Prior to Disposal at Another Site
Offsite System Type (Regularized)	H040: Incineration - thermal destruction other than use as a fuel
Offsite System Type	H040: Incineration - thermal destruction other than use as a fuel
Offsite Handler ID	NCD986166338
Amount of Waste Shipped	11
Tons of Waste Shipped	0.006
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS, LLC
Offsite City	CREEDMOOR
Offsite State	NC
Offsite Info. Source	BRS

Generated Waste Basics (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #5 : ORGANIC, CORROSIVE LIQUID WAST)

Page Number	5
Waste Description	ORGANIC, CORROSIVE LIQUID WASTE CONTAINING DIBROMOACETONITRILE AND SODIUM BROMIDE, EXPIRED CHEMICAL.
Form of Waste Category	Organic Liquids
Form of Waste (Regularized)	Other organic liquid (specify in comments) - Organic Liquids
Form of Waste	W219: Other organic liquid (specify in comments) - Organic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste

Waste Notes	N
Amount Generated Current Year	900
Tons Generated Current Year	0.45
Tons Managed	0.45
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.45
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #5 : ORGANIC, CORROSIVE LIQUID WAST, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Reclamation and Recovery
Offsite System Type (Regularized)	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite System Type	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite Handler ID	NJD002454544
Amount of Waste Shipped	900
Tons of Waste Shipped	0.45
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	MIDDLESEX
Offsite State	NJ
Offsite Info. Source	BRS

Generated Waste Basics (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #6 : INORGANIC, BASIC CORROSIVE LIQ)

Page Number	6
Waste Description	INORGANIC, BASIC CORROSIVE LIQUID WASTE CONTAINING SODIUM BISULFITE, EXPIRED CHEMICAL.
Form of Waste Category	Inorganic Liquids
Form of Waste (Regularized)	Other inorganic liquid (specify in comments) - Inorganic Liquids
Form of Waste	W119: Other inorganic liquid (specify in comments) - Inorganic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	400
Tons Generated Current Year	0.2
Tons Managed	0.2
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.2
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #6 : INORGANIC, BASIC CORROSIVE LIQ, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Reclamation and Recovery
Offsite System Type (Regularized)	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite System Type	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite Handler ID	NJD002454544
Amount of Waste Shipped	400
Tons of Waste Shipped	0.2
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	MIDDLESEX
Offsite State	NJ
Offsite Info. Source	BRS

Generated Waste Basics

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #7 : WASTE MERCURY THIOCYANATE, EXP)

Page Number	7
Waste Description	WASTE MERCURY THIOCYANATE, EXPIRED, NO LONGER USED CHEMICAL FROM THE LAB.
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Lab packs with no acute hazardous waste - Mixed Media
Form of Waste	W001: Lab packs with no acute hazardous waste - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Pollution Control and Waste Management
Waste Source Type (Regularized)	Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Source Type	G22: Laboratory analytical wastes (used chemicals) - Polluton Control
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	5
Tons Generated Current Year	0.003
Tons Managed	0.003
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.003
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #7 : WASTE MERCURY THIOCYANATE, EXP, EPA waste code: all)

EPA Waste Code
D009: Mercury

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Reclamation and Recovery
Offsite System Type (Regularized)	H010: Metals recovery including retorting, smelting, chemical, etc. - Recovery

Offsite System Type	H010: Metals recovery including retorting, smelting, chemical, etc. - Recovery
Offsite Handler ID	OHD093945293
Amount of Waste Shipped	5
Tons of Waste Shipped	0.003
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	WEST CARROLLTON
Offsite State	OH
Offsite Info. Source	BRS

Generated Waste Basics (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #8 : WASTE SODIUM HYDROXIDE, EXPIRE)

Page Number	8
Waste Description	WASTE SODIUM HYDROXIDE, EXPIRED CHEMICAL.
Form of Waste Category	Inorganic Liquids
Form of Waste (Regularized)	Caustic aqueous waste without cyanides - Inorganic Liquids
Form of Waste	W110: Caustic aqueous waste without cyanides - Inorganic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	1,900
Tons Generated Current Year	0.95
Tons Managed	0.95
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.95
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #8 : WASTE SODIUM HYDROXIDE, EXPIRE, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Storage and Transfer
Offsite System Type (Regularized)	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite System Type	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite Handler ID	OHD093945293
Amount of Waste Shipped	400
Tons of Waste Shipped	0.2
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	WEST CARROLLTON
Offsite State	OH
Offsite Info. Source	BRS

Generated Waste Transfers Offsite (Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #8 : WASTE SODIUM HYDROXIDE, EXPIRE, off-site waste transfer #2)

Offsite System Type Category	Reclamation and Recovery
Offsite System Type (Regularized)	H061: Fuel blending prior to energy recovery at another site - Recovery
Offsite System Type	H061: Fuel blending prior to energy recovery at another site - Recovery

Offsite Handler ID	NJD002454544
Amount of Waste Shipped	1,500
Tons of Waste Shipped	0.75
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	MIDDLESEX
Offsite State	NJ
Offsite Info. Source	BRS

Generated Waste Basics

Page Number	9
Waste Description	INORGANIC, ACIDIC, CORROSIVE LIQUID WASTE CONTAINING ALUMINUM CHLORIDE, EXPIRED AND NO LONGER USED CHEMICAL
Form of Waste Category	Inorganic Liquids
Form of Waste (Regularized)	Other inorganic liquid (specify in comments) - Inorganic Liquids
Form of Waste	W119: Other inorganic liquid (specify in comments) - Inorganic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	11,400
Tons Generated Current Year	5.7
Tons Managed	5.7
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	5.7
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #9 : INORGANIC, ACIDIC, CORROSIVE L, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Disposal
Offsite System Type (Regularized)	H132: Landfill or surface impoundment (includes on-site treatment) - Disposal
Offsite System Type	H132: Landfill or surface impoundment (includes on-site treatment) - Disposal
Offsite Handler ID	OHD093945293
Amount of Waste Shipped	11,400
Tons of Waste Shipped	5.7
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	WEST CARROLLTON
Offsite State	OH
Offsite Info. Source	BRS

Generated Waste Basics

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #10 : LEAD PAINT CHIPS)

Page Number	10

Waste Description	LEAD PAINT CHIPS
Form of Waste Category	Unknown
Form of Waste	Invalid code: W406
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Other one-time or intermittent processes (specify in comments)
Waste Source Type	G19: Other one-time or intermittent processes (specify in comments)
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	202
Tons Generated Current Year	0.101
Tons Managed	0.101
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.101
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #2 : PEPCO BENNING GENERATING STATI, Generated waste #10 : LEAD PAINT CHIPS, EPA waste code: all)

EPA Waste Code
D008: Lead

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Storage and Transfer
Offsite System Type (Regularized)	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite System Type	H141: Storage, bulking, and/or transfer off site - no treatment/recovery/disposal
Offsite Handler ID	OHD093945293
Amount of Waste Shipped	202
Tons of Waste Shipped	0.101
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	WEST CARROLLTON
Offsite State	OH
Offsite Info. Source	BRS

Total records for reporting year 2011: 1
Total Waste Tons Generated: 7.423
Total Waste Tons Managed: 7.423
Total Waste Tons Received and Managed: 0

Reporting Year: 2009

Facility #3 : PEPCO BENNING GENERATING STATI

Basic Facility Info (Facility #3 : PEPCO BENNING GENERATING STATI)

Handler ID	DCR000500157
Facility Name	PEPCO BENNING GENERATING STATION
Street Number	3400
Address Line 1	BENNING ROAD NE
City	WASHINGTON

State	DC
Zip Code	20019
FIPS County Code	DC001
113th Congressional District	DC98: District of Columbia nonvoting
First NAICS Code	221112: Fossil Fuel Electric Power Generation
Current Owner	POTOMAC ELECTRIC POWER COMPANY
Site Land Type	Private

Mailing Address and Contact Info

Mailing Street Number	3400
Mailing Address Line 1	BENNING ROAD NE
Mailing City	WASHINGTON
Mailing State	DC
Mailing Zip Code	20019
Contact First Name	SHIRLEY
Contact Last Name	HARMON
Contact Street Number	1300
Contact Address Line 1	NORTH 17TH STREET, SUITE 1600
Contact City	ARLINGTON
Contact State	VA
Contact Zip Code	22209
Contact Phone	7032531787
Contact Email	SHARMON@PEPCOENERGY.COM
Contact Title	POWER PLANT ASSET MANAGER
Contact Fax	7032531799

Basic Submission Info (Facility #3 : PEPCO BENNING GENERATING STATI)

Reporting Year	2009
Facility in National Report	Yes
Receive Date	02/10/2010

Facility Waste Totals

Total Tons Generated	6.819
Total Tons Generated, Managed	6.819
Total Tons Generated, Shipped	6.819
Total Tons Received, Managed	0
Total Tons Transfer Storage	0
Total Tons Imported	0
Total Tons Exported	6.819
Total Tons Managed	6.819
Fed. Tons Generated	6.819
Fed. Tons Generated, Managed	6.819
Fed. Tons Generated, Shipped	6.819
Fed. Tons Received, Managed	0
Fed. Tons Transfer Storage	0
Fed. Tons Imported	0
Fed. Tons Exported	6.819
Fed. Tons Managed	6.819
Total Haz. Secondary Material Tons	0

National Report Totals (facility waste total #1)

All data fields in this section were blank.

Facility NAICS Codes

NAICS Code
221112: Fossil Fuel Electric Power Generation

Facility Status

Generator Status	Large Quantity Generator (LQG)

State Generator Status	Large Quantity Generator (LQG)
Importer (Yes/No)	No
Radioactive Waste (Yes/No)	No
Transporter (Yes/No)	No
Treater/Storer/Disposer (Yes/No)	No
Recycler (Yes/No)	No
SQG Onsite Burner Exemption	No
Smelting/Refining Furnace Exemption	No
Underground Injection (Yes/No)	No
Short Term Generation	No
Transfer Facility	No
Received Waste From Offsite	Yes
Subpart K College	No
Subpart K Hospital	No
Subpart K Nonprofit	No
Subpart K Withdrawal	No

Owners and Operators (Facility #3 : PEPCO BENNING GENERATING STATI, owner or operator #1)

Owner or Operator Ind.	Current owner
Owner / Operator Name	POTOMAC ELECTRIC POWER COMPANY
Owner / Operator Date	12/15/2000
Owner / Operator Type	Private
Owner / Operator Street Number	701
Owner / Operator Street 1	NINTH STREET NW
Owner / Operator City	WASHINGTON
Owner / Operator State	DC
Owner / Operator Zip	20068
Owner / Operator Phone	7032531787
Owner / Operator Notes	SHARMON@PEPCOENERGY.COM F

Owners and Operators

Owner or Operator Ind.	Current operator
Owner / Operator Name	POTOMAC POWER RESOURCES, LLC
Owner / Operator Date	12/15/2000
Owner / Operator Type	Private
Owner / Operator Street Number	1300
Owner / Operator Street 1	NORTH 17TH STREET, SUITE 1600
Owner / Operator City	ARLINGTON
Owner / Operator State	VA
Owner / Operator Zip	22209
Owner / Operator Phone	7032531787
Owner / Operator Notes	SHARMON@PEPCOENERGY.COM F

Universal Waste (Facility #3 : PEPCO BENNING GENERATING STATI)

Universal Waste Destination	No

Used Oil

Used Oil Transporter (Yes/No)	No
Used Oil Transfer Fac. (Yes/No)	No
Used Oil Processor (Yes/No)	No
Used Oil Re-refiner (Yes/No)	No
Used Oil Burner (Yes/No)	No
Used Oil Marketer, Type 1	No
Used Oil Marketer, Type 2	No

Reason for No Generation

All data fields in this section were blank.

Source Reduction and Recycling

All data fields in this section were blank.

Certification(s) (Facility #3 : PEPCO BENNING GENERATING STATI, certification #1)

Cert. First Name	SHIRLEY
Cert. Last Name	HARMON
Cert. Title	POWER PLANT ASSET MANAGER
Certification Date	01/27/2010

EPA Waste Codes for Facility

EPA Waste Code
D001: Ignitable waste
D002: Corrosive waste
D007: Chromium
D008: Lead

Facility Comments

Facility Comments

Generated Waste Basics (Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #1 : SPENT AEROSOL CANS CONTAINING)

Page Number	1
Waste Description	SPENT AEROSOL CANS CONTAINING RESIDUAL FLAMMABLE MATERIAL
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Compressed gases - Mixed Media
Form of Waste	W801: Compressed gases - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Discarding off-specification / out-of-date products - Intermittent Events
Waste Source Type	G11: Discarding off-specification / out-of-date products - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	N
Amount Generated Current Year	37
Tons Generated Current Year	0.019
Tons Managed	0.019
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.019
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #1 : SPENT AEROSOL CANS CONTAINING , EPA waste code: all)

EPA Waste Code
D001: Ignitable waste

Generated Waste Comments

Gen. Waste Comment
N

Generated Waste Transfers Offsite

Offsite System Type Category	Destruction or Treatment Prior to Disposal at Another Site

Offsite System Type (Regularized)	H040: Incineration - thermal destruction other than use as a fuel
Offsite System Type	H040: Incineration - thermal destruction other than use as a fuel
Offsite Handler ID	TXD000838896
Amount of Waste Shipped	37
Tons of Waste Shipped	0.019
Offsite Facility Name	VEOLIA ES TECHNICAL SOLUTIONS LLC
Offsite City	PORT ARTHUR
Offsite State	TX
Offsite Info. Source	BRS

Generated Waste Basics (Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #2 : UNUSED HYDROCHLORIC ACID SOLUT)

Page Number	2
Waste Description	UNUSED HYDROCHLORIC ACID SOLUTION
Form of Waste Category	Inorganic Liquids
Form of Waste (Regularized)	Acidic aqueous wastes less than 5% acid - Inorganic Liquids
Form of Waste	W105: Acidic aqueous wastes less than 5% acid - Inorganic Liquids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Other one-time or intermittent processes (specify in comments)
Waste Source Type	G19: Other one-time or intermittent processes (specify in comments)
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	DISCARD HYDROCHLORIC ACID NO LONGER USED IN PROCESS N
Amount Generated Current Year	1,100
Tons Generated Current Year	0.55
Tons Managed	0.55
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.55
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste (Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #2 : UNUSED HYDROCHLORIC ACID SOLUT, EPA waste code: all)

EPA Waste Code
D002: Corrosive waste

Generated Waste Comments

Gen. Waste Comment
DISCARD HYDROCHLORIC ACID NO LONGER USED IN PROCESS
N

Generated Waste Transfers Offsite

Offsite System Type Category	Disposal
Offsite System Type (Regularized)	H135: Discharge to sewer/POTW or NPDES (with or without treatment) - Disposal
Offsite System Type	H135: Discharge to sewer/POTW or NPDES (with or without treatment) - Disposal
Offsite Handler ID	NYD049836679
Amount of Waste Shipped	1,100
Tons of Waste Shipped	0.55
Offsite Facility Name	CWM CHEMICAL SERVICES, LLC
Offsite City	MODEL CITY
Offsite State	NY
Offsite Info. Source	BRS

Generated Waste Basics (Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #3 : CHROMIUM CONTAMINATED DEBRIS F)

Page Number	3
Waste Description	CHROMIUM CONTAMINATED DEBRIS FROM CLEANING BOILER PENTHOUSES

Form of Waste Category	Inorganic Solids
Form of Waste (Regularized)	Other inorganic solids (specify in comments) - Inorganic Solids
Form of Waste	W319: Other inorganic solids (specify in comments) - Inorganic Solids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Cleaning out process equipment - Intermittent Events
Waste Source Type	G13: Cleaning out process equipment - Intermittent Events
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	CHROMIUM CONTAINING SOLIDS FROM NON-ROUTINE BOILER CLEANING N
Amount Generated Current Year	12,400
Tons Generated Current Year	6.2
Tons Managed	6.2
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	6.2
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #3 : CHROMIUM CONTAMINATED DEBRIS F, EPA waste code: all)

EPA Waste Code
D007: Chromium

Generated Waste Comments

Gen. Waste Comment
CHROMIUM CONTAINING SOLIDS FROM NON-ROUTINE BOILER CLEANING
N

Generated Waste Transfers Offsite

Offsite System Type Category	Disposal
Offsite System Type (Regularized)	H131: Land treatment or application (includes on-site treatment) - Disposal
Offsite System Type	H131: Land treatment or application (includes on-site treatment) - Disposal
Offsite Handler ID	NYD049836679
Amount of Waste Shipped	12,400
Tons of Waste Shipped	6.2
Offsite Facility Name	CWM CHEMICAL SERVICES, LLC
Offsite City	MODEL CITY
Offsite State	NY
Offsite Info. Source	BRS

Generated Waste Basics (Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #4 : LEAD PAINT CHIPS)

Page Number	4
Waste Description	LEAD PAINT CHIPS
Form of Waste Category	Mixed Media / Debris / Devices
Form of Waste (Regularized)	Sediment or lagoon dragout, drilling or other muds - Mixed Media
Form of Waste	W512: Sediment or lagoon dragout, drilling or other muds - Mixed Media
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Waste Source Category	Other Intermittent Events or Processes
Waste Source Type (Regularized)	Other one-time or intermittent processes (specify in comments)
Waste Source Type	G19: Other one-time or intermittent processes (specify in comments)
Waste Minimization Indicator	No waste minimization efforts were implemented for this waste
Waste Notes	AS PART OF HOUSEKEEPING, INTERMITTENT CLEANING ACTIVITIES GENERATE SMALL AMOUNTS OF LEAD PAINT CHIP ACCUMULATION N
	100

Amount Generated Current Year	
Tons Generated Current Year	0.05
Tons Managed	0.05
Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.05
Include in National Report	Yes
Onsite Waste Management (Yes/No)	No
Offsite Waste Management (Yes/No)	Yes

EPA Waste Codes for Generated Waste

(Facility #3 : PEPCO BENNING GENERATING STATI, Generated waste #4 : LEAD PAINT CHIPS, EPA waste code: all)

EPA Waste Code
D008: Lead

Generated Waste Comments

Gen. Waste Comment
AS PART OF HOUSEKEEPING, INTERMITTENT CLEANING ACTIVITIES GE
NERATE SMALL AMOUNTS OF LEAD PAINT CHIP ACCUMULATION
N

Generated Waste Transfers Offsite

Offsite System Type Category	Disposal
Offsite System Type (Regularized)	H131: Land treatment or application (includes on-site treatment) - Disposal
Offsite System Type	H131: Land treatment or application (includes on-site treatment) - Disposal
Offsite Handler ID	NYD049836679
Amount of Waste Shipped	100
Tons of Waste Shipped	0.05
Offsite Facility Name	CWM CHEMICAL SERVICES, LLC
Offsite City	MODEL CITY
Offsite State	NY
Offsite Info. Source	BRS

Total records for reporting year 2009: 1
Total Waste Tons Generated: 6.819
Total Waste Tons Managed: 6.819
Total Waste Tons Received and Managed: 0

Reporting Year: 2001

Facility #4 : PPR BENNING ROAD SES

Basic Facility Info (Facility #4 : PPR BENNING ROAD SES)

Handler ID	DCR000500157
Facility Name	PPR BENNING ROAD SES
Address Line 1	3400 BENNING ROAD NE
City	WASHINGTON
State	DC
Zip Code	20019
County	DISTRICT OF COLUMBIA
113th Congressional District	DC98: District of Columbia nonvoting
First NAICS Code	221112: Fossil Fuel Electric Power Generation
Current Owner	PEPCO
Site Land Type	Private

Mailing Address and Contact Info

Mailing Address Line 1	3400 BENNING ROAD NE
Mailing City	WASHINGTON
Mailing State	DC
Mailing Zip Code	20019
Mailing Country	UNITED STATES
Contact First Name	ANN
Contact Last Name	WEARMOUTH
Contact Phone	3016698028

Basic Submission Info (Facility #4 : PPR BENNING ROAD SES)

Reporting Year	2001
Reason for Submittal	Submitted as part of hazardous waste report
Facility in National Report	No

Facility Waste Totals

Total Tons Generated	0.155
Total Tons Generated, Managed	0.155
Total Tons Generated, Shipped	0.155
Total Tons Received, Managed	0
Total Tons Transfer Storage	0
Total Tons Imported	0
Total Tons Exported	0.155
Total Tons Managed	0.155
Fed. Tons Generated	0.155
Fed. Tons Generated, Managed	0.155
Fed. Tons Generated, Shipped	0.155
Fed. Tons Received, Managed	0
Fed. Tons Transfer Storage	0
Fed. Tons Imported	0
Fed. Tons Exported	0.155
Fed. Tons Managed	0.155

National Report Totals (facility waste total #1)

All data fields in this section were blank.

Facility NAICS Codes

NAICS Code
221112: Fossil Fuel Electric Power Generation

Facility Status

Generator Status	Conditionally Exempt Small Quantity Generator (CESQG)
State Generator Status	Conditionally Exempt Small Quantity Generator (CESQG)
Importer (Yes/No)	No
Radioactive Waste (Yes/No)	No
Transporter (Yes/No)	Unknown
Treater/Storer/Disposer (Yes/No)	No
Recycler (Yes/No)	Unknown
SQG Onsite Burner Exemption	Unknown
Smelting/Refining Furnace Exemption	Unknown
Underground Injection (Yes/No)	Unknown

Owners and Operators (Facility #4 : PPR BENNING ROAD SES, owner or operator #1)

Owner or Operator Ind.	Current operator
Owner / Operator Name	MIRANT MID ATLANTIC LLC
Owner / Operator Date	12/19/2000
Owner / Operator Type	Private
Owner / Operator Country	UNITED STATES

Owners and Operators

Owner or Operator Ind.	Current owner
Owner / Operator Name	PEPCO
Owner / Operator Date	01/01/1960
Owner / Operator Type	Private
Owner / Operator Country	UNITED STATES

Universal Waste

LQG Batteries (Yes/No)	Unknown
LQA Batteries (Yes/No)	Unknown
LQG Pesticides	Unknown
LQA Pesticides (Yes/No)	Unknown
LQG Thermostats (Yes/No)	Unknown
LQA Thermostats (Yes/No)	Unknown
LQG Lamps (Yes/No)	Unknown
LQA Lamps (Yes/No)	Unknown
Universal Waste Destination	Unknown

Used Oil (Facility #4 : PPR BENNING ROAD SES)

Used Oil Transporter (Yes/No)	Unknown
Used Oil Transfer Fac. (Yes/No)	Unknown
Used Oil Processor (Yes/No)	Unknown
Used Oil Re-refiner (Yes/No)	Unknown
Used Oil Burner (Yes/No)	Unknown
Used Oil Marketer, Type 1	Unknown
Used Oil Marketer, Type 2	Unknown

Reason for No Generation

All data fields in this section were blank.

Source Reduction and Recycling

All data fields in this section were blank.

Certification(s)

Cert. First Name	WESLEY
Cert. Last Name	MCNEALY
Cert. Title	DIR ENV AFFAIRS
Certification Date	02/26/2002

Facility Comments (Facility #4 : PPR BENNING ROAD SES, comment line: all)

Facility Comments
DC

Generated Waste Basics

Page Number	1
Waste Description	BROKEN LAMPS FROM VARIOUS LOCATIONS
Form of Waste Category	Inorganic Solids
Form of Waste (Regularized)	Other inorganic solids (specify in comments) - Inorganic Solids
Form of Waste	W319: Other inorganic solids (specify in comments) - Inorganic Solids
Unit of Measurement	Pounds
Waste Density	0
Waste Density Units	Pounds Per Gallon
Radioactive Waste (Yes/No)	No
Waste Source Category	Ongoing Production and Service Processes
Waste Source Type (Regularized)	Other production or service-related processes (specify in comments)
Waste Source Type	G09: Other production or service-related processes (specify in comments)
Amount Generated Current Year	310
Tons Generated Current Year	0.155
Tons Managed	0.155

Federal Waste (Yes/No)	Yes
Tons Managed Onsite	0
Tons Managed Offsite	0.155
Include in National Report	No

EPA Waste Codes for Generated Waste

(Facility #4 : PPR BENNING ROAD SES, Generated waste #1 : BROKEN LAMPS FROM VARIOUS LOCA, EPA waste code: all)

EPA Waste Code
D006: Cadmium
D008: Lead
D009: Mercury

Generated Waste Comments

Gen. Waste Comment

Generated Waste Transfers Offsite

Offsite System Type Category	Reclamation and Recovery
Offsite System Type (Regularized)	H010: Metals recovery including retorting, smelting, chemical, etc. - Recovery
Offsite System Type	H010: Metals recovery including retorting, smelting, chemical, etc. - Recovery
Offsite Handler ID	PAD987367216
Amount of Waste Shipped	310
Tons of Waste Shipped	0.155
Offsite Facility Name	AERC.COM INC
Offsite City	ALLENTOWN
Offsite State	PA
Offsite Info. Source	BRS

Total records for reporting year 2001: 1
Total Waste Tons Generated: 0.155
Total Waste Tons Managed: 0.155
Total Waste Tons Received and Managed: 0

END OF REPORT

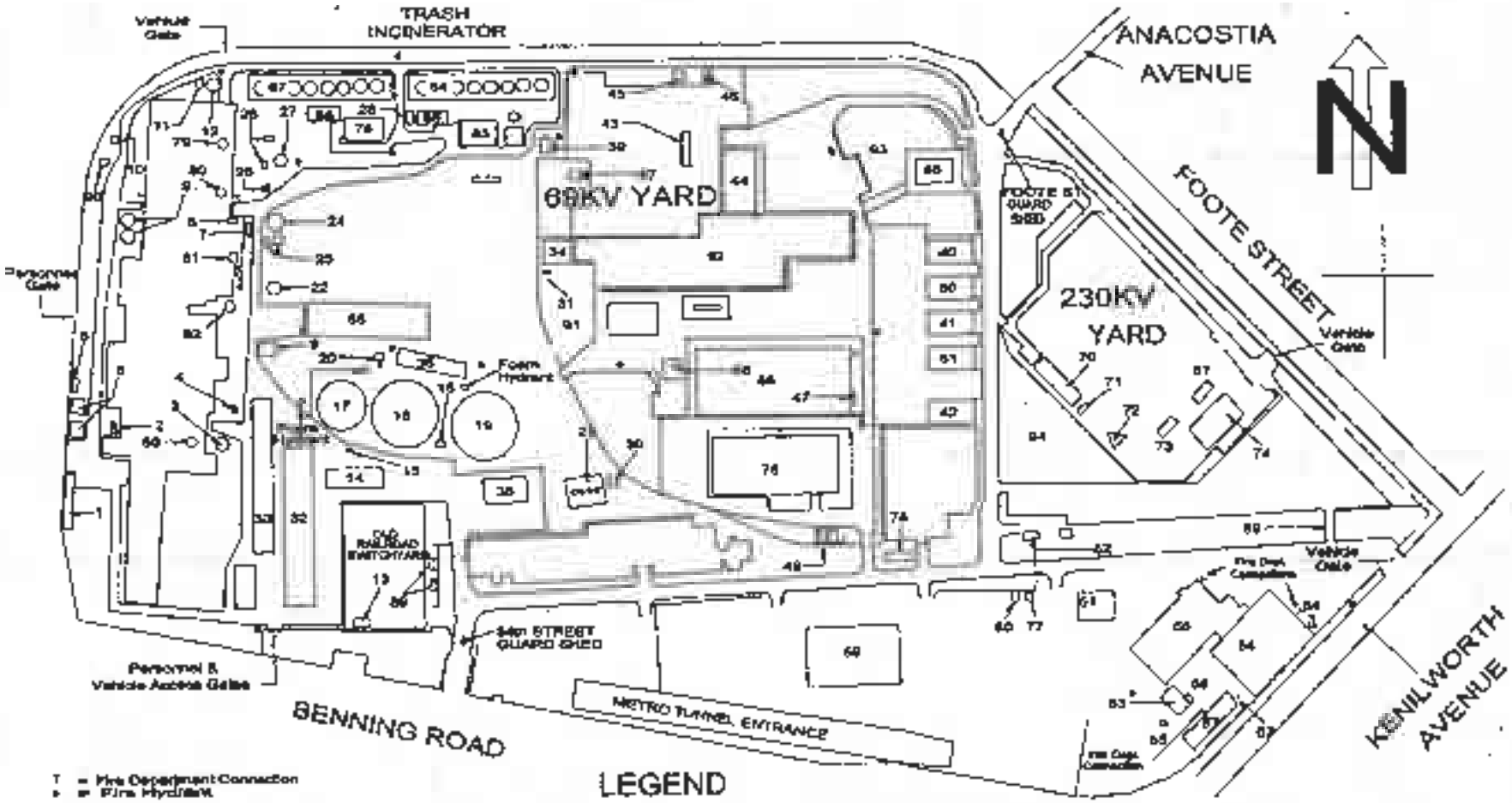
This search was done on March 8, 2016. It was compiled from government data last released on 10/27/2015. The data were obtained from the U.S. EPA's **Biennial Reporting System (part of RCRAINFO)** database (BRS).

Search Criteria Used	
EPA Facility ID	DCR000500157
Reporting Year	ALL GO
Sort Order	Default sort (by year, then handler name)
Level of Detail	Complete GO
Type of Report Output	Text (HTML) GO

Appendix D

Historic Site Figures

Pepco, undated (post-1970)



T = Fire Department Connection
▸ = Fire Hydrant

1. Screen House
2. Generator with Propane Tank
3. Distilled Water Tank
4. Propane Tank
5. Old Chlorine Building used for Office Space
6. Oil Reclaiming Pit No. 1
7. Sulfuric Acid Storage Tank
8. Caustic Storage Tank
9. Distilled Water Storage Tanks
10. Bottle Storage Building
11. Ammonia Tank
12. Demineralized Water Storage Tanks
13. Railroad Switch Yard Control House
14. Gas Pumps and Underground Tanks
15. Fuel Oil Receiving Waste Pit
16. Stewart Pipeline Oil Unloading Platform
17. No. 4 Fuel Oil Tank
18. No. 4 Fuel Oil Tank
19. No. 4 Fuel Oil Tank
20. Chemical Foam Pump House
21. No. 4 Fuel Oil Pump House
22. Clarifier Blowdown Tank
23. Regeneration Waste Tanks
24. Ash Settlement Tank
25. Liquid Nitrogen Tank
26. No. 4 Fuel Oil Recirc. Tanks
27. No. 2 Fuel Oil Tank
28. Acid Storage Tank
29. Transformer Oil Tank (Aboveground)
30. Oil Handling Station Service Shed
31. Secondary Containment Tank
32. Building 32 (Print Shop)
33. Building [redacted] (Motor Transportation Shops)
34. Hazardous Waste (RCRA) PCB Container and Non-Hazardous Waste Storage Area
35. Building [redacted] (Warehouse)
36. Building 36 (Building Office Service)
37. Oil Reclaiming Pit No. 2
38. Fire Pump House
39. Clarifier Sludge Tank and Filter Building
40. Building 40 (Warehouse)
41. Building 41 (Warehouse)
42. Building 42 (Warehouse)
43. 69 kV Control House
44. Building 44 (Stores Administrative Office)
45. Oil Pump House
46. Diesel Oil Tank and Generator
47. Oil Tank
48. Fuel Tank and Generator
49. Oil/Water Separator Facility
50. Ice House
51. Gas Pumps and Underground Tanks
52. Drying Pits
53. Oil Pumping Station
54. Building 54 (Office & Shops)
55. Propane Storage Tanks (Underground)
56. Building 56 (Substations Shops & Offices)
57. Building 57 (T&D Test Shop & Underground Waste Oil Tanks Vault)
58. Underground Transformer Oil Tank
59. Building 59 (T&D Offices)
60. Building 60 (Warehouse)
61. Building 61 (Warehouse)
62. Kerosene Storage Tank
63. Paint Building
64. Generator and Fuel Tank
65. Building 65 (Warehouse)
66. Building 66 (Warehouse)
67. Building 67 (Unit 16 Cooling Tower)
68. Building 68 (Unit 16 Pump House)
69. Pedestrian Tunnel under Railroad Tracks
70. 230 kV Control House
71. Generator and Fuel Tank
72. Meteorwave Tower
73. Oil House
74. Substation No. 7
75. Building 75 (Combined Shops)
76. Unit 15 Clarifier
77. Propane Fueling Island
78. Credit Union Trailer
79. Unit 16 Stack
80. Unit 15 Stack
81. Unit 14 Stack
82. Unit 13 Stack
83. Building 83 (Unit 16 Clarifier)
84. Building 84 (Unit 16 Cooling Tower
85. Building 85 (Unit 16 Pump House)
86. Package Boiler Stack
87. Oil Reclaiming Pit No. 3
88. Building 88 (Stores)
89. Sub. 14 Control House
90. Oil Reclaiming Pit No. 4
91. Stores Red Tag Transformer Storage Yard
92. Stores Outside Transformer Yard
93. Stores Green Tag Transformer Yard
94. Stores Outside Network & Redmount Storage Yard

Conestoga-Rovers, 2011. Decommissioning Plan – Benning Generating Facility

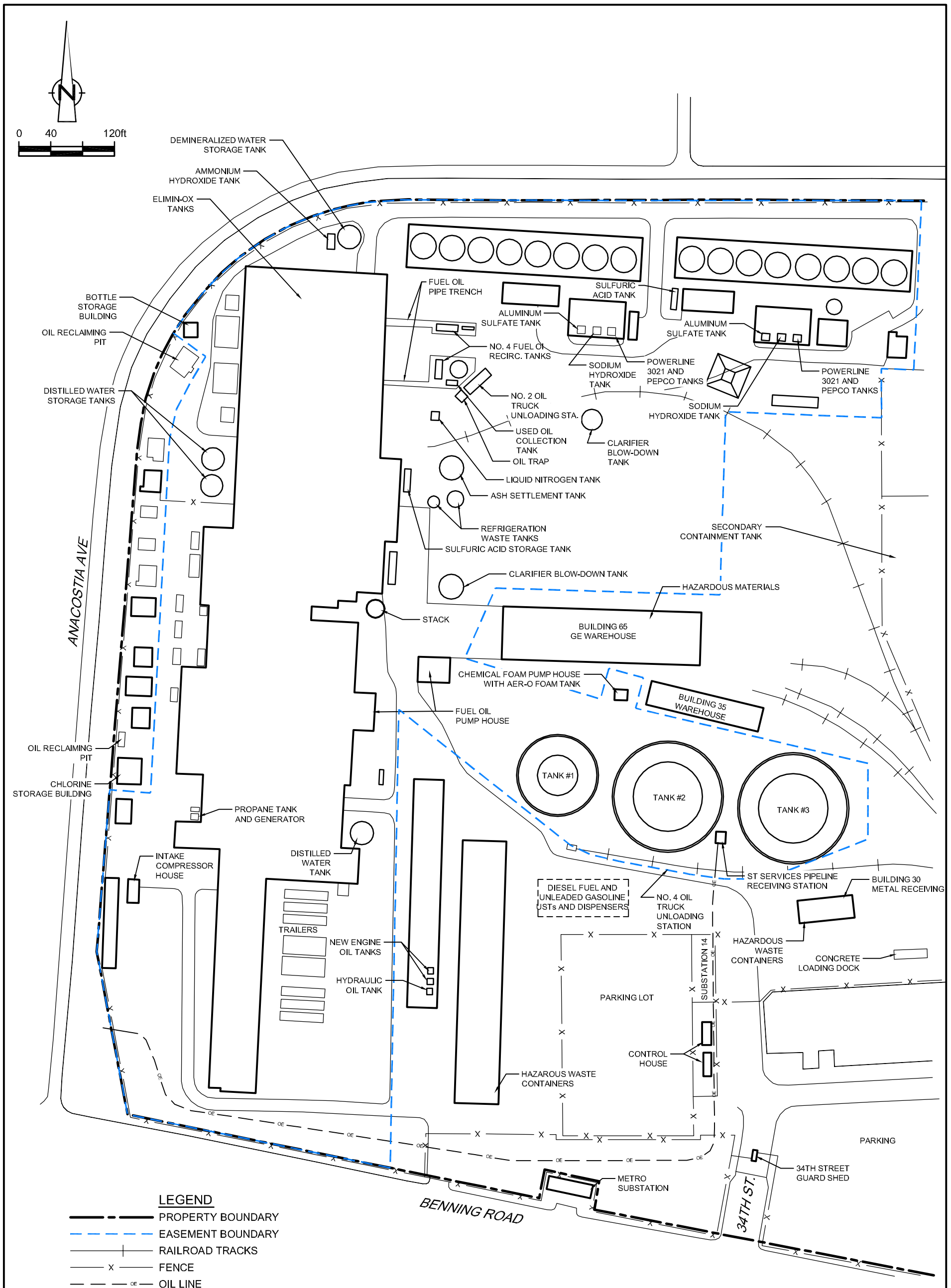
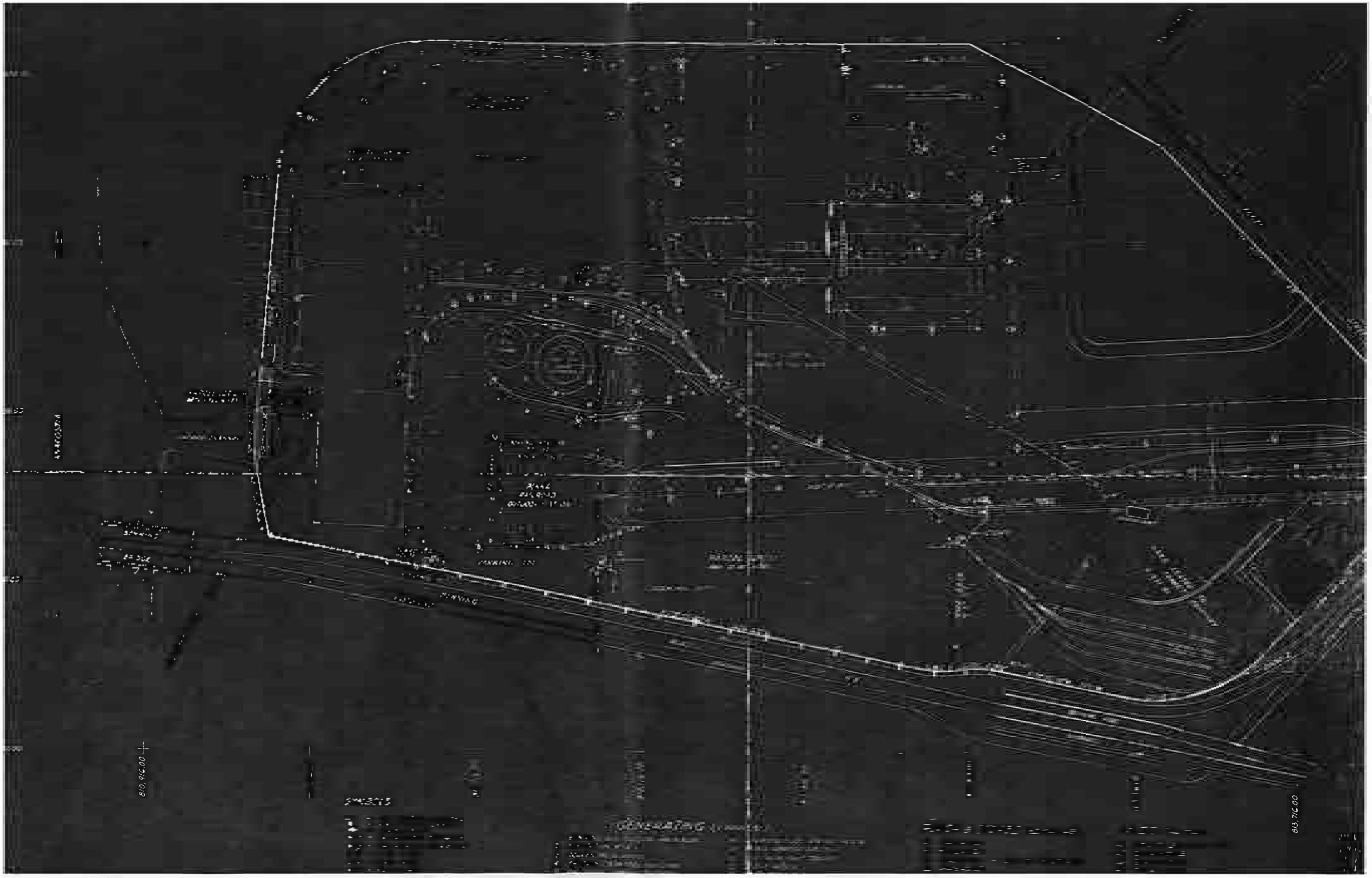


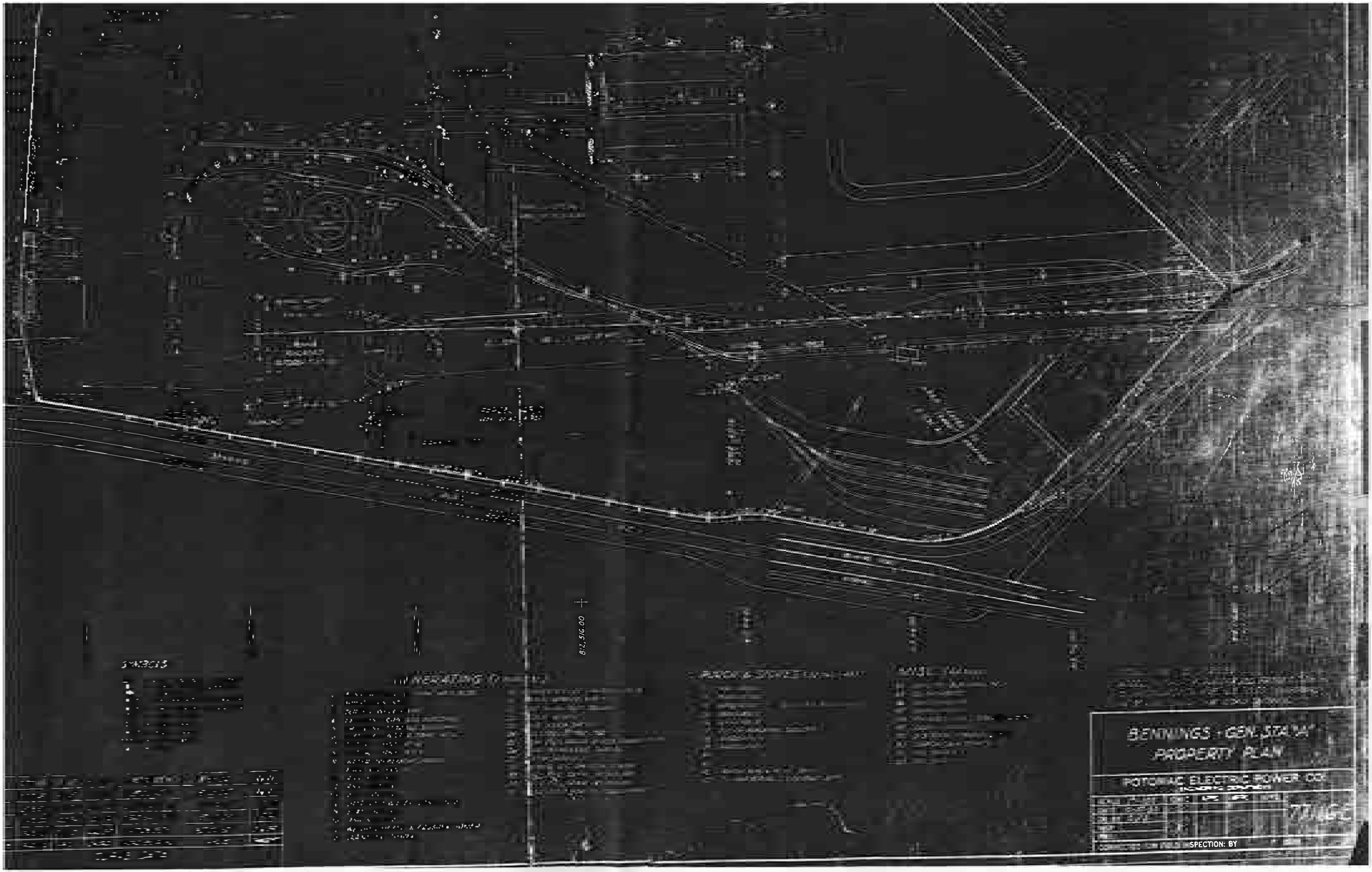
figure 3

SITE PLAN
BENNING GENERATING STATION
3400 BENNING ROAD
Washington DC

58203-03(005)GN-WA003 DEC 10/2010

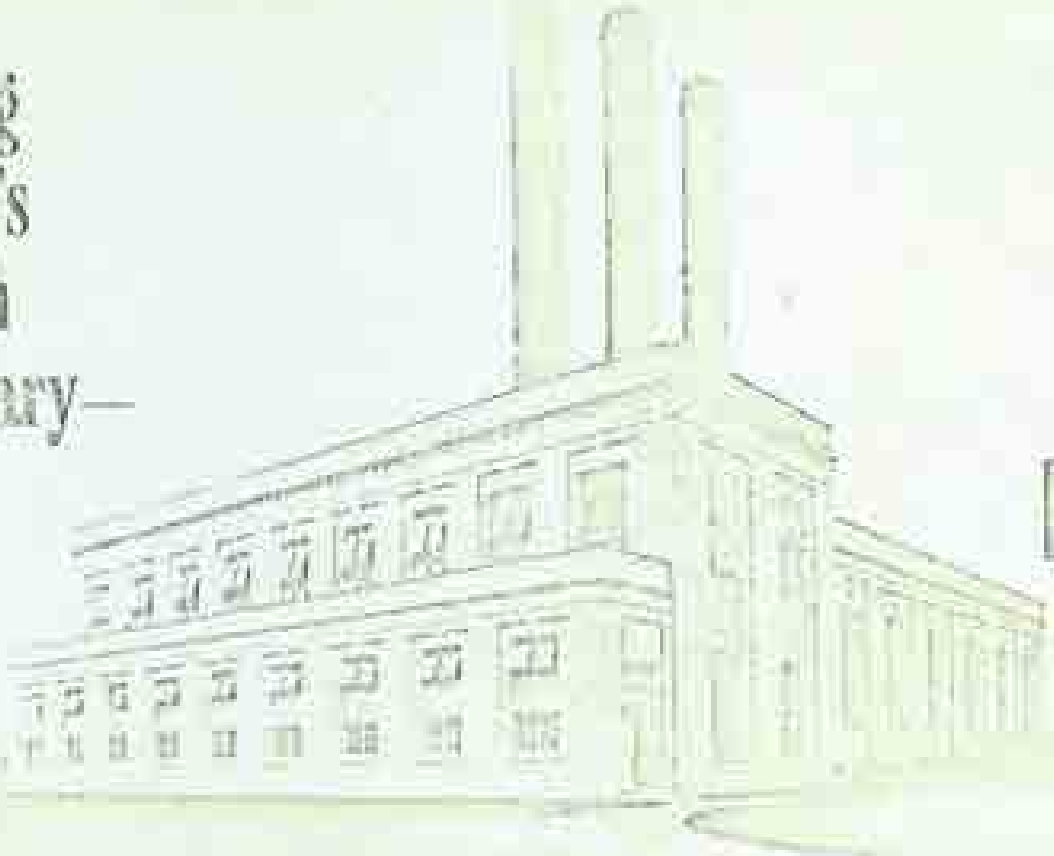


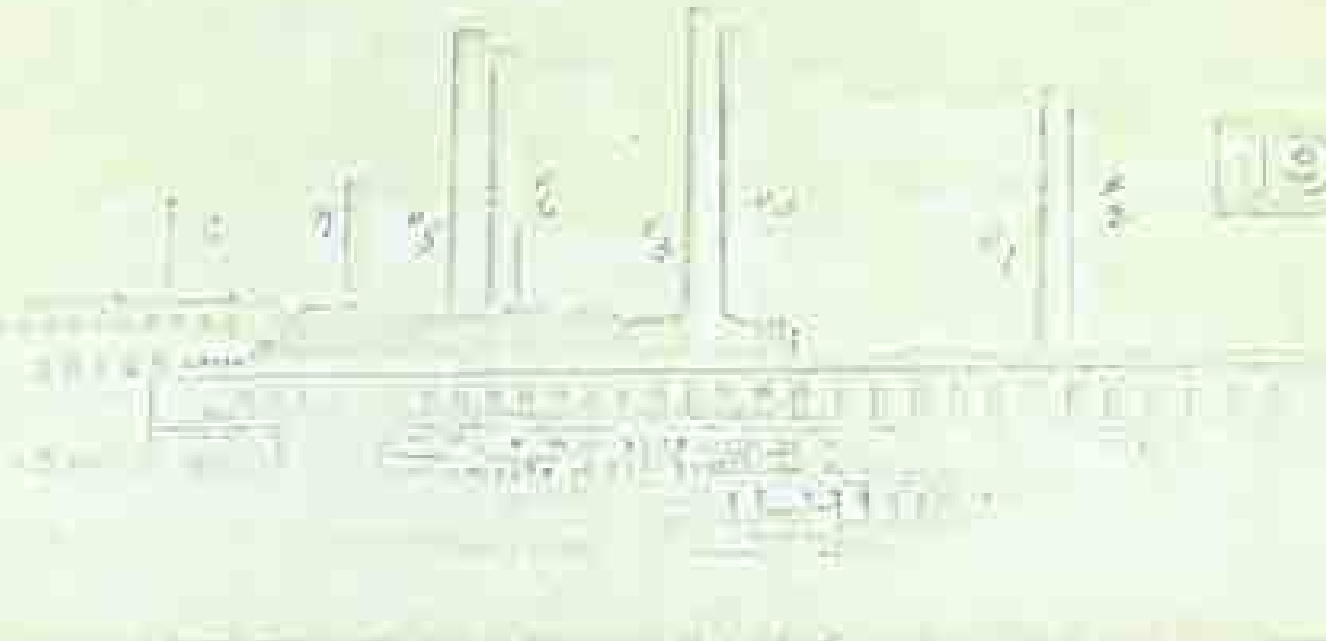
Pepco, 1950



Pepco, 1950

Deming Station's Fiftieth —Anniversary—

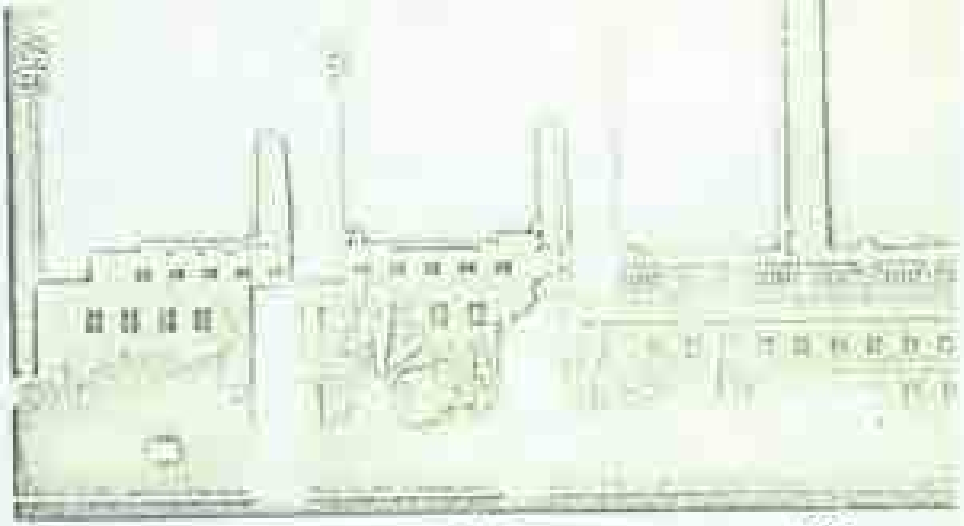




Depeniam

Volume II Number 2 December 1958

Fifty Years at Benning



1952-1956

Unit No. 14, a 33,000 kw topping unit was added in 1952 which brought Benning to its present capacity of 280,000 kilowatts. The steam pressure on No. 14 is 1,800 pounds.

1947

The 50,000-kw. Unit No. 13 was added in 1947 which raised Station A's capacity to 233,000 kilowatts. 830 pounds of steam pressure is used on Unit No. 13.

1931

Units No. 11 and 12, both 1 600-kw., were added in 1929 1931 which brought capacity 104,000 kilowatts. In 1924, tw of generation was reno which reduced the Plant's capa to 183,000 kilowatts.

IN JANUARY 1903, L. E. SINCLAIR, PEPCO's General Superintendent, addressed a recommendation to M. W. Fuller, General Manager. Mr. Sinclair wrote, "I beg to submit for your consideration the following report on the present and future power requirements.

"As you know, our lighting and railway loads are increasing very rapidly and our present power houses are running at times very heavily overloaded. We are operating at the present time four (4) steam stations, not one of which is economical; the Potomac station being in the worst condition and consequently costing more to generate power than any of the other stations. The total capacity of the four stations December 1904 was 11,000 Kw. while the peaks on the different stations added together make a total load for all stations of 13,400 Kw. which shows that some of the stations are heavily overloaded at times, while the combined peak of all stations, taken at the same time on December 19th 1904, at 5:30 P. M. was 11,000 Kw.

"At the present time we are installing one additional 2000 Kw. turbine and two (2) 450 H. P. boilers. This will give us 13,230 Kw. capacity for 1905 and at the rate of increase shown on data sheet No. 6 our peak load will be about 12,400 Kw. This with the losses would be full load for our capacity and an overload for our boilers and it will be impossible to increase the boiler capacity on account of lack of room. We, therefore, at this rate of increase would be beyond our capacity in 1906.

"I, therefore, think that some plan should be decided upon for a permanent power supply built on lines so that our power requirements can be taken care of from year to year. Our peak load for 1899 was 6,500 Kw. and the peak for 1904 was 11,200 Kw. showing an increase of 5,300 Kw. or a little over 1,000 Kw. increase per year.

"While our power requirements are not likely to increase as fast as it has in the past, yet I think we can count on an increase of from 600 to 700 Kw. per year.

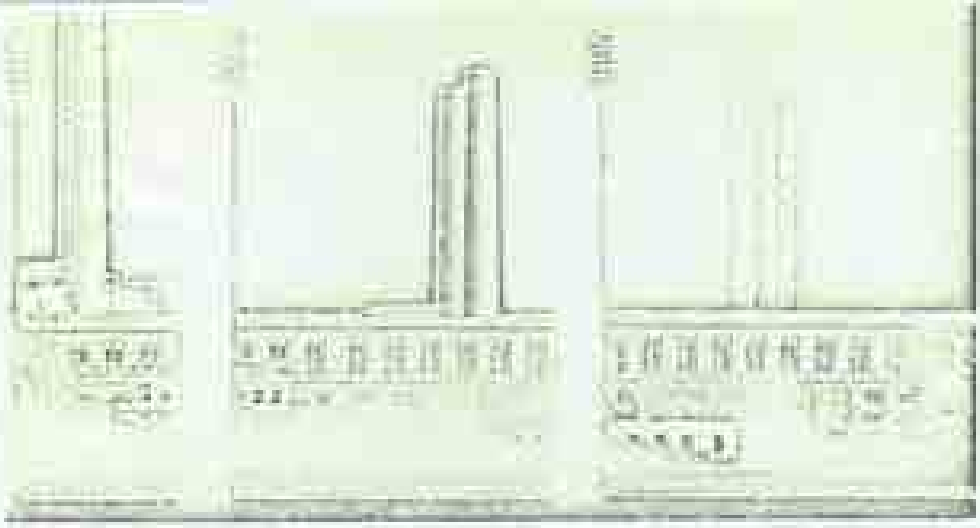
"Therefore, in order to take care of the load for 1906 and the future we should make plans for a new station to be in part operation by the fall of 1906 and to be increased from year to year.

"I herewith submit for your consideration two plans for the increasing of our power supply, either of which will lead to a permanent improvement and a large saving in cost of power. . . ."

Following this recommendation, eleven acres of land were acquired in 1906 abutting the Anacostia River at Benning Road. Construction was started in April of that year for an expansible central power plant.

A writer of those times stated, "A thin misty smoke arose from the three stacks for the first time in December, 1906 heralding the work of 2 vertical 5,000 kilowatt generating units and their accompanying boilers." Actually, only one unit was placed in operation in 1906. In 1907, two, 2,083-kilowatt units, moved from old Station B, and a second 5,000-kilowatt unit were placed in operation.

Since 1906, Benning has experienced many changes both inside and out. Perhaps the story of the growth and change at Benning is best told with the pictures on this and the following pages.



Station A and How It Grew

1927

Units Nos. 9 and 10 had been added by 1927—the 20,000 kw. No. 9 unit in 1924 and the 30,000 kw. No. 10 unit in 1927. The plant's generating capacity rose to 68,000 kilowatts in 1927. Unit No. 10 introduced 400 pounds of steam pressure to Pepco. All previous units used only 200 pounds of steam pressure.

1923

By 1923, five new units totaling 73,000 kilowatts had been installed while two units totaling 14,000 kilowatts had been removed. In 1923 the generating capacity was 59,000 kilowatts.

1906-1916

With three plants during this period, Benning's generating capacity ranged from 5,000 kilowatts to 27,000 kilowatts in 1916. These plants were removed in 1939.

The Benning Area and How It Grew

YEAR PARCEL OF LAND PURCHASED

A—1906
B—1921
C—1926
D—1929
E—1951
(Repurchased) F—1955
G—1956
H—1940

STRUCTURES ON PROPERTY AND YEAR OF CONSTRUCTION

1—Power Plant, 1906—1952
2—Substation No. 14, 1907
3—First Warehouse, 1926
4—Oil Storage Tanks, 1951, 1952
5—Utility Building, 1952
6—New Warehouses, 1951, 1952
7—Railroad Bridge, 1926

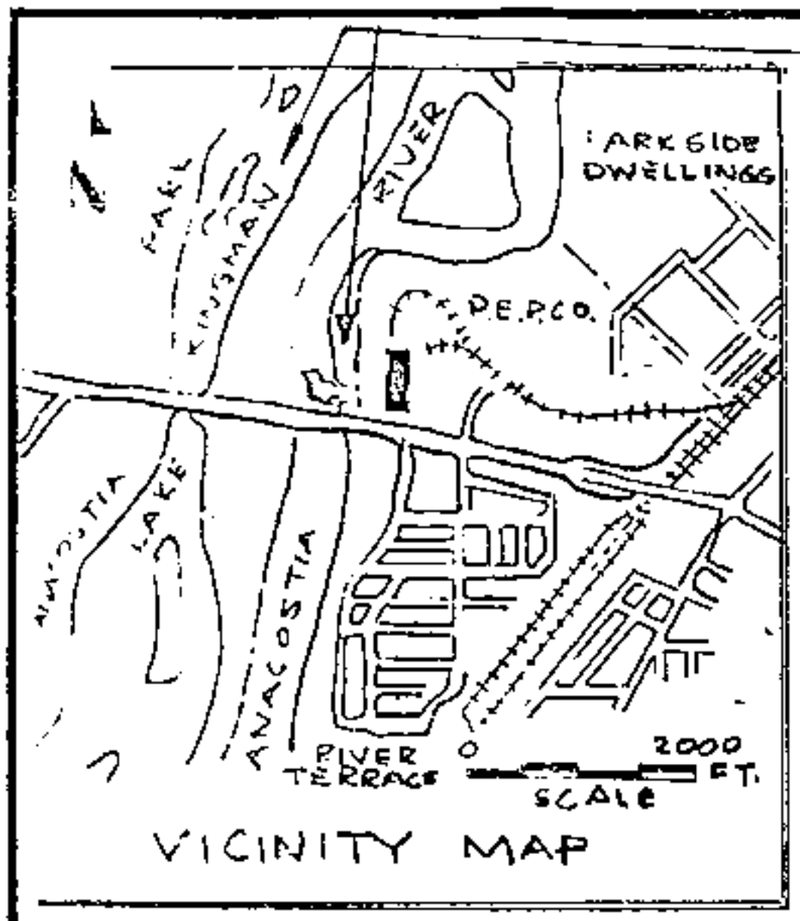
Appendix E

Proposed 1967 Dredge Spoils Area Figures

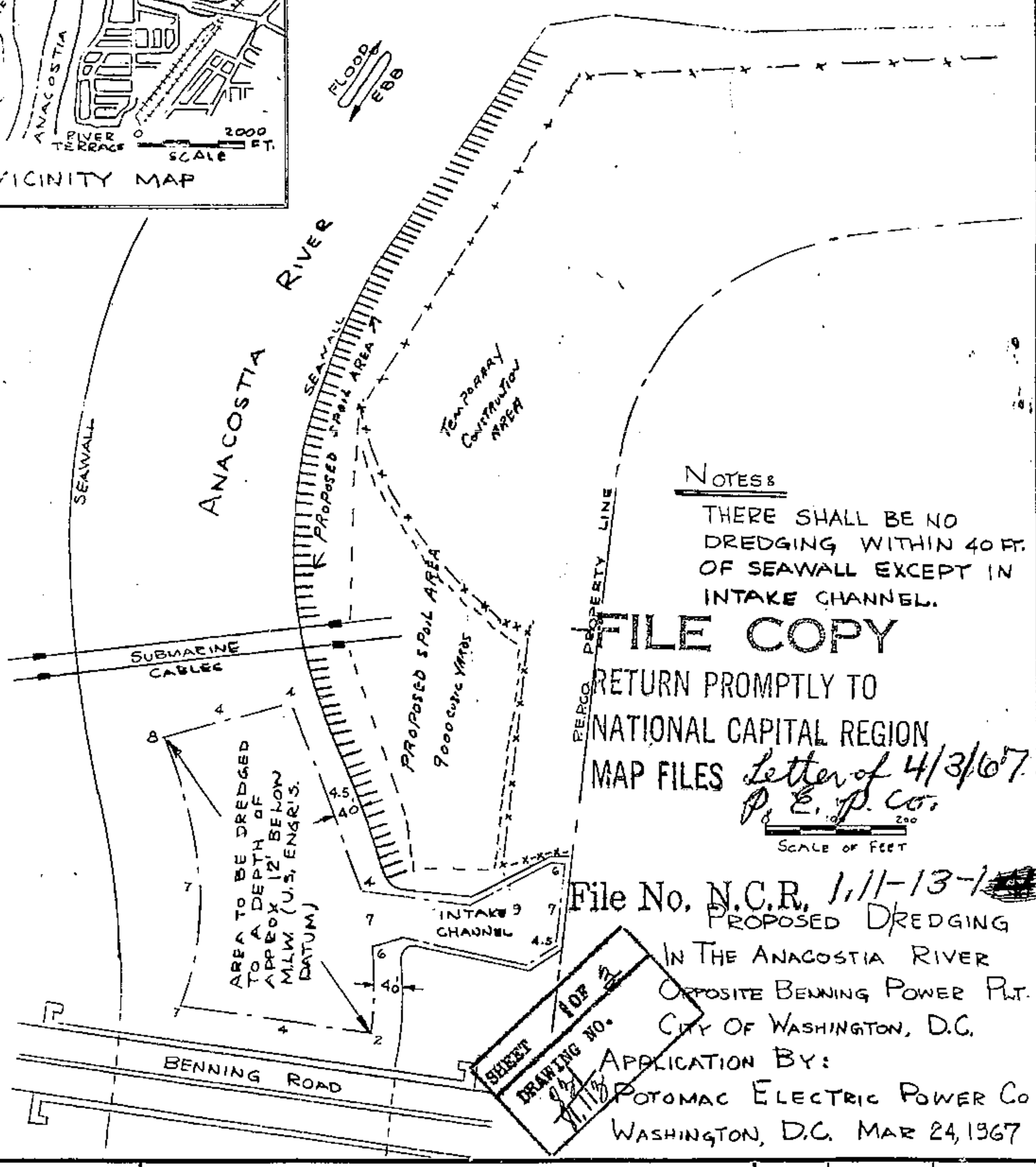
PROPOSED SPOIL AREA TO BE KINGMAN LAKE AND N.P.S. PROPERTY NEXT TO P.E.P.CO. PROPERTY

SK

APPROX. 25,000 CUBIC YARDS TO BE DREDGED.



VICINITY MAP



NOTES:

THERE SHALL BE NO DREDGING WITHIN 40 FT. OF SEAWALL EXCEPT IN INTAKE CHANNEL.

10 0 100 200
SCALE OF FEET

File No. N.C.R. 1,11-13-1

PROPOSED DREDGING
IN THE ANACOSTIA RIVER
OPPOSITE BENNING POWER PLT.
CITY OF WASHINGTON, D.C.

SHEET 1 OF 3
DRAWING NO. 9-42
11,113

APPLICATION BY:
POTOMAC ELECTRIC POWER CO
WASHINGTON, D.C. MAR 24, 1967

LOC.	PROPOSED DREDGING IN ANACOSTIA RIVER - BENNING STA.	APPD. DATE	
DR. BY		APPD. DATE	
DATE MAR 24, 67	POTOMAC ELECTRIC POWER COMPANY ENGINEERING DEPARTMENT	APPD. DATE	
SCALE			
CHKD.			

KINGMAN LAKE

TRASH FILL

ANACOSTIA RIVER

SEAWALL

FLOOD WALL

SEAWALL

PROPOSED SPOIL AREA

TEMPORARY CONSTRUCTION AREA

APPROX. 25,000 CUBIC YARDS TO BE DREDGED.

PROPOSED SPOIL AREA 9000 CU. YDS.

PEPCO PROPERTY LINE

SUBMERGED CABLES

AREA TO BE DREDGED TO A DEPTH OF APPROX. 12' BELOW M.L.W. (U.S.E.N.S.K. DAT'M)

PIPELINE TO DISPOSAL AREA TO RUN BETWEEN BENNING ROAD AND FENCE

FENCE

INTAKE CHANNEL

BENNING ROAD

N

NOTES:

THERE SHALL BE NO DREDGEING WITHIN 40 FT. OF SEAWALL EXCEPT IN INTAKE CHANNEL

0 10 20
FEET

PROPOSED DREDGING IN THE ANACOSTIA RIVER OPPOSITE BENNING POWER PLANT WASHINGTON D.C

LETTER OF 7/5/67 PEP. CO.

SCALE	1" = 200'
DRAWN BY	J.M.H.
DATE	6-29-67
CHKD. BY	
APPD. BY	

PROPOSED DREDGING IN ANACOSTIA RIVER. BENNING GENERATING STATION

POTOMAC ELECTRIC POWER COMPANY
GENERATING ENGINEERING DEPARTMENT

SHEET 4 OF 4
DRAWING NO. 831
81,113

APPLICATION BY:
POTOMAC ELECTRIC POWER CO.
WASHINGTON D. C.

File No. N.C.R. 1-11-13-[illegible]-3

Appendix F

Storm Drain Sediment Waste Characterization Results

Mid-Atlantic
Environmental Laboratories, Inc.
30 Lukens Drive, Suite A
New Castle, DE 19720
Phone: 302-654-1340 / TOLL FREE: 877-654-1340
www.maelinc.com
mael@maelinc.com

Analytical Report

Project Name:	Storm Drain Sludge
MAEL Job Number:	43035
Client:	PHI - Pepco 3400 Benning Road NE Washington, D.C. 20019-1599
Contact Name:	John Keiller
Date Received:	07/17/2015
Date Reported:	7/20/2015

ANALYTICAL REPORT

Project Name: Storm Drain Sludge

Lab Project #: 43035

Lab Sample #: 43035-1

Client Sample ID: 1a-1b-1c-1d Composite

Date Sampled: 7/16/2015 10:10 AM

Sampled By: KAnders

Sample Matrix: Soil

Sample Type: Grab

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
Oil and Grease - Non-aqueous								
Oil & Grease	- - - - -	878		mg/kg	1664A	1.00	GH A	7/20/2015 4:50 PM
PCBs - Non-aqueous								
PCB-1016	12674-11-2	0.153		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1260	11096-82-5	0.483		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
Percent Moisture/Percent Solid								
Total Moisture		15.1		%	2540B	0.10	W W	7/20/2015 11:35 AM
TCLP Mercury								
Mercury	7439-97-6	ND		mg/L	1311/7470A	0.001	K S	7/20/2015 2:08 PM
TCLP Metals								
Arsenic	7440-38-2	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Barium	7440-39-3	0.37		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Cadmium	7440-43-9	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Chromium	7440-47-3	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Lead	7439-92-1	4.61		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Selenium	7782-49-2	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Silver	7440-22-4	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM

ANALYTICAL REPORT

Project Name: Storm Drain Sludge

Lab Project #: 43035

Lab Sample #: 43035-1

Client Sample ID: 1a-1b-1c-1d Composite

Date Sampled: 7/16/2015 10:10 AM

Sampled By: KAnders

Sample Matrix: Soil

Sample Type: Grab

Akhter Mehmood
Lab Director

Wayne Wells II
QAQC Director

ANALYTICAL REPORT

Methodology

All analyses are adapted from one or more of the following reference methods:

"Guidelines Establishing Test Procedures for the Analysis of Pollutants"' Code of Federal Regulations, Vol. 40, Part 136

"Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.

Code of Federal Regulations Vol. 40, Part 261, "Appendix II Method 1311 Toxicity Characteristic Leaching Procedure."

Standard Methods for the Examination of Water and Wastewater", 18th & 21st editions

"Methods for the Chemical Analysis of Water and Wastes", EPA600/4-79-020, March 1983, U.S. EPA, EMSL

"Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM)

"Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988

Qualifiers

B	Detected in method blank	E	Detected above calibration limits, result estimated
H	Parameter run out of hold time	J	Detected below PQL, result estimated
P	Incorrect Preservative	R	See report notes
SUB	Sub-Contracted to Certified Lab	N	Not NELAP/TNI certified for parameter

Abbreviations

ppm	Parts Per Million (mg/kg or mg/L)	PQL	Practical Quantitation Level
ppb	Parts Per Billion (ug/kg or ug/L)	attached	Subcontract Lab Report Attached
g	gram (1000 g = 1Kg)	ND	Not Detected
kg	kilogram (1 kg = 1000 g)	NA	Not Applicable
mg	milligram (1000 mg = 1 g)	NS	Not Spiked
mg/kg	milligram per kilogram (ppm)	NP	No PCB pattern detected
ug/kg	microgram per kilogram (ppb)	NR	Not Requested
ug	microgram (1000 ug = 1 mg)	NI	Not Ignitable
L	liter (1 L = 1000 mL)	NFL	No Free Liquid
ml	milliliter (1000 ml = 1 L)	NTU	Nephelometric Turbidity Units
ul	microliter (1000 ul = 1 ml)	S.U.	Standard Unit
mg/L	milligram per liter (ppm)	RPD	Relative Percent Difference
ug/L	microgram per liter (ppb)	RSD	Relative Standard Deviation
ng/kg	nanogram per kilogram	MS/MSD	Matrix Spike/Matrix Spike Duplicate
BTU/lb	British Thermal Units per pound	LCS	Laboratory Control Sample
CFU/mL	Colony Forming Units per milliliter	BS	Blank Spike (Method Spike)
MPN/100 ml	Most Probable Number per 100 mL	o F	degrees Fahrenheit
mS/cm	milli Siemans per centimeter	o C	degrees Celsius
uS/cm	micro Siemans per centimeter	umhos	Conductivity Units
ug/sq cm	microgram per square centimeter	ohms	Resistivity Units
ug/sq ft	microgram per square feet	RL	Reporting Limit
ug/wipe	microgram per wipe		

Note: All non-aqueous samples, with the exception of oils, wipes, and paint chips are dry weight corrected

PQL-The Practical Quantitation Limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

RL-Reporting Limit is greater than or equal to PQL.

Mid-Atlantic Environmental Lab

43035

CHAIN OF COUSTODY

* Consolidate

Client Name: Pepco Holdings, Inc. - 3400 Benning Rd, Washington DC	Invoice To: Pepco Holdings, Inc.	Sample On Ice: ☒ Yes ☐ No
Address: 3400 Benning Road NE	Purchase Order #:	Sample Disposal: ☐ Client ☒ MAEL
	Project Name: Storm Drain Sludge	Site Location: ☐ NJ ☐ PA ☐ DE ☐ MD ☒ Other DC
City, State, Zip: Washington, DC	Bottle Order # Quote #	
Contact Name: Tim Dinsmore		
Phone #: 202-388-2429 Office, 240-[illegible] Cell		
Fax #:		
E-mail: tbdinsmore@pepco.com		
Remarks:		

Data Format Requested: ☒ Results Only ☐ QC Package ☐ NJDEP - Reduced ☐ NJDEP - Full ☐ MDE ☐ Excel Summary

Report Format: ☐ Fax ☒ E-mail PDF ☐ Portal Posting Only

Regulatory Program: ☐ CLRBCAP ☐ PA UST ☐ PA Clean Fill ☐ PA ACT ☐ NJ SWQS ☐ NJ SRP ☐ Site Specific ☐ NJ UST ☐ Other (Specify): TSCA ☐ Non-regulatory

Turn Around Time: ☐ <24 Hours (Same Day) ☒ 24 Hours (Next Day) ☐ 48 Hours (2 Days) ☐ 72 Hours (3 Days) ☐ 96 Hours (4 Days) ☐ Standard (1 Week) ☐ 2 Weeks ☐ Other - Specify

Laboratory Sample #	Client Sample ID	Date	Time	AM/PM	Sampled By	Grab	Comp	Matrix	# Cntrs	PCBs 1005	TCLP Metals	Oil + Grease	[struck through]	HTFX	Ignitability and Corrosivity	Reactive - Cyanide and Sulfide	TCLP Volatile Organics	Semi Volatile Organics	Herbicides and Pesticides
[redacted]	1A	7-16-15	10:04	AM	K. Anderson	X				☒	☒	☒	☒	☐	☐	☐	☐	☐	☐
	1B	7-16-15	10:07	AM	Anderson	X				☒	☒	☒	☒	☐	☐	☐	☐	☐	☐
	1C	7-16-15	10:09	AM	Anderson	X				☒	☒	☒	☒	☐	☐	☐	☐	☐	☐
	1D	7-16-15	10:[illegible]	AM	Anderson	X				☒	☒	☒	☒	☐	☐	☐	☐	☐	☐

Bottles Supplied By MAEL? Yes No   Logged By [signature] 7/17/15   QA Reviewed   Page 1 of 1

Relinquished By	Date	Time	Received By	Date	Time
[signature]	7/17	12:44pm	[signature]	7/17/15	12:44pm
Relinquished By	Date	Time	Received By	Date	Time

[illegible fine print]

Mid-Atlantic

Environmental Laboratories, Inc.

30 Lukens Drive, Suite A
New Castle, DE 19720
Phone: 302-654-1340 / TOLL FREE: 877-654-1340
www.maelinc.com
mael@maelinc.com

Analytical Report

Project Name:	Storm Drain Sludge
MAEL Job Number:	43035
Client:	PHI - Pepco 3400 Benning Road NE Washington, D.C. 20019-1599
Contact Name:	Tim Dinsmore
Date Received:	07/17/2015
Date Reported:	7/24/2015

ANALYTICAL REPORT

Project Name: Storm Drain Sludge

Lab Project #: 43035

Lab Sample #: 43035-1

Client Sample ID: 1a-1b-1c-1d Composite

Date Sampled: 7/16/2015 10:10 AM

Sampled By: KAnders

Sample Matrix: Soil

Sample Type: Grab

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
Metals (RCRA w/ Cu, Ni, Zn) - non-aqueous								
Arsenic	7440-38-2	3.29		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Barium	7440-39-3	37.7		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Cadmium	7440-43-9	1.35		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Chromium	7440-47-3	27.0		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Copper	7440-50-8	168		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Lead	7439-92-1	2010		mg/kg	6010B	5.00	K S	7/24/2015 2:48 PM
Nickel	7440-02-0	41.3		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Selenium	7782-49-2	ND		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Silver	7440-22-4	ND		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Zinc	7440-66-6	161		mg/kg	6010B	0.50	K S	7/24/2015 2:48 PM
Oil and Grease - Non-aqueous								
Oil & Grease	- - - - -	878		mg/kg	1664A	1.00	GH A	7/20/2015 4:50 PM
PCBs - Non-aqueous								
PCB-1016	12674-11-2	0.153		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1260	11096-82-5	0.483		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	S M	7/20/2015 5:38 PM
Percent Moisture/Percent Solid								
Total Moisture		15.1		%	2540B	0.10	W W	7/20/2015 11:35 AM
TCLP Mercury								
Mercury	7439-97-6	ND		mg/L	1311/7470A	0.001	K S	7/20/2015 2:08 PM
TCLP Metals								
Arsenic	7440-38-2	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM

ANALYTICAL REPORT

Project Name: Storm Drain Sludge

Lab Project #: 43035

Lab Sample #: 43035-1

Client Sample ID: 1a-1b-1c-1d Composite

Date Sampled: 7/16/2015 10:10 AM

Sampled By: KAnders

Sample Matrix: Soil

Sample Type: Grab

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
TCLP Metals								
Barium	7440-39-3	0.37		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Cadmium	7440-43-9	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Chromium	7440-47-3	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Lead	7439-92-1	4.61		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Selenium	7782-49-2	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM
Silver	7440-22-4	ND		mg/L	1311/6010B	0.05	K S	7/20/2015 3:44 PM

Akhter Mehmood
Lab Director

Wayne Wells II
QAQC Director

ANALYTICAL REPORT

Methodology

All analyses are adapted from one or more of the following reference methods:

"Guidelines Establishing Test Procedures for the Analysis of Pollutants"' Code of Federal Regulations, Vol. 40, Part 136

"Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.

Code of Federal Regulations Vol. 40, Part 261, "Appendix II Method 1311 Toxicity Characteristic Leaching Procedure."

Standard Methods for the Examination of Water and Wastewater", 18th & 21st editions

"Methods for the Chemical Analysis of Water and Wastes", EPA600/4-79-020, March 1983, U.S. EPA, EMSL

"Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM)

"Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988

Qualifiers

B	Detected in method blank	E	Detected above calibration limits, result estimated
H	Parameter run out of hold time	J	Detected below PQL, result estimated
P	Incorrect Preservative	R	See report notes
SUB	Sub-Contracted to Certified Lab	N	Not NELAP/TNI certified for parameter
C	NELAP/TNI certification Not Available		

Abbreviations

ppm	Parts Per Million (mg/kg or mg/L)	PQL	Practical Quantitation Level
ppb	Parts Per Billion (ug/kg or ug/L)	attached	Subcontract Lab Report Attached
g	gram (1000 g = 1Kg)	ND	Not Detected
kg	kilogram (1 kg = 1000 g)	NA	Not Applicable
mg	milligram (1000 mg = 1 g)	NS	Not Spiked
mg/kg	milligram per kilogram (ppm)	NP	No PCB pattern detected
ug/kg	microgram per kilogram (ppb)	NR	Not Requested
ug	microgram (1000 ug = 1 mg)	NI	Not Ignitable
L	liter (1 L = 1000 mL)	NFL	No Free Liquid
ml	milliliter (1000 ml = 1 L)	NTU	Nephelometric Turbidity Units
ul	microliter (1000 ul = 1 ml)	S.U.	Standard Unit
mg/L	milligram per liter (ppm)	RPD	Relative Percent Difference
ug/L	microgram per liter (ppb)	RSD	Relative Standard Deviation
ng/kg	nanogram per kilogram	MS/MSD	Matrix Spike/Matrix Spike Duplicate
BTU/lb	British Thermal Units per pound	LCS	Laboratory Control Sample
CFU/mL	Colony Forming Units per milliliter	BS	Blank Spike (Method Spike)
MPN/100 ml	Most Probable Number per 100 mL	o F	degrees Fahrenheit
mS/cm	milli Siemans per centimeter	o C	degrees Celsius
uS/cm	micro Siemans per centimeter	umhos	Conductivity Units
ug/sq cm	microgram per square centimeter	ohms	Resistivity Units
ug/sq ft	microgram per square feet	RL	Reporting Limit
ug/wipe	microgram per wipe	P/N	Positive / Negative

Note: All non-aqueous samples, with the exception of oils, wipes, and paint chips are dry weight corrected

PQL-The Practical Quantitation Limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

RL-Reporting Limit is greater than or equal to PQL.

Mid-Atlantic Environmental Ltd

413835

CHAIN OF CUSTODY

* Consolidate

Client Name: Pepco Holdings, Inc. - 3400 Benning Rd. Washington DC	Invoice To: Pepco Holdings, Inc. -	Sample On Ice: ☒ Yes ☐ No Sample Disposal: ☐ Client ☒ MAEL	Data Format Requested: ☒ Results Only ☐ QC Package ☐ NJPDES + Haztrax ☐ NJPDES + Raptor ☐ MDE ☐ Excel Summary Report Format: ☐ Fax ☒ E-mail PDF ☐ Portal Posting Only
Address: 3400 Benning Road NE	Purchase Order #		
City, State, Zip: Washington, DC	Project Name: Storm Drain Sludge Bottle Order # Quote #	Site Location: ☐ NJ ☐ PA ☐ DE ☐ MD ☒ Other DC	
Contact Name: Tim Densmore	Regulatory Program: ☐ DERBCAP ☐ PA UST ☐ PA Clean Fill ☐ PA ACT 2 ☐ NJPDES ☐ NJ SRP ☐ Site Specific ☐ NJ UST ☐ Other (Specify): TSCA ☐ Non-regulatory	Turn Around Time: ☐ <24 Hours (Same Day) ☒ 24 Hours (Next Day) ☐ 48 Hours (2 Days) ☐ 72 Hours (3 Days) ☐ 96 Hours (4 Days) ☐ Standard (7 Work) ☐ 2 Weeks ☐ Other - Specify	
Phone # 202-388-2429 Office 240-527-4197 Cell			
Fax #			
E-mail: tbdensmore@pepco.com			
Remarks			

Laboratory Sample #	Client Sample ID	Sampling Info Date	Time	AM PM	Sampled By	Sample Type Grab	Comp	Matrix	# Cntrs	Analysis Requested: PCBs 608	TCLP Metals	Oil + Grease	Solids	BTEX/MTBE	Ignitability and Corrosivity	Reactivity - Cyanide and Sulfide	TCLP Volatile Organics	Semi Volatile Organics	Herbicides and Pesticides
[redacted]	1A	7-16-15	10:04	AM	[redacted]	X													
	1B	7-16-15	10:03	AM	[redacted]	X													
	1C	7-16-15	10:09	AM	[redacted]	X													
	1D	7-16-15	10:12	AM	[redacted]	X													

Bottles Supplied By MAEL? Yes No | Logged By: [redacted] 7/17/15 | QA Reviewed: | Page 1 of

Relinquished By	Date	Time	Received By	Date	Time
[redacted]	7/17	12:44pm	[redacted]	7/17/15	12:44pm
Relinquished By	Date	Time	Received By	Date	Time