

# GOVERNMENT OF THE DISTRICT OF COLUMBIA

## District Department of the Environment



### Statement of Work For Remedial Investigation (RI) and Feasibility Study (FS) of Contaminated Sediment in the Anacostia River, Washington, DC

#### 1. Purpose

The purpose of this statement of work (SOW) is to identify the existing sources of sediment contamination in the Anacostia River, to evaluate the nature and extent of contamination in the sediments in the tidal portion of the Anacostia River and conduct feasibility study to develop and evaluate potential remedial actions to eliminate unacceptable risk to human health and the environment. The study area considered for this SOW is approximately nine miles and is between the confluence of the Northwest and Northeast branches at Bladensburg, Maryland and confluence with the Potomac River in Washington DC. This Statement of Work (SOW) provides the framework for how the RI and FS will be conducted and presents the specific tasks that will be performed.

#### 2. Scope

This SOW consists of the following specific tasks:

- Review existing data of the Anacostia River sediments, including the Conceptual Site Model (CSM) and Tidal Anacostia Model-Water Quality Analysis Simulation Program (TAM-WASP) Model prepared by Anacostia Watershed Toxic Alliance (AWTA);
- Identify data gaps (including the age and validity of previously collected data) to support the remedial investigation and development and evaluation of remedial alternatives;
- Develop RI/FS Work Plan and Sampling and Analysis Plan (SAP) to address the identified data gaps;
- Perform all necessary field work to fill data gaps and support the RI;
- Update the CSM and TAM-WASP model based on the new data obtained;
- Based on the new data obtained, determine the nature and extent of contamination in sediments for the tidal portion of the Anacostia River to build on prior investigations;
- Develop and implement monitoring plan for tributaries, stormwater outfalls and combined sewer outfalls of the lower Anacostia watershed.
- Monitor and update the status of the Anacostia River advanced capping demonstration site;
- Prepare a draft remedial investigation report upon completion of field activities;
- Conduct a focused feasibility study to identify remediation requirements and establish cleanup levels as necessary to eliminate or prevent unacceptable risks to human health and the environment and identify, screen and evaluate potential remedial alternatives
- Prepare a draft feasibility study report.

### 3. On-going Efforts Along Anacostia River

In addition to continuing groundwater and surface water interface, sources of contamination to the mainstream Anacostia River include historical releases from individual facilities along the river, storm water discharges, combined sewer overflows, nonpoint source runoff, atmospheric deposition, and input from tributaries. The primary chemical classes identified in the Anacostia River are dioxins and furans, pesticides, polycyclic aromatic hydrocarbons (PAHs) or polychlorinated biphenyls (PCBs), and metals. The nature of the source (point source vs. nonpoint source) and the transport mechanism have an impact on the distribution of contaminants within the river. Currently, cleanup work is underway at multiple locations on the lower Anacostia River. At most of these sites, the cleanup will address the portion of sediments within a defined area around the site. This SOW will build on the work already underway at these sites. The current status of the investigation activities at each site is given below:

#### 3.1 Pepco Benning Road

The Pepco Benning facility is located at 3400 Benning Road NE, Washington DC. Pepco currently uses the 77 acre site to manage operations and maintain equipment associated with their electrical distribution system. Several releases to the environment have occurred between 1987-2003 resulting from spills of contaminated oil or leaking equipment. Pepco prepared the Remedial Investigation/Feasibility Study Workplan pursuant to a consent decree that was entered by the U.S. District Court for the District of Columbia on December 1, 2011. After an extensive review and comment period, the Workplan was approved by DDOE on December 28, 2012. The field work associated with the RI/FS has been started in January 2013.

#### 3.2 Poplar Point

The site is bordered to the north by the Anacostia River. Roadways, ramps and medians for the 11th Street Bridge form the northeast border of the site while roadways and medians for the South Capitol Street Bridge form the northwest edge of the site. An unnamed paved access road along the western edge of the District of Columbia's Lanham Tree Nursery (DCL) forms the western boundary of the site. The site is bordered to the south by Howard Road. Several releases to the environment have occurred in the past. Currently, the National Park Service (NPS) is in the process of reviewing the RI/FS work plan. The current schedule for the field work associated with the RI/FS is not known at this time, but may begin in early 2013, upon the NPS and DDOE's approval of the RI/FS work plan.

#### 3.3 Kenilworth Park Landfill

The Kenilworth Park landfill is a 130 acre site owned by the NPS which is the lead agency carrying out CERCLA actions for the site. The site is located within Kenilworth Park and Aquatic Gardens, which is part of the Anacostia Park. The site comprises two geographic areas divided by the Watts Branch (a tributary of the Anacostia River)" Kenilworth Park Landfill North (KPN) and Kenilworth park Landfill South (KPS). Kenilworth Landfill was used as a dump from the 1948 to the 1968. During this period the landfill extended into the Anacostia River and no barriers were constructed to prevent migration of wastes mixed with soil into the water.

Between 1998 and 2009, a number of environmental investigations were undertaken to determine the nature and extent of contamination at the Site, including Preliminary Assessment/Site Inspections (PA/SIs), Remedial Investigations (RIs), and supplemental data collection and reports. The site has been divided into two operable units (OUs): OU1 comprises surface and subsurface soils, including the waste material disposed of within the landfill; OU2 is the shallow groundwater underlying OU1. In April 2012, NPS prepared a Feasibility Study (FS) Report recommending a soil cap for OU1. On March 1, 2013, the Proposed Plan for Cleanup of the Kenilworth Park landfill site (OU1) was released for 60-day public comment period. DDOE expects the response action for Kenilworth Landfill will be finalized in the year 2013.

### 3.4 Washington Gas and Light Company

The Washington Gas and Light Company (Washington Gas/WGL) site covers an area of approximately 4.2 acres formerly containing the East Station manufactured gas plant. On September 26, 2012, Washington Gas entered into a Consent Decree with the District of Columbia DOI, and EPA to implement the Record of Decision (ROD) dated August 2006 and to conduct additional landside and sediment studies. The ROD along with the October 2011 Statement of Work addresses the impacts observed in surface soil and subsurface soil (Operating Unit 1 {OU1} as well as groundwater impacts, surface water impacts and river sediments {OU2}. A draft Remedial Design/Remedial Action (RD/RA) Work plan for OU1 and a draft Remedial Investigation/Feasibility Study (RI/FS) Work plan for OU2 are under review process by NPS and DDOE.

### 3.5 Washington Navy Yard

This site is located on M street SE, near the 11<sup>th</sup> street bridge in southeast Washington, D.C. The southern side of Washington Navy Yard (WNY) is bounded by the Anacostia River. The WNY waterfront has historically consisted of piers, quay walls, slips, and dry dock facilities. A “Notification of Hazardous Waste Activity” notice was submitted to EPA by WNY in 1985. In 1998, the WNY was placed on the US EPA National Priority List because of the contamination that was detected in the adjacent Anacostia River as well as on-site sediment and soil. The remedial investigation activities of the near-shore Anacostia river sediments (Operating Unit 2, OU2) were conducted in the year 2010 in accordance with the Federal Facilities Agreement (FFA). The Draft Remedial Investigation Report for OU2 is under discussion between DDOE, EPA, and Navy. The RI data have been uploaded to the NOAA Anacostia Watershed Database.

## 4 Remedial Investigation

Tasks to be completed as part of this RI include:

- Program management plan
- Review of existing available information/data
- Preparation of RI work plans and conducting field work associated with RI
- Preparation of Remedial Investigation Report

#### 4.1 Program Management Plan

The contracted party shall prepare and submit a program management plan (PMP) to the DDOE. This document will help to formulate the baseline information needed to assess the environmental risk and regulatory elements of the project. The PMP will identify key project stakeholders including Anacostia Watershed Restoration Partnership (AWRP) and any associated affiliated organizations. This document will also establish the project organization, with delegation from the project manager to individual key personnel. This plan shall serve as a roadmap for the implementation and sequencing of activities required in the SOW. The contracted party shall prepare a schedule for the various components and associated tasks presented in this SOW and identified within the PMP along with detailed schedule of submission of the deliverables.

#### 4.2 Review of Existing Available Information/Data

The contracted party is expected to review the background data available for the Anacostia Watershed including but not limited to hydrology, sediment, biomonitoring, fate and transport, geology, and hydrogeology. Background analysis should be screened carefully to avoid the already identified hotspots and should focus on:

1. Background and the physical setting of the Anacostia River;
2. The nature and extent of contamination; preliminary assessment of human health and environmental impacts; and the additional data needed to conduct a baseline human health and ecological risk assessment;
3. Review of the CSM and TAM/WASP model;
4. Preliminary identification of general response actions and alternatives to eliminate or prevent unacceptable risk to human health and the environment;

Some of the documents or links which the contracted party is expected to review are as follows:

1. NOAA database and mapping project, Anacostia Watershed:  
<http://mapping2.orr.noaa.gov/portal/anacostiariver/>
2. Tidal Anacostia Model-Water Quality Analysis Simulation Program (TAM-WASP) Model completed by Anacostia Watershed Toxic Alliance (AWTA) and Anacostia Watershed Restoration Commission (AWRC);
3. AWTA & AWRC phase I&II reports on the Anacostia River are available here:
  - [http://mapping.orr.noaa.gov/website/test/anacostia/guide/home/Ana\\_jn00.pdf](http://mapping.orr.noaa.gov/website/test/anacostia/guide/home/Ana_jn00.pdf)
  - [http://archive.orr.noaa.gov/bookshelf/1046\\_Management\\_Plan.pdf](http://archive.orr.noaa.gov/bookshelf/1046_Management_Plan.pdf)
  - <http://www.anacostia.net/Archives/AWSC/documents/WhitePaper.pdf>
4. A summary of the 2002, sediment capping project completed at two locations along the Anacostia River. The details of this project can be found at: <http://www.hsarssw.org/ana-index.html>; and

5. Polychlorinated biphenyls in stormwater runoff entering the tidal Anacostia River, Washington, DC, through small urban catchments and combined sewer outfalls, by Hyun-Min Hwang & Gregory D. Foster.
6. District of Columbia, Final Total maximum daily Loads for Organics and Metals in the Anacostia River, Fort Chaplin Tributary, Fort Davis Tributary, Fort Dupont Creek, Fort Station Tributary, Hickey Run, Nash Run, Popes Branch, Texas Avenue Tributary, and Watts Branch, August 2003.
7. District of Columbia, Department of Health, TAM/WASP Toxic Screening Model for the tidal portion of the Anacostia River.
8. DC, Montgomery County, and PG County MS4 permit applications and MS4 annual reports (contain outfall monitoring data); and
9. Site specific studies for sites located along the Anacostia River.

### 4.3 Preparation of Work Plans

Upon review of all available information and data for the site, the contracted party shall prepare an RI/FS work plan for review and approval by the DDOE. The work plans shall follow the guidelines described in detail in the United States Environmental Protection Agency (USEPA) guidance document, “Guidance for Conducting Remedial Investigations and Feasibility Studies Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (EPA, 1988)”. All the work plan documents will be reviewed and approved by DDOE except for the Site Specific Health and Safety Plan. Specific data gaps identified during the review of existing data will be used to guide the scope of the investigation.

#### 4.3.1 RI/FS Work Plan

The Work Plan will describe the overall technical approach for the RI/FS. 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 methodology to be utilized, and shall describe the project management approach, communication procedures including progress reporting to DDOE, and permit requirements. The Work Plan should also identify each major deliverable and will include a comprehensive schedule for completion of each major activity. In general, the investigation will include the following elements:

- Specific data collection for updating the CSM and TAM-WASP model;
- Nature and extent of contamination in sediments for the tidal portion of the Anacostia River (to build on the prior data and investigations). Note that the number and location of the sediment samples to be obtained should not be bias towards the known hotspot locations in the Anacostia River. The investigation will also focus on determining the current sediment conditions with respect to the previously obtained sediment data to evaluate rate of natural attenuation in sediments and effect of green infrastructures including stormwater management, low impact development projects etc.

- Development of a monitoring plan that will investigate loading and sources of contaminants in stormwater runoff entering into the lower tidal Anacostia River. The monitoring plan will consist of a minimum of ten field stations including: four priority tributaries, three stormwater outfalls, and three combined sewer outfalls. These stations will be monitored during three base flow and 12 storm flow events. This monitoring plan is based on the recommendations provided in the document (Charting a Course Towards Restoration: A Toxic Chemical Management Strategy for the Anacostia River) referred in Section 4.2. Amendments to the monitoring plan will be considered if a review of the existing data supports the alteration of such a plan. Any amendments will be made in consultation with the DDOE; and
- Development of the monitoring plan to determine the status of the sediment capping demonstration project completed along the Anacostia River.

#### 4.3.2 Sampling and Analysis Plan

The contracted party shall prepare a Sampling and Analysis Plan (SAP) in conjunction with the RI/FS Work Plan. The SAP will consist of two parts submitted as a single document (a) a Field Sampling Plan (FSP) (b) a Quality Assurance Project Plan (QAPP)

##### 4.3.2.1 Field Sampling Plan (FSP)

The FSP shall provide guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used on the project. The FSP should support a field sampling team working on the project to gather the samples and field information required to complete the project.

##### 4.3.2.2 Quality Assurance Project Plan (QAPP)

The contracted party shall prepare the QAPP to present the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with the RI activities to be conducted at the Site. Specific protocols for sampling, sample handling and storage, chain of custody (COC), and laboratory and field analyses shall be described in the QAPP. In addition, the QAPP will include protocols for data reduction, validation, and reporting. The QAPP shall be prepared in accordance with the United States Environmental Protection Agency (USEPA) QAPP policy as presented in USEPA Requirements for Quality Assurance Project Plans (USEPA QA/R-5, March 2001).

The contracted party will demonstrate, in advance to DDOE's satisfaction that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the site by DDOE. The laboratory must have and follow an approved QA program. DDOE may require that the contracted party submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications.



### 4.3.3 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 workers during the investigation activities. 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. All field activities will be conducted in accordance with the HASP.

### 4.3.4 Community Relations Plan

The contracted party will provide community relations technical support to the DDOE during the RI/FS phases of the project. The Community Relations Plan (CRP) will follow the report format outlined in “Superfund Community Involvement Handbook” (U.S. EPA, April 2005). The CRP will include information that can be provided to the public and other concerned interests groups. The contracted party is also expected to collaborate with the DDOE in the preparation of information for dissemination to the public as well as participate in public meetings.

## 4.4 Preparation of Remedial Investigation (RI) Report

Upon completion of field activities and receipt of the analytical data, a draft RI Report will be prepared by the contacted party for submittal to DDOE. The draft report should follow the guidelines outlined here and described in detail in EPA’s guidance document, “Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA” (EPA, 1988)”. The report will include the following elements:

1. Introduction
2. Study area investigation
3. Physical characteristics of the study area
4. Nature and extent of contamination
5. Contaminant fate and transport
6. Baseline human health and ecological risk assessment
7. Summary and conclusions

## 5.0 Feasibility Study (FS)

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. Tasks to be completed as a part of the FS are as follows:

- Identification of remediation requirements and establishment of remedial action objectives (RAO)
- Development and screening of remedial alternatives

- Treatability study if needed
- Detailed analyses of alternatives
- Feasibility study report
- Regulatory review, public/stakeholder meetings to present FS results

### 5.1 Identification of remediation requirements and establishment of RAO

The FS will identify areas and volumes of media for which remediation is required either (a) to eliminate or control conditions in the Anacostia River posing an unacceptable risk to human health and the environment or (b) to prevent the migration of contaminant into the river that could contribute to an unacceptable risk to human health or the environment. Any calculation related to area and volume estimates will be documented in the FS report. For the areas where a remediation requirement is identified, RAOs and preliminary remedial goals (PRG) will be developed based on site-specific risk factors. The FS report will describe the rationale for cleanup levels established.

### 5.2 Development and Screening of Remedial Alternatives

The FS will identify and screen a focused set of technologies that have the potential to achieve the RAOs. This step will follow USEPA presumptive remedy guidance and USEPA's *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005). The FS 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, groundwater) to achieve RAOs, and will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the site. 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.

### 5.3 Treatability Studies

Treatability studies will be performed as necessary to assist in the detailed analysis of alternatives. Treatability studies should be 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 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. Laboratory bench-scale or site based pilot-scale studies can be conducted depending on the study objectives. Priority of treatability studies will be determined once the initial screening of technologies is completed and sufficient data from the RI are available.



## 5.4 Detailed Analysis of Alternatives

A detailed analysis will be conducted for the alternatives that are retained after the screening analysis. This detailed 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 and Community acceptance.

## 5.5 Feasibility Report

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

## 6 Regulatory Review and Public Comment

The Draft RI and FS reports will be subject to review and approval by DDOE. DDOE may also solicit comments from other regional and federal agencies or from the Technical Advisory Group (TAG). The TAG may consist of the representatives of few or all of the following stakeholders: NPS, Navy, DOI, WGL, Pepco, CSX, EPA, NOAA etc. In addition, DDOE will make the draft reports available for public review. The RI and FS reports will be revised as appropriate to address comments from DDOE, TAG and the public. Following the regulatory review, the contracted party will submit the copies of the final reports to DDOE.

## 7 Schedule and Deliverables

The following are required to be submitted for DDOE review:

<u>Deliverable</u>	<u>Deadline</u>
Program Management Plan (PMP) - within 45 days of approval of contract approval	
Monitoring plan of tributaries, outfalls, and CSOs	- within 90 days of contract approval
Draft RI/FS Work Plans	- within 120 days of approval of PMP
Draft RI Report	- within 120 days after completion of RI field work
Draft FS Report	- within 120 days after completion of RI submission