NEW FORMAT

Remedial Action Contract

STATEMENT OF WORK (SOW) / PERFORMANCE WORK STATEMENT (PWS)

Contents

1 BACKGROUND

The purpose of the National Remedial Action Contracts (RAC) is to support Environmental Protection Agency (EPA) efforts by providing professional architect/engineer, technical, and management services for response actions at sites where the release, or threatened release, of hazardous substances pose a risk to human health and the environment. RAC will also support EPA efforts to help States and communities in preparing for responses to releases of hazardous substances, and recovery from acts of terrorism.

EPA responds to these sites under: (1) the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA); (2) the Great Lakes Legacy Act of 2002 (GLLA); (3) the Great Lakes Legacy Reauthorization Act (GLLRA) of 2008 (P.L. 110-365); (4) the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) pursuant to the National Response Framework (NRF); and other laws that help address and/or mitigate endangerment to public health, welfare or the environment.

2 GENERAL REQUIREMENTS

RAC is primarily intended to support the Superfund Remedial (Remedial) program's investigations, cleanups, and early actions to reduce risk to human health and the environment. EPA may leverage additional authorities in order to expedite investigations and cleanups such that sites are quickly returned to productive use while remaining protective of human health and the environment.

Services shall be ordered for any EPA Regional Superfund Office. Services may also be ordered for other programs including the Great Lakes National Program Office and any EPA Regional Division or Office on an as needed-basis. The Contractor may be tasked to provide remediation services activities within Mexico or Canada.

The contract includes Superfund financed (fund-lead) services including remedial investigations, feasibility studies (remedial investigations/feasibility studies or "RI/FS"), remedial design (RD), remedial action (RA), long term response action (LTRA), non-time critical removal (NTRA) support, technical assistance (TA), Operation and Maintenance (O&M), and five-year reviews (FYR). The contract also provides enforcement support, i.e. oversight of the above work being financed and performed by the State, third party, or responsible parties.

Implementation of the SOW

The contractor shall furnish all necessary and appropriate personnel, materials, and services needed for, or incidental to, performing and completing work in accordance with the requirements of this SOW. Site-specific work breakdown structures (SWBS) will be specified in work ordering documents (work ordering documents include work assignments and task orders). EPA Contracting Officer Representatives (COR) will create SWBS by tailoring the contract work breakdown structure (WBS) below to fit the response needs of the site, and include pertinent site information. A COR will also include a summary of the potential major

deliverables and proposed schedule for submittals for each work ordering document. SWBSs are provided as a format for the contractor to structure its proposed approach to performing the work specified in the work ordering document (i.e. in creating a work plan) and cost estimate. EPA expects the contractor to propose the most appropriate and cost-effective procedures and methodologies using accepted engineering practices and controls. After negotiation and finalization of a work plan and costs, the contractor shall use the SWBS to track and report costs. Throughout the performance of work, the contractor shall perform services and provide products at the lowest reasonable cost. During the execution of a work ordering document, the contractor shall communicate at least weekly with the COR, either in face-to-face meetings or through conference calls.

The contractor shall operate in accordance with all environmental statutes and regulations, as appropriate, including: CERCLA, SARA, Toxic Substances Control Act, GLLA, GLLRA, Stafford Act pursuant to the NRF, Clean Water Act (CWA), Oil Pollution Act (OPA), Clean Air Act (CAA), the National Contingency Plan (NCP), and Resource Conservation and Recovery Act. In accordance with current applicable laws, regulations, guidance and policies, the Contractor shall furnish the personnel, services, materials, equipment, knowledge and expertise to successfully complete the tasks required under this contract. The contractor will adjust its operations to reflect any applicable laws, regulations, guidance, and policies which become effective after the effective date of this contract, including EPA Greener Cleanups Policy (Appendix 1).

EPA provides oversight of contractor activities throughout a project. EPA review and approval of deliverables is a tool to assist this process and to satisfy, in part, EPA's responsibility to provide effective protection of public health, welfare, and the environment. EPA also reviews deliverables to assess the likelihood that goals will be achieved and that its performance and operations requirements have been met. Acceptance of deliverables by EPA does not relieve the contractor from responsibility for the adequacy of deliverables or its professional responsibilities.

Work Ordering Document Completion Date and Project Closeout

At the completion of a work ordering document, the contractor shall perform all necessary project closeout activities. These activities include but are not limited to: closing out any subcontracts; indexing and consolidating project records and files as required above; packaging and return of documents to the government; duplication, distribution, or storage of files; preparation and submittal of a work ordering document completion report; and providing a technical and financial closeout report to EPA. For work ordering documents where final hours/budget are greater than the +/- 20% of the approved work plan hours/budget, the contractor shall provide an explanation for the underage/overage. Expected completion of closeout activities will be specified in the individual work ordering document.

Record Keeping Requirements

The contractor shall maintain all technical and financial records in accordance with record retention schedules. EPA and the contractor shall endeavor to submit documents and deliverables using electronic media except when the program office specifies hard copies are needed. At the completion of the work ordering document, the contractor shall electronically submit records to the COR in the form of a compact disc.

Work Areas

Work Areas are organized into four categories:

1. Work Planning and Support
2. Fund-Lead Site Specific Work Areas
3. Enforcement Support Site Specific Work Areas
4. Common Elements

In addition to outcomes and deliverables listed within Work Areas, individual work ordering documents may specify additional outcomes and deliverables.

3 WORK BREAKDOWN STRUCTURE

The WBS presents tasks for each Work Area. Not all tasks described under each Work Area in the WBS will be used for every work ordering document. The contractor shall utilize the WBS, as presented and supplemented through individual work ordering documents, for project scoping, scheduling, and cost tracking and reporting.

The contractor shall perform the following activities when requested via the issuance of a work ordering document. Additional outcomes and deliverables may be defined in the work ordering document.

3.1 Work Planning and Support

3.1.1 Work Plan

The contractor shall prepare and submit a site-specific work plan that includes a detailed description of implementation activities, performance monitoring, and overall management strategy, including optimization. Typical activities involved in preparing the work plan include, but are not limited to, the following:

- The contractor shall contact the COR within five calendar days after receipt of the work ordering document to schedule the kickoff meeting to be held via teleconference.

- If the contractor is unfamiliar with the site, the contractor shall review relevant background documents as provided by the COR for purposes of the work plan preparation.

- If the contractor is unfamiliar with the site, the contractor shall conduct a site visit with the COR during the planning phase to assist in developing an understanding of the site and any logistics.

- The contractor shall prepare and submit a work plan within 30 calendar days after the

kick off meeting. The work plan should include a detailed description of the technical approach for the work ordering document. For post-ROD work ordering document, the contractor's technical approach shall be accordant to the ROD or ROD amendment. The work plan shall specify the necessary procedures, inspections, deliverables, a schedule with specific dates for completion of each required activity and deliverable required by the work ordering document and a list of key contractor personnel providing support on the work ordering document.

- The contractor shall prepare the estimated cost to complete the work ordering document, including subcontractor costs, for each of the specified elements; provide a breakdown of the cost by task and subtask levels, in accordance with the SWBS.

- As directed, the contractor shall attend a work plan fact finding/negotiation meeting via teleconference. The contractor shall prepare and submit a revised work plan incorporating the agreements made in the fact finding/negotiation meeting.

- The contractor shall provide a conflict of interest disclosure.

3.1.2 Preparation of Site-Specific Plans

The contractor shall review, prepare, update, and/or maintain all existing site-specific plans in accordance with applicable guidance, as necessary for implementation.

- Site Management Plan. The SMP outlines the process, procedures, and safeguards that will be used to ensure contaminants or pollutants are not released off-site during the implementation of the work ordering document and how wastes that are encountered during the work ordering document will be managed and disposed of.

- Sampling and Analysis Plan (SAP), which is comprised of the following two parts:

    - Field Sampling Plan (FSP) in accordance with 40 CFR 300.415(b)(4)(ii). The FSP describes the number type, and locations of samples and the types of analyses.

    - QAPP in accordance with EPA Requirements for QA Project Plans (QA/R-5). Office of Environmental Information. EPA/240/B-01/003, March 2001. The QAPP describes policy, organization, and functional activities and the data quality objectives and measures necessary to achieve adequate data for use in planning and documenting the sampling investigation.

- Data Management Plan (DMP), The DMP outlines the procedures for storing, handling, accessing, and securing the data collected during the sampling event.

- Site-specific Health and Safety Plan (HASP), that specifies employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with 29 CFR 1910.120(l)(1) and (l)(2). NOTE: A PRP's HASP may be adopted for use by the contractor if appropriate.

3.1.3 Project Management and Reporting

The contractor shall perform activities required to manage the work ordering document effectively.

- The contractor shall provide general work ordering document management and coordination to implement the work ordering document. The contractor shall prepare monthly progress reports in accordance with the requirements under the contract. The contractor shall manage and track costs and prepare and submit invoices. The contractor shall report costs and level of effort (by P-level) for the reporting period as well as cumulative amounts expended to date.
- The contractor shall participate in progress meetings during the course of the work ordering document. Number of meetings, meeting length, and required contractor personnel will be will be defined in individual work ordering document.
- The contractor shall accommodate any external audit or review mechanism as required by EPA.
- The contractor shall attend EPA-held training as required.

3.2 Fund-Lead Site Specific Work Areas

The EPA will issue work ordering documents for sites that have been selected by EPA for fund-financed study and/or remedial action, where EPA has assumed the lead responsibility for managing the site.

3.2.1 Site Assessment Support

Site assessment is the screening process through which sites are added to, or excluded from, the National Priority List (NPL). This section sets forth the framework and requirements for this effort. Site Assessment projects may include the following tasks: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.2.1.1 Preliminary Assessment

The contractor shall furnish personnel, services, materials and equipment to support preliminary assessment (PA) activities for site assessments. EPA shall determine site priorities for placing sites on the NPL. The contractor shall conduct all preliminary assessments in accordance with "Guidance for Performing Preliminary Assessments under CERCLA" OSWER Directive 9345.0-01A, September 1991, or latest revision. Major activities include background research, a site reconnaissance, the generation of a PA report, and the generation of a preliminary HRS score. EPA shall make the determination of final HRS scores.

3.2.1.2 Site Inspection

The contractor shall furnish personnel, services, materials and equipment to support site inspection activities for site assessments. Site inspections (SI) are the second phase of an

ongoing screening process used to determine whether a site has the potential to be included on the NPL. This work area includes Screening Site Inspections and Expanded Site Inspections. All Site inspections shall be performed in accordance with "Guidance for Performing Site Inspections under CERCLA," OSWER Directive 9345.1-05, September 1992, Interim Final, or latest revision. Major activities include background research, field sampling, generation of an SI report, and generation of and HRS score.

3.2.1.3 Hazard Ranking System Package

The contractor shall furnish personnel, services, materials and equipment to support preparation of HRS packages for site assessments. HRS is a scoring system that evaluates the relative threat to public health and the environment posed by releases and potential releases of hazardous substances. The HRS score and the supporting documentation are compiled into an HRS package. EPA uses the information in this package to determine HRS scores, to determine priorities of sites for placement on the NPL, and to place sites on the NPL. Major activities in this work area include background research, generation of an estimated HRS score, preparation of a summary report or data gap memo if necessary, and the generation of an HRS documentation record.

3.2.2 Remedial Investigation/Feasibility Study (RI/FS)

The purpose of RI/FS projects are to conduct a RI/FS at sites in order to select a remedy that eliminates, reduces, or controls risks to human health and the environment. This section sets forth the framework and requirements for this effort. The goal is to develop the minimum amount of data necessary to support the selection of an approach for site remediation and then to use this data to result in a well-supported Record of Decision (ROD). The contractor shall develop an approach to investigate a site and implement that approach after EPA review and approval. RI/FS projects may include the following tasks: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Risk Assessment, Treatability Study/Pilot Testing, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.2.2.1 Remedial Investigation Report

The contractor shall develop and deliver draft and final Remedial Investigation (RI) reports that accurately establishes the site characteristics such as media contaminated, extent of contamination, and the physical boundaries of the contamination. The RI shall provide information to assess risks to human health and the environment and to support the development, evaluation, and selection of appropriate response alternatives. The RI report shall be written in accordance with Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA, OSWER Directive 9355.3-01, October 1988, Interim Final (or latest revision) and Guidance for Data Usability in Risk Assessment, (EPA/540/G-90/008), October 1990 (or latest revision). In accordance with the schedule developed specific to a work plan, the contractor shall submit draft and final RI Reports, which include the following:

- Site Background
- Investigation
    - Field Investigation and technical approach
    - Chemical analyses and analytical methods

    - Field methodologies (biological, surface water, sediment, soil boring, soil sampling, monitoring well installation, groundwater sampling, hydrogeological assessment)
- Site Characteristics
    - Geology
    - Hydrogeology
    - Meteorology
    - Demographics and land use
    - Reuse assessment
    - Ecological assessment
- Nature and Extent of Contamination.
    - Contaminant sources
    - Contaminant distribution and trends
- Fate and Transport.
    - Contaminant characteristics
    - Transport processes
    - Contaminant migration trends
- Summary and Conclusion

3.2.2.2 Remedial Alternatives Screening

The contractor shall develop appropriate remedial alternatives to undergo full evaluation. The alternatives are to encompass a range including innovative treatment technologies consistent with the regulations outlined in the NCP, 40 CFR Part 300 and applicable EPA guidance, procedures and directives. The analysis will include institutional controls (ICs) to the extent appropriate. Typical activities include, but are not limited to, the following:

- Establish remedial action objectives
- Establish general response actions
- Identify and screen applicable remedial technologies
- Develop remedial alternatives in accordance with Section 300.430(e) of the NCP (1990)
- Screen remedial alternatives for effectiveness, implementability and cost
- Prepare Technical Memorandum.

3.2.2.3 Remedial Alternatives Evaluation

The contractor shall assess individual alternatives against each of the nine evaluation criteria and perform a comparative analysis of all options against the evaluation criteria. The analysis shall be consistent with the NCP, 40 CFR Part 300 and shall consider the Guidance for Conducting Remedial Investigation and Feasibility Studies under CERCLA (OSWER Directive 9355.3-01), Guide to Developing and Documenting Cost Estimates During the Feasibility Study (OSWER Directive 9355.0-75), and other pertinent OSWER guidance. The analysis shall include ICs to the extent appropriate. EPA will make the determination regarding final selection of the remedial alternative. The nine criteria to be employed in evaluation of remedial alternatives are:

- Threshold Criteria (2)

    - Overall protection of human health and environment
    - Compliance with applicable or relevant and appropriate requirements (ARARs)
- Balancing Criteria (5)
    - Long-term effectiveness and permanence
    - Reduction in toxicity, mobility or volume through treatment
    - Short-term effectiveness
    - Implementability - technical and administrative
    - Cost
- Modifying Criteria (2)
    - State acceptance
    - Community acceptance

3.2.2.4 Feasibility Study Report

The contractor shall prepare findings after the remedial alternatives have been screened and evaluated. The task includes preparation of all draft and final reports. The FS Report shall include the following:

- Feasibility study objectives;
- Remedial objectives;
- General response actions;
- Identification and screening of remedial technologies;
- Remedial alternatives description;
- Detailed analysis of remedial alternatives (individual and comparative); and
- Summary and conclusions.

3.2.2.5 Post RI/FS Support

The contractor shall provide support required for preparation of the ROD for the site. The final recommendation contained in the ROD shall represent the opinion and recommendation of EPA, not that of the contractor. Typical activities include, but are not limited to, the following:

- Attending public meetings, briefings, public hearings, technical meetings with PRPs;
- Preparing presentation materials;
- Providing technical assistance in the preparation of the Responsiveness Summary;
- Providing technical assistance in the preparation of the Proposed Plan and ROD; and
- Preparing Feasibility Study Addenda.

3.2.3 Remedial Design (RD)

The purpose of RD work ordering documents is to engineer or design the selected remedy as defined in a ROD. This section sets forth the framework and requirements for conducting RD activities. The contractor shall conduct the RD in accordance with the specific work ordering document, and consistently with the ROD, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER), 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an RD (Attachment 2). RD work ordering documents may also include, but are not limited to, the

following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Treatability Study/Pilot Testing, Construction Support, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.2.3.1 Preliminary Design

The contractor shall prepare the preliminary design that includes the following components:

- Recommended project delivery strategy and scheduling, including project acceleration strategies;
- Preliminary construction schedule;
- Outline of general specifications;
- Preliminary drawings;
- Design criteria report;
- Basis of design report;
- Preliminary RD and O&M cost estimates (+50 percent and -30 percent accuracy) prepared through the use of M-CACES Gold Cost Engineering System for Remedial Action; and
- Results of Value Engineering (VE) screening.

3.2.3.2 Equipment/Services/Utilities

- Identify Long-Lead Equipment Services and/or Utilities. The contractor shall prepare a list of any elements or components of the facility that will require custom fabrication or long lead time for procurement. The list shall also state the basis for such need, and list the recognized sources of such procurement.

- Procure Long-Lead Equipment Services and/or Utilities. The contractor shall prepare necessary plans and specifications, advertise for, and evaluate bids for equipment and services.

3.2.3.3 Intermediate Design

The contractor shall prepare the intermediate design that includes the following components:

- Updated RD schedule;
- Intermediate specifications;
- Intermediate drawings;
- Intermediate Design Criteria Report;
- Intermediate Basis of Design Report;
- Revised RD and O&M cost estimates (+30 percent and -15 percent accuracy for simple projects and +40 and -20 percent for complex projects) prepared through the use of M-CACES Gold Cost Engineering System for Remedial Action;
- An intermediate design review/briefing for EPA;
- Results of VE study if VE screening identified potential project savings;

3.2.3.4 Pre-Final/Final Design

The contractor shall prepare the Pre-final/Final Design that includes the following components:

- Subcontract award document.
- Pre-final/Final Design Specifications.
- Pre-final/Final Drawings and Schematics.
- Pre-final/Final Design Criteria Report.
- Pre-final/Final Basis of Design Report.
- Pre-final/Final Construction Quality Assurance Plan.
- Draft O&M Manual.
- Relevant Appendices.
- Complete RA Solicitation Package.
- Pre-final/Final Revised RD and O&M cost estimates (+15 percent and -5 percent accuracy) prepared through the use of M-CACES Gold Cost Engineering System for Remedial Action.
- Biddability (offerability), operability, constructability, claims prevention, and environmental compliance reviews.
- Revised Project Delivery Strategy.
- 100% design submittal, which shall include the final plans and specifications in reproducible format, with a final cost estimate, and a schedule of the overall RA.

3.2.3.5 Post RD Support

- The contractor shall solicit procurement, evaluate offers received, and inform the EPA Contracting Officer of the best qualified/cost effective offer. Award of subcontracts will be part of a remedial action work ordering document. See "Subcontractor Procurement and Support Activities" for specific information for pre-bid and pre-award activities.

- Preparation of Site-Specific Plans. Before remedial action field activities begin, the contractor shall update or write, if necessary, site-specific plans. The existing plans developed for the RD, amended at the direction of the EPA COR, shall be used if appropriate. Typical plans include, but are not limited to, the following:
    - Site Management Plan
    - Sampling and Analysis Plan (SAP)
    - Health and Safety Plan (HASP)
    - Construction Quality Assurance Plan
    - Contingency Plan

3.2.4 Remedial Action (RA)

The purpose of RA work ordering documents is to implement the RA for a site in accordance with the objectives of the RD. The RA is the implementation phase of site remediation or construction of the remedy, including necessary O&M, performance monitoring, and any special

requirements. The RA is based on the RD, which is designed to achieve the remediation goals specified in the ROD. The ROD for a site, defines the selected remedy for that site. The RA and associated deliverables under a RA work ordering document shall be consistent with the ROD, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an RA (Attachment 2). This section sets forth the framework and requirements for this effort.

RA work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Construction Support, Treatability Study/Pilot Testing, Administrative Record, Technical Meeting Support, Reuse Planning, and Subcontractor Procurement and Support Activities.

3.2.4.1 Remedial Action (RA) Report

- Prepare Draft Remedial Action Report. The contractor shall prepare and submit to the COR the Remedial Action Report, in accordance with the fact sheet entitled, Remedial Action Report, Documentation for Operable Unit Completion, Publication 9355.0-39FS, June 1992. The report shall summarize RA events, performance standards and construction quality control, construction activities, final inspection, certification that the remedy is operational and functional, O&M, and RA costs.
- Respond to Comments
- Prepare/Issue Final Remedial Action Report. After receipt of EPA comments, the contractor shall prepare and submit the final Remedial Action Report to the COR. The contractor shall prepare a technical memorandum to summarize the system performance and required O&M procedures. The contractor shall also prepare a Cost and Performance Report in accordance with the guidance document entitled, Guide to Documenting Cost and Performance for Remediation Projects, Publication EPA-542-b-95-002, March 1995.

3.2.5 Long-Term Response Action (LTRA)

The purpose of LTRA work ordering documents is to implement the LTRA in accordance with the objectives of the ROD, the RD, and the O&M plan. The LTRA is the continued implementation of site remediation after the construction phase of the remedy, including necessary O&M, performance monitoring, performance reporting, and any special requirements. The LTRA is based on the RD and O&M plan, which is designed to achieve the remediation goals specified in the ROD. The LTRA and associated deliverables under an LTRA work ordering document shall be consistent with the ROD, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an LTRA (Attachment 2). This section sets forth the framework and requirements for this effort.

LTRA work ordering documents may also include, but are not limited to the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Construction

Support, Treatability Study/Pilot Testing, Administrative Record, Technical Meeting Support, Reuse Planning, and Subcontractor Procurement and Support Activities.

3.2.5.1 LTRA Report

- Prepare Draft LTRA Report. The contractor shall prepare and submit to the COR the Draft LTRA Report in accordance with EPA guidance. The report shall summarize LTRA events, performance standards and construction quality control, construction activities, final inspection, certification that the remedy is operational and functional, O&M, and LTRA costs.
- Respond to Comments
- Prepare/Issue Final LTRA Report. After receipt of EPA comments, the contractor shall prepare and submit the final LTRA Report to the COR. The contractor shall prepare a technical memorandum to summarize the system's performance and required O&M procedures.

3.2.6 NON-TIME CRITICAL REMOVAL SUPPORT (EE/CAs) [NEED TO FIX]

Under the Non-Time Critical Removal Support, the contractor shall prepare a Engineering Evaluation Cost Analysis in accordance with the "Guidance for Non-Time Critical Removal Actions" (EPA, 1987, or latest revision) and "Outline of EE/CA Guidance" (EPA, March 30, 1988, or latest revision). The NTCRA is based on the removal goals specified in the EE/CA and is the implementation phase of site removal or construction of the removal action. The NTCRA includes necessary operation and maintenance, performance monitoring, and special requirements. This section sets forth the framework and requirements for implementing the NTCRA. RD work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Risk Assessment, Treatability Study/Pilot Testing, Construction Support, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.2.6.1 Preliminary Design

The contractor shall prepare the preliminary design that includes the following components:

- Recommended project delivery strategy and scheduling, including project acceleration strategies.
- Preliminary construction schedule.
- Outline of General Specifications.
- Preliminary drawings.
- Design Criteria Report.
- Basis of Design Report.
- Preliminary RD and O&M cost estimates (+50 percent and -30 percent accuracy) prepared through the use of M-CACES Gold Cost Engineering System for Remedial Action.
- Results of VE screening.

3.2.6.2 Intermediate Design

The contractor shall prepare the intermediate design, which includes the following components:

- Updated RD schedule.
- Intermediate specifications.
- Intermediate drawings.
- Intermediate Design Criteria Report.
- Intermediate Basis of Design Report.
- Revised RD and O&M cost estimates (+30 percent and -15 percent accuracy for simple projects and +40 and -20 percent for complex projects) prepared through the use of M-CACES Gold Cost Engineering System for Remedial Action.
- An intermediate design review/briefing for EPA.
- Results of VE study if VE screening identified potential project savings.

3.2.6.3 Pre-Final/Final Design

The contractor shall prepare the Pre-final/Final Design that includes the following components:

- Subcontract award document.
- Pre-final/Final Design Specifications.
- Pre-final/Final Drawings and Schematics.
- Pre-final/Final Design Criteria Report.
- Pre-final/Final Basis of Design Report.
- Pre-final/Final Construction Quality Assurance Plan.
- Draft O&M Manual.
- Relevant Appendices.
- Complete RA Solicitation Package.
- Pre-final/Final Revised RD estimates (+15 percent and -5 percent accuracy) prepared through the use of M-CACES Gold Cost Engineering System for Remedial Action.
- Biddability (offerability), operability, constructability, claims prevention, and environmental compliance reviews.
- Revised Project Delivery Strategy.
- 100% design submittal, which shall include the final plans and specifications in reproducible format, final cost estimate, and a schedule of the overall NTCRA.

3.2.6.4 Post Remedial Design Support

Before removal action field activities begin, the contractor shall update or write, if necessary, site-specific plans. The existing plans developed for the design, amended at the direction of the EPA COR, shall be used if appropriate. Plans shall be reviewed to establish procedures to be followed by the contractor in performing field, laboratory and analysis work in addition to community and agency liaison activities. Typical plans include, but are not limited to, the following:

- Site Management Plan.

- Sampling and Analysis Plan (SAP).
- HASP.
- Construction Quality Assurance Plan.
- Contingency Plan.

3.2.6.5 NTCRA Report

- Prepare Draft NTCRA Report. The contractor shall prepare and submit to the COR the NTCRA Report, in accordance with the fact sheet entitled, Remedial Action Report, Documentation for Operable Unit Completion, Publication 9355.0-39FS, June 1992. The report shall summarize NTCRA events, performance standards and construction quality control, construction activities, final inspection, certification that the remedy is operational and functional, O&M, and NTCRA costs.
- Respond to Comments
- Prepare/Issue Final NTCRA Report. After receipt of EPA comments, the contractor shall prepare and submit the final NTCRA to the COR. The contractor shall prepare a technical memorandum to summarize the system's performance.

3.2.7 General Technical Assistance

This task includes providing expert knowledge to the EPA in a variety of technical areas, including but not limited to: lead incineration, groundwater treatment, non-aqueous phase liquids (NAPL), soil vapor extraction, real estate, property law, and development expertise. The contractor shall provide the following support under this task.

- Technical Meeting Assistance. This task includes work efforts related to attendance at and documentation of meetings with EPA, potentially responsible parties (PRPs), the PRP contractor, and other stakeholders. The contractor shall attend various meetings throughout the performance of the work ordering document. These meetings are in addition to the meetings specifically included within other tasks in this SOW. The contractor may be required to prepare meeting minutes or comments.

- Technical Assistance. The contractor shall provide assistance in the development and/or review of technical information/ documentation relating to a site (e.g., application of a specific technology on a specific site). The contractor shall provide technical assistance consisting of various technical reviews, evaluations, modeling activities, and assessments concerning the site.

- Counter-terrorism Support. The contractor shall provide technical assistance in support of EPA's counter-terrorism efforts, as follows:

General technical assistance work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Risk Assessment, Treatability Study/Pilot Testing, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.2.8 Five-Year Review

The purpose of Five Year Review work ordering documents is to assist in Five Year Reviews. Pursuant to CERCLA as amended by section 121(c) and section 300.430(f)(ii) of the NCP, a statutory Five-Year Review is required for remedies selected on or after October 17, 1986. The review must be completed within five years of the initiation of the remedial action, and every five years thereafter, for sites that will not allow for unlimited use and unrestricted exposure after attainment of the performance standards stated in the ROD(s).

The contractor shall provide technical support to determine whether the remedy at a site is/remains protective of human health and the environment and evaluate the implementation and performance of the selected remedy in accordance with OSWER Directive 9355.7-03B-P, "Comprehensive Five-Year Review Guidance", June 2001. The contractor shall consider all current and past activities at the site. EPA will make all final determinations.

Five Year Review work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Risk Assessment, Treatability Study/Pilot Testing, Construction Support, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.2.8.1 Document Review

The contractor shall obtain and review documents and site files, at the direction of the EPA COR, to become knowledgeable with the history and status of the site. The contractor shall review existing documents including, but not limited to, the following:

- ROD
- ROD Summaries
- Consent Decree or other settlement agreement
- Closeout Reports
- O&M Manuals and Reports
- Groundwater Monitoring Plans
- Administrative Record
- Other Documents

3.2.8.2 Standards Appropriate, Relevant and Applicable Regulations (ARARs) Review

The contractor shall review ARARs in the ROD(s) and ROD Summary(s), and review Federal, State or Local regulations related to public health or the environment, promulgated subsequent to the ROD, for changes in standards. Should the contractor identify changes in standards, the contractor shall evaluate the changes to assess the appropriateness of the regulations on the actions to ensure protectiveness. The contractor shall prepare a letter report documenting the evaluation of the changes proposed to assess the appropriateness of the regulations on the actions to ensure protectiveness.

3.2.8.3 Site Visit/Interviews

The contractor shall interview, where appropriate, previous site staff/management, nearest residents to the site, PRPs, State and Local Government personnel, facility operating staff, O&M contractors, or other personnel associated with the selection and implementation of the Action. At interviews, contractor personnel shall identify themselves as employees of an EPA contractor.

- Interview Preparation. The contractor shall make the arrangements for and, if necessary, provide logistical support to the COR who will conduct interviews with the appropriate governmental officials (federal, state, county, township, city) environmental groups, local broadcast and print media and any other relevant individuals or groups either in person or via a telephone call as approved by the Community Involvement Coordinator (CIC).
- Prepare Interview Questions. The contractor shall prepare interview questions.
- Provide Interview Support. The contractor shall provide support during the interviews.

3.2.8.4 Site Inspection/Technology Review

The contractor shall conduct a management system review (MSR) and technical compliance evaluation of specific elements of the remedy required to protect human health and the environment. The scope of the site inspection shall include all components of the source control/groundwater remediation to determine whether each element of the ROD(s) has been implemented and whether each component of the remedy is operating in accordance with its intended function. The contractor shall prepare a MSR/Technical Compliance Report documenting its findings.

3.2.8.5 Five-Year Review Report

The contractor shall develop a Five-Year Review Report in accordance with the Comprehensive Five-Year Review Guidance issued June 2001. The contractor shall develop a draft Five-Year Review Report for EPA review. The contractor shall incorporate EPA comments and produce the final report. The report shall include a discussion of the following:

- Background information including an introduction, statement of objectives and a review of all ARARs
- Description of site conditions, including a summary of the site visit and a discussion of areas of non-compliance of ARARs
- Summary of site visit and any interviews
- Summary of findings, including any issues, recommendations, and follow-up actions
- Discussion of community involvement activities, cleanup levels, exposure pathways, and other information relevant to protectiveness
- Review summary, including technology recommendations, requirements for recommendation implementation, and a statement of protectiveness that is well supported by the document and/or attachments

3.3 Enforcement Support Site Specific Work Areas

This contract may be used for the following enforcement support activities set forth in Section 3.2.

3.3.1 RI/FS Oversight

The purpose of RI/FS oversight work ordering documents is to conduct oversight of the potentially responsible party's (PRP's) RI/FS to support the selection of a remedy to eliminate, reduce, or control risks to human health and the environment. This section sets forth the framework and requirements for this effort. The goal is to develop the minimum amount of data necessary to support the selection of an approach for site remediation and then to use this data to result in a well-supported ROD. Successful RI/FS oversight is accomplished by observing and documenting that the PRP has or has not complied with all applicable laws, regulations, and requirements, and has or has not met all performance standards specified in the settlement agreement.

RI/FS oversight work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Risk Assessment, Treatability Study/Pilot Testing, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.3.1.1 Remedial Investigation Report

The contractor shall review and provide comments to the PRP's draft and final Remedial Investigation Report.

3.3.1.2 Remedial Alternatives Screening

A PRP will investigate and propose remedial alternatives that will remediate or control contaminated media (soil, surface water, ground water, sediments) remaining at the site, as deemed necessary in the RI, to provide adequate protection of human health and the environment. The PRP proposed potential alternatives should encompass, as appropriate, a range of alternatives in which treatment is used to reduce the toxicity, mobility, or volume of wastes but vary in the degree to which long-term management of residuals or untreated waste is required, one or more alternatives involving containment with little or no treatment; and a no-action alternative. Alternatives that involve minimal efforts to reduce potential exposures (e.g., site fencing, deed restrictions) should be presented as "limited action" alternatives. The PRP proposed alternatives will be submitted to EPA via technical memorandum. The contractor shall review the PRP's draft and final Technical Memorandum presenting the potential alternatives and determine whether it included the following information:

- Establishment of RA Objectives. The contractor shall determine whether the Technical Memorandum specified the PRP's site-specific remedial action objectives that should be developed to protect human health and the environment. The objectives should specify the contaminant(s) and media of concern, the exposure

route(s) and receptor(s), and an acceptable contaminant level or range of levels for each exposure route (i.e., preliminary remediation goals).

- Establishment of General Response Actions. The contractor shall determine whether the Technical Memorandum proposed general response actions for each medium of interest by defining contaminant, treatment, excavation, pumping, or other actions, singly or in combination to satisfy remedial action objectives taking into account requirements for protectiveness as identified in the remedial action objectives and the chemical and physical characteristics of the site.

- Identification and Screening of Applicable Remedial Technologies. The contractor shall determine whether the Technical Memorandum identified and screened hazardous waste treatment technologies to ensure that only those technologies applicable to the contaminants present, their physical matrix, and other site characteristics will be considered. This screening will be based primarily on a technology's ability to effectively address the contaminants at the site, but will also take into account a technology's implementability and cost. The contractor shall determine whether the Technical Memorandum's selected representative process options, as appropriate, will carry forward into alternative development and whether the memorandum identified the need for treatability testing for those technologies that are probable candidates for consideration during the detailed analysis.

- The contractor shall determine whether the PRP's Remedial Alternatives are accordance with NCP.

- The contractor shall evaluate the PRP's Remedial Alternatives for Effectiveness, Implementability, and Cost.

3.3.1.3 Remedial Alternatives Evaluation

The contractor shall review the PRP Remedial Alternatives Evaluation Report and assess whether the PRPs have followed evaluation procedures as outlined in the NCP, 40 CFR Part 300 and the Guidance for Conducting RI/FS under CERCLA (OSWER Directive 9355.3-01).

3.3.1.4 Feasibility Study Report

The Contractor shall review the PRP's Feasibility Study (FS) report to ensure the report is consist with requirements of NCP, settlement agreement, and ARARs, and contains the following components:

- Feasibility Study Objectives.
- Remedial Objective.
- General Response Action.
- Screened Remedial Technologies.
- Remedial Alternatives.
- Detail Analysis of Remedial Alternatives.
- Summary and Conclusions.

3.3.1.5 Post RI/FS Support

The contractor shall provide support required for preparation of the ROD for the site. The final recommendation contained in the ROD shall represent the opinion and recommendation of EPA not that of the contractor. Typical activities include, but are not limited to, the following:

- Attending public meetings, briefings, public hearings, technical meetings with PRPs.
- Preparing presentation materials.
- Providing technical assistance in the preparation of the Responsiveness Summary.
- Providing technical assistance in the preparation of the Proposed Plan and ROD.
- Preparing Feasibility Study Addendum.

3.3.2 RD Oversight

The purpose of RD oversight work ordering documents is to provide oversight of a PRP conducting a RD at a site. Contractor oversight under work ordering documents will continue through planning, implementation, and completion phases of the RD. The primary objective of PRP oversight is to ensure that the remedies specified in the RD and used in the RA protect public health and the environment during the life of the project and are implemented in compliance with the terms of the Settlement Agreement. This section sets forth the framework and requirements for the RD Oversight effort.

RD Oversight is accomplished by observing and documenting that the PRP has or has not complied with all applicable laws, regulations, and requirements, and has or has not met all performance standards specified in the settlement agreement. The contractor shall document that the PRP's RD and associated deliverables are consistent with the settlement agreement, the ROD, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an RD (Attachment 2).

RD oversight work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Risk Assessment, Treatability Study/Pilot Testing, Review PRP Plans, Administrative Record, Technical Meeting Support, and Reuse Planning.

3.3.2.1 Review of PRP RD Submittals

The contractor shall review and provide comments on all documents developed or modified by the PRP during oversight implementation. Perform a technical review and generate comments in the form of a technical memorandum. All final decisions regarding submittals by PRPs shall remain the sole responsibility of EPA. Consider the following factors during the review of documents:

- Technical requirements of the ROD, consent decree (CD) with SOW, and ARARs.
- Standard professional engineering practices.
- Applicable statutes, EPA policies, directives, and regulations.
- Spot-checking design calculations to assess accuracy and quality of design activities and conformance with results of field data and treatability studies.
- Examination of planning and construction schedules for meeting project completion goals.
- Examination of proposed construction schedule for meeting project completion goals.
- Operability, constructability, and environmental compliance reviews.

The contractor shall review and provide comments on the following documents and the PRP's response to comments if so directed:

- PRP Pre-Design Documents.
- Interim Results Deliverables [e.g., Treatability Study Work Results]. The contractor shall review and provide comments on any PRP interim design deliverables.
- Other Non-Specific PRP Design Deliverables.
- Treatability Studies Report
- Preliminary Design which typically includes the Project Delivery Strategy and Scheduling, Preliminary Construction Schedule, Specifications Outline, Preliminary Drawings Basis of Design Report/Design Analysis, Preliminary Cost Estimate, and PRP Description of Variances with the ROD.
- Intermediate Design Documents that typically includes the Construction Schedule, Preliminary Specifications, Intermediate Drawings, Basis of Design Report/Design Analysis, Revised Cost Estimate, and PRP Description of Variances with the ROD.
- Pre-final, which typically includes the Pre-final Design Specifications, Pre-final Drawings, Basis of Design Report/Design Analysis, Revised Cost Estimate.
- Final Design which includes Final Design Specifications, Final Drawings, Basis of Design Report/Design Analysis, Final Cost Estimate.
- PRP subcontract award document(s)

3.3.2.2 Remedial Design (RD Oversight

The contractor shall provide technical field oversight of PRP activities to ensure the PRP's Treatability Study or Pre-Design field work takes place in accordance with EPA accepted plans and specifications. The amount of oversight will be dependent upon the type and complexity of the Treatability Study or Pre-Design Field Investigation. Typical activities include, but are not limited to, the following:

- Make observations regarding the manner in which the Quality Assurance and Health and Safety Plans are implemented.
- Maintain a field logbook (including photographs as appropriate) which shall be provided to EPA.
- Report any nonconformance issues to the EPA COR.

3.3.3 RA Oversight

The purpose of RA oversight work ordering documents is to provide oversight of the PRP construction and implementation of the RA, including system start-up and diagnostic testing at a site. Contractor oversight under this SOW will continue through planning, implementation, and completion phases of the RA. This section sets forth the framework and requirements for this effort.

Actual construction and implementation of the RA will be performed by the PRP constructor. The contractor shall observe and document that the PRP has or has not complied with all applicable laws, regulations, and requirements, and has or has not met all performance standards specified in the settlement agreement. The contractor shall ensure that the PRP RA and associated deliverables are consistent with the settlement agreement, the RODs, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an RA (see Attachment 2).

RA oversight work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Treatability Study/Pilot Testing, Review PRP Plans, Administrative Record, Technical Meeting Support, Reuse Planning, Construction Support, and Subcontractor Procurement and Support Activities

3.3.3.1 Review of PRP RA Submittals

The contractor shall review and provide comments on all documents developed or modified by the PRP during oversight implementation. The contractor shall perform a technical review and generate comments in the form of a technical memorandum. All final decisions regarding submittals by PRPs shall remain the sole responsibility of EPA. The contractor shall consider the following factors during the review of documents:

- Technical requirements of the ROD, CD with SOW, and ARARs.
- Standard professional engineering practices.

- Applicable statutes, EPA policies, directives, and regulations.
- Spot checking design calculations to assess accuracy and quality of design activities and conformance with results of field data and treatability studies.
- Examination of planning and construction schedules for meeting project completion goals.
- Examination of proposed construction schedule for meeting project completion goals.
- Operability, constructability, and environmental compliance reviews.

The contractor shall review and provide comments on the following documents and the PRP's response to comments if so directed:

- Work plans.
- Site Management Plan for Remedial Construction
- RA Work Plan
- O&M Manual.
- As-built Drawings
- Construction Quality Assurance Project Plan(s)
- Construction Quality Assurance (QA) Reports
- Change Orders
- Other Non-Specific RA Documents

3.3.3.2 Oversight

The contractor shall provide technical oversight of PRP activities to ensure construction takes place in accordance with EPA accepted plans and specifications. The oversight activities shall also include observations regarding the manner in which the Quality Assurance and Health & Safety Plans are implemented. The amount of oversight will be dependent upon the type and complexity of the RA and is at the discretion of the EPA COR. The contractor shall report any non-conformance with the ROD, CD, Plans, or other project documents to the COR.

- Periodic Reports. The contractor shall provide RA oversight reports during the duration of the PRP's field work. The contractor's oversight reports shall consist of a short summary of significant field events during the period, any photographs taken during the period, and a copy of all field logs. Each field oversight report shall be in a schedule prescribed in the work ordering document.

- Final Summary Report. The contractor shall provide a summary oversight report with information specified by the EPA COR.

3.3.4 Removal Oversight

The purpose of removal oversight work ordering documents is to conduct oversight of the PRP's development of the engineering evaluation/cost analysis (EE/CA), design, and removal action at a site in accordance with the objectives of the Enforcement Action Memorandum, as clarified by the Administrative Order on Consent and EE/CA. Actual construction and implementation of the removal will be performed by the PRP's constructor. Contractor oversight will continue

through planning, implementation, and completion phases of the removal. This section sets forth the framework and requirements for this effort.

Removal oversight work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Administrative Record, Technical Meeting Support, Reuse Planning, Construction Support, Subcontractor Procurement and Support Activities, and Review PRP Plans.

The contractor shall provide technical field oversight of PRP O&M or Long-term Response Action activities to ensure removal takes place in accordance with EPA accepted plans and specifications. The amount of oversight will be dependent upon the type and complexity of the Action and is at the discretion of the EPA COR. Typical activities include, but are not limited to, the following:

- Make observations regarding the manner in which the QA and Health and Safety Plans are implemented.
- Maintain a field logbook (including photographs as appropriate) which shall be provided to EPA.
- Report any nonconformance issues to the EPA COR.

3.3.5 Long-Term Response Action (LTRA) Oversight

The purpose of long term response oversight work ordering documents is to conduct oversight of a PRP long-term response action (LTRA) at sites. The contractor shall observe and document that the PRP has or has not complied with all applicable laws, regulations, requirements, RODs, RDs, O&M plans, and has or has not met all performance standards specified in the settlement agreement. This section sets forth the framework and requirements for LTRA oversight.

The LTRA is the continued implementation of site remediation after the construction phase of the remedy, including necessary O&M, performance monitoring, and any special requirements. The LTRA is based on the RD and O&M plan, which is designed to achieve the remediation goals specified in the ROD. The contractor shall ensure that the PRP LTRA and associated deliverables are consistent with the settlement agreement, the RODs, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), this SOW, and all other guidance used by EPA in conducting an LTRA (Attachment 2). The contractor shall review PRP submittals related to the remedy and O&M of the remedy (see "Review PRP Plans"), perform needed site visits, and generate a technical memorandum of documenting its findings.

LTRA oversight work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Administrative Record, Technical Meeting Support, Reuse Planning, Construction Support, Subcontractor Procurement and Support Activities, and Review PRP Plans.

3.3.6 Operation and Maintenance (O&M) Oversight

The purposes of O&M oversight work ordering documents are to: (1) ensure that the O&M remains protective of human health and the environment, compliant with ARARs, is performing as designed; and, (2) verify that PRP or State O&M activities are conducted in accordance with the Settlement Agreement/Superfund State Contract and the O&M Plan. This section sets forth the framework and requirements for O&M oversight.

The contractor shall assist in the review of documents related to the oversight of the PRP/State's O&M activities. Typical documents include, but are not limited to: O&M plans, settlement agreements/Superfund State contracts, inspection reports, O&M reports, optimization studies, trend analyses, proposals to modify operation or remedy, and proposals to terminate O&M. The contractor may be required to conduct site visits and inspections to observe and document PRP/State activities. During site visits, the contractor shall observe and document if the PRP/State has complied with all applicable laws, regulations, requirements, and met all performance standards specified in the settlement agreement/Superfund State Contract.

The contractor shall ensure that the PRP O&M and associated deliverables are consistent with applicable settlement agreement/ Superfund State Contract, RODs, the *Remedial Design/Remedial Action (RD/RA) Handbook* (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), other guidance used by EPA in conducting an oversight, and this SOW.

Expected outcomes and deliverables will be defined in individual work order document. EPA will review deliverables to assess the likelihood that the O&M will achieve its remediation goals and that its performance and operations requirements have been met.

O&M oversight work ordering documents may also include, but are not limited to, the following tasks under common elements: Community Involvement, Pollution Liability Insurance, Sampling, Sample Analysis, Analytical Support and Data Validation, Data Evaluation, Administrative Record, Technical Meeting Support, Reuse Planning, Construction Support, Subcontractor Procurement and Support Activities, and Review PRP Plans.

3.3.7 Post Construction RA Oversight [No model SOW]

Verify PRP work is conducted in accordance with the Settlement Agreement (a consent decree or an unilateral administrative order) statement of work. Incorporate EPA approved PRP initial and post construction remedial designs that address Five Year Review remedy follow up recommendations.

Expected outcome(s):

1. Comments on PRP Submittals
2. Oversight/field inspection of PRP construction operations

3.3.8 Negotiation Support

[Fill in here]

3.4 Common WBS Elements

3.4.1 Subcontractor Procurement and Support Activities

3.4.1.1 Subcontractor Procurement

The contractor shall solicit, evaluate, select, and award the necessary subcontract(s) to implement a work ordering document under this task. The contractor must adhere to Federal Acquisition Regulation (FAR), EPA Acquisition Regulation (EPAAR), and contract specific subcontracting requirements in procuring subcontractor(s). For fund-lead RD work ordering documents, the contractor shall only solicit the procurement, evaluate offers received, and inform the EPA Contracting Officer of the best qualified/cost effective offer.

- Pre-bid (Pre-solicitation) Activities
  - Preparation, duplication and distribution of contract documents
  - Issuing addenda
  - Holding Pre-bid (pre-solicitation) meetings
  - Resolution of bidder (offeror) inquiries
  - Holding On-site visits
  - Re-advertise/Re-solicit bids/offers and repackage documents if necessary. [NOTE: All costs associated with the re-advertisement/re-solicitation of subcontract(s) shall be paid by the Government, but shall bear no additional fee.]

- Pre-Award/Award Activities.
  - Receipt of bids (offers).
  - Determination of responsive, responsible bidders (offerors)
  - Bid (offer) tabulation
  - Bid (offer) analysis
  - Receipt of Follow-up Items from Responsible Bidders
  - Review of Equal Employment Opportunities (EEO), Minority Business Entrepreneurs (MBE) requirements, and Small, Disadvantaged Business Subcontracting Plans. Perform reference checks.
  - Request consent from EPA.
  - Award subcontract and issue notice of award.

- Post-Award Activities.
  - Attend post award meetings/preconstruction conference.
  - Review permits, insurance, bonds, certificates, and documentation required by the specifications.
  - Review and approve subcontractor's schedule
  - Review and approve subcontractor's measurement and payment schedule.
  - Review subcontractor submittals.
  - Review revisions/addenda of RA subcontractor submittals.

3.4.1.2 Subcontractor Management

The contractor shall administer the necessary subcontracts to implement a work ordering document. The contractor shall institute procedures, monitor progress, and maintain systems and

records to ensure that work proceeds according to requirements specified in the contract documents. The contractor shall conduct the following activities:

- Provide Financial Management - this includes but is not limited to: weekly and monthly cost tracking, the review and approval of invoices, review and approval of subcontract modifications, review and adjustment of subcontracts to accommodate work ordering document amendments, and maintain a code of accounts and/or WBS for cost/schedule reporting purposes. Analyze progress payments and make recommendations including retaining and deviation from projected rates of expenditure.

- Monitor subcontractor compliance with the Davis-Bacon Act and related requirements.

- Provide engineering support including: review of field logs, attending periodic meetings, and providing supplemental support for field change requests, value engineering change and system optimization proposals, non-conformance reports issued by resident engineer, and re-design activities.

- The contractor shall review, approve, and monitor the subcontractor's QA/QC program and conduct audits, as needed

3.4.2 Community Involvement

The contractor shall provide community involvement support to EPA in accordance with the NCP, 40 CFR Part 300 and the Community Relations in Superfund - A Handbook, (U.S. EPA, Office of Emergency and Remedial Response, OSWER Directive No. 9230.0-3C, January 1992). Number of meetings, meeting length, and required contractor personnel will be will be defined in individual work order document.

3.4.3 Review PRP Plans

The contractor shall review and provide comments on PRP documents including, but not limited to PRP: HASP, QAPP, FSP, and DMP, Basis of Design, and design criteria reports. The DMP outlines the procedures for storing, handling, accessing, and securing the data collected during the sampling event.

For oversight work ordering documents, the contractor shall review and provide comments on all documents developed or modified by the PRP during oversight implementation. The contractor shall perform a technical review and generate comments in the form of a technical memorandum. All final decisions regarding submittals by PRPs shall remain the sole responsibility of EPA. The contractor shall consider the following factors during the review of documents:

- Technical requirements of the ROD, CD with SOW, and ARARs.
- Standard professional engineering practices.
- Applicable statutes, EPA policies, directives, and regulations.
- Spot checking design calculations to assess accuracy and quality of design activities and conformance with results of field data and treatability studies.

- Examination of planning and construction schedules for meeting project completion goals.
- Examination of proposed construction schedule for meeting project completion goals.
- Operability, constructability, and environmental compliance reviews.

The contractor shall review and provide comments on the following documents and the PRP's response to comments if so directed:

- Work plans.
- Basis of design and design criteria reports.
- List of design submittals and design packages (Preliminary, Pre-Final, and Final). [Does this make sense?]
- Site Management Plan for Remedial Construction.
- Removal Action Work Plan
- List of Submittals by PRP
- O&M manual.
- As-built drawings.
- PRP Removal Action Report.
- PRP Subcontract Award Documents
- Inspection and O&M reports.
- Optimization studies and trend analyses.
- Proposals to modify operation or remedy.
- Proposals to terminate PRP LTRA oversight or O&M.

3.4.4 Pollution Liability Insurance

If the contractor plans to bill insurance premiums as a direct charge to the work ordering document and there is no contract-wide Pollution Liability Insurance, the contractor shall prepare and submit costs to the Contracting Officer for approval for work ordering document-specific Pollution Liability Insurance. (NOTE: The contractor shall track and report all costs associated with this subtask separately and in accordance with the Reports of Work, Attachment B, of this contract.)

3.4.5 Sampling

The purpose of this task is for the contractor to collect environmental samples and information required to support the work ordering document. The planning for this task is accomplished in "Work Planning and Support," which results in the plans required to collect the field data. Data acquisition starts with EPA's approval of the FSP and QAPP developed in "Work Planning and Support" and ends with the demobilization of field personnel and equipment from the site. This task also includes sample collection during construction to verify that final cleanup levels or standards, as specified in an EPA decision document, have been achieved. This task may also include oversight of regular confirmatory testing of materials used during construction to determine if they are consistent with the requirements of the construction contract documents (i.e., soils testing, materials testing, chemical or biochemical testing of water).

3.4.5.1 Fund Lead/Cleanup Validation Sampling

The contractor shall perform the following field activities or combination of activities for data acquisition in accordance with the EPA-approved FSP.

- Mobilization. The contractor shall conduct:
  - Field Screening
  - Identification of Field Support Equipment, Supplies, and Facilities
  - Site Set up. Activities may include: installation of utilities, construction of a staging area, set up a field laboratory, clearing of the site to facilitate the transportation of equipment and vehicles.
- Perform Site Reconnaissance. The contractor shall conduct site surveys including property, boundary, well inventory, utility rights-of-way, and topographic information.
- Conduct Geological Investigations (Soils and Sediments). The contractor shall conduct geological investigations of surface and subsurface soils and sediments and test pits.
- Conduct Air Investigations. The contractor shall conduct air investigations.
- Conduct Hydrogeological Investigations (Ground Water and Surface Water). The contractor shall conduct hydrogeological investigations of ground water including the installation and development of wells, downhole geophysics and execution of pump tests and groundwater/surface elevation measurements.
- Conduct Waste Investigation
- Conduct Geophysical Investigation. The contractor shall conduct geophysical investigations including Surface Geophysical Activity, Magnetometer, Electronmagnetics, Ground-Penetrating Radar, Seismic Refraction, Resistivity, Site Meteorology, Cone Penetrometer Survey, Remote Sensor Survey and Radiological Investigation
- Conduct Ecological Investigation. The contractor shall conduct ecological investigations.
  - Wetland and habitat delineation/function and value assessment
  - Wildlife observations
  - Benthic reconnaissance/community characterization
  - Identification of endangered species and others of special concern
  - Bioassays
  - Biota sampling/population studies
- Collect Contaminated Building Samples. The contractor shall collect contaminated building samples.
- Properly Dispose of Investigation-Derived Waste. Characterize and dispose of investigation-derived wastes in accordance with local, State, and Federal regulations as specified in the FSP (see the Fact Sheet, Guide to Management of Investigation-Derived Wastes, 9345.3-03FS (January 1992)).
- Demobilization. Activities may include removal of equipment and restoration of site property.

For work ordering documents that include oversight or implementation of a cleanup, the contractor shall prepare a Cleanup Status Report periodically, as specified in that work ordering document, that describes the progress of the cleanup based upon sampling and analytical results.

3.4.5.2 PRP Oversight Sampling

For oversight work ordering documents, the contractor may be tasked to collect split samples during field investigation or cleanup (see "Fund Lead"). The purpose of the sampling is to compare results with PRP data. The planning for this task is accomplished in "Work Planning and Support," whereby all of the necessary plans required to collect samples are determined and arranged. The contractor shall acquire all necessary equipment, supplies, and personnel to set up on-site operations for oversight of the confirmatory sampling and analyses.

- The contractor shall collect split samples for analysis during oversight. Split sampling during oversight is required for comparison with the PRP's contractor data. The contractor shall use the approved PRP schedule to determining the contractor's need to field oversight; however, if the PRP schedule has not been approved prior to development of the contractor's work plan, EPA will provide an estimate of weeks needed to conduct field work for cost estimation purposes. Additionally, for each work ordering document, EPA will provide the following for cost estimation purposes: frequency of sampling (e.g. quarterly, semi-annually, annual, etc.), hours per week expected to be worked, and the estimated number of contractor personnel necessary for conducting the oversight and splitting of the PRP samples.

- The contractor shall provide verbal communications to the COR at least once per week during the PRP's field work.

- The contractor shall provide technical oversight of PRP activities to ensure the field investigation takes place in accordance with EPA accepted plans and specification, e.g . Quality Assurance and Health & Safety Plans. The amount of oversight will be dependent upon the type and complexity of the work ordering document and is at the discretion of the EPA COR. The contractor shall report any non-conformance with the planning documents to the COR.

- The contractor shall prepare technical oversight reports and /or sampling reports at completion of split sampling events or field oversight.

    - Periodic Reports. The contractor shall provide oversight letter reports at a frequency specified in the work ordering document (e.g. once every 3 weeks during the duration of the split sampling). The contractor's oversight reports shall consist of a short summary of significant field events during the period, any photographs taken during the period, and a copy of all field logs. Submittal of the periodic oversight report shall be submitted on a schedule specified in the work ordering document.

    - Final Summary Report. The contractor shall provide a summary oversight report after the end of all field activities. The schedule for submittal and contents shall be specified in the work ordering document.

3.4.6 Sample Analysis

This task includes only the subcontract cost associated with analysis of the samples where it becomes necessary for the contractor to procure analytical services. It is Regional policy for the Agency to use analytical services provided by the government whenever possible before requiring the contractor to procure analytical support. Such services include the Contract Laboratory Program (CLP), the Regional Environmental Services Division (ESD), the Environmental Response Team (ERT) laboratory, or regionally procured laboratories. Efforts associated with sample collection is included in "Sampling" and efforts associated with shipment and validation and with data evaluation are included in "Analytical Support and Data Validation."

- Air and Gas Samples
- Ground-Water Samples
- Surface-Water Samples
- Soil and Sediment Samples
- Waste
- Biota Samples
- Bioassay Samples
- Bioaccumulation Samples

3.4.7 Analytical Support and Data Validation

This task provides for analytical support and data validation when sample collection is required. During the completion of this task, the contractor may be asked to perform all or a specified subset of the following activities:

- Prepare and ship the environmental samples in accordance with the work ordering document-specific FSP and QAPP.

- Coordinate with the EPA Sample Management Office (SMO), the Regional Sample Control Coordinator (RSCC), and/or the Environmental Services Division (ESD) regarding analytical support, data validation, and quality assurance issues.

- Develop data quality objectives (DQO) for each sampling event; these DQOs shall be the determinative factor for assessing the success or failure of the sampling.

- Implement the EPA-approved laboratory quality assurance program that provides oversight of in-house and subcontracted laboratories through periodic performance evaluation sample analyses and/or on-site audits of operations and has a system of corrective actions.

- Provide sample management including chain of custody procedures, information management, sample retention, and 10-year data storage.

- Perform data validation, when necessary. Data validation is the process by which the quality of the data, the defensibility of the data, and the chain of custody are verified.

- Review the data analysis results against the validation criteria or intended purpose.

- Develop a Data Validation Report and provide it to the COR after all the data has been validated

3.4.8 Data Evaluation

The contractor shall compile analytical and field data. The contractor shall provide data in format that is compatible with Regional or National electronic data management network. Typical activities include, but are not limited to, the following:

- Data usability evaluation and field quality QA/QC.

- Data Reduction and Tabulation.

- Data trend evaluation and/or modeling and submission of technical memorandum.

- If evaluating split sampling data, the contractor shall prepare and submit a report which: summarizes results, discusses analytical results, comparison and discussion of discrepancies between EPA data and PRP data.

- Perform any modeling necessary to evaluate the data.

3.4.9 Risk Assessment

The Risk Assessment will determine whether site contaminants pose a current or potential risk to human health and the environment in the absence of any remedial action. Four documents are typically submitted under this task: Screening Human Health Risk Assessment, Screening Ecological Risk Assessment, Human Health Risk Assessment and the Ecological Risk Assessment. This task may also include review and comment on PRP Risk Assessment submittals to ensure that PRP submittals are prepared in accordance with current Superfund Human Health and Ecological Risk Assessment guidance.

- The contractor shall perform a Screening Level Human Health Risk Assessment (SLHHRA) and Ecological Risk Assessment (SLERA) in accordance with current Superfund ecological and human health risk assessment guidance (Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments [EPA/540 R 97 006], and The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments, ECO Update, [EPA 540/F-01/014]).

- If EPA determines a full blown HHRA and/or ERA are necessary, the contractor shall prepare a draft and final HHRA Report and ERA Report that addresses the following:

    - Hazard Identification (sources). The contractor shall review available information on the hazardous substances present at the site and identify the major

contaminants of concern.

- Dose-Response Assessment. Contaminants of concern should be selected based on their intrinsic toxicological properties.
- Prepare Conceptual Exposure/Pathway Analysis. Critical exposure pathways (e.g., drinking water) shall be identified and analyzed. The proximity of contaminants to exposure pathways and their potential to migrate into critical exposure pathways shall be assessed.
- Characterization of Site and Potential Receptors. The contractor shall identify and characterize human populations in the exposure pathways.
- Exposure Assessment. The exposure assessment will identify the magnitude of actual or potential human exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, the contractor shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the site.
- Risk Characterization. During risk characterization, chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, shall be compared to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the site are affecting or could potentially affect human health.
- Identification of Limitations/Uncertainties. The contractor shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
- Site Conceptual Model. Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the contractor shall develop a conceptual model of the site.
- Hazard Identification (sources). The contractor shall determine whether the HHRA

3.4.10 Treatability Study/Pilot Testing

The purpose of the treatability study is to provide sizing and operations criteria that are used in design drawings and specifications and in the engineer's cost estimate to optimize the remedy design. The task begins with the preparation of a Treatability Study Work Plan that provides the technical specifics of the study and ends with the contractor's submittal of the Treatability Study Evaluation Report. In some instances, information on technology performance can be found in the current literature and should be reviewed before the Treatability Study is designed.

The three levels of treatability studies are laboratory screening, bench-scale testing, and pilot-scale testing. The laboratory screening is used to establish the validity of a technology to treat waste and is normally conducted during the FS. Bench-scale testing is used to identify the performance of the technology specific to a type of waste for an operable unit. Often bench-scale tests are conducted during the FS. Pilot-scale testing is used to provide quantitative performance, cost, and design information for remediation and is typically performed during RD

(see the Fact Sheet, Guide for Conducting Treatability Studies Under CERCLA, November, 1993).

In accordance with the design management schedule established in the work plan, the contractor shall perform the following activities:

- Literature Search. The contractor shall conduct a literature search.
- Develop Treatability and Pilot Work Plan. The contractor shall prepare the Treatability Study Work Plan and submit it to the COR for review and approval. The Treatability Study Work Plan shall describe the technology to be tested, test objectives, test equipment or systems, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety procedures, and residual waste management. The DQOs for the treatability study shall also be documented.

  The Treatability Study Work Plan shall also describe pilot plant installation and startup, pilot plant operation and maintenance procedures, and operating conditions to be tested. If testing is to be performed off-site, permitting requirements shall be addressed. A schedule for performing the treatability study shall be included with specific dates for each task and subtask, including EPA. Additionally, the work plan shall explain the proposed final treatment and disposal of all material generated by the proposed treatment system.

  The contractor shall conduct the Treatability Studies, as necessary, to determine whether the remediation technology or vendor of the technology can achieve the performance standards. Treatability studies shall be conducted as described in the EPA-approved Final Treatability Study Work Plan. For budgeting purposes, the contract shall initially estimate 0 LOE and $0 for conducting the treatability studies/pilot tests. If after review of the Treatability Study Work Plan, the Agency determines that treatability studies or pilot testing is necessary, the contractor shall submit a work plan revision in accordance with "Work Planning and Support" which incorporates the contractor's estimate to conduct the Treatability Studies or Pilot Testing. The contractor shall not initiate the Treatability Study or Pilot Testing until the revised work plan is approved by the Contracting Officer.

The following activities may be required during the performance of the treatability study and pilot testing:

- Bench Test. The contractor shall conduct a bench test.
  - Procure Test Facility and Equipment. The contractor shall procure test facility and equipment, including the procurement procedures necessary to acquire the vendor, equipment, or facility to execute the tests.
  - Provide Vendor and Analytical Service. The contractor shall provide vendor and analytical services.
  - Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
  - Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
  - Perform Laboratory Analysis. The contractor shall establish a field laboratory to

facilitate fast-turnaround analysis of test samples, or, if necessary, shall procure outside laboratory services to analyze the test samples and evaluate test results.
    - Characterize and Dispose of Residuals. The contractor shall characterize and dispose of residuals.
    - Prepare a Bench Test Report summarizing the results of the test

- Pilot-Scale Test. The contractor shall conduct a pilot-scale test.
    - Procure Test Facility and Equipment. The contractor shall procure test facility and equipment, including the procurement procedures necessary to acquire the vendor, equipment, or facility to execute the tests.
    - Provide Vendor and Analytical Services. The contractor shall provide vendor and analytical services.
    - Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
    - Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
    - Perform Laboratory Analysis. The contractor shall establish a field laboratory to facilitate fast-turnaround analysis of test samples, or, if necessary, shall procure outside laboratory services to analyze the test samples and evaluate test results.
    - Characterize and Dispose of Residuals. The contractor shall characterize and dispose of residuals.
    - Prepare a Pilot Test Report summarizing the results of the test

- Field Test. The contractor shall conduct a field test.
    - Procure Test Facility and Equipment. The contractor shall procure test facility and equipment, including the procurement procedures necessary to acquire the vendor, equipment, or facility to execute the tests.
    - Provide Vendor and Analytical Services. The contractor shall provide vendor and analytical services.
    - Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
    - Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
    - Perform Laboratory Analysis. The contractor shall establish a field laboratory to facilitate fast-turnaround analysis of test samples, or, if necessary, shall procure outside laboratory services to analyze the test samples and evaluate test results.
    - Characterize and Dispose of Residuals. The contractor shall characterize and dispose of residuals.
    - Prepare a Field Test Report summarizing the results of the test

- Develop Treatability Study Report. On a schedule specified in the work ordering document, the contractor shall prepare and submit the Treatability Study Evaluation Report that describes the performance of the technology. The study results shall clearly indicate the performance of the technology or vendor compared with the performance standards established for the site. The report shall also evaluate the treatment technology's effectiveness, implementability, cost, and final results compared with the predicted results. The report shall also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

For oversight work ordering documents, the contractor shall review and comment on PRP plans, split sample, and oversee the PRP completion of the treatability study or pilot. In addition, for oversight work ordering documents, the contractor shall prepare the following reports: bench test report, pilot-scale test, field test, periodic test report, and final test summary report.

3.4.11 Construction Support

The purpose of this task is to provide construction support during the implementation of a Fund-lead RA, LTRA, removal actions, treatability study, pilot test, including system start-up and diagnostic testing, operation and maintenance, and performance monitoring. Actual construction and implementation may be performed by another contractor. This section sets forth the framework and requirements for the construction support effort.

The contractor shall observe and document that the construction contractor has or has not complied with all applicable laws, regulations, and requirements, and has or has not met all performance standards specified in the construction contract document(s). The contractor shall ensure that construction support activities and associated deliverables required under a work ordering document are consistent with the construction contract, the RODs, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other applicable guidance used by EPA.

3.4.11.1 Periodic Construction Inspection

The contractor shall provide field supervision associated with the monitoring and documentation of the work being done at the site in accordance with the design and all subcontract(s) documents (e.g., drawings, specifications and plans) and ensure the implementation of the action at the site is protective of human health and the environment. The contractor shall conduct the following activities:

- Conduct and/or attend progress meetings. At minimum contractor shall inspect the construction activities at least once a month, and participate in construction progress meetings in person or by phone biweekly.
- Maintain field logs and daily diaries.
- Provide advice on what is intended by subcontract documents.
- Prepare sketches to reflect field conditions as needed.
- Prepare reports on inspections.
- Make final inspection and prepare the RA Report.
- Monitor, update, and report construction progress.
- Review and recommend time extensions.
- Coordinate with Home Office/Management Support.
- Conduct regular Davis-Bacon Act interviews on-site. (The COR shall be informed regarding scheduling of such interviews so that he/she can be present on site.)
- Review and recommend action on value engineering change proposals.
- Review and make recommendations for changes.
- Provide advice on need and cost of proposed change orders.

- Provide assistance in prevention and resolution of subcontractor claims.
- Recommend approval or rejection of construction schedules.
- Perform field testing, recommending action on health and safety considerations (e.g., site safety plan), monitoring quality control procedures.
- Review all construction invoices and provide recommendations for payment to the COR/PO within 5 days of receipt
- Perform oversight of contractor field testing, recommending action on health and safety considerations (e.g., site safety plan), monitoring quality control procedures.
- Check construction drawings submitted by contractor or their construction subcontractors for compliance with design concept.

3.4.11.2 Construction Implementation (Sub-pool Activities)

The purpose of this task is to provide the contractor with a structure for recording the activities performed and costs incurred by the constructor and any subcontractors during construction. A funding reserve is allocated in this task by the government to account for unforeseen site conditions and associated adjustments (i.e., change orders); however, the contractor shall budget $0 for this reserve in the work plan.

- Constructor Subcontract Cost. The contractor shall monitor and track the costs associated with the constructor's implementation of the remedy. It is anticipated that subcontracts will be issued for excavation, construction, survey work, drilling, analytical services
- Constructor Reserve (15% of Constructor Subcontract). The contractor shall monitor and tract the reserve in relation to any approved change orders and notify the COR when 75% of the reserve has been expended. The contractor shall summarize the change order approval status vs. the reserve invoiced in the monthly progress report.

3.4.11.3 Project Performance

The contractor shall perform all activities necessary to ensure the RA/LTRA implemented at the site is in accordance with the design and O&M plan and all subcontractor documents. Typical activities include, but are not limited to, the following:

- Conducting pre start-up check out
- Reviewing O&M manual.
- Describing and analyzing potential operating problems.
- Supporting training operation and maintenance of O&M staff, including State personnel.
- Advising on conformity to applicable performance and operations requirements.
- Determining cause of failure and developing corrective action report.
- Reviewing record development, laboratory procedures, process system, safety and emergency systems, and warranty files.
- Evaluating equipment system performance, witness performance tests, gathering and testing samples.
- For the three-month start-up period, operating and providing appropriate upkeep and

maintenance of the installed response action construction items including the facilities, equipment, and appropriate engineered controls such as fencing for the site in accordance with the O&M Manual and SAP.

- Operating and providing appropriate upkeep and maintenance of installed response action construction items including the facilities, equipment, and appropriate engineered controls such as fencing for the site in accordance with the O&M Manual and Sampling and Analysis Plan (SAP) for a time period as specified in the work ordering document.
- Updating the O&M Manual, as appropriate.
- Conducting trend analyses and optimization studies to improve system efficiency and reduce operation cost of RA/LTRA.

3.4.11.4 Project Completion and Closeout

The contractor shall ascertain project completion and closeout of the subcontract(s) associated with the construction at the site. These tasks may include oversight of a subcontractor completing the following activities:

- Demobilization of subcontractors.
- Pre-final/Final Activities. These include: consolidation of project needs, pre-final/final inspection and certification, direct final project demobilization and make lockout inspection.
- Pre-final Inspection. The contractor shall conduct the pre-final inspection with the constructor and develop a punch list of deficiencies. The contractor shall prepare and submit a pre-final inspection report, which includes the list of deficiencies, completion dates for outstanding items, and the date for a final inspection.
- Final Payment/Punch List/As-built Resolution. Resolution/certification that project is complete according to plans and specifications. May involve trial periods, shakedowns, test or trial runs/burns.
- Final Inspection. The contractor shall arrange for the final inspection and determine if all terms of the contract have been satisfied.
- Submission of as-built drawings.
- Updating the O&M Manual.
- Training for State and/or contractor employees who will conduct further O&M as required.
- Assisting in transfer of project to the State upon the determination that the project is Operational and Functional (O&F).
- Removal of Temporary facilities. The contractor shall dismantle, pack up, and move off-site any temporary facilities (i.e., trailers) or equipment used during the course of the construction project.
- Site Restoration. At the direction of the COR, the contractor shall conduct reasonable activities that restore the physical appearance of the site (i.e., road restoration, fence removal, limited landscaping).
- Termination of Engineering Support Activities.
- Trial Period Oversight. The contractor be responsible for the operation
- Summarize the completion of these activities in a memo to the COR.

3.4.12 Administrative Record

Produce the Administrative Record. Typical activities include, but are not limited to, the following:

- Attending meetings with EPA COR, Site Attorney, and Administrative Record Coordinator.
- Providing assistance in compiling documents comprising of the Administrative Record File in accordance with EPA Regional guidance or other procedures as specified.
- Preparing Draft Administrative Record Index in accordance with EPA Regional guidance or other procedures as specified.
- Preparing Administrative Record Index.
- Coordinating duplication of Administrative Record.
- Assembling Administrative Record and Index.

3.4.13 Technical Meeting Support

The contractor shall attend and document technical meetings with EPA, the PRPs, the PRP contractor, and the State agency. Location, number of meetings, meeting length, and required contractor personnel will be will be defined in individual work order document.

3.4.14 Reuse Planning

The contractor shall assist in the review and evaluation of reuse plans and redevelopment plans submitted to ensure long-term protectiveness of the remedy.