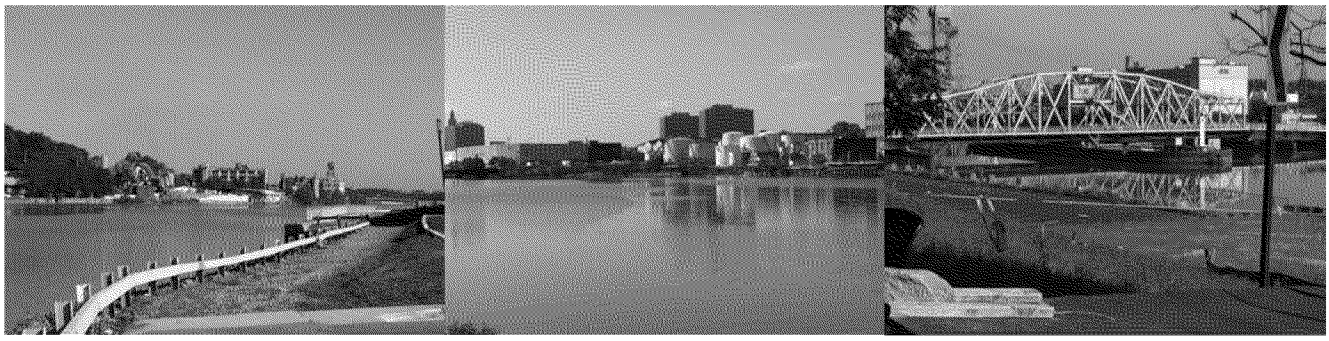
Glenn Springs Holdings, Inc.
A subsidiary of Occidental Petroleum

Project Management Plan

Remedial Design – Lower 8.3 Miles of the Lower Passaic River
Operable Unit Two of the Diamond Alkali Superfund Site
In and About Essex, Hudson, Bergen and Passaic Counties – New Jersey



TETRA TECH

February 2017
Revision 1
LPROU2-17-2.1-0002

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PREPARED ON BEHALF OF

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REVISION RECORD

Revisions to this Project Management Plan (PMP) will be reviewed and approved by someone qualified to have prepared the original document. All revisions must be authorized by the Tetra Tech Project Manager and the Glenn Springs Holdings, Inc. Project Coordinator, or their designee(s) and documented below.

Revision	Date	Portions Affected	Reason	Authorized By	Full PMP Re Issued (Y/N)	Agency Submittal
1	2/2017	various	EPA comments of 1/23/2017 & changed from “draft” to final working version	Juan Somoano (GSH) & Steve McGee (Tetra Tech)	Y	EPA & NJDEP

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ACRONYMS / ABBREVIATIONS

Acronyms/Abbreviations	Definition
AOC	Administrative Order on Consent
ARAR	Applicable or relevant and appropriate requirement
BAT	Battelle
CAPM	Corrective Action Project Manager
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
CIP	Community Involvement Plan
COCs	Contaminants of concern
CPL	Corporate Procedures Library
CQA/QCP	Construction Quality Assurance/Quality Control Plan
cy	Cubic yard
DART	Days Away, Restrictions and Transfers
DC#	Document control number
DCC	Document Control Coordinator
DDx, Total	Sum of DDT, DDD and DDE concentrations (pesticides). DDT: dichlorodiphenyltrichloroethane DDD: 4,4'-dichlorodiphenyldichloroethane DDE: 4,4'-dichlorodiphenyldichloroethylene.
DPM	Deputy Project Manager
EMR	Experience Modification Rate
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community-Right-to-Know Act
ERP	Emergency Response Plan
FSP	Field Sampling Plan
GSH	Glenn Springs Holdings, Inc.
HASP	Health and Safety Plan
H&S	Health and Safety

Acronyms/Abbreviations	Definition
ICIAP	Institutional Controls Implementation and Assurance Plan
IDW	Investigation Derived Waste
LBG	Louis Berger Group
LSRP	Licensed Site Remediation Professional in New Jersey
NCP	National Contingency Plan
NJDEP	New Jersey Department of Environmental Protection
NJDOT/OMR	New Jersey Department of Transportation/Office of Maritime Resources
NOAA	National Oceanic and Atmospheric Administration
O&M	Operations and Management
OSC	On-Scene Coordinator
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
OU2	Operable Unit 2 (the lower 8.3 miles of the Lower Passaic River); the Project
PAH	Polycyclic aromatic hydrocarbon
PCBs	Polychlorinated Biphenyls
pdf	Portable document format
PDI	Pre-Design Investigation
PDI WP	Pre-Design Investigation Work Plan
P.E.	Professional Engineer
P.G.	Professional Geologist
Ph.D.	Doctor of Philosophy
PM	Project Manager
PMP	Project Management Plan (or Project Management Professional when used in conjunction with staff certification)
POC	Point of contact
Potentially Responsible Parties	PRPs
Project	Lower 8.3 miles of the Lower Passaic River (Operable Unit Two, “OU2”) of the Diamond Alkali Superfund Site (the

Acronyms/Abbreviations	Definition
	"Site"), located in and about Essex, Hudson, Bergen and Passaic Counties, New Jersey
PRSP	Periodic Review Support Plan
QA	Quality assurance
QAPP	Quality Assurance Project Plan
QC	Quality control
QER	Quality Event Report
QMP	Quality Management Plan
QMS	Quality Management System
QSM	Quality Systems Manual
RA	Remedial Action
RAM	Responsibility Assignment Matrix
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD WP	Remedial Design Work Plan
RM	River Mile
ROD	Record of Decision, signed by the EPA on March 3, 2016 for the lower 8.3 miles of the Lower Passaic River (OU2 of the Diamond Alkali Superfund Site)
RPM	Remedial Project Manager
Settlement Agreement	Administrative Settlement Agreement and Order on Consent for RemediaDesignbetween EPA and Settling Party, effective September 30, 2016, for OU2. Including the integrated appendices, as follows: ❑ Settlement Agreement Appendix A – ROD for OU2 ❑ Settlement Agreement Appendix B – SOW ❑ Settlement Agreement Appendix C – Site Map ❑ Settlement Agreement Appendix D – Financial Assurance
Settling Party	Occidental Chemical Corporation (with GSH as representative)
Site	The Diamond Alkali Superfund Site
SOW	Statement of Work (Appendix B of the Settlement Agreement)
SQM	Supplier Qualification Module
SSER	Site Selection and Evaluation Report
SSEWP	Site Selection and Evaluation Work Plan
Supervising Contractor	Tetra Tech, Inc.

Acronyms/Abbreviations	Definition
Tetra Tech, Inc. or Tt	Tetra Tech
TODP	Transportation and Off-Site Disposal Plan
TS	Treatability Study
UFP	Uniform Federal Policy
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service
VE	Value Engineering
WBS	Work Breakdown Structure
WP	Work Plan

1 INTRODUCTION

1.1 AUTHORIZATION

This Project Management Plan (PMP) has been prepared pursuant to the requirements of the Administrative Settlement Agreement and Order on Consent for Remedial Design (Settlement Agreement) between the U.S. Environmental Protection Agency (EPA) and Settling Party, Effective September 30, 2016, for the lower 8.3 miles of the Lower Passaic River (Operable Unit Two, "OU2") of the Diamond Alkali Superfund Site (the "Site"), located in and about Essex, Hudson, Bergen and Passaic Counties, New Jersey (Project). The Settlement Agreement, with Statement of Work (SOW), is provided in Appendix A.

The Settling Party, as defined in the Settlement Agreement, is Occidental Chemical Corporation. Communications associated with, and execution of, the Settlement Agreement are being led by Glenn Springs Holdings, Inc. (GSH) on behalf of Occidental Chemical Corporation. GSH will be referred to as the "Settling Party" within this PMP.

The Settlement Agreement provides that the Settling Party shall undertake a remedial design, including various procedures and technical analyses, to produce a detailed set of plans and specifications for implementation of the Remedial Action selected in EPA's March 3, 2016 Record of Decision (ROD). This PMP documents the developed management strategy to complete this remedial design.

1.2 PURPOSE OF PROJECT MANAGEMENT PLAN

Pursuant to the Settlement Agreement, the purpose of this PMP is to develop a strategy to complete the remedial design and remedial action successfully, including, but not limited to:

a) Description of the overall management strategy for performing the remedial design.

b) Description of the proposed approach to contracting.

c) Description of the responsibility for and authority of, and communications strategy among, all organizations and key personnel involved with the development of the remedial design, including by but not limited to meetings between Settling Party's Project Coordinator, the Settling Party's Supervising Contractor and EPA's Project Coordinator.

d) Baseline schedule for completion of the work, including a preliminary list of all work plans described in the SOW, major tasks/sub-tasks and key deliverables to be prepared.

This version of the PMP has been developed based on the pre-remedial design and remedial design activities specified in the Settlement Agreement SOW. Prior to initiation of the remedial action phase of the Project, this PMP will be updated to reflect remedial action status or a new PMP will be developed based on Project needs. The revised or new remedial action-focused PMP would be developed at the direction of GSH and include the proposed general approach to construction, operation, maintenance and monitoring of the remedial action as necessary to implement the work.

The PMP defines how the Project will be executed, monitored and controlled and will serve as the central document that identifies the basis of Project work and integrates subsidiary plans and baselines. The Project team will use the PMP as a roadmap to successfully execute the Project while seeking to ensure the protection of human health and the environment.

- This PMP is a dynamic planning and execution document that will be updated periodically to reflect changes in the Project status and team members. Refer to Section 1.4 for more information.

1.3 STRUCTURE OF THE PROJECT MANAGEMENT PLAN

The structure of the PMP is designated to facilitate use (and update) by providing the substantive Project-specific information in easily extractable modules (within appendices), specifically:

- The report sections of the PMP present the overall strategy to complete the defined Project scope of work; it is anticipated that these sections will, during pre-remedial design and remedial design Project progression, require minimal update.

- The appendices of the PMP include the detailed and supporting Project-specific information. It is anticipated that these are the main components of the PMP that will be most regularly utilized on a day-to-day basis; and any updates required during Project progression will be primarily to these appendices. This structure is designed to support effective tracking and execution of PMP document updates.

1.4 PROCESS FOR UPDATING THE PROJECT MANAGEMENT PLAN

Annual Review and Updates

The PMP will be reviewed annually within the first quarter of the calendar year to verify plan accuracy with current project status. Based on the extent of required revisions, the PMP may be fully re-issued, or replacement pages or relevant replacement appendices may be issued. GSH will communicate with EPA on plans for re-issuance of the full PMP.

Intermittent Updates

In addition, the PMP may be updated following a significant change to the herein documented management strategy, as needed. Examples of changes that would warrant intermittent PMP updates include:

- If designated project team members change, the Appendix B contact list and organizational chart information may be modified as well as Appendix E (Communications Management);
- If new, relevant and substantive, regulatory or performance information is developed, information may be added to Appendix D (Regulatory and Performance Considerations); and
- If additional procurement and contracting documentation is needed, Appendix F (Procurement and Contracting Documentation) may be updated.

All revisions to the PMP will be documented on the “Revision Record” at the beginning of the PMP and the “Revision Record” page and updated elements will be distributed to the EPA and NJDEP. The PMP will not be revised based on updates to the project schedule alone, as the schedule will be updated quarterly to the EPA and NJDEP.

2 PROJECT BACKGROUND

2.1 PROJECT SETTING

Project setting information is described in great detail in the ROD. The PMP presents an overview of Project setting information to provide context for the PMP.

- Refer to Appendix A for more information on Project setting.

The Project area is the lower 8.3 miles (OU2) of the Lower Passaic River in northeastern New Jersey, which extends from the river's confluence with Newark Bay at River Mile (RM) 0 to RM 8.3 near the border between the City of Newark and Belleville Township. (Refer to Figure 1). The ROD addresses contaminated sediments within this OU2 portion of the Lower Passaic River. The Lower Passaic River is a part of the Diamond Alkali Superfund Site, which based on investigations by the New Jersey Department of Environmental Protection (NJDEP) and EPA, was placed on the National Priorities List in 1984. The Diamond Alkali Superfund Site was subject to various investigations, emergency response actions, interim containment remedies, river studies and removal actions under separate RODs and Administrative Orders on Consent (AOCs).

Based on various studies, the sediments in the OU2 contain a variety of contaminants including polychlorinated dibenzo-*p*-dioxins and furans (dioxins and furans), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), Total DDx and other pesticides, mercury, lead and other metals. EPA concluded that OU2 contains the bulk of the contaminated sediment, serving as major source of contamination to the rest of the Lower Passaic River and Newark Bay. This supported the EPA decision to address this contaminated area first within an overall remediation framework (with the ROD for OU2).

The response action selected by EPA in the ROD for OU2 is a final action for the sediments and an interim action for the water column.

2.2 REMEDIAL SCOPE SUMMARY

The EPA-selected remedy for OU2 defined in the ROD is capping with dredging (to reduce increased potential for flooding and maintain navigation) with off-site disposal of dredged material. The scope of the pre-remedial design and remedial design work, as defined in the Settlement Agreement SOW, includes:

- Implementation of the pre-remedial design planning activities, investigations and associated deliverables to support the design of the remedy; and
- Remedial design work and associated deliverables to support the remedy.

The selected remedy, as specified in the ROD, is summarized in Section 3.1.2. (Remedial Action). Remedial action will be implemented after the pre-remedial design and remedial design stage (separate from the existing Settlement Agreement).

- Additional regulatory and scope information associated with the remedy are provided in Section 2.4 (Regulatory and Performance Consideration) and Section 3 (Scope Management).

2.3 PROJECT TEAM / STAKEHOLDERS

Project team/stakeholder information is described in broad terms in the following sections. Specific management roles and responsibilities are presented in Section 8.1 (Roles and Responsibilities) and Appendix B (Project Team/Stakeholder Information). Communication pathways are discussed in Section 9 (Communications Management).

2.3.1 Agencies

U.S. Environmental Protection Agency (EPA): The EPA is the lead agency overseeing this Project and will be represented by the EPA's Project Coordinator. EPA's Project Coordinator shall have authority as defined in the Settlement Agreement (refer to Section 7.1 of the PMP for more information on roles and responsibilities).

New Jersey Department of Environmental Protection (NJDEP): The NJDEP is the State agency involved with the Project activities as defined within the Settlement Agreement. The NJDEP provided extensive technical and regulatory support during development of the ROD for OU2 sediments, and was consulted on the remedy for OU2 sediments, and it concurs with the selected remedy.

Other Federal Agencies: The 2006 Community Involvement Plan (CIP) that was developed for EPA and USACE during prior investigations has been revised to focus on the cleanup of the lower 8.3 miles of the Passaic River in a draft dated January 20, 2017 for public comment (2017 Draft CIP). The 2017 Draft CIP identifies "partner agencies" that have joined together to study and identify cleanup and restoration options for the Lower Passaic River. The identified "partner agencies," in addition to EPA and NJDEP include:

- National Oceanic and Atmospheric Administration (NOAA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)

Federal agencies ("partner agencies" and possibly others) will continue to be consulted, as needed and at the direction of the EPA, based on work associated with the pre-remedial design and remedial design phases of the Project. For example, additional agencies may be consulted based on regulatory requirements for work within portions of the Passaic River, such as the U.S. Coast Guard (USCG).

2.3.2 Settling Party

The Settling Party, as defined in the Settlement Agreement, is Occidental Chemical Corporation. Communications associated with, and execution of, the Settlement Agreement are being led by GSH on behalf of Occidental Chemical Corporation. GSH will be referred to as the "Settling Party" within this PMP.

Key representatives designated by the Settling Party, and approved by the EPA, pursuant to the Settlement Agreement include:

- Project Coordinator - GSH
- Community Coordinator – To be determined
- Supervising Contractor - Tetra Tech

Refer to Appendix B (Project Team/Stakeholder Information) and Section 7.1 (Roles and Responsibilities).

2.3.3 Other Stakeholder Groups

Various other stakeholders (for example, other potentially responsible parties [PRPs], people, interest groups, and other organizations or institutions that live in the project areas or closely identify with the issues associated with the project) will be kept informed by EPA, and/or GSH as directed by EPA, to assist stakeholders in being meaningfully involved in and informed about the Project, as needed.

As identified in the 2017 Draft CIP that was developed for EPA and USACE during prior investigations, the *partner agencies* (refer to Section 2.3.1, above) endeavor to provide the public with accurate information and reach out to, and seek to involve, the public in the broadest sense. Those community members, interest groups, and other organizations or institutions located in the project areas that are potentially affected by the project, or who closely identify with the cleanup or restoration efforts associated with the Lower Passaic River and Newark Bay, were identified in Appendix 9 (Regional Authorities) and Appendix 10 (Stakeholder Groups) of the 2017 Draft CIP.

EPA has the lead responsibility for developing and implementing community involvement activities at the Site, and EPA is expected to review the CIP and determine whether it should be revised to describe further public involvement activities during the work that are not already addressed or provided for in the CIP. The stakeholder network, for work associated with the pre-remedial design and remedial design phases of the Project, will be established based on direction from EPA. Refer to Section 8.3 (Community Involvement and Relations).

2.3.4 Work Groups

Work Groups will be held to discuss strategy and approach for the pre-remedial design and remedial design activities. Work Groups will include representatives from agencies, the Settling Party (GSH) and the Settling Party's Supervising Contractor (Tetra Tech). The development of Work Groups will be in consultation between EPA and the Settling Party, based on the evolving needs of the pre-remedial design and remedial design activities.

2.4 REGULATORY AND PERFORMANCE CONSIDERATIONS

Deliverable development and implementation of work will be in accordance with applicable federal, state and local regulations and guidance. Regulations and guidance will be appropriately cited in applicable deliverables. Regulations and guidance documents thatapply to the Project work are specified in the Settlement Agreement (refer to Appendix A).

Work will comply with all applicable federal, state, and local laws and regulations, as well as all applicable Project-specific orders, agreements, and rules relating to the Project. Any incidence of non-compliance will be brought to the attention of EPA via telephone and followed by written notice and will follow reporting requirements set forth in the Settlement Agreement (refer to Section 3.2, Deliverables and Reporting).

2.4.1 Permits and Authorizations

Tetra Tech, on behalf of GSH, will comply with the substantive requirements of the permitting regulations that are considered applicable or relevant and appropriate requirements (ARAR) in the ROD and any other regulatory compliance elements that are required to accomplish the authorized scope of work. The Remedial Design Work Plan (RDWP) will include descriptions of the substantive requirements of the applicable permit regulations and other regulatory requirements. As the Project progresses, planning will be implemented to comply with the substantive requirements of the applicable permits and authorizations.

Regulatory requirements that involve detailed information on how the remedial action will be performed will need to be deferred until the remedial action stage of the Project."

- A list of Project-specific permits and authorizations and tracking information, when compiled in upcoming phases, will be included in Appendix D (Regulatory and Performance Considerations).

2.4.2 Remedial Action Objectives and Remediation Goals

Remedial action objectives (RAOs) describe what a remedial action is expected to accomplish. Pursuant to Section 8 of the ROD, the following RAOs have been established for OU2:

- Reduce cancer risks and non-cancer health hazards for people eating fish and crab by reducing the concentrations of contaminants of concern (COCs) in the sediments of the lower 8.3 miles.
- Reduce the risks to ecological receptors by reducing the concentrations of COCs in the sediments of the lower 8.3 miles.
- Reduce the migration of COC-contaminated sediments from the lower 8.3 miles to upstream portions of the Lower Passaic River and to Newark Bay and the New York-New Jersey Harbor Estuary.

The remedial action will need to achieve the interim remediation milestones and remediation goals, as identified in Section 8 of the ROD. Interim remediation milestones include fish and crab tissue concentrations used during monitoring after remedy implementation. These data are used to evaluate whether contaminant concentrations in fish and crab tissue are decreasing as expected (Table 24, columns 8-10 of the ROD). The remediation goals for the lower 8.3 miles are summarized in ROD Table 25 (in ROD Appendix II, bolded numbers).

2.4.3 Performance Standards

Pursuant to the Settlement Agreement, EPA will develop Performance Standards related to remedy implementation. EPA will collaborate on an ongoing basis with the Settling Party throughout the Performance Standards development process, and will consider the opinions and suggestions provided by Settling Party. EPA is developing the following Performance Standards:

1. Engineering performance standards, including but not limited to resuspension and productivity.
2. Quality of life performance standards, including, but not limited to, air quality, odor, noise and lighting.

The remedial design will be developed to achieve the Performance Standards. EPA will be the final arbiter with respect to the content of the Performance Standards.

- Performance Standards, when developed, will be included in Appendix D (Regulatory and Performance Considerations).

2.4.4 Deliverables, Compliance Milestones and Stipulated Penalties

Deliverables will be prepared and submitted in accordance with Sections 5 and 6 of the Settlement Agreement SOW. Information on required Project deliverables is provided in Section 3.2 (Deliverables and Reporting) and Appendix C.

Some of the deliverables are considered "Compliance Milestones" and pursuant to Section XVI (Stipulated Penalties) of the Settlement Agreement, the Settling Party is liable to EPA for monetary penalties for failure to

comply with submittal requirements. Compliance Milestones also include compliance with payment of future costs and establishment/maintenance of financial assurances. Monetary penalties range from $3,000 to $12,000 per day.

All Compliance Milestones are listed below, and reporting-associated Compliance Milestones are also identified in Appendix C.

- Project Management Plan
- Pre-Design Investigation Work Plan
- Pre-Design Investigation Evaluation Report
- Remedial Design Work Plan
- Site Selection and Evaluation Work Plan
- Site Selection and Evaluation Report
- Preliminary Remedial Design
- Intermediate Remedial Design
- Pre-Final Remedial Design
- Final Remedial Design
- Payment of Future Response Costs
- Establishment and maintenance of financial assurance in compliance with the timelines and other substantive and procedural requirements of Section XXIV (Financial Assurance) of the Settlement Agreement.

2.4.5 Green Remediation

As stated in the ROD (Section 12.12 Green Remediation), the environmental benefits of the selected remedy may be enhanced by consideration of technologies and practices during the design of the remedy that are sustainable in accordance with EPA Region 2's Clean and Green policy. This will include consideration of green remediation technologies and practices.

The objective of the Clean and Green Policy is to enhance the environmental benefits of federal cleanup programs by promoting sustainable technologies and practices. The Clean and Green Policy establishes a preference for use of:

- 100% use of renewable energy, and energy conservation and efficiency approaches including EnergyStar equipment
- Cleaner fuels and clean diesel technologies and strategies
- Water conservation and efficiency approaches including WaterSense products
- Sustainable site design
- Industrial material reuse or recycling within regulatory requirements
- Recycling applications for materials generated at or removed from the site
- Environmentally Preferable Purchasing
- Greenhouse gas emission reduction technologies

Under the Clean and Green Policy, certain green remediation practices serve as touchstones for EPA Region 2 response actions (EPA Region 2, 2016). These practices are the "point of departure" for Superfund cleanups, and will be standard unless a site-specific evaluation demonstrates impracticability or favors an alternative green approach. Touchstone practices that will be considered during the Passaic River OU2 design include:

- Use of 100% of electricity from renewable sources
- Clean diesel fuels and technologies
- Material Reuse, Reduction or Recycling

3 SCOPE MANAGEMENT

3.1 SCOPE STATEMENT

3.1.1 Pre-Remedial Design and Remedial Design

The scope, as defined in the Settlement Agreement SOW, includes implementation of the pre-remedial design investigations and remedial design work for the remedy selected in the ROD. The pre-remedial design and remedial design includes:

- Development of various pre-design deliverables to support the remedial design and associated agency review/comment/approval, as specified.
- Development of Performance Standards (lead by EPA).
- Implementation of Pre-Design Investigations (PDIs).
- Development of remedial design deliverables and associated agency review/comment/approval, as specified.

- Details on deliverables, agency review/comment/approval and Performance Standards are presented in Section 2.4 (Regulatory and Performance Considerations) and Section 3.2 (Deliverables and Reporting).

3.1.2 Remedial Action

Although the scope for OU2 pursuant to the Settlement Agreement does not include implementation of the remedial action, the remedial action for OU2 is summarized below to provide context for the scope of the remedial design.

The selected remedy for OU2 is described in the ROD as including the following:

- **Dredging:** Bank-to-bank dredging of approximately 3.5 million cubic yards (cy) of contaminated sediments prior to cap installation. The average depth of dredging is estimated to be 2.5 feet, except in the lower 1.7 miles of the federally authorized navigation channel, which will be dredged to varying depths. The remedy, after dredging and capping, must accommodate commercial use of the navigation channel and anticipated future recreational use of the area upstream of RM 1.7.
- **Sediment Dewatering and Disposal:** Dredged sediment is to be dewatered and transported to a permitted treatment facility and/or landfill for disposal.
- **Capping:** An engineered cap over the sediment, except in areas where backfill may be placed after all contaminated sediments have been removed. Capping of dredged mudflats will include a habitat reconstruction layer.
- **Institutional Controls:** These controls will be used to protect the engineered caps and maintain prohibitions on fish and crab consumption until NJDEP, in consultation with EPA, determines they can be lifted or adjusted based on data from long-term monitoring. Additional community outreach will be conducted to encourage greater awareness of the fish and crab consumption prohibitions.
- **Long-term Monitoring and Maintenance:** Long-term monitoring and maintenance of the engineered cap, and long-term monitoring of sediment, fish, crab, and water to determine when interim remediation milestones, remediation goals and RAOs are achieved.

3.2 DELIVERABLES AND REPORTING

Various deliverables and reporting are required pursuant to the Settlement Agreement. The PMP captures the requirements within the following subsections:

- Section 3.2.1 – Quarterly Progress Reports
- Section 3.2.2 – Remedial Design Deliverables
- Section 3.2.3 – Reporting for Emergency Response and Off-Site Shipments
- Section 3.2.4 – Development, Submittal to Agencies and Agency Review.

3.2.1 Quarterly Progress Reports

Quarterly Progress reports are required as per the Settlement Agreement (refer to Appendix C), and will summarize activities that took place during the prior reporting period, including:

- The actions that have been taken toward achieving compliance with the Settlement Agreement.
- All results of sampling and tests conducted by, and all other data received or generated by, the Settling Party, in an interactive, searchable database (in Excel or Access format). This database will be equivalent in form and function to any database used by the Settling Party in the development of the remedial design.
- A description of all deliverables that the Settling Party submitted to EPA.
- An updated remedial design schedule, together with information regarding approximate percentage of completion, delays encountered or anticipated that may affect the future schedule for completion of the remedial design, and a description of efforts made to mitigate those delays or anticipated delays.
- A description of any modifications to the work plans or other schedules that the Settling Party has proposed or that have been approved by EPA.
- A description of all activities undertaken in support of the CIP during the reporting period and those to be undertaken in the next reporting period. This component of the Quarterly Progress Report will be provided if the EPA provides direction to the Settling Party on community involvement activities (refer to Section 8.3, Community Involvement and Relations).

The Settling Party proposes to submit the first Quarterly Progress Report on January 16, 2017 for the prior quarter (October through December 2017). Subsequent Quarterly Progress Reports, would then adhere to the following submittal schedule:

- April 15th for January through March
- July 15th for April through June
- October 15th for July through September
- January 15th for October through December

If the 15th of the month falls on a weekend or holiday, the report will be submitted the next business day.

3.2.2 Remedial Design Deliverables

A summary of the remedial design deliverables and submittal deadlines, as required by the Settlement Agreement, is provided in Appendix C. Refer to the Settlement Agreement for complete information.

3.2.3 Reporting for Emergency Response and Off-Site Shipments

A summary of reporting requirements for emergency response and off-site shipments, as per Section 4 of the Settlement Agreement SOW, is provided in Appendix C. Refer to the Settlement Agreement for complete information. Core components of the requirements in Appendix C will be addressed in the Emergency Response Plan (ERP) and health, safety and emergency preparedness is also discussed in Section 9.1.

3.2.4 Development, Submittal to Agencies and Agency Review

A summary of the required deliverables processes (as specified in the Settlement Agreement) is as follows:

- **Schedule**: Deliverables will be developed and submitted based on the *RD Schedule* defined in the Settlement Agreement SOW. Refer to Appendix C and Section 4 of the PMP.
- **Certification:** Select reports must be signed by the Settling Party's Project Coordinator, or other responsible official of Settling Party (refer to Appendix C), and must contain the following statement:

  I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

- **EPA Submittal**: Settling Party will submit:
  - Deliverables for EPA approval or for EPA comment as specified in the SOW. If neither is specified, the deliverable does not require EPA's approval or comment.
  - All deliverables to EPA will be in electronic form.
  - Technical specifications for sampling and monitoring data and spatial data in accordance with the requirements in Paragraph 5.4 of the SOW (refer to Appendix A). All other deliverables to EPA in the electronic form specified by the EPA Project Coordinator. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11", Settling Party shall also provide EPA with paper copies of such exhibits, upon EPA request.
  - Refer to Appendix B-1 for deliverable distribution contact information.
- **NJDEP Submittal:** Settling Party shall, at any time it sends a deliverable to EPA, send a hard copy of such deliverable to the State. Refer to Appendix B-1 for deliverable distribution contact information. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to Settling Party, send a hard copy of such document to the State. The State will have a reasonable opportunity for review and comment prior to any EPA approval or disapproval of any deliverables that are required to be submitted for EPA approval.
- **Approval of Deliverables:** EPA will review (and approve when required) deliverables as per the SOW. The Settling Party will, within 30 days or such longer time as specified by EPA in such notice, address the EPA's comments and resubmit the deliverable for review and approval.
- **Implementation:** Upon approval, approval upon conditions, or modification by EPA the deliverable will be incorporated into and enforceable under the Settlement Agreement.

3.3 DOCUMENT MANAGEMENT AND CONTROL

The document management and control process provides the framework to support the Project Team in consistently addressing development, distribution, maintenance, filing and retention of documents received, generated, or processed for activities associated with the Project.

The Tetra Tech Project Manager (PM) or designee has the final responsibility for ensuring document control. The Document Control Coordinator (DCC) has responsibility for overall day-to-day document control management and is the point of contact (POC) for records-related issues. All Project Team members will communicate with the DCC regarding document management and control.

3.3.1 Naming, Tracking, Formats, Security and Version Control

The following procedures summarize the file naming, tracking, formats, security, and version control guidelines for the Project.

a) **File Document Control Number (DC#)**: DC#s will be assigned to certain documents at the discretion of Tetra Tech as a tool for identifying proper file storage location. The DC# should be on transmitted documents and will be in a standard format, such as:

LPROU2-YY-FF-####

Where:

LPROU2	Is the fixed Project abbreviation (Lower Passaic River OU2)
YY	Is the document year (e.g. 2016 is represented as 16)
FF	Is the document file folder location designation
####	Is the assigned filing sequence number

b. **File Naming**: Filenames will be developed based on file structure guidelines for the Project, and will contain information on document type, the date, and the revision/approval status.

c. **Formats:** Tetra Tech report formats for the Project will adhere to Tetra Tech corporate style-guide formats. Formats will be confirmed with the Tetra Tech PM, or designee, prior to development.

d. **File Security**: Access to files will be limited to authorized personnel, as directed by the Tetra Tech PM or designee and managed by the DCC. File restriction ("read only") will be established based on document version/type, as appropriate. File server(s) will be backed up routinely, and hard copy files will be maintained in a secure cabinet.

e. **Version Control**: Various control measures and tools will be used to manage document review (internal and external), update and finalization to ensure quality and control.

3.3.2 Document Quality Control Processes

It is Tetra Tech's objective to consistently provide quality scientific and engineering work products that are in compliance with applicable laws and/or regulations; are legible and error-free; and are consistent with the Project-defined scope, schedule, budget, and other contractual obligations. To ensure this objective is achieved, plans, studies, evaluations, reports, and other deliverables will undergo an appropriate level of independent review and approval by qualified professionals other than the originator. A graded approach will be developed and utilized, with various review classification levels being assigned by the QA/QC Lead (refer to Section 7.1.3), depending upon the degree of technical complexity and risk-sensitive impact potential of the document. Performance of the reviews will be recorded on Review Documentation Sheets and retained in accordance with the Project filing system.

- **QC Reviewers:** Tetra Tech's position is that quality is the primary responsibility of those performing the work and not the sole domain of a single QC group or person. All members of the Project Team are

responsible for QC, and are expected to follow available guidance (e.g., project plans) to ensure the quality of their work products. QC Reviewers encompass a variety of disciplines and are comprised of those managers, engineers, superintendents, and scientists reporting to senior management. Their interdisciplinary reviews of Project Team work products are expected to serve as a QC check.

- **Editorial Reviewers:** As a second step in the overall document preparation process, an editorial review of each internal draft deliverable will be performed. This assessment will improve the readability and clarity of written material before it is submitted to the client or regulatory agencies.
- **Independent Technical Reviewers:** In addition to the above described QC Review and Editorial Review, each work product, or applicable section thereof, will undergo an independent technical review by one or more "qualified professionals," who are competent individuals within an appropriate discipline who have technical qualifications and experience that are equal to or exceed those of the originator(s) and who were not part of the preparation of the work product. This Independent Technical Review Team will ensure the following:
  - Concepts, assumptions, features, methods, analyses, and details are appropriate, complete, fully coordinated, and correct.
  - Problems, risks, opportunities, and issues are properly identified and addressed.
  - Analytical methods used are appropriate and yield reliable results.
  - Results and recommendations are reasonable, within policy guidelines, and supported in the deliverable.
  - Deliverables are in compliance with design criteria, policy, guidance, and standards with deviations appropriately identified and properly approved.
  - Products are biddable, constructible, operable, environmentally sound, and cost effective.

For each stage/phase of the Project work, the Tetra Tech PM or designee and QA/QC Lead will determine applicable technical requirements based on the planned work and develop the Independent Technical Review Team. If, during the performance of the Project, additional work scope is identified, requiring additional disciplines to be involved, the Independent Technical Review Team will be modified accordingly.

Refer to Section 6 (Quality Management) for additional information and processes for QC on field investigations, design, inspections/surveillances/audits, and nonconformance and corrective actions.

3.3.3 Confidential Information

Confidential information or information that could be interpreted as such will not be disseminated by any means to any other individual, firm or corporation without the express written permission of the holder of such information owning the authority to permit use. The Tetra Tech PM/Deputy Project Manager (DPM) and GSH Project Coordinator will discuss confidentiality considerations as they may arise and develop case-specific procedures for handling. Some general guidelines/best practices for handling confidential data, information, or communications include:

- Include appropriate text indicating confidential status on data/documents/written communications.
- Maintain electronic and hard copy files of confidential or potentially confidential information in secure locations with controlled access (e.g. locking file cabinet, access limited file server).

Refer to Settlement Agreement Section X, Paragraphs 58 - 60 for Settling Party requirements on confidential information.

3.3.4 File Storage and Repository

Electronic storage of files will be the primary storage format. In summary, files will be stored, as follows:

- On a Tetra Tech server.
- On a Tetra Tech maintained SharePoint site or other file-sharing/collaborating tool that will have specific access authorizations (as defined by GSH) for GSH, GSH representatives/agents, and EPA and/or their consultants or contractors.

3.3.5 Record Retention

Retention of Project files will be, at a minimum, as required in the Settlement Agreement, as summarized below.

- Until 10 years after receipt of EPA's notification that Work has been complete, Settling Party shall preserve and retain all non-identical copies of documents, records and other information (and instruct its contractors and agents of the same).
- At the conclusion of document retention period, Settling Party shall notify EPA and the State at least 90 days prior to the destruction of any such documents, records, or other information and, upon request by EPA or the State, Settling Party shall deliver any such documents, records, or other information to EPA or the State.

4 SCHEDULE MANAGEMENT

Baseline project schedule information based on the *RD Schedule* in Section 6.2 of the Settlement Agreement SOW is presented as Appendix C-1. The Project schedule, including submittal dates, is subject to change over the course of the Project, depending on various factors, such as the actual EPA review and approval duration, the progress of work, and what is required to reach performance goals.

To monitor and control Project progress, Tetra Tech will maintain a working Project schedule (MS Project format with a logic hierarchy) that will include activities that support Project execution and compliance with completing the required SOW. The baseline working Project schedule is provided in Appendix C-3.

The working Project schedule will be updated for actual starts and finishes (e.g., review/comment of deliverables), unforeseen or uncontrollable delays. The updated MS Project schedule will be provided to the EPA with the Quarterly Progress Reports, or as requested.

The Tetra Tech PM or designee will manage schedule performance with routine, frequent reviews of schedule and associated budgets (compared to the baseline). This will support early identification and correction of pending problems, as well as opportunities to accelerate progress. For example, during field work (e.g., PDI implementation), Tetra Tech will review actual production and will routinely update the schedule to reflect actual progress and projections for anticipated progress.

Schedule information will be provided in the Quarterly Progress Reports (refer to Section 3.2.1). If the Settling Party identifies the need for remedial design Project milestone revision, the Settling Party will submit the proposed revised remedial schedule(s) for EPA approval. Upon EPA's approval, the revised schedule will supersede the *RD Schedule*, and any previously-approved *RD Schedule*.

5 CHANGE MANAGEMENT

Although the ROD defines the remedial activities and associated requirements of the Project, given the complexity and uncertainty involved with remediating sediment sites, especially at such a large scale, EPA (as per the Settlement Agreement) expects to employ an adaptive management approach during the remedial design and implementation of the remedy. Information and experience gained as a result of earlier stages of the remedial design and remedy implementation will inform later stages of the design and implementation. This will allow for appropriate adjustments or modifications to Project procedures, plans or decision making conventions, to enable efficient and effective remedy implementation, providing a means to address uncertainties promptly and inform specific design decisions. Adjustments or modifications will be made in collaboration with EPA, NJDEP and its consultants and contractors according to an adaptive management process.

Any remedy modifications will be made and documented in accordance with the CERCLA process and EPA's "A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents" (July 1999), through a memorandum to the Project file, an Explanation of Significant Differences or an Amendment to the ROD.

6 QUALITY MANAGEMENT

6.1 QUALITY MANAGEMENT PLAN (QMP)

Tetra Tech maintains a Quality Management Plan (QMP) for the Project that describes Tetra Tech's quality program policy and requirements to be implemented during the performance of the investigation, engineering, and program support services. The QMP defines basic QA/QC requirements that will guide, as applicable, personnel during planning, implementation, work product preparation, and field activities for the Project.

The QMP describes:

- The Tetra Tech quality program organization, including the roles and responsibilities of quality-related personnel.
- Basic Quality Management System (QMS) requirements to be addressed.
- Basic QA and QC requirements applicable to data collection, work product preparation, engineering design, and technical support.

The QMP addresses quality requirements from a program/project management perspective. Environmental activities covered by this QMP include environmental studies, investigations, project planning and remedial design.

- The QMP will be reviewed – and updated as applicable – annually, at a minimum, to reconfirm the effectiveness of approved quality management practices and remain current with requirements and/or guidelines.

Additional details and specific quality requirements not completely covered by the QMP will be addressed in the following documents:

- The Project-specific, EPA-approved Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP).
- Activity-specific plans/addenda.

The effective implementation of the QA/QC requirements of the QMP, coupled with specific plans and protocols (such as those listed above and in Section 6.2, below), supports the quality of project execution of Tetra Tech's environmental, engineering and management programs.

6.2 QUALITY CONTROL ELEMENTS

Processes for quality control on field investigations, design, inspections/surveillances/audits, and nonconformance and corrective actions is described in this section. Refer to Sections 3.2 and 3.3 for document development/review quality control processes.

Field Investigation Activity Quality Control. To ensure efficiency, cost effectiveness, coordination with Project objectives, reliability of data collected, safety, and uniform recording and reporting formats, investigation activities will be conducted using EPA-approved, Project-specific plans (the RDWP, the UFP-QAPP, which includes the Field Sampling Plan [FSP] and Quality Assurance Project Plan [QAPP], and Pre-Design Investigation Work Plans [PDI WPs]) and procedures developed from Tetra Tech standardized procedures and policies. Tetra Tech personnel have ready access to our comprehensive set of science and engineering procedures and policies maintained online in our corporate procedures library (CPL). Implementation of the work will be accomplished by qualified personnel with a level of QC oversight and inspection commensurate with the complexity of the particular task and intended use of the results. Monitoring personnel will include the Technical Task Lead or designee,

activity-specific quality POCs, and senior Project personnel. Work processes are measured against the established technical and quality specifications to ensure satisfactory performance. In addition, in accordance with internal Tetra Tech policies, the QA/QC Lead and/or a qualified member of the Tetra Tech staff may accompany sampling personnel into the field, following our corporate On-Site Field Inspection Plan, to verify sampling is being correctly implemented according to plans. Each audit will be summarized in a report, which will be uniquely identified for tracking purposes, and any deficiencies noted during the inspection will be identified, with a recommended corrective action for compliance.

Design Quality Control. Project-specific design planning involves multiple agency, stakeholder and Settling Party personnel, as well as subcontractors/vendors responsible for the technology, key users, and other stakeholders (as applicable). Tetra Tech will ensure the designs have well-defined specifications, stakeholders have input as the designs progress, qualified personnel carry out the design work, and final designs are verified to meet all contract and regulatory requirements and ROD.

As defined in the RDWP, design engineers will establish, and subsequently implement, Project processes and procedures to ensure systems are designed using sound engineering/scientific principles and appropriate standards. Implementation of these procedures ensures control of design inputs, processes, outputs, configuration changes, interfaces, and quality records, and provides for efficiency, cost effectiveness, accuracy, practicality, and constructability. Engineering and design activities, including but not limited to, development of design criteria, the preparation of calculations, analyses, drawings, and technical specifications, technical memoranda, technical submittals to regulatory agencies, etc. will be performed and reviewed/verified in accordance with Tetra Tech written procedures. They will also be performed under the responsible charge of a professional engineer licensed in New Jersey and experienced in sediment remediation design issues. Design process control will provide for the following:

- Correct translation of design inputs into design outputs.
- Effective coordination and interfaces of organizations comprising the client, client representatives, Tetra Tech's personnel, and subcontractors participating in the design process.
- Acceptance and verification of design outputs in a timely manner.
- Implementation of design reviews at the preliminary, intermediate, pre-final, and final stages.
- Control and systematic performance of design and engineering assignments.

Procedures for Inspections, Surveillances, and Audits. The QA/QC Lead (or designee) will conduct internal systems and technical audits during the course of the Project to assess adherence to plan requirements, and these appraisals will be in accordance with Tetra Tech's QMP.

Nonconformance and Corrective Action. Work or materials not conforming to the contract or plan requirements will be identified by Project personnel to the PM, Task Lead, or QA/QC Lead and documented. The Quality Event Reports (QERs) will detail the nonconforming condition, item, or activity, including reference to the criteria for comparison; affected organization(s); disposition of the necessary actions required to bring the nonconforming condition to an acceptable condition (e.g., reworking, replacing, re-testing, or re-inspecting); root-cause analysis and recommended corrective action(s) to prevent recurrence. In addition to resolving identified nonconforming conditions, the QER record will also address the initial cause of adverse conditions, and establish methods and controls to prevent recurrence of the same or similar types of non-conformances. Nonconforming items or materials will be segregated from acceptable items and controlled to prevent inadvertent use or further processing.

As part of the QER, an analysis of causes will be performed. These will include both Immediate Causes (i.e., "What actions and/or conditions contributed to this event?") and Basic Causes (i.e. "What specific personal or job

management system factors contributed to this event?"). For the Immediate Causes, these could include substandard acts and/or substandard conditions, such as:

Substandard Acts

- Acceptance of defective equipment/material
- Failure to follow/improper execution of procedure
- Failure to communicate—written and/or verbal
- Inadequate inspection/peer review
- Under influence of alcohol/drugs
- Poor judgment
- Horseplay

Substandard Conditions

- Personnel not properly qualified or trained
- Defective equipment/material
- Inadequate oversight
- Inadequate procedure/instruction

The Basic Causes can include both personal factors and/or job factors as noted below:

Personal Factors

- Inadequate physical/physiological capability
- Inadequate mental/psychological capability
- Physical or physiological stress
- Lack of knowledge
- Lack of skill
- Improper motivation

Job Factors

- Inadequate leadership and/or supervision
- Inadequate engineering
- Inadequate purchasing
- Inadequate maintenance
- Inadequate tools and equipment
- Inadequate work standards
- Change

The QER will also include a section on the actions planned to control each of the determined causes, the person responsible for the action, the potential date for implementation, and the actual date of completion.

The QA/QC Lead will monitor the corrective actions to verify they were properly implemented and accepted and the QER was closed out. In addition, the nonconformance and corrective actions will be tracked by QC POCs to identify any trends in the causes of the nonconforming conditions and then initiate necessary actions to prevent recurrence.

The EPA will be provided with a copy of the QERs.

7 HUMAN RESOURCE MANAGEMENT

The Project team consists of appointed representatives from EPA, the Settling Party (Occidental Chemical Corporation as represented by GSH) and the Settling Party's Supervising Contractor (Tetra Tech). Project staff organization and roles are presented in this PMP as follows:

- Project team contact information, in Appendix B-1, provides current names, addresses, emails and telephone numbers for key team members.
- Organizational chart, in Appendix B-2, illustrates the management structure that will be used to implement this Project.
- Communications management, in Section 8 and Appendix E, includes communication protocols to support efficient exchange of Project information.

Roles and responsibilities are further described in the following subsections.

7.1 ROLES AND RESPONSIBILITIES

7.1.1 EPA

EPA's primary point of contact for this Project is the *EPA Project Coordinator*. As specified in the Settlement Agreement, EPA may designate other representatives, which may include its employees, contractors and/or consultants, to oversee the Work as an Alternate Project Coordinator.

- The EPA Project Coordinator is Ms. Alice Yeh of the Emergency and Remedial Response Division, Region 2. Refer to Appendix B for EPA contact information and an organizational chart with EPA roles, and Appendix E for the communications plan.

It is anticipated that the EPA Project Coordinator will be the primary agency POC between the Settling Party and that EPA will serve as the interface between other agencies and the Settling Party, as needed, for implementation of the SOW. The EPA Project Coordinator has the following responsibilities, as defined in the Settlement Agreement:

- The EPA's Project Coordinator has the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the National Contingency Plan (NCP).
- Has authority consistent with the NCP, to halt any Work required by the Settlement Agreement, and to take or direct any other necessary response action when determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment.
- Receives all submissions from Settling Party required by this Settlement Agreement, unless indicated otherwise.

7.1.2 Settling Party (GSH)

The Settling Party's (GSH's) primary POC for this Project is the *Setting Party Project Coordinator*. The Settling Party Project Coordinator is Mr. Juan Somoano, P.G., CAPM of GSH. Mr. Somoano has over 25 years of applicable technical experience to oversee all aspects of the work to be conducted at the lower 8.3 miles of the Lower Passaic River Project as required by the Settlement Agreement. Mr. Somoano's prior experience includes oversight of work

at sediment and waterway sites, at Superfund and EPA-lead sites, and past performance as the designated company representative for Superfund and other State and Federal regulatory programs.

The Settling Party Project Coordinator will serve as the primary line of communication with the EPA and with the Settling Party Supervising Contractor (refer to Section 7.1.3). Pursuant to the Settlement Agreement, receipt by Settling Party's Project Coordinator of any notice or communication from EPA relating to the Settlement Agreement shall constitute receipt by the Settling Party.

The Settling Party Project Coordinator has the following responsibilities, as defined in the Settlement Agreement:

- Administration of all actions by Settling Party required by this Settlement Agreement.
- Be present (or a designated representative) to the greatest extent possible on site or readily available during OU2 Work.

The Settling Party's Project Coordinator will be the primary line of communication with the Settling Party Supervising Coordinator (Tetra Tech) and the EPA; and will be the primarily line of communication or assign a designated representative for communications with other entities (e.g., agencies, public, etc.).

If requested by EPA, the Settling Party will conduct community involvement activities under EPA's oversight as provided for in, and in accordance with, Section 2 (Community Involvement) of the Settlement Agreement SOW. Such activities may include, but are not limited to, designation of a Community Coordinator.

Refer to Appendix B for Settling Party contact information and an organizational chart with Settling Party roles, and Appendix E for the communications plan.

7.1.3 Supervising Contractor (Tetra Tech)

Tetra Tech, as selected by GSH, is the EPA-approved Settling Party's Supervising Contractor. As Supervising Contractor, Tetra Tech will implement the Settlement Agreement SOW as directed and authorized by GSH.

The Tetra Tech Project management team has been developed based on the selection of staff with demonstrated experience with a similar scope of work. Tetra Tech will continue to draw from its pool of personnel resources to staff and perform the various Project-level tasks as the Project progresses.

Specific Tetra Tech management personnel for this Project are presented in the organizational chart in Appendix B. Summaries of Tetra Tech's management-level roles and responsibilities are provided in the following subsections. In the event that lead Project personnel must be substituted or added, Tetra Tech will communicate with GSH, and the staff information will be updated in the PMP accordingly.

7.1.3.1 Project Manager (PM)

The Tetra Tech PM is Mr. Stephen McGee. Mr. McGee is a Vice President with Tetra Tech and has 30 years of experience in development of large science, engineering, and construction projects and serves as the National Program Lead for Tetra Tech's Contaminated Sediment Practice. His experience includes work on several of the largest sediment projects in the nation performing the sediment sampling and logging, fluvial geomorphology, hydrodynamic modeling, high resolution bathymetric surveys of the riverine systems and floodplains, design engineering of the material handling and process systems for sediment and waste water, construction and O&M of the unit operations, and implementation of mechanical and hydraulic dredging of contaminated sediments.

The PM primary responsibilities include:

- Manage the overall Project performance and quality of the Project deliverables in accordance with the contract and regulatory requirements.
- Procure any resources required to effectively complete the required work.
- Ensure all assigned resources are well-focused in support of the successful completion of the work.
- Handle changes in the scope of work, schedule, and/or costs requiring Tetra Tech's action with GSH.
- Serve as primary line of communication with GSH.
- Control Tetra Tech and Tetra Tech subcontractor communications with GSH and EPA.

7.1.3.2 Deputy Project Manager (DPM)

The Tetra Tech DPM is Mr. Richard Feeney, P.E. Mr. Feeney is a Vice President with Tetra Tech and has 40 years of experience in engineering design, construction and operations, and environmental remedial investigation, design and action. He is the project engineering lead on the largest contaminated PCB sediment remediation project in the world in Green Bay, WI, involved with all aspects of facility design and serves as a key member of the operations and processing team to ensure adherence to key quality parameters.

The DPM primary responsibilities include:

- Assist the PM with activities specified in the PM section, above, such as: managing the overall Project performance and quality of the Project deliverables in accordance with the contract and regulatory requirements; ensuring all assigned resources are well-focused in support of the successful Project execution and procuring any resources required to effectively complete the required work; handling changes in the scope of work, schedule, and/or costs requiring Tetra Tech's action with GSH; and controlling Tetra Tech and Tetra Tech subcontractor communications with GSH and EPA.
- Serve as a secondary line of communication with GSH (and at times primary line as designated by PM).
- Serve as the primary POC with Tetra Tech's H&S Lead, QA/QC Lead and Technical Task Leads.

7.1.3.3 Health and Safety Lead (H&S Lead)

The Tetra Tech H&S Lead is Ms. Tami Froelich. Ms. Froelich is a Tetra Tech Environmental H&S (EHS) lead, responsible for all aspects of H&S including OSHA recordkeeping, procedure writing, employee EHS training, medical case management, incident investigation, HASP writing and review, regulatory compliance, resource management, and technical oversight. Ms. Froelich manages the implementation of the company's overall safety program that fosters employee involvement, continuous improvement and the application of lessons learned. Ms. Froelich is a Certified Industrial Hygienist (CIH) and Certified Safety Professional (CSP) with over 25 years of experience and holds a Master's Degree in Public Health (MPH), Occupational H&S Management.

The H&S Lead primary responsibilities include:

- Provide review and approval of Project HASPs and other Project H&S documentation/plans.
- Serve as a technical resource to Project staff regarding H&Sy for Project activities.
- Ensure Project activities comply with Tetra Tech Corporate H&S Program and applicable regulations.
- Track and verify that Tetra Tech personal maintain required H&S training and/or certifications for on-site job duties.

7.1.3.4 QA/QC Lead

The Tetra Tech QA/QC Lead is Ms. Lynn Arabia. Ms. Arabia has more than 24 years of experience in site investigations, chemical analysis, environmental fate and transport analysis, QA/QC, field screening headspace and immunoassay analyses, and electronic data formatting for numerous multi-task projects. Ms. Arabia is a Tetra Tech Lead for Chemistry and Sciences and is responsible for providing technical expertise, supervising staff personnel, and reviewing related documents.

The QA/QC Lead is responsible for overseeing the administration of the quality program for the Project and will ensure work is performed in accordance with the QMP, UFP-QAPP, other quality-related plans/addenda, the contract, and other Project requirements (e.g., policies, procedures, codes, regulations, and design standards). The QA/QC Lead responsibilities include:

- Review/approve quality-related deliverables, particularly the UFP-QAPP and associated modifications/addenda.
- Coordinate review/internal approval of Project deliverables prior to submission to EPA, NJDEP and other stakeholders (as applicable).
- Establish/maintain the document control system.
- Conduct periodic inspections/audits to verify compliance and enhance quality workmanship.

The QA/QC Lead can direct “stop work” or re-performance of any nonconforming activity resulting from improper application of prescribed procedures, and monitors corrective actions for conditions adverse to quality. In addition, the QA/QC Lead will oversee individual quality points of contact for the administration of the quality requirements for their respective tasks.

7.1.3.5 Task Leads

Tetra Tech will staff the Project with multiple Task Leads based on the status of Project activities. For the pre-remedial design and remedial design activities in the Settlement Agreement SOW, the Task Leads include:

- Data Management
- Project and Document Controls
- Project Plan Development
- Performance Standards
- PDI
- Toxicology/Risk Assessment
- Remedial Design and Treatability Studies
- Site Selection and Evaluation
- Procurement

Task Leads are responsible for the overall management and coordination of the specific Project task, including ensuring appropriate communication, technical support, reviews, and approvals and interfacing with other Tetra Tech Task Leads, Tetra Tech QA/QC and H&S Leads, and with the Tetra Tech DPM.

7.2 TRAINING AND CERTIFICATIONS

Tetra Tech management will be responsible for ensuring Tetra Tech and Tetra Tech subcontractor personnel are sufficiently qualified, certified, and/or trained, where appropriate, to perform activities within their specific work scope. For example, Tetra Tech management will:

- Determine the level of education, experience, and training required to ensure that Tetra Tech and Tetra Tech subcontractor personnel are qualified to perform work activities. Identify specialized training requirements needed to accomplish highly technical work activities in activity-specific plans and/or standard operating procedures (SOPs).
- Establish specific requirements for subject matter training, qualification, certification, and implementation.
- Provide resources for training, and retraining, including activities such as on-the-job training, and training seminars to ensure that personnel demonstrate and maintain proficiency in performing assigned work.
- Ensure that when job requirements change, the need for retraining is evaluated by Tetra Tech management and provided when necessary.
- Ensure that training, qualification, and certifications are documented (e.g., course/training outline, attendance, duration, text/examination scores, etc.), and records specific to Project-requirements are maintained in the Project files.

8 COMMUNICATIONS MANAGEMENT

The purpose of communications management is to define the communications processes and requirements for the Project. For this PMP, the processes and requirements are focused on Project-team level communications between Tetra Tech, the Settling Party (GSH), agencies and their consultants and contractors and the public.

8.1 COMMUNICATIONS PLAN

Communication between Tetra Tech, GSH, agencies and their consultants and contractors, and the public is graphically depicted on the Communications Plan in Appendix E.

8.2 MEETINGS AND DOCUMENTATION

Various routine Project meetings will be conducted, including:

- Agency Meetings
- Informal Meetings / Telephone Conferences
- Site Visits / Meetings

At a minimum, the Settling Party proposes agency meetings with EPA be scheduled in conjunction with compliance milestone deliverables, beginning with the PDI Work Plan (PDI WP); refer to Appendix C.

Tetra Tech and GSH will prepare draft meeting minutes for key regulatory meetings and distribute to attendees via email for review and concurrence. Comments on the draft minutes from attendees will be addressed by GSH, as needed, and final meeting minutes issued. Meetings will be documented per the following table:

Meeting Documentation

MEETING TYPE	SUBMITTAL	DOCUMENTATION RESPONSIBILITY
Key Agency/Settling Party Meetings	Attendees, Meeting Minutes, Action Items	Settling Party
Work Group Meetings/Telecon.	Attendees, Action Items	Settling Party
Site Visits/Meetings	Attendees	Settling Party
Informal Meetings/Telecon.	None	None
Performance Standards Meetings/Telecon	Attendees, Action Items	EPA

8.3 COMMUNITY INVOLVEMENT AND RELATIONS

Pursuant to Section 2 of the Settlement Agreement SOW, the following community involvement responsibilities are associated with the Project:

- EPA has the lead responsibility for developing and implementing community involvement activities at the Site. The 2006 CIP has been revised to focus on the cleanup of the lower 8.3 miles of the Passaic River (draft dated January 20, 2017 for public comment).
- If requested by EPA, Settling Party shall participate in community involvement activities, including participation in (1) the preparation of information regarding the Work for dissemination to the public, with

consideration given to including mass media and/or Internet notification, and (2) public meetings that may be held or sponsored by EPA to explain activities at or relating to the Site.

- Settling Party's support of EPA's community involvement activities may include providing online access to submissions and updates of deliverables to (1) any Community Advisory Groups, (2) any Technical Assistance Grant recipients and their advisors, and (3) other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP the Settling Party's responsibilities for community involvement activities.
- All community involvement activities conducted by Settling Party at EPA's request are subject to EPA's oversight.

9 OTHER COMPLIANCE RELATED MANAGEMENT

9.1 HEALTH, SAFETY AND EMERGENCY PREPAREDNESS

Health, safety and emergency preparedness will be managed on a Project-specific basis with the development of Project-specific plans. The Tetra Tech H&S Lead will support health, safety and emergency preparedness for the Project. Pursuant to the Settlement Agreement, the following related plans will be developed by the Settling Party and submitted to the EPA according to the specified schedule:

- Health and Safety Plan (HASP): Will be developed as part of the PDI WP, which is a Compliance Milestone (refer to Appendix C).
- ERP: Will be developed as part of the RDWP, which is a Compliance Milestone (refer to Appendix C). Additional emergency preparedness includes compliance with emergency-related reporting as specified in Appendix C.

The Settling Party, the Supervising Contractor and their subcontractors and support personnel will comply with the plans.

9.2 WASTE MANAGEMENT

Waste management will be a component of work associated with the pre-remedial design, remedial design and remedial action. A summary of how the Settling Party will address waste management is summarized below:

- The RDWP will include a plan for identification, screening and selection of disposal sites for waste material during the pre-design and remedial design stages of the Project. Waste handling associated with pre-design activities could include wastes generated during PDI and/or treatability study activities. The RDWP is a Compliance Milestone (refer to Appendix C).
- Sediment dredged during remedial action will be handled at a sediment processing facility. The facility location will be established during the remedial design stage. Specifically, the Settling Party will perform a Site Selection and Evaluation and generate an associated report to document recommendations. The development of the Site Selection and Evaluation Report is a Compliance Milestone (refer to Appendix C).
- The Transportation and Off-Site Disposal Plan (TODP) will be prepared during the Preliminary (30%) Remedial Design (refer to Appendix C) and will include proposed routes for transportation of waste material to the sediment processing facility, identification of disposal sites for waste material, proposed routes for off-site shipment of waste material, identification of communities affected by shipment of waste material, and description of plans to minimize impacts on affected communities. The Preliminary (30%) Remedial Design is a Compliance Milestone (refer to Appendix C).
- Reporting for off-site shipments of waste will be addressed as specified in Appendix C.

10 PROCUREMENT MANAGEMENT

This PMP focuses on the remedial design phase of the Project, and includes activities such as PDIs and treatability studies which may require subcontractor services. For example, subcontractors for the remedial design phase of the project may include:

- Surveyors
- Laboratories
- Taxonomy services (associated with PDI fish studies)
- Elutriate analytical services
- Dredge material characterization services
- Investigation derived waste (IDW) disposal contractors

Local subcontractors and small businesses will be considered during all phases of the project. While more subcontractors will be required for future remedial action phases of the Project (not the focus of this PMP), this procurement management section of the PMP is broad in defining procurement processes to ensure a comprehensive plan that is readily adaptable to evolving Project needs. GSH is committed to providing opportunities for job training for local labor for select services and will evaluate this further as the implementation of field activities approaches.

This section establishes a management system to ensure that procurement processes are controlled, and that procured items and services conform to the requirements identified in procurement documents. The procurement management system applies to items and services that have an impact on the quality of environmental processes and conditions and engineered environmental systems. The basic management system includes the following elements (as appropriate) for the specific item or service purchased:

- Preparation, review, and approval of procurement documents (e.g., purchase requisitions, buy cards, purchase orders, basic ordering agreements, and subcontracts) and revisions or supplements in accordance with established written procedures and instructions.
- Identification of quality requirements in procurement documents that cite equipment and service purchasing.
- Procurement source evaluation and selection;
- Method for ensuring the level of supplier quality through inspections, tests, certifications, source inspections, Tetra Tech vendor performance database, and other valid methods of verifying compliance of items and services.
- Requirements for suppliers, whether contractors, subcontractors, or financial assistance recipients, to have documented and implemented QA/QC programs consistent with the requirements of the Project-specific QMP and UFP-QAPP, and the subcontract and/or purchase order specifications.
- Requirements for suppliers to incorporate appropriate quality requirements into their subtier procurement documents.
- Provisions for assessing, monitoring, and controlling the performance of suppliers through periodic audits, source inspections, or receipt inspection upon delivery (as appropriate).

For all subcontractors, the Supervising Contractor will provide clearly defined scopes of work as part of the procurement process. Submittal requirements for proper licenses, certifications, work plans, personnel qualifications, technical performance levels, QC procedures, acceptability levels, and documentation will be included as part of the subcontract documents. Prior to putting the request 'out on the street,' the QA/QC Lead, or designee, will review the subcontract procurement documents to verify that the QC requirements are passed on to the subcontractor.

Collection and review of H&S information is an integral part of subcontractor selection process, minimizing and managing risks to the Supervising Contractor and GSH. The Supervising Contractor conducts a thorough review of potential subcontractors' safety records, including Experience Modification Rate (EMR) and Days Away, Restrictions and Transfer (DART) rates. Firms with unsafe records do not receive subcontracts. As part of the procurement process, the Supervising Contractor uses our intranet-based Supplier Qualification Module (SQM). The SQM provides for the collection and review of safety performance information from subcontractors, and tracks past H&S reviews/approvals. Through the SQM, subcontractor H&S evaluations are consistent and efficient, and past approvals and PM performance reviews are shared across the corporation.

We will also provide supervision and management of subcontractors working on-site, and the Supervising Contractor representative will typically be present to avoid any confusion over lines of authority. Additionally, subcontractors performing field work will participate in mandatory daily planning, H&S, lessons learned, and QC meetings with the Supervising Contractor. All subcontractors will review our Project-specific safety plans and agree in writing to adhere to these protocols. The key to successful subcontract management is monitoring and oversight.

The QA/QC Lead or designee is responsible for the implementation of inspections, surveillance, document reviews, audits, and other QC activities for monitoring the subcontractor's compliance with the contract and subcontract requirements. These activities will be documented on inspection reports, pre-established checklists, audit reports, field logs, or other forms appropriate to the function performed. In addition, the submittals will be stamped to indicate the results of the inspections and reviews. The submittal register will be updated at the conclusion of the inspection or review to indicate the status of the required submittal.

The QC POCs will provide QC checks while the subcontractor's activities are being performed, to the extent necessary, to determine compliance with the QC requirements set forth in the contract and applicable subcontract documents including:

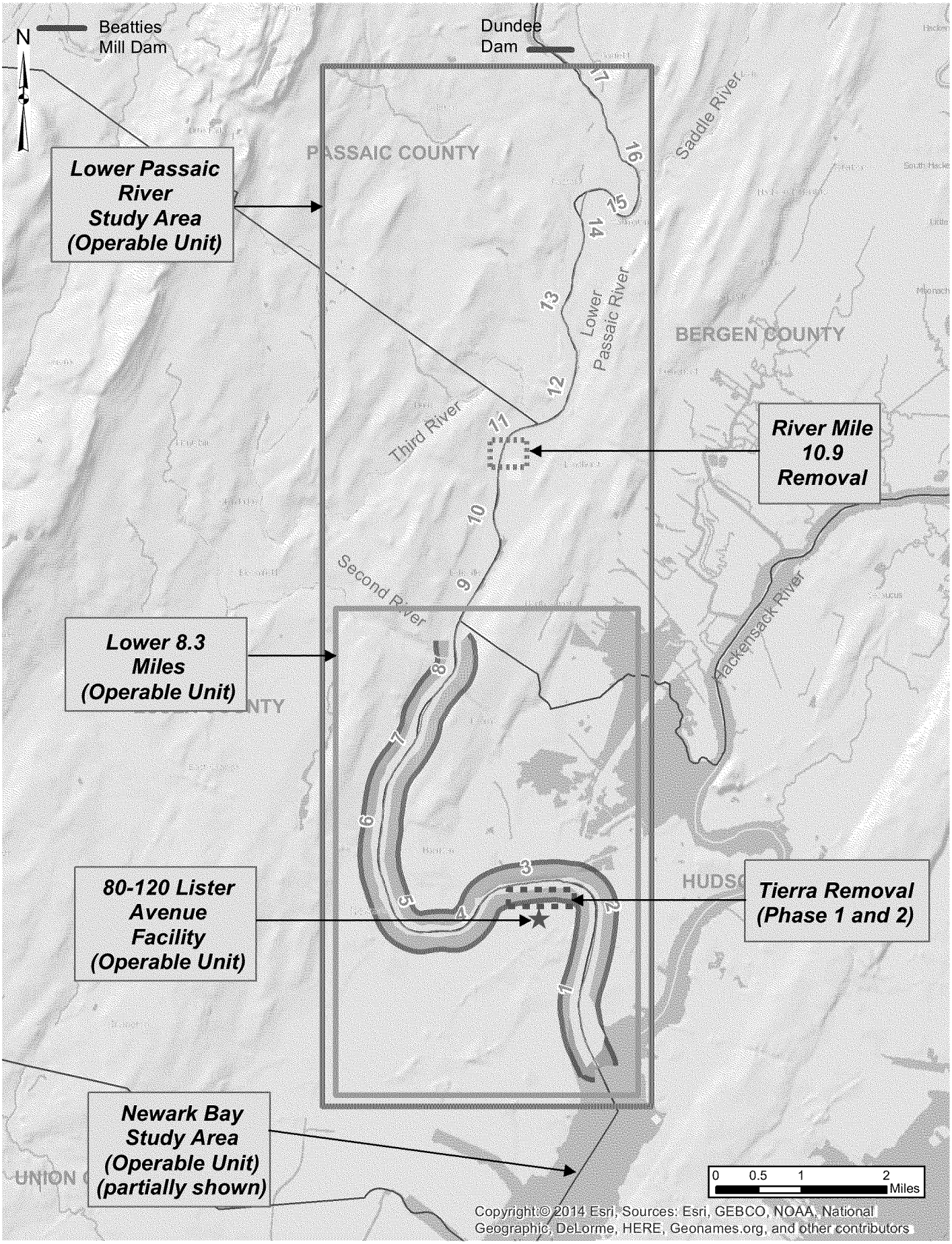
- Meeting quality requirements.
- Generating, controlling, and maintaining required documentation.
- Performing and documenting required inspections and tests.
- Identifying, reporting, and correcting nonconformance conditions.

The following table summarizes the Supervising Contractor subcontract management mechanisms.

Subcontract Management Mechanisms

MECHANISM	DESCRIPTION
Risk Analysis	Assessment of high-incident work elements requiring priority management focus and mitigation to ensure attainment of Project objectives.
Scope Definition	Subcontract work packages tailored to promote maximum participation within technical capabilities of subcontractors.
Selection and Evaluation Criteria	Based on risk and complexity, selection criteria are weighted towards H&S and quality records, past performance, staff qualifications, references, and technical approach.
Field Oversight	Technical staff oversee subcontractor performance. Subcontractor participates in daily toolbox safety and plan-of-day meetings, and QC inspections.
Progress Monitoring	Subcontracts specify performance metrics and milestones against which the Supervising Contractor and subcontractor monitor performance.
Incentive/Penalty Clauses	Incentives/penalties used to promote subcontractor attention to critical performance metrics and objectives.
Contractual Remedies	Procurement staff assist technical staff in enforcing contractual requirements through requests for corrective actions, cure notices.

FIGURES



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Lower Passaic River Study Area

Lower 8.3 Miles of the Lower Passaic River

Figure 1

2016

APPENDICES

Appendix A

Settlement Agreement and ROD

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 2

IN THE MATTER OF: Operable Unit Two of the Diamond Alkali Superfund Site In and About Essex, Hudson, Bergen and Passaic Counties, New Jersey Occidental Chemical Corporation, Settling Party.	ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMEDIAL DESIGN U.S. EPA Region 2 CERCLA Docket No. 02-2016-2021 Proceeding Under Sections 104, 106, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9606, 9607 & 9622.

ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
REMEDIAL DESGIN
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I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") is entered into voluntarily by the United States Environmental Protection Agency (the "EPA") and Occidental Chemical Corporation ("Settling Party"). This Settlement Agreement provides that Settling Party shall undertake a Remedial Design ("RD"), including various procedures and technical analyses, to produce a detailed set of plans and specifications for implementation of the Remedial Action selected in EPA's March 3, 2016 Record of Decision for the lower 8.3 miles of the Lower Passaic River, which is Operable Unit Two of the Diamond Alkali Superfund Site (the "Site"). In addition, Settling Party shall reimburse the United States for certain response costs, as provided herein.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 106, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), as amended, 42 U.S.C. §§ 9604, 9606, 9607 and 9622. This authority was delegated to the Administrator of EPA on January 23, 1987 by Executive Order 12580 (52 *Fed. Reg.* 2923, Jan. 29, 1987) and further delegated to EPA Regional Administrators by EPA Delegation No. 14-14-C. This authority was further re-delegated on November 23, 2004 by the Regional Administrator of EPA Region 2 to the Director of the Emergency and Remedial Response Division through EPA Region 2 Delegation No. 14-14-C.

3. EPA and Settling Party recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Settling Party in accordance with this Settlement Agreement do not constitute an admission of any liability. Settling Party does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of fact, conclusions of law, and determinations in Sections IV and V of this Settlement Agreement. Settling Party agrees to comply with, and be bound by, the terms of this Settlement Agreement and further agrees that Settling Party will not contest the basis or validity of this Settlement Agreement or its terms.

4. The objectives of EPA and Settling Party in entering into this Settlement Agreement are to protect the public health or welfare or the environment at the Site by the design of response actions at the Site by Settling Party, to reimburse response costs of EPA, and to resolve the claims of EPA against Settling Party as provided in this Settlement Agreement.

5. In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, *et seq.*, as amended ("NCP"), and Sections 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of New Jersey (the "State") on May 6, 2016, of negotiations with a potentially responsible party regarding the implementation of the remedial design for Operable Unit Two for the Site, and EPA has provided the State with an opportunity to participate in such negotiations.

6. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the federal natural resource trustees on May 6, 2016, of negotiations with a potentially responsible party regarding the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustees to participate in the negotiation of this Settlement Agreement.

II. PARTIES BOUND

7. This Settlement Agreement applies to and is binding upon EPA and upon Settling Party and its successors and assigns. Any change in ownership or corporate status of Settling Party including, but not limited to, any transfer of assets or real or personal property shall not alter Settling Party's responsibilities under this Settlement Agreement. The signatories to this Settlement Agreement certify that they are authorized to execute and legally bind the parties they represent.

8. Settling Party shall ensure that its contractors, subcontractors, and representatives receive a copy of this Settlement Agreement and comply with this Settlement Agreement. Settling Party shall be responsible for any noncompliance with this Settlement Agreement by such contractors, subcontractors, and representatives. With regard to the activities undertaken pursuant to this Settlement Agreement, each contractor and subcontractor of Settling Party shall be deemed to be in a contractual relationship with Settling Party within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

III. DEFINITIONS

9. Unless otherwise expressly provided herein, terms used in this Settlement Agreement that are defined in CERCLA or in other regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or its implementing regulations. Whenever terms are used in this Settlement Agreement, in documents attached to this Settlement Agreement, or incorporated by reference into this Settlement Agreement, the following definitions shall apply:

a. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq*.

b. "Day" shall mean a calendar day unless otherwise expressly stated. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business on the next working Day.

c. "Effective Date" shall be the effective date of this Settlement Agreement as provided in Section XXVI (Effective Date and Subsequent Modification).

d. "The EPA" or "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

e. "Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, verifying the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, costs incurred pursuant to Paragraph 4.1 (Emergency Response and Reporting) of the SOW, the costs incurred pursuant to Paragraph 54 (costs and attorneys' fees and any monies paid to secure access, including the amount of just compensation), and Paragraph 92 (Work Takeover), and Paragraph 53 (Community Involvement), and the costs incurred by the United States in enforcing the terms of this Settlement Agreement, including all costs incurred in connection with Dispute Resolution pursuant to Section XIV (Dispute Resolution) and all litigation costs.

f. "Institutional Controls" or "ICs" shall mean Proprietary Controls and state and local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land or resource use to minimize the potential for human exposure to Waste Material at or in connection with Operable Unit 2 at the Site; (b) limiting land or resource use to implement, ensure non-interference with, or ensure the protectiveness of the remedial action; and/or (c) provide information intended to modify or guide human behavior at or in connection with Operable Unit 2 at the Site.

g. "Interest" shall mean interest at the rate specified for interest on investments of EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with CERCLA § 107(a), 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

h. "Lower Passaic River Study Area" or "LPRSA" shall mean the 17-mile stretch of the Lower Passaic River and its tributaries from the Dundee Dam to Newark Bay.

i. "NJDEP" shall mean the New Jersey Department of Environmental Protection.

j. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, *et seq.*, including all amendments thereto.

k. "Operable Unit 2 (OU2)" shall mean the lower 8.3 miles of the Lower Passaic River, from RM 0, at the river's confluence with Newark Bay, to RM 8.3, near the border

between the City of Newark and Belleville Township, New Jersey, located in and about Essex and Hudson Counties, New Jersey.

l. "Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral.

m. "Parties" shall mean EPA and Settling Party.

n. "Performance Standards" shall have the same meaning as used in the Statement of Work, Section 1.4.

o. "Proprietary Controls" shall mean easements or covenants running with the land that (a) limit land or resource use and/or provide access rights and (b) are created pursuant to common law or statutory law by an instrument that is recorded by the owner in the appropriate records office.

p. "Record of Decision for Operable Unit Two" or "OU2 ROD" shall mean EPA Record of Decision relating to Operable Unit Two for the Site, and all attachments thereto that the Regional Administrator, EPA Region 2, or her delegate, signed on March 3, 2016, and attached as Appendix A.

q. "Remedial Design" or "RD" shall mean those activities that Settling Party shall undertake to develop the final plans and specifications, up to and including the EPA-approved Final Remedial Design, for the Remedial Action pursuant to the Remedial Design Work Plan.

r. "Remedial Design Work Plan" shall mean the document developed pursuant to the Statement of Work ("SOW") approved by EPA, and any amendment thereto.

s. "Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

t. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent, all appendices attached hereto, and all documents incorporated by reference into this document including, without limitation, EPA-approved submissions. The EPA-approved submissions (other than progress reports) are incorporated into and become a part of the Settlement Agreement upon approval by EPA. In the event of conflict between this Settlement Agreement and any appendix, this Settlement Agreement shall control.

u. "Settling Party" shall mean the Occidental Chemical Corporation.

v. "Site" shall mean the Diamond Alkali Superfund Site, including the former Diamond Alkali property located at 80 and 120 Lister Avenue, Newark, New Jersey, the Lower Passaic River Study Area, Newark Bay, and the areal extent of contamination.

w. "State" shall mean the State of New Jersey.

x. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Design, and any modifications thereto in accordance with this Settlement Agreement, as set forth in Appendix B of this Settlement Agreement. The Statement of Work is incorporated into this Settlement Agreement and is an enforceable part of this Settlement Agreement.

y. "Waste Material" shall mean (1) any hazardous substance under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any solid waste under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any mixture containing any of the constituents noted in (1),(2) or (3), above.

z. "Work" shall mean all activities and obligations Settling Party is required to perform under this Settlement Agreement except those required by Section XI (Record Retention).

IV. EPA's FINDINGS OF FACT

10. Since the late 1800s, the Lower Passaic River has been a highly industrialized waterway, receiving direct and indirect discharges from numerous industrial facilities.

11. The sediments of the Lower Passaic River contain hazardous substances, including, but not limited to, cadmium, copper, lead, mercury, nickel, zinc, polyaromatic hydrocarbons ("PAHs"), dieldrin, bis (2-ethylhexyl) phthalate, polychlorinated biphenyls ("PCBs"), dichlorodiphenyl-trichloroethane ("DDT"), polychlorinated dibenzo-p-dioxins ("PCDDs") including 2,3,7,8-tetrachloro-dibenzo-p-dioxin ("2,3,7,8-TCDD"), polychlorinated dibenzofurans ("PCDFs"), 2,4-dichlorophenoxy acetic acid ("2,4-D"), 2,4,5-trichlorophenoxy acetic acid ("2,4,5-T"), and 2,4,5-trichlorophenol ("2,4,5-TCP").

12. Between March 1951 and August 1969, the Diamond Alkali Company operated a manufacturing facility located at 80 Lister Avenue in Newark, New Jersey, which produced, among other products, DDT, 2,4-D, 2,4,5-TCP, and 2,4,5-T. A byproduct of the manufacturing process was 2,3,7,8-TCDD , which was released into the Passaic River. Production activities at the Diamond Alkali facility ceased in August 1969.

13. In 1983, hazardous substances were detected at various locations in Newark, New Jersey, including the Diamond Alkali facility located at 80 Lister Avenue and adjoining property at 120 Lister Avenue.

14. EPA, pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, placed the Diamond Alkali Superfund Site on the National Priorities List, which is set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 21, 1984, 49 Fed. Reg. 37070.

15. Pursuant to Administrative Orders on Consent with NJDEP, the Diamond Shamrock Chemicals Company (formerly Diamond Alkali Company) conducted investigations and response work for the Lister Avenue facility. The investigation included the sampling and assessment of sediment contamination within the Passaic River.

16. Sampling and assessment of sediments in the lower reaches of the Passaic River revealed the presence of many hazardous substances including, but not limited to, cadmium, copper, lead, mercury, nickel, zinc, PAHs, dieldrin, bis (2-ethylhexyl) phthalate, PCBs, DDT, PCDDs including 2,3,7,8-TCDD, PCDFs, 2,4-D, 2,4,5-T, and 2,4,5-TCP. Hazardous substances identified in the sediments of the Lower Passaic River included elevated concentrations of 2,3,7,8-TCDD, known to have been generated at the Diamond Alkali facility.

17. Some of the chemicals found in the sediments during the remedial investigation of the Lower Passaic River were released from the Diamond Alkali Facility portion of the Site into the Passaic River through direct discharges and ground-water and surface-water runoff.

18. On September 30, 1987, EPA issued a Record of Decision ("ROD") that set forth an interim remedy for the 80 and 120 Lister Avenue portion of the Diamond Alkali Superfund Site. Pursuant to a judicial Consent Decree with EPA and NJDEP, OCC and Chemical Land Holdings, Inc. (now known as Tierra Solutions, Inc ("Tierra")), agreed to implement the 1987 ROD. The interim remedy was completed in 2004. Tierra has owned the 80 and 120 Lister Avenue portion of the Site since 1986.

19. In 1994, OCC entered into an Administrative Order on Consent with EPA to investigate a six-mile stretch of the Passaic River from RM1 to RM7. The primary objectives of the investigation were to determine: (1) the spatial distribution and concentration of hazardous substances, both horizontally and vertically in the sediments; (2) the primary human and ecological receptors of contaminated sediments; and (3) the transport of contaminated sediment. Tierra performed the work on OCC's behalf, under the oversight of EPA.

20. Sampling results from the investigation of the six-mile area and other environmental studies demonstrated that evaluation of a larger area was necessary because sediments contaminated with hazardous substances and other potential sources of hazardous substances are present along the entire Lower Passaic River. Further, the tidal nature of the Lower Passaic River has resulted in greater dispersion of hazardous substances.

21. Sampling results show concentrations of PCDDs/PCDFs, PCBs, mercury, and other substances that significantly exceed the levels that can produce toxic effects to biota. Based on the results of monitoring and research undertaken since the mid-1970s, the State of New Jersey

has taken a number of steps, in the form of consumption advisories, closures, and sales bans, to limit the exposure of the fish-eating public to toxic contaminants in the Lower Passaic River, Newark Bay, the Hackensack River, the Arthur Kill and the Kill Van Kull. The initial measures prohibited the sale, and advised against the consumption, of several species of fish and eel and was based on the presence of PCB contamination in the seafood. The discovery of widespread dioxin contamination in the Lower Passaic River and Newark Bay led the State of New Jersey to issue a number of Administrative Orders in 1983 and 1984 which prohibited the sale or consumption of fish or shellfish from the tidal Passaic River, and prohibited the sale and consumption of blue crab and striped bass from Newark Bay, the tidal Hackensack River, the Arthur Kill and the Kill Van Kull. These State advisories and prohibitions are still in effect.

22. In 2002, EPA commenced a remedial investigation and feasibility study ("RI/FS") encompassing the 17-mile Lower Passaic River Study Area ("LPRSA"). In 2004, EPA and a group of potentially responsible parties ("PRPs") known as the Lower Passaic River Study Area Cooperating Parties Group ("CPG") entered into a Settlement Agreement pursuant to Section 122(h) of CERCLA to provide funds for EPA's performance of the 17-mile RI/FS. The Settlement Agreement was amended in 2005 and 2007, adding more parties. In May 2007, the CPG members entered into an Administrative Settlement Agreement and Order on Consent ("AOC") with EPA pursuant to which the settling parties agreed to complete the RI/FS for the 17-mile LPRSA. The 17-mile RI/FS is ongoing.

23. In 2004, EPA and OCC entered into an Administrative Order on Consent pursuant to which OCC agreed to perform the RI/FS for Newark Bay under the oversight of EPA. Tierra is performing the RI/FS for Newark Bay on OCC's behalf. The study of Newark Bay is ongoing.

24. In June 2008, EPA, OCC and Tierra signed an Administrative Order on Consent for a non-time-critical removal action to remove 200,000 cubic yards of contaminated sediment from the river (from RM3.0 to RM3.8) adjacent to the 80-120 Lister Avenue facility. This action is referred to as the "Tierra Removal."

25. In 2012, EPA entered into an Administrative Order on Consent with a group of PRPs that agreed to perform a time-critical removal action to address the risks posed by high concentrations of dioxins, PCBs and other contaminants found in surface and subsurface sediments in the RM 10.9 area, including in a mudflat on the east bank of the river at RM10.9 in Lyndhurst, New Jersey. This action is referred to as the "RM10.9 Removal." EPA later issued a Unilateral Administrative Order ("UAO") to OCC ordering it to participate and cooperate in the RM 10.9 Removal. OCC has performed a number of tasks under the UAO, as directed by EPA.

26. In 2011, OCC entered into an Administrative Order on Consent with EPA to sample combined sewer outfalls and stormwater outfalls discharging to the Passaic River.

27. Data collected in the Lower Passaic River, and EPA's analyses show that contaminated sediment in the lower 8.3 miles of the LPRSA are a major source of contamination

to the rest of the river and Newark Bay and pose an unacceptable risk to human health and the environment due to the presence of a variety of contaminants that stay in the environment for a long time and can build up in fish and shellfish. These contaminants include dioxins and furans, PCBs, PAHs, DDT and other pesticides, mercury, lead and other metals.

28. Having identified that the majority of the contaminated sediment is found in the lower 8.3 miles of the LPRSA, EPA completed a remedial investigation/focused feasibility study ("RI/FFS") to evaluate taking action to address these sediments while the 17-mile LPRSA was underway.

29. On April 11, 2014, in accordance with Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published, in a major local newspaper of general circulation, a notice of a proposed plan to address contaminated sediments in the lower 8.3 miles of the LPRSA.

30. On March 4, 2016, EPA issued the OU2 ROD, selecting a remedy for the lower 8.3 miles of the LPRSA. The remedy selected in the OU2 ROD includes, but is not limited to the following: 1) construction of an engineered cap over the river bottom of the lower 8.3 miles of the LPRSA bank to bank; 2) dredging of the river bank to bank (approximately 3.5 million cubic yards) so the cap can be placed without increasing the potential for flooding and to allow for the continued use of the federally-authorized navigation channel in the 1.7 miles of the river closest to Newark Bay; 3) reconstructing dredged mudflat areas and restoring mudflat habitat; 4) offsite disposal of dredged material; 5) institutional controls to protect the cap and enhanced outreach to increase awareness of NJDEP's prohibition on fish and crab consumption; and 6) long term monitoring and maintenance.

31. On December 16, 2014, a Consent Judgment executed by NJDEP and OCC was entered in the matter of NJDEP v. Occidental Chemical Company, et al., Essex County Docket Number L9868-05, in New Jersey Superior Court, Law Division, Essex County, pursuant to which OCC has agreed to pay certain cleanup and removal costs as stated in the Consent Judgment. The Consent Judgment is subject to the jurisdiction of the courts of the State of New Jersey.

32. On March 31, 2016, EPA issued a notice of liability to over 100 parties potentially liable for the lower 8.3 miles of the Lower Passaic River.

33. In 1967, the Diamond Alkali Company changed its name to the Diamond Shamrock Corporation. In 1983, the Diamond Shamrock Corporation changed its name to the Diamond Shamrock Chemicals Company.

34. On September 4, 1986, all outstanding stock in the Diamond Shamrock Chemicals Company was acquired by the Oxy-Diamond Alkali Corporation from Maxus Energy Corporation, and the Diamond Shamrock Chemicals Company name was changed to the Occidental Electrochemicals Corporation.

35. On November 30, 1987, the Occidental Electrochemicals Corporation was merged into Occidental Chemical Corporation.

36. The Diamond Alkali Company disposed of chemical waste, including hazardous substances, during its ownership and operation of the Lister Avenue facility, located in Newark, Essex County, New Jersey. The Diamond Alkali Company also disposed of chemical waste, including hazardous substances, in the LPRSA, which is part of the Site. EPA first notified OCC, corporate successor to the Diamond Alkali Company, of its liability for the Site on October 20, 1988.

V. EPA's CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, as well as the Administrative Record supporting this Settlement Agreement, EPA has determined that:

37. The Diamond Alkali Superfund Site is a facility as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

38. The contaminants found at the Site, as identified in the Findings of Fact above, include "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

39. Settling Party is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

40. Settling Party is a responsible party as defined in Sections 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is subject to this Settlement Agreement under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a). Settling Party is liable for performance of Work under this Settlement Agreement and for payment of Future Response Costs under this Settlement Agreement. Settling Party was an "owner" and/or "operator" of the Lister Avenue portion of the Site at the time of disposal of hazardous substances, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2). Settling Party also arranged for disposal of hazardous substances at the LPRSA, within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

41. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of hazardous substances from the facility as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

42. The actions required by this Settlement Agreement are necessary to protect the public health, welfare or the environment, are in the public interest, are consistent with CERCLA and the NCP and will expedite effective remedial action and minimize litigation.

VI. SETTLEMENT AGREEMENT AND ORDER

43. Based upon the foregoing the Findings of Fact, Conclusions of Law and Determinations, and the Administrative Record for this Site, it is hereby Ordered and Agreed that Settling Party shall comply with all provisions of this Settlement Agreement, including, but not limited to, all attachments to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

VII. DESIGNATED PROJECT MANAGER AND COORDINATORS

44. Selection of Contractors, Personnel. All Work performed under this Settlement Agreement shall be under the direction and supervision of qualified personnel. Settling Party shall retain one or more contractor(s), including a Supervising Contractor, to perform the Work and shall notify EPA, in writing, of the name(s) and qualifications of such contractor(s), and Supervising Contractor, within 15 days of the Effective Date or such longer time as specified by EPA. Settling Party shall also notify EPA in writing of the name(s) and qualification(s) of any other contractor(s) or subcontractor(s) retained to perform the Work at least 10 days prior to the commencement of such Work. EPA will issue a notice of disapproval of the proposed Supervising Contractor or an authorization to proceed.

45. EPA retains the right to disapprove of any or all of the contractors or subcontractors retained by Settling Party. If EPA disapproves of a selected contractor, EPA shall state its reason(s) for disapproval in a writing provided to Settling Party and Settling Party shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within15days of EPA's disapproval.

46. With respect to any contractor proposed to be Supervising Contractor pursuant to Paragraph 44, Settling Party shall demonstrate that the proposed contractor has sufficient technical expertise to supervise the Work and a quality assurance system that complies with ANSI/ASQC E4-1994, "Quality management systems for environmental information and technology programs - Requirements with guidance for use" (American Society for Quality, February 2014 or most recent version) , by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "The EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001, reissued May 2006, or subsequently issued guidance) or equivalent documentation as determined by EPA.

47. Within 10 days after the Effective Date, Settling Party shall designate a Project Coordinator who shall be responsible for administration of all actions by Settling Party required by this Settlement Agreement and shall submit to EPA the designated Project Coordinator's name, address, telephone number, and qualifications. Settling Party's Project Coordinator must have sufficient technical expertise to coordinate the Work. Settling Party's Project Coordinator

may not be an attorney representing any Settling Party in this matter and may not act as the Supervising Contractor. To the greatest extent possible, the Project Coordinator or a designated representative shall be present on site or readily available during Operable Unit 2 Work. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, Settling Party shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number and qualifications within 10 days following EPA's disapproval. Receipt by Settling Party's Project Coordinator of any notice or communication from EPA relating to this Settlement Agreement shall constitute receipt by Settling Party.

48. EPA has designated Alice Yeh of the Emergency and Remedial Response Division, Region 2 as its Project Coordinator. EPA will notify Settling Party of a change of its designated Project Coordinator. Except as otherwise provided in this Settlement Agreement, Settling Party shall send all submissions required by this Settlement Agreement to the Project Coordinator at:

ATTN: Site Remedial Project Manager

Emergency and Remedial Response Division
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, New York 10007-1866

49. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Project Coordinator shall have the authority consistent with the NCP, to halt any Work required by this Settlement Agreement, and to take or direct any other necessary response action when the EPA Project Coordinator determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the site area shall not be cause for the stoppage or delay of Work. EPA may designate other representatives, which may include its employees, contractors and/or consultants, to oversee the Work as an Alternate Project Coordinator.

50. EPA and Settling Party shall have the right, subject to Paragraph 47, to change their respective designated Project Coordinators. Settling Party shall notify EPA 10 days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notice.

VIII. WORK TO BE PERFORMED

51. **Performance of Work in Accordance with SOW**. Settling Party shall perform all actions necessary to implement the Statement of Work. Settling Party shall: (a) develop the RD; and (b) support EPA's periodic review efforts; all in accordance with the SOW and all EPA-approved, conditionally-approved, or modified deliverables as required by the SOW. All deliverables required to be submitted for approval under the Settlement Agreement or SOW shall be subject to approval by EPA in accordance with Paragraph 5.6 (Approval of Deliverables) of the SOW.

52. **Emergencies and Releases**. Settling Party shall comply with the emergency and release response and reporting requirements under Paragraph 4.1 (Emergency Response and Reporting) of the SOW. Subject to Section XVII (Covenants by EPA), nothing in this Settlement Agreement, including Section 4.1 of the SOW, limits any authority of EPA: (a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site, or (b) to direct or order such action, or seek a judicial order, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site. If, due to Settling Parties failure to take appropriate response action under Section 4.1 of the SOW, EPA takes such action instead, Settling Parties shall reimburse EPA under Section XIII (Payment of Response Costs) for all costs of the response action

53. **Community Involvement**. If requested by EPA, Settling Party shall conduct community involvement activities under EPA's oversight as provided for in, and in accordance with, Section 2 (Community Involvement) of the SOW. Such activities may include, but are not limited to, designation of a Community Coordinator.

IX. SITE ACCESS

54. Where any action under this Settlement Agreement is to be performed in areas owned by, or in possession of, someone other than Settling Party, Settling Party shall use its best efforts to obtain all necessary access agreements within 60 days after the Effective Date, or no fewer than 120 days before access to such parcel is needed pursuant to the SOW, whichever is later, or as otherwise specified in writing by the Project Coordinator. If additional areas to which access is necessary are identified after the Effective Date, Settling Party shall use its best efforts to obtain access agreements within 60 days after learning of the need for additional access. Settling Party shall immediately notify EPA if, after using its best efforts, it is unable to obtain such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money in consideration of access. Settling Party shall describe in writing its efforts to obtain access. EPA may then assist Settling Party in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as EPA deems appropriate. Settling Party shall reimburse EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XIII (Payment of Response Costs).

55. Notwithstanding any provision of this Settlement Agreement, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

56. If Settling Party cannot obtain access agreements, EPA may obtain access for Settling Party, perform those tasks or activities with EPA's contractors, or terminate the Settlement Agreement. If EPA performs those tasks or activities with EPA contractors and does not terminate the Settlement Agreement, Settling Party shall perform all other activities not requiring access to that site and shall reimburse EPA for all costs incurred in performing such activities. Settling Party shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables.

X. ACCESS TO INFORMATION

57. Settling Party shall provide to EPA and the State, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to activities for OU2 for the Site or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, data bases, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Settling Party shall also make available to EPA and the State, for purposes of investigation, information gathering or testimony, its employees, agents or representatives with knowledge of relevant facts concerning the performance of the Work.

58. Settling Party may assert business confidentiality claims covering part or all of the documents or information submitted to EPA under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when it is submitted to EPA, or if EPA has notified Settling Party that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Settling Party. Settling Party shall segregate and clearly identify all documents or information submitted under this Settlement Agreement for which Settling Party asserts business confidentiality claims.

59. Settling Party may assert that certain documents, records, and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law or are protected as attorney work product. If the Settling Party asserts such a privilege or protection in lieu of providing documents, it shall provide EPA and the State with the following: a) the title of the document, record, or information; b) the date of the document, record, or information; c) the name and title of the author of the document, record, or information; d) the name and title of each addressee and recipient; e) a description of the contents of the document, record, or information; and f) the privilege or attorney work product protection asserted by Settling Party.

However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

60. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at, or around, OU2 for the Site.

XI. RECORD RETENTION

61. During the pendency of this Settlement Agreement and until 10 years after the Settling Party's receipt of EPA's notification that work has been completed, Settling Party shall preserve and retain all non-identical copies of documents, records, and other information (including documents, records, or other information in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to OU2 for the Site, regardless of any corporate retention policy to the contrary. Until 10 years after notification that work has been completed, Settling Party shall also instruct its contractors and agents to preserve all documents, records, and other information of whatever kind, nature, or description relating to performance of the Work.

62. At the conclusion of this document retention period, Settling Party shall notify EPA and the State at least 90 days prior to the destruction of any such documents, records, or other information and, upon request by EPA or the State, Settling Party shall deliver any such documents, records, or other information to EPA or the State. Settling Party may assert that certain documents, records, and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law or are protected as attorney work product. If Settling Party asserts such a privilege or protection, it shall provide EPA with the following: a) the title of the document, record, or other information; b) the date of the document, record, or other information; c) the name and title of the author of the document, record, or other information; d) the name and title of each addressee and recipient; e) a description of the subject of the document, record, or other information; and f) the privilege or attorney work product protection asserted by Settling Party. However, no documents, records, or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged or protected.

63. Settling Party hereby certifies that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any records, documents, or other information (other than identical copies) relating to its potential liability regarding OU2 for the Site since notification of potential liability by EPA or the State or the filing of suit against it regarding OU2 for the Site, and that it has fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XII. COMPLIANCE WITH OTHER LAWS

64. Settling Party shall undertake all action that this Settlement Agreement requires in accordance with the requirements of all applicable local, state, and federal laws and regulations, unless an exemption from such requirements is specifically provided by law or in this Settlement Agreement. The activities conducted pursuant to this Settlement Agreement, if approved by EPA, shall be considered consistent with the NCP.

65. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any portion of the Work that is not on-site requires a federal or state permit or approval, Settling Party shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals.

66. This Settlement Agreement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

XIII. PAYMENT OF RESPONSE COSTS

67. Payment for Future Response Costs:

a. Settling Party shall pay EPA all Future Response Costs not inconsistent with the NCP, based solely on information contained in an EPA SCORPIOS Report. On a periodic basis, EPA will send Settling Party a bill requiring payment that includes a SCORPIOS Report. Settling Party shall make all payments within 30 days of receipt of each such bill requiring payment, except as otherwise provided in Paragraph 69.

b. Settling Party shall make all payments required by this Paragraph by wire transfer directed to the Federal Reserve Bank of New York with the following information:

i. EFT to be directed to: Federal Reserve Bank of New York
ii. Bank Routing Number for Federal Reserve Bank of New York: 021030004
iii. Federal Reserve Bank of New York account number receiving payment: 68010727
iv. SWIFT address: FRNYUS33
v. Address: Federal Reserve Bank of New York
33 Liberty Street
New York, NY 10045
vi. Field Tag 4200 of the Fedwire message to read:
D68010727 Environmental Protection Agency
vii. Case Number: CERCLA-02-2016-2021
viii. Amount of payment:

ix. Name of Remitter:
x. Site/Spill identifier: 02-96

c. At the time of payment, Settling Party shall send notice that payment has been made which references the name and address of the party making payment, the date of the transfer, the payment amount, the name of the Site, the Docket Number CERCLA 02-2016-2021and Site/Spill ID number 02-96, to:

Alice Yeh
Project Coordinator
Emergency and Remedial Response Division
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007

Re: Diamond Alkali Superfund Site

And to:

Juan M. Fajardo
Assistant Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency, Region 2
290 Broadway, 17th Floor
New York, NY 10007

Re: Diamond Alkali Superfund Site

U.S. Environmental Protection Agency
Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, Ohio 45268
Attn: Finance (Elizabeth McGuffey)
Email: cinwd_acctsreceivable@epa.gov and mcguffey.elizabeth@epa.gov

d. The total amount that Settling Party shall pay pursuant to Paragraph 67 shall be deposited in the Diamond Alkali Superfund Site Special Account within EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

68. In the event that the payments for Future Response Costs are not made within 30 days of Settling Party's receipt of a bill, Settling Party shall pay Interest on the unpaid balance.

The Interest on Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Settling Party's failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XVI.

69. Settling Party may contest payment of any Future Response Costs billed under Paragraph 67, if it determines that EPA has made a mathematical error or included a cost item that is not within the definition of Future Response Costs, or if it believes EPA incurred excess costs as a direct result of an action by EPA that was inconsistent with the NCP. Such objection shall be made in writing within 30 days of receipt of the bill and must be sent to EPA Project Coordinator. Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Settling Party shall within the 30-day period pay all uncontested Future Response Costs to EPA in the manner described in Paragraph 67. Simultaneously, Settling Party shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of New Jersey and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Settling Party shall send to EPA Project Manager a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, Settling Party shall initiate the Dispute Resolution procedures in Section XIV (Dispute Resolution). If EPA prevails in the dispute, within 5 days of the resolution of the dispute, Settling Party shall pay the sums due (with accrued interest) to EPA in the manner described in Paragraph 67. If Settling Party prevails concerning any aspect of the contested costs, Settling Party shall pay that portion of the costs (plus associated accrued interest) for which it did not prevail to EPA in the manner described in Paragraph 67. Settling Party shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIV (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Settling Party's obligation to reimburse EPA for its Future Response Costs.

XIV. DISPUTE RESOLUTION

70. Unless this Settlement Agreement expressly provides otherwise, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

71. If Settling Party objects to any EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, it shall notify EPA in writing of its

objection(s) expeditiously and in no event more than 15 days of such action, unless the objection(s) has/have been resolved informally. EPA and Settling Party shall have 30 days from EPA's receipt of Settling Party's written objection(s) to resolve the dispute through formal negotiations (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA.

72. Any agreement reached by the Parties pursuant to this Section shall be in writing and shall, upon signature by both Parties, be incorporated into and become an enforceable part of this Settlement Agreement. If the Parties are unable to reach an agreement within the Negotiation Period, the Director of the Emergency and Remedial Response Division, Region 2, will issue a written decision on the dispute to Settling Party. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement. Following resolution of the dispute, as provided by this Section, Settling Party shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

73. If the dispute and its resolution, as described above cause a delay that makes it impossible for Settling Party to meet a deadline set forth in or established pursuant to this Settlement Agreement for the disputed obligation, then that deadline shall be extended by EPA by a period of time not to exceed the delay resulting from the dispute and its resolution; provided that Settling Party shall not be entitled to any such extension if the Director, Emergency and Remedial Response Division, determines that Settling Party's disagreement with the comments or determinations specified above is not in good faith or otherwise lacks a reasonable basis. Notwithstanding any of the foregoing, if Settling Party requests an extension of a deadline set forth in or established pursuant to this Settlement Agreement, and if EPA declines to grant an extension in response to such a request, any delay caused solely by the resolution of such a dispute shall not entitle Settling Party to an extension of time.

74. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone, or affect in any way any obligation of Settling Party under this Settlement Agreement not directly disputed by Settling Party. Except as provided in Paragraph 83, stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 83. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Settlement Agreement. In the event that Settling Party does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XVI (Stipulated Penalties).

XV. FORCE MAJEURE

75. Settling Party agrees to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, a *force majeure* is defined as any event arising from causes beyond the control of Settling Party, or of any entity controlled by Settling Party, or of Settling Party's contractors that delays or prevents performance of any obligation under this Settlement Agreement despite Settling Party's best efforts to fulfill the obligation. The requirement that Settling Party exercise "best efforts to fulfill the obligation" includes using best efforts to address the effects of any potential *force majeure* event: (a) as it is occurring; and (b) following the potential *force majeure* event such that the delay and any adverse effect of the delay are minimized to the greatest extent possible. *Force majeure* does not include financial inability to complete the Work, or increased cost of performance.

76. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement for which Settling Party intends or may intend to assert a claim of *force majeure*, Settling Party shall notify the EPA Project Coordinator orally or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Emergency and Remedial Response Division, Region 2, within 24 hours of when Settling Party first knew that the event might cause a delay. Within 14 days thereafter, Settling Party shall provide to EPA in writing: an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Settling Party's rationale for attributing such delay to a *force majeure* event ; and a statement as to whether, in the opinion of Settling Party, such event may cause or contribute to an endangerment to public health, welfare, or the environment. Settling Party shall include with any notice all available documentation supporting its claim that the delay was attributable to a *force majeure.* Settling Party shall be deemed to know of any circumstance of which Settling Party, any entity controlled by Settling Party, or Settling Party's contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Settling Party from asserting any claim of *force majeure* regarding that event.

77. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Settling Party in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Settling Party in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

78. If Settling Party elects to invoke the dispute resolution procedures set forth in Section XIV (Dispute Resolution), it shall do so no later than 10 days after receipt of EPA's notice under Paragraph 77. In any such proceeding, Settling Party shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a *force majeure event*, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Party complied with the requirements of Paragraphs 75 and 76. If Settling Party carries this burden, the delay at issue shall be deemed not to be a violation by Settling Party of the affected obligation of this Settlement Agreement identified to EPA.

XVI. STIPULATED PENALTIES

79. Settling Party shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 80 and 81 for failure to comply with the obligations specified in Paragraphs 80 and 81, unless excused under Section XV (*Force Majeure*). "Compliance" by Settling Party shall include completion of all obligations under this Settlement Agreement in accordance with all applicable requirements of this Settlement Agreement and within the specified time schedules established under this Settlement Agreement.

80. Stipulated Penalty Amounts.

a. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate deliverable listed in Subparagraph 80.b (1)-(10), or timely comply with Subparagraph 80.b (11)-(12).

Penalty Per Violation (Per Day)	Period of Noncompliance (Days)
$ 3,000	1-14
$ 5,000	15-30
$ 12,000	31and beyond

b. Compliance Milestones

1. Project Management Plan;
2. Pre-Design Investigation Work Plan;
3. Pre-Design Investigation Evaluation Report;
4. Remedial Design Work Plan;
5. Site Selection and Evaluation Work Plan;
6. Site Selection and Evaluation Report;
7. Preliminary Remedial Design;
8. Intermediate Remedial Design;
9. Pre-Final Remedial Design;
10. Final Remedial Design;

11. Payment of Future Response Costs; and
12. Establishment and maintenance of financial assurance in compliance with the timelines and other substantive and procedural requirements of Section XXIV (Financial Assurance).

81. Stipulated Penalty Amounts.

The following stipulated penalties shall accrue per violation per day for any noncompliance with a requirement of this Settlement Agreement not identified in Paragraph 80, including failure to submit other timely or adequate reports or deliverables.

Penalty Per Violation (Per Day)	**Period of Noncompliance (Days)**
$ 3,000	1-14
$ 5,000	15-30
$ 10,000	31and beyond

82. In the event that EPA assumes performance of all or any portion of the Work pursuant to Paragraph 92 (Work Takeover), Settling Party shall be liable for (i) a stipulated penalty in the amount of $5,000,000, and (ii) a non-penalty prepayment of Future Response Costs in the amount of $15,000,000. Stipulated Penalties and prepayment of Future Response Costs under this Paragraph are in addition to the funding available to EPA under Paragraph 116 (Funding for Work Takeover) and Paragraph 92 (Work Takeover). Prepayment of Future Response Costs under this Paragraph shall be payable by Settling Party immediately upon receipt by Settling Party of EPA's written notice ("Work Takeover Notice") pursuant to Paragraph 92. The prepayment of Future Response Costs made under this Paragraph shall be made in accordance with Paragraph 67 (Payment of Future Response Costs) and shall be deposited in the Diamond Alkali Superfund Site Special Account within EPA Hazardous Substance Superfund.

83. All penalties shall begin to accrue on the day after the complete performance is due, or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: a) with respect to a deficient submission under Section 5.6 of the SOW (Approval of Deliverables), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Settling Party of any deficiency; and b) with respect to a decision by the Director of the Emergency and Remedial Response Division, Region 2, under Paragraph 72 of Section XIV (Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that EPA management official issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

84. Following EPA's determination that Settling Party has failed to comply with a requirement of this Settlement Agreement, EPA may give Settling Party written notification of

the failure and describe the noncompliance. EPA may send Settling Party a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Settling Party of a violation.

85. Settling Party shall pay EPA all penalties accruing under this Section within 30 days of Settling Party's receipt from EPA of a demand for payment of the penalties, unless Settling Party invokes the dispute resolution procedures under Section XIV (Dispute Resolution). All stipulated penalties paid to EPA under this Section shall indicate that the payment is for stipulated penalties and shall be made in accordance with Paragraph 67 (Payment for Future Response Costs).

86. The payment of penalties and Interest, if any, shall not alter in any way Settling Party's obligation to complete performance of the Work required under this Settlement Agreement.

87. Penalties shall continue to accrue during any dispute resolution period but need not be paid until 15 days after the dispute is resolved by agreement or by receipt of EPA's decision.

88. If Settling Party fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Settling Party shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 85. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Settling Party's violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(l) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(l), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 106(b) or 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Settlement Agreement, or in the event that EPA assumes performance of a portion or all of the Work pursuant to Section XVIII (Reservation of Rights by EPA), Paragraph 92. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

XVII. COVENANTS BY EPA

89. In consideration of the actions that Settling Party will perform and the payments that Settling Party will make under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, EPA covenants not to sue or to take administrative action against Settling Party pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work performed under this Settlement Agreement and for recovery of Future Response Costs. These covenants shall take effect upon the Effective Date. These covenants are conditioned upon Settling Party's complete and satisfactory performance of

its obligations under this Settlement Agreement, including, but not limited to, Settling Party's payments of Future Response Costs pursuant to Section XIII (Payment of Response Costs) of this Settlement Agreement. These covenants extend only to Settling Party and do not extend to any other person.

XVIII. RESERVATION OF RIGHTS BY EPA

90. Except as specifically provided in this Settlement Agreement, nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, except as specifically provided in this Settlement Agreement, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Settling Party in the future to perform additional activities pursuant to CERCLA or any other applicable law.

91. The covenant not to sue set forth in Section XVII (Covenants by EPA) above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against Settling Party with respect to all other matters, including, but not limited to:

a. claims based on a failure by Settling Party to meet a requirement of this Settlement Agreement;

b. liability for costs not included within the definitions of Future Response Costs;

c. liability for performance of response action other than the Work;

d. criminal liability;

e. liability for violations of federal or state law that occur during or after implementation of the Work;

f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

g. liability arising from the past, present, or future disposal, release, or threat of release of Waste Materials outside of OU2 for the Site; and

h. liability for costs incurred, or to be incurred, by the Agency for Toxic Substances and Disease Registry related to the Site.

92. Work Takeover. In the event EPA determines that Settling Party has ceased implementation of any portion of the Work, is seriously or repeatedly deficient or late in its performance of the Work, or is implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Work Takeover Notice") to Settling Party and assume the performance of all or any portion(s) of the Work as EPA deems necessary ("Work Takeover"). Any Work Takeover Notice issued by EPA will specify the grounds upon which such notice was issued and will provide Settling Party a period of 10 days within which to remedy the circumstances giving rise to EPA's issuance of such notice. Settling Party may invoke the procedures set forth in Section XIV (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. However, notwithstanding Settling Party's invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover until the earlier of the date that Settling Party remedies, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, or the date that a written decision terminating such Work Takeover is rendered in accordance with Section XIV (Dispute Resolution). Funding of Work Takeover costs is addressed under Paragraph 116. Notwithstanding any other provision of this Settlement Agreement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XIX. COVENANTS BY SETTLING PARTY

93. Settling Party covenants not to sue and agrees not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, past response actions, Future Response Costs, or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of response actions at, or in connection with, the Site, including any claim under the United States Constitution, the New Jersey Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Work or payment of Future Response Costs.

d. this Covenant Not to Sue by Settling Party shall not extend to, and Settling Party specifically reserves, any claims or causes of action in contribution pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, against the United States as a "covered

person" (within the meaning Section 107(a) of CERCLA, 42 U.S.C. § 9607(a)) with respect to this Settlement Agreement, based solely on actions by the United States other than the exercise of the government's authority under CERCLA or WRDA.

94. Except as expressly provided in Paragraphs 97 (Claims Against De Micromis Parties), and 99 (Claims Against *De Minimis* and Ability to Pay Parties), these covenants shall not apply in the event the United States brings a cause of action or issues an order pursuant to any of the reservations set forth in Section XVIII (Reservation of Rights by EPA), other than in Paragraph 91.a (claims for failure to meet a requirement of the Settlement Agreement) or 91.d (criminal liability), but only to the extent that Settling Party claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

95. Settling Party reserves, and this Settlement Agreement is without prejudice to, claims against the United States subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States while acting within the scope of his office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, any such claim shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a federal employee as that term is defined in 28 U.S.C. § 2671; nor shall any such claim include a claim based on EPA's selection of response actions, or the oversight or approval of Settling Party's plans or activities.

96. Nothing in this Settlement Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

97. Claims Against De Micromis Parties. Settling Party agrees not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) or 113 of CERCLA) that they may have for all matters relating to OU2 for the Site against any person where the person's liability to Settling Party with respect to OU2 is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous substances at the Site, if all or part of the disposal, treatment, or transport occurred before April 1, 2001, and the total amount of material containing hazardous substances contributed by such person to the Site was less than 110 gallons of liquid materials or 200 pounds of solid materials.

98. The waiver in Paragraph 97 shall not apply with respect to any defense, claim, or cause of action that Settling Party may have against any person meeting the above criteria, if such person asserts a claim or cause of action relating to OU2 for the Site against Settling Party. This waiver also shall not apply to any claim or cause of action against any person meeting the above criteria, if EPA determines:

a. that such person failed to comply with any EPA request for information or administrative subpoenas issued pursuant to Section 104(e) or 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) or 9622(e), or Section 3007 of RCRA, 42 U.S.C. § 6927, or has impeded or is impeding, through action or inaction, the performance of a response action or natural resource restoration with respect to OU2 for the Site, or has been convicted of a criminal violation for the conduct to which this waiver would apply and that conviction has not been vitiated on appeal or otherwise; or

b. that the materials containing hazardous substances contributed to the Site by such person have contributed significantly, either individually or in aggregate, to the cost of response action or natural resource restoration with respect to OU2 for the Site.

99. Claims Against *De Minimis* and Ability to Pay Parties. Settling Party agrees not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) or 113 of CERCLA) that they may have for response costs relating to OU2 of the Site against any person that has entered, or in the future enters, into a final Section 122(g) *de minimis* settlement, or a final settlement based on ability to pay, with EPA with respect to OU2 for the Site. This waiver shall not apply with respect to any defense, claim, or cause of action that Settling Party may have against any person if such person asserts a claim or cause of action relating to OU2 for the Site against Settling Party.

XX. OTHER CLAIMS

100. By issuance of this Settlement Agreement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Settling Party. The United States or EPA shall not be deemed a party to any contract entered into by Settling Party or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement Agreement.

101. Except as expressly provided in Paragraphs 97 (Claims Against De Micromis Parties), 99 (Claims Against *De Minimis* and Ability to Pay Parties), and Section XVII (Covenants by EPA), nothing in this Settlement Agreement constitutes a satisfaction of, or release from, any claim or cause of action against Settling Party or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including, but not limited to, any claims of the United States for costs, damages, and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

102. No action or decision by EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXI EFFECT OF SETTLEMENT/CONTRIBUTION

103. Except as provided in Paragraphs 97 (Claims Against De Micromis Parties), and 99 (Claims Against *De Minimis* and Ability to Pay Parties), nothing in this Settlement Agreement shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Settlement Agreement. Except as provided in Section XVII (Covenants by Settling Party), each of the Parties expressly reserves any and all rights (including, but not limited to, claims pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to OU2 for the Site against any person not a Party hereto. Nothing in this Settlement Agreement diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2) and (3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

104. The Parties agree that this Settlement Agreement constitutes an administrative settlement pursuant to which Settling Party has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. § 9613(f)(2) and 9622(h)(4), and is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), or as may be otherwise provided by law, for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work, and Future Response Costs.

105. The Parties further agree that this Settlement Agreement constitutes an administrative settlement pursuant to which Settling Party has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(e)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

106. Settling Party shall, with respect to any suit or claim brought by it for matters related to this Settlement Agreement, notify EPA in writing no later than 60 days prior to the initiation of such suit or claim. Settling Party also shall, with respect to any suit or claim brought against it for matters related to this Settlement Agreement, notify EPA in writing within 10 days after service of the complaint or claim upon it. In addition, Settling Party shall notify EPA within 10 days after service or receipt of any Motion for Summary Judgment and within 10 days after receipt of any order from a court setting a case for trial, for matters related to this Settlement Agreement.

107. In any subsequent administrative or judicial proceeding initiated by EPA, or by the United States on behalf of EPA, for injunctive relief, recovery of response costs, or other relief relating to the Site, Settling Party shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenant by EPA set forth in Section XVII (Covenants by EPA).

XXII. INDEMNIFICATION

108. Settling Party shall indemnify, save, and hold harmless the United States, its officials, agents, contractors, subcontractors, employees, and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Settling Party, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Settling Party agrees to pay the United States all costs incurred by the United States, including, but not limited to, attorney fees and other expenses of litigation and settlement, arising from, or on account of, claims made against the United States based on negligent or other wrongful acts or omissions of Settling Party, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into, by, or on behalf of Settling Party in carrying out activities pursuant to this Settlement Agreement. Neither Settling Party nor any such contractor shall be considered an agent of the United States.

109. The United States shall give Settling Party notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Settling Party prior to settling such claim.

110. Settling Party waives all claims against the United States for damages or reimbursement or for set-off of any payments made, or to be made, to the United States, arising from, or on account of, any contract, agreement, or arrangement between Settling Party and any person for performance of Work on, or relating to, OU2 for the Site, including, but not limited to, claims on account of construction delays. In addition, Settling Party shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from, or on account of, any contract, agreement, or arrangement between Settling Party and any person for performance of Work on, or relating to, the Site.

XXIII. INSURANCE

111. At least 14 days prior to commencing any on-Site Work under this Settlement Agreement, Settling Party shall secure and shall maintain for the duration of this Settlement Agreement commercial general liability insurance with limits of 10 million dollars, for any one

occurrence, and automobile insurance with limits of 5 million dollars, combined single limit, naming EPA as an additional insured with respect to all liability arising out of activities performed by or on behalf of Settling Party pursuant to this Settlement Agreement. Within the same period, Settling Party shall provide EPA with certificates of such insurance and a copy of each insurance policy. Settling Party shall submit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of this Settlement Agreement, Settling Party shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Settling Party in furtherance of this Settlement Agreement. If Settling Party demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Settling Party needs to provide only that portion of the insurance described above that is not maintained by such contractor or subcontractor.

XXIV. FINANCIAL ASSURANCE

112. In order to ensure completion of the Work, Settling Party shall establish, maintain, and submit to EPA financial assurance, initially in the amount of $41,250,000 (the "Financial Assurance Amount"), for the benefit of EPA. The financial assurance, which must be satisfactory in form and substance to EPA, shall be in the form of one or more of the following mechanisms (provided that, if Settling Party intends to use multiple mechanisms, such multiple mechanisms shall be limited to surety bonds, letter of credits, trust funds, and insurance policies):

a. a surety bond that provides EPA with acceptable rights as a beneficiary thereof unconditionally guaranteeing payment and/or performance of the Work;

b. an irrevocable letters of credit, payable to or at the direction of EPA, that is issued by an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency;

c. a trust fund established for the benefit of EPA that is administered by a trustee acceptable in all respects to EPA;

d. a policy of insurance issued that provides EPA with acceptable rights as a beneficiary thereof, is issued by an insurance carrier acceptable in all respects to EPA, and ensures the payment and/or performance of the Work;

e. a demonstration by Settling Party that Settling Party meets the financial test criteria of 40 C.F.R. § 264.143(f) with respect to the Financial Assurance Amount (plus the amount(s) of any other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee), provided that all other requirements of 40 C.F.R. § 264.143(f) and this Section are satisfied; and/or

f. a written guarantee to fund or perform the Work executed in favor of EPA provided by one of more of the following: (1) a direct or indirect parent company of Settling Party, or (2) a company that has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with Settling Party; provided, however, that any company providing such a guarantee must demonstrate to the satisfaction of EPA that it satisfies the financial test and reporting requirements for owners and operators set forth in subparagraph (1) through (8) of 40 C.F.R. § 264.143(f) and this Section with respect to the Financial Assurance Amount (plus the amount(s) of any other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee).

113. Settling Party has selected, and EPA has found satisfactory, as an initial financial assurance an irrevocable letters of credit prepared in accordance with Paragraph 112. Within 30 days after the Effective Date, or within 30 days after EPA's approval of the form and substance of Settling Party's financial assurance, whichever is later, Settling Party shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the EPA-approved form of financial assurance and shall submit such mechanisms and documents to:

Chief, Resource Management/Cost Recovery Section
Emergency and Remedial Response Division
U.S. EPA Region 2
290 Broadway 18th Floor
New York, NY 10007-1866

114. If Settling Party provides or obtains financial assurance for completion of the Work by means of a demonstration or guarantee pursuant to Paragraph 112(e) or 112(f) of this Settlement Agreement, Settling Party and/or its guarantor shall also comply with the other relevant requirements of 40 C.F.R. § 264.143(f) relating to these mechanisms unless otherwise provided in this Settlement Agreement, and with the requirements of this Section, including but not limited to: (a) the initial submission of required financial reports and statements from the relevant entity's chief financial officer and independent certified public accountant to EPA no later than 30 days after the Effective Date; (b) the annual re-submission of such reports and statements within 90 days after the close of each such entity's fiscal year; and (c) the notification of EPA no later than 30 days after any such entity determines that it no longer satisfies the financial test requirements set forth 40 C.F.R. § 264.143(f)(1) and in any event within 90 days after the close of any fiscal year for which the year-end financial data show that such entity no longer satisfies such financial test requirements. Settling Party agrees that EPA may also, based on a belief that the relevant entity may no longer meet the financial test requirements of this Section, require reports of financial condition at any time from the relevant entity in addition to those specified in this Section. For purposes of the financial assurance mechanisms specified in this Section, references in 40 C.F.R. Part 264, Subpart H to: (1) the terms "current closure cost estimate," "current post-closure cost estimate," and "current plugging and abandonment cost estimate," shall also include the Financial Assurance Amount; (2) "the sum of current closure and post closure cost estimates and current plugging and abandonment cost estimates" shall mean

"the sum of all environmental obligations" (including obligations under CERCLA, RCRA, EPA's Underground Injection Control program, 40 C.F.R. Part 144, enacted as part of the Solid Waste Disposal Act, 42 U.S.C. §§ 6901 to 6992k, the Toxic Substances Control Act, 15 U.S.C. §§ 2601 to 2695d, and any other federal, state, or tribal environmental obligation) guaranteed by such company or for which such company is otherwise financially obligated in addition to the Financial Assurance Amount to be performed in accordance with this Settlement Agreement: (3) for purposes of this Paragraph, the terms "owner" and "operator" shall be deemed to refer to "Settling Party" ; and (4) the terms "facility" and "hazardous waste management facility" shall be deemed to include the Site.

115. Settling Party shall diligently monitor the adequacy of the financial assurance. In the event that EPA determines and so notifies Settling Party, or Settling Party becomes aware of information indicating, that financial assurance provided pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated costs of completing the Work or for any other reason, Settling Party shall notify EPA of the inadequacy within 30 days and, within 30 days after providing to or receiving from EPA such notice, shall obtain and submit to EPA for approval a proposal for a revised or alternate form of financial assurance that satisfies the requirements set forth in this Section. If EPA approves the proposal, Settling Party shall provide a revised or alternate financial assurance mechanism in compliance with and to the extent permitted by such written approval and shall submit all documents evidencing such change to EPA pursuant to the delivery instructions in Paragraph 113 within 30 days after receipt of EPA's written approval. In seeking approval for a revised or alternate form of financial assurance, Settling Party shall follow the procedures set forth in Paragraph 117. If EPA does not approve the proposal, Settling Party shall follow the procedures set forth in Paragraph 117 to obtain and submit to EPA for approval another proposal for a revised or alternate form of financial assurance within 30 days after receipt of EPA's written disapproval.

116. The issuance of a Work Takeover Notice pursuant to Paragraph 92 (Work Takeover) shall trigger EPA's right to receive the benefit of any financial assurance(s) provided pursuant to this Section. At such time, EPA shall have the right to enforce performance by the issuer of the relevant financial assurance mechanism and/or immediately access resources guaranteed under any such mechanism, whether in cash or in kind, as needed to continue and complete all or any portion(s) of the Work assumed by EPA. In the event (a) EPA is unable to promptly secure the resources guaranteed under any such financial assurance mechanism, whether in cash or in kind, necessary to continue and complete the Work assumed by EPA, or (b) the financial assurance involves a demonstration of satisfaction of the financial test criteria pursuant to Paragraph 112.e or 112.f, Settling Party shall immediately upon written demand from EPA deposit into an account specified by EPA, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount up to but not exceeding the estimated cost of the remaining Work to be performed as of such date, as determined by EPA. All EPA Work Takeover costs not paid pursuant to this Paragraph shall be reimbursed under Section XIII (Payment of Response Costs). In addition, if at any time EPA is notified by

the issuer of a financial assurance mechanism that such issuer intends to cancel the financial assurance mechanism it has issued, then, unless Settling Party provides an alternate financial assurance mechanism in accordance with this Section no later than 30 days prior to the impending cancellation date, EPA shall be entitled (as of and after the date that is 30 days prior to the impending cancellation) to draw fully on the funds guaranteed under the then-existing financial assurance.

117. Settling Party shall not reduce the amount of, or change the form or terms of, the financial assurance until Settling Party receives written approval from EPA to do so. Settling Party may petition EPA in writing to request such a reduction or change on any anniversary of the Effective Date, or at any other time agreed by the Parties. Any such petition shall include the estimated cost of the remaining Work and the basis upon which such cost was calculated, and, for proposed changes to the form or terms of the financial assurance. If EPA notifies Settling Party that it has approved the requested reduction or change, Settling Party may reduce or otherwise change the financial assurance in compliance with and to the extent permitted by such written approval and shall submit all documents evidencing such reduction or change to EPA pursuant to the delivery instructions in Paragraph 113 within 30 days after receipt of EPA's written decision. If EPA disapproves the request, Settling Party may seek dispute resolution pursuant to Section XIV (Dispute Resolution), provided, however, that Settling Party may reduce or otherwise change the financial assurance only in accordance with an agreement reached pursuant to Section XIV or EPA's written decision resolving the dispute.

118. Settling Party shall not release, cancel, or discontinue any financial assurance provided pursuant to this Section until:

a. Settling Party receives written notice from EPA in accordance with Paragraph 123 that the Work has been fully and finally completed in accordance with this Settlement Agreement; or

b. EPA otherwise notifies Settling Party in writing that it may release, cancel, or discontinue the financial assurance(s) provided pursuant to this Section. In the event of a dispute, Settling Party may seek dispute resolution pursuant to Section XIV (Dispute Resolution), and may release, cancel, or discontinue the financial assurance required hereunder only in accordance with an agreement reached pursuant to Section XIV or EPA's written decision resolving the dispute.

XXV. INTEGRATION/APPENDICES

119. This Settlement Agreement and any deliverables, technical memoranda, specifications, schedules, documents, plans, reports (other than progress reports), etc. that will be developed pursuant to this Settlement Agreement and become incorporated into, and enforceable under this Settlement Agreement and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this

Settlement Agreement. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following appendices are attached to and incorporated into this Settlement Agreement:

"Appendix A" is the Record of Decision for Operable Unit Two

"Appendix B" is the Statement of Work

"Appendix C" is the Site Map

"Appendix D" Financial Assurance

In the event of a conflict between any provision of this Settlement Agreement and the provisions of any document attached to this Settlement Agreement or submitted or approved pursuant to this Settlement Agreement, the provisions of this Settlement Agreement shall control.

XXVI. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

120. This Settlement Agreement shall be effective on the date that the Settlement Agreement is signed by the Director of the Emergency and Remedial Response Division of EPA Region 2 or his delegate,

121. This Settlement Agreement, including the attached SOW, may be amended by mutual agreement of EPA and Settling Party. Amendments shall be in writing and shall be effective when signed by EPA. Neither EPA Project Coordinators nor EPA RPMs have the authority to sign amendments to the Settlement Agreement.

122. No informal advice, guidance, suggestion, or comment by the EPA Project Coordinator or other EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Settling Party shall relieve Settling Party of its obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

XXVII. NOTICE OF COMPLETION OF WORK

123. When EPA determines that all Work has been fully performed in accordance with the other requirements of this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including payment of Future Response Costs or record retention, EPA will provide written notice to Settling Party. If EPA determines that any such Work has not been completed in accordance with this Settlement Agreement, EPA will notify Settling Party, provide a list of the deficiencies, and require that Settling Party modify the Work Plan if appropriate to correct such deficiencies. Settling Party shall implement the

modified and approved Work Plan and shall submit the required deliverables. Failure by Settling Party to implement the approved modified Work Plan shall be a violation of this Settlement Agreement.

It is so ORDERED AND AGREED this 30th day of September, 2016.

BY: _____ DATE: 9-30-2016

Walter E. Mugdan, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency, Region 2

EFFECTIVE DATE: September 30, 2016

ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL DESIGN

In the Matter of Operable Unit 2 of the Diamond Alkali Superfund Site
CERCLA Docket No

For Settling Party: OCCIDENTAL CHEMICAL

By: [signature]

Title: VICE PRESIDENT

Date: 9/29/16

APPENDIX B
STATEMENT OF WORK

STATEMENT OF WORK

PRE-REMEDIAL DESIGN AND REMEDIAL DESIGN

LOWER 8.3 MILES OF LOWER PASSAIC RIVER

PART OF THE DIAMOND ALKALI SUPERFUND SITE

Essex and Hudson Counties, State of New Jersey

EPA Region 2

September 26, 2016

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1. INTRODUCTION

1.1 Purpose of the SOW. This Statement of Work (SOW) sets forth the procedures and requirements for implementing the pre-remedial design and remedial design work for the remedy selected in the Record of Decision (ROD) signed by the U.S. Environmental Protection Agency (EPA) on March 3, 2016 for the lower 8.3 miles of the Lower Passaic River part of the Diamond Alkali Superfund Site. Given the complexity and uncertainty involved with remediating sediment sites, especially at such a large scale, EPA expects to employ an adaptive management approach during the remedial design and implementation of the remedy. Information and experience gained as a result of earlier stages of the remedial design and remedy implementation will inform later stages of the design and implementation. This will allow for appropriate adjustments or modifications to enable efficient and effective remedy implementation, providing a means to address uncertainties promptly and inform specific design decisions.

1.2 Structure of the SOW.

- Section 2 (Community Involvement) sets forth EPA's and Settling Party's responsibilities for community involvement.
- Section 3 (Remedial Design) sets forth the process for developing the Pre-Design Investigation and Remedial Design, which includes the submission of specified primary deliverables.
- Section 4 (Emergency Response, Off-Site Shipments and Reporting) sets forth Settling Party's emergency response, off-site shipments and reporting obligations.
- Section 5 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding Settling Party's submission of, and EPA's review of, approval of, comment on, and/or modification of, the deliverables.
- Section 6 (Schedules) sets forth the schedule for submitting the primary deliverables, and sets forth the schedule of milestones regarding the completion of the RD.
- Section 7 (State Participation) addresses State participation.
- Section 8 (References) provides a list of references, including URLs.

1.3 The Scope of the Remedy includes the actions described in Section 12 of the ROD, including the following major components:

(a) An engineered cap will be constructed over the river bottom of the lower 8.3 miles, except in areas where backfill may be placed because all contaminated fine-grained sediments have been removed. The engineered cap will generally consist of two feet of sand and may be armored where necessary to prevent erosion of the sand.

(b) Before the engineered cap is installed, the river will be dredged bank to bank (approximately 3.5 million cubic yards) so that the cap can be placed without increasing the potential for flooding. Depth of dredging is estimated to be 2.5 feet, except in the 1.7 miles of the federally authorized navigation channel closest to Newark Bay.

(c) The remedy will include sufficient dredging and capping to allow for the continued commercial use of a federally authorized navigation channel in the 1.7 miles of the river closest to Newark Bay and to accommodate reasonably anticipated future recreational use above RM 1.7.

(d) Dredged materials will be barged or pumped to a sediment processing facility in the vicinity of the Lower Passaic River/Newark Bay shoreline for dewatering. Dewatered materials will be transported to permitted treatment facilities and landfills in the United States or Canada for disposal.

(e) Mudflats dredged during implementation of the remedy will be covered with an engineered cap consisting of one foot of sand and one foot of mudflat reconstruction (habitat) substrate.

(f) Institutional controls will be implemented to protect the engineered cap. In addition, New Jersey's existing prohibitions on fish and crab consumption will remain in place and will be enhanced with additional community outreach to encourage greater awareness of the prohibitions until the concentrations of contaminants of concern in fish and crab tissue reach protective concentrations corresponding to remediation goals. EPA will share the data and consult with New Jersey Department of Environmental Protection about whether the prohibitions on fish and crab consumption advisories can be lifted or adjusted to allow for increased consumption as contaminant levels decline.

(g) Long-term monitoring and maintenance of the engineered cap will be required to ensure its stability and integrity. Long-term monitoring of fish, crab and sediment will also be performed to determine when interim remediation milestones, remediation goals and remedial action objectives are reached. Other monitoring, such as water column sampling, will also be performed.

1.4 Performance Standards

(a) EPA will develop Performance Standards (PS) related to remedy implementation. EPA will collaborate on an ongoing basis with Settling Party throughout the PS development process, and will consider the opinions and suggestions provided by Settling Party. The RD will be developed to achieve the PS. EPA will be the final arbiter with respect to the content of the PS.

(b) EPA is developing the following PS:

(1) Engineering performance standards, including but not limited to resuspension and productivity.

(2) Quality of life performance standards, including, but not limited to, air quality, odor, noise and lighting.

1.5 The terms used in this SOW that are defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), in regulations promulgated

under CERCLA, or in the Settlement Agreement and Order on Consent (Settlement Agreement), have the meanings assigned to them in CERCLA, in such regulations, or in the Settlement Agreement, except that the term "Paragraph" or "¶" means a paragraph of the SOW, and the term "Section" means a section of the SOW, unless otherwise stated.

2. COMMUNITY INVOLVEMENT

2.1 Community Involvement Responsibilities

(a) EPA has the lead responsibility for developing and implementing community involvement activities at the Site. Previously, during the RI/FFS phase, EPA developed a Community Involvement Plan (CIP) for the Lower Passaic River and Newark Bay. Pursuant to 40 C.F.R. § 300.435(c), EPA shall review the existing CIP and determine whether it should be revised to describe further public involvement activities during the Work that are not already addressed or provided for in the existing CIP.

(b) If requested by EPA, Settling Party shall participate in community involvement activities, including participation in (1) the preparation of information regarding the Work for dissemination to the public, with consideration given to including mass media and/or Internet notification, and (2) public meetings that may be held or sponsored by EPA to explain activities at or relating to the Site. Settling Party's support of EPA's community involvement activities may include providing online access to submissions and updates of deliverables to (1) any Community Advisory Groups, (2) any Technical Assistance Grant recipients and their advisors, and (3) other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP Settling Party's responsibilities for community involvement activities. All community involvement activities conducted by Settling Party at EPA's request are subject to EPA's oversight. Upon EPA's request, Settling Party shall establish a community information repository at or near the Site to house one copy of the administrative record.

(c) **Settling Party's Community Coordinator**. If requested by EPA, Settling Party shall, within 15 days or such longer time as specified by EPA, designate and notify EPA of Settling Party's Community Coordinator. Settling Party may hire a contractor for this purpose. Settling Party's notice must include the name, title, and qualifications of the Settling Party's Community Coordinator. Settling Party's Community Coordinator is responsible for providing support regarding EPA's community involvement activities, including coordinating with EPA's Community Involvement Coordinator regarding responses to the public's inquiries about the Site.

3. REMEDIAL DESIGN

3.1 Project Management Plan. The purpose of the Project Management Plan is to develop a strategy to complete the Remedial Design (RD) and Remedial Action (RA) successfully, including, but not limited to:

(a) A description of the overall management strategy for performing the RD, including a proposal for phasing of design and construction, if applicable;

(b) A description of the proposed approach to contracting, and proposed general approach to construction, operation, maintenance and monitoring of the RA as necessary to implement the Work;

(c) A description of the responsibility and authority of, and communications strategy among, all organizations and key personnel involved with the development of the RD, including by not limited to meetings between the Settling Party's Project Coordinator and EPA's Project Coordinator;

(d) Baseline schedule for completion of the Work, including a preliminary list of all work plans, tasks and deliverables to be prepared.

The Project Management Plan will be updated periodically to reflect changes in the project status and team members.

3.2 Pre-Design Investigation. The purpose of the Pre-Design Investigation (PDI) is to gather sufficient information to fully develop the Remedial Design (RD).

(a) **PDI Work Plan.** Settling Party shall submit a PDI Work Plan (PDI WP) for EPA approval. The PDI WP shall describe activities to be conducted by Settling Party to gather sufficient information to fully develop the RD and schedule for completing the individual items. Settling Party shall perform PDI activities including, but not limited to, the following:

(1) Sediment core collection and analysis for chemical, waste, geological and geotechnical characterization, for the purposes of designing the dredging plan and the engineered cap, and developing a plan for dredged material disposal.

(2) Pore water sample collection and chemical analysis for the purpose of designing the engineered cap.

(3) Sub-bottom geophysical and bathymetric surveys for the purpose of designing the dredging plan and the engineered cap.

(4) Physical and chemical water column sampling program to establish a baseline for PS developed by EPA.

(5) Dredge Elutriate Test and other laboratory studies on desorption of contaminants from solids to assess the potential impacts of dredging on water quality.

(6) Fish migration/spawning study and other surveys necessary to determine fish windows and other restrictions on in-water construction.

(7) Borrow site pre-screening and preliminary borrow material characterization to identify suitable materials for designing the engineered cap.

(8) In-river habitat survey for the purpose of designing habitat replacement measures on the mudflats and any other habitat areas affected by implementation of the selected remedy.

(9) A detailed survey of the bottom of the lower 8.3 miles of the Lower Passaic River for performing pre-construction debris removal and to locate utilities for protection during construction.

(10) A survey and assessment, as it relates to the implementation of the remedy, of the integrity of existing bulkheads, natural shoreline, rip rapped areas and bridge abutments along the lower 8.3 miles of the Lower Passaic River and a determination of the extent of temporary bulkhead installation and other protective measures required for remedy implementation.

(11) A plan for compliance with Federal and State archeological requirements, including Phase I and II cultural surveys, as required.

(12) The following supporting deliverables described in ¶ 5.7 (Supporting Deliverables) applicable to the PDI: Health and Safety Plan, Field Sampling Plan, Quality Assurance Project Plan.

(b) Following the PDI, Settling Party shall submit a PDI Evaluation Report for EPA comment. This report must include:

(1) Summary of the investigations performed;

(2) Summary of investigation results;

(3) Summary of validated data (i.e., tables and graphics);

(4) Data validation reports and laboratory data reports;

(5) Narrative interpretation of data and results;

(6) Results of statistical and modeling analyses;

(7) Photographs documenting the work conducted;

(8) Conclusions and recommendations for RD, including design parameters and criteria; and

(9) Recommendations for additional data collection or analyses.

(c) EPA may require Settling Party to supplement the PDI Evaluation Report and/or to perform additional pre-design studies.

3.3 **Remedial Design Work Plan**. Settling Party shall submit a Remedial Design (RD) Work Plan (RDWP) for EPA approval. The RDWP must include:

(a) Plans and technical approaches for implementing all RD activities identified in this SOW, in the RDWP, or required by EPA to be conducted to develop the RD;

(b) Descriptions of any areas requiring clarification and/or anticipated problems (e.g., data gaps);

(c) Descriptions of any applicable permitting requirements and other regulatory requirements;

(d) Description of plans for obtaining access in connection with the Work, such as property acquisition, property leases, and/or easements;

(e) Description of supporting design calculations and modeling runs to be performed in support of design;

(f) A plan for identification, screening and selection of disposal sites for Waste Material;

(g) Description of plans for obtaining Congressional action to modify the depths and deauthorize portions of the federally-authorized navigation channel in accordance with the navigation depths included in the selected remedy in the ROD;

(h) Tasks required for implementing institutional controls; and

(i) Descriptions of how the RD and RA will be implemented using the principles specified in the EPA Region 2's Clean and Green Policy.

(j) The Emergency Response Plan described in ¶ 5.7 (Supporting Deliverables).

3.4 Settling Party shall meet regularly with EPA according to time frames identified within the Project Management Plan, or as directed or determined by EPA.

3.5 **Site Wide Monitoring Plan**. Settling Party shall submit a Site Wide Monitoring Plan for EPA comment as described in ¶ 5.7 (Supporting Deliverables).

3.6 Site Selection and Evaluation. Settling Party shall identify and select a site or sites for the sediment processing facility.

(a) Settling Party shall submit a Site Selection and Evaluation Work Plan for EPA approval. The work plan will include, but not be limited to the following tasks:

(1) Site(s) selection criteria, identification process and selection process;

(2) Collection of site evaluation data to assess the suitability of the site(s) for use as a sediment processing facility and as required for bidding purposes during contractor selection, including, but not limited to geotechnical, baseline chemical conditions, habitat and cultural resources surveys, topographical survey, and utility service assessment;

(3) Land leasing or acquisition plan.

(b) Following completion of the site selection and evaluation for the sediment processing facility, Settling Party shall submit a Site Selection and Evaluation Report for EPA comment.

3.7 Treatability Studies

(a) Settling Party shall perform Treatability Studies (TS) for the following purposes, unless otherwise agreed to by EPA:

(1) To evaluate enhanced capping technologies, with a focus on constructability and placement techniques, such as the use of additives or amendments (e.g., activated carbon or organoclay) to create a reactive cap or thin-layer capping technologies where conditions are conducive to such approaches;

(2) To evaluate constructability and placement techniques for habitat substrate on the mudflats and any other habitat areas affected by implementation of the selected remedy.

(b) Settling Party will submit a TS Work Plan (TSWP) for EPA approval. Settling Party shall prepare the TSWP in accordance with EPA's *Guide for Conducting Treatability Studies under CERCLA, Final* (Oct. 1992), as supplemented for RD by the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995).

(c) Following completion of the TS, Settling Party shall submit a TS Evaluation Report for EPA comment.

(d) EPA may require Settling Party to supplement the TS Evaluation Report and/or to perform additional treatability studies.

3.8 **Preliminary (30%) RD**. Settling Party shall submit a Preliminary (30%) RD for EPA's comment. The Preliminary RD must include:

(a) A design criteria report, as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995);

(b) A basis of design report, as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995);

(c) Preliminary drawings and specifications, including, but not limited to:

(1) An outline of general specifications

(2) Listing of drawings and schematics

(3) Description of the planned O&M requirements

(4) Description of how PDI data will be incorporated into the RD.

(d) Design elements to be addressed include, but are not limited to:

(1) Identification of dredging methods and equipment

(2) Identification of materials handling and sediment dewatering technology for the sediment processing facility

(3) Site layout for sediment processing facility, including transportation

(4) Plans for habitat replacement on the mudflats and any other habitat areas affected by implementation of the selected remedy;

(5) A plan for debris removal, decontamination and disposal;

(6) Descriptions of permit requirements, if applicable;

(e) A draft schedule for RA activities; and

(f) The following supporting deliverable described in ¶ 5.7 (Supporting Deliverables): Transportation and Off-Site Disposal Plan.

3.9 **Intermediate (60%) RD.** Settling Party shall submit the Intermediate (60%) RD for EPA's comment. The Intermediate RD must address EPA's comments regarding the Preliminary RD and value engineering study results, if the value engineering study is conducted prior to the Intermediate RD, and include the following:

(a) A revised basis of design report;

(b) Intermediate drawings and specifications, including but not limited to:

(1) Draft specifications

(2) Drawings and schematics

(3) O&M description and cost estimate

(4) Unit price lists for the RA

(5) All relevant PDI data

(c) Design elements to be addressed include, but are not limited to:

(1) Updates of design elements addressed in the Preliminary RD

(2) A description of how the RA will be implemented in a manner that minimizes environmental impacts in accordance with EPA's *Principles for Greener Cleanups* (Aug. 2009) and EPA Region 2's Clean and Green Policy;

(3) A description of how the RA will be implemented consistent with the PS developed by EPA; and

(4) A description of how recontamination of the cap by contaminants of concern due to remedy implementation will be minimized;

(d) An updated draft schedule for RA activities; and

(e) Updates, as necessary, of supporting deliverables described in ¶ 5.7 (Supporting Deliverables) previously submitted.

3.10 **Value Engineering Analysis**. Settling party shall implement a value engineering study, to be undertaken following the Preliminary Remedial Design but prior to the Pre-Final Remedial Design. The value engineering study will be conducted in accordance with EPA's *Value Engineering for Fund-Financed Remedial Design and Remedial Action Projects* (OSWER 9355.5-24, April 2006) and *Value Engineering* (OSWER 9355.5-24FS, November 2005). Settling Party shall submit the results of the value engineering study for EPA comment and shall address EPA comments in the Intermediate or Pre-Final RD.

3.11 **Pre-Final (95%) RD**. Settling Party shall submit the Pre-final (95%) RD for EPA's comment. The Pre-final RD must be a continuation and expansion of the previous design submittal and must address EPA's comments regarding the Intermediate RD and the value engineering study results. The Pre-final RD will serve as the approved Final (100%) RD if EPA approves the Pre-final RD without comments. The Pre-final RD must include:

(a) A complete set of construction drawings and specifications that are: (1) certified by a registered professional engineer; (2) suitable for procurement; and (3) follow the Construction Specifications Institute's MasterFormat 2012;

(b) A survey and engineering drawings showing existing features of OU2 of the Site, such as elements, property borders, easements, and site conditions;

(c) Pre-Final versions of the same elements and deliverables as are required for the RD;

(d) A specification for photographic documentation of the RA; and

(e) Updates, as necessary, of the supporting deliverables described in ¶ 5.7 (Supporting Deliverables) previously submitted and the following additional supporting deliverables: Construction Quality Assurance/Quality Control Plan; O&M Plan; and Institutional Controls Implementation and Assurance Plan.

3.12 **Final (100%) RD**. Settling Party shall submit the Final (100%) RD for EPA approval. The Final RD must address EPA's comments on the Pre-final RD and must include final versions of all Pre-final RD deliverables.

4. EMERGENCY RESPONSE, OFF-SITE SHIPMENTS AND REPORTING

4.1 Emergency Response and Reporting

(a) **Emergency Response and Reporting**. If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from OU2 of the Site and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Settling Party shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) immediately notify the authorized EPA officer (as specified in ¶ 4.1(c)) orally; and (3) take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plan and any other deliverable approved by EPA under the SOW.

(b) **Release Reporting**. Upon the occurrence of any event during performance of the Work that Settling Party are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004, Settling Party shall immediately notify the authorized EPA officer orally.

(c) The "authorized EPA officer" for purposes of immediate oral notifications and consultations under ¶ 4.1(a) and ¶ 4.1(b) is the EPA Project Coordinator, the EPA Alternate Project Coordinator (if the EPA Project Coordinator is unavailable), or the EPA Emergency Response Unit, Region 2 (if neither EPA Project Coordinator is available).

(d) For any event covered by ¶ 4.1(a) and ¶ 4.1(b), Settling Party shall: (1) within 14 days after the onset of such event, submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 30 days after the conclusion of such event, submit a report to EPA describing all actions taken in response to such event.

(e) The reporting requirements under ¶ 4.1 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

4.2 Off-Site Shipments

(a) Settling Party may ship hazardous substances, pollutants, and contaminants from OU2 of the Site to an off-Site facility only if it complies with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Settling Party will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Settling Party obtains a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b).

(b) Settling Party may ship Waste Material from OU2 of the Site to an out-of-state waste management facility only if, prior to any shipment, it provides notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Settling Party also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility.

(c) Settling Party may ship Investigation Derived Waste (IDW) from OU2 of the Site to an off-Site facility only if it complies with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, *EPA's Guide to Management of Investigation Derived Waste*, OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the ROD. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped off-site for treatability studies, are not subject to 40 C.F.R. § 300.440.

4.3 Progress Reports. Commencing with the month following the Effective Date of the Settlement Agreement and until EPA approves the Final (100%) RD, Settling Party shall submit progress reports to EPA on a quarterly basis, or as otherwise requested by EPA. The reports must cover all activities that took place during the prior reporting period, including:

(a) The actions that have been taken toward achieving compliance with the Settlement Agreement;

(b) All results of sampling, tests and all other data received or generated by Settling Party, in an interactive, searchable database (in Excel or Access format). This database will be equivalent in form and function to any database used by the Settling Party in the development of the RD;

(c) A description of all deliverables that Settling Party submitted to EPA;

(d) An updated RD Schedule, together with information regarding approximate percentage of completion, delays encountered or anticipated that may affect the future schedule for completion of the RD, and a description of efforts made to mitigate those delays or anticipated delays;

(e) A description of any modifications to the work plans or other schedules that Settling Party has proposed or that have been approved by EPA; and

(f) A description of all activities undertaken in support of the Community Involvement Plan (CIP) during the reporting period and those to be undertaken in the next reporting period.

4.4 **Notice of Progress Report Schedule Changes**. If the schedule for any activity described in the Progress Reports, including activities required to be described under ¶ 4.1(d), changes, Settling Party shall notify EPA of such change at least 7 days before performance of the activity.

4.5 **Periodic Review Support Plan (PRSP)**. Upon EPA request, Settling Party shall submit the PRSP for EPA approval. The PRSP addresses the studies and investigations that Settling Party shall conduct to support EPA's reviews of whether conditions at the Site are protective of human health and the environment in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c) (also known as "Five-year Reviews"). Settling Party shall develop the plan in accordance with *Comprehensive Five-year Review Guidance*, OSWER 9355.7-03B-P (June 2001), and any other relevant five-year review guidances.

5. DELIVERABLES

5.1 **Applicability**. Settling Party shall submit deliverables for EPA approval or for EPA comment as specified in the SOW. If neither is specified, the deliverable does not require EPA's approval or comment. Paragraphs 5.2 (In Writing) through 5.4 (Technical Specifications) apply to all deliverables. Paragraph 5.5 (Certification) applies to any deliverable that is required to be certified. Paragraph 5.6 (Approval of Deliverables) applies to any deliverable that is required to be submitted for EPA approval.

5.2 **In Writing**. All deliverables under this SOW must be in writing unless otherwise specified.

5.3 **General Requirements for Deliverables.** All deliverables must be submitted by the deadlines in the RD Schedule, as applicable. Settling Party shall submit all deliverables to EPA in electronic form. Technical specifications for sampling and monitoring data and spatial data are addressed in ¶ 5.4. All other deliverables shall be submitted to EPA in the electronic form specified by the EPA Project Coordinator. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11", Settling Party shall also provide EPA with paper copies of such exhibits, upon EPA request.

5.4 **Technical Specifications**

(a) Sampling and monitoring data should be submitted in standard EPA Region 2 Electronic Data Deliverable (EDD) format, which can be found at https://www.epa.gov/superfund/region-2-superfund-electronic-data-submission. Other delivery methods may be allowed by EPA if electronic direct submission presents a significant burden or as technology changes.

(b) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at https://edg.epa.gov/EME/.

(c) Each file must include an attribute name for each site unit or sub-unit submitted. Consult https://www.epa.gov/geospatial/geospatial-policies-and-standards for any further available guidance on attribute identification and naming.

(d) Spatial data submitted by Settling Party does not, and is not intended to, define the boundaries of the Site.

5.5 **Certification**. The Pre-Design Investigation Evaluation Report, the Site Selection and Evaluation Report, the Treatability Study Evaluation Report, and the Final (100%) Remedial Design must be signed by the Settling Party's Project Coordinator, or other responsible official of Settling Party, and must contain the following statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate,

and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5.6 Approval of Deliverables

(a) **Initial Submissions**

(1) After review of any deliverable that is required to be submitted for EPA approval under the Settlement Agreement or the SOW, EPA shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.

(2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

(b) **Resubmissions**. Upon receipt of a notice of disapproval under ¶ 5.6(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under ¶ 5.6(a), Settling Party shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (1) approve, in whole or in part, the resubmission; (2) approve the resubmission upon specified conditions; (3) modify the resubmission; (4) disapprove, in whole or in part, the resubmission, requiring Settling Party to correct the deficiencies; or (5) any combination of the foregoing.

(c) **Material Defects**. If an initially submitted or resubmitted deliverable contains a material defect, and the deliverable is disapproved or modified by EPA under Paragraph 5.6(a) or 5.6(b) due to such material defect, then the material defect shall constitute a lack of compliance for purposes of Paragraph 79 of the Settlement Agreement. The provisions of Section XIV (Dispute Resolution) and Section XVI (Stipulated Penalties) of the Settlement Agreement shall govern the accrual and payment of any stipulated penalties regarding Settling Party's submissions under this paragraph.

(d) **Implementation**. Upon approval, approval upon conditions, or modification by EPA under ¶ 5.6(a) (Initial Submissions) or ¶ 5.6(b) (Resubmissions), of any deliverable, or any portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and enforceable under the Settlement Agreement; and (2) Settling Party shall take any action required by such deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable

submitted or resubmitted under ¶ 5.6(a) or ¶ 5.6(b) does not relieve Settling Party of any liability for stipulated penalties under Section XVI (Stipulated Penalties) of the Settlement Agreement.

(e) Settling Party may propose modifications to any EPA approved schedule or work plan in writing for review and approval by EPA, outlining the basis for the requested modifications. EPA shall retain the final authority to approve or disapprove modifications to the EPA approved schedules or work plans proposed by Settling Party. The EPA Project Coordinator may authorize minor field modifications to the work plans, provided that any such modifications are consistent with the SOW and provided further that EPA's approval must be documented in writing which may be in electronic form (e-mail) submitted by Settling Party within 5 days of the field modification.

5.7 **Supporting Deliverables**. Settling Party shall submit each of the following supporting deliverables for EPA approval, except as specifically provided. Settling Party shall develop the deliverables in accordance with all applicable regulations, guidances, and policies (see Section 8 (References)). Settling Party shall update each of these supporting deliverables as necessary or appropriate during the course of the Work, and/or as requested by EPA.

(a) **Health and Safety Plan**. The Health and Safety Plan (HASP) describes all activities to be performed to protect on-Site personnel and area residents from physical, chemical, and all other hazards posed by the Work. Settling Party shall develop the HASP in accordance with EPA's Emergency Responder Health and Safety and Occupational Safety and Health Administration (OSHA) requirements under 29 C.F.R. §§ 1910 and 1926. The HASP should cover PDI and RD activities. EPA does not approve the HASP, but will review it to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment.

(b) **Emergency Response Plan**. The Emergency Response Plan (ERP) must describe procedures to be used in the event of an accident or emergency at OU2 of the Site (for example, damage to utilities, power outages, water impoundment failure, treatment plant failure, slope failure, etc.). The ERP must include:

(1) Name of the person or entity responsible for responding in the event of an emergency incident;

(2) Plan and date(s) for meeting(s) with the local community, including local, State, and federal agencies involved in the cleanup, as well as local emergency squads and hospitals;

(3) Spill Prevention, Control, and Countermeasures (SPCC) Plan (if applicable), consistent with the regulations under 40 C.F.R. Part 112, describing measures to prevent, and contingency plans for, spills and discharges;

(4) Notification activities in accordance with ¶ 4.1(b) (Release Reporting) in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004; and

(5) A description of all necessary actions to ensure compliance with Paragraph 52 (Emergencies and Releases) of the Settlement Agreement in the event of an occurrence during the performance of the Work that causes or threatens a release of Waste Material from OU2 of the Site that constitutes an emergency or may present an immediate threat to public health or welfare or the environment.

(c) **Field Sampling Plan**. In accordance with the *Uniform Federal Policy for Quality Assurance Project Plans* cited below, the Field Sampling Plan (FSP) addresses all sample collection activities. The FSP must be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. Settling Party shall develop the FSP in accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988).

(d) **Quality Assurance Project Plan**. The Quality Assurance Project Plan (QAPP) addresses sample collection, analysis and data handling regarding the Work. The QAPP must include a detailed explanation of Settling Party's quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance and monitoring samples. Settling Party shall develop the QAPP in accordance with the most current version of the *Uniform Federal Policy for Quality Assurance Project Plans*, Parts 1-3, EPA/505/B-04/900A though 900C (March 2005). The QAPP also must include procedures:

(1) To ensure that analyses, including specific laboratory methods and chemical constituents, are performed to meet the objectives of the ROD.

(2) To ensure that EPA and its authorized representative have reasonable access to laboratories used by Settling Party in implementing the Settlement Agreement (Settling Party's Labs);

(3) To ensure that Settling Party's Labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;

(4) To ensure that Settling Party's Labs perform all analyses using the latest version of EPA-accepted methods (e.g., the methods documented in SW-846; 40 CFR Part 136; 40 CFR Part 141; and *USEPA Contract Laboratory Program Statements of Work Organic Superfund Methods Multi-Media, Multi-Concentration* and *Inorganic Superfund Methods Multi-Media, Multi-Concentration*, etc.) or other methods acceptable to EPA. Any

modifications to the Contract Laboratory Program, SW-846 or other EPA methods must be submitted to the EPA for approval;

(5) To ensure that either (a) the QAPP is amended and resubmitted to EPA for approval prior to any field sampling event to reflect: updated sampling and analytical methods, new methods for analytical parameters, and new parameters under the Unregulated Contaminant Monitoring Rule or (b) a justification is provided to EPA for approval to utilize the existing QAPP.

(6) To ensure that Settling Party's Labs participate in an EPA-accepted QA/QC program or other program QA/QC acceptable to EPA;

(7) For Settling Party to provide EPA with notice at least 7 days prior to any sample collection activity;

(8) For Settling Party to provide split samples and/or duplicate samples to EPA upon request;

(9) For EPA to take any additional samples that it deems necessary;

(10) For EPA to provide to Settling Party, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling; and

(11) For Settling Party to submit to EPA all sampling and test results and other data in connection with the implementation of the Settlement Agreement.

(e) **Site Wide Monitoring Plan**. The purpose of the Site Wide Monitoring Plan (SWMP) is to obtain baseline information regarding the extent of contamination in affected media at OU2 of the Site; to obtain information, through short- and long- term monitoring, about the movement of and changes in contamination throughout OU2 of the Site, before and during implementation of the RA; to obtain information regarding contamination levels to determine whether interim remediation milestones, remediation goals and remedial action objectives are achieved; and to obtain information to determine whether to perform additional actions, including further OU2 Site monitoring. The SWMP must include:

(1) Description of the environmental media to be monitored;

(2) Description of the data collection parameters, including existing and proposed monitoring devices and locations, schedule and frequency of monitoring, analytical parameters to be monitored, and analytical methods employed;

(3) Description of how performance data will be analyzed, interpreted, and reported, and/or other Site-related requirements;

(4) Description of verification sampling procedures;

(5) Description of deliverables that will be generated in connection with monitoring, including sampling schedules, laboratory records, monitoring reports, and monthly and annual reports to EPA and State agencies; and

(6) Description of proposed additional monitoring and data collection actions (such as increases in frequency of monitoring, and/or installation of additional monitoring devices in the affected areas) in the event that results from monitoring devices indicate changed conditions (such as higher than expected concentrations of the contaminants of concern or groundwater contaminant plume movement).

(f) **Construction Quality Assurance/Quality Control Plan (CQA/QCP)**. The purpose of the Construction Quality Assurance Plan (CQAP) is to describe planned and systemic activities that provide confidence that the RA construction will satisfy all plans, specifications, and related requirements, including quality objectives. The purpose of the Construction Quality Control Plan (CQCP) is to describe the activities to verify that RA construction has satisfied all plans, specifications, and related requirements, including quality objectives. The CQA/QCP must:

(1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQA/QCP;

(2) Include a description of the PS developed by EPA;

(3) Describe the activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;

(4) Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQA/QCP;

(5) Describe industry standards and technical specifications used in implementing the CQA/QCP;

(6) Describe procedures for tracking construction deficiencies from identification through corrective action;

(7) Describe procedures for documenting all CQA/QCP activities; and

(8) Describe procedures for retention of documents and for final storage of documents.

(g) **Transportation and Off-Site Disposal Plan**. The Transportation and Off-Site Disposal Plan (TODP) describes plans to ensure compliance with ¶ 4.2 (Off-Site Shipments). The TODP must include:

(1) Proposed routes for transportation of Waste Material from the lower 8.3 miles to the sediment processing facility.

(2) Identification of disposal sites for Waste Material;

(3) Proposed routes for off-site shipment of Waste Material;

(4) Identification of communities affected by shipment of Waste Material; and

(5) Description of plans to minimize impacts on affected communities.

(h) **O&M Plan**. The O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. Settling Party shall develop the O&M Plan in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001). The O&M Plan must include the following additional requirements:

(1) Description of activities to be performed: (i) to provide confidence that interim remediation milestones, remediation goals and remedial action objectives will be met; and (ii) to determine whether interim remediation milestones, remediation goals and remedial action objectives have been met;

(2) **O&M Reporting**. Description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, records of operating costs, reports regarding emergencies, personnel and maintenance records, monitoring reports, and monthly and annual reports to EPA and State agencies;

(3) Description of corrective action in case of systems failure, including: (i) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve interim remediation milestones, remediation goals and remedial action objectives; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements; and

(4) Description of corrective action to be implemented in the event that interim remediation milestones, remediation goals and remedial action objectives are not achieved; and a schedule for implementing these corrective actions.

(i) **Institutional Controls Implementation and Assurance Plan**. The Institutional Controls Implementation and Assurance Plan (ICIAP) describes plans to implement, maintain, and enforce the Institutional Controls (ICs) at OU2 of the Site. Settling Party shall develop the ICIAP in accordance with *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012), and *Institutional Controls: A Guide to Preparing*

Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012). The ICIAP must include the following additional requirements:

(1) Institutional controls to protect the engineered cap identified by EPA to be implemented by the appropriate federal and State of New Jersey entities;

(2) Tools and mechanisms to conduct enhanced outreach to increase awareness of New Jersey's prohibitions and advisories on fish and crab consumption;

(3) Locations of recorded real property interests (e.g., easements, liens) and resource interests in the property that may affect ICs (e.g., surface, mineral, and water rights) including accurate mapping and geographic information system (GIS) coordinates of such interests; and

(4) Legal descriptions and survey maps that are prepared according to current American Land Title Association (ALTA) Survey guidelines and certified by a licensed surveyor.

6. SCHEDULES

6.1 Applicability and Revisions. All deliverables and tasks required under this SOW must be submitted or completed by the deadlines or within the time durations listed in the RD Schedule set forth below. Settling Party may submit proposed revised RD Schedules for EPA approval. Upon EPA's approval, the revised RD Schedule supersede the RD Schedule set forth below, and any previously-approved RD Schedule.

6.2 RD Schedule

	Description of Deliverable, Task	¶ Ref.	Deadline
1	Designate Community Coordinator	2.1(c)	15 days after EPA request
2	Project Management Plan	3.1	90 days after EPA's Authorization to Proceed regarding Supervising Contractor under Settlement Agreement
3	RDWP	3.3	90 days after EPA's Authorization to Proceed regarding Supervising Contractor under Settlement Agreement
4	PDI WP	3.2(a)	60 days after EPA's approval of the RDWP
5	PDI Evaluation Report	3.2(b)	1 year and 180 days after EPA approval of the PDI WP
6	Site Wide Monitoring Plan	3.5	60 days after EPA's approval of the RDWP
7	Site Selection and Evaluation Work Plan	3.6(a)	90 days after EPA's approval of the RDWP
8	Site Selection and Evaluation Report	3.6(b)	180 days after EPA's approval of the Site Selection and Evaluation Work Plan
9	TSWP	3.7(b)	90 days after EPA's approval of the PDI WP
10	TS Evaluation Report	3.7(c)	180 days after EPA's approval of the TSWP
11	Preliminary (30%) RD	3.8	90 days after Settling Party submittal of PDI Evaluation Report
12	Intermediate (60%) RD	3.9	120 days after EPA's comments on the Preliminary RD
13	Value Engineering (VE) Study Results	3.10	90 days after submittal of the Intermediate RD
14	Pre-final (95%) RD	3.11	90 days after EPA's comments on the Intermediate RD and VE Study
15	Final (100%) RD	3.12	60 days after EPA's comments on the Pre-final RD
16	Periodic Review Support Plan	4.5	30 days after EPA request

7. STATE PARTICIPATION

7.1 **Copies**. Settling Party shall, at any time it sends a deliverable to EPA, send a hard copy of such deliverable to the State. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to Settling Party, send a hard copy of such document to the State.

7.2 **Review and Comment**. The State will have a reasonable opportunity for review and comment prior to any EPA approval or disapproval under ¶ 5.6 (Approval of Deliverables) of any deliverables that are required to be submitted for EPA approval.

8. REFERENCES

8.1 The following regulations and guidance documents, among others, apply to the Work. Any item for which a specific URL is not provided below is available on one of the three EPA Web pages listed in ¶ 8.2:

(a) A Compendium of Superfund Field Operations Methods, OSWER 9355.0-14, EPA/540/P-87/001a (Aug. 1987).

(b) CERCLA Compliance with Other Laws Manual, Part I: Interim Final, OSWER 9234.1-01, EPA/540/G-89/006 (Aug. 1988).

(c) Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER 9355.3-01, EPA/540/G-89/004 (Oct. 1988).

(d) CERCLA Compliance with Other Laws Manual, Part II, OSWER 9234.1-02, EPA/540/G-89/009 (Aug. 1989).

(e) Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, OSWER 9355.5-01, EPA/540/G-90/001 (Apr.1990).

(f) Guidance on Expediting Remedial Design and Remedial Actions, OSWER 9355.5-02, EPA/540/G-90/006 (Aug. 1990).

(g) Guide to Management of Investigation-Derived Wastes, OSWER 9345.3-03FS (Jan. 1992).

(h) Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, OSWER 9355.7-03 (Feb. 1992).

(i) Guidance for Conducting Treatability Studies under CERCLA, OSWER 9380.3-10, EPA/540/R-92/071A (Nov. 1992).

(j) National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, 40 C.F.R. Part 300 (Oct. 1994).

(k) Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (Mar. 1995).

(l) Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA/540/R-95/059 (June 1995).

(m) EPA Guidance for Data Quality Assessment, Practical Methods for Data Analysis, QA/G-9, EPA/600/R-96/084 (July 2000).

(n) Operation and Maintenance in the Superfund Program, OSWER 9200.1-37FS, EPA/540/F-01/004 (May 2001).

(o) Comprehensive Five-year Review Guidance, OSWER 9355.7-03B-P, 540-R-01-007 (June 2001).

(p) Guidance for Quality Assurance Project Plans, QA/G-5, EPA/240/R-02/009 (Dec. 2002).

(q) Institutional Controls: Third Party Beneficiary Rights in Proprietary Controls (Apr. 2004).

(r) Quality management systems for environmental information and technology programs -- Requirements with guidance for use, ASQ/ANSI E4:2014 (American Society for Quality, February 2014).

(s) Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3, EPA/505/B-04/900A though 900C (Mar. 2005).

(t) Superfund Community Involvement Handbook, EPA/540/K-05/003 (Apr. 2005).

(u) EPA Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, EPA/240/B-06/001 (Feb. 2006).

(v) EPA Requirements for Quality Assurance Project Plans, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006).

(w) EPA Requirements for Quality Management Plans, QA/R-2, EPA/240/B-01/002 (Mar. 2001, reissued May 2006).

(x) USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4 (Dec. 2006).

(y) USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2 (amended Apr. 2007).

(z) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2008), available at https://www.epa.gov/geospatial.

(aa) Principles for Greener Cleanups (Aug. 2009), available at https://www.epa.gov/greenercleanups/epa-principles-greener-cleanups.

(bb) EPA Region 2 Clean and Green Policy, available at https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy

(cc) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).

(dd) Close Out Procedures for National Priorities List Sites, OSWER 9320.2-22 (May 2011).

(ee) Recommended Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance," OSWER 9355.7-18 (Sep. 2011).

(ff) Construction Specifications Institute's MasterFormat 2012, available from the Construction Specifications Institute, www.csinet.org/masterformat.

(gg) Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012).

(hh) Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012).

(ii) EPA's Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), https://www.epaosc.org/_HealthSafetyManual/manual-index.htm.

(jj) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).

(kk) Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, OSWER 9355.0-85 (December 2005).

(ll) Use of Amendments for In Situ Remediation at Superfund Sediment Sites, OSWER 9200.2-128FS (April 2013).

(mm) Guidelines for Using Passive Samplers to Monitor Organic Contaminants at Superfund Sediment Sites, OSWER 9200.1-110FS (December 2012).

(nn) Using Fish Tissue Data to Monitor Remedy Effectiveness, OSWER 9200.1-77D (July 2008).

8.2 A more complete list may be found on the following EPA Web pages:

Laws, Policy, and Guidance https://www.epa.gov/superfund

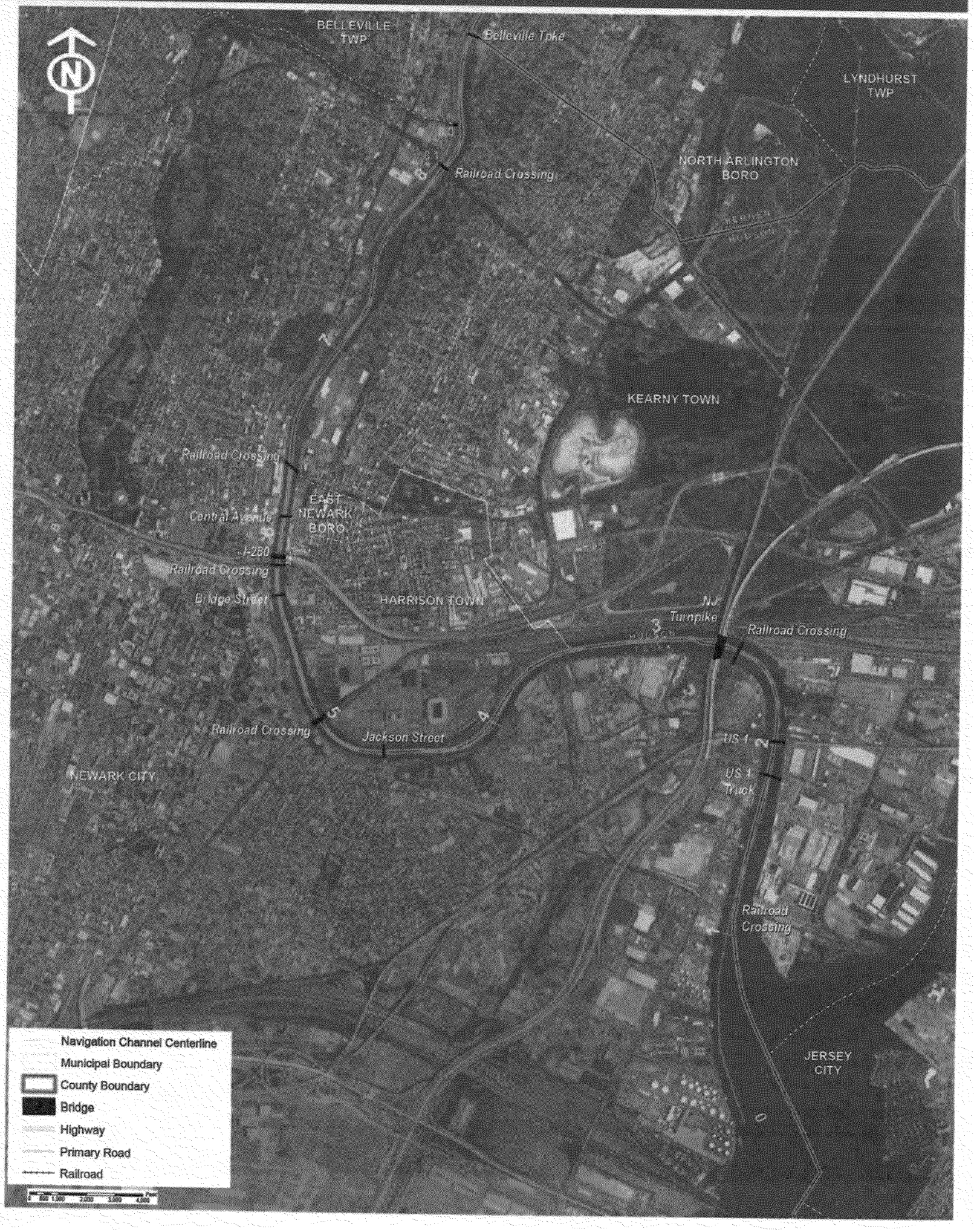
Test Methods Collections https://www.epa.gov/measurements

Guidance and Policies Relating to Contaminated Sediment at Superfund Sites:

https://www.epa.gov/superfund/superfund-contaminated-sediments-guidance-documents-fact-sheets-and-policies

8.3 For any regulation or guidance referenced in the Settlement Agreement or SOW, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Settling Party receive notification from EPA of the modification, amendment, or replacement.

APPENDIX C
MAP OF SITE


BELLEVILLE TWP
Belleville Tpke
LYNDHURST TWP
Railroad Crossing
NORTH ARLINGTON BORO
KEARNY TOWN
Railroad Crossing
EAST NEWARK BORO
Central Avenue
I-280
Railroad Crossing
Bridge Street
HARRISON TOWN
NJ Turnpike
Railroad Crossing
Railroad Crossing
Jackson Street
US 1
US 1 Truck
NEWARK CITY
Railroad Crossing
JERSEY CITY
Navigation Channel Centerline
Municipal Boundary
County Boundary
Bridge
Highway
Primary Road
Railroad

APPENDIX D
FINANCIAL ASSURANCE

CERCLA Financial Assurance Sample Letter of Credit for Use in Connection with Settlements

[Letterhead of Issuing Institution]

IRREVOCABLE STANDBY LETTER OF CREDIT

IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER: **[insert number]**

ISSUANCE DATE: **[insert date]**

MAXIMUM AMOUNT: **$[insert dollar amount]**

APPLICANT:
[Insert name of PRP/Settling Defendant]
[Insert contact person(s), title(s), and contact information (address, phone, email, etc.)]

BENEFICIARY:
U.S. Environmental Protection Agency Region **[insert number]**
c/o **[insert appropriate Regional official such as "Superfund Division Director"]**
[Insert contact information (address, phone, email, etc.)]

Dear Sir or Madam:

We hereby establish our Irrevocable Standby Letter of Credit No. **[insert number]** in your favor, at the request and for the account of **[insert name of PRP/Settling Defendant]** (the "Applicant"), in the amount of **$[insert amount]** (the "Maximum Amount"). We hereby authorize you, the United States Environmental Protection Agency (the "Beneficiary"), to draw at sight on us, **[insert name of issuing institution]**, an aggregate amount equal to the Maximum Amount upon presentation of:

(1) Your sight draft, bearing reference to this Letter of Credit No. **[insert number]** (which may, without limitation, be presented in the form attached hereto as Exhibit A); and

(2) Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to that certain **[insert as appropriate:** "Consent Decree," "Administrative Settlement Agreement and Order on Consent," or "Settlement Agreement"], dated **[insert date]**, **[insert as appropriate:** civil action number for consent decrees or EPA docket number for administrative agreements], between the United States and **[insert settling parties]**, entered into by the parties thereto in accordance with the authority of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675, relating to the **[insert site name [operable unit]]**."

This letter of credit is effective as of **[insert issuance date]** and shall expire on **[insert date that is at least 1 year later]**, but such expiration date shall be automatically extended for a period of **[insert period of at least 1 year]** on **[insert date that is at least 1 year later]** and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify both you and the Applicant by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall immediately thereupon be available to you upon presentation of your sight draft for a period of at least 120 days after the date of receipt by both you and the Applicant of such notification, as shown on signed return receipts.

All notifications, requests, and demands required or permitted hereunder shall be given in writing, identify the site, and provide a contact person (and contact information).

Multiple and partial draws on this letter of credit are expressly permitted, up to an aggregate amount not to exceed the Maximum Amount. Whenever this letter of credit is drawn on, under, and in compliance with the terms hereof, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft in immediately available funds directly into such account or accounts as may be specified in accordance with your instructions.

All banking and other charges under this letter of credit are for the account of the Applicant.

This letter of credit is subject to the most recent edition of the Uniform Customs and Practice for Documentary Credits, published and copyrighted by the International Chamber of Commerce.

Very Truly Yours,

Date: _____

By [signature]: _____
Printed name: _____
Title: _____
Address: _____
Contact information: _____

Exhibit A - Form of Sight Draft
[EPA LETTERHEAD]

SIGHT DRAFT

TO: **[Insert name of issuing institution]**
[Insert name and title of contact person(s)]
[Insert address]

RE: Letter of Credit No. **[insert number]**

DATE: **[Insert date on which draw is made]**

TIME: **[Insert time of day at which draw is made]**

This draft is drawn under your Irrevocable Standby Letter of Credit No. **[insert number]**. I certify that the amount of the draft is payable pursuant to that certain **[insert as appropriate:** "Consent Decree," "Administrative Settlement Agreement and Order on Consent," or "Settlement Agreement"], dated **[insert date]**, **[insert as appropriate:** civil action number for consent decrees, or EPA docket number for administrative agreements], between the United States and **[insert settling parties]**, entered into by the parties thereto in accordance with the authority of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675, relating to the **[insert site name [operable unit]]**. Pay to the order of the United States Environmental Protection Agency, in immediately available funds, the amount of **$[insert dollar amount of draw]** or, if no amount certain is specified, the total balance remaining available under such Irrevocable Standby Letter of Credit.

Pay such amount as is specified in the immediately preceding paragraph by **[insert payment instructions as appropriate, such as:** "Fedwire EFT, referencing Site/Spill ID Number **[insert number]** [and DJ Number **[insert number]**]. The Fedwire EFT payment must be sent as follows:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York NY 10045
Field Tag 4200 of the Fedwire message should read [D 68010727 Environmental Protection Agency]"]

The total amount paid shall be deposited by EPA in the **[insert site name [operable unit]]** Special Account to be retained and used to conduct or finance response actions at or in connection with the site, or to be transferred by EPA to the EPA Hazardous Substance

Superfund.

This Sight Draft has been duly executed by the undersigned, an authorized representative or agent of the United States Environmental Protection Agency, whose signature hereupon constitutes an endorsement.

By [signature]: _____
Printed name: _____
Title: _____
Address: _____
Contact information: _____

RECORD OF DECISION

Lower 8.3 Miles of the Lower Passaic River
Part of the Diamond Alkali Superfund Site
Essex and Hudson Counties, New Jersey

U.S. Environmental Protection Agency
Region II
New York, New York
March 3, 2016

* 3 9 6 0 5 5 *
396055

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Diamond Alkali Superfund Site
Essex and Hudson Counties, New Jersey
Operable Unit Two (OU2): Lower 8.3 Miles of the Lower Passaic River
Superfund Site Identification Number: NJD980528996

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedy to address contaminated sediments found in the lower 8.3 miles of the Lower Passaic River, a part of the Diamond Alkali Superfund Site. This action addresses the Lower Passaic River in Essex and Hudson Counties, from the river's confluence with Newark Bay to River Mile (RM) 8.3 near the border between the City of Newark and Belleville Township, New Jersey. The lower 8.3 miles of the Lower Passaic River comprise OU2 of the Site, also referred to in the Proposed Plan as the Focused Feasibility Study Area (FFS Study Area). The selected remedy was chosen by the U.S. Environmental Protection Agency (EPA) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§9601-9675, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record file for this Site (see Appendix III).

The New Jersey Department of Environmental Protection (NJDEP) was consulted on the remedy for sediments of the lower 8.3 miles of the Lower Passaic River in accordance with CERCLA §121(f), 42 U.S.C. §9621(f), and it concurs with the selected remedy (see Appendix IV). In addition, EPA and NJDEP have consulted with the U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA) and U.S. Fish and Wildlife Service (USFWS), key federal stakeholders in the Lower Passaic River, Newark Bay and New York-New Jersey Harbor Estuary.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The response action selected in this ROD addresses the risks associated with the contaminated sediments of the lower 8.3 miles of the Lower Passaic River. EPA is selecting a remedy for the lower 8.3 miles that is a final action for the sediments and an interim action for the water column. It represents the second of four planned remedial actions for the Site. The first operable unit (OU1) addressed, through an interim remedy, contaminated soils, groundwater and materials at the former Diamond Alkali facility at 80-120 Lister Avenue in Newark, New Jersey. The third

operable unit (OU3) will comprehensively address the 17 miles of the Lower Passaic River Study Area (LPRSA); a remedial investigation and feasibility study (RI/FS) for OU3 will serve as the basis for selecting a remedy for the sediments above RM 8.3 and a river-wide remedy for surface water. The fourth operable unit (OU4) will address the Newark Bay Study Area.

The major components of this selected remedy include the following:

- An engineered cap will be constructed over the river bottom of the lower 8.3 miles, except in areas where backfill may be placed because all contaminated fine-grained sediments have been removed. The engineered cap will generally consist of two feet of sand and may be armored where necessary to prevent erosion of the sand.

- Before the engineered cap is installed, the river will be dredged bank to bank (approximately 3.5 million cubic yards) so that the cap can be placed without increasing the potential for flooding. Depth of dredging is estimated to be 2.5 feet, except in the 1.7 miles of the federally authorized navigation channel closest to Newark Bay.

- The remedy will include sufficient dredging and capping to allow for the continued commercial use of a federally authorized navigation channel in the 1.7 miles of the river closest to Newark Bay and to accommodate reasonably anticipated future recreational use above RM 1.7.

- Dredged materials will be barged or pumped to a sediment processing facility in the vicinity of the Lower Passaic River/Newark Bay shoreline for dewatering. Dewatered materials will be transported to permitted treatment facilities and landfills in the United States or Canada for disposal.

- Mudflats dredged during implementation of the remedy will be covered with an engineered cap consisting of one foot of sand and one foot of mudflat reconstruction (habitat) substrate.

- Institutional controls will be implemented to protect the engineered cap. In addition, New Jersey's existing prohibitions on fish and crab consumption will remain in place and will be enhanced with additional community outreach to encourage greater awareness of the prohibitions until the concentrations of contaminants of concern (COCs) in fish and crab tissue reach protective concentrations corresponding to remediation goals. EPA will share the data and consult with NJDEP about whether the prohibitions on fish and crab consumption can be lifted or adjusted to allow for increased consumption as contaminant levels decline.

- Long-term monitoring and maintenance of the engineered cap will be required to ensure its stability and integrity. Long-term monitoring of fish, crab and sediment will also be performed to determine when interim remediation milestones, remediation goals and

remedial action objectives are reached. Other monitoring, such as water column sampling, will also be performed.

In the Proposed Plan, EPA specifically requested public comments on two aspects of its preferred alternative, dredged material management (DMM) scenarios and dredging depths for the federally authorized navigation channel. Three scenarios for dredged material management were under consideration: confined aquatic disposal (CAD) in Newark Bay; off-site disposal with treatment as necessary; and local decontamination and beneficial use. The navigation channel issue addressed whether shallower depths than those incorporated into the preferred alternative might accommodate reasonably anticipated future uses in the lower 2.2 miles of the river. As discussed in the Decision Summary, the comments received on the navigation channel depths led EPA to adjust the preferred alternative identified in the Proposed Plan.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1: Statutory Requirements

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial actions (unless justified by a waiver), is cost effective, and uses permanent solutions and treatment technologies to the maximum extent practicable.

Part 2: Statutory Preference for Treatment

Although CERCLA §121(b) expresses a preference for selection of remedial actions that use permanent solutions and treatment technologies to the maximum extent practicable, there are situations that may limit the use of treatment, including when treatment technologies are not technically feasible or when the extraordinary size or complexity of a site makes implementation of treatment technologies impracticable. The selected remedy would generate approximately 3.5 million cubic yards of contaminated sediments, which is clearly an extraordinary volume of materials; and the sediment treatment technologies investigated under Dredged Material Management Scenario C (Local Decontamination and Beneficial Use) have not been constructed or operated in the United States on a scale approaching the capacity needed for this project, so their technical ability to handle such an extraordinary volume of highly contaminated sediments is uncertain. The selected remedy is estimated to provide treatment of approximately 130,000 cubic yards of contaminated sediment through incineration (the only technology available at this time) off-site to comply with applicable Resource Conservation and Recovery Act (RCRA) standards.

Part 3: Five-Year Review Requirements

The selected remedy will result in hazardous substances, pollutants or contaminants remaining above levels in sediments that allow for unlimited use and unrestricted exposure. Therefore, statutory reviews will be conducted every five years after the initiation of the remedial action to

ensure the remedy continues to provide adequate protection of human health and the environment.

DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this Site.

- COCs and their respective concentrations are in Section 5, "Summary of Site Characteristics."
- Baseline risks for human health and the environment represented by the COCs are in Section 7, "Summary of Site Risks."
- Cleanup levels established for COCs and the basis for these levels are in Section 8, "Remedial Action Objectives."
- Current and reasonably anticipated future use assumptions used in the baseline risk assessment and ROD are in Section 6, "Current and Potential Future Site and Resource Uses."
- Estimated capital, operation and maintenance (O&M), and total present value costs, discount rate, and the number of years over which the remedy cost estimates are projected are in Section 10.7, "Cost."
- Key factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decisions) are in Section 10, "Comparative Analysis of Alternatives," and Section 13, "Statutory Determinations."

AUTHORIZING SIGNATURE:

Walter E. Mugdan, Director
Emergency & Remedial Response Division
U.S. Environmental Protection Agency, Region 2

March 3, 2016
Date

DECISION SUMMARY

Lower 8.3 Miles of the Lower Passaic River
Part of the Diamond Alkali Superfund Site
Essex and Hudson Counties, New Jersey

U.S. Environmental Protection Agency
Region II
New York, New York
March 3, 2016

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Appendix B

Project Team / Stakeholder Information

Project Contact Information and Deliverable Distribution List

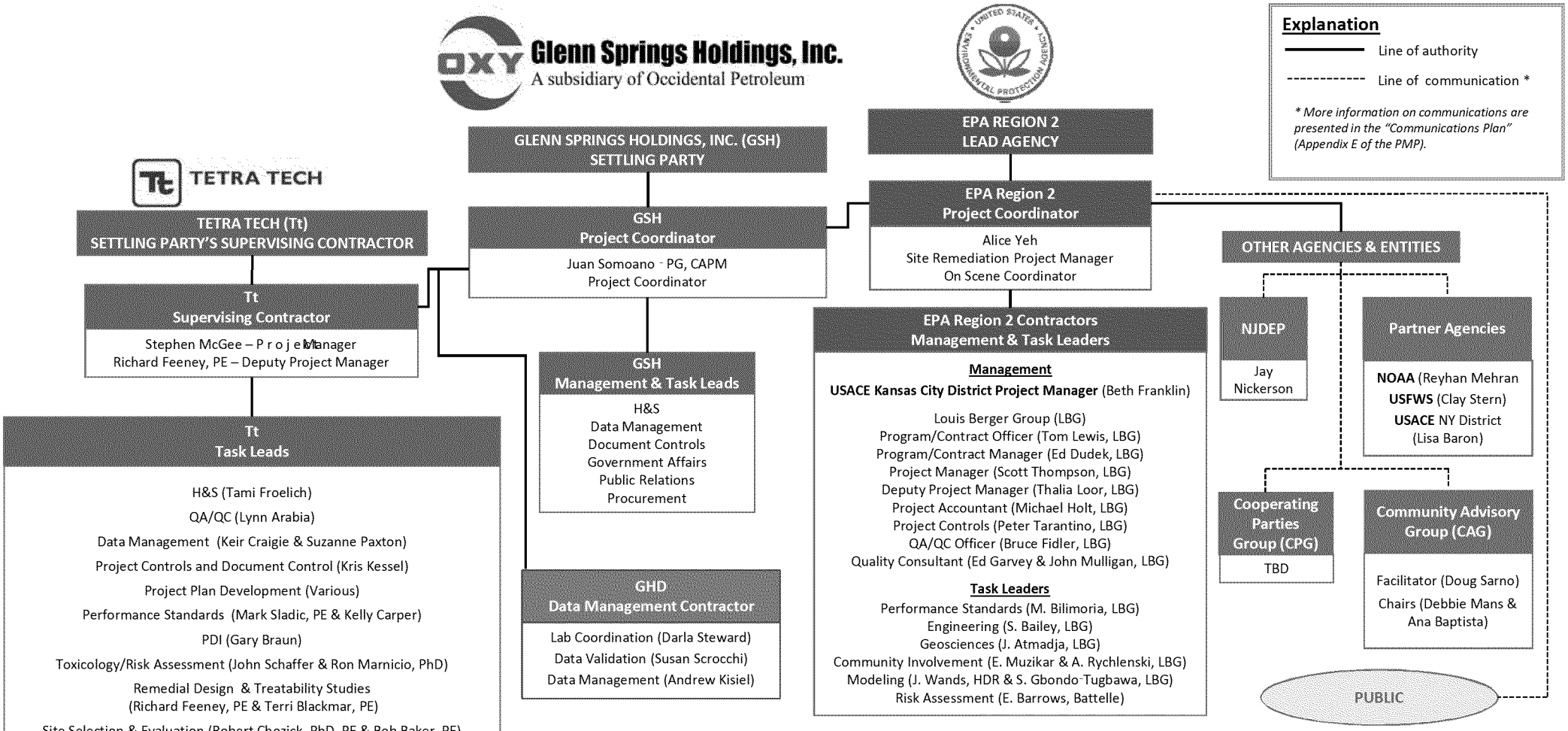
Pre-Remedial Design and Remedial Design - Lower 8.3 Miles of the Lower Passaic River
Operable Unit Two (OU2) of the Diamond Alkali Superfund Site
In and About Essex, Hudson, Bergen and Passaic Counties – New Jersey

Updated February 2017

CONTACT INFORMATION AND DISTRIBUTION				
Role	**Name & Title**	**Phone & Email**	**Address**	**Regulated Deliverable Distribution** (1)
GSH (SETTLING PARTY REPRESENTATIVE)				
Project Coordinator	**Juan Somoano - PG, CAPM** Vice President	W: 713.215.7473; C: 214.608.0168 Juan_Somoano@oxy.com	5 Greenway Plaza, Suite 110 Houston, TX 77046-0521	Electronic copy via email and hard copy
TETRA TECH (SUPERVISING CONTRACTOR)				
PM	**Stephen McGee** VP, Nat'L Program Mgr. Sediments Practice	440.522.6936 steve.mcgee@tetratech.com	1564 Mendelssohn Drive Westlake, OH 44145	
Deputy PM	**Richard Feeney - PE** VP, Proj. Engineering, Nat'l Enviro. Engineering Discipline Lead	201.650.1006 richard.feeney@tetratech.com	6 Century Drive, 3rd Floor Parsippany, NJ 07054	
AGENCIES				
USEPA **Project Coordinator**	**Alice Yeh**	212.637.4427 yeh.alice@epa.gov	Emergency & Remedial Response Div. U.S. EPA, Region 2 290 Broadway New York, NY 10007-1866	Electronic copy via email
NJDEP	**Jay Nickerson**	609.633.1448 jay.nickerson@dep.state.nj.us	Bureau of Case Management Site Remediation & Waste Management 401 East State Street PO Box 420, Mail Code 401-05F Trenton, NJ 08625-0420	One (1) hard copy with cc' on electronic (email) to EPA

Notes

(1) Regulated deliverables are Remedial Design documents identified in the Settlement Agreement Statement of Work that are required for submittal to EPA (refer to Appendix C of the PMP).



PMP APPENDIX B-2

ORGANIZATIONAL CHART

Pre-Remedial Design Investigation and Remedial Design
Lower 8.3 Miles of the Lower Passaic River
Operable Unit Two (OU2) of the Diamond Alkali Superfund Site
In and About Essex, Hudson, Bergen and Passaic Counties – New Jersey
February 2017

Appendix C

Schedule Information

REMEDIAL DESIGN PROJECT DELIVERABLES SCHEDULE

Pre-Remedial Design and Remedial Design
Lower 8.3 Miles of the Passaic River
Operable Unit Two (OU2) of the Diamond Alkali Superfund Site
In and About Essex, Hudson, Bergen and Passaic Counties – New Jersey
February 2017

Remedial Design Deliverables[1]						
Deliverable	**Compliance Milestone[2]**	**Certification Required[3]**	**EPA Approval / Comment**	**Date to EPA [4]**	**Deadline[5]**	**SOW Paragraph**
Progress Reports[6]				See Section 3.2.1 of PMP Jan. 15th April 15th July 15th Oct. 15th	Quarterly, starting the month following Effective Date of the Settlement Agreement and until the EPA approves the Final (100%) RD.	4.3
PMP	X		(does not require)	1/17/17	90 days after EPA's Authorization to Proceed regarding Supervising Contractor	3.1
RDWP	X		Approval	1/17/17		3.3
ERP			Approval	1/17/17	With RDWP; supporting deliverable [7]	5.7(b)
PDI WP	X		Approval	TBD [4]	60 days after EPA's approval of RDWP	3.2(a)
HASP			Comment	With PDI WP	With PDI WP; supporting deliverable[7]	5.7(a)
FSP			Approval			5.7(c)
QAPP			Approval			5.7(d)
PDI Evaluation Report	X	X	Comment	TBD [4]	1 year and 180 days after EPA approval of PDI WP	3.2(b)
Site Wide Monitoring Plan			Comment*	TBD [4]	60 days after EPA's approval of RDWP	3.5* & 5.7(e)
Site Selection and Evaluation WP	X		Approval	TBD [4]	90 days after EPA's approval of RDWP	3.6(a)
Site Selection and Evaluation Report	X	X	Comment	TBD [4]	180 days after EPA's approval of Site Selection and Evaluation WP	3.6(b)
TSWP			Approval	TBD [4]	90 days after EPA's approval of PDIWP	3.7(b)
TS Evaluation Report		X	Comment	TBD [4]	180 days after EPA's approval of TSWP	3.7(c)
Preliminary (30%) RD	X		Comment	TBD [4]	90 days after submittal of PDI Evaluation Report	3.8
TODP			Comment*	With Preliminary (30%) RD	With Preliminary (30%) RD; supporting deliverable[7]	3.8* & 5.7(g)
Intermediate (60%) RD	X		Comment	TBD [4]	120 days after EPA's comments on the Preliminary (30%) RD	3.9
Value Engineering (VE) Study Results			Comment	TBD [4]	90 days after submittal of Intermediate (60%) RD	3.10

REMEDIAL DESIGN PROJECT DELIVERABLES SCHEDULE

Pre-Remedial Design and Remedial Design
Lower 8.3 Miles of the Passaic River
Operable Unit Two (OU2) of the Diamond Alkali Superfund Site
In and About Essex, Hudson, Bergen and Passaic Counties – New Jersey
February 2017

Remedial Design Deliverables [1]						
Deliverable	**Compliance Milestone[2]**	**Certification Required[3]**	**EPA Approval / Comment**	**Date to EPA [4]**	**Deadline[5]**	**SOW Paragraph**
Pre-Final (95%) RD	X		Comment	TBD [4]	90 days after EPA's comments on the intermediate RD and VE Study	3.11
CQA/QCP			Comment*	With Pre-Final (95%) RD	With Pre-Final (95%) RD; supporting deliverable[7]	3.11* & 5.7(f)
O&M Plan			Comment*			3.11* & 5.7(h)
ICIAP			Comment*			3.11* & 5.7(i)
Final (100%) RD	X	X	Approval	TBD [4]	60 days after EPA's comments on the Pre-Final (95%) RD	3.12
Periodic Review Support Plan (PRSP)			Approval	TBD at EPA Direction	30 days after EPA request	4.5

Notes

CQA/QCP Construction Quality Assurance/Quality Control Plan.
ERP Emergency Response Plan
FSP Field Sampling Plan (Included as part of the QAPP)
HASP Health & Safety Plan
ICIAP Institutional Controls Implementation and Assurance Plan
PDI Pre-Design Investigation
QAPP Quality Assurance Project Plan
SOW Statement of Work
RD Remedial Design
TODP Transportation and Off-Site Disposal Plan
TS Treatability Study
WP Work Plan

(1) Information obtained from the Settlement Agreement and SOW (refer to Appendix A and Notes 2 and 3, below).

(2) Compliance Milestone: Identified deliverables are compliance milestones, subject to stipulated penalties, pursuant to the Settlement Agreement Section XVI, Paragraph 80.

(3) Certification: Identified deliverables must be signed by the Settling Party's Project Coordinator, or other responsible official of Settling Party, and must contain the certification statement provided in Section 5.5 of the SOW.

(4) Date to EPA is based on the Effective Date of the Settlement Agreement (September 30, 2016), EPA Authorization to Proceed (October 19, 2016) and the information in the "Deadline" column. Some dates are "TBD" (to be determined) since they are subject to the date of EPA approval of prior deliverables, as specified by the Settlement Agreement and indicated in the "Deadline" column.

(5) Deadline information is based on the RD Schedule in Section 6.2 of the Settlement Agreement SOW.

(6) Quarterly Progress reports proposed for submittal on the 15th of January, April, July and October. If the 15th of the month falls on a weekend or holiday, the report will be submitted the next business day. Refer to PMP Section 3.2.1 for details.

(7) Supporting Deliverables as per Section 5.7 of Settlement Agreement and SOW.

REPORTING REQUIREMENTS FOR EMERGENCY RESPONSE AND OFF-SITE SHIPMENTS

Pre-Remedial Design and Remedial Design
Lower 8.3 Miles of the Passaic River
Operable Unit Two (OU2) of the Diamond Alkali Superfund Site
In and About Essex, Hudson, Bergen and Passaic Counties – New Jersey
February 2017

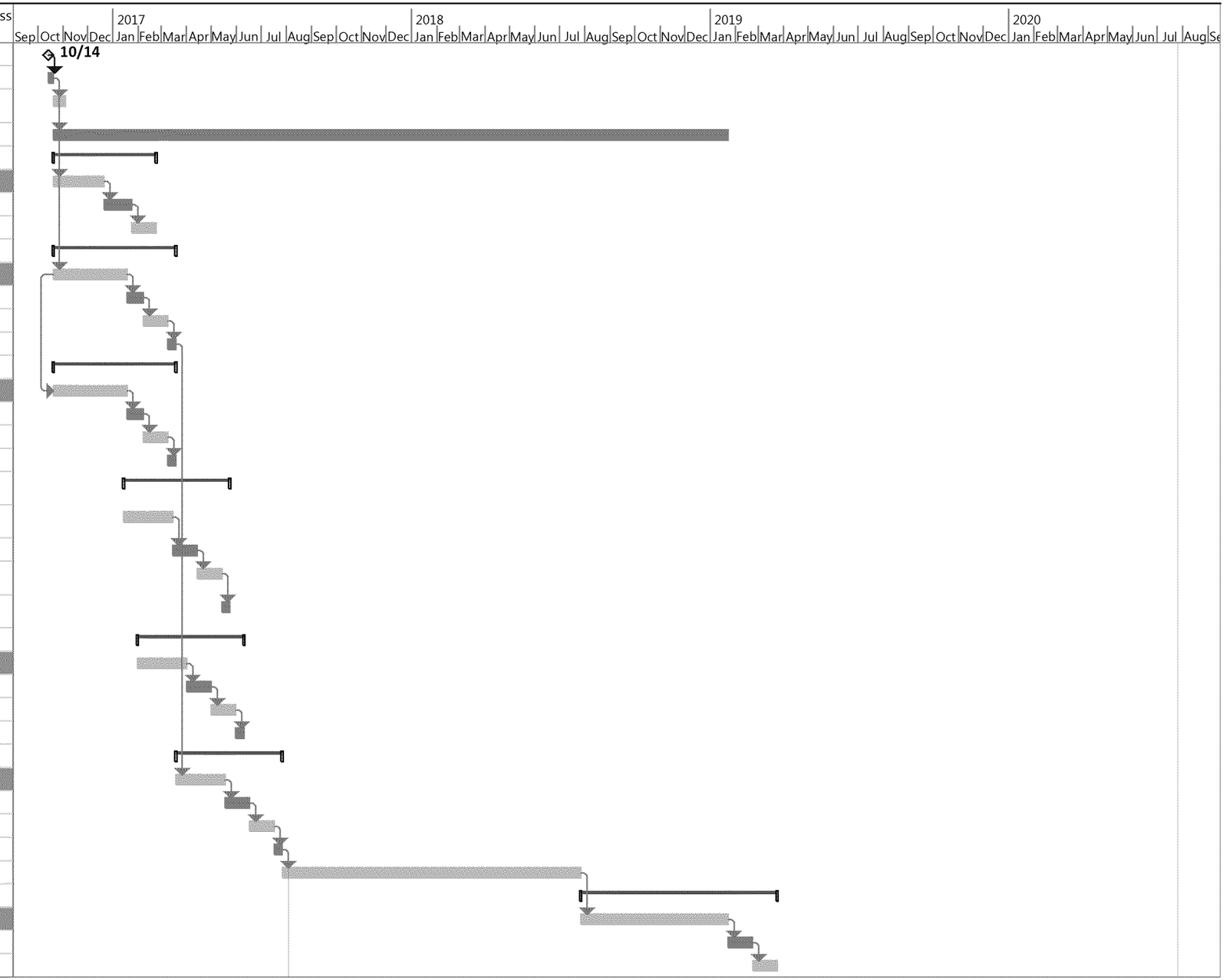
Emergency Response and Off-Site Shipments [1]				
Deliverable	**Trigger for Requirement**	**Response**	**Notification**	**SOW Paragraph**
Emergency Response Reporting	If event during performance of Work that causes or threatens to cause a release of Waste Material…and that either constitutes an emergency or may present an immediate threat to public health or welfare or the environment.	Immediate to abate or minimize	Immediate orally to authorized EPA officer.	4.1(a), (c), (d) & (e)
			Submit report to EPA: Within 14 days after onset and Within 30 days after conclusion; in addition to reporting required under CERCLA § 103 or EPCRA § 304	
Release Reporting	Occurrence of any event during performance of Work that required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004.	--	Immediate orally to authorized EPA officer.	4.1(b), (c), (d) & (e)
		--	Submit report to EPA: Within 14 days after onset and Within 30 days after conclusion; in addition to reporting required under CERCLA § 103 or EPCRA § 304.	
Off-Site Shipments	Hazardous	Obtain EPA determination (prior to shipping) that proposed receiving facility is acceptable under 40 C.F.R. § 300.440(b).		4.2(a)
	Waste Material (greater than 10 cubic yard)	Notification (prior to shipping) to appropriate state environmental official of receiving facility's state and to EPA Coordinator.		4.2(b)
	Investigation Derived Waste (IDW)	As per, Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, *EPA's Guide to Management of IDW,* OSWER 9345.3-03FS (Jan. 1992), and any IDW- specific requirements contained in the ROD. Waste to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped off- site for treatability studies, are not subject to 40 C.F.R. § 300.440.		4.2(c)
Progress Reports (refer to Appendix C-1 and Section 3.2.1 of PMP)	Quarterly, starting the month following Effective Date of the Settlement Agreement and until the EPA approves the Final (100%) RD	Submit quarterly progress report to EPA (content as per SOW Section 4.3).		4.3
		Notify EPA 7 days before performance of activity if schedule in Progress Report changes.		4.4
Periodic Review Support Plan (PRSP)	30 days after EPA request	Report/plan to address studies and investigations that Settling Party shall conduct to support EPA's reviews of whether conditions at the Site are protective of human health and the environment in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 962l (c) ("Five-year Reviews"). Develop in accordance with *Comprehensive Five -year Review Guidance,* OSWER 9355.7-03B-P (June 2001), and any other relevant five-year review guidances.		4.5

[1] Core components of the requirements in this table will be addressed in the Emergency Response Plan (ERP). Refer to the Settlement Agreement Statement of Work Section 4 for information on specific requirements.

PMP-Appendix C-3
PROJECT SCHEDULE BASELINE
Pre-Remedial Design and Remedial Design
Lower 8.3 Miles of the Passaic River
OU2 of Diamond Alkali Superfund Site - New Jersey

Updated February 2017

ID	Task Name	Duration	Start	Finish	Predecess
1	Submit Qualifications	0 days	Fri 10/14/16	Fri 10/14/16	
2	EPA Approval of Contractor	6 days	Fri 10/14/16	Wed 10/19/16	1
3	Designate Community Coordinator, if requested	15 days	Thu 10/20/16	Thu 11/3/16	2
4	Performance Standards	825 days	Thu 10/20/16	Tue 1/22/19	2
5	**Project Management Plan**	**126 days**	**Thu 10/20/16**	**Wed 2/22/17**	
6	Draft PMP to EPA (#2)	62 days	Thu 10/20/16	Tue 12/20/16	2
7	EPA Review	34 days	Wed 12/21/16	Mon 1/23/17	6
8	Final PMP	30 days	Tue 1/24/17	Wed 2/22/17	7
9	**Remedial Design Work Plan**	**150 days**	**Thu 10/20/16**	**Sat 3/18/17**	
10	Draft RDWP to EPA (#3)	90 days	Thu 10/20/16	Tue 1/17/17	2
11	EPA Review	20 days	Wed 1/18/17	Mon 2/6/17	10
12	Final RDWP	30 days	Tue 2/7/17	Wed 3/8/17	11
13	EPA Approval of RDWP	10 days	Thu 3/9/17	Sat 3/18/17	12
14	**Emergency Response Plan**	**150 days**	**Thu 10/20/16**	**Sat 3/18/17**	
15	Draft ERP to EPA (#3)	90 days	Thu 10/20/16	Tue 1/17/17	10SS
16	EPA Review	20 days	Wed 1/18/17	Mon 2/6/17	15
17	Final ERP	30 days	Tue 2/7/17	Wed 3/8/17	16
18	Approval of ERP	10 days	Thu 3/9/17	Sat 3/18/17	17
19	**Geophysical, Bathymetric, and Debris Survey Work Plan**	**130 days**	**Sat 1/14/17**	**Tue 5/23/17**	
20	Draft Geophysical, Bathymetric, and Debris Survey Work Plan to EPA	60 days	Sat 1/14/17	Tue 3/14/17	
21	EPA Review	30 days	Wed 3/15/17	Thu 4/13/17	20
22	Final Geophysical, Bathymetric, and Debris Survey WP	30 days	Fri 4/14/17	Sat 5/13/17	21
23	Approval of Geophysical, Bathymetric, and Debris Survey WP	10 days	Sun 5/14/17	Tue 5/23/17	22
24	**HASP and UFP-QAPP**	**130 days**	**Tue 1/31/17**	**Fri 6/9/17**	
25	Draft HASP and UFP-QAPP to EPA	60 days	Tue 1/31/17	Fri 3/31/17	
26	EPA Review	30 days	Sat 4/1/17	Sun 4/30/17	25
27	Final HASP and UFP-QAPP	30 days	Mon 5/1/17	Tue 5/30/17	26
28	Approval of HASP and UFP-QAPP	10 days	Wed 5/31/17	Fri 6/9/17	27
29	**Pre-Design Investigation Work Plan**	**130 days**	**Sun 3/19/17**	**Wed 7/26/17**	
30	Draft PDI WP to EPA (#4)	60 days	Sun 3/19/17	Wed 5/17/17	13
31	EPA Review	30 days	Thu 5/18/17	Fri 6/16/17	30
32	Final PDI WP	30 days	Sat 6/17/17	Sun 7/16/17	31
33	Approval of PDI WP	10 days	Mon 7/17/17	Wed 7/26/17	32
34	Pre-Design Investigation	365 days	Thu 7/27/17	Thu 7/26/18	33
35	**PDI Evaluation Report**	**240 days**	**Fri 7/27/18**	**Sat 3/23/19**	
36	Draft PDI Evaluation Report to EPA (#5)	180 days	Fri 7/27/18	Tue 1/22/19	34
37	EPA Review	30 days	Wed 1/23/19	Thu 2/21/19	36
38	Final PDI Evaluation Report	30 days	Fri 2/22/19	Sat 3/23/19	37

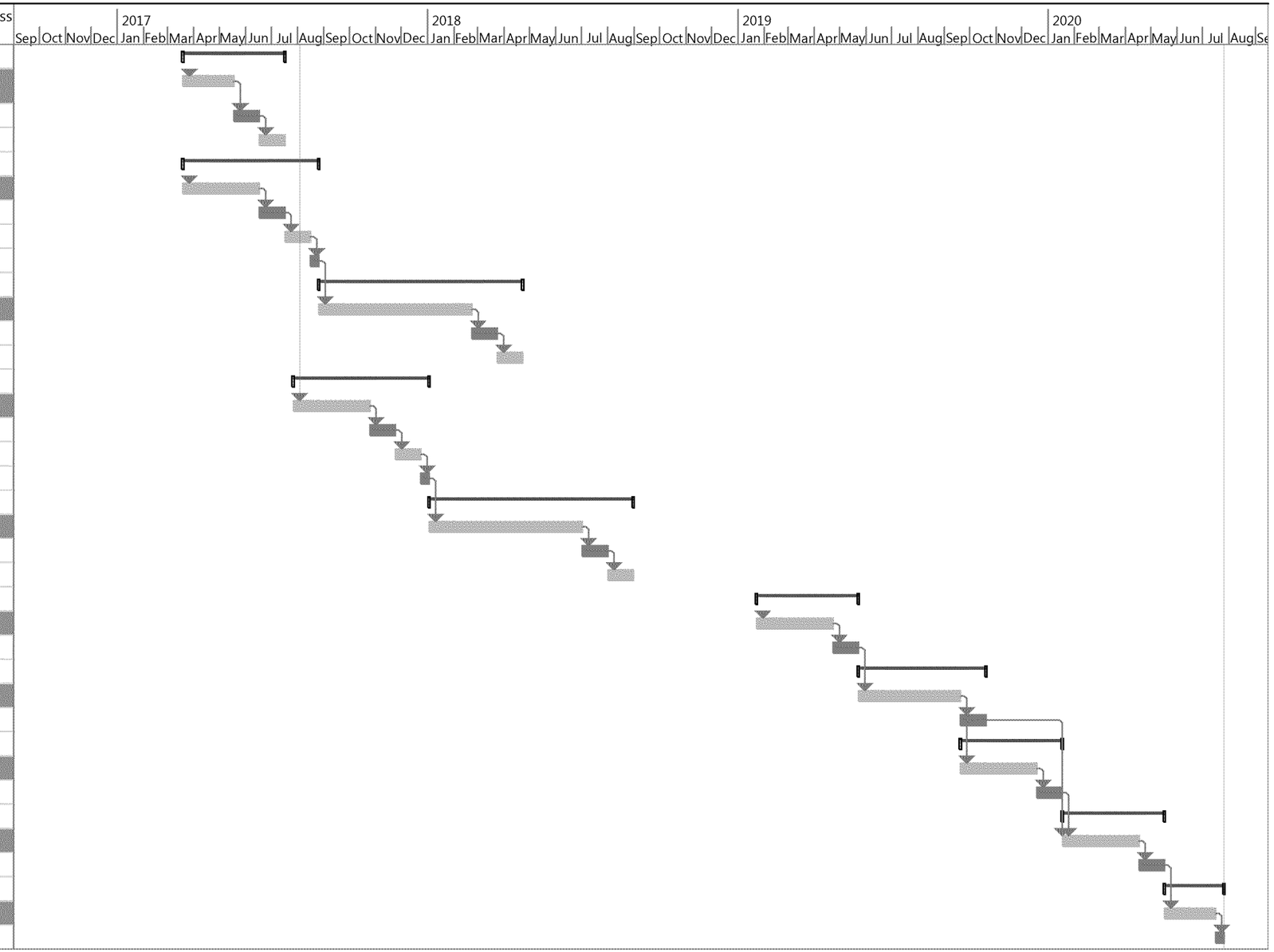


AOC Baseline Schedule | Summary | GSH Task | EPA Task | Milestone

PMP-Appendix C-3
PROJECT SCHEDULE BASELINE
Pre-Remedial Design and Remedial Design
Lower 8.3 Miles of the Passaic River
OU2 of Diamond Alkali Superfund Site - New Jersey

Updated February 2017

ID	Task Name	Duration	Start	Finish	Predecess
39	**Site Wide Monitoring Plan**	**120 days**	**Sun 3/19/17**	**Sun 7/16/17**	
40	Draft Site Wide Monitoring Plan to EPA (#6)	60 days	Sun 3/19/17	Wed 5/17/17	13
41	EPA Review	30 days	Thu 5/18/17	Fri 6/16/17	40
42	Final Site Wide Monitoring Plan	30 days	Sat 6/17/17	Sun 7/16/17	41
43	**Site Selection and Evaluation Work Plan**	**160 days**	**Sun 3/19/17**	**Fri 8/25/17**	
44	Draft Site Selection & Evaluation WP to EPA (#7)	90 days	Sun 3/19/17	Fri 6/16/17	13
45	EPA Review	30 days	Sat 6/17/17	Sun 7/16/17	44
46	Final Site Selection and Evaluation WP	30 days	Mon 7/17/17	Tue 8/15/17	45
47	EPA Approval of Site Selection WP	10 days	Wed 8/16/17	Fri 8/25/17	46
48	**Site Selection and Evaluation Report**	**240 days**	**Sat 8/26/17**	**Sun 4/22/18**	
49	Draft Site Selection & Evaluation Rprt to EPA (#8	180 days	Sat 8/26/17	Wed 2/21/18	47
50	EPA Review	30 days	Thu 2/22/18	Fri 3/23/18	49
51	Final Site Selection and Evaluation Report	30 days	Sat 3/24/18	Sun 4/22/18	50
52	**Treatability Study Work Plan**	**160 days**	**Thu 7/27/17**	**Tue 1/2/18**	
53	Draft TS Work Plan to EPA (#9)	90 days	Thu 7/27/17	Tue 10/24/17	33
54	EPA Review	30 days	Wed 10/25/17	Thu 11/23/17	53
55	Final TS Work Plan	30 days	Fri 11/24/17	Sat 12/23/17	54
56	EPA Approval of TS Work Plan	10 days	Sun 12/24/17	Tue 1/2/18	55
57	**Treatability Study Evaluation Report**	**240 days**	**Wed 1/3/18**	**Thu 8/30/18**	
58	Draft TS Evaluation Report to EPA (#10)	180 days	Wed 1/3/18	Sun 7/1/18	56
59	EPA Review	30 days	Mon 7/2/18	Tue 7/31/18	58
60	Final TS Evaluation Report	30 days	Wed 8/1/18	Thu 8/30/18	59
61	**Preliminary (30%) Remedial Design**	**120 days**	**Wed 1/23/19**	**Wed 5/22/19**	
62	Submit 30% RD to EPA (#11)	90 days	Wed 1/23/19	Mon 4/22/19	36
63	EPA Review	30 days	Tue 4/23/19	Wed 5/22/19	62
64	**Intermediate (60%) Remedial Design**	**150 days**	**Thu 5/23/19**	**Sat 10/19/19**	
65	Submit 60% RD to EPA (#12)	120 days	Thu 5/23/19	Thu 9/19/19	63
66	EPA Review	30 days	Fri 9/20/19	Sat 10/19/19	65
67	**Value Engineering Study Report**	**120 days**	**Fri 9/20/19**	**Fri 1/17/20**	
68	Submit VE Study to EPA (#13)	90 days	Fri 9/20/19	Wed 12/18/19	65
69	EPA Review	30 days	Thu 12/19/19	Fri 1/17/20	68
70	**Pre-final (95%) Remedial Design**	**120 days**	**Sat 1/18/20**	**Sat 5/16/20**	
71	Submit 95% RD to EPA (#14)	90 days	Sat 1/18/20	Thu 4/16/20	66,69
72	EPA Review	30 days	Fri 4/17/20	Sat 5/16/20	71
73	**Final (100%) Remedial Design to EPA**	**70 days**	**Sun 5/17/20**	**Sat 7/25/20**	
74	Submit 100% RD to EPA (#15)	60 days	Sun 5/17/20	Wed 7/15/20	72
75	EPA Approval of 100% Design	10 days	Thu 7/16/20	Sat 7/25/20	74



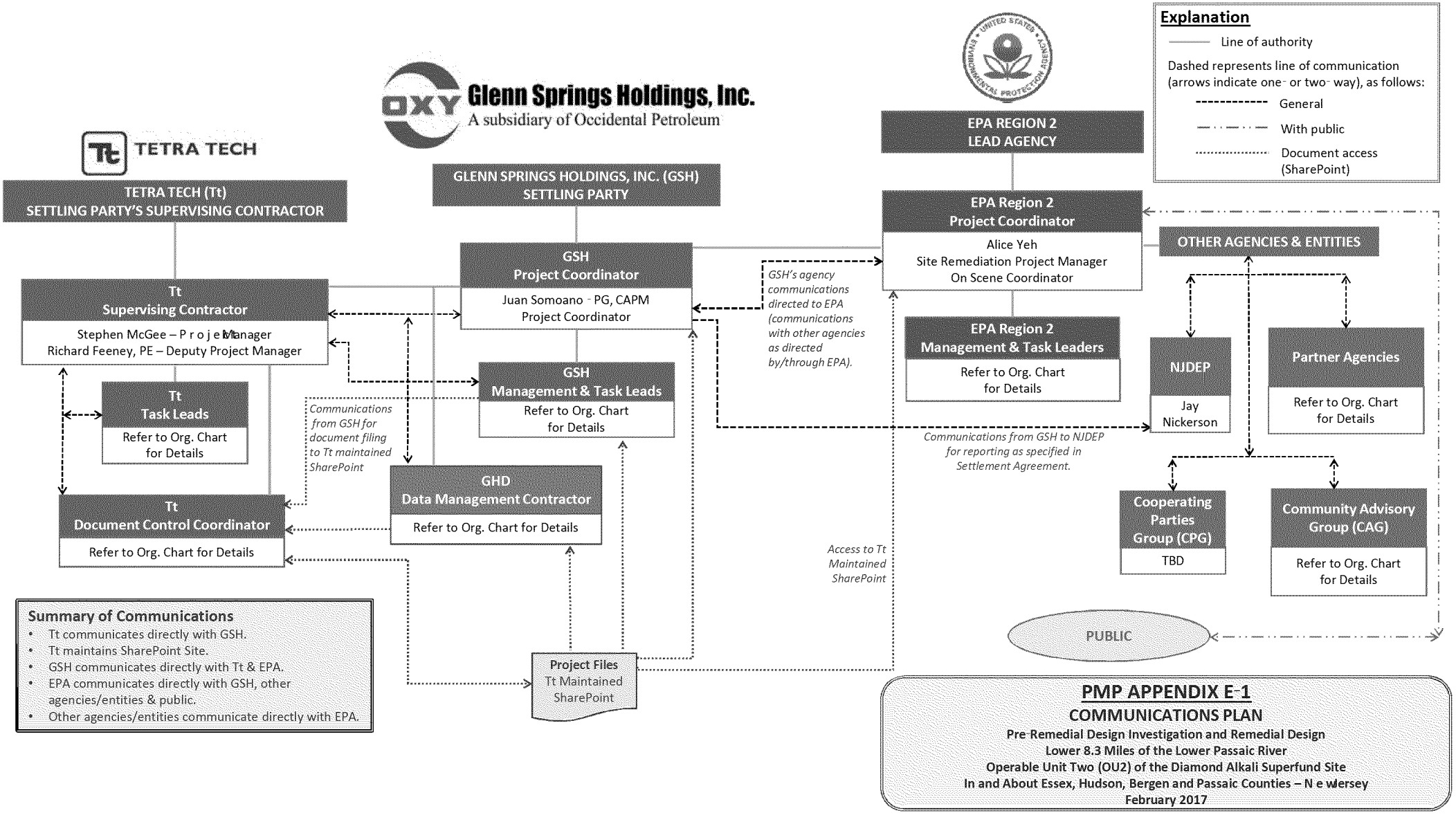
AOC Baseline Schedule | Summary | GSH Task | EPA Task | Milestone

Appendix D

Regulatory and Performance Considerations (*Reserved – No Content*)

Appendix E

Communications Management


Glenn Springs Holdings, Inc.
A subsidiary of Occidental Petroleum
TETRA TECH
TETRA TECH (Tt)
SETTLING PARTY'S SUPERVISING CONTRACTOR
GLENN SPRINGS HOLDINGS, INC. (GSH)
SETTLING PARTY
EPA REGION 2
LEAD AGENCY
Explanation
Line of authority
Dashed represents line of communication (arrows indicate one- or two- way), as follows:
General
With public
Document access (SharePoint)
Tt
Supervising Contractor
Stephen McGee – Project Manager
Richard Feeney, PE – Deputy Project Manager
GSH
Project Coordinator
Juan Somoano - PG, CAPM
Project Coordinator
EPA Region 2
Project Coordinator
Alice Yeh
Site Remediation Project Manager
On Scene Coordinator
OTHER AGENCIES & ENTITIES
GSH's agency communications directed to EPA (communications with other agencies as directed by/through EPA).
EPA Region 2
Management & Task Leaders
Refer to Org. Chart for Details
Tt
Task Leads
Refer to Org. Chart for Details
GSH
Management & Task Leads
Refer to Org. Chart for Details
NJDEP
Jay Nickerson
Partner Agencies
Refer to Org. Chart for Details
Communications from GSH for document filing to Tt maintained SharePoint
Communications from GSH to NJDEP for reporting as specified in Settlement Agreement.
GHD
Data Management Contractor
Refer to Org. Chart for Details
Tt
Document Control Coordinator
Refer to Org. Chart for Details
Cooperating Parties Group (CPG)
TBD
Community Advisory Group (CAG)
Refer to Org. Chart for Details
Access to Tt Maintained SharePoint
PUBLIC
Project Files
Tt Maintained SharePoint
Summary of Communications
• Tt communicates directly with GSH.
• Tt maintains SharePoint Site.
• GSH communicates directly with Tt & EPA.
• EPA communicates directly with GSH, other agencies/entities & public.
• Other agencies/entities communicate directly with EPA.
PMP APPENDIX E-1
COMMUNICATIONS PLAN
Pre-Remedial Design Investigation and Remedial Design
Lower 8.3 Miles of the Lower Passaic River
Operable Unit Two (OU2) of the Diamond Alkali Superfund Site
In and About Essex, Hudson, Bergen and Passaic Counties – New Jersey
February 2017

Appendix F

Procurement and Contracting Documentation (*Reserved – No Content*)

TETRA TECH

Tetra Tech, Inc.
6 Century Drive, 3rd Floor
Parsippany, New Jersey 07054

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