



REMEDIAL INVESTIGATION AND FEASIBILITY STUDY SCOPE OF WORK (FINAL)

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WASHINGTON, DC 20019

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Benning Road Facility
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List of Acronyms

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIP	Community Involvement Plan
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DDOE	District Department of the Environment
DPW	Department of Public Works
DQO	Data Quality Objective
ERA	Environmental Risk Assessment
FS	Feasibility Study
FSP	Field Sampling Plan
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
NPS	National Park Service
NRDA	Natural Resource Damage Assessment
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PRG	Preliminary Remedial Goal
PCB	Polychlorinated Biphenyl
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objectives
RBSL	Risk-Based Screening Level
RI/FS	Remedial Investigation/Feasibility Study
SAP	Sampling and Analysis Plan
SLHHRA	Screening-Level Human Health Risk Assessment
SOW	Scope of Work
SVOC	Semi-Volatile Organic Compound
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

Introduction

AECOM has prepared this Scope of Work (SOW) on behalf of Potomac Electric Power Company and Pepco Energy Services, Inc. (collectively “Pepco”) to describe the specific tasks to be undertaken in the performance of a Remedial Investigation and Feasibility Study (RI/FS) at Pepco’s Benning Road facility (the Site), located at 3400 Benning Road NE, Washington, D.C., and a segment of the Anacostia River adjacent to the Site. Together, the Site and the adjacent segment of the River are referred to herein as the “Study Area”. Pepco has agreed to perform the RI/FS pursuant to a consent decree that was entered by the U.S. District Court for the District of Columbia on December 1, 2011 (the Consent Decree). The Consent Decree documents an agreement between Pepco and the District of Columbia (District) which is part of the District’s larger effort to address contamination in and along the lower Anacostia River.

The 77-acre Site is bordered by the District Department of Public Works (DPW) 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 Rd.). The general Site location is shown in **Figure 1**. A detailed Site map is provided as **Figure 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, D.C., area. The Service Center accommodates more than 700 Pepco employees responsible for maintenance and construction of Pepco’s electric transmission and distribution system; system engineering; vehicle fleet maintenance and refueling; and central warehousing for materials, supplies and equipment. The Site is also the location of the Benning Road Power Plant, which is scheduled to be shut down in 2012.

The Site is one of several properties along the Anacostia River that are suspected sources of contamination. There have been five instances since 1985 in which materials containing polychlorinated biphenyls (PCBs) were released at the Site. 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 river. In particular, a site inspection conducted for the U.S. Environmental Protection Agency (USEPA) in 2009 linked polycyclic aromatic hydrocarbons (PAH), PCBs, and inorganic constituents detected in Anacostia River sediments to potential historical discharges from the Site. The site inspection contractor also stated that currently the Site is properly managed and that any spills or leaks of hazardous substances are quickly addressed and, if necessary, properly remediated. The RI will evaluate all spills at the Site as necessary.

The purpose of the RI/FS described herein is to (a) characterize environmental conditions within the Study Area, (b) investigate whether and to what extent past or current conditions at the Site have caused or contributed to contamination of the river, (c) assess current and potential risk to human health and environment posed by conditions within the Study Area, and (d) develop and evaluate potential remedial actions. As described below, the Study Area consists of a “landside” component which will focus on the Site itself, and a “waterside” component that will focus on the shoreline and sediments in the segment of the river adjacent to and immediately downstream of the Site. At the request of DDOE, Pepco has agreed to expand the waterside area of investigation approximately 500 feet further downstream of the area specified in the RI/FS Scope of Work Outline that defines Pepco’s obligations under the Consent Decree (see **Appendix A**). The landside and waterside areas of investigation are depicted in **Figure 2**. The areas of investigation may be further adjusted or expanded during the course of the RI as warranted based on the findings of the investigation.

The RI/FS will be overseen by the District Department of the Environment (DDOE) and will be performed in accordance with USEPA’s *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Office of Solid Waste and Emergency Response (OWSER) Directive 9355.3-01*, dated October 1988, and other applicable USEPA and DDOE guidance documents. This Scope of Work describes the specific tasks to be performed as part of the RI/FS. As provided in the Consent Decree, upon approval of the Scope of Work by DDOE (after consideration of public comments), Pepco will prepare an RI/FS Work Plan that will describe the specific manner in which the various RI/FS tasks will be performed, including the specific sampling methodology and the location of sampling points, and the framework and criteria for analyzing sampling data and evaluating potential remedial options.

DDOE will use the results of the RI/FS to determine whether and to what extent remedial action is warranted and to select appropriate remedial actions.

This RI/FS SOW consists of the following four specific tasks:

- Task 1 – Community Relations
- Task 2 – Scoping and Preparation of Work Plans
- Task 3 – Remedial Investigation
- Task 4 – Feasibility Study

Each of these tasks is described further in the following sections.

TASK 1: Community Relations

1.1 Development and Implementation of Community Involvement Plan

Pepco will prepare a Community Involvement Plan (CIP) for review and approval by DDOE. The CIP will identify issues of potential community concern regarding the ongoing environmental activities being performed in and around the Study Area, and will outline community involvement activities to be undertaken. The plan will provide the framework for communicating information to the public about the RI/FS, and shall incorporate procedures for ensuring that members of the public are provided the opportunity to review and comment on the following deliverables for at least 30 days prior to final approval by DDOE: (a) this Scope of Work ; (b) the Community Involvement Plan; (c) the RI/FS Work Plan; (d) the Conceptual Site Model; (e) the Field Sampling Plan; (f) the Quality Assurance Project Plan; (g) the Health and Safety Plan; (h) the Remedial Investigation Report, and (i) the Feasibility Study Report. An outline of the CIP is provided in **Appendix B**.

1.2 Support the Administrative Record

Pepco will support DDOE's efforts to compile and maintain the administrative record for the RI/FS work, and to make the record available to the public. Pepco will provide deliverables required in the format and number requested by DDOE for that purpose.

TASK 2: Scoping and Preparation of Work Plans

Scoping is the initial planning process for the RI/FS and it is continued and refined throughout the RI/FS project. The RI/FS planning process will include the following activities:

- Review of Existing Data and Development of Conceptual Site Model (CSM)
- Planning the Scope of Investigation
- Preparation of Work Plans
- Regulatory Review and Public Comment

These activities are further described in the following paragraphs.

2.1 Review of Existing Data and Development of Conceptual Site Model

Pepco will gather and analyze existing available data and information regarding past and present environmental conditions at the Site and in the adjacent segment of the Anacostia River, including results from previous investigations and sampling events and information regarding handling and disposal of waste or hazardous substances at the Site. This information will be used to identify additional data needs and to develop a preliminary range of potential remedial alternatives. A preliminary list of documents to be analyzed is presented in **Table 1**. This list will be revised/updated as additional information becomes available.

Information obtained from the data reviews regarding contaminant sources, pathways, and receptors will be used to develop a preliminary Conceptual Site Model (CSM) of the Study Area to evaluate potential risks to human health and the environment. The CSM will identify sources of contamination, affected media, routes of migration, human and environmental receptors, and potential routes of exposure after accounting for the existing institutional, administrative and engineering controls (e.g., 24-hour controlled Site access, paved surfaces and employee hazard communication training program) that may eliminate or control exposures to on-site and off-site receptors. The CSM is useful in identifying further sampling needs and potential remedial technologies to mitigate any identified risks. A preliminary CSM will be included in the RI/FS Work Plan. The CSM will be updated as more data becomes available through the RI/FS activities.

2.2 Planning Scope of Investigation

The field investigation will be designed to characterize conditions in soil, groundwater, surface water, hydric soils in wetlands, and sediment, further refine the CSM, and collect data to support risk assessment and Natural Resource Damage Assessment (NRDA). Specific data gaps identified during the review of existing data will be used to guide the scope of the investigation. In general, the investigation will include the following elements:

- A landside investigation of the Site and select adjacent properties to which access is provided (e.g., the District DPW Solid Waste Transfer Station and NPS Kenilworth Maintenance Yard) will address existing landside soil and groundwater conditions, and their effects on the Anacostia River.
- A waterside Investigation will primarily address sediment conditions within a segment of the Anacostia River adjacent to the Site. As specified in the Scope of Work Outline at **Appendix A**, the waterside area of investigation originally consisted of an approximately 10-15 acre portion of the Anacostia River along 2,500 linear feet of the river, approximately 1,500 linear feet to the south and 1,000 linear feet to the north of the Site's main storm water outfall, with the Benning Road Bridge as the approximate southern boundary of the study area. At the request of DDOE, Pepco has agreed to expand the waterside area of investigation approximately 500 feet further downstream to include the location of sediment sampling point PB-SD-04, where a sample was collected by USEPA as part of its 2009 site inspection. The original and expanded waterside areas of investigation are shown on **Figure 2**.
- Additional sampling outside of the Study Area delineated on **Figure 2** will be planned as may be warranted by the results of initial investigation activities.
- The investigation will focus on PAHs, PCBs, and metals, with limited screening samples for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and dioxins/furans based on knowledge of past operations.

2.3 Preparation of Work Plans

2.3.1 RI/FS Work Plan

Upon completion of the scoping process, Pepco will prepare an overall RI/FS Work Plan for submittal to DDOE. The Work Plan will describe the overall technical approach for the RI/FS. It will include a description and analysis of data from previous investigations and remedial actions at the Site and a description of the preliminary CSM based on information on contaminant sources, pathways and receptors at the Site. The Work Plan will describe the data gaps to be addressed by the RI and include a comprehensive description of the work to be performed, the media to be investigated (e.g., surface water, ground water, soil, sediments, hydric soils in wetlands, etc.), and the methodology to be utilized, and shall describe the project management approach, communication procedures including progress reporting to DDOE, and permit requirements. The Work Plan also will identify each major deliverable and will include a comprehensive schedule for completion of each major activity. An outline of the Work Plan is included as **Appendix C**.

2.3.2 Sampling and Analysis Plan

A Sampling and Analysis Plan (SAP) will be prepared in conjunction with the RI/FS Work Plan. The SAP consists of two parts: (a) a Field Sampling Plan (FSP) that provides detailed guidance for all field work by defining in detail the sampling locations and the sampling and data gathering methods to be used; and (b) a Quality Assurance Project Plan (QAPP) that describes quality assurance and quality control protocols necessary to achieve Data Quality Objectives (DQOs) dictated by the intended use of the data. An outline of the SAP document is provided in **Appendix D**.

2.3.3 Health and Safety Plan

A Site-specific Health and Safety Plan (HASP) will be prepared in conjunction with the RI/FS Work Plan to ensure safety of Site workers during the investigation activities for both the landside and waterside investigations. The HASP will be prepared in accordance with the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) and the Construction Industry Standard (29 CFR 1926). The HASP will discuss task-specific hazard analyses, air monitoring for personnel safety, personal protective equipment recommendations, Site controls, equipment and personnel decontamination, medical monitoring and training requirements, and emergency response procedures. With respect to the waterside investigation, the HASP will require all personnel operating on work boats to be trained for the task at hand and familiar with the United States Coast Guard (USCG) policies and procedures. All field activities will be conducted in accordance with the approved HASP. A HASP outline is provided in **Appendix E**.

2.4 Regulatory Review and Public Comment

The RI/FS Work Plan, SAP and HASP are subject to review and approval by DDOE. DDOE also may solicit comments from other regional and federal agencies. In addition, DDOE will solicit public comments on the RI/FS Work Plan, SAP and HASP in accordance with the CIP described above. Pepco will revise the RI/FS Work Plan, SAP, and HASP, as appropriate to address comments from DDOE, other regulatory agencies, and the public.

TASK 3: Remedial Investigation

Pepco will perform a Remedial Investigation (RI) by implementing the SAP and related work plans with the overall objective characterizing conditions in soil, groundwater, surface water, hydric soils in wetlands, sediment, and collecting data to refine the CSM and support risk assessments and a Natural Resources Damage Assessment. Various steps involved in the RI process are described in the following paragraphs.

3.1 Field Investigation

A general description of the technical approach for the RI field investigation is provided below. Additional technical details will be described in the Work Plan documents.

3.1.1 Landside Investigation

Based on the detailed review of Site history and prior environmental investigations pursuant to Task 2 (Scoping), the landside investigation will include collection and analysis of soil and groundwater samples at the Site to identify areas that have potential to contribute to surface water or sediment contamination. The areas to be sampled will include areas where historical PCB spills and cleanups occurred, areas where petroleum underground storage tanks (USTs) were removed, and current and historical PCB storage/handling buildings. The sampling effort will proceed in two phases to allow careful review and consideration of the findings of the initial contaminant delineation phase of work, followed by additional delineation and optimized risk evaluation. Phase 1 will involve soil borings and Geoprobe sampling to screen the areas of potential concern and identify any continuing sources of contamination. Phase 2 will be a detailed hydrogeologic investigation involving the installation and monitoring of groundwater wells based on the Geoprobe and soil boring data collected in Phase 1. The sampling program will incorporate a progressive elimination approach that allows the use of screening parameters to screen larger areas to help focus resources on potential problem areas.

3.1.2 Waterside Investigation

The waterside investigation will be conducted in two primary phases of field work. Data collected during the first phase of work will be used to refine the scope and nature of work for Phase 2. In general, Phase 1 of the waterside investigation will focus on defining the nature and extent of constituents of potential concern in sediments adjacent to the Site and selected background locations. Following the evaluation of Phase 1 findings, Phase 2 will be implemented to refine delineation of chemical data, and add toxicological, benthic, and geotechnical information from selected portions of the waterside investigation

area. Pepco will also incorporate a progressive elimination approach into the waterside sampling program. This approach allows the use of screening parameters to screen larger areas to help focus resources on potential problem areas.

3.2 Data Analysis and Management

Pepco will analyze and evaluate data collected during the field investigations to describe (a) the physical and biological characteristics of the Site that are relevant to contaminant migration and potential receptors, (b) the contaminant source characteristics, (c) the nature and extent of contamination, and (d) contaminant fate and transport. The evaluation will include information relevant to characteristics of the Site and the adjacent segment of the river necessary to the identification and evaluation of potential remedial alternatives. The information from the Phase 1 data evaluation will be used to identify areas of interest and significant data gaps, if any. This information will then be used to optimize the selection of Phase 2 sampling locations.

Pepco will consistently document the quality and validity of field and laboratory data compiled during the RI according to methods to be specified in the relevant work plans. Pepco will develop an analytical database for laboratory data and field measurements. Appropriate quality control procedures will be developed to ensure that the data collected during the investigation are of adequate quality and quantity to support the intended data uses. A representative sample of the collected data (~10-20%) will be validated at the appropriate field or laboratory quality control level. The data validation reports will be included into the RI Report appendices.

Data evaluation will include analysis and presentation of all investigation data in an organized and logical manner so that the investigation results for each medium are apparent. The investigation results will be reduced, compiled, and presented in tabular and graphical forms.

3.3 Exposure Assessment and Risk Analysis

As part of the RI, Pepco will perform Human Health and Ecological Risk Assessments using validated data obtained during the RI field investigation.

3.3.1 Human Health Risk Assessment

Pepco will conduct a Human Health Risk Assessment (HHRA) in accordance with appropriate USEPA risk assessment guidance documents. The HHRA will address complete exposure pathways for human receptors within the Study Area as identified in the Conceptual Site Model, which will be a part of the RI/FS Work Plan.

There are institutional, administrative and engineering controls (e.g., 24-hour controlled Site access, paved surfaces, and employee hazard communication training program) currently in place that help eliminate or control exposures to on-site and off-site receptors. The 2009 Tetra Tech study commissioned by EPA also concluded that soil exposure at the Site is not a significant pathway and that there are no drinking water targets associated with the groundwater pathway. These findings and the existing controls will be further evaluated in the RI/FS Work Plan to determine the complete exposure pathways to be included in the HHRA.

The HHRA will evaluate potential human health effects using the four step paradigm as identified by the USEPA in the *Risk Assessment Guidance for Superfund, Volume I – Human Health Evaluation Manual* (USEPA, 1989). The steps are:

- Data Evaluation and Hazard Identification
- Toxicity Assessment
- Exposure Assessment
- Risk Characterization

Initial data evaluation and hazard identification will be conducted in a screening-level human health risk assessment (SLHHRA). Based on the results of the SLHHRA, Constituents of Potential Concern (COPC) and environmental media that warrant further evaluation in the baseline HHRA will be identified. The SLHHRA will include refinement of the preliminary CSM for human health to identify potential receptors and potential exposure pathways to environmental media at the Site. Concentrations of chemicals in Site media will be compared to conservative, risk-based screening levels (RBSLs) determined to be protective of human health under all exposure scenarios. Based on the outcome of the screening evaluation, the media and COPCs for evaluation in the baseline HHRA will be identified. The HHRA will be used to evaluate potential human health risks associated with exposure to environmental media at the Site. The results of the HHRA will be used to help inform the need for any additional evaluation and/or remedial action for the Study Area.

3.3.2 Ecological Risk Assessment

Pepco will conduct an Ecological Risk Assessment (ERA) based on the findings of the waterside and landside field investigation to evaluate potential ecological risks associated with exposure to environmental media within or along the Anacostia River adjacent to the Site. The ERA will include the following activities:

- Literature review of previous investigations and assessments of conditions in the Anacostia River
- Identification of potential exposure pathways
- Identification of potentially exposed populations
- Screening relative to literature-based ecological risk screening values
- Screening level risk assessments and targeted risk calculations
- Recommendations regarding the need for additional/expanded risk assessment

The ERA will be conducted according to the general tiered approach and methodology provided by the USEPA *Ecological Risk Assessment Guidance for Superfund (ERAGS), Process for Designing and Conducting Ecological Risk Assessment, Interim Final* (USEPA, 1997), *Guidelines for Ecological Risk Assessment* (USEPA, 1998), and *The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments* (USEPA, 2001).

Each successive tier of the ERA process requires more detailed and quantitative data analysis and interpretation. Conducting assessments in a tiered, step-wise manner maximizes the use of available information and sampling data, while providing the opportunity to reduce the uncertainties inherent in the ERA process through the use of focused supplemental data collection to fill key data gaps identified in the previous tier of the assessment, as necessary.

The results of the ERA will be used to inform the need for any additional evaluation and/or remedial action at the Site or in the Anacostia River.

3.4 Remedial Investigation Report

Upon completion of field activities and receipt of the analytical data, Pepco will prepare a draft RI Report for submittal to DDOE. The report will include the following elements:

- Site description with past and current operations including surrounding land use, surface features (e.g., storm drain system, former sludge dewatering area), and on-site structures and facilities (e.g., USTs, ASTs, piping, underground utilities)
- Site history and previous investigations/remedial actions
- Description of field activities
- Results of field activities to determine physical characteristics (e.g., surface water hydrology, geology/hydrogeology, ecology, etc.)
- Nature and extent of contamination

- Contaminant fate and transport
- Results of the HHRA and ERA
- Findings and conclusions
- Recommendations

Geologic logs, laboratory data, validation reports, and pertinent field data logs will be included as attachments.

Pepco will submit a final RI Report following regulatory review of the draft RI report.

3.5 Regulatory Review and Public Comment

The RI Report is subject to review and approval by DDOE. DDOE also may solicit comments from other regional and federal agencies. In addition, DDOE will solicit public comments on the draft RI Report in accordance with the CIP described above. Pepco will revise the RI Report as appropriate to address comments from DDOE, other regulatory agencies, and the public.

TASK 4: Feasibility Study

Pepco will conduct a Feasibility Study (FS) based on the results of the RI. The objectives of the FS are to (a) identify remediation requirements and establish cleanup levels as necessary to eliminate or prevent unacceptable risks to human health and the environment, and (b) identify, screen and evaluate potential remedial alternatives. Various steps involved in the FS process are described in the following paragraphs.

4.1 Identification of Remediation Requirements and Establishment of Remedial Objectives

The FS will identify areas and volumes of media within the Study Area for which remedial actions are necessary either (a) to eliminate or control conditions posing an unacceptable risk to human health and the environment (after accounting for existing institutional, administrative and engineering controls at the Site); or (b) to prevent the migration of contamination from the Site to the river that would cause or contribute to an unacceptable risk to human health or the environment. All calculations related to area and volume estimates will be documented in the FS Report. For the areas where a remediation requirement is identified, Pepco will develop remedial action objectives (RAOs) and preliminary remedial goals (PRGs) in consultation with DDOE. The PRGs will be developed based on Site-specific risk factors and will take into account existing institutional, administrative, and engineering controls. The FS Report will describe the rationale for any cleanup levels established.

4.2 Development and Screening of Remedial Alternatives

Remedial alternatives are developed concurrently with the RI phase, with the results of one influencing the other in an iterative fashion. Pepco will identify and screen a focused set of technologies that have the potential to achieve the RAOs. This step will consider USEPA presumptive remedy guidance and USEPA's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (2005) and any other relevant guidance document. Pepco will develop general response actions (such as containment, treatment, excavation, pumping, institutional controls (e.g., deed restrictions), engineering controls (e.g., encapsulation), or other actions, singly or in combination) for each medium of interest (e.g., soil, sediment, surface water, ground water, hydric soils in wetlands) to achieve RAOs, and will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Study Area. Consistent with USEPA guidance, the range of remedial options to be considered will include, at a minimum (a) alternatives in which treatment is used to reduce the toxicity, mobility or volume of contaminants, (b) alternatives that involve containment with little or no treatment, and (c) a no-action alternative. Screening of technologies will be based on effectiveness, implementability, and relative cost.

Technologies retained after the screening process will be assembled into alternatives for each remediation area.

4.3 Treatability Studies

Pepco will perform treatability studies as necessary to assist in the detailed analysis of alternatives. Treatability studies are generally performed to determine the effectiveness of a technology in achieving the targeted cleanup levels, to obtain design parameters for a full-scale process, or to screen multiple process options of a particular technology. Treatability studies are important when technologies have not been sufficiently demonstrated or characterization data alone is insufficient to predict treatment performance or to estimate the size and cost of treatment units. Treatability studies can be conducted on a bench-scale in the laboratory or on a pilot-scale at the Study Area depending on the study objectives. The need for treatability studies will be determined once the initial screening of technologies is completed and sufficient data from the RI are available.

4.4 Detailed Analysis of Alternatives

Pepco will conduct a detailed analysis of the alternatives that have been assembled and retained. This analysis will consist of an individual evaluation of each alternative against the following evaluation criteria and a comparative evaluation of all options against the evaluation criteria with respect to one another:

- Overall protection of human health and the environment
- Compliance with applicable regulations
- Long-term effectiveness
- Reduction of toxicity, mobility, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost
- DDOE acceptance
- Community acceptance

4.5 Feasibility Study Report

Upon completion of the detailed evaluation of alternatives, Pepco will prepare a draft FS Report for submittal to DDOE. The report will (a) document the location and extent of media requiring remediation and describe the associated cleanup levels and RAOs, (b) describe the results of the identification and screening of alternatives, and the detailed evaluation of alternatives, and (c) identify a preferred alternative for remedial action.

Pepco will submit a final FS Report following regulatory review of the draft FS Report.

4.6 Regulatory Review and Public Comment

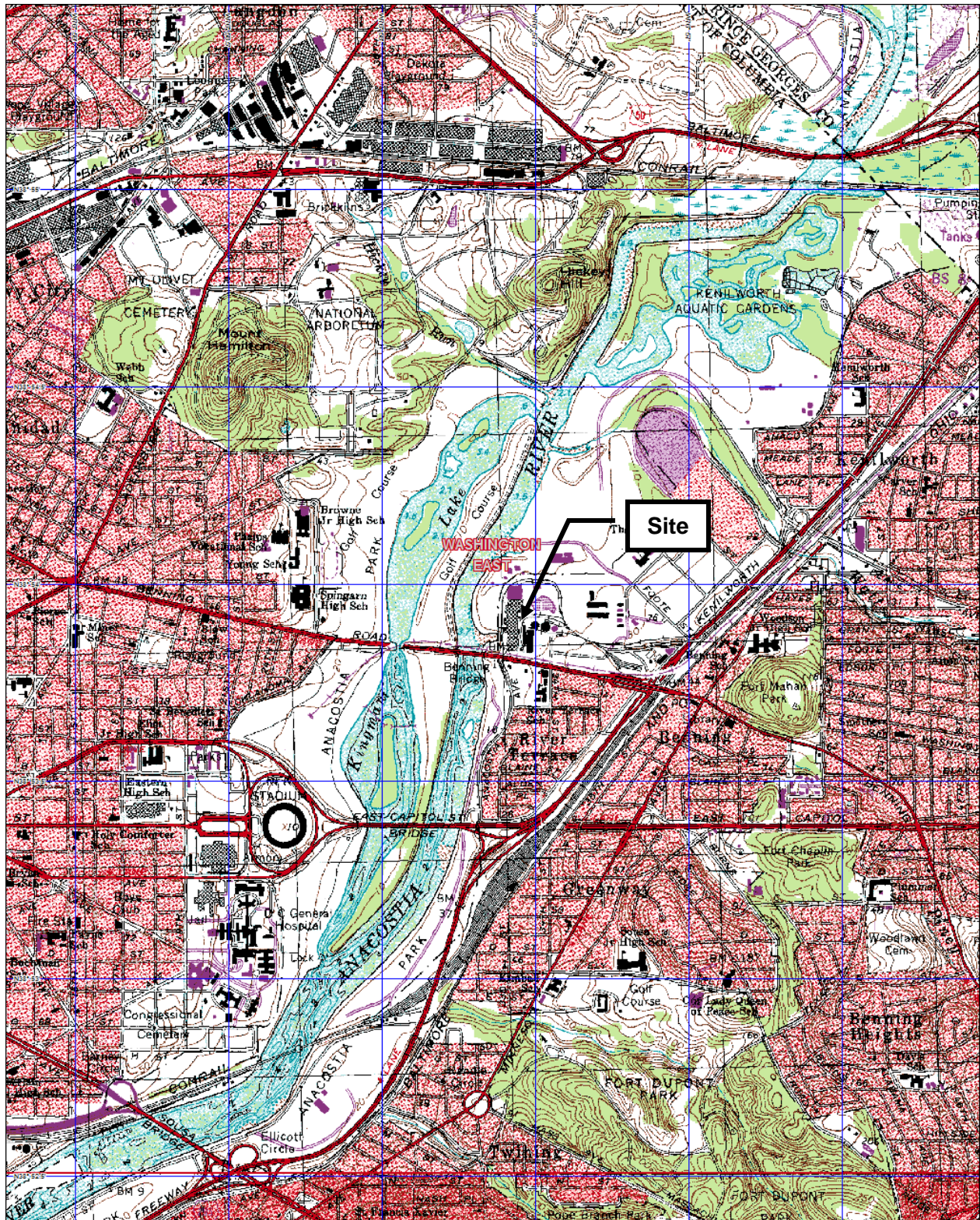
The FS Report is subject to review and approval by DDOE. DDOE also may solicit comments from other regional and federal agencies. In addition, DDOE will solicit public comments on the draft FS Report in accordance with the CIP described above. Pepco will revise the FS Report as appropriate to address comments from DDOE, other regulatory agencies, and the public.

Table

Table 1
Pepco Benning Road Facility
3400 Benning Road, NE
Washington, DC
Sources of Available Information Regarding Site Conditions

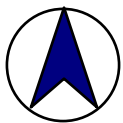
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Figures



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS

700 ft Scale: 1:24,000 Detail: 13.5 Datum: WGS84



SITE LOCATION MAP

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

Source: DeLorme 3-D
TopoQuads© (1999)

Pepco Holdings, Inc.
Remedial
Investigation/Feasibility Study

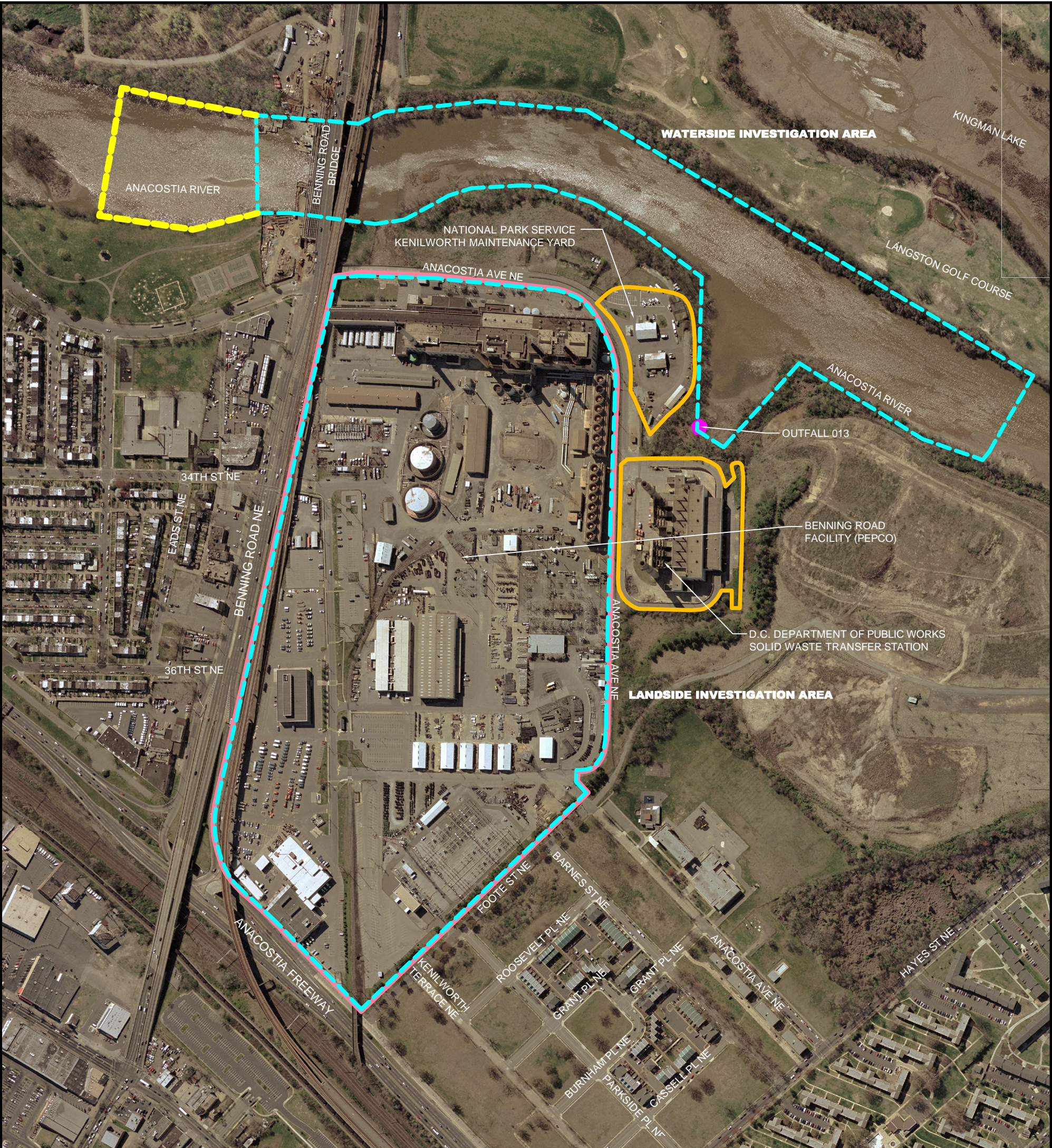
SCALE: 1:24,000

June 2011

Job No. 60189104

FIGURE 1

AECOM



- LEGEND:
- EXPANDED WATERSIDE INVESTIGATION AREA
 - INVESTIGATION AREA PER SCOPE OF WORK OUTLINE
 - BENNING ROAD FACILITY PROPERTY BOUNDARY
 - PROPERTY BOUNDARY

Appendix A

RI/FS Scope of Work Outline

PEPCO BENNING ROAD SITE
RI/FS SCOPE OF WORK OUTLINE

1.0 Remedial Investigation Work Plan

Objective: *To document planned scope of work, sampling rationale, and procedures for implementing the remedial investigation*

- 1.1 Review existing data and documentation and develop a preliminary conceptual site model
- 1.2 Plan investigation scope:
 - Landside Investigation of PEPCO Benning Road property and select adjacent properties to which access is provided (e.g., the District Department of Public Works Solid Waste Transfer Station and National Park Service Kenilworth Maintenance Yard) to address residual soil, groundwater impacts, and their effects on the Anacostia River.
 - Waterside Investigation will primarily address sediment impacts within approximately 10-15 acre portion of the Anacostia River along 2,500 linear feet of the river, approximately 1,500 linear feet to the south and 1,000 linear feet to the north of the Benning Road property main storm water outfall, with the Benning Road Bridge as the approximate southern boundary of the study area. The proposed study area is based on its proximity to the site and recent EPA sampling results in general. PEPCO will perform additional sampling outside of the study area, as warranted by the results from the study Pepco performs.
 - Investigation to focus on polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals, with limited screening samples for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides and dioxins based on knowledge of past operations.
- 1.3 Prepare a Sampling and Analysis Plan to include a Field Sampling Plan and Quality Assurance Project Plan (QAPP)
- 1.4 Prepare a Health and Safety Plan (HASP)
- 1.5 Draft Work Plan
- 1.6 Regulatory Reviews
- 1.7 Final Work Plan

2.0 Remedial Investigation (use phased approach to collecting data)

Objective: *To define the nature and extent of impacts in soil, groundwater, surface water and sediment, develop a conceptual site model (CSM), and collect data that could be used in risk assessments and Natural Resource Damage Assessments (NRDA)*

- 2.1 Landside Investigation
 - Obtain permits
 - Identify areas of concern based on data review and screening analysis
 - Hydrogeologic investigation to determine groundwater/surface water interaction
 - Investigate any potential conduits/preferential pathways from the site to the river

PEPCO BENNING ROAD SITE
RI/FS SCOPE OF WORK OUTLINE

- Soil (surface and subsurface) and groundwater sampling, and waste characterization for investigation-derived wastes
 - Forensic analysis (e.g., PCB congeners, homologs, PAH pyrogenic/petrogenic, etc.)
- 2.2 Waterside Investigation
- Obtain permits
 - Bathymetric and utility survey
 - Surface and subsurface sediment sampling (study area, outfalls, and select off-site locations)
 - Geotechnical analysis
 - Forensic analysis (e.g., PCB congeners, homologs, PAH pyrogenic/petrogenic, etc.)
 - Benthic macroinvertebrate survey
 - Sediment toxicity testing
- 2.3 Exposure assessment and risk analysis
- 2.4 Draft RI Report
- 2.5 Regulatory Reviews
- 2.6 Final RI Report
- 3.0 Feasibility Study
- Objective: To establish cleanup levels and remedial action objectives (the objective of any landside action is to prevent migration of any chemicals of concern to the Anacostia River); identify, screen and evaluate remediation technologies for impacted media posing unacceptable risk to human health or the environment*
- 3.1 Identify the extent of sediment requiring management
- 3.2 Establish sediment cleanup levels/remedial action objectives for the Anacostia River sediment and other environmental media that impact the river on the Landside as warranted by the study that Pepco performs
- 3.3 Develop and screen remedial alternatives
- 3.4 Perform treatability studies as needed
- 3.5 Detailed analysis of alternatives
- 3.6 Draft FS Report
- 3.7 Regulatory Reviews
- 3.8 Final FS Report
- 4.0 Reporting and Notifications
- 4.1 Various deliverables as noted above
- 4.2 Periodic progress reports

**PEPCO BENNING ROAD SITE
RI/FS SCOPE OF WORK OUTLINE**

5.0 Community Relations

5.1 Develop and execute an approved community involvement plan

5.2 Support the Administrative Record as established, developed and maintained by DDOE

6.0 RI/FS Schedule (to be provided in the work plan)

7.0 Guidance

The RI/FS will be conducted pursuant to relevant US EPA guidelines and standards, i.e., "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA", OSWER Directive 9355.3-01, dated October 1988.

Appendix B

Community Involvement Plan Outline

Appendix B. Community Involvement Plan Outline^{*}

- 1.0 Introduction
- 2.0 Site and Project Background
 - 2.1 Site Description
 - 2.2 Areas and Contaminants of Concern
 - 2.3 Regulatory Status
- 3.0 Summary of RI/FS Project Activities
 - 3.1 Objectives and Purpose of the RI/FS Project
 - 3.2 Current/Planned Project Activities
- 4.0 Community Involvement Program
 - 4.1 Community Profile
 - 4.2 Community Organizations
 - 4.3 History of Community Involvement
 - 4.4 Community Concerns
 - 4.5 Community Involvement Plan Action Elements
 - 4.6 Time Frame Summary for Community Involvement Activities

Figures

- Figure 1 – Site Location Map
- Figure 2 – Site Plan with Study Areas
- Figure 3 – Site Vicinity Map

Appendices

- Appendix A – Consent Decree and December 1, 2011, Court Order
- Appendix B – List of Contacts and Interested Parties
- Appendix C – Fact Sheets

^{*} The CIP has been prepared following the U.S. Environmental Protection Agency's Community Involvement Plans guidance available at <http://www.epa.gov/superfund/community/pdfs/7clplans.pdf>.

Appendix C

RI/FS Work Plan Outline

Appendix C.

Remedial Investigation/Feasibility Study Work Plan Outline^{*}

1. Introduction
2. Site Background and Setting
 - 2.1. Historical Removal Actions and Investigations
 - 2.2. Geology
 - 2.3. Hydrogeology
 - 2.4. Surface Water Hydrology and Watershed Characteristics
 - 2.5. Site Description
 - 2.6. Area Description
3. Conceptual Site Model
4. Work Plan Rationale
 - 4.1. Data Quality Objectives (DQO)
 - 4.2. Work Plan Approach
5. RI/FS Tasks
 - 5.1. Project Planning
 - 5.2. Field Investigation Activities
 - 5.3. Data Validation and Evaluation
 - 5.4. Risk Analysis
 - 5.5. Remedial Investigation Report
 - 5.6. Feasibility Study
6. Project Organization
7. Schedule
8. References
9. Appendices

^{*} This outline follows the EPA suggested RI/FS work plan format per *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, Interim Final, EPA-540-G-89-004, October 1988.

Appendix D

Sampling and Analysis Plan Outline

Appendix D. Sampling and Analysis Plan Outline *

Field Sampling Plan (FSP)

1. Site Background
2. Sampling Objectives
3. Sample Location and Frequency
4. Sample Designation
5. Sampling Equipment and Procedures
6. Sampling Handling and Analysis
7. Field Quality Control

Quality Assurance Project Plan (QAPP)

1. Project Description
2. Project Organization and Responsibilities
3. Quality Assurance Objectives for Measurement
4. Sampling Procedures
5. Sample Custody
6. Calibration Procedures
7. Analytical Procedures
8. Data Reduction, Validation, and Reporting
9. Laboratory Quality Control

* This outline follows the EPA suggested RI/FS work plan format per *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, Interim Final, EPA-540-G-89-004, October 1988.

Appendix E

Health and Safety Plan Outline

Appendix E.

Health and Safety Plan Table of Contents Outline^{*}

1. Executive Summary
2. Introduction
3. Site Information and Scope of Work
4. Hazard Assessment
 - 4.1. Physical Hazards
 - 4.2. Biological Hazards
 - 4.3. Ultraviolet Hazards
 - 4.4. Chemical Hazards
 - 4.5. Weather Hazards
 - 4.6. Other Hazards
 - 4.7. Task-Specific Safety, Health, and Environment Procedures
5. SH&E Requirements
 - 5.1. HAZWOPER Qualifications
 - 5.2. Site-Specific Safety Training
 - 5.3. Tailgate Meetings
 - 5.4. Hazard Communication
 - 5.5. Hazardous, Solid, or Municipal Waste
 - 5.6. General Safety Rules
 - 5.7. Stop Work Authority
 - 5.8. Client-Specific Safety Requirements
6. Exposure Monitoring Procedures
 - 6.1. Containment Exposure Hazards
 - 6.1.1. PCBs
 - 6.1.2. Volatile and Semi-Volatile Organic Compounds
 - 6.1.3. Metals
 - 6.1.4. Real-Time Exposure Measurement
 - 6.1.5. Heat and Cold Stress
7. Environmental Program
 - 7.1. Environmental Compliance and Management
8. Personal Protective Equipment
 - 8.1. PPE Doffing and Donning Information
 - 8.2. Decontamination
9. Project Health and Safety Organization
10. Site Control
11. Emergency Response Planning
12. Personnel Acknowledgement

Attachments (Task Hazard Analyses, MSDSs, Spill Reporting Procedures, SOPs)

Figures

Tables

^{*} This outline follows the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) and the Construction Industry Standard (29 CFR 1926).