

United States
Environmental Protection
Agency

Office of Solid Waste
and Emergency Response
Washington, DC 20460

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Superfund

Response Action Contract (RAC) Users' Guide – Appendix G: Model Statements of Work



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(RAC) Users' Guide

Appendix G: Model Statements of Work

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Foreword

This is Appendix G to *RAC Users' Guide, Volume 1: Reference Guide*. This appendix contains model statements of work for selected response activities.

Inquiries and comments concerning this guide should be made to:

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Additional copies of this document (PB95-963414) may be obtained from the following source:

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Introduction

This appendix contains model statements of work (SOWs) for several types of program support and site-specific Response Action Contract (RAC) work assignments. These SOWs were developed by EPA Headquarters and Regional personnel. All model SOWs conform with the RAC SOW work breakdown structure. The model SOWs, however, go to a greater level of detail in identifying and describing subtasks. If there is a conflict between the model SOWs and the contract SOW, the contract SOW takes precedence.

The model SOWs are provided in hard copy and electronic versions. The attached diskette contains model SOW files in WordPerfect 5.1 format. The file name for each SOW is identified in the following index. SOWs are listed in the order in which they appear in the appendix.

Index to Model Statement of Work Diskette

Model Statement of Work Title	File Name
<i>Model Program Support Statements of Work</i>	
Model Statement of Work for Non-Site-Specific Equipment	To be added
Model Statement of Work for Ongoing Administrative Support	ADMIN.SOW
Model Statement of Work for Ongoing Technical Support	TECH.SOW
<i>Model Site-Specific Statements of Work</i>	
Model Statement of Work for Remedial Investigation/Feasibility Study	RI-FS.SOW
Model Statement of Work for Remedial Investigation/Feasibility Study Oversight	To be added
Model Statement of Work for Remedial Design	RD.SOW
Model Statement of Work for Remedial Design Oversight	RD_OVER.SOW
Model Statement of Work for Remedial Action	RA.SOW
Model Statement of Work for Remedial Action Oversight	RA_OVER.SOW
Model Statement of Work for Non-Time Critical Removal Support	To be added
Model Statement of Work for Non-Time Critical Removal Action	To be added

The model site-specific SOWs in this appendix include "comment boxes" throughout the text. The comment boxes contain explanatory instructions and information that is helpful to the Work Assignment Manager in preparing the work assignment. The comment boxes are shown in the hard copy SOW included in this appendix. The comment boxes appear on-screen when using the electronic file, however, they do not print out when printing SOWs from the electronic file.

MODEL STATEMENT OF WORK FOR NON-SITE-SPECIFIC EQUIPMENT

To be added at a later date.

Administrative Support SOW

MODEL STATEMENT OF WORK FOR ONGOING ADMINISTRATIVE SUPPORT

The contractor shall furnish the personnel, services, materials, and property necessary to implement the following non-site-specific ongoing program support activities under the Region __ Response Action Contract (RAC) number _____-_____-_____:

- Task 1 - Project Planning and Support
- Task 2 - Contract Integrity
- Task 3 - Information Control and Reporting
- Task 4 - Ongoing Administrative Support
- Task 5 - Work Assignment Close Out

The contractor is explicitly prohibited from charging the following items under this program support work assignment:

- self-evaluation of site-specific (non-program support) activities/work assignments;
- preparation of site-specific work assignment progress reports;
- management of subpool subcontractors; and
- regional and other managers' time spent on resolving site issues.

Program support—related travel will be restricted and shall be pre-approved by the government.

The contractor shall provide the following ongoing program support products and services required during the following period: _____ through _____

Task 1 - Project Planning and Support

The contractor shall:

- 1.1 Attend a kick-off or project scoping meeting with EPA to discuss ongoing program support of the contract; submit a draft ongoing program support workplan, cost estimate, and schedule for EPA review and comment; prepare for and attend a negotiations meeting with EPA on the draft workplan; and provide a final work plan (including revised budget, schedule and scope of services to be provided) for ongoing program support activities.
- 1.2 Submit revised cost estimates and/or workplans to EPA if warranted.
- 1.3 Perform project management activities, including:
 - Attend a monthly progress report meeting or participate in a monthly progress report conference call with the EPA Project Officer (PO) and Contracting Officer (CO).
 - Establish and maintain a work assignment file pertaining to this work assignment.
 - Prepare technical and cost information pertaining to this work assignment for inclusion in the monthly progress reports and monthly invoice
 - Monitor and track work assignment progress

Task 2 - Contract Integrity

The contractor shall:

- 2.1 Provide a work assignment proposal to the EPA PO for new work assignments which shall include:
 - performing a COI disclosure
 - proposed technical approach
 - proposed work assignment staffing
 - site-related experience
 - corporate experience related to contamination encountered at the site
- 2.2 Perform necessary revisions and updates of the following standard operating procedures:
 - contract-wide quality management plan (QMP)
 - health and safety plan (HASP)
 - quality assurance project plan (QAPP)
 - conflict of interest (COI) plan and procedures
 - equipment management plan
 - confidential business information (CBI) management and control systems
 - analytical services delivery plan
- 2.3 Notify the EPA CO and PO of any proposed changes in key personnel and, upon written approval of the EPA CO, modify the contract management plan to the approved reflect organizational, managerial, or procedural changes;
- 2.4 Accommodate specified oversight and/or review mechanisms that EPA may require including:
 - Annual allocation
 - Complete a master allocation schedule
 - Identify which non-site activity costs should be allocated to sites and categorize these costs
 - Identify costs charges to sites with site spill identifiers (SSIDs) and without SSIDs
 - Redistribute costs for sites which initially did not have SSIDs but which were subsequently assigned an EPA SSID
 - Provide EPA with an invoice listing paid costs within 120 days after the end of the fiscal year
 - Work with EPA to reconcile the paid invoice amounts provided by the contractor records against EPA records
 - Submit two copies of the draft Annual Allocation Report to the EPA Superfund Accounting Branch (SAB) within 60 days after the invoice amounts and notification to proceed are given by SAB
 - Submit two copies of the final Annual Allocation Report to the SAB within 30 days after written notice from EPA
 - Submit a Summary Allocation Report on EPA-approved electronic media

- Financial monitoring reviews (FMRs)
 - Attend and participate in an entrance conference with the EPA CO and/or representatives of the EPA Financial Analysis Branch (FAB)
 - Provide contract-specific documents and records and address specific questions as requested by the EPA CO and/or the EPA FAB in accordance with FAR 52.215-1 (Examination of Records)
 - Respond formally to and address issues raised by the FMR
 - Annual closeout
 - Submit an annual closeout claim to the EPA CO within 150 days of the end of the Federal fiscal year
 - Submit a debit or credit voucher for any variances between claimed and negotiated costs
 - Submit a Release Statement to the EPA CO after the negotiation of direct and indirect costs is completed
 - Indirect rate audits/adjustments
 - After completion of the annual closeout Release Statement, evaluate contractor provisional indirect rates and submit an Indirect Rate Agreement to the CO
 - Upon receipt of the signed Indirect Rate Agreement, provide an invoice reflecting the additional charges or credits owed the government for the period of the rate charge
- 2.5 Participate in and respond to audits and reviews performed by the EPA Inspector General, the General Accounting Office and other oversight organizations and interested parties.
- 2.6 Perform internal management system audits (MSAs) or internal quality assurance reviews, prepare and respond to internal corrective action reports, and implement recommended corrective actions for contract-specific SOPs in response to the internal MSAs or reviews.

Task 3 - Information Control and Reporting

This task includes work efforts required to collect, compile, and report contract information. Specifically, this task encompasses preparation and distribution of non-site-specific reports and portions of reports required in the contract Reports of Work, as follows:

- 3.1 Prepare summary (contract-level) portions of the monthly progress reports, assemble individual work assignment reports portions of the monthly progress reports, and compile the overall monthly progress reports for each month in the work assignment period of performance, as specified below:
- RAC Contract Management Indicator Report (SUM-1)
 - RAC Work Assignment Cost Variance Report (WA-1)
 - RAC Work Assignment Invoiced Costs vs. Incurred Costs Report (WA-2)
 - RAC Subpool Report (WA-3)
 - RAC Contract Cost Variance Report (CFS-1)
 - RAC Contract Invoiced vs. Incurred Cost Report (CFS-2)
 - RAC Contract Modification Log (CFS-3)
 - RAC Contract Funding Status - Dollars Report (CFS-4)
 - RAC Contract Funding Status - LOE Report (CFS-5)
 - RAC Contract Subpool Report - Contract Level (CFS-6)

- RAC Contract Invoice Backup Report - Contract Summary (CIB-1)
- RAC Contract Invoice Backup Report - Work Assignment Summary (CIB-2)
- RAC Contract Invoice Backup Report - Work Assignment Travel Details (CIB-3)
- RAC Contract Invoice Backup Report - Work Assignment ODCs (CIB-4)
- RAC Contract Invoice Backup Report - Work Assignment Subpool Detail (CIB-5)
- RAC Contract Invoice Backup Report - Accounts/DCNs to be Charged (CIB-6)

NOTE: Preparation of site-specific work assignment reports shall be charged to the appropriate site-specific work assignments under the "project planning and support" task. Only the *assembly* of the site-specific work assignment reports into the overall progress report shall be chargeable to this work assignment.

3.2 Prepare and distribute the following non-CLP analytical services reports of work on a monthly basis:

- Non-CLP Tracking Form
- ANSETTS Database Updates

3.3 Prepare and distribute national reports each fiscal year quarter, as follows:

- RAC Contract National Program Support Summary (NAT-1)
- RAC Contract National Work Area Costs Report (NAT-2)
- RAC Contract National Capacity Report (NAT-3)

Task 4 - Ongoing Administrative Support

The contractor shall:

- 4.1 Coordinate cross-cutting and multi-work assignment issue resolution.
- 4.2 Schedule prime and team subcontract human resources required to support contract efforts.
- 4.3 Monitor the overall quality and performance of ongoing technical work assignments.
- 4.4 Perform general (non-work assignment specific) accounts payable function for all invoices and charges under the contract.
- 4.5 Attend meetings convened by EPA (such as the annual program managers meeting with the EPA Waste Management Division Director).
- 4.6 Perform special assignments requested by either the EPA PO or CO for EPA which are required to support the RAC.

Task 5 - Work Assignment Close Out

The contractor shall:

- 5.1 Obtain copies of corporate and team subcontract mobilization work assignment files from temporary file storage and place them in appropriate order for conversion to long-term data storage in conformance with the following requirements:

"Revised Draft for Records Management Standards for Superfund Contractors and Grantees,"
Office of Solid Waste and Emergency Response, TES XIII Contract 68-W1-0007, Work
Assignment C11215, June 20, 1994 (or most recent revision).

- 5.2 Transfer these data to microfiche, microfilm, or other EPA-approved data storage technology.
- 5.3 Prepare a Work Assignment Closeout Report (WACR) in accordance with Region __
procedures (dated _____).

Technical Support SOW

MODEL STATEMENT OF WORK FOR ONGOING TECHNICAL SUPPORT

The contractor shall furnish the personnel, services, materials, and property necessary to implement the following non-site-specific ongoing Program Support activities under the Region II Response Action Contract (RAC) number _____-____-_____:

Task 1 - Project Planning and Support

Task 2 - Ongoing Technical Support

Task 3 - Work Assignment Close Out

The contractor is explicitly prohibited from charging the following items under this program support work assignment:

- self-evaluation of site-specific (non-program support) activities/work assignments;
- preparation of site-specific work assignment progress reports;
- management of subpool subcontractors; and
- regional and other managers' time spent on resolving site issues.

Program support-related travel will be restricted and shall be pre-approved by the government.

The contractor shall provide the following ongoing program support products and services required during the following period: _____ through _____.

Task 1 - Project Planning and Support

The contractor shall:

- 1.1 Attend a kick-off or project scoping meeting with EPA to discuss on-going program support of the contract; submit a draft on-going program support workplan, cost estimate, and schedule for EPA review and comment; prepare for and attend a negotiations meeting with EPA on the draft workplan; and provide a final work plan (including revised budget, schedule and scope of services to be provided) for on-going program support activities;
- 1.2 Submit revised cost estimates and/or workplans to EPA if warranted.
- 1.3 Perform project management activities, including:
 - Attend a monthly progress report meeting or participate in a monthly progress report conference call with the EPA Project Officer (PO) and Contracting Officer (CO).
 - Establish and maintain a work assignment file pertaining to this work assignment.
 - Prepare technical and cost information pertaining to this work assignment for inclusion in the monthly progress reports and monthly invoice.
 - Monitor and track work assignment progress.

Task 2 - Ongoing Technical Support

The contractor shall:

- 2.1 Prepare health and safety plans for multiple site activities.
- 2.2 Prepare a contract-wide quality assurance project plan.
- 2.3 Procure and obtain pollution liability insurance (PLI) and bill premiums to this subtask (if the CO approves PLI as a direct cost).
- 2.4 Prepare technical guidance and standard operating procedures for the RAC.
- 2.5 Attend pre-approved training (with specific and prior PO and CO approval) including CLP methods and Hazard Ranking System model.

Task 3 - Work Assignment Close Out

The contractor shall:

- 3.1 Obtain copies of their corporate and team subcontract mobilization work assignment files from temporary file storage and place them in appropriate order for conversion to long-term data storage in conformance with the following requirements:

"Revised Draft for Records Management Standards for Superfund Contractors and Grantees,"
Office of Solid Waste and Emergency Response, TES XIII Contract 68-W1-0007, Work Assignment C11215, June 20, 1994 (or most recent revision).
- 3.2 Transfer these data to microfiche, microfilm, or other EPA-approved data storage technology.
- 3.3 Prepare a Work Assignment Closeout Report (WACR) in accordance with Region ____ procedures (dated ____).

(date)

MODEL STATEMENT OF WORK FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

SITE, _____ COUNTY, _____ STATE

ATTACHMENTS

Attachment 1. Summary of Major Submittals for the Remedial Investigation and Feasibility Study at ____ (Site)	22
Attachment 2. Work Breakdown Structure	25
Attachment 3. Regulation and Guidance Documents	32
Attachment 4. Transmittal of Documents for Acceptance by EPA	34
Attachment 5. Transmittal Register	35

Points for the Work Assignment Manager or Remedial Project Manager (WAM/RPM) to consider in preparing the Statement of Work (SOW) for the Remedial Investigation/Feasibility Study (RI/FS):

The purpose of this SOW is twofold:

1. **To tell the contractor what EPA wants done.** Be as specific as possible in describing what the contractor is required to do. In that way, the contractor will understand the requirements, will write a work plan and budget describing how and at what cost he or she plans to meet those requirements, and ultimately will be responsible for performing to those requirements. Whenever there is an absolute requirement (e.g., prepare the Quality Assurance Project Plan (QAPP) in accordance with QAMS-005/80 (December 29, 1980)), it is best to state it. Add the attachments to the SOW: (1) Summary of Major Submittals for RI/FS at ____ (Site), (2) Work Breakdown Structure, and (3) Transmittal of Documents for Acceptance by EPA.
2. **To give the contractor a work breakdown structure for recording costs.** In this manner, work plan costs and final costs of different RI/FS projects can be compared and analyzed.

Use of a Work Breakdown Structure (WBS)

1. A WBS has been developed for this model work assignment in order for EPA to track the initial and final costs of each element used for preparing future cost estimates and to share these data with other Federal agencies. The WBS is, essentially, the outline for this work assignment and is included as Attachment 2 to the SOW.
2. If an element is not to be used, do not change the numbering system; instead, insert "not used" or "N/A" after the element number after deleting the text for that element.
3. For the items used for a given project, additional descriptions (e.g., type of samples and estimated number) should be added in order for the contractor and WAM/RPM to develop estimated costs on a common basis.

2.0 Introduction

.0.1 Site Description

Provide a brief site description and site history.

.0.2 Purpose

The purpose of this Statement of Work (SOW) is to set forth the requirement for conducting a Remedial Investigation/Feasibility Study (RI/FS) to select a remedy to eliminate, reduce, or control risks to human health and the environment. This SOW is designed to provide the framework for conducting the RI/FS activities at _____ (site). 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 that results in a well-supported Record of Decision (ROD) within _____ months after approval of the Project Management and Work Plans. The estimated completion date for this work assignment is _____.

.0.3 General Requirements

- .0.3.1 The contractor shall conduct the RI/FS in accordance with this SOW and all other relevant guidance used by EPA in conducting an RI/FS. The primary contact for this work assignment is _____, Tel. _____; the secondary contact is _____, Tel. _____.
- .0.3.2 A summary of the major deliverables and a suggested schedule for submittals are attached (Attachment 1). The contractor shall submit the major deliverables using the form Transmittal of Documents for Acceptance by EPA, Attachment 4.

The attachments to this model SOW may be copied and completed for a given RI/FS. Attachment 4 is a form for use by the contractor in the transmittal of documents to EPA, for use as an attachment to the completed SOW. Attachment 5 is a transmittal register log for use by the WAM/RPM in tracking documents submitted by the contractor.

- .0.3.3 Specifically, the RI/FS involves the investigation and study of _____.
- .0.3.4 The contractor shall furnish all necessary and appropriate personnel, materials, and services needed for, or incidental to, performing and completing the RI/FS.
- .0.3.5 A list of primary guidance and reference material is attached (Attachment 3). In all cases, the contractor shall use the most recently issued guidance.
- .0.3.6 The estimated cost of the RI/FS is \$_____.
- .0.3.7 The contractor shall communicate at least weekly with the Work Assignment Manager or Remedial Project Manager (WAM/RPM), either in face-to-face meetings or through conference calls.
- .0.3.8 The contractor shall notify the WAM/RPM when 75 percent of the approved work assignment budget has been expended and when 95 percent has been expended.
- .0.3.9 The contractor shall document all decisions that are made in meetings and conversations with EPA. The contractor shall forward this documentation to the WAM/RPM within two working days of the meeting or conversation.

It still remains the WAM's responsibility to fully document all decisions made. The contractor's documentation is to be used for confirmation only.

- .0.3.10 EPA will provide oversight of contractor activities throughout the RI/FS. 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 will review deliverables to assess the likelihood that the RI/FS will achieve its goals and that its performance requirements have been met. Acceptance of deliverables by EPA does not relieve the contractor of responsibility for the adequacy of the deliverables.
- .0.4 Record-Keeping Requirements
- The contractor shall maintain all technical and financial records for the RI/FS in accordance with the contract. At the completion of the RI/FS, the contractor shall submit _____ copies of the official record of the RI/FS in _____ (format) to the WAM/RPM.

1. Technical and financial records must be able to support decisions made during the RI/FS as well as during cost recovery.
2. Check with the Regional Records Manager and with Regional Counsel regarding the distribution, number of copies, and preferred format (i.e., hard copy, microform, CD-ROM) for the official records of the RI/FS.

.0.5 Equipment Transfer

At the completion of the RI/FS, or when government property is no longer required at the site, the contractor shall arrange for the proper disposition of government-furnished or contract-acquired property (purchased with contract funds) in accordance with the contract requirements. The disposition (transfer, sale, or abandonment) of government personal property and the tracking of such equipment shall be coordinated with the Contract Property Administrator. For additional information, refer to *Contractor's Guide for Control of Government Property*, Office of Administration and Resources Management, December 1988.

.0.6 Project Closeout

At the completion of the RI/FS work assignment, the contractor shall perform all necessary project closeout activities as specified in the contract. These activities may include closing out any subcontracts, indexing and consolidating project records and files as required in Paragraph 0.4 above, and providing a technical and financial closeout report to EPA. Final costs shall be reported to EPA (on disk) broken down into the cost for each element of the Work Breakdown Structure (WBS) (Attachment 2) for this work assignment.

2.1 Project Planning and Support

The purpose of this task is to determine how the RI/FS will be managed and controlled. The following activities shall be performed as part of the project planning task:

.1.1 Project Planning

- .1.1.1 Attend Scoping Meeting.** Before or concurrent with developing the Work Plan, the contractor shall attend a scoping meeting to be held at the EPA Regional Office.

Location of meetings and the WAM/RPM's expectations for the number of contractor personnel to attend should be specified for cost estimation purposes.

- .1.1.2 Conduct Site Visit.** The contractor shall conduct a site visit with the EPA WAM/RPM during the project planning phase to assist in developing a conceptual understanding of the RI/FS requirements for the site. Only the minimum essential personnel necessary to develop the individual Work Plan(s) will be authorized a site visit. A list of the Contractor's prospective personnel and their purpose for the site visit shall be submitted to the EPA WAM/RPM within 10 calendar days prior to performing the site visit. Information gathered during the visit shall be used to better scope the project and to help determine the extent of additional data necessary to implement the RI/FS. The contractor acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by EPA, as well as from the site file made a part of this work assignment. Any failure of the contractor to take the actions described and acknowledged in this paragraph will not relieve the contractor from responsibility for estimating properly the LOE hours and cost of successfully accomplishing the RI/FS.
- .1.1.3 Evaluate Existing Information.** The contractor shall evaluate existing data and documents, including previous site investigations, Preliminary Assessment Reports, Site Inspection Reports, Hazardous Ranking System Scoring Package, and other data and documents as

directed by EPA. This information shall be used to determine if any additional data are needed for RI/FS implementation. The documents available for review are listed in Attachment _____.

The WAM/RPM will create an attachment to this SOW listing additional reference materials. To control expenses, additional documents to list in the attachment should be limited to documents specific to the site.

- .1.1.4 Develop Technical Project Goals and Objectives. The contractor shall prepare data needs and data quality objectives (DQOs) for analytical sampling to be performed during RI/FS. the goals and objectives should be used to define the analytical methods and protocols, decontamination procedures, and EPA reporting levels (e.g., I, II, III, IV) required.
- (1) Not used - Develop Conceptual Site Model
 - (2) Identify Preliminary Project Requirements
 - (a) Data Needs and DQOs
 - (b) Not used - Objectives & Potential Alternatives
 - (c) Not used - Possible Treatability Studies
 - (d) Not used - ARARs and/or Standards
 - (e) Not used - NEPA Requirements
 - (f) Not used - Other Regulatory Requirements/Restrictions
 - (g) Not used - Prepare Conceptual Exposure Pathway Analysis

The WAM/RPM should require the contractor to identify DQOs for the collection of samples during RI/FS. Other requirements and standards that may be applicable to the contractor's SOW should also be identified.

- .1.1.5 Develop Work Plan. The contractor shall present the general approach that will be used for the RI/FS at a Work Plan scoping meeting with the WAM/RPM. This meeting will be held at the Region _____ office.

If the RI/FS will be complex, consider modifying subtask 3.1.1.4(1) to include a scoping meeting. A scoping meeting held before the contractor finalizes the technical approach will ensure that the WAM/RPM and the contractor are in agreement as to the approach to be taken and that the agreed-upon approach is reflected in the Work Plan. The contractor may not have to rewrite the Work Plan if this is done.

- (1) Develop Draft Work Plan. The contractor shall prepare and submit a draft RI/FS Work Plan within 30 calendar days after initiation of the Work Assignment (WA). Submit the original to the Contracting Officer (CO) and two copies to the Project Officer (PO). The Work Plan shall include a comprehensive description of the additional data collection and evaluation of activities to be performed, if any, and the plans and specifications to be prepared. A comprehensive design management schedule for completion of each major activity and submittal shall also be included. The Work Plan shall be developed in conjunction with the Sampling and Analysis Plan (SAP) and Health and Safety Plan (HASP), although each plan shall be delivered under separate cover within 30 calendar days after initiation of the WA.

- 1. The WAM/RPM must ensure that the submittal requirements in this SOW are in accordance with the submittal requirements for the contract.
- 2. The WAM/RPM must prepare an independent Government cost estimate (IGCE) for the RI/FS before the Work Assignment (WA) is issued to the contractor.

- (a) Develop Narrative. Specifically, the Work Plan shall present the following:
 - A statement of the problem(s) and potential problem(s) posed by the site and how the objectives of the RI/FS will address the problem(s).
 - A background summary setting forth: (1) a brief description of the site including the geographic location and a description of the physiographic, hydrologic, geologic, demographic, ecological, cultural, and natural resource features of the site; (2) a brief synopsis of the history of the site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties at the site; (3) a summary of the existing data including physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the site.
 - The contractor's technical and management approach to each task to be performed, including a detailed description of each task; the assumptions used; the identification of any technical uncertainties (with a proposal for the resolution of those uncertainties); the information needed for each task; any information to be produced during and at the conclusion of each task; and a description of the work products that will be submitted to EPA. The contractor shall identify any subcontractors it plans to use to accomplish all or part of a task's objectives. Tasks and subtasks shall be presented in the same WBS format as provided in this work assignment.
 - A schedule for specific dates for the start and completion of each required activity and submission of each deliverable required by this SOW. (See Attachment ___ for format.) This schedule shall also include information about timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for EPA.

For schedule development, the WAM/RPM should indicate to the contractor whether activity will continue concurrent with EPA review or whether work is to stop until the contractor receives review comments. In deciding which to prescribe, weigh the obvious tradeoff of cost of possible rework versus shortened schedule.

- (b) Develop Cost Estimate. The contractor's estimated cost to complete the work assignment shall be broken down into the Level of Effort (by P-level) and cost for each element of the Work Breakdown Structure (Attachment 2) and submitted to EPA on disk.
- (c) Internal QA and Submission of Draft Work Plan.
- (2) Prepare Final Work Plan
 - (a) Attend Negotiation Meeting. The contractor shall attend a Work Plan negotiation meeting at the Region ___ office.
 - (b) Modify Draft Work Plan and Cost Estimate. If the contractor finds that the planned RI/FS cannot meet any ARAR, the contractor shall describe the issue and recommend technical solutions in a memo to the WAM/RPM. The contractor shall make revisions to the Work Plan as a result of EPA's comments and/or negotiation agreements.
 - (c) Internal QA and Submission of Final Work Plan.

.1.2 Preparation of Site-Specific Plans

- .1.2.1 Develop Site Management Plan. After EPA approval of the RI/FS Work Plan, the contractor shall prepare a Site Management Plan (SMP) that provides EPA with a written understanding of how access, security, contingency procedures, management responsibilities, and sampling are to be handled.
- (1) Develop Health and Safety Plan. Prepare a site-specific HASP that specifies employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with [40 CFR 300.150 of the NCP

and] 29 CFR 1910.120 1(1) and (1)(2). A task-specific HASP must also be prepared to address health and safety requirements for site visits.

(2) Develop Sampling and Analysis Plan (Chemical Data Acquisition Plan)

- (a) Quality Assurance Project Plan. The contractor shall prepare a Quality Assurance Project Plan (QAPP) in accordance with EPA QA/R-5 (latest draft or revision). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired Data Quality Objectives (DQOs). The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan.
- (b) Field Sampling Plan. Prepare a Field Sampling Plan (FSP) that defines the sampling and data collection methods that shall be used for the project. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and a breakdown of samples to be analyzed through the Contract Laboratory Program (CLP) and through other sources, as well as the justification for those decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. The contractor shall document any required changes to the FSP in a memorandum to the WAM/RPM.

- 1. Depending on the complexity of the sampling effort needed to support the RI/FS, the FSP and QAPP can be combined into a single Sampling and Analysis Plan (SAP).
- 2. The WAM/RPM should minimize the duplication of data collection by requiring the contractor to use existing data whenever practicable. Contractors tend to "mistrust" data collected by others regardless of the quality. Limiting the collection of data can shorten the schedule period.
- 3. The WAM/RPM should reduce time and costs by using an on-site laboratory to analyze routine samples rather than going through the CLP.
- 4. The WAM/RPM should identify whether audits will be performed and specify contractor response items.

- (c) Data Management Plan. Prepare a Data Management Plan to address requirements for project management systems including tracking, storing, and retrieving data. The plan shall also identify software to be used, minimum data requirements, data format, and backup data management. The plan shall address both data management and document control for all RI/FS activities.

- .1.2.2 Develop Pollution Control and Mitigation Plan. Prepare a Pollution Control and Mitigation Plan that outlines the process, procedures, and safeguards that will be used to ensure contaminants or pollutants are not released off-site during RI/FS implementation.
- (1) Transportation and Disposal Plan (Waste Management Plan). Prepare a Transportation and Disposal Plan that outlines how wastes that are encountered during the RA will be managed and disposed of. The contractor shall specify the procedures that will be followed when wastes will be transported off-site for storage, treatment, or disposal.
- .1.2.3 Develop Risk Assessment Plan. Prepare a Risk Assessment Plan to determine whether site contaminants of concern pose a current or potential risk to human health and the environment in the absence of any remedial action. The plan shall include all assumptions and methods required to conduct a baseline risk assessment.

.1.3 Project Management

The WAM/RPM should specify the format for submissions (e.g., Monthly Progress Reports) if there are Region-specific or other requirements.

- .1.3.1 Prepare Periodic Status Reports. The contractor shall prepare Monthly Progress Reports.
 - (1) Document Cost and Performance Status. The contractor shall document the status of each task and report costs and level of effort (by P-level) expended to date.
 - (2) Prepare and Submit Invoices
- .1.3.2 Meeting Participation and Routine Communications. The contractor shall attend project meetings, provide documentation of meeting results, and shall contact the WAM by telephone on a weekly basis to report project status.
- .1.3.3 Maintain Cost/Schedule Control System. The contractor shall develop and maintain a system to monitor and control the costs and schedule of the Work Assignment. The contractor shall specify the process to continuously update the information in the system as a result of engineering network analyses and changing field conditions. The system shall have the capability to compare technical progress with expenditures and predict completion dates and cost to complete information.
- .1.3.4 Perform Value Engineering
- .1.3.5 Perform Engineering Network Analysis
- .1.3.6 Manage, Track, and Report Equipment Status. The contractor shall manage, track, and report the status of all site-specific equipment.
- .1.3.7 Project Closeout. The contractor shall perform the necessary activities to closeout the work assignment in accordance with contract requirements.
- .1.4 Subcontract Procurement and Support Activities
 - .1.4.1 Identification and Procurement of Subcontractors. Procure and administer the necessary subcontracts, including, but not limited to the following:
 - (1) Drilling Subcontractor
 - (2) Surveying Subcontractor
 - (3) Geophysical Subcontractor
 - (4) Site Preparation Subcontractor
 - (5) Analytical Services Subcontractor(s)
 - (6) Waste Disposal Subcontractor
 - (7) Treatability Subcontractor(s)
 - (8) Other(s)
 - .1.4.2 Establish and Carry Out a QA Program for Subcontracts
 - .1.4.3 Perform Subcontract Management

2.2 Community Relations

The contractor shall provide community relations support to EPA throughout the RD. The contractor shall provide community relations support in accordance with *Community Relations in Superfund: A Handbook*, June 1988. Community relations shall include the following subtasks:

Listed below are a number of possible community relations activities that may be required, depending on the specific situation.

- .2.1 Develop Community Relations Plan (CRP)

The contractor shall develop a CRP to address community relations requirements during RI/FS. This CRP may be modified from an existing CRP to meet site-specific requirements.
- .2.1.1 Conduct Community Interviews. The contractor shall assist the WAM/RPM in conducting community interviews to identify community concerns associated with the RI/FS. The

contractor shall assist the WAM/RPM in identifying key community members, establishing an interview schedule, conducting interviews, and summarizing results.

- .2.1.2 Prepare the CRP. The contractor shall prepare the CRP to address community relations requirements and community concerns during the RI/FS.
 - (1) Draft CRP. The contractor shall submit a draft CRP within 14 days after completion of the community interviews.
 - (2) Final CRP. Within 7 days of receipt of EPA comments, the contractor shall submit the final CRP.
- .2.2 Prepare Fact Sheets. The contractor shall prepare a fact sheet that informs the public about activities related to the final design, a schedule for the RA, activities to be expected during construction, provisions for responding to emergency releases and spills, and any potential inconveniences such as excess traffic and noise that may affect the community during the RA.
- .2.3 Public Hearing, Meetings, and Availability Support. The contractor shall support and assist in public hearings, meetings, and open houses. The contractor shall prepare presentation materials and provide support as needed for public meetings.

- 1. The number and locations of anticipated public meetings should be identified in the SOW.
- 2. The WAM/RPM should specify the number of contractor personnel expected to be in attendance at the public meetings.

- .2.3.1 Technical Support. The contractor shall provide technical support for community relations. This support may include preparing technical input to news releases, briefing materials, and other community relations vehicles, and helping the WAM/RPM to coordinate with local agencies.
- .2.3.2 Logistical and Presentation Support. The contractor shall assist the WAM/RPM in preparing technical briefing materials and in arranging for the logistical details for the meeting(s).
- .2.3.3 Public Notice Support. The contractor shall assist the WAM/RPM in drafting public notices, announcing public meetings and placing the notice in a local paper of general circulation.
- .2.4 Maintain Information Repository and Mailing Lists. The contractor shall develop or revise site mailing lists and maintain a repository of information on activities related to the site-specific RI/FS activities as described in Appendix A.8, page A-19, of *Community Relations in Superfund: A Handbook*, June 1988.
- .2.5 Proposed Plan Support
- .2.6 Responsiveness Summary Support

The WAM/RPM should specify the format for Community Relations submissions (e.g., fact sheets, news releases) if there are Region-specific or other requirements.

2.3 Data Acquisition

Data acquisition entails collecting environmental samples and information required to support the RI/FS. The planning for this task is accomplished in Task 2.1, Project Planning and Support, which results in the plans required to collect the field data. Data acquisition starts with EPA approval of the FSP and ends with the demobilization of field personnel and equipment from the site.

The contractor shall perform the following field activities or combination of activities for data acquisition in accordance with the EPA-approved FSP and QAPP developed in Task 2.1.

Before beginning field activities, consider specifying a kickoff meeting with all principal personnel to clarify objectives, communication channels, etc., to ensure the efficient use of available funds.

.3.1 Mobilization and Demobilization

Provide the necessary personnel, equipment, and materials for mobilization and demobilization to and from the site for the purpose of conducting the sampling program under subtask 2.3.2, Field Investigation.

.3.1.1 Identify Field Support Equipment, Supplies, and Facilities

.3.1.2 Mobilization. Mobilize and set up a field laboratory to facilitate rapid turnaround times for analytical results and identification of sample locations for subsequent sampling rounds.

(1) Site Preparation

- (a) Perform Demolition
- (b) Clearing and Grubbing
- (c) Perform Earthwork
 - Provide Borrow Pit
 - Construct Haul Roads
- (d) Construct Roads, Parking, Curbs, and Walks
- (e) Install Storm Drainage and Subdrainage
- (f) Install Fencing and Site Security

(2) Installation of Utilities

- (a) Install Electrical Distribution
- (b) Install Telephone and Communication System(s)
- (c) Install Water, Sewage, and Gas Distribution
- (d) Install Fuel Line Distribution

(3) Construction of Temporary Facilities

- (a) Construct Decontamination Facilities
- (b) Construct Sample and Derived Waste Storage Facility
- (c) Construct Field Offices
- (d) Construct Mobile Laboratory
- (e) Construct Other Temporary Facilities

.3.1.3 Demobilization. Demobilize the field laboratory.

- (1) Removal of Temporary Facilities
- (2) Site Restoration

.3.2 Field Investigation. Conduct environmental sampling to include the following:

.3.2.1 Perform Site Reconnaissance. The contractor shall conduct site surveys including property, boundary, utility rights-of-way, and topographic information. These surveys are to ensure the accuracy of existing information for the RI/FS.

For items of this Model Statement of Work that are not needed for a given project, please retain the numbers for the items, but enter "Not Used" or "N/A" after the numbers of those items.

For the items used for a given project, additional descriptions (e.g., type of samples and estimated number) should be added in order for the contractor and WAM/RPM to develop estimated costs on a common basis.

(1) Ecological Resources Reconnaissance

- (a) Well Inventory
- (b) Residential Well Sampling
- (c) Land Survey
- (d) Topographic Mapping
- (e) Field Screening

- .3.2.2 Conduct Geological Investigations (Soils and Sediments)
 - (1) Collect Surface Soil Samples
 - (2) Collect Subsurface Soil Samples
 - (3) Soil Boring and Permeability Sampling
 - (4) Collect Sediments Samples
 - (5) Survey Soil Gases
 - (6) Test Pit
- .3.2.3 Conduct Air Investigations
 - (1) Sample Collection
 - (2) Air Monitoring Station
- .3.2.4 Conduct Hydrogeological Investigations: Ground Water
 - (1) Install Well Systems
 - (a) Accomplish Mobilization
 - (b) Develop Wells
 - (c) Conduct Downhole Geophysics
 - (d) Install Monitoring Wells
 - (e) Install Test Wells
 - (f) Install Gas Wells
 - (2) Collect Samples
 - (3) Collect Samples During Drilling (e.g., HydroPunch or Equivalent)
 - (4) Conduct Tidal Influence Study
 - (5) Perform Hydraulic Tests (Pump Tests)
 - (6) Measure Ground-Water Elevation
- .3.2.5 Conduct Hydrogeological Investigations: Surface Water
 - (1) Collect Samples
 - (2) Study Tidal Influence
 - (3) Measure Surface-Water Elevation
- .3.2.6 Conduct Waste Investigation
 - (1) Collect Samples (Gas, Liquid, Solid)
 - (2) Dispose of Derived Waste (Gas, Liquid, Solid)
- .3.2.7 Conduct Geophysical Investigation
 - (1) Surface Geophysical Activity [can just list these]
 - (2) Magnetometer
 - (3) Electromagnetics
 - (4) Ground-Penetrating Radar
 - (5) Seismic Refraction
 - (6) Resistivity
 - (7) Site Meteorology
 - (8) Cone Penetrometer Survey
 - (9) Remote Sensor Survey
 - (10) Radiological Investigation
- .3.2.8 Conduct Ecological Investigation
 - (1) Wetland and Habitat Delineation
 - (2) Wildlife Observations
 - (3) Community Characterization
 - (4) Identification of Endangered Species
 - (5) Biota Sampling and Population Studies
- .3.2.9 Collect Contaminated Building Samples.
- .3.2.10 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)).

1. The WAM/RPM must determine the types of sampling that will be needed from the list above.
2. The anticipated number of samples should be specified so that both the contractor and the WAM/RPM can develop the cost estimates.
3. The WAM/RPM should consult with the Technical Review Team to determine the types and numbers of samples to be collected. The numbers may be refined upon negotiation with the contractor.
4. The WAM/RPM should specify the expected written and/or photographic documentation to be recorded in the field.
5. The WAM/RPM should specify the type of field activity reports that are expected, the frequency, and required distribution (RPM, State representative, etc.).

2.4 Sample Analysis

The contractor shall arrange for the analysis of environmental samples collected during the previous task. The sample analysis task begins with reserving sample slots in the CLP and the completion of the field sampling program. This task ends with the contractor validating the analytical data received from the laboratory.

1. Consider adding a subtask for on-site laboratory analysis. The purpose of this new subtask would be to perform screening analyses only.
2. If special analytical services (SAS) are required, they must be specified in a subtask.

The contractor shall perform the following activities or combination of activities to analyze test results:

- .4.1 Screening-Type Laboratory Sample Analysis
 - .4.1.1 Analyze Air and Gas Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.2 Analyze Ground-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.3 Analyze Surface-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.4 Analyze Soil and Sediment Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.5 Analyze Waste (Gas) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.6 Analyze Waste (Liquid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry

- .4.1.7 Analyze Waste (Solid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.8 Analyze Biota Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.9 Analyze Bioassay Samples
- .4.1.10 Perform Bioaccumulation Studies
- .4.2 CLP-Type Laboratory Sample Analysis
 - .4.2.1 Analyze Air and Gas Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.2 Analyze Ground-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.3 Analyze Surface-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.4 Analyze Soil and Sediment Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.5 Analyze Waste (Gas) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.6 Analyze Waste (Liquid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.7 Analyze Waste (Solid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.8 Analyze Biota Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.9 Analyze Bioassay Samples
 - .4.2.10 Perform Bioaccumulation Studies

2.5 Analytical Support and Data Validation

The contractor shall arrange for the validation of environmental samples collected during the previous task. The sample validation task begins with reserving sample slots in the CLP and the completion of the field sampling program. This task ends with the contractor validating the analytical data received from the laboratory. The contractor will perform appropriate data validation to ensure that the data are accurate and defensible.

1. For RI/FS, full data validation procedures may be necessary. The WAM/RPM may want to specify the level of data validation required.
2. The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

The contractor shall perform the following activities or combination of activities to validate test results:

- .5.1 Prepare and Ship Environmental Samples
 - .5.1.1 Ground-Water Samples
 - .5.1.2 Surface and Subsurface Soil Samples
 - .5.1.3 Surface-Water and Sediment Samples
 - .5.1.4 Air Samples
 - .5.1.5 Biota Samples
 - .5.1.6 Other Types of Media Sampling and Screening
- .5.2 Coordinate with Appropriate Sample Management Personnel
- .5.3 Implement EPA-Approved Laboratory QA Program.
- .5.4 Provide Sample Management (Chain of Custody, Sample Retention, and Data Storage)
Ensure the proper management of samples. Ensure accurate chain-of-custody procedures for sample tracking, protective sample packing techniques, and proper sample-preservation techniques.
- .5.5 Validate Data
 - .5.5.1 Review Analysis Results Against Validation Criteria
 - .5.5.2 Provide Written Documentation of Validation Efforts

The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

2.6 Data Evaluation

The contractor shall organize and evaluate existing data and data gathered during the previous tasks that will be used later in the RI/FS effort. Data evaluation begins with the receipt of analytical data from the data acquisition task and ends with the submittal of the Data Evaluation Summary Report. Specifically, the contractor shall perform the following activities or combination of activities during the data evaluation effort:

- .6.1 Data Usability Evaluation and Field QA/QC
- .6.2 Data Reduction, Tabulation, and Evaluation.
Evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. Design and set up an appropriate database for pertinent information collected that will be used during the RI/FS.
 - .6.2.1 Evaluate Geological Data (Soils and Sediments)
 - .6.2.2 Evaluate Air Data
 - .6.2.3 Evaluate Hydrogeological Data: Ground Water
 - .6.2.4 Evaluate Hydrogeological Data: Surface Water
 - .6.2.5 Evaluate Waste Data
 - .6.2.6 Evaluate Geophysical Data
 - .6.2.7 Evaluate Ecological Data
- .6.3 Modeling
 - .6.3.1 Contaminant Fate and Transport
 - .6.3.2 Water Quality
 - .6.3.3 Ground Water
 - .6.3.4 Air
 - .6.3.5 Other Modeling

- .6.4 Develop Data Evaluation Report. Evaluate and present results in a Data Evaluation Summary Report and submit to the WAM/RPM for review and approval. After the WAM/RPM's review, attend a meeting with EPA to discuss data evaluation results and next steps.

The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

The WAM/RPM should specify that the contractor shall prepare and submit a Technical Memorandum to the WAM/RPM if new analytical data needs or significant data problems are identified during the evaluation.

2.7 Risk Assessment

The Risk Assessment will determine whether site contaminants pose a current of potential risk to human health and the environment in the absence of any remedial action. The contractor shall address the contaminant identification, exposure assessment, toxicity assessment, and risk characterization. The Risk Assessment will be used to determine whether remediation is necessary at the site, provide justification for performing remedial action, and determine what exposure pathways need to be remediated.

- .7.1 Human Health Risk Assessment. The contractor shall evaluate and assess the risk to human health posed by site contaminants.
- .7.1.1 Draft Human Health Risk Assessment Report. Prepare a draft Human Health Risk Assessment Report that addresses the following:
- (1) Hazard Identification (sources). The contractor shall review available information on the hazardous substances present at the site and identify the major contaminants of concern.
 - (2) Dose-Response Assessment. Contaminants of concern should be selected based on their intrinsic toxicological properties.
 - (3) 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.
 - (4) Characterization of Site and Potential Receptors. The contractor shall identify and characterize human populations in the exposure pathways.
 - (5) 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.
 - (6) 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.
 - (7) Identification of Limitations/Uncertainties. The contractor shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
 - (8) Site Conceptual Model. Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the contractor shall develop a conceptual model of the site.

- .7.1.2 Final Human Health Risk Assessment Report. After the draft Human Health Risk Assessment Report has been reviewed and commented on by EPA, the contractor will incorporate EPA comments and submit the final Human Health Risk Assessment Report.
- .7.2 Ecological Risk Assessment. The contractor shall evaluate and assess the risk to the environment posed by site contaminants.
- .7.1.1 Draft Ecological Risk Assessment Report. Prepare a draft Ecological Risk Assessment Report that addresses the following:
- (1) Hazard Identification (sources). The contractor shall review available information on the hazardous substances present at the site and identify the major contaminants of concern.
 - (2) Dose-Response Assessment. Contaminants of concern should be selected based on their intrinsic toxicological properties.
 - (3) Prepare Conceptual Exposure/Pathway Analysis. Critical exposure pathways (e.g., surface 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.
 - (4) Characterization of Site and Potential Receptors. The contractor shall identify and characterize environmental exposure pathways.
 - (5) Select Chemicals, Indicator Species, and End Points. In preparing the assessment, the contractor will select representative chemicals, indicator species (species that are especially sensitive to environmental contaminants), and end points on which to concentrate.
 - (6) Exposure Assessment. The exposure assessment will identify the magnitude of actual or environmental 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.
 - (7) Toxicity Assessment/Ecological Effects Assessment. The toxicity and ecological effects assessment will address the types of adverse environmental effects associated with chemical exposures, the relationships between magnitude of exposures and adverse effects, and the related uncertainties for contaminant toxicity (e.g., weight of evidence for a chemical's carcinogenicity).
 - (8) 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 the environment.
 - (9) Identification of Limitations/Uncertainties. The contractor shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
 - (10) Site Conceptual Model. Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the contractor shall develop a conceptual model of the site.
- .7.1.2 Final Ecological Risk Assessment Report. After the draft Ecological Risk Assessment Report has been reviewed and commented on by EPA, the contractor will incorporate EPA comments and submit the final Ecological Risk Assessment Report.

2.8 Treatability Study and Pilot Testing

Technologies that may be suitable to the site should be identified as early as possible to determine whether there is a need to conduct treatability studies to better estimate costs and performance capabilities. At present, it is unknown whether a bench test or pilot study will be conducted. However, should a bench

test or pilot study be determined as necessary, the contractor shall submit a testing plan identifying the types and goals of the study. The treatability study shall determine the suitability of remedial technologies to site conditions and problems.

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 management schedule established in the approved RI/FS Work Plan, the contractor shall perform the following activities:

.7.1 Literature Search

.7.2 Develop Treatability and Pilot Work Plan

Prepare the Treatability Study Work plan and submit to the WAM/RPM 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 review periods. Key milestones that should have completion dates specified included, but are not limited to, the procurement of contractors and the completion of sample collection, the performance period, sample analysis, and report preparation.

The WAM/RPM should be clear about the expected schedule and specify deadlines for each activity to maintain the overall RI/FS schedule. When reviewing the contractor's Work Plan, the WAM/RPM should check to see that the schedule in the Treatability Study Work Plan is consistent with the schedule in the RI/FS Work Plan.

The Treatability Study Work Plan shall describe in detail the treatment process and how the proposed vendor or technology will meet the performance standards for the site. The Treatability Study Work Plan shall address how the contractor will meet all discharge or disposal requirements for any and all treated material, air, water, and expected effluents. Additionally, the Work Plan shall explain the proposed final treatment and disposal of all material generated by the proposed treatment system.

1. The WAM/RPM should list the treatment train and components of the system, if possible.
2. Where do treated water and residuals go?
3. Will there be discharges to air? Is an air pathway analysis needed to ensure the protection of workers and the public?
4. Does the contractor need to consider Land Disposal Restrictions?
5. The WAM/RPM should consider having a contingency plan in case problems develop.

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.

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

.7.3 Bench Test

- .7.3.1 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.
- .7.3.2 Provide Vendor and Analytical Service
- .7.3.3 Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
- .7.3.4 Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
- .7.3.5 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.
- .7.3.6 Characterize and Dispose of Residuals

.7.4 Pilot-Scale Test

- .7.4.1 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.
- .7.4.2 Provide Vendor and Analytical Service
- .7.4.3 Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
- .7.4.4 Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
- .7.4.5 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.
- .7.4.6 Characterize and Dispose of Residuals

.7.5 Field Test

- .7.5.1 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.
- .7.5.2 Provide Vendor and Analytical Service
- .7.5.3 Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
- .7.5.4 Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
- .7.5.5 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.
- .7.5.6 Characterize and Dispose of Residuals

.7.6 Develop Treatability Study Report.

_____ days after completion of the Treatability Study, 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.

The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

The WAM/RPM should consider holding a project review meeting with the Technical Review Committee and other team members after completing the above task to present the results of the Treatability Study and to summarize the status of the RI/FS.

2.9 Remedial Investigation Report

The Contractor shall develop and deliver a Remedial Investigation (RI) report that accurately establishes the site characteristics such as media contaminated, extent of contamination, and the physical boundaries of the contamination. Pursuant to this objective, the contractor shall obtain only the minimally essential amount of detailed data necessary to determine the key(s) contaminant(s) movement and extent of contamination. The key contaminant(s) must be selected based on persistence and mobility in the environment and the degree of hazard. The key contaminant(s) identified in the RI shall be evaluated for receptor exposure and an estimate of the key contaminant(s) level reaching human or environmental receptors must be made. The contractor shall use existing standards and guidelines such as drinking-water standards, water-quality criteria, and other criteria accepted by the EPA as appropriate for the situation may be used to evaluate effects on human receptors who may be exposed to the key contaminant(s) above appropriate standards or guidelines.

The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

- .9.1 Draft RI Report. In accordance with the schedule developed in the RI/FS work plan, the contractor shall submit a draft RI Report which includes the following.
 - .9.1.1 Site Background. The contractor shall assemble and review available facts about the regional conditions and conditions specific to the site under investigation.
 - .9.1.2 Investigation
 - (1) Field Investigation & Technical Approach
 - (2) Chemical Analysis & Analytical Methods
 - (3) Field Methodologies
 - Biological
 - Surface Water
 - Sediment
 - Soil Boring
 - Soil Sampling
 - Monitoring Well Installation
 - Groundwater Sampling
 - Hydrogeological Assessment
 - Air Sampling
 - .9.1.3 Site Characteristics.
 - (1) Geology
 - (2) Hydrogeology
 - (3) Meteorology
 - (4) Demographics and Land Use
 - (5) Ecological Assessment
 - .9.1.4 Nature and Extent of Contamination
 - (1) Contaminant Sources
 - (2) Contaminant Distribution and Trends
 - .9.1.5 Fate and Transport
 - (1) Contaminant Characteristics

- (2) Transport Processes
- (3) Contaminant Migration Trends
- .9.1.6 Summary and Conclusions.
- .9.2 Final RI Report. After EPA review of the draft RI Report, the contractor will incorporate EPA comments and submit the final RI Report.

2.10 Remedial Alternatives Screening

The contractor shall investigate only those hazardous waste management 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 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.

- .10.1 Prepare Draft Technical Memorandum. The contractor shall prepare a draft Technical Memorandum presenting the potential alternatives and including the following information:
 - .10.1.1 Establish Remedial Action Objectives. Based on existing information, the contractor shall identify site-specific remedial action objectives which 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).
 - .10.1.2 Establish General Response Actions. The contractor will develop 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. The response actions should take into account requirements for protectiveness as identified in the remedial action objectives and the chemical and physical characteristics of the site.
 - .10.1.3 Identify & Screen Applicable Remedial Technologies. The contractor shall identify and screen technologies based on the developed general response actions. Hazardous waste treatment technologies should be identified and screened 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 will select representative process options, as appropriate, to carry forward into alternative development. The contractor will identify the need for treatability testing for those technologies that are probable candidates for consideration during the detailed analysis.
 - .10.1.4 Develop Remedial Alternatives in accordance with NCP.
 - .10.1.5 Screen Remedial Alternatives for Effectiveness, Implementability, and Cost. The contractor shall screen alternatives to identify the potential technologies or process options that will be combined into media-specific or sitewide alternatives. The developed alternatives shall be defined with respect to size and configuration of the representative process options; time for remediation; rates of flow or treatment; spatial requirements; distances for disposal; and required permits, imposed limitations, and other factors necessary to evaluate the alternatives. If many distinct, viable options are available and developed, the Research Engineer will screen the alternatives that undergo the detailed analysis to provide the most promising process options. The alternatives should be screened on a general basis with respect to their effectiveness, implementability, and cost.
- .10.2 Prepare Final Technical Memorandum. After EPA review of the draft Technical Memorandum, the contractor will incorporate EPA comments and submit the final Technical Memorandum.

2.11 Remedial Alternatives Evaluation

The contractor will conduct a detailed evaluation of alternatives.

- .11.1 Perform Remedial Alternatives Evaluation. The evaluation shall include: (1) a technical description of each alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative; and (2) a discussion that profiles the performance of that alternative with respect to each of the evaluation criteria. The Research Engineer shall provide a table summarizing the results of this analysis. Once the individual analysis is complete, the alternatives will be compared and contrasted to one another with respect to each of the evaluation criteria.

2.12 FS Report and RI/FS Report

The Contractor shall develop a Feasibility (FS) Report consisting of a detailed analysis of alternatives and cost-effectiveness analysis in accordance with NCP 300.68(h)(3)(i)(2). The report shall contain a summary of alternative remedial actions in accordance with Chapter 3, NCP 300.68(h)(3)(i)(2)(A); 2) Cost Analysis in accordance with Chapter 7, NCP 300.68(h)(3)(i)(2)(B); 3) Institutional analysis in accordance with Chapter 4, NCP 300.68(h)(3)(i)(2)(C); 4) Public-health analysis in accordance with Chapter 5, NCP 300.68(h)(3)(i)(2)(D); 5) Environmental analysis in accordance with Chapter 6, NCP 300.68(h)(3)(i)(2)(E).

The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

- .12.1 Prepare Draft FS Report. The contractor shall prepare a draft FS and submit to EPA according to the schedule in the RI/FS work plan. The FS Report should contain the following:
 - .12.1.1 Summarizes Feasibility Study Objectives
 - .12.1.2 Summarizes Remedial Objective
 - .12.1.3 Articulate General Response Action
 - .12.1.4 Identification & Screening of Remedial Technologies
 - .12.1.5 Remedial Alternatives Description
 - .12.1.6 Detailed Analysis of Remedial Alternatives. The contractor's technical feasibility considerations shall include the careful study of any problems that may prevent a remedial alternative from mitigating site problems. Therefore, the site characteristics from the RI must be kept in mind as technical feasibility of the alternative is studied. Specific items to be addressed are reliability (operation over time), safety, operation and maintenance, ease with which the alternative can be implemented, and time needed for implementation.
 - .12.1.7 Summary and Conclusions
- .12.2 Prepare Final FS Report. After EPA review of the draft FS Report, the contractor will incorporate EPA comments and submit the final FS Report.

2.13 Post RI/FS Support

This task consists of support required for preparation of the ROD for the site. The contractor shall perform the following support activities:

- .13.1 Attend Public Meetings, Briefings, & Technical Meetings with PRPs
- .13.2 Prepare Presentation Materials
- .13.3 Provide Technical Assistance - Responsiveness Summary
- .13.4 Provide Technical Assistance - Proposed Plan & ROD
- .13.5 Prepare Feasibility Study Addendum

2.14 Negotiation Support

- .14.1 Attend Negotiation Sessions and Meetings
- .14.2 Review of PRP Documents
- .14.3 Provide Technical Memorandum
 - .14.3.1 Prepare Draft Technical Memorandum
 - .14.3.2 Respond to Comments
 - .14.3.3 Submit Final Technical Memorandum

2.15 Administrative Record

- .15.1 Coordinate with Administrative Record Coordinator
- .15.2 Provide Assistance in Document Compilation
- .15.3 Prepare Draft Administrative Record Index
- .15.4 Prepare Administrative Record Index
- .15.5 Coordinate Duplication of Administrative Index
- .15.6 Assemble Administrative Record and Index

2.16 Work Assignment Closeout

- .16.1 Return Documents to Government
- .16.2 File Duplication/Distribution/Storage
- .16.3 File Archiving
- .16.4 Microfiche/Microfilm/Optical Disk
- .16.5 Prepare Closeout Report. The contractor shall include a breakdown on disk of final costs and Level of Effort (by P-Level) in the same detail and format as the Work Breakdown Structure (Attachment 2).

Attachment 1
Summary of Major Submittals for the Remedial Investigation/Feasibility Study at
(Site)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
2.1.1.2	Site Visit Report		3	10 days after site visit	7 days after receipt of report
2.1.1.5	RI/FS Work Plan		3	30 days after initiation of work assignment (WA)	21 days after receipt of Work Plan
2.1.1.5	Final RI/FS Work Plan		3	15 days after receipt of EPA comments	NA
2.1.2.1	Draft Site Management Plan (SMP)		3	(#) days after approval of RI/FS Work Plan	10 days after receipt of SMP
2.1.2.1	Final SMP		3	(#) days after receipt of EPA comments	NA
2.1.2.1(1)	Draft Health and Safety Plan (HASP)		3	30 days after initiation of WA	21 days after receipt of HASP
2.1.2.1(1)	Final HASP		3	15 days after receipt of EPA comments	NA
2.1.2.1(2)	Draft Sampling and Analysis Plan (SAP)		3	21 days after approval of RI/FS Work Plan	14 days after receipt of SAP
2.1.2.1(2)	Final SAP		3	10 days after receipt of EPA comments	NA
2.1.2.1(2)	Draft Quality Assurance Project Plan (QAPP)		3	30 days after initiation of WA	21 days after receipt of QAPP
2.1.2.1(2)	Final QAPP		3	15 days after receipt of EPA comments	NA
2.1.2.1(2)	Draft Field Sampling Plan (FSP)		3	30 days after initiation of WA	21 days after receipt of FSP
2.1.2.1(2)	Final FSP		3	15 days after receipt of EPA comments	NA

Attachment 1
Summary of Major Submittals for the Remedial Investigation/Feasibility Study at
(Site) (continued)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
2.2.1	Draft Community Relations Plan (CRP)		3	(#) days after initiation of WA	14 days after receipt of revised CRP
2.2.1	Final CRP		3	(#) days after receipt of EPA comments	NA
2.2.2	Fact Sheets		3	As needed	10 days after receipt of fact sheet
2.6.4	Data Evaluation Summary Report		3	10 days after receipt of analytical results from laboratory	15 days after receipt of report
2.7.1.1	Draft Human Health Risk Assessment Report		3	(#) days after completion of field investigations	(#) days after receipt of report
2.7.1.2	Final Human Health Risk Assessment Report		3	(#) days after receipt of EPA comments	NA
2.7.2.1	Draft Ecological Risk Assessment Report		3	(#) days after completion of field investigations	(#) days after receipt of report
2.7.2.2	Final Ecological Risk Assessment Report		3	(#) days after receipt of EPA comments	NA
2.8.2	Treatability Study Work Plan		3	45 days after RI/FS Work Plan approved	21 days after receipt of Treatability Study Work Plan
2.8.2	Final Treatability Study Work Plan		3	15 days after receipt of EPA comments	NA
2.7.6.1	Treatability Study Evaluation Report		3	30 days after completion of Treatability Study	21 days after receipt of report
2.7.6.3	Final Treatability Study Evaluation Report		3	15 days after receipt of EPA comments	NA
2.9.1	Draft Remedial Investigation (RI) Report		3	(#) days after RI/FS Work Plan approval	21 days after receipt of report

Attachment 1
Summary of Major Submittals for the Remedial Investigation/Feasibility Study at
_____ (Site) (continued)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
2.9.2	Final RI Report		3	(#) days after receipt of EPA comments	NA
2.10.1	Draft Remedial Alternatives Technical Memorandum		3	(#) days after RI/FS Work Plan approval	(#) days after receipt of memorandum
2.10.2	Final Remedial Alternatives Technical Memorandum		3	(#) days after receipt of EPA comments	NA
2.11.1	Remedial Alternatives Evaluation		3	(#) days after completion of Remedial Alternatives Technical Memorandum	(#) days after receipt of evaluation
2.12.1	Draft Feasibility Study Report		3	(#) days after completion of RI	(#) days after receipt of report
2.12.2	Final Feasibility Study Report		3	(#) days after receipt of EPA comments	NA

Attachment 2
Work Breakdown Structure (WBS) for
Remedial Investigation/Feasibility Study

- 2.0 Remedial Investigation/Feasibility Study
 - .01 Project Planning and Support
 - .01 Project Planning
 - .01 Attend Scoping Meeting
 - .02 Conduct Site Visit
 - .03 Evaluate Existing Information
 - .04 Develop Technical Project Goals & Objectives
 - .01 Develop Conceptual Site Model
 - .02 Preliminary ID of Project Requirements
 - .01 Data Needs & DQOs
 - .02 RA Objectives & Potential Alternatives
 - .03 Possible Treatability Studies
 - .04 ARARs and/or Standards
 - .05 NEPA Requirements
 - .06 Other Regulatory Requirements/Restrictions
 - .07 Prepare Conceptual Exposure Pathway Analysis
 - .05 Work Plan Development
 - .01 Draft Work Plan Development
 - .01 Develop Narrative
 - .02 Develop Cost Estimate
 - .03 Internal QA & Submission
 - .02 Final Work Plan Preparation
 - .01 Attend Negotiation Meeting
 - .02 Modify Draft Work Plan/Cost Estimate
 - .03 Internal QA & Submission
 - .02 Preparation of Site Specific Plans
 - .01 Develop Site Management Plan
 - .01 Develop Health & Safety Plan
 - .02 Sampling & Analysis Plan (Chemical Data Acquisition Plan)
 - .01 Quality Assurance Project Plan
 - .02 Field Sampling Plan
 - .03 Data Management Plan
 - .02 Develop Pollution Control & Mitigation Plan
 - .01 Transportation & Disposal Plan (Waste Management Plan)
 - .03 Develop Risk Assessment Plan
 - .03 Project Management
 - .01 Prepare Periodic Status Reports
 - .01 Document Cost and Performance Status
 - .02 Prepare/Submit Invoices
 - .02 Meeting Participation/Routine Communications
 - .03 Maintain Cost/Schedule Control System
 - .04 Perform Value Engineering
 - .05 Perform Engineering Network Analysis
 - .06 Manage, Track, and Report Equipment Status
 - .07 Project Closeout
 - .01 Return Documents to Government
 - .02 File Duplication/Distribution/Storage
 - .03 File Archiving
 - .04 Microfiche/Microfilm/Optical Disk
 - .05 Prepare Closeout Report
 - .04 Subcontract Procurement/Support Activities
 - .01 ID and Procurement of Subcontractors
 - .01 Drilling Subcontractor
 - .02 Surveying Subcontractor
 - .03 Geophysical Subcontractor

- .04 Site Preparation Subcontractor
- .05 Analytical Services Subcontractor(s)
- .06 Waste Disposal Subcontractor
- .07 Treatability Subcontractor(s)
- .08 Other(s)
- .02 Contractor QA Program
- .03 Perform Subcontract Management
- .02 Community Relations
 - .01 Community Relations Plan (CRP) Development
 - .01 Conduct Community Interviews
 - .02 Prepare CRP
 - .01 Draft CRP
 - .02 Final CRP
 - .02 Prepare Fact Sheets
 - .03 Public Hearing, Meetings, & Availability Support
 - .01 Technical Support
 - .02 Logistical & Presentation Support
 - .03 Public Notice Support (writing, or placement of)
 - .04 Maintain Information Repository/Mailing List
 - .05 Proposed Plan Support
 - .06 Responsiveness Summary Support
- .03 Data Acquisition
 - .01 Mobilization/Demobilization
 - .01 ID Field Support Equipment/Supplies/Facilities
 - .02 Mobilization
 - .01 Site Preparation
 - .01 Perform Demolition
 - .02 Clearing and Grubbing
 - .03 Perform Earthwork
 - .01 Provide Borrow Pit/Haul Roads
 - .04 Construct Roads/Parking/Curbs/Walks
 - .05 Install Storm Drainage/Subdrainage
 - .06 Install Fencing/Site Security
 - .02 Installation of Utilities
 - .01 Install Electrical Distribution
 - .02 Install Telephone/Communication System(s)
 - .03 Install Water/Sewer/Gas Distribution
 - .04 Install Fuel Line Distribution
 - .03 Construction of Temporary Facilities
 - .01 Construct Decontamination Facilities
 - .02 Construct Sample/Derived Waste Storage Facility
 - .03 Construct Field Offices
 - .04 Construct Mobile Laboratory
 - .05 Construct Other Temporary Facilities
 - .03 Demobilization
 - .01 Removal of Temporary Facilities
 - .02 Site Restoration
- .02 Field Investigation
 - .01 Site Reconnaissance
 - .01 Ecological Resources Reconnaissance
 - .02 Well Inventory
 - .03 Residential Well Sampling
 - .04 Land Survey
 - .05 Topographic Mapping
 - .06 Field Screening
 - .02 Conduct Geological Investigations (Soils/Sediments)
 - .01 Surface Soil Sample Collection
 - .02 Subsurface Soil Sample Collection
 - .03 Soil Boring/Permeability Sampling
 - .04 Sediments Sample Collection

- .05 Soil Gas Survey
- .06 Test Pit
- .03 Conduct Air Investigations
 - .01 Sample Collections
 - .02 Air Monitoring Station
- .04 Conduct Hydrogeological Investigations - Groundwater
 - .01 Well Systems Installation
 - .01 Accomplish Mobilization
 - .02 Perform Well Development
 - .03 Conduct Downhole Geophysics
 - .04 Install Monitoring Wells
 - .05 Install Test Wells
 - .06 Install Gas Wells
 - .02 Sample Collection
 - .03 Hydro Punch
 - .04 Tidal Influence Study
 - .05 Hydraulic Tests (Pump Tests)
 - .06 Groundwater Elevation Measurement
- .05 Conduct Hydrogeological Investigations—Surface Water
 - .01 Sample Collection
 - .02 Tidal Influence Study
 - .03 Surface Water Elevation Measurement
- .06 Conduct Waste Investigation
 - .01 Sample Collection (Gas, Liquid, Solid)
 - .02 Derived Waste Disposal (Gas, Liquid, Solid)
- .07 Conduct Geophysical Investigation
 - .01 Surface Geophysical Activity
 - .02 Magnetometer
 - .03 Electromagnetics
 - .04 Ground Penetrating Radar
 - .05 Seismic Refraction
 - .06 Resistivity
 - .07 Site Meteorology
 - .08 Cone Penetrometer Survey
 - .09 Remote Sensor Survey
 - .10 Radiological Investigation
- .08 Conduct Ecological Investigation
 - .01 Wetland and Habitat Delineation
 - .02 Wildlife Observations
 - .03 Community Characterization
 - .04 Identification of Endangered Species
 - .05 Biota Sampling/Population Studies
- .09 Collect Contaminated Building Samples
- .04 Sample Analysis
 - .01 Screening Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Groundwater Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic

- .03 Radiochemistry
- .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .09 Analyze Bioassay Samples
- .10 Perform Bioaccumulation Studies
- .02 CLP-Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Groundwater Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .09 Analyze Bioassay Samples
 - .10 Perform Bioaccumulation Studies
- .05 Analytical Support and Data Validation
 - .01 Prepare and Ship Environmental Samples
 - .01 Groundwater Samples
 - .02 Surface and Subsurface Soil Samples
 - .03 Surface Water & Sediment Samples
 - .04 Air Samples

- .05 Biota Samples
- .06 Other types of media sampling and screening
- .02 Coordinate with appropriate Sample Management personnel
- .03 Implement EPA-approved Laboratory QA program
- .04 Provide Sample Management (Chain of Custody, sample retention, & data storage)
- .05 Perform Data Validation
 - .01 Review analysis results against validation criteria
 - .02 Provide written documentation of validation efforts
- .06 Data Evaluation
 - .01 Data Useability Evaluation/Field QA/QC
 - .02 Data Reduction, Tabulation and Evaluation
 - .01 Evaluate Geological Data (Soils/Sediments)
 - .02 Evaluate Air Data
 - .03 Evaluate Hydrogeological Data—Groundwater
 - .04 Evaluate Hydrogeological Data—Surface Water
 - .05 Evaluate Waste Data
 - .06 Evaluate Geophysical Data
 - .07 Evaluate Ecological Data
- .03 Modeling
 - .01 Contaminant Fate and Transport
 - .02 Water Quality
 - .03 Groundwater
 - .04 Air
 - .05 Other Modeling
- .04 Develop Data Evaluation Efforts
 - .01 Draft Report
 - .02 Incorporation of Comments
 - .03 Final Report
- .07 Assessment of Risk
 - .01 Human Health Risk Assessment
 - .01 Draft Human Health Risk Assessment Report
 - .01 Hazard Identification (sources)
 - .02 Dose-Response Assessment
 - .03 Prepare Conceptual Exposure/Pathway Analysis
 - .04 Characterization of Site and Potential Receptors
 - .05 Exposure Assessment
 - .06 Risk Characterization
 - .07 Identification of Limitations/Uncertainties
 - .08 Site Conceptual Model
 - .02 Final Human Health Risk Assessment Report
 - .02 Ecological Risk Assessment
 - .01 Draft Ecological Risk Assessment Report
 - .01 Hazard Identification (sources)
 - .02 Dose-Response Assessment
 - .03 Prepare Conceptual Exposure/Pathway Analysis
 - .04 Characterization of Site and Potential Receptors
 - .05 Select Chemicals, Indicator Species, & End Points
 - .06 Exposure Assessment
 - .07 Toxicity Assessment/Ecological Effects Assessment
 - .08 Risk Characterization
 - .09 Identification of Limitations/Uncertainties
 - .10 Site Conceptual Model
 - .02 Final Ecological Risk Assessment
- .08 Treatability Study/Pilot Testing
 - .01 Literature Search
 - .02 Develop Treatability/Pilot Work Plan
 - .03 Bench Test
 - .01 Procure Test Facility and Equipment
 - .02 Provide Vendor & Analytical Service
 - .03 Test and Operate Equipment

- .04 Retrieve Sample for Equipment
- .05 Laboratory Analysis
- .06 Characterize and Dispose of Residuals
- .04 Pilot-Scale Test
 - .01 Procure Test Facility and Equipment
 - .02 Provide Vendor & Analytical Service
 - .03 Test and Operate Equipment
 - .04 Retrieve Sample for Testing
 - .05 Laboratory Analysis
 - .06 Characterize and Dispose of Residuals
- .05 Field Test
 - .01 Procure Test Facility and Equipment
 - .02 Provide Vendor & Analytical Service
 - .03 Test and Operate Equipment
 - .04 Retrieve Sample for Testing
 - .05 Laboratory Analysis
 - .06 Characterize and Dispose of Residuals
- .06 Document Treatability Study
 - .01 Draft Report
 - .02 Incorporation of Comments
 - .03 Final Report
- .09 Remedial Investigation Report
 - .01 Draft RI Report
 - .01 Site Background
 - .02 Investigation
 - .01 Field Investigation & Technical Approach
 - .02 Chemical Analysis & Analytical Methods
 - .03 Field Methodologies
 - .01 Biological
 - .02 Surface Water
 - .03 Sediment
 - .04 Soil Boring
 - .05 Soil Sampling
 - .06 Monitoring Well Installation
 - .07 Groundwater Sampling
 - .08 Hydrogeological Assessment
 - .09 Air Sampling
 - .03 Site Characteristics
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 - .04 Demographics and Land Use
 - .05 Ecological Assessment
 - .04 Nature and Extent of Contamination
 - .01 Contaminant Sources
 - .02 Contaminant Distribution and Trends
 - .05 Fate and Transport
 - .01 Contaminant Characteristics
 - .02 Transport Processes
 - .03 Contaminant Migration Trends
 - .06 Summary and Conclusions
 - .02 Final RI Report
- .10 Remedial Alternatives Screening
 - .01 Prepare Draft Technical Memorandum
 - .01 Establish Remedial Action Objectives
 - .02 Establish General Response Actions
 - .03 Identify & Screen Applicable Remedial Technologies
 - .04 Develop Remedial Alternatives in accordance with NCP
 - .05 Screen Remedial Alternatives for Effectiveness, Implementability, and Cost
 - .02 Prepare Final Technical Memorandum

- .11 Remedial Alternatives Evaluation
 - .01 Perform Remedial Alternatives Evaluation
- .12 FS Report and RI/FS Report
 - .01 Prepare Draft FS Report
 - .01 Summarizes Feasibility Study Objectives
 - .02 Summarizes Remedial Objective
 - .03 Articulate General Response Action
 - .04 Identification & Screening of Remedial Technologies
 - .05 Remedial Alternatives Description
 - .06 Detailed Analysis of Remedial Alternatives
 - .07 Summary and Conclusions
 - .02 Prepare Final FS Report
- .13 Post RI/FS Support
 - .01 Attend Public Meetings, Briefings, & Technical Meetings with PRPs
 - .02 Prepare Presentation Materials
 - .03 Provide Technical Assistance - Responsiveness Summary
 - .04 Provide Technical Assistance - Proposed Plan & ROD
 - .05 Prepare Feasibility Study Addendum
- .14 Negotiation Support
 - .01 Attend Negotiation Sessions and Meetings
 - .02 Review of PRP Documents
 - .03 Provide Technical Memorandum
 - .01 Prepare Draft Technical Memorandum
 - .02 Respond to Comments
 - .03 Submit Final Technical Memorandum
- .15 Administrative Record
 - .01 Coordinate with Administrative Record Coordinator
 - .02 Provide Assistance in Document Compilation
 - .03 Prepare Draft Administrative Record Index
 - .04 Prepare Administrative Record Index
 - .05 Coordinate Duplication of Administrative Index
 - .06 Assemble Administrative Record and Index
- .16 Work Assignment Closeout
 - .01 Return Documents to Government
 - .02 File Duplication/Distribution/Storage
 - .03 File Archiving
 - .04 Microfiche/Microfilm/Optical Disk
 - .05 Prepare Closeout Report

Attachment 3 Regulations and Guidance Documents

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.
3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
4. Community Relations in Superfund — A Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.
5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.
8. Data Quality Objectives for Remedial Response Activities, U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.
9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.
11. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.
14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
20. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.
26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.

28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.
29. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
30. Remedial Design and Remedial Action Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1995, OSWER Directive No. 9355.5-22.
31. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.
33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.
38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
39. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
44. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.

Attachment 4

TRANSMITTAL OF DOCUMENTS FOR ACCEPTANCE BY EPA		DATE:	TRANSMITTAL NO.
TO:		FROM:	<input type="checkbox"/> New Transmittal <input type="checkbox"/> Resubmittal of Transmittal No. _____
SUBTASK NO.	DELIVERABLE	NO. OF COPIES	REMARKS
ACCEPTANCE ACTION			
DOCUMENTS FOUND ACCEPTABLE (LIST BY SUBTASK NO.)		NAME/TITLE/SIGNATURE OF REVIEWER	
		DATE	

Attachment 5

[illegible]

**MODEL STATEMENT OF WORK FOR
REMEDIAL INVESTIGATION/FEASIBILITY STUDY OVERSIGHT**

To be added at a later date.

RD SOW

MODEL STATEMENT OF WORK FOR REMEDIAL DESIGN

SITE, _____ COUNTY, _____ STATE

ATTACHMENTS

Attachment 1. Summary of Major Submittals for the Remedial Design at ____ (Site)	24
Attachment 2. Work Breakdown Structure	28
Attachment 3. Regulation and Guidance Documents	34
Attachment 4. Transmittal of Documents for Acceptance by EPA	36
Attachment 5. Transmittal Register	37

Points for the Work Assignment Manager or Remedial Project Manager (WAM/RPM) to consider in preparing the Statement of Work (SOW) for Remedial Design (RD):

The purpose of this SOW is twofold:

1. **To tell the contractor what you want done.** Be as specific as possible in describing what you want the contractor to do. The contractor will write a work plan and budget describing how and at what cost the requirements will be met and ultimately will be responsible for performing those requirements. Whenever there is an absolute requirement (e.g., prepare the Quality Assurance Project Plan (QAPP) in accordance with QAMS-005/80 (December 29, 1980)), state it. Add the attachments to the SOW: (1) Summary of Major Submittals for the Remedial Design at ____ (Site), (2) Work Breakdown Structure, and (3) Transmittal of Documents for Acceptance by EPA.

2. **To give the contractor a work breakdown structure for recording costs.** In this manner, work plan costs and final costs of different remedial design projects can be compared and analyzed.

Use of a Work Breakdown Structure (WBS)

1. A WBS has been developed for this model work assignment for EPA to track the initial and final costs of each element used for preparing future cost estimates and to share this data with other Federal agencies. The WBS is, essentially, the outline for this work assignment and is included as Attachment 2 to the SOW.

2. If an element is not to be used, do not change the numbering system; instead, insert "not used" or "N/A" after the element number after deleting the text for that element.

3. For the items used for a given project, additional descriptions (e.g., type of samples and estimated number) should be added in order for the contractor and WAM/RPM to develop estimated costs on a common basis

3.0 Introduction

.0.1 Site Description

Provide a brief site description and site history.

.0.2 Purpose

The purpose of this Statement of Work (SOW) is to set forth the requirements for the Remedial Design (RD) of the selected remedy as defined in the Record of Decision (ROD) issued on

_____ (date). The RD is generally defined as those activities to be undertaken by the contractor to develop the final plans and specifications, general provisions, and special requirements necessary to translate the ROD into the remedy to be constructed under the remedial action (RA) phase. The RA is generally defined as the implementation phase of site remediation or construction of the remedy, including necessary operation and maintenance, performance monitoring, and special requirements. The RA is based on the RD to achieve the remediation goals specified in the ROD. This SOW is designed to provide the framework for conducting the RD activities at _____ (site). The goal is to complete and deliver the final plans and specifications within _____ months after approval of the work plan. The estimated completion date for this work assignment is _____.

.0.3 General Requirements

- .0.3.1 The contractor shall conduct the RD in accordance with this SOW and consistent with the ROD issued on _____ (date), 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. The primary contact for this work assignment is _____, Tel. _____; the secondary contact is _____; Tel. _____.
- .0.3.2 A summary of the major deliverables and a suggested schedule for submittals are attached (Attachment 1). The contractor shall submit the major deliverables using the form Transmittal of Documents for Acceptance by EPA, Attachment _____.

The attachments to this model SOW may be copied and completed for a given RD. Attachment 4 is a form for use by the contractor in the transmittal of documents to EPA and should be an attachment to the completed SOW. Attachment 5 is a transmittal register log for use by the WAM/RPM in tracking documents submitted by the contractor.

- .0.3.3 Specifically, the RD involves the design of _____.
- .0.3.4 The contractor shall furnish all necessary and appropriate personnel, materials, and services needed for, or incidental to, performing and completing the RD.
- .0.3.5 A list of primary guidance and reference material is attached (Attachment 3). In all cases, the contractor shall use the most recently issued guidance.
- .0.3.6 The estimated cost of the RA, as outlined in the ROD, is \$ _____.
- .0.3.7 The contractor shall communicate at least weekly with the Work Assignment Manager or Remedial Project Manager (WAM/RPM), either in face-to-face meetings or through conference calls.
- .0.3.8 The contractor shall notify the WAM/RPM when 75 percent of the approved work assignment budget has been expended and when 95 percent has been expended.
- .0.3.9 The contractor shall document all decisions that are made in meetings and conversations with EPA. The contractor shall forward this documentation to the WAM/RPM within two working days of the meeting or conversation.

It is the WAM's responsibility to document fully all decisions made. The contractor's documentation is used for confirmation only.

- .0.3.10 EPA will provide oversight of contractor activities throughout the RD. 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 will review deliverables to assess the likelihood that the RD will achieve its remediation goals and that its performance and operations requirements have been correctly identified. Acceptance of plans and specifications by EPA does not relieve the contractor of responsibility for the adequacy of the design.
- .0.4 Record-Keeping Requirements

The contractor shall maintain all technical and financial records for the RD in accordance with the contract. At the completion of the RD, the contractor shall submit _____ copies of the official record of the RD in _____ (format) to the WAM/RPM.

1. Technical and financial records must support decisions made during the RD as well as cost recovery.
2. Check with the Regional Records Manager and with Regional Counsel regarding the distribution, number of copies, and preferred format (i.e., hard copy, microform, CD-ROM) for the official records of the RD.

.0.5 Equipment Transfer

At the completion of the RD work assignment, the contractor shall transfer to the EPA Equipment Coordinator all equipment purchased with contract funds in accordance with the contract.

.0.6 Project Closeout

At the completion of the RD work assignment, the contractor shall perform all necessary project closeout activities as specified in the contract. These activities may include closing out any subcontracts, indexing and consolidating project records and files as required in Paragraph 0.4 above, and providing a technical and financial closeout report to EPA. Final costs shall be reported to EPA (on disk) broken down into the cost for each element of the Work Breakdown Structure (WBS) (Attachment 2) for this work assignment.

3.1 Project Planning and Support

The purpose of this task is to determine how the site-specific remediation goals, as specified in the ROD, will be met. The following activities shall be performed as part of the project planning task:

.1.1 Project Planning

- .1.1.1 Attend Scoping Meeting.** Before or concurrent with developing the Work Plan, the contractor shall attend a scoping meeting to be held at the EPA Regional Office.

Location of meetings and RPM expectations for the number of contractor personnel to attend should be specified for cost estimation purposes.

- .1.1.2 Conduct Site Visit.** The contractor shall conduct a site visit with the EPA WAM/RPM during the project planning phase to assist in developing a conceptual understanding of the RD requirements for the site. Information gathered during the visit shall be used to better scope the project and to help determine the extent of additional data necessary to implement the RD. A Health and Safety Plan (HASP) is required for the site visit. The contractor shall prepare a report that documents all EPA, contractor, and site personnel present at the visit; all decisions made during the visit; any action items assigned, including person responsible and due date; any unusual occurrences during the visit; and any portions of the site that were not accessible to the contractor and the effect of this on the RD. This report shall be submitted to the EPA WAM/RPM within 10 calendar days of the site visit.
- .1.1.3 Evaluate Existing Information.** The contractor shall obtain, copy (if necessary), and evaluate existing data and documents, including the Remedial Investigation/Feasibility Study (RI/FS), the ROD, and other data and documents as directed by EPA. This information shall be used to determine if any additional data are needed for RD implementation. The documents available for review are listed in Attachment _____.

The WAM/RPM will create an attachment to this SOW. Additional documents to list in the attachment could include the summary of the "Information Collection" effort (see Chapter 3 of the Guidance for Scoping the Remedial Design), Focused Feasibility Studies (FFSs), State documentation, hydrogeological information, and RPM file data. However, to control expenses, limit review to pertinent documents specific to the site.

- .1.1.4 Develop Work Plan. The contractor shall present the general approach that will be used for the RD at a Work Plan scoping meeting with the WAM/RPM. This meeting will be held at the Region _____ office.

If the RD will be complex, consider modifying subtask 3.1.1.4(1) to include a scoping meeting. A scoping meeting held before the contractor finalizes the technical approach ensures that the government and the contractor agree on the approach to be taken and that the work plan reflects the agreed-upon approach. The contractor may not have to rewrite the work plan if this is done.

- (1) Develop Draft Work Plan. The contractor shall prepare and submit a draft RD Work Plan within 30 calendar days after Work Assignment (WA) initiation. The contractor submits the original to the Contracting Officer (CO), one copy to the Project Officer (PO), and one copy to the WAM/RPM. The Work Plan shall include a comprehensive description of the additional data collection and evaluation of activities to be performed, if any, and the plans and specifications to be prepared. A comprehensive design management schedule for completion of each major activity and submittal shall also be included. The Work Plan shall be developed in conjunction with the Sampling and Analysis Plan (SAP) and HASP, although each plan shall be delivered under separate cover within 30 days after WA initiation.

1. The submittal requirements in this SOW must be in accordance with the submittal requirements for the contract.
2. An independent government cost estimate (IGCE) for the RD must be prepared before the work assignment (WA) is issued to the contractor.
3. Verify the work plan submittal timeframe with the PO.
4. Additional copies of the work plan can be submitted to the WAM/RPM, if specified, for distribution to other technical staff.

- (a) Develop Narrative. Specifically, the Work Plan shall present the following:
- A statement of the problem(s) and potential problem(s) posed by the site and how the objectives of the RD will address the problem(s).
 - A background summary setting forth: (1) a brief description of the site including the geographic location and a description of the physiographic, hydrologic, geologic, demographic, ecological, cultural, and natural resource features of the site; (2) a brief synopsis of the history of the site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties at the site; (3) a summary of the existing data including physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the site.
 - The contractor's technical and management approach to each task to be performed, including a detailed description of each task; the assumptions used;

the identification of any technical uncertainties (with a proposal for the resolution of those uncertainties); the information needed for each task; any information to be produced during and at the conclusion of each task; and a description of the work products that will be submitted to EPA. The contractor shall identify any subcontractors it plans to use to accomplish all or part of a task's objectives. Tasks and subtasks shall be presented in the same WBS format as provided in this work assignment.

- A schedule for specific dates for the start and completion of each required activity and submission of each deliverable required by this SOW. (See Attachment 1 for format.) This schedule shall also include information about timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for EPA.

For schedule development, the WAM/RPM should indicate to the contractor whether design activity will continue concurrent with EPA design review or whether work will stop until the contractor receives design review comments. In deciding which to prescribe, weigh the trade off between the cost of possible rework versus a shortened schedule.

- (b) Develop Cost Estimate. The contractor's estimated cost to complete the work assignment shall be broken down into the Level of Effort (by P-level) and cost for each element of the Work Breakdown Structure (Attachment 2) and submitted to EPA on disk.

- (c) Internal QA and Submission of Draft Work Plan.

(2) Prepare Final Work Plan

- (a) Attend Negotiation Meeting. The contractor shall attend a Work Plan negotiation meeting at the Region _____ office.

- (b) Modify Draft Work Plan and Cost Estimate. If the contractor finds that the remedial action being designed differs significantly from the ROD or that an ARAR cannot be met, the contractor shall describe the issue and recommend technical solutions in a memo to the WAM/RPM. The contractor shall make revisions to the Work Plan as a result of EPA's comments and/or negotiation agreements. The final work plan shall be submitted within 15 days after receipt of EPA comments.

- (c) Internal QA and Submission of Final Work Plan.

.1.2 Preparation of Site-Specific Plans

- .1.2.1 Develop Site Management Plan. After EPA approval of the RD Work Plan, the contractor shall prepare a Site Management Plan (SMP) that provides EPA with a written understanding of how access, security, contingency procedures, management responsibilities, and waste disposal are to be handled.

- (1) Develop Pollution Control and Mitigation Plan

- (2) Develop Transportation and Disposal Plan (Waste Management Plan)

- .1.2.2 Develop Health and Safety Plan. Prepare a site-specific HASP that specifies employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with [40 CFR 300.150 of the NCP and] 29 CFR 1910.120 1(1) and (1)(2). Whenever possible, refer to the HASP developed for the RI/FS when preparing the HASP for the RD. A task-specific HASP must also be prepared to address health and safety requirements for site visits.

- .1.2.3 Develop Sampling and Analysis Plan (Chemical Data Acquisition Plan)

- (1) Quality Assurance Project Plan. The contractor shall prepare a Quality Assurance Project Plan (QAPP) in accordance with EPA QA/R-5 (latest draft or revision). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired Data Quality Objectives (DQOs). The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination

consistent with the levels for remedial action objectives identified in the National Contingency Plan. The QAPP developed for the RI/FS should be referenced or adapted whenever possible when preparing the QAPP for the RD.

- (2) Field Sampling Plan. Prepare a Field Sampling Plan (FSP) that defines the sampling and data collection methods that shall be used for the project. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and a breakdown of samples to be analyzed through the Contract Laboratory Program (CLP) and through other sources, as well as the justification for those decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. The FSP developed for the RI/FS must be referenced or adapted whenever possible when the FSP is prepared for the RD; the contractor shall document any required changes to the FSP in a memorandum to the WAM/RPM.

1. Depending on the complexity of the sampling effort needed to support the RD, the FSP and QAPP can be combined into a single Sampling and Analysis Plan (SAP).
2. Minimize the duplication of data collection by requiring the contractor to use existing data whenever practicable. Contractors tend to "mistrust" data collected by others regardless of the quality. Limiting data collection can shorten the design period.
3. Reduce time and costs by using an on-site laboratory to analyze routine samples rather than going through the CLP.
4. Identify whether audits will be performed and specify contractor response items.

(3) Data Management Plan

(4) Develop Other Plan(s)

.1.3 Project Management

- .1.3.1 Prepare Periodic Status Reports. The contractor shall prepare Monthly Progress Reports.
 - (1) Document Cost and Performance Status. The contractor shall document the status of each task and report costs and level of effort (by P-level) expended to date.
 - (2) Prepare and Submit Invoices
- .1.3.2 Meeting Participation and Routine Communications. The contractor shall attend project meetings, provide documentation of meeting results, and shall contact the WAM by telephone on a weekly basis to report project status.
- .1.3.3 Perform Engineering Network Analysis
- .1.3.4 Manage, Track, and Report Equipment Status. The contractor shall manage, track, and report the status of all site-specific equipment.
- .1.3.5 Work Assignment Closeout

The RPM/WAM should specify the format for submissions (e.g., Monthly Progress Reports) if there are Region-specific requirements or other specific requirements.

.1.4 Subcontract Procurement and Support Activities

- .1.4.1 Identification and Procurement of Subcontractors. Procure and administer the necessary subcontracts, including, but not limited to the following:
 - (1) Drilling Subcontractor
 - (2) Surveying Subcontractor
 - (3) Geophysical Subcontractor

- (4) Site Preparation Subcontractor
- (5) Analytical Services Subcontractor(s)
- (6) Waste Disposal Subcontractor
- (7) Treatability Subcontractor(s)
- (8) Other(s)
- .1.4.2 Establish and Carry Out a QA Program for Subcontracts
- .1.4.3 Perform Subcontract Management

3.2 Community Relations

The contractor shall provide community relations support to EPA throughout the RD. The contractor shall provide community relations support in accordance with *Community Relations in Superfund: A Handbook*, June 1988. Community relations shall include the following subtasks:

Listed below are a number of possible community relations activities the RPM/WAM may require

- .2.1 Develop Community Relations Plan (CRP)

The contractor shall develop an RI/FS CRP to address community relations requirements during the RD. This CRP may be modified from an existing CRP to meet site-specific requirements.

 - .2.1.1 Conduct Community Interviews
 - .2.1.2 Prepare the CRP
 - (1) Draft CRP
 - (2) Final CRP
- .2.2 Prepare Fact Sheets

The contractor shall prepare a fact sheet that informs the public about activities related to the final design, a schedule for the RA, activities to be expected during construction, provisions for responding to emergency releases and spills, and any potential inconveniences such as excess traffic and noise that may affect the community during the RA.
- .2.3 Public Hearing, Meetings, and Availability Support

The contractor shall support and assist in public hearings, meetings, and open houses. The contractor shall prepare presentation materials and provide support as needed for public meetings.

- 1. The number and location of anticipated public meetings should be identified in the SOW.
- 2. The RPM should specify the number of contractor personnel expected to attend the public meetings

- .2.3.1 Technical Support. The contractor shall provide technical support for community relations. This support may include preparing technical input to news releases, briefing materials, and other community relations vehicles, and helping the WAM/RPM to coordinate with local agencies.
- .2.3.2 Logistical and Presentation Support
- .2.3.3 Public Notice Support
- .2.4 Maintain Information Repository and Mailing Lists

The contractor shall develop or revise site mailing lists and maintain a repository of information on activities related to the site-specific remedial design as described in Appendix A.8, page A-19, of *Community Relations in Superfund: A Handbook*, June 1988.

The RPM/WAM should specify the format for Community Relations submissions (e.g., fact sheets, news releases) if there are Region-specific requirements or other specific requirements.

3.3 Data Acquisition

Data acquisition entails collecting environmental samples and information required to support the RD. The planning for this task is accomplished in Task 3.1, Project 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 ends with the demobilization of field personnel and equipment from the site.

The contractor shall perform the following field activities or combination of activities for data acquisition in accordance with the EPA-approved FSP and QAPP developed in Task 3.1.

Before beginning field activities, consider specifying a kickoff meeting with all principal personnel to clarify objectives, communication channels, etc., to ensure the efficient use of available funds.

.3.1 Mobilization and Demobilization

Provide the necessary personnel, equipment, and materials for mobilization and demobilization to and from the site for the purpose of conducting the sampling program under subtask 3.3.2, Field Investigation.

.3.1.1 Identify Field Support Equipment, Supplies, and Facilities

.3.1.2 Mobilization. Mobilize and set up a field laboratory to facilitate rapid turnaround times for analytical results and identification of sample locations for subsequent sampling rounds.

(1) Site Preparation

- (a) Perform Demolition
- (b) Clearing and Grubbing
- (c) Perform Earthwork
 - Provide Borrow Pit
 - Construct Haul Roads
 - Construct Roads, Parking, Curbs, and Walks
 - Install Storm Drainage and Subdrainage
 - Install Fencing and Site Security

(2) Installation of Utilities

- (a) Install Electrical Distribution
- (b) Install Telephone and Communication System(s)
- (c) Install Water, Sewage, and Gas Distribution
- (d) Install Fuel Line Distribution

(3) Construction of Temporary Facilities

- (a) Construct Decontamination Facilities
- (b) Construct Sample and Derived Waste Storage Facility
- (c) Construct Field Offices
- (d) Construct Mobile Laboratory
- (e) Construct Other Temporary Facilities

.3.1.3 Demobilization. Demobilize the field laboratory.

- (1) Removal of Temporary Facilities
- (2) Site Restoration

.3.2 Field Investigation. Conduct environmental sampling to include the following:

.3.2.1 Perform Site Reconnaissance. The contractor shall conduct site surveys including property, boundary, utility rights-of-way, and topographic information. These surveys are to refine the survey data from the RI/FS and to ensure the accuracy of the information for the RD.

For items of this Model Statement of Work that are not needed for a given project, please retain the numbers for the items, but enter "Not Used" or "N/A" after the numbers of those items.

For the items used for a given project, additional descriptions (e.g., type of samples and estimated number) should be added in order for the contractor and RPM/WAM to develop estimated costs on a common basis.

- (1) Ecological Resources Reconnaissance
 - (a) Well Inventory
 - (b) Residential Well Sampling
 - (c) Land Survey
 - (d) Topographic Mapping
 - (e) Field Screening
- .3.2.2 Conduct Geological Investigations (Soils and Sediments)
 - (1) Collect Surface Soil Samples
 - (2) Collect Subsurface Soil Samples
 - (3) Soil Boring and Permeability Sampling
 - (4) Collect Sediments Samples
 - (5) Survey Soil Gases
 - (6) Test Pit
- .3.2.3 Conduct Air Investigations
 - (1) Sample Collection
 - (2) Air Monitoring Station
- .3.2.4 Conduct Hydrogeological Investigations: Ground Water
 - (1) Install Well Systems
 - (a) Accomplish Mobilization
 - (b) Develop Wells
 - (c) Conduct Downhole Geophysics
 - (d) Install Monitoring Wells
 - (e) Install Test Wells
 - (f) Install Gas Wells
 - (2) Collect Samples
 - (3) Collect Samples During Drilling (e.g., HydroPunch or Equivalent)
 - (4) Conduct Tidal Influence Study
 - (5) Perform Hydraulic Tests (Pump Tests)
 - (6) Measure Ground-Water Elevation
- .3.2.5 Conduct Hydrogeological Investigations: Surface Water
 - (1) Collect Samples
 - (2) Study Tidal Influence
 - (3) Measure Surface-Water Elevation
- .3.2.6 Conduct Waste Investigation
 - (1) Collect Samples (Gas, Liquid, Solid)
 - (2) Dispose of Derived Waste (Gas, Liquid, Solid)
- .3.2.7 Conduct Geophysical Investigation
 - (1) Surface Geophysical Activity [can just list these]
 - (2) Magnetometer
 - (3) Electromagnetics
 - (4) Ground-Penetrating Radar
 - (5) Seismic Refraction
 - (6) Resistivity
 - (7) Site Meteorology
 - (8) Cone Penetrometer Survey
 - (9) Remote Sensor Survey
 - (10) Radiological Investigation
- .3.2.8 Conduct Ecological Investigation
 - (1) Wetland and Habitat Delineation
 - (2) Wildlife Observations
 - (3) Community Characterization
 - (4) Identification of Endangered Species
 - (5) Biota Sampling and Population Studies
- .3.2.9 Collect Contaminated Building Samples.

- .3.2.10 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)).

1. The WAM/RPM must determine the types of sampling that will be needed and select from the list above.
2. The numbers of samples anticipated should be specified so that both the contractor and the WAM/RPM can develop the cost estimates.
3. The WAM/RPM should consult with the Technical Review Team to determine the types and numbers of samples to be collected. The numbers may be refined upon negotiation with the contractor.
4. The WAM/RPM should specify the expected written and/or photographic documentation to be recorded in the field.
5. The WAM/RPM should specify the type of field activity reports that are expected, the frequency, and required distribution (RPM, State representative, etc.).

3.4 Sample Analysis

The contractor shall arrange for the analysis of environmental samples collected during the previous task. The sample analysis task begins with reserving sample slots in the CLP and the completion of the field sampling program. This task ends with the contractor validating the analytical data received from the laboratory.

1. The RPM/WAM should consider adding a subtask for on-site laboratory analysis. The purpose of this new subtask would be to perform screening analyses only.
2. If special analytical services (SAS) are required, they must be specified in a subtask.

The contractor shall perform the following activities or combination of activities to analyze test results:

.4.1 Screening-Type Laboratory Sample Analysis

- .4.1.1 Analyze Air and Gas Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.2 Analyze Ground-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.3 Analyze Surface-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.4 Analyze Soil and Sediment Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.5 Analyze Waste (Gas) Samples
 - (1) Organic
 - (2) Inorganic

- (3) Radiochemistry
- .4.1.6 Analyze Waste (Liquid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.7 Analyze Waste (Solid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.8 Analyze Biota Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.9 Analyze Bioassay Samples
- .4.1.10 Perform Bioaccumulation Studies
- .4.2 CLP-Type Laboratory Sample Analysis
 - .4.2.1 Analyze Air and Gas Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.2 Analyze Ground-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.3 Analyze Surface-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.4 Analyze Soil and Sediment Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.5 Analyze Waste (Gas) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.6 Analyze Waste (Liquid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.7 Analyze Waste (Solid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.8 Analyze Biota Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.9 Analyze Bioassay Samples
 - .4.2.10 Perform Bioaccumulation Studies

3.5 Analytical Support and Data Validation

The contractor shall arrange for the validation of environmental samples collected during the previous task. The sample validation task begins with reserving sample slots in the CLP and the completion of the

field sampling program. This task ends with the contractor validating the analytical data received from the laboratory.

Perform appropriate data validation to ensure that the data are accurate and defensible.

1. For RD, full data validation procedures are usually not necessary. The WAM/RPM may want to specify the level of data validation required.
2. The WAM/RPM should specify the format for submissions if there are Region-specific requirements or if you have specific requirements.

The contractor shall perform the following activities or combination of activities to validate test results:

- .5.1 Prepare and Ship Environmental Samples
 - .5.1.1 Ground-Water Samples
 - .5.1.2 Surface and Subsurface Soil Samples
 - .5.1.3 Surface-Water and Sediment Samples
 - .5.1.4 Air Samples
 - .5.1.5 Biota Samples
 - .5.1.6 Other Types of Media Sampling and Screening
- .5.2 Coordinate with Appropriate Sample Management Personnel
- .5.3 Implement EPA-Approved Laboratory QA Program.
- .5.4 Provide Sample Management (Chain of Custody, Sample Retention, and Data Storage)
Ensure the proper management of samples. Ensure accurate chain-of-custody procedures for sample tracking, protective sample packing techniques, and proper sample-preservation techniques.
- .5.5 Validate Data
 - .5.5.1 Review Analysis Results Against Validation Criteria
 - .5.5.2 Provide Written Documentation of Validation Efforts

The WAM/RPM should specify the format for submissions if there are Region-specific requirements or if the WAM/RPM has specific requirements.

3.6 Data Evaluation

The contractor shall organize and evaluate existing data and data gathered during the previous tasks that will be used later in the RD effort. Data evaluation begins with the receipt of analytical data from the data acquisition task and ends with the submittal of the Data Evaluation Summary Report. Specifically, the contractor shall perform the following activities or combination of activities during the data evaluation effort:

- .6.1 Data Usability Evaluation and Field QA/QC
- .6.2 Data Reduction, Tabulation, and Evaluation.
Evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. Design and set up an appropriate database for pertinent information collected that will be used during the RD.
 - .6.2.1 Evaluate Geological Data (Soils and Sediments)
 - .6.2.2 Evaluate Air Data
 - .6.2.3 Evaluate Hydrogeological Data: Ground Water
 - .6.2.4 Evaluate Hydrogeological Data: Surface Water
 - .6.2.5 Evaluate Waste Data
 - .6.2.6 Evaluate Geophysical Data
 - .6.2.7 Evaluate Ecological Data
- .6.3 Modeling
 - .6.3.1 Contaminant Fate and Transport

- .6.3.2 Water Quality
- .6.3.3 Ground Water
- .6.3.4 Air
- .6.3.5 Other Modeling
- .6.4 Develop Data Evaluation Report. Evaluate and present results in a Data Evaluation Summary Report and submit to the WAM/RPM for review and approval. After the WAM/RPM's review, attend a meeting with EPA to discuss data evaluation results and next steps.

The WAM/RPM should specify the format for submissions if there are Region-specific requirements or if the WAM/RPM has specific requirements.

The WAM/RPM should specify that the contractor shall prepare and submit a Technical Memorandum to the WAM/RPM if new analytical data needs or significant data problems are identified during the evaluation.

3.7 Treatability Study and 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 RD. 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 approved RD Work Plan, the contractor shall perform the following activities:

.7.1 Literature Search

.7.2 Develop Treatability and Pilot Work Plan

Prepare the Treatability Study Work plan and submit to the WAM/RPM 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 review periods. Key milestones that should have completion dates specified included, but are not limited to, the procurement of contractors and the completion of sample collection, the performance period, sample analysis, and report preparation.

In the SOW, the WAM/RPM should be clear about the expected schedule, and specify deadlines for each activity to maintain the overall RD schedule. When reviewing the contractor's Work Plan, check to see that the schedule in the Treatability Study Work Plan is consistent with the schedule in the RD Work Plan.

The Treatability Study Work Plan shall describe in detail the treatment process and how the proposed vendor or technology will meet the performance standards for the site. The Treatability Study Work Plan shall address how the contractor will meet all discharge or disposal requirements for any and all treated material, air, water, and expected effluents. Additionally, the Work Plan shall explain the proposed final treatment and disposal of all material generated by the proposed treatment system.

1. List the treatment train and components of the system if possible.
2. Where do treated water and residuals go?
3. Will there be discharges to air? Is an air pathway analysis needed to ensure the protection of workers and the public?
4. Does the contractor need to consider land disposal restrictions?
5. Consider having a contingency plan in case problems develop.

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.

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

.7.3 Bench Test

- .7.3.1 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.
- .7.3.2 Provide Vendor and Analytical Service
- .7.3.3 Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
- .7.3.4 Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
- .7.3.5 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.
- .7.3.6 Characterize and Dispose of Residuals

.7.4 Pilot-Scale Test

- .7.4.1 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.
- .7.4.2 Provide Vendor and Analytical Service
- .7.4.3 Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
- .7.4.4 Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
- .7.4.5 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.
- .7.4.6 Characterize and Dispose of Residuals

.7.5 Field Test

- .7.5.1 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.
- .7.5.2 Provide Vendor and Analytical Service

- .7.5.3 Test and Operate Equipment. The contractor shall test equipment to ensure operation, then start up and operate equipment.
- .7.5.4 Retrieve Sample for Testing. The contractor shall obtain samples for testing as specified in the Treatability Work Plan.
- .7.5.5 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.
- .7.5.6 Characterize and Dispose of Residuals
- .7.6 Develop Treatability Study Report.
 _____ days after completion of the Treatability Study, 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.

Specify the format for submissions if there are Region-specific requirements or if there are other specific requirements.

Consider holding a project review meeting with the Technical Review Committee and other team members after completing the above task to present treatability study results and to summarize the RD status.

3.8 Preliminary Design

Preliminary Design begins with the initial design and ends with the completion of approximately 30 percent of the design effort. At this stage, the contractor shall have field-verified the existing conditions of the site, as necessary. The contractor shall provide supporting data and documentation with the design documents defining the functional aspects of the project to prove that the completed project will be effective in meeting the remediation goals and applicable or relevant and appropriate requirements (ARARs). For projects where the U.S. Army Corps of Engineers (USACE) is responsible for RA performance, the contractor shall prepare design submittals to conform to the format prescribed in *Technical Requirements for Pre-Design and Design Submittals*, USACE, ETL 1006. In accordance with the schedule established in the RD Work Plan, the contractor shall submit to EPA the Preliminary Design, which shall consist of the following subtasks:

Depending on the RA complexity, the WAM/RPM may require design submittals at 30 percent and again at 95 to 100 percent, eliminating the intermediate design submittal at 60 percent design completion.

.8.1 Preliminary Design

The contractor shall prepare a Design Criteria Report that defines in detail the technical parameters upon which the design will be based. Specifically, the Design Criteria Report shall include the preliminary design assumptions and parameters, including (1) waste characterization; (2) pretreating requirements; (3) volume and types of each medium requiring treatment; (4) treatment schemes (including all media and byproducts), rates, and required qualities of waste streams (i.e., input and output rates, influent and effluent qualities, potential air emissions, and so forth); (5) performance standards; (6) long-term performance monitoring and operations and maintenance (O&M) requirements; (7) compliance with all ARARs, pertinent codes, and standards; (8) technical factors of importance to the design and construction including use of currently accepted environmental control measures, constructability of the design, and use of currently acceptable construction

practices and techniques. In addition to a Design Criteria Report, the contractor shall do the following:

It is recommended that a Design Criteria Report be submitted at approximately 10 percent completion.

- .8.1.1 Recommend Project Delivery Strategy and Scheduling. The schedule shall include an evaluation of a phased approach to expedite the RA.
- .8.1.2 Prepare Preliminary Construction Schedule. A preliminary RA schedule appropriate to the size and complexity of the project shall be included in the plans and specifications.
- .8.1.3 Prepare Specifications Outline. The general specifications outline shall include all specification sections to be used. Format and organization shall be as described in Chapter 10 of the *Architect Engineer Manual*, USACE, AEIM-14, Omaha District, July 1989, which incorporates the Construction Specification Institute (CSI) format. USACE also developed standardized specifications for RDs that should be used whenever possible. Ms. Tommian McDaniel at EPA Headquarters (Tel. 202-761-4363) may be contacted for more information.

The need for performance specifications in lieu of a detailed design is determined under this subtask.

- .8.1.4 Prepare Preliminary Drawings. The drawings and schematics shall reflect organization and clarity. This submittal should include (1) an outline or listing of proposed drawings and schematics; (2) facility representations including a revised process flow diagram and a preliminary piping and instrumentation diagram; (3) a general arrangement diagram; and (4) site drawings. Engineering drawings shall be submitted in full size and half size reproductions. Standard formats for use in preparing design drawings shall be those described in the *USACE Architect Engineer Manual*.

The character of the drawings and schematics will vary according to the remedy. Formatting requirements for the drawings should be specified in this subtask.

- .8.1.5 Prepare Basis of Design Report. The contractor shall submit a detailed description of the evaluations conducted to select the design approach as part of the Basis of Design Report. This report shall include a Summary and Detailed Justification of Assumptions. This summary shall include (1) calculations supporting the assumptions; (2) a draft process flow diagram; (3) a detailed evaluation of how all ARARs will be met; (4) a plan for minimizing environmental and public impacts; and (5) a plan for satisfying permitting requirements.
- .8.1.6 Prepare Preliminary Cost Estimate. The preliminary RA cost estimate shall be a preliminary evaluation of the costs of all the elements of the RA. The estimate should be accurate within plus _____ percent and minus _____ percent and be prepared by using the M-CACES Gold cost estimating system for remedial action. Results of the value engineering (VE) screening are presented as part of the RA cost estimate. (See subtask 3.8.4.)

1. In the subtask above, use plus 40 percent and minus 20 percent for simple projects; plus 50 percent and minus 30 percent for complex projects.

2. M-CACES Gold Estimating System is the computer software currently used for estimating construction costs by the U.S. Army of Corps of Engineers (USACE) for its RA projects and will facilitate its review of the cost estimate. The use of this system is required under Response Action Contracts (RACs) but is optional under ARCS contracts.

.8.2 Describe Variances with the ROD

If the contractor finds that the RA being designed differs from the ROD or that an ARAR cannot be met, the contractor shall describe the issue and recommend technical solutions in a memorandum to the WAM/RPM.

.8.3 Land Acquisition and Easement Requirements

The need for land acquisition for access and easement requirements shall be identified and submitted as part of the Basis of Design Report.

.8.3.1 Identify Need and Locations

.8.3.2 Provide Technical Support for Land Acquisition Efforts

.8.4 Conduct and/or Assist in Value Engineering Screening

The VE screening shall include an evaluation of cost and function relationships, concentrating on high-cost areas. The VE screening shall be performed by an independent Value Engineering group that is not otherwise participating in the RD. The outcome of the screening shall be a recommendation for or against a full-scale VE study (a subtask performed during intermediate design) based on the potential for cost savings as a result of design changes. [Value Engineering Fact Sheet, May 1990.]

.8.5 Respond to Design Review Comments

The contractor shall consolidate and respond to design review comments. A written response to each comment shall be provided. The response shall indicate whether the contractor has decided to implement a design change as a result of the comment, and how the change will impact the selected remedy, RD/RA costs, and/or schedule. A summary of the responses to comments shall be submitted to the WAM prior to initiation of Intermediate Design. The design changes shall be incorporated under Intermediate Design (Task 3.10).

.8.6 Participate in Preliminary Design Review or Briefing

The contractor shall participate in design review meetings to be held at Region _____ offices.

The WAM/RPM should specify the format for submissions if there are Region-specific requirements or other specific requirements.

The contractor shall implement QC procedures to ensure the quality of all reports and submittals to EPA. These procedures shall include, but are not limited to, internal technical and editorial review; the independent verification of all calculations used in the design; and the documentation of all reviews, the problems identified, and corrective actions taken.

[NOTE: ITEMS 3.8.2 THROUGH 3.8.6, INCLUSIVE, ARE NOT INCLUDED IN THE 6-PERCENT DESIGN LIMITATION CALCULATIONS.]

3.9 Equipment, Services, and Utilities

This task includes all efforts necessary to procure long-lead equipment and/or services.

.9.1 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.

This task does not include contract award. Contract award should normally be conducted as part of a separate RA work assignment.

.9.2 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.

3.10 Intermediate Design

The intermediate design begins at the completion of the preliminary design phase and ends with the completion of approximately 60 percent of the total design effort. The contractor shall submit to EPA the Intermediate Design submittal which shall consist of a continuation and expansion of the Preliminary Design submittal. Review comments on the Preliminary Design shall be reflected in the Intermediate Design. A Value Engineering Study shall be performed based on approved recommendations from the VE screening submitted with the preliminary design. The Intermediate Design documents shall be submitted in accordance with the approved design management schedule and shall consist of the following subtasks:

.10.1 Update Construction Schedule

The schedule for implementation of the RA shall identify the timing for initiation and completion of all critical path tasks. The schedule shall specifically identify duration for completion of the project and major milestones.

.10.2 Prepare Intermediate Specifications

Plans and specifications shall conform to acceptable standards and shall be formatted in accordance with CSI requirements. Plans and specifications shall include preliminary specifications for construction, installation, site preparation, and field work standards, including an equipment startup and operator training plan. A table of contents for the general specifications shall be provided with this submittal. All specifications shall conform to CSI format.

.10.3 Prepare Intermediate Drawings

The contractor shall submit an outline or listing of drawings: facility representations containing a process flow diagram, a piping and instrumentation diagram, and a control logic table; and continuation and expansion of drawings submitted with the Preliminary Plans and Specifications. Include engineering drawings for grading/paving, foundation, and electrical, structural, and mechanical elements, etc.

.10.4 Prepare and Submit Revised Basis of Design Report

The contractor shall submit a revised summary of the evaluations conducted to select the design approach as part of the revised Basis of Design Report. The report shall include the following components:

- Summary and Detailed Justification of Assumptions. This summary shall include: (1) design calculations supporting the assumptions; (2) a revised process flow diagram; (3) a detailed evaluation of how ARARs will be met; (4) a plan for minimization of environmental and public impacts; and (5) heat and mass balances.
- Recommended RA Contracting Strategy. The contractor shall address the management approach for procuring the RA contractor, including procurement methods, phasing alternatives, and contractor and equipment availability concerns.
- Plan for Satisfying Permitting Requirements. EPA comments shall be incorporated into an updated Permits Plan.
- Identification of Easement and Access Requirements. The need for land acquisitions for access and easement requirements shall be identified and submitted as part of the Intermediate Design.

Identification of the projected O&M requirements and development of an estimate of annual O&M costs.

.10.5 Prepare Revised RA Cost Estimate

This revised estimate of the RA shall be developed using flow sheets, layouts, and equipment details. The estimate shall be accurate within plus ___ percent and minus ___ percent and be prepared using the M-CACES Gold Cost Estimating System for Remedial Action.

1. In the subtask above, use plus 30 percent and minus 15 percent for simple projects; plus 40 percent and minus 20 percent for complex projects.
2. Use of M-CACES Gold Estimating System computer software for the cost estimate is required for EPA RD work assignments under RACs and is recommended for ARCS. This system is used by USACE for construction cost estimating and will enable contractor-prepared construction estimates to be reviewed more readily for accuracy.

.10.6 Participate in Intermediate Design Review or Briefing

The contractor shall participate in a variety of design review activities, including design review meetings to be held at Region _____. The contractor shall also perform and submit a report describing the results of the following design reviews:

- .10.6.1 Initial Constructability Review. The contractor shall review and provide written comments for the Initial Constructability Review. The constructability review shall be conducted to evaluate the suitability of the proposed project and its components in relation to the project size.
- .10.6.2 Initial Biddability Review. The contractor shall review and provide written comments for the initial biddability review.
- .10.6.3 Initial Operability Review. The contractor shall review and provide written comments for the Initial Operability Review. The operability review shall assure that the completed project will conform to applicable performance and operations requirements.
- .10.6.4 Initial Environmental Review. The contractor shall review and provide written comments for the Initial Environmental Review.
- .10.6.5 Initial Claims Prevention Screening. The contractor shall review and provide written comments for the Initial Claims Prevention Screening. The claims prevention review is to be conducted to eliminate conflicts, inconsistencies, ambiguities, errors, omissions, or other identifiable problems in the plans, specifications, and contract documents that are subject to change orders and contractor claims.

.10.7 Perform VE Study and Report Recommendations

The VE Study shall be conducted and the Report prepared by an independent Value Engineering group that is not otherwise participating in the RD (as in subtask 3.8.4).

.10.8 Describe Variances with the ROD

If the contractor finds that the remedial action being designed differs from the ROD, or that an ARAR cannot be met, the contractor shall describe the issue and recommend technical solutions in a memorandum to the WAM/RPM.

.10.9 Respond to Design Review Comments

A written response to each comment shall be provided. The response shall indicate whether the contractor has decided to implement a design change as a result of the summary of the responses to comments shall be submitted to the WAM prior to initiation of Intermediate Design. The design changes shall be incorporated under Intermediate Design (Task 3.10).

[NOTE: ITEMS 3.10.6 THROUGH 3.10.9 ARE NOT INCLUDED IN THE 6-PERCENT DESIGN LIMITATION CALCULATIONS.]

3.11 Prefinal and Final Design

The contractor shall submit the Prefinal Design according to the design management schedule. The Prefinal Design shall function as the draft version of the Final Design. The Prefinal Design shall address comments generated from the Intermediate Design Review and clearly show any modifications of the design as a result of incorporation of the comments. After EPA review and comment on the Prefinal Design, the Final Design shall be submitted. All Final Design documents shall be approved by a Professional Engineer registered in _____ (state where site is located). EPA approval of the Final Design is required before initiating the RA, unless specifically authorized by EPA.

.11.1 Prepare Prefinal Design Specifications

A complete set of construction drawings and specifications (general specifications, drawings, and schematics) shall be submitted at the prefinal stage. All specifications shall conform to CSI format. Value engineering report recommendations (submitted with the intermediate design) that have been approved by EPA shall be incorporated into the prefinal design drawings and specifications. The final design plans and specifications must be consistent with the technical requirements of all ARARs. Any off-site disposal shall be in compliance with the policies stated in the Procedure for Planning and Implementing Off-Site Response Actions (*Federal Register*, Volume 50, Number 214, November 1985 pages 45933-45937) and other applicable guidance.

General correlation between drawings and technical specifications is a basic requirement of any set of working construction plans and specifications. Before submitting the project specifications, the contractor shall coordinate and cross-check the specifications and drawings; and complete the proofing of the edited specifications and the cross-checking of all drawings and specifications.

.11.2 Prepare Prefinal Drawings

The final submittals shall include a complete set of construction drawings and specifications as well as a set of one-half size reductions of drawings. All specifications shall conform to CSI format.

.11.3 Prepare Final Basis of Design Report that incorporate any changes since the intermediate design submittal.

.11.4 Prepare Revised RA Cost Estimate

The contractor shall prepare a definitive cost estimate of the offers to be received for RA for each work item from definitive engineering data, within an accuracy of plus 15 percent to minus 5 percent. The definitive cost estimate should be accompanied by a range estimate and analysis of the project's potential scope, cost, and schedule change during RA, broken down by work activity. One copy of the quantity takeoff sheets, including the appropriate items, shall be included with each estimate submitted. All work items shall be broken down into labor, materials, and equipment. The contractor shall provide the basis for development of all unit prices used in the estimate. Unit prices, overhead, profit, and other categories shall be shown as separate items. The final estimate will be based on the advertised plans and specifications including amendments. It should reflect current prices for labor, materials, and equipment. The estimate shall separately identify contingencies within the defined project scope. The contractor shall prepare the RA cost estimates by using the M-CACES Gold Estimating System.

The use of M-CACES Gold Estimating System for the cost estimate is required for RD work assignments under RACs and is recommended under ARCS.

.11.5 Prepare 100-Percent Design Submittal

.11.6 Participate in Prefinal/Final Design Review

The contractor shall participate in a Prefinal Design review meeting. The meeting shall be held at Region ___ headquarters. The contractor shall also consolidate and respond to Intermediate and Prefinal Design review comments. A written response for each comment shall be provided before incorporating the changes into the design. The changes shall be incorporated as part of the 100-Percent Design submittal.

.11.7 Prepare Subcontract Award Documents

The contractor shall prepare complete contract documents, including (1) complete RA SOW including, wherever appropriate, drawings and specifications, complete cost proposal, and the required schedule; (2) terms and conditions of the contract including payments, delivery schedule, point of delivery, and acceptance criteria; (3) method of procurement including evaluation, basis, and method of awarding contract; (4) criteria to be employed in evaluating bids and offers; (5) prevailing wage determinations (DBA); (6) deadline and location for submitting bids and offers, if applicable; and (7) appropriate contract clauses.

.11.8 Perform Biddability, Operability, and Constructability Reviews

The contractor shall conduct final constructability, biddability, operability, environmental, and claims prevention reviews and document results.

- .11.9 Prepare Revised Project Delivery Strategy
- .11.10 Document VE Modifications
- .11.11 Draft Operations and Maintenance (O&M) Manual

The manual should include the following:

- .11.11.1 An operations and maintenance plan that includes a description of normal operation and maintenance including start-up procedures, tasks for operation, tasks for maintenance, prescribed treatment or operation conditions, and schedule for each O&M task
- .11.11.2 A description of potential operating problems including common and/or anticipated remedies and useful-life analysis of significant components and replacement costs
- .11.11.3 Quality Assurance Plan for O&M including a description of routine monitoring tasks, description of required laboratory tests and their interpretation, required data collection, and location of monitoring points comprising the points of compliance monitoring
- .11.11.4 Alternate procedures to prevent releases or threatened releases of hazardous substances, pollutants, or contaminants, which may endanger health and the environment or cause an exceedance of any cleanup standard
- .11.11.5 Corrective action to be implemented in the event that cleanup standards for ground water, surface water discharges, and air emissions are exceeded and a schedule for implementing these corrective actions
- .11.11.6 Safety Plan for O&M including a description of precautions and necessary equipment for site personnel, safety tasks required in event of systems failure, and safety tasks necessary to address protection of nearby residents.
- .11.11.7 Description of equipment including the equipment identification numbers, installation of monitoring components, maintenance of site equipment, and replacement schedule for equipment and installed components

[NOTE: ITEMS 11.6 THROUGH 11.10, INCLUSIVE, ARE NOT INCLUDED IN THE 6-PERCENT DESIGN LIMITATION CALCULATIONS.]

- .11.11.8 Records and reporting mechanisms required including daily operating logs, laboratory records, records for operating costs, mechanism for reporting emergencies, personnel and maintenance records, and reports to U.S. EPA, its designates, and the State.

If RA does not require O&M, delete the text and insert "not used" or "N/A" after line item 3.11.11.

.11.12 Construction Quality Assurance Plan

The contractor shall submit as part of the Preliminary Design a draft Construction Quality Assurance (CQA) Plan. The CQA Plan shall be prepared in accordance with "Construction Quality Assurance for Hazardous Waste Land Disposal Facilities" (EPA, October, 1986). The CQA Plan shall then be finalized and submitted with the Final Design. At a minimum, the draft QA Plan shall provide requirements for the following elements:

- .11.12.1 Responsibility and authority of all organization and key personnel involved in the remediation action construction
- .11.12.2 CQA Personnel Qualifications. The contractor shall establish the minimum qualifications of the CQA Officer and supporting inspection personnel.
- .11.12.3 Inspection Activities. The contractor shall establish the observations and tests that will be required to monitor the construction and/or installation of the components of the Remedial Action(s). The plan shall include the scope and frequency of each type of inspection to be conducted. Inspections shall be required to verify compliance with environmental requirements and include, but not be limited to, air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. Inspections shall also ensure compliance with all health and safety procedures.

- .11.12.4 Sampling requirements. The contractor shall establish the requirements for sampling activities, sample size, sample locations, frequency of testing, criteria for acceptance and rejection, and plans for correcting problems as addressed in the project specifications.
- .11.12.5 Documentation. The contractor shall describe the reporting requirements for CQA activities. This shall include such items as daily summary reports and inspection data sheets.

3.12 Postremedial Design Support

This task consists of support required to prepare contract bidding documents and issue the Invitation for Bids or the Request for Proposals. The task starts with EPA's approval of contract documents developed under Task 11 and ends with the submittal of construction contractors' bids. The contractor shall perform the following postremedial design activities:

- .12.1 Prebid (Presolicitation) Activities
 - .12.1.1 Printing and Distribution of Contract Documents. Print and distribute to prospective bidders the contract documents that were finalized in Task 11.
 - .12.1.2 Advertising and Soliciting of Bids. Advertise and solicit bids for construction services. An advertisement shall be prepared and published in
 - (1) Prebid (Presolicitation) Meetings. The contractor shall arrange and attend prebid meetings to provide clarification on plans, specifications, and contract documents to all bidders.
 - (2) Resolution of Inquiries and/or Issuing Addenda. The contractor shall resolve bidder inquiries and document all contact with potential bidders, and issue amendments to contract documents if additional information becomes available that all bidders should be made aware of after solicitation.
 - (3) On-Site Visits. The contractor shall participate in on-site visits that may be required to further clarify the services required.
- .12.2 Preaward Activities
 - .12.2.1 Receipt of Bids (Offers)
 - (1) Determination of Responsive, Responsible Bidders (Offerors)
 - (2) Perform Reference Checks
 - (3) Prepare Bid (Offer) Tabulation
 - (4) Perform Bid (Offer) Analysis
 - .12.2.2 Receipt and review of Followup Items from Lowest Responsible Bidder (Offeror)
 - .12.2.3 Review of EEO and MBE Requirements and SDB Subcontracting Plans
- .12.3 Update Site-Specific Plans
 - .12.3.1 Modify Site Management Plan (if necessary)
 - .12.3.2 Modify Sampling and Analysis Plan (if necessary)
 - .12.3.3 Modify Health and Safety Plan (if necessary)
 - .12.3.4 Modify Community Relations Plan (if necessary)

In some cases, it may be advisable to use this task to initiate the procurement process, although these services can be procured as part of the RA work assignment.

3.13 Work Assignment Closeout

- .13.1 Return Documents to Government.**
- .13.2 Duplicate, Distribute, and Store Files**
- .13.3 Archive Files**
- .13.4 Prepare Microfiche, Microfilm, and Optical Disk**
- .13.5 Prepare Closeout Report. The contractor shall include a breakdown on disk of final costs and Level of Effort (by P-level) in the same detail and format as the Work Breakdown Structure (Attachment 2).**

Attachment 1
Summary of Major Submittals for the Remedial Design at
(Site)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
3.1.1.2	Site Visit Report		3	10 days after site visit	7 days after receipt of report
3.1.1.4	RD Work Plan		3	30 days after initiation of work assignment (WA)	21 days after receipt of Work Plan
3.1.1.4	Final RD Work Plan		3	15 days after receipt of EPA comments	NA
3.1.2.1	Draft Site Management Plan (SMP)		3	(#) days after approval of RD Work Plan	10 days after receipt of SMP
3.1.2.1	Final SMP		3	(#) days after receipt of EPA comments	NA
3.1.2.3(1)	Draft QAPP	21 8	3	30 days after initiation of WA	21 days after receipt of QAPP
3.1.2.3(2)	Draft FSP	5	3	30 days after initiation of WA	21 days after receipt of FSP
3.1.2.2	Draft HASP	36 19	3	30 days after initiation of WA	21 days after receipt of HASP
3.1.2.3(2)	Final QAPP	21 8	3	15 days after receipt of EPA comments	NA
3.1.2.3(1)	Final FSP	5	3	15 days after receipt of EPA comments	NA
3.1.2.2	Final HASP	36 19	3	15 days after receipt of EPA comments	NA
3.2.1	Draft Revised CRP	4	3	(#) days after initiation of WA	14 days after receipt of revised CRP
3.2.1	Final Revised CRP	4	3	(#) days after receipt of EPA comments	NA

Attachment 1
Summary of Major Submittals for the Remedial Design at
(Site) (continued)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
3.2.2	Fact Sheets		3	As needed	10 days after receipt of fact sheet
3.6.4	Data Evaluation Summary Report		3	10 days after receipt of analytical results from laboratory	15 days after receipt of report
3.7.2	Treatability Study Work Plan	16 41 (FS)	3	45 days after RD Work Plan approved	21 days after receipt of Treatability Study Work Plan
3.7.2	Final Treatability Study Work Plan	16 41 (FS)	3	15 days after receipt of EPA comments	NA
3.7.6	Treatability Study Evaluation Report	16 42 (FS)	3	30 days after completion of Treatability Study	21 days after receipt of report
3.7.6	Final Treatability Study Evaluation Report	16 41 (FS)	3	15 days after receipt of EPA comments	NA
3.8.1	Design Criteria Report		3	45 days after RD Work Plan approved	21 days after receipt of report
3.8.1.5	Basis of Design Report		3	45 days after RD Work plan approved	21 days after receipt of report
3.8.1.5	Basis of Design Report (Revision)		3	Revised and distributed as necessary (dynamic document)	15 days after receipt of report
3.8.1	Preliminary Plans and Specifications**		3	60 days after RD Work Plan approved	30 days after receipt of plans & specs
3.8.4	VE Screening Report		3	(#) days after RD Work Plan approved	21 days after receipt of report

Attachment 1
Summary of Major Submittals for the Remedial Design at
(Site) (continued)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
3.8.5	Response to Design Review Comments		3	(#) days after design review meeting	15 days after receipt of response
3.9.1	List of Long-Lead Procurement Items		3	(#) days after Preliminary Design approved	10 days after receipt of list
3.9.2	Plans and Specifications for Procurement of Long-Lead Procurement Items		3	(#) days after receipt of EPA comments on the Long-Lead Procurement Item List	15 days after receipt of plans & specs
3.10	Intermediate Plans and Specifications [†]		3	30 days after Preliminary Design approved	21 days after receipt of int. plans & specs
3.10.7	Value Engineering Report		3	(#) days after initiation of VE Study	21 days after receipt of report
3.10.9	Response to Design Review comments		3	(#) days after Intermediate Design Review Meeting	15 days after receipt of response
3.11	Prefinal Plans and Specifications ^{††}		3	(#) days after Intermediate Design approved	21 days after receipt of plans & specs
3.11.5	100-Percent Design		3	(#) days after prefinal design comments received	NA
3.11.6	Response to Prefinal Design review comments		3	(#) days after design review meeting	15 days after receipt of response
3.11.7	Draft RA contract documents		3	(#) days after Final Design approved	21 days after receipt of RA documents
3.11.7	Final RA contract documents		3	(#) days after receipt of EPA comments on Draft RA contract documents	NA

*See Attachment 3 for list of references.

**Preliminary Plans and Specifications Submittal Items:

Attachment 1
Summary of Major Submittals for the Remedial Design at
(Site) (continued)

- 3.8.1.1 Project Delivery Strategy and Scheduling
- 3.8.1.2 Preliminary RA Schedule
- 3.8.1.3 Specifications Outline
- 3.8.1.4 Preliminary Drawings and Schematics
- 3.8.1.5 Basis of Design Report
- 3.8.1.6 Preliminary RA Cost Estimate
- 3.8.2 Variances from the ROD

†Intermediate Plans and Specifications Submittal Items:

- 3.10.1 Update Construction Schedule
- 3.10.2 Intermediate Specifications
- 3.10.3 Intermediate Drawings and Schematics
- 3.10.4 Revised Basis of Design Report
- 3.10.5 RA Cost Estimate
- 3.10.8 Variances from the ROD

††Prefinal Plans and Specifications Submittal Items:

- 3.11.1 Prefinal Drawings and Specifications
- 3.11.2 Prefinal Drawing Reductions
- 3.11.3 Final Basis of Design Report
- 3.11.4 Revised RA Cost Estimate
- 3.11.7 Subcontract Award Documents
- 3.11.8 Biddability, Operability, and Constructability Reviews Reports
- 3.11.9 Revised Project Delivery Strategy and Schedule
- 3.11.10 Document VE Modifications
- 3.11.11 Draft Operations and Maintenance (O&M) Manual
- 3.11.12 Construction Quality Assurance Plan

Attachment 2

Work Breakdown Structure (WBS) for Remedial Design (RD)

- 3.0 Remedial Design
 - .01 Project Planning and Support
 - .01 Project Planning
 - .01 Attend Scoping Meeting
 - .02 Conduct Site Visit
 - .03 Evaluate Existing Information
 - .04 Work Plan Development
 - .01 Draft Work Plan Development
 - .01 Develop Narrative
 - .02 Develop Cost Estimate
 - .03 Internal QA & Submission
 - .02 Final Work Plan Preparation
 - .01 Attend Negotiation Meeting
 - .02 Modify Draft Work Plan/Cost Estimate
 - .03 Internal QA & Submission
 - .02 Preparation of Site-Specific Plans
 - .01 Develop Site Management Plan
 - .01 Develop Pollution Control & Mitigation Plan
 - .02 Transportation & Disposal Plan (Waste Management Plan)
 - .02 Develop Health & Safety Plan
 - .03 Sampling & Analysis Plan (Chemical Data Acquisition Plan)
 - .01 Quality Assurance Project Plan
 - .02 Field Sampling Plan
 - .03 Data Management Plan
 - .04 Other Plan(s)
 - .03 Project Management
 - .01 Prepare Periodic Status Reports
 - .01 Document Cost and Performance Status
 - .02 Prepare/Submit Invoices
 - .02 Meeting Participation/Routine Communications
 - .03 Perform Engineering Network Analysis
 - .04 Manage, Track, and Report Equipment Status
 - .05 Work Assignment Closeout
 - .04 Subcontract Procurement/Support Activities
 - .01 ID and Procurement of Subcontractors
 - .01 Drilling Subcontractor
 - .02 Surveying Subcontractor
 - .03 Geophysical Subcontractor
 - .04 Site Preparation Subcontractor
 - .05 Analytical Services Subcontractor(s)
 - .06 Waste Disposal Subcontractor
 - .07 Treatability Subcontractor
 - .08 Other(s)
 - .02 Establish and Carry Out a QA Program
 - .03 Perform Subcontract Management
 - .02 Community Relations
 - .01 Community Relations Plan (CRP) Development
 - .01 Conduct Community Interviews
 - .02 Prepare CRP
 - .01 Draft CRP
 - .02 Final CRP
 - .02 Prepare Fact Sheets
 - .03 Public Hearing, Meetings, & Availability Support
 - .01 Technical Support
 - .02 Logistical & Presentation Support
 - .03 Public Notice Support (writing, or placement of)

- .04 Maintain Information Repository/Mailing List
- .03 Data Acquisition
 - .01 Mobilization/Demobilization
 - .01 ID field support equipment/supplies/facilities
 - .02 Mobilization
 - .01 Site Preparation
 - .01 Perform Demolition
 - .02 Clearing and Grubbing
 - .03 Perform Earthwork
 - .01 Provide Borrow Pit
 - .02 Construct Haul Roads
 - .04 Construct Roads/Parking/Curbs/Walks
 - .05 Install Storm Drainage/Subdrainage
 - .06 Install Fencing/Site Security
 - .02 Installation of Utilities
 - .01 Install Electrical Distribution
 - .02 Install Telephone/Communication System(s)
 - .03 Install Water/Sewer/Gas Distribution
 - .04 Install Fuel Line Distribution
 - .03 Construction of Temporary Facilities
 - .01 Construct Decontamination Facilities
 - .02 Construct Sample/Derived Waste Storage Facility
 - .03 Construct Field Offices
 - .04 Construct Mobile Laboratory
 - .05 Construct Other Temporary Facilities
 - .03 Demobilization
 - .01 Removal of Temporary Facilities
 - .02 Site Restoration
 - .02 Field Investigation
 - .01 Perform Site Reconnaissance
 - .01 Ecological Resources Reconnaissance
 - .02 Well Inventory
 - .03 Residential Well Sampling
 - .04 Land Survey
 - .05 Topographic Mapping
 - .06 Field Screening
 - .02 Conduct Geological Investigations (Soils/Sediments)
 - .01 Surface Soil Sample Collection
 - .02 Subsurface Soil Sample Collection
 - .03 Soil Boring/Permeability Sampling
 - .04 Sediments Sample Collection
 - .05 Soil Gas Survey
 - .06 Test Pit
 - .03 Conduct Air Investigations
 - .01 Sample Collection
 - .02 Air Monitoring Station
 - .04 Conduct Hydrogeological Investigations—Ground Water
 - .01 Well Systems Installation
 - .01 Accomplish Mobilization
 - .02 Perform Well Development
 - .03 Conduct Downhole Geophysics
 - .04 Install Monitoring Wells
 - .05 Install Test Wells
 - .06 Install Gas Wells
 - .02 Collect Samples
 - .03 Hydro Punch
 - .04 Conduct Tidal Influence Study
 - .05 Conduct Hydraulic Tests (Pump Tests)
 - .06 Perform Ground-Water Elevation Measurement
 - .05 Conduct Hydrogeological Investigations—Surface Water

- .01 Collect Samples
- .02 Conduct Tidal Influence Study
- .03 Perform Surface Water Elevation Measurement
- .06 Conduct Waste Investigation
 - .01 Collect Samples (Gas, Liquid, Solid)
 - .02 Derived Waste Disposal (Gas, Liquid, Solid)
- .07 Conduct Geophysical Investigation
 - .01 Surface Geophysical Activity
 - .02 Magnetometer
 - .03 Electromagnetics
 - .04 Ground Penetrating Radar
 - .05 Seismic Refraction
 - .06 Resistivity
 - .07 Site Meteorology
 - .08 Cone Penetrometer Survey
 - .09 Remote Sensor Survey
 - .10 Radiological Investigation
- .08 Conduct Ecological Investigation
 - .01 Wetland and Habitat Delineation
 - .02 Wildlife Observations
 - .03 Community Characterization
 - .04 Identification of Endangered Species
 - .05 Biota Sampling/Population Studies
- .09 Collect Contaminated Building Samples
- .10 Disposal of Investigation-Derived Waste
- .04 Sample Analysis
 - .01 Screening-Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Ground-Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .09 Analyze Bioassay Samples

- .10 Perform Bioaccumulation Studies
- .02 CLP-Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Ground-Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .09 Analyze Bioassay Samples
 - .10 Perform Bioaccumulation Studies
- .05 Analytical Support and Data Validation
 - .01 Prepare and Ship Environmental Samples
 - .01 Ground-Water Samples
 - .02 Surface and Subsurface Soil Samples
 - .03 Surface Water & Sediment Samples
 - .04 Air Samples
 - .05 Biota Samples
 - .06 Other types of media sampling and screening
 - .02 Coordinate with appropriate Sample Management personnel
 - .03 Implement EPA-approved Laboratory QA program
 - .04 Provide Sample Management (Chain of Custody, sample retention, & data storage)
 - .05 Perform Data Validation
 - .01 Review analysis results against validation criteria
 - .02 Provide written documentation of validation efforts
- .06 Data Evaluation
 - .01 Data Useability Evaluation/Field QA/QC
 - .02 Data Reduction, Tabulation and Evaluation
 - .01 Evaluate Geological Data (Soils/Sediments)
 - .02 Evaluate Air Data
 - .03 Evaluate Hydrogeological Data—Ground Water
 - .04 Evaluate Hydrogeological Data—Surface Water
 - .05 Evaluate Waste Data
 - .06 Evaluate Geophysical Data
 - .07 Evaluate Ecological Data

- .03 Modeling
 - .01 Contaminant Fate and Transport
 - .02 Water Quality
 - .03 Ground Water
 - .04 Air
 - .05 Other Modeling
- .04 Develop Data Evaluation Report
- .07 Treatability Study/Pilot Testing
 - .01 Literature Search
 - .02 Develop Treatability/Pilot Work Plan
 - .03 Bench Test
 - .01 Procure Test Facility and Equipment
 - .02 Provide Vendor & Analytical Service
 - .03 Test and Operate Equipment
 - .04 Retrieve Sample for Equipment
 - .05 Perform Laboratory Analysis
 - .06 Characterize and Dispose of Residuals
 - .04 Pilot-Scale Test
 - .01 Procure Test Facility and Equipment
 - .02 Provide Vendor & Analytical Service
 - .03 Test and Operate Equipment
 - .04 Retrieve Sample for Testing
 - .05 Perform Laboratory Analysis
 - .06 Characterize and Dispose of Residuals
 - .05 Field Test
 - .01 Procure Test Facility and Equipment
 - .02 Provide Vendor & Analytical Service
 - .03 Test and Operate Equipment
 - .04 Retrieve Sample for Testing
 - .05 Perform Laboratory Analysis
 - .06 Characterize and Dispose of Residuals
 - .06 Develop Treatability Study Report
- .08 Preliminary Design
 - .01 Preliminary Design
 - .01 Recommend Project Delivery Strategy and Scheduling
 - .02 Prepare Preliminary Construction Schedule
 - .03 Prepare Specifications Outline
 - .04 Prepare Preliminary Drawings
 - .05 Prepare Basis of Design Report/Design Analysis
 - .06 Prepare Preliminary Cost Estimate
 - .02 Describe Variances with ROD
 - .03 Land Acquisition/Easement Requirements
 - .01 Identify need for, and locations
 - .02 Provide Technical Support in Land Acquisition Efforts
 - .04 Conduct and/or assist in Value Engineering (VE) screening
 - .05 Respond to Design Review Comments
 - .06 Participate in Preliminary Design Reviews/Briefing

[NOTE: ITEMS 8.02 THROUGH 8.06, INCLUSIVE, ARE NOT INCLUDED IN THE 6-PERCENT DESIGN LIMITATION CALCULATIONS]

- .09 Equipment/Services/Utilities
 - .01 Identify long-lead equipment services, and/or utilities
 - .02 Procure long-lead equipment services, and/or utilities
- .10 Intermediate Design
 - .01 Update Construction Schedule
 - .02 Prepare Preliminary Specifications
 - .03 Prepare Intermediate Drawings
 - .04 Prepare Basis of Design Report/Design Analysis
 - .05 Prepare Revised Cost Estimate

- .06 Participate in Intermediate Design Review/Briefing
- .07 Perform VE Study and Report Recommendations
- .08 Describe Variances with ROD
- .09 Respond to Design Review Comments

[NOTE: ITEMS 10.06 THROUGH 10.09, INCLUSIVE, ARE NOT INCLUDED IN THE 6-PERCENT DESIGN LIMITATION CALCULATIONS]

- .11 Prefinal/Final Design
 - .01 Prepare Prefinal Design Specifications
 - .02 Prepare Prefinal Drawings
 - .03 Prepare Basis of Design Report/Design Analysis
 - .04 Prepare Revised Cost Estimate
 - .05 Prepare 100-Percent Design Submittal
 - .06 Participate in Prefinal/Final Design Review
 - .07 Prepare Subcontract Award Document(s)
 - .08 Perform Biddability (offerability) and Constructability Reviews
 - .09 Prepare Revised Project Delivery Strategy
 - .10 Document VE Modifications
 - .11 Draft O&M Manual
 - .12 Prepare Construction QA Plan

[NOTE: ITEMS 11.06 THROUGH 11.10, INCLUSIVE, ARE NOT INCLUDED IN THE 6-PERCENT DESIGN LIMITATION CALCULATIONS]

- .12 Post Remedial Design Support
 - .01 Prebid (Presolicitation) Activities
 - .01 Printing & Distribution of Contract Documents
 - .02 Advertising/Soliciting of Bids
 - .01 Prebid (presolicitation) meetings
 - .02 Resolution of inquiries/Issuing Addenda
 - .03 On-site visits
 - .02 Preaward Activities
 - .01 Receipt of Bids (offers)
 - .01 Determination of responsive, responsible bidders (offerors)
 - .02 Perform Reference checks
 - .03 Bid (offer) Tabulation
 - .04 Bid (offer) Analysis
 - .02 Receipt of follow-up items from lowest responsible bidder (offeror)
 - .03 Review of EEO, MBE requirements, SDB subcontracting plans
 - .03 Update Site-Specific Plans
 - .01 Modify Site Management Plan (if necessary)
 - .02 Modify Sampling & Analysis Plan (if necessary)
 - .03 Modify Health & Safety Plan (if necessary)
 - .04 Modify Community Relations Plan (if necessary)
- .13 Work Assignment Close Out
 - .01 Return Documents to Government
 - .02 File Duplication/Distribution/Storage
 - .03 File Archiving
 - .04 Microfiche/Microfilm/Optical Disk
 - .05 Prepare Closeout Report

Attachment 3 Regulations and Guidance Documents

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RD process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.
3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
4. Community Relations in Superfund — A Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.
5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.
8. The Data Quality Objectives Process for Superfund: Interim Final Guidance, U.S. EPA, EPA/540/R-93/071, September 1993.
9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.
11. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.
14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
20. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.
26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.

28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.
29. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
30. *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.
31. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.
33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.
38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
39. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
44. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.

Attachment 4

[illegible]

Attachment 5

[illegible]

RD Oversight SOW

(date)

MODEL STATEMENT OF WORK FOR REMEDIAL DESIGN OVERSIGHT

SITE, _____ COUNTY, _____ STATE

ATTACHMENTS

Attachment 1. Summary of Major Submittals for the Remedial Design at ____ (Site)	15
Attachment 2. Work Breakdown Structure	17
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Attachment 5. Transmittal Register	25

Points for the WAM/RPM to consider in preparing the Statement of Work for Remedial Design Oversight:

The purpose of this Statement of Work is twofold:

1. **To tell the contractor what you want done.** Be as specific as possible in describing what you want the contractor to do. The contractor will write a work plan and budget describing how and at what cost the requirements will be met and ultimately will be responsible for performing those requirements. Whenever there is an absolute requirement (e.g., that the contractor prepare the QAPP in accordance with QAMS-005/80, December 29, 1980), state it. Add the attachments to the SOW: (1) Summary of Major Submittals for the Remedial Design at ____ (Site), (2) Work Breakdown Structure, and (3) Transmittal of Documents for Acceptance by EPA.
2. **To give the contractor a work breakdown structure for recording costs.** Work plan costs and final costs of different RD oversight projects can be compared and analyzed with a work breakdown structure.

Use of a Work Breakdown Structure (WBS)

1. A WBS has been developed for this model work assignment so EPA may track the initial and final costs of each element used for preparing future cost estimates. The WBS is, essentially, the outline for this work assignment and is included as SOW Attachment 2 .
2. If an element is not used, do not change the numbering system; instead, insert "not used" or "N/A" after the element number after deleting the text for that element.
3. For the items used for a given project, additional descriptions (e.g., type of samples and estimated number) should be added in order for the contractor and RPM/WAM to develop estimated costs on a common basis.

6.0 Introduction

.0.1 Site Description

Provide a brief site description that contains information relative to RD oversight planning and implementation such as location, operational history, remedial response history, waste types, quantities, and milestones specified within the ROD.

.0.2 Purpose

The purpose of this work assignment is to obtain contractor support for the oversight of the remedial design (RD) at the _____ (site). Implementation of the RD shall be performed by the Potentially Responsible Parties (PRPs). The estimated completion date for this work assignment is _____.

.0.2.1 Description of the RD

Describe the specific RD for which oversight is required. Provide a summary of the general response objectives, description of the remedy, and expected period of performance of the RD.

.0.2.2 Objectives of Oversight. The primary objective of PRP oversight is to ensure that the remedies specified in the RD and used in the remedial action (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. Oversight meets its objectives by observing and documenting that the PRP has complied with all applicable laws, regulations, and requirements, and has met all performance standards specified in the Settlement Agreement.

.0.3 General Requirements

.0.3.1 The contractor shall conduct the RD Oversight in accordance with this Statement of Work (SOW) and to ensure consistency with the ROD issued on _____ (date), the Consent Decree, 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/RA. See references listed in Attachment 3. The primary contact for this work assignment is _____, Tel. _____; the secondary contact is _____, Tel. _____.

.0.3.2 A summary of the major deliverables and the schedule for submittal is attached. See Attachment 1. The contractor shall submit the major deliverables using the form Transmittal of Documents for Acceptance by EPA, Attachment 4.

The attachments to this model SOW may be copied and completed for a given RD. Attachment 4 is a form for use by the contractor in the transmittal of documents to EPA. Attachment 5 is a transmittal register log for use by the WAM/RPM in tracking documents submitted by the contractor.

.0.3.3 Specifically, the RD involves the design of _____.

.0.3.4 The contractor shall furnish all necessary and appropriate personnel, materials, and services needed, or incidental to, performing and completing the RD oversight.

.0.3.5 A list of primary guidance and reference material is attached. See Attachment 2. In all cases, the contractor shall use the most recently issued guidance.

.0.3.6 The contractor shall maintain oversight files as specified in the contract and by the Work Assignment Manager or Remedial Project Manager (WAM/RPM). The WAM/RPM may periodically audit the site files and record-keeping procedures.

.0.3.7 The contractor shall communicate at least weekly with the WAM/RPM, either in person or through conference calling, to report on oversight progress.

.0.3.8 The contractor shall notify the WAM/RPM when 75 percent and when 95 percent of the approved work assignment budget has been expended.

.0.3.9 The contractor shall document all decisions that are made in meetings and conversations with EPA or the PRP. The contractor shall forward this documentation to the WAM/RPM within 2 working days of the meeting or conversation.

It is the WAM's responsibility to document fully all decisions made. The contractor's documentation is used for confirmation only.

- .0.3.10 EPA will provide oversight of contractor activities throughout the RD oversight efforts. EPA review and approval of the contractor's 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 during the Contractor's oversight of the PRP's remedial activities. EPA will review the deliverables prepared during the oversight to assess the likelihood that the RD will achieve its remediation goals and that all performance requirements applicable to the

RD have been correctly identified and implemented. However, acceptance of deliverables by EPA does not relieve the contractor of responsibility for the adequacy of the deliverable.

.0.4 Oversight Official

The contractor shall designate one or more Oversight Officials to work directly with the WAM/RPM during the RD oversight. The Oversight Official(s) is (are) the individual(s) responsible under this Statement of Work for providing technical support in monitoring PRP compliance with the Settlement Agreement.

.0.5 Equipment Transfer

At the completion of the work assignment, the contractor shall transfer all equipment purchased with contract funds to the EPA Equipment Coordinator in accordance with the contract.

.0.6 Project Closeout

At the completion of the work assignment, the contractor shall perform all necessary project closeout activities as specified in the Contract. These activities may include closing out any subcontracts, indexing and consolidating project records and files as required in 6.0.3.6 above, and providing a technical and financial closeout report to EPA.

The task structure that follows has been drafted to support the development of a comprehensive RD Oversight SOW to execute a well-defined RD, but can be tailored to support a phased RD SOW to which amendments will be made over the project life cycle as more specific requirements for RD oversight activities are determined.

6.1 Project Planning and Support

.1.1 Project Planning. This task includes efforts related to project initiation.

- .1.1.1 Attend Scoping Meeting. The contractor shall attend a scoping meeting to be held at the EPA Regional Office before or concurrent with developing the oversight Work Plan.

The location of meetings (and approximate number of contractor attendees) should be specified for cost-estimating purposes.

- .1.1.2 Conduct Site Visit. The contractor shall conduct a 1-day site visit with the EPA WAM/RPM during the project planning phase to develop a conceptual understanding of the site and the RD scope and requirements. A Health and Safety Plan (HASP) is required for the site visit. The contractor shall prepare a letter report that documents all EPA, contractor, and site personnel present at the visit; all decisions made during the visit; any action items assigned, including person responsible and due date; any unusual occurrences during the visit; and any portions of the site that were not accessible to the contractor and the impact of this on oversight of the remedial design. This report shall be submitted to the EPA WAM/RPM within 10 calendar days of the site visit.

- 1.1.3 Evaluate Existing Information. The contractor shall obtain, copy (if necessary), and review available information pertaining to the site from EPA. The contractor shall evaluate the existing data and documents, including the Record of Decision (ROD), the Consent Decree (CD), the PRP Work Plan for the RD/RA, and other data and documents as directed by EPA. The specific documents to be reviewed are listed in Attachment 3.

The RPM will create an attachment to this SOW that lists site-specific information that the contractor may use in oversight of the remedial design (see Chapter 3 of the Guidance for Scoping the Remedial Design). To streamline this task and control expenses, limit the review to documents that help the contractor to scope the project accurately and optimize oversight tasking. Specify reports and other documentation that establish the nature and extent of contamination: a summary of risk(s), a list of cleanup targets, and the basis for design. At a minimum, this should include the ROD, the CD, and the PRP work plan. Additional documents that may be appropriate include the Remedial Investigation/Feasibility Study (RI/FS), Focused Feasibility Studies (FFS), State documentation, applicable or relevant and appropriate requirements (ARARs), evaluations, hydrogeological information, and other material located in the site file.

- 1.1.4 (Not Used)

- 1.1.5 Develop RD Oversight Work Plan

- (1) Develop Draft Oversight Work Plan. The contractor shall prepare and submit a Draft RD Oversight Work Plan within 30 calendar days after initiation of the work assignment (WA). The contractor shall use information from the EPA-approved PRP Work Plan, appropriate guidance, and direction provided by the EPA WAM/RPM as the basis for preparing the RD Oversight Work Plan. RD oversight work must be coordinated and properly sequenced with EPA and PRP RD activities. Submit the original to the Contracting Officer (CO), one copy to the Project Officer (PO), and one copy to the WAM/RPM.

1. The RPM/WAM should verify the draft and final work plan submittal timeframes with the PO.
2. Additional copies of the work plan can be submitted to the WAM/RPM, if specified, for distribution to other technical staff.

- (a) Develop Narrative. The RD Oversight Work Plan shall include a comprehensive description of project tasks, the procedures to accomplish them, quality assurance/quality control (QA/QC) systems and project-specific QA/QC procedures to be followed, project documentation, and project schedule. Specifically, the Work Plan shall include the following:
- Identification of RD project elements and the associated oversight tasking including review of PRP planning, design, and activity reporting documentation; field sampling and analysis activities, and treatability study activities. Output of this task will be a detailed work breakdown structure of the RD oversight project.
 - The contractor's technical and management approach to each task to be performed, including a detailed description of each task; the assumptions used; the identification of any technical uncertainties (with a proposal for the resolution of those uncertainties); the information needed for each task; any information to be produced during and at the conclusion of each task; and a description of the work products that will be submitted to EPA. Information

shall be presented in a sequence consistent with the work breakdown structure format defined in the standard WBS. See Attachment ____.

- A schedule with specific dates for the start and completion of each required activity and submission of each deliverable required by this SOW. (See Attachment 1 for format.) This schedule shall also include information regarding timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for EPA.
- A project communications and management plan, including a data management plan and contractor reporting requirements, such as meetings and presentations to EPA at the conclusion of major phases of the project. The data management plan shall address the requirements for project management systems including tracking, storing, and retrieving data and also shall identify software to be used, minimum data requirements, data format, and backup data management. The plan shall address both data management and document control for all oversight activities conducted during the RD.

The WAM/RPM should consider issuing the RD oversight WA in phases and modifying the SOW for funding as more information is available. This will enable the WAM/RPM to prepare a more detailed and accurate SOW and IGCE for each tasked phase.

The oversight contractor may be tasked to conduct oversight activities in the following steps:

1. Review documents, including the PRP work plan, to develop the oversight work plan. If the PRP work plan is unavailable, then the WAM/RPM may want to task the contractor to review background information and to provide general startup support.
2. Develop the oversight work plan.
3. Modify the scope of work for funding to include RA oversight activities.

- (b) Develop Cost Estimate. The contractor's estimated cost to complete the work shall be broken down into the Level of Effort (by P-level) and cost for each element of the Work Breakdown Structure (Attachment 2) and submitted to EPA on disk.
- (c) Perform Internal QA and Submit Draft Oversight Work Plan
- (2) Prepare Final Oversight Work Plan
 - (a) Attend Negotiation Meeting. The contractor shall attend a Work Plan negotiation meeting at the Region ____ office. EPA and the Oversight Contractor will refine the SOW requirements and funding issues related to the Oversight Work Plan.
 - (b) Modify Draft Oversight Work Plan and Cost Estimate

If the RD project is implemented using a phased approach to develop additional information throughout the RD phase, the WAM/RPM should specify the anticipated number of modifications and, to the extent possible, the scope of the modification(s).

Examples:

1. If the extent of contamination is not fully defined, indicate that the length of field work is not fully delineated and a modification may be required to accommodate this unquantified field element.
2. If treatability testing is ongoing and may significantly affect RD activities, but oversight is required for treatability activities, specify that the RD Oversight Work Plan will be completed in multiple phases

(c) Perform Internal QA and Submit Final Oversight Work Plan within 15 days after receipt of EPA comments on the draft work plan.

.1.1.6 Review PRP Plans. The contractor shall review the following PRP-developed work plans for conformance with applicable EPA standards and guidance (see also Task 6.7 for review instructions) and provide written review comments to the WAM/RPM.

- (1) Review PRP Site Management Plan
 - (a) Review PRP Pollution Control & Mitigation Plan
 - (b) Review PRP Transportation and Disposal (of site-derived wastes) Plan
- (2) Review PRP Health and Safety Plan
- (3) Review PRP Sampling and Analysis Plan (Chemical Data Acquisition Plan)
 - (a) Review PRP Quality Assurance Project Plan (QAPP)
 - (b) Review PRP Field Sampling Plan (FSP)
 - (c) Review PRP Data Management Plan
- (4) Review Other PRP Plan(s)

.1.2 Preparation of Site-Specific Plans

.1.2.1 (Not used)

.1.2.2 Develop Health and Safety Plan. Prepare a site-specific HASP that specifies employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with 29 CFR 1910.120 1(1) and (1)(2). Whenever possible, use the HASP developed for the Remedial Investigation/Feasibility Study (RI/FS) in preparing the HASP for the RD.

1. The HASP may not constitute an Emergency Response Plan. Site conditions may warrant a separate deliverable.

2. EPA does not approve the contractor's HASP, but reviews it to ensure that it is complete and adequately protective.

.1.2.3 Develop Sampling and Analysis Plan (Chemical Data Acquisition Plan). Prepare an FSP that defines the oversight sampling and information-collection methods that shall be used for the project. It shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and which samples are to be analyzed through the Contract Laboratory Program (CLP), which through other sources, and the justification for those decisions. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. The FSP developed for the RI/FS should be used whenever possible in preparing the FSP for the RD oversight activities.

1. Depending on the complexity of the sampling effort needed to support the RD, the FSP and QAPP can be combined into a single Sampling and Analysis Plan (SAP).

2. Minimize FSP preparation costs by requiring the oversight contractor to utilize the RI/FS FSP as a reference during the development of its sampling plan.

- (1) Quality Assurance Project Plan. Prepare a QAPP in accordance with QAMS-005/80 (December 29, 1980). The QAPP shall describe the project objectives and organization, functional activities, and QA/QC protocols that shall be used to achieve the desired Data Quality Objectives (DQOs). The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan.
- (2) Field Sampling Plan. The contractor shall prepare an FSP that defines the oversight sampling and information-collection methods that shall be used for the project. It shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and description of which samples are to be analyzed through the CLP, which through other sources, and the justification for those decisions. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. The FSP developed for the RI/FS should be used whenever possible in preparing the FSP for the RD/RA Oversight activities.
- (3) Data Management Plan

1.2.4 Other Plan(s)

1.3 Project Management

The contractor shall perform general work assignment management including management and tracking of costs, preparation of Monthly Progress Reports, attendance at project meetings, and preparation and submittal of invoices.

If the contractor finds that the RA being designed differs significantly from the ROD, the construction or implementation is not consistent with the design, requirements delineated within the Consent Decree are not being met, or that there are compliance issues with applicable or relevant and appropriate requirements (ARARs) at any point in the process, the contractor shall notify the WAM/RPM immediately to describe the issue. The contractor shall then recommend technical solutions in a memorandum ASAP.

1.3.1 Prepare Periodic Status Reports. The contractor shall prepare monthly progress reports.

- (1) Document Cost and Performance Status. The contractor shall document the status of each task and report costs and Level of Effort (by P-level) expended to date.
- (2) Prepare and Submit Invoices

1.3.2 Participate in Meetings and Communicate Routinely. The contractor shall attend project meetings, provide documentation of meeting results, and shall contact the WAM/RPM by telephone on a weekly basis to report project status.

1.3.3 (Not used)

1.3.4 (Not used)

1.3.5 (Not used)

1.3.6 Manage, Track, and Report Equipment Status

1.3.7 Work Assignment Closeout

1.4 Subcontract Procurement and Support Activities

1.4.1 Identify and Procure Subcontractors

- (1) (Not used)—Drilling Subcontractor
- (2) (Not used)—Surveying Subcontractor

- (3) (Not used)—Geophysical Subcontractor
- (4) (Not used)—Site Preparation Subcontractor
- (5) Analytical Services Subcontractor(s)
- (6) (Not used)—Waste Disposal Subcontractor
- (7) (Not used)—Treatability Subcontractor(s)
- (8) Other(s)
- .1.4.2 Develop Subcontractor QA Program
- .1.4.3 Perform Subcontract Management

6.2 Community Relations

This task includes efforts related to the update and implementation of the Community Relations Plan (CRP) for the site. The contractor shall provide community relations support to EPA throughout the RD in accordance with *Community Relations in Superfund — A Handbook*, June 1988. Community relations shall encompass the following subtasks:

Listed below are a number of possible community relations activities the WAM/RPM may require. The WAM/RPM should determine the community relations activities the PRP is conducting and coordinate to the extent practical to avoid duplication of effort.

- .2.1 Develop Community Relations Plan
 - .2.1.1 Conduct Community Interviews
 - .2.1.2 Update CRP. The contractor shall update the RI/FS CRP to address community relations requirements during the RD.
 - (1) Draft CRP
 - (2) Final CRP
- .2.2 Prepare Fact Sheets

The contractor shall prepare a fact sheet to inform the public about activities related to the final design, a schedule for the RD and later for the RA, activities to be expected during construction, provisions for responding to emergency releases and spills, and any potential inconveniences such as excess traffic and noise that may affect the community during onsite activities.
- .2.3 Public Hearing, Meetings, and Availability Support

The contractor shall prepare presentation materials and provide support as needed for public meetings. The contractor shall assist in communication and coordination with local agencies. The contractor shall attend citizen advisory group meetings

The number and location of anticipated public meetings should be identified in the SOW for cost estimating purposes.

- .2.3.1 Technical Support. The contractor shall prepare technical input to news releases, briefing materials, and other community relations vehicles.
- .2.3.2 Logistical and Presentation Support
- .2.3.3 Writing and Placement of Public Notice Support
- .2.4 Maintain Information Repository/Mailing List

The contractor shall maintain a repository of information on activities related to the RD as described in Appendix A.8, page A-19, of *Community Relations in Superfund—A Handbook*, June 1988. The contractor shall also maintain and update mailing lists to ensure that all companies, persons, and/or agencies are notified of site activities and scheduled public meetings as required.

The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

6.3 Data Acquisition Oversight

This task involves oversight of work efforts related to sampling during both RD and RA. The purpose of the sampling is to compare results with PRP data. The planning for this task is accomplished in Task 6.1, Project Planning, whereby all of the necessary plans required to collect the field data are determined and arranged. This task begins with EPA's approval of the FSP prior to RD and ends with the demobilization of field personnel and equipment from the site after RA is complete.

The contractor shall perform the following field activities or a combination of activities for the data acquisition effort in accordance with the EPA-approved FSP and QAPP developed in Task 6.1:

Before beginning field activities, consider specifying a kickoff meeting with all principal personnel to clarify objectives and communication channels to ensure the efficient use of available funds.

.3.1 Mobilization and Demobilization Oversight

The contractor shall oversee procurement of the necessary personnel, equipment, and materials for efficient mobilization and demobilization to and from the site.

.3.1.1 (Not used)

.3.1.2 Mobilization Oversight

- (1) (Not used)
- (2) Installation of Utilities
- (3) Construction of Temporary Facilities
 - (a) Construct Decontamination Facilities
 - (b) Construct Sample or Derived Waste Storage Facility
 - (c) Construct Field Offices
 - (d) Construct Mobile Laboratory
 - (e) Construct Other Temporary Facilities

.3.1.3 Demobilization Oversight

- (1) Removal of Temporary Facilities
- (2) Site Restoration

.3.2 Perform Field Investigation Oversight

The contractor shall collect a percentage of split samples for analysis during RD. Split sampling during RD is required for comparison with the remediation contractor's data.

The WAM/RPM should specify the expected written and/or photographic documentation to be recorded in the field as well as the type of field activity reports expected by the RPM, the frequency, and the required distribution (RPM, State representative, etc.).

Ensure the proper management of samples by the PRP, including accurate chain-of-custody procedures for sample tracking, protective sample-packing techniques, and proper sample-preservation techniques. Ensure that the PRP characterizes and disposes 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).

.3.2.1 Perform Site Reconnaissance Oversight

- (1) Ecological Resources Reconnaissance

- (2) Well Inventory
- (3) Residential Well Sampling
- (4) Land Survey
- (5) Topographic Mapping
- (6) Field Screening
- .3.2.2 Perform Geological Investigations Oversight (Soils and Sediments)
- .3.2.3 Perform Air Investigations Oversight
- .3.2.4 Perform Hydrogeological Investigations Oversight—Ground Water
 - (1) Well Systems Installation
 - (2) Sample Collection
 - (3) Samples collected during drilling (e.g., hydro punch or equivalent)
 - (4) Tidal Influence Study
 - (5) Hydraulic Tests (Pump Tests)
 - (6) Ground-Water Elevation Measurement
- .3.2.5 Perform Hydrogeological Investigations Oversight—Surface Water
- .3.2.6 Perform Waste Investigation Oversight
- .3.2.7 Perform Geophysical Investigation Oversight
- .3.2.8 Perform Ecological Investigation Oversight
- .3.2.9 Perform Contaminated Building Samples Oversight
- .3.2.10 Perform Disposal of Investigation-Derived Waste Oversight
- .3.2.11 Perform Prepare Data Acquisition Oversight Reports

6.4 Analysis of Split Samples

- .4.1 Perform Screening-Type Laboratory Sample Analysis
 - .4.1.1 Analyze Air and Gas Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.2 Analyze Ground-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.3 Analyze Surface-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.4 Analyze Soil and Sediment Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.5 Analyze Waste (Gas) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.6 Analyze Waste (Liquid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.1.7 Analyze Waste (Solid) Samples
 - (1) Organic
 - (2) Inorganic

- (3) Radiochemistry
- .4.1.8 Analyze Biota Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
- .4.1.9 Analyze Bioassay Samples
- .4.1.10 Perform Bioaccumulation Studies
- .4.2 CLP-Type Laboratory Sample Analysis

The contractor shall request CLP analytical services in accordance with procedures outlined in the *User's Guide to the Contract Laboratory Program*, EPA, December 1986.

 - .4.2.1 Analyze Air/Gas Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.2 Analyze Ground-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.3 Analyze Surface-Water Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.4 Analyze Soil and Sediment Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.5 Analyze Waste (Gas) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.6 Analyze Waste (Liquid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.7 Analyze Waste (Solid) Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.8 Analyze Biota Samples
 - (1) Organic
 - (2) Inorganic
 - (3) Radiochemistry
 - .4.2.9 Analyze Bioassay Samples
 - .4.2.10 Perform Bioaccumulation Studies

6.5 Analytical Support and Data Validation of Split Samples

The contractor shall arrange for the analysis and validation of environmental split samples collected. The sample analysis and validation task begins with reserving sample slots in the CLP and the completion of the RD field sampling program. This task ends with contractor validation of the analytical data received from the laboratory. The contractor shall perform the following activities or combination of activities to analyze and validate test results:

- .5.1 Prepare and Ship Environmental Samples
 - .5.1.1 Ground-Water Samples
 - .5.1.2 Surface and Subsurface Soil Samples
 - .5.1.3 Surface-Water and Sediment Samples
 - .5.1.4 Air Samples
 - .5.1.5 Biota Samples
 - .5.1.6 Other Types of Media Sampling and Screening
- .5.2 Coordinate With Appropriate Sample Management Personnel
- .5.3 Implement EPA-Approved Laboratory QA Program
- .5.4 Provide Sample Management (chain of custody, sample retention, and data storage)
- .5.5 Perform Data Validation

The contractor shall perform appropriate data validation to ensure that the data are accurate and defensible. Complete the necessary summary tables, validation worksheets, and DQO summary forms.

For the RD, full data validation procedures are usually not necessary. The WAM/RPM may want to specify the level of data validation required.

- .5.5.1 Review Analysis Results Against Validation Criteria
- .5.5.2 Provide Written Documentation of Validation Efforts

Implement quality control procedures to ensure the quality of all reports and submittals to EPA.

The WAM/RPM should specify the format for submissions if there are Region-specific or other specific requirements.

6.6 Data Evaluation of Split Samples

This task involves comparison of the PRP's data that will be used in the remedial design effort with data resulting from the analysis of split samples. Data evaluation begins with the receipt of analytical data from the data acquisition task and ends with the submittal of a Data Evaluation Summary Report. Specifically, the contractor shall compare, evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables.

- .6.1 Data Useability Evaluation and Field QA/QC
- .6.2 Data Reduction, Tabulation, and Evaluation
 - .6.2.1 Evaluate Geological Data (Soils and Sediments)
 - .6.2.2 Evaluate Air Data
 - .6.2.3 Evaluate Hydrogeological Data—Ground Water
 - .6.2.4 Evaluate Hydrogeological Data—Surface Water
 - .6.2.5 Evaluate Waste Data
 - .6.2.6 Evaluate Geophysical Data
 - .6.2.7 Evaluate Ecological Data
- .6.3 Modeling
 - .6.3.1 Contaminant Fate and Transport
 - .6.3.2 Water Quality
 - .6.3.3 Ground Water
 - .6.3.4 Air
 - .6.3.5 Other Modeling
- .6.4 Develop Data Evaluation Report

The contractor shall evaluate and present results in a Data Evaluation Summary Report to submit to the WAM/RPM for review and approval. The report will include a comparison of the split sample data collected with PRP data. After the WAM/RPM's review, attend a meeting with EPA to discuss data evaluation results and next steps.

Implement quality control procedures to ensure the quality of all reports and submittals to EPA. These procedures shall include, but are not limited to, internal technical and editorial review; and the documentation of all reviews, the problems identified, and corrective actions taken.

The WAM/RPM should specify that the contractor prepare and submit a Technical Memorandum to the WAM/RPM if new analytical data needs or significant data problems are identified during the evaluation.

6.7 Review of PRP Remedial Design Documents

This task involves work efforts to review PRP RD submittals. The contractor shall perform reviews to focus on the technical and engineering merit. Letter reports will be submitted upon the completion of each review by the oversight contractor within 21 calendar days of the start of the review, identifying specific issues and suggested corrective action. The following factors are to be considered during the review of all PRP submittals:

- Technical requirements of the ROD, Unilateral Administrative Order (UAO), Administrative Order of Consent (AOC), CD, and compliance with ARARs
- Standard professional engineering practices
- Applicable statutes, EPA policies, directives, and regulations (see Attachment 3)
- Spot checking design calculations to assess accuracy and quality of design activities
- Examination of planning and construction schedules for meeting project completion goals

The oversight contractor shall review the PRP-prepared planning, predesign, and design project documentation to ensure professional quality, technical accuracy, compliance with the PRP RD Work Plan, the ROD and Consent Decree, CERCLA, and all ARARs.

.7.1 Review PRP Remedial Design Documents

.7.1.1 Review Preliminary Design

- (1) Project Delivery Strategy and Scheduling
- (2) Preliminary Construction Schedule
- (3) Specifications Outline
- (4) Preliminary Drawings
- (5) Basis of Design Report/Design Analysis
- (6) Preliminary Cost Estimate
- (7) PRP Description of Variances with ROD
- (8) PRP Response to Design Review Comments
- (9) Participate in Preliminary Design Review/Briefing

.7.1.2 Review (PRP Remedial) Intermediate Design Documents

- (1) Construction Schedule
- (2) Preliminary Specifications
- (3) Intermediate Drawings
- (4) Basis of Design Report/Design Analysis
- (5) Revised Cost Estimate
- (6) PRP Description of Variances with ROD
- (7) PRP Response to Design Review Comments
- (8) Participate in Intermediate Design Review/Briefing

.7.1.3 Review Prefinal/Final Design

- (1) Prefinal Design Specifications
- (2) Prefinal Drawings
- (3) Basis of Design Report/Design Analysis
- (4) Revised Cost Estimate
- (5) Final Design Submittal
- (6) Participate in Prefinal/Final Design Review
- (7) Subcontract Award Document(s)
- (8) Biddability (Offerability) and Constructability Reviews
- (9) Revised Project Delivery Strategy

.7.2 (Not used)

6.8 Technical Meeting Support

This task includes work efforts related to attendance at and documentation of meetings with EPA, PRPs, the PRP contractor, and the State Agency. The contractor shall attend meetings and provide documentation of meeting results. Within ___ days after a meeting, the contractor will submit to the WAM/RPM a written report summarizing the meeting results. Meetings may be scheduled to coincide with the following specific milestones during the RD/RA:

- At PRP RD Work Plan Review
- At Design Submittal Reviews
- Before initiating onsite field sampling and treatability study during design
- At completion of all sampling during design

6.9 Work Assignment Closeout

- .9.1 Return Documents to Government
- .9.2 Duplicate, Distribute, and Store Files
- .9.3 Archive Files
- .9.4 Prepare Microfiche, Microfilm, and/or Optical Disk
- .9.5 Prepare Closeout Report. The contractor shall include a breakdown on disk of final costs and Level of Effort (by P-level) in the same detail and format as the Work Breakdown Structure (Attachment 2).

Attachment 1
Summary of Major Submittals for the Remedial Design Oversight at
_____ (Site)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
6.1.1.2	Site Visit Report		3	10 days after site visit	7 days after receipt of report
6.1.1.5	Draft RD Oversight Work Plan		3	30 days after initiation of work assignment (WA)	21 days after receipt of Work Plan
6.1.1.5	Final RD Oversight Work Plan		3	15 days after receipt of EPA comments	NA
6.1.1.6	Comments on Reviews of PRP Plans	5 8 19 21 36	3	21 days after receipt of work plans from EPA	NA
6.1.2.2	Draft HASP	36 19	3	30 days after initiation of WA	21 days after receipt of HASP
6.1.2.3(1)	Draft QAPP	21 8	3	30 days after initiation of WA	21 days after receipt of QAPP
6.1.2.3(2)	Draft FSP	5	3	30 days after initiation of WA	21 days after receipt of FSP
6.1.2.2	Final HASP	36 19	3	15 days after receipt of EPA comments	NA
6.1.2.3(1)	Final QAPP	21 8	3	15 days after receipt of EPA comments	NA
6.1.2.3(2)	Final FSP	5	3	15 days after receipt of EPA comments	NA
6.2.1	Draft Revised CRP	4	3	(#) days after initiation of WA	14 days after receipt of revised CRP
6.2.1	Final Revised CRP	4	3	(#) days after receipt of EPA comments	NA

Attachment 1
Summary of Major Submittals for the Remedial Design Oversight at
_____ (Site) (continued)

TASK	DELIVERABLE	REF NO.*	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
6.2.2	Fact Sheets		3	As needed	10 days after receipt of fact sheet
6.6.4	Data Evaluation Summary Report		3	10 days after receipt of analytical results from laboratory	15 days after receipt of report
6.7	Letter Reports		3	21 days after receipt of PRP design submittal	14 days after receipt of letter report

*See Attachment 3 for list of references

Attachment 2
Work Breakdown Structure (WBS) for
Remedial Design Oversight (RDO)

6.0 Remedial Design Oversight

- .01 Project Planning and Support**
 - .01 Project Planning**
 - .01 Attend Scoping Meeting
 - .02 Conduct Site Visit
 - .03 Evaluate Existing Information
 - .04 Oversight Work Plan Development**
 - .01 Draft Oversight Work Plan Development
 - .01 Develop Narrative
 - .02 Develop Cost Estimate
 - .03 Internal QA & Submission
 - .02 Final Oversight Work Plan Preparation
 - .01 Attend Negotiation Meeting
 - .02 Modify Draft Work Plan and Cost Estimate
 - .03 Internal QA & Submission
 - .05 Review PRP Plans**
 - .01 Review PRP Site Management Plan
 - .01 Review PRP Pollution Control & Mitigation Plan
 - .02 Review PRP T&D Plan
 - .02 Review PRP Health & Safety Plan
 - .03 Review PRP Sampling & Analysis Plan (Chemical Data Acquisition Plan)
 - .01 Review PRP Quality Assurance Project Plan
 - .02 Review PRP Field Sampling Plan
 - .03 Review PRP Data Management Plan
 - .04 Other PRP Plan(s)
- .02 Preparation of Site-Specific Plans**
 - .01 Not used
 - .02 Develop Health & Safety Plan
 - .03 Sampling & Analysis Plan (Chemical Data Acquisition Plan)
 - .01 Quality Assurance Project Plan
 - .02 Field Sampling Plan
 - .03 Data Management Plan
 - .04 Other Plan(s)
- .03 Project Management**
 - .01 Prepare Periodic Status Reports
 - .01 Document Cost and Performance Status
 - .02 Prepare/Submit Invoices
 - .02 Meeting Participation/Routine Communications
 - .03 Maintain Cost/Schedule Control System
 - .04 Perform Value Engineering
 - .05 Perform Engineering Network Analysis
 - .06 Manage, Track, and Report Equipment Status
 - .07 Work Assignment Closeout
- .04 Subcontract Procurement/Support Activities**
 - .01 ID and Procurement of Subcontractors
 - .01 Not used –Drilling Subcontractor
 - .02 Not used –Surveying Subcontractor

- .03 Not used—Geophysical Subcontractor
- .04 Not used—Site Preparation Subcontractor
- .05 Analytical Services Subcontractor(s)
- .06 Not used—Waste Disposal Subcontractor
- .07 Not used—Treatability Subcontractor(s)
- .08 Other(s)
- .02 Contractor QA Program
- .03 Perform Subcontract Management
- .02 Community Relations
 - .01 Community Relations Plan (CRP) Development
 - .01 Conduct Community Interviews
 - .02 Update CRP
 - .01 Draft CRP
 - .02 Final CRP
 - .02 Prepare Fact Sheets
 - .03 Public Hearing, Meetings, & Availability Support
 - .01 Technical Support
 - .02 Logistical & Presentation Support
 - .03 Public Notice Support (writing, or placement of)
 - .04 Maintain Information Repository/Mailing List
- .03 Data Acquisition Oversight
 - .01 Mobilization/Demobilization Oversight
 - .01 Not used—HD field support equipment/supplies/facilities
 - .02 Mobilization Oversight
 - .01 Site Preparation
 - .01 Perform Demolition
 - .02 Clearing and Grubbing
 - .03 Perform Earthwork
 - .01 Provide Borrow Pit
 - .02 Construct Haul Roads
 - .04 Construct Roads/Parking/Curbs/Walks
 - .05 Install Storm Drainage/Subdrainage
 - .06 Install Fencing/Site Security
 - .02 Installation of Utilities
 - .01 Install Electrical Distribution
 - .02 Install Telephone/Communication System(s)
 - .03 Install Water/Sewer/Gas Distribution
 - .04 Install Fuel Line Distribution
 - .03 Construction of Temporary Facilities
 - .01 Construct Decontamination Facilities
 - .02 Construct Sample/Derived Waste Storage Facility
 - .03 Construct Field Offices
 - .04 Construct Mobile Laboratory
 - .05 Construct Other Temporary Facilities
 - .03 Demobilization Oversight
 - .01 Removal of Temporary Facilities
 - .02 Site Restoration
- .02 Field Investigation
 - .01 Site Reconnaissance Oversight
 - .01 Ecological Resources Reconnaissance
 - .02 Well Inventory
 - .03 Residential Well Sampling
 - .04 Land Survey
 - .05 Topographic Mapping
 - .06 Field Screening

- .02 Geological Investigations Oversight (Soils/Sediments)
 - .01 Surface Soil Sample Collection
- .03 Air Investigations Oversight
- .04 Hydrogeological Investigations Oversight–Ground Water
 - .01 Well Systems Installation
 - .02 Collect Samples
 - .03 Hydro Punch
 - .04 Tidal Influence Study
 - .05 Hydraulic Tests (Pump Tests)
 - .06 Ground-Water Elevation Measurement
- .05 Hydrogeological Investigations Oversight–Surface Water
- .06 Waste Investigation Oversight
- .07 Geophysical Investigation Oversight
- .08 Ecological Investigation Oversight
- .09 Contaminated Building Samples Oversight
- .10 Disposal of Investigation-Derived Waste Oversight
- .11 Prepare Data Acquisition Oversight Reports
- .04 Sample Analysis of Splits
 - .01 Screening-Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Ground-Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .09 Analyze Bioassay Samples
 - .10 Perform Bioaccumulation Studies
 - .02 CLP-Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples

- .01 Organic
- .02 Inorganic
- .03 Radiochemistry
- .02 Analyze Ground-Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .09 Analyze Bioassay Samples
- .10 Perform Bioaccumulation Studies
- .05 Analytical Support and Data Validation of Split Samples
 - .01 Prepare and Ship Environmental Samples
 - .01 Ground-Water Samples
 - .02 Surface and Subsurface Soil Samples
 - .03 Surface Water & Sediment Samples
 - .04 Air Samples
 - .05 Biota Samples
 - .06 Other types of media sampling and screening
 - .02 Coordinate with appropriate Sample Management personnel
 - .03 Implement EPA-approved Laboratory QA program
 - .04 Provide Sample Management (Chain of Custody, sample retention, & data storage)
 - .05 Perform Data Validation
 - .01 Review analysis results against validation criteria
 - .02 Provide written Documentation of validation efforts
- .06 Data Evaluation of Split Samples
 - .01 Data Useability Evaluation/Field QA/QC
 - .02 Data Reduction, Tabulation and Evaluation
 - .01 Evaluate Geological Data (Soils/Sediments)
 - .02 Evaluate Air Data
 - .03 Evaluate Hydrogeological Data –Ground Water
 - .04 Evaluate Hydrogeological Data –Surface Water
 - .05 Evaluate Waste Data

- .06 Evaluate Geophysical Data
- .07 Evaluate Ecological Data
- .03 Modeling
 - .01 Contaminant Fate and Transport
 - .02 Water Quality
 - .03 Ground Water
 - .04 Air
 - .05 Other Modeling
- .04 Develop Data Evaluation Report
- .07 Review PRP Remedial Design Documents
 - .01 Review Preliminary Design
 - .01 Project Delivery Strategy and Scheduling
 - .02 Preliminary Construction Schedule
 - .03 Specifications Outline
 - .04 Preliminary Drawings
 - .05 Basis of Design Report/Design Analysis
 - .06 Preliminary Cost Estimate
 - .07 PRP Description of Variances with ROD
 - .08 PRP Response to Design Review Comments
 - .09 Participate in Preliminary Design Review/Briefing
 - .02 Review Intermediate Design
 - .01 Construction Schedule
 - .02 Preliminary Specifications
 - .03 Intermediate Drawings
 - .04 Basis of Design Report/Design Analysis
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 - .08 Participate in Intermediate Design Review/Briefing
 - .03 Review Prefinal/Final Design
 - .01 Prefinal Design Specifications
 - .02 Prefinal Drawings
 - .03 Basis of Design Report/Design Analysis
 - .04 Revised Cost Estimate
 - .05 Final Design Submittal
 - .06 Participate in Prefinal/Final Design Review
 - .07 Subcontract Award Document(s)
 - .08 Biddability (offerability) and Constructability Reviews
 - .09 Revised Project Delivery Strategy
 - .10 Document VE Modifications
- .07.02 (Not Used)
- .08 Technical Meeting Support
- .09 Work Assignment Close Out
 - .01 Return Documents to Government
 - .02 File Duplication/Distribution/Storage
 - .03 File Archiving
 - .04 Microfiche/Microfilm/Optical Disk
 - .05 Prepare Closeout Report

Attachment 3

Regulations and Guidance Documents

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RD process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.
3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
4. Community Relations in Superfund - A Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.
5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.
8. The Data Quality Objectives Process for Superfund: Interim Final Guidance, U.S. EPA, EPA/540/R-93/071, September 1993.
9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.
11. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.
14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
20. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.

25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.
26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.
28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.
29. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
30. 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.
31. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER 9355-5-21 FS.
33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.
38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
39. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
44. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.

Attachment 4

TRANSMITTAL OF DOCUMENTS FOR ACCEPTANCE BY EPA		DATE:	TRANSMITTAL NO.
TO:		FROM:	<input type="checkbox"/> New Transmittal <input type="checkbox"/> Resubmittal of Transmittal No. _____
SUBTASK NO.	DELIVERABLE	NO. OF COPIES	REMARKS
ACCEPTANCE ACTION			
DOCUMENTS FOUND ACCEPTABLE (LIST BY SUBTASK NO.)		NAME/TITLE/SIGNATURE OF REVIEWER _____ DATE _____	

Attachment 5

TRANSMITTAL REGISTER

[illegible]

RA SOW

(Date)

MODEL STATEMENT OF WORK FOR REMEDIAL ACTION

SITE, _____ COUNTY, _____ STATE

ATTACHMENTS

Attachment 1. Summary of Major Submittals for the Remedial Action at ____ (Site)	22
Attachment 2. Work Breakdown Structure	24
Attachment 3. Regulation and Guidance Documents	30
Attachment 4. Transmittal of Documents for Acceptance by EPA	32
Attachment 5. Transmittal Register	33

1. **To tell the contractor what EPA wants done.** The WAM/RPM should be as specific as possible in describing what you want the contractor to do. The contractor will write a work plan and budget describing how and at what cost the requirements will be met and ultimately will be responsible for performing to those requirements. Whenever there is an absolute requirement (e.g., prepare the QAPP in accordance with QAMS-005/80 (December 29, 1980 or prepare the Remedial Action Report in accordance with OSWER Publication 9355.0-39FS (June 1992)), state it.

2. **To give the contractor a structure for recording costs.** Work plan costs and final costs of different remedial action projects can be compared and analyzed.

Use of a Work Breakdown Structure (WBS)

1. A WBS has been developed for this model work assignment in order for EPA to track the initial and final costs of each element used and share this data with other Federal agencies. The WBS is, essentially, the outline for this work assignment and is included as Attachment 2 to this SOW.

2. If an element is not to be used, do not change the numbering system; instead, insert "not used" or "N/A" after the element number and then delete the text for that element.

3. For the items used for a given project, additional descriptions (e.g., type of samples and estimated number) should be added in order for the contractor and RPM/WAM to develop estimated costs on a common basis.

7.0 Introduction

.0.1 Site Description

Provide a brief site description and site history.

.0.2 Purpose

The purpose of this Statement of Work (SOW) is to set forth the framework and requirements for implementing the Remedial Action (RA) at _____ (site) in accordance with the objectives of the Remedial Design (RD). The Record of Decision (ROD) issued on _____ (date) defines the selected remedy. The RA is the implementation phase of site remediation or construction of the remedy, including

necessary operation and maintenance, performance monitoring, and special requirements. The RA is based on the RD to achieve the remediation goals specified in the ROD. The goal for completion of this RA is _____ months after work plan approval. The estimated completion date for this work assignment is _____.

For the purposes of this model SOW, the **RA contractor**, also referred to as "**the contractor**", is defined as the firm responsible for performing the SOW. The RA contractor is under contract to EPA through the Alternate Remedial Contracting Strategy (ARCS) or Remedial Action Contractor (RAC) contracting vehicles. The **construction contractor**, also referred to as the "**constructor**" is responsible for planning and managing the construction activities in accordance with the contract documents. In most cases, the constructor is a subcontractor to the RA contractor and will utilize the services of specialty subcontractors in order to accomplish the RA.

During the RA, there are many participating team members that will have specific roles and responsibilities throughout the RA. Up front in the SOW, the RPM may consider defining the nomenclature used to refer to the different participants. Defining the RA contractor, the construction contractor, and other subcontractors will ensure that the terms are used consistently throughout the SOW and Work Plan and will facilitate a clear understanding of whom is expected to do what parts of the SOW. The RPM may consider adding appropriate definitions to section 0.2.

.0.3 General Requirements

- .0.3.1 The contractor shall conduct the RA in accordance with this SOW and the final plans and specifications developed during the RD. The RA shall also be consistent with the ROD issued on _____ (date), 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. The primary contact for this work assignment is _____, tel. (____) _____; the secondary contact is _____, tel. (____) _____.
- .0.3.2 A summary of the major deliverables and a suggested schedule for submittals is attached. See Attachment 1.
- .0.3.3 Specifically, the RA involves the construction and implementation of _____ (briefly explain the major components of the RA).
- .0.3.4 The contractor shall furnish all necessary and appropriate personnel, including subcontractors, materials, and services needed for, or incidental to, performing and completing the RA.
- .0.3.5 A list of primary guidance and reference material is attached. See Attachment 2. In all cases, the contractor shall use the most recently issued guidance.
- .0.3.6 The estimated cost of the RA, as outlined in the RD cost estimate, is \$ _____.
- .0.3.7 The contractor shall communicate at least weekly with the Work Assignment Manager or Remedial Project Manager (WAM/RPM), either in face-to-face meetings or through conference calls.
- .0.3.8 The contractor shall notify the WAM/RPM when 75 percent of the approved work assignment budget has been expended and when 95 percent has been expended.
- .0.3.9 The contractor shall document all decisions that are made in meetings and conversations with EPA. The contractor shall forward this documentation to the WAM/RPM within two working days of the meeting or conversation.
- .0.3.10 EPA will provide oversight of contractor activities throughout the RA. 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 will review deliverables, including specific deliverables from the constructor to the RA contractor, to assess the likelihood that the constructed remedy will

achieve its remediation goals and that its performance and operations requirements have been met. Acceptance of plans and design-required submittals (i.e., shop drawings, design details) by EPA does not relieve the RA contractor, the constructor, or any subcontractors from their professional responsibilities.

.0.4 Record-Keeping Requirements

The contractor shall maintain all technical and financial records for the RA in accordance with the contract. At the completion of the RA, the contractor shall submit _____ copies of the official record of the RA in _____ (format) to the WAM/RPM.

1. Technical and financial records must support decisions made during the RA as well as to support cost recovery.
2. The WAM/RPM should check with the Regional Records Manager and with Regional Counsel regarding the distribution, number of copies, and preferred format (i.e., hard copy, microfilm, microfiche, CD-ROM) for the official records of the RA.

.0.5 Equipment Transfer

At the completion of the RA work assignment or when government personal property is no longer required at the site, the contractor shall arrange for the proper disposition of government-furnished or contract-acquired property (purchased with contract funds) in accordance with the contract requirements. The disposition (transfer, sale, or abandonment) of government personal property and the tracking of such equipment (see item .1.2.4) shall be coordinated with the Contract Property Administrator. For additional information, refer to *Contractor's Guide for Control of Government Property*, Office of Administration and Resources Management, December 1988.

.0.6 Project Closeout

At the completion of the RA work assignment, the contractor shall perform all necessary project closeout activities as specified in the contract. These activities may include closing out any subcontracts, indexing and consolidating project records and files as required in Paragraph 0.4 above, and providing a technical and financial closeout report to EPA. Final costs shall be reported to EPA (on disk) broken down into the cost for each element of the WBS for this work assignment (see item .1.2.5, Project Management, Work Assignment Closeout).

7.1 Project Planning and Support

.1.1 Project Planning

The purpose of this task is to plan for the execution and overall management of this work assignment. The technical and managerial activities required to implement the RA and the associated costs are developed during the planning phase and are detailed in the RA Work Plan. Activities required for general work assignment management that will occur throughout the duration of the project are included in this task. This task may begin before or after the approval of the final design package and will continue through work assignment closeout. The following activities shall be performed as part of the project planning and support task:

1. Depending on project status and if the designer will continue as the RA contractor, the WAM/RPM may not need to task some of the following tasks (e.g. conduct site visit [1.1.2] or evaluate existing information [1.1.3]) that are needed to familiarize a new contractor with the site.
2. Before developing the RA SOW, the WAM/RPM should review the RD SOW or RD work plan to confirm if any RA planning or pre-construction activities were tasked during the RD work assignment. Some activities may have been conducted by the RD contractor in Task 12, Post RD Support)
3. In order to expedite the RA, initial planning for the RA may start before final approval of the design package and therefore, overlap with RD or post-RD activities tasked to the designer. This is possible when the designer will oversee the construction as the RA contractor.

.1.1.1 Attend Scoping Meeting. Before or concurrent with developing the RA Work Plan, the contractor shall attend a scoping meeting to be held at the EPA Regional Office.

The meeting location and the RPM's expectations for the number of contractor personnel to attend should be specified for cost estimation purposes. Consider having the designer, if different than the RA contractor, attend the meeting to present any special considerations and to facilitate the transfer of site and design information prior to work plan development.

- .1.1.2 Conduct Site Visit. The contractor shall conduct a site visit with the EPA WAM/RPM and designer's representative (if appropriate) during the RA planning phase to assist in developing an understanding of the site and any construction logistics. Information gathered during the visit shall be used to better scope the project and to implement the RA. A Health and Safety Plan (HASP) is required for the site visit. The contractor shall prepare a report that documents the site visit and any required action items or decisions. This report shall be submitted to the EPA WAM/RPM within 10 calendar days of the site visit.
- .1.1.3 Evaluate Existing Information. The contractor shall obtain, copy (if necessary), and evaluate existing data and documents, including the final Design Package, the RD Work Plan, the ROD, Remedial Investigation/Feasibility Study (RI/FS), and other data and documents as directed by WAM/RPM. This information shall be used to determine if any additional data are needed prior to procuring the constructor. The documents available for review are listed in Attachment 3.

The WAM/RPM should specify the following key documents for the RA contractor to review:

- | | |
|--|----------------------------------|
| • Final Drawings and Specifications
(100% Design) | • Project Delivery Strategy |
| • Final Basis of Design and
Design Analysis | • VE Modifications |
| • RA Cost Estimate | • Draft O&M Manual |
| • Construction Quality Assurance Plan | • Quality Assurance Plan for O&M |

Additional documents to list in Attachment 3 could include the summary of the "Predesign Information Collection" Effort (see Chapter 3 of the *Guidance for Scoping the Remedial Design*), Focused Feasibility Studies (FFS), State documentation, hydrogeological information, and RPM file data. However, to control expenses, limit review to pertinent documents specific to the site and construction of the remedy.

- .1.1.4 Develop Work Plan. The contractor shall prepare and submit a RA Work Plan which includes a detailed description of construction activities, operations and maintenance, performance monitoring, and an overall management strategy for the RA. The contractor shall present the general approach that will be used for the RA at a Work Plan scoping meeting with the WAM/RPM. This meeting will be held at the Region _____ office.

If the RA will be complex, consider modifying subtask 3.1.1.4 (1) to include an additional scoping meeting to be held before the contractor finalizes the technical approach. This will ensure that the WAM/RPM and the contractor are in agreement as to the approach to be taken and that the agreed-upon approach is reflected in the Work Plan. The contractor may not have to rewrite the Work Plan if this is done.

.1.1.4 Develop Work Plan (continued)

- (1) Develop Draft Work Plan. The contractor shall prepare and submit a draft RA Work Plan within 30 calendar days after initiation of the work assignment (WA). Submit the original to the Contracting Officer (CO), one copy to the Project Officer (PO), and one copy to the WAM/RPM or in accordance with contract requirements. The Work Plan shall include a detailed description of the technical approach for the remediation and construction activities in accordance with the final design and ROD. The necessary procedures, inspections, deliverables, and schedules shall be specified. A comprehensive construction management schedule for completion of each major activity and submittal shall also be included.

The WAM/RPM should verify the work plan submittal timeframe with the PO. Additional copies of the work plan can be submitted to the WAM/RPM, if specified, for distribution to other technical staff.

2. The WAM/RPM should ensure that the submittal requirements in this SOW are in accordance with the submittal requirements for the RA contract as specified in the plans and specifications.
3. The WAM/RPM must prepare an Independent Government Cost Estimate (IGCE) for the RA before the WA is issued to the contractor. The WAM/RPM should use the designer's final RA cost estimate, prepared as part of the final design (RD SOW, Task 11) as a starting point and add the costs associated with the construction management and oversight activities performed by the RA contractor, as specified in this SOW. Contact Regional IGCE Coordinators for assistance.

(a) Develop Narrative. Specifically, the Work Plan shall present the following:

- A statement of the problem(s) and potential problem(s) posed by the site and how the objectives of the completed RA will address the problem(s).
- The contractor's technical approach to each task to be performed, including a detailed description of each task; the assumptions used; the information needed for each task; any information to be produced during and at the conclusion of each task; and a description of the work products that will be submitted to EPA. Tasks and subtasks shall be presented in the same WBS format as provided in this work assignment SOW. The technical descriptions shall include enough detail to back up the costs and level of effort presented in .1.1.4(1)(b).
- A schedule for specific dates for completion of each required activity and submission of each deliverable required by this SOW. (See Attachment 1). This schedule shall also include information about timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for EPA.

An organizational structure which outlines the responsibilities and authority of all organizations and key personnel involved in the RA. A description of key project personnel's qualifications (project manager, resident engineer, quality assurance official, etc.) shall be provided.

- (b) **Develop Cost Estimate.** The contractor's estimated cost to complete the work assignment, including subcontractors' costs, shall be prepared for each element of the WBS (Attachment 2) and submitted to EPA on disk [specify format]. The contractor shall provide a breakdown of the cost and Level of Effort (LOE), by professional levels, for each subtask of the Work Assignment.
- (c) **Internal QA and Submission of Work Plan.**
- (2) **Prepare Final Work Plan**
 - (a) **Attend Negotiation Meeting.** The contractor shall attend a Work Plan negotiation meeting at the Region _____ office. Any technical issues and possible solutions shall be discussed at this meeting. The contractor shall confirm these discussions and suggested plan of action in a memorandum to the WAM/RPM within 2 days of the meeting.
 - (b) **Modify Draft Work Plan and Cost Estimate.** The contractor shall make revisions to the Work Plan as a result of EPA's comments and/or negotiation agreements.
 - (c) **Internal QA and Submission of Final Work Plan** within 15 days after receipt of EPA comments on the draft Work Plan.

.1.2 Project Management

1. The WAM/RPM should specify the format for submissions (e.g., Monthly Progress Reports) if there are Region-specific or other requirements.
2. During construction, there may be especially active periods. The WAM/RPM should specify additional communication requirements or status reports from the RA contractor. Also, the WAM/RPM should arrange for personal visits to the site during these times.

- .1.2.1 **Prepare Periodic Status Reports.** The contractor shall prepare Monthly Progress Reports.
 - (1) **Document Cost and Performance Status.** The contractor shall document the technical progress and status of each task in the WBS for the reporting period in accordance with contract requirements. The contractor shall report costs and level of effort (by P-level) for the reporting period as well as cumulative amounts expended to date.
 - (2) **Prepare and Submit Invoices.** Monthly invoices will be prepared and submitted in accordance with the level of detail as specified in the contract.
- .1.2.2 **Meeting Participation and Routine Communications.** The contractor shall attend project meetings, provide documentation of meeting results, and shall contact the RPM by telephone on a weekly basis to report project status.
- .1.2.3 **Maintain Cost/Schedule Control System.** The contractor shall develop and maintain a system to monitor and control the costs and schedule of the Work Assignment. The contractor shall specify the process to continuously update the information in the system as a result of engineering network analyses and changing field conditions. The system shall have the capability to compare technical progress with expenditures and predict completion dates and cost to complete information. In addition to reporting cost and progress of the elements of this SOW, the cost/schedule control system must report and control costs within Task 8, RA Implementation, in sufficient detail to control construction costs.
- .1.2.4 **Manage, Track, and Report Equipment Status.** The contractor shall manage, track, and report the status of all government-furnished equipment and contract-acquired property in accordance with contract requirements. Labelling and record keeping requirements for government personal property are outlined in the *Contractor's Guide for Control of*

Government Property, Office of Administration and Resources Management, December 1988.

- .1.2.5 Work Assignment Closeout. The contractor shall perform the necessary activities to closeout the work assignment in accordance with contract requirements.
- .1.2.6 Coordinate with Local Emergency Response Teams. The contractor shall coordinate with local emergency responders to ensure the proper implementation of the HASP and specifically the Emergency Response Plan. The contractor shall review and complete the emergency responder agreement, if necessary, conduct a kickoff meeting at the site with all local emergency responders, and notify the responders of any changes to the Emergency Response Plan throughout the RA. [For more information, refer to *Emergency Responders Agreements for Fund-Lead Remedial Actions*, publication 9285.6-04FS, March 1994]

7.2 Community Relations

The contractor shall provide community relations support to EPA throughout the RA. The contractor shall provide community relations support in accordance with *Community Relations in Superfund: A Handbook*, June 1988. This task begins with the approval of the RA Work Plan and continues throughout the duration of the work assignment. Community relations shall include the following subtasks:

1. Listed below are a number of possible community relations activities the WAM/RPM may require, depending on the specific situation. Refer to the *Community Relations in Superfund: A Handbook, Chapter 7 and Appendix A*, for suggested community relations activities during RA.
2. With implementation of the remedy, site activity increases and so does the likelihood of community concerns and questions. In addition to the community relations activities listed below in the WBS, the WAM/RPM may consider the following activities to communicate progress during construction: arranging site tours and workshops; establishing observation decks; and videotaping cleanup activities. These activities may be tasked in items .2.3.1. Technical Support, or added to the WBS under as a separate item and numbered accordingly (i.e., .2.3.5). The WAM/RPM should plan for and develop a proactive and effective program with the assistance of the Regional Community Relations Specialist.
3. The WAM/RPM should review the current community relations plan, if one exists, and direct the RA contractor to update the existing CRP to address activities and concerns specific to the RA.
4. The WAM/RPM should specify the format for Community Relations submissions (e.g., fact sheets, news releases) if there are Region-specific or other requirements.

.2.1 Develop Community Relations Plan (CRP)

- .2.1.1 Conduct Community Interviews. The contractor shall assist the WAM/RPM in conducting community interviews to identify community concerns associated with the RA. The contractor shall assist the WAM/RPM in identifying key community members, establishing an interview schedule, conducting interviews, and summarizing the results.
- .2.1.2 Prepare the CRP. The contractor shall update the existing CRP to address community relations requirements and community concerns during the RA.
 - (1) Draft CRP. The contractor shall update the CRP and submit a draft version within 14 days after completion of the community interviews.
 - (2) Final CRP. Within 7 days of receipt of EPA comments, the contractor shall submit a final CRP.

.2.2 Prepare Fact Sheets

1. This subtask may have been completed during the RD. In that case, the WAM/RPM may task the RA contractor to revise the fact sheet before construction begins with the current schedule, expected conditions, and relevant points of contact.
2. Depending on the complexity of the RA, the WAM/RPM should consider communicating construction progress by sending out regular fact sheets. Specify to the contractor the anticipated number of fact sheets, topics, and number of copies required.

The contractor shall assist the WAM/RPM in preparing a fact sheet that informs the public about activities related to the final design, the schedule for the RA, activities to be expected during construction, measures to be taken to protect the community, provisions for responding to emergency releases and spills, and any potential inconveniences such as excess traffic and noise that may affect the community during the RA.

.2.3 Public Meetings and Availability Support

The number and location of anticipated public meetings should be identified in the SOW for cost estimation purposes. Similarly, the RPM should specify the number of contractor personnel expected to be in attendance at the public meetings.

- .2.3.1 Technical Support. The contractor shall assist the WAM/RPM in providing technical support for community meetings that may be held during the RA. This support may include preparing technical input to news releases, briefing materials, arranging other community relations vehicles (i.e., site tours), and helping the WAM/RPM to coordinate with local agencies.
- .2.3.2 Logistical and Presentation Support. The contractor shall assist the WAM/RPM in preparing technical briefing materials and in arranging for the logistical details for the meeting(s).
- .2.3.3 Public Notice Support. The contractor shall assist the WAM/RPM in drafting public notices, announcing the public meetings and placing the notice in a local paper of general circulation.

.2.4 Maintain Information Repository and Mailing Lists

The contractor shall assist the WAM/RPM in developing or revising site mailing lists and maintaining a repository of information on activities related to the site-specific remedial action as described in Appendix A.8, page A-19, of *Community Relations in Superfund: A Handbook*, June 1988.

7.3 Site Specific Plans

The purpose of this task is to review the existing site-specific plans that were prepared during RD, and update, as necessary, for the RA contractor to implement the RA. Typical plans include a health and safety plan, sampling and analysis plan, and construction quality assurance plan. This task begins with approval of the RA Work Plan and will occur throughout the duration of the work assignment. The RA contractor has the overall responsibility to prepare, update, and/or maintain the necessary site-specific plans for implementation of the RA. Since the constructor and any subcontractors will prepare their own RA plans, the RA contractor will incorporate the plans and procedures received from any subcontractors into the overall site plans. Construction plans and procedures are living documents and the contractor shall update the appropriate plans, as necessary, throughout the RA.

1. The RPM/WAM should check to see if the update and/or preparation of RA site specific plans were tasked during the RD (Task 12, Post Remedial Design Support).
2. The RA Contractor is tasked in this section to update any necessary plans for RA implementation. It should be noted that the Constructor and any subcontractors will prepare their own plans. The WAM/RPM should budget for the RA contractor to modify site plans to incorporate plans and procedures received from any subcontractors and to account for changing field conditions.
3. Typical sampling and analysis activities by the RA contractor include confirmatory sampling (i.e., take split samples with the constructor) to ensure cleanup standards have been met; air sampling and analysis to monitor air quality around the site perimeter; and wastewater discharge sampling to monitor National Pollutant Discharge Elimination System (NPDES) requirements.

.3.1 Update Site Management Plan. After EPA approval of the RA Work Plan (see Item 3.1.1.4), the contractor shall update the Site Management Plan (SMP) that was prepared during RD. This plan provides EPA with a written understanding of how access, security, health and safety, contingency procedures, management responsibilities, and waste disposal are to be handled during construction. The contractor shall update the plan, as necessary, to incorporate any subcontractors' plans.

.3.1.1 Update Health and Safety Plan. Prepare a site-specific HASP that addresses overall health and safety considerations for all personnel onsite. The contractor shall incorporate the constructor's and any subcontractors' HASPs into the overall site plan. The RA contractor shall provide the overall framework for site safety and ensure that adequate warning systems and notifications are understood by all parties. The HASP shall specify employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with [40 CFR 300.150 of the NCP and] 29 CFR 1910.120 1(1) and (1)(2). Whenever possible, refer to the HASP developed for the RI/FS or RD when preparing the HASP for the RA. For any site visits, a task-specific HASP must also be prepared to address health and safety requirements.

.3.1.2 Update Sampling and Analysis Plan (Chemical Data Acquisition Plan). Prepare a sampling and analysis plan to reflect the specific objectives of any data acquisition conducted during construction. The SAP will outline the data collection and quality assurance requirements of any sampling and analysis conducted by the contractor.

- (1) Quality Assurance Project Plan. The contractor shall prepare a Quality Assurance Project Plan (QAPP) in accordance with EPA QA/R-5 (latest draft or revision). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired data quality objectives (DQOs). The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan. The QAPP developed for the RD and/or RI/FS should be referenced or adapted whenever possible when preparing the QAPP for the RA.
- (2) Field Sampling Plan. Prepare a Field Sampling Plan (FSP) that defines the sampling and data collection methods that shall be used for the project. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and a breakdown of samples to be analyzed through the Contract Lab Program (CLP) and through other sources, as well as the justification for those decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. The FSP developed for the RD and/or RI/FS must be referenced or adapted whenever possible;

the contractor shall document any required changes to the FSP in a memorandum to the WAM/RPM.

1. The Sampling and Analysis Plan (SAP) may be optional during certain RAs. It is prepared and updated from the SAP prepared during RD if the RA contractor has sampling and analysis responsibilities outside of those required of the constructor. In most cases, the RA contractor will split samples with the constructor to confirm and validate cleanup actions. These samples will be analyzed through the CLP (Level 4 data are required).
2. The WAM/RPM should reduce time and costs by using an onsite laboratory to analyze routine samples as construction proceeds (i.e., to delineate excavation limits) rather than going through the CLP. This is usually the constructor's responsibility and is included in the contract documents.
3. The WAM/RPM may consider requesting a plan for acquiring permits throughout the construction process. This plan could be part of the Construction Management Plan, and may avoid timely and costly construction delays.
4. The WAM/RPM should identify whether audits will be performed and specify contractor response items.

.3.1.2 Update Sampling and Analysis Plan (continued)

(3) Data Management Plan. Prepare a Data Management Plan that outlines the procedures for storing, handling, accessing, and securing data collected during the RA.

(4) Develop Other Plan(s)

- .3.2 Update Pollution Control & Mitigation Plan. Prepare a Pollution Control & Mitigation Plan that 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 RA. Any plans and procedures prepared during the RD should be referenced or adapted whenever possible (i.e., sediment and erosion control plan and air monitoring plan).

.3.2.1 Update Transportation & Disposal Plan (Waste Management Plan). Prepare a Transportation & Disposal Plan that outlines how wastes that are encountered during the RA will be managed and disposed of. The contractor shall specify the procedures that will be followed when wastes will be transported off-site for storage, treatment, and/or disposal.

- .3.3 Update Construction Quality Assurance (CQA) Plan. The contractor shall review and update the final Construction Quality Assurance (CQA) Plan as submitted as part of the final design documents. The CQA Plan shall outline the necessary steps to inspect and sample construction materials (i.e., membranes, concrete) and to ensure the overall quality of the constructed project. The CQA Plan shall be in accordance with "Construction Quality Assurance for Hazardous Waste Land Disposal Facilities" (EPA, October, 1986) and will include the following elements:

- Responsibility and authority of all organization and key personnel involved in the remediation action construction.

- CQA Personnel Qualifications. The contractor shall establish the minimum qualifications of the CQA Officer and supporting inspection personnel.

- Inspection Activities. The contractor shall establish the observations and tests that will be required to monitor the construction and/or installation of the components of the RA(s).

The plan shall include the scope and frequency of each type of inspection to be conducted. Inspections shall be required to verify compliance with environmental requirements and include, but not be limited to, air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. Inspections shall also ensure compliance with all health and safety procedures.

- Sampling requirements. The contractor shall establish the requirements for sampling activities, sample size, sample locations, frequency of testing, criteria for acceptance and rejection, and plans for correcting problems as addressed in the project specifications.
- Documentation. The contractor shall describe the reporting requirements for CQA activities. This shall include such items as daily summary reports and inspection data sheets.

7.4 Procurement of Subcontract

The purpose of this task is to solicit, evaluate, select, and award the necessary subcontracts to construct and implement the RA. This task begins with the approval of the RA Work Plan and review and modification of the contract documents prepared during the RD. After advertising and evaluating bids, this task ends with the award of one or more construction contracts to implement the RA. The contractor shall perform the following procurement activities:

1. The prebid and preaward activities may have been tasked to the RD contractor during Task 12, Post Remedial Design Support. The RA contractor will need to update the general conditions and dates prior to printing and distribution.
2. The WAM/RPM should consider having a project meeting with the RA contractor early in this task to review procedures and schedules for evaluating bids. It is important for the WAM/RPM to be involved during this process to ensure that the Contracting Officer's requirements for consent are met. This will help ensure that construction proceeds on schedule.
3. The WAM/RPM's role during this task is to oversee the technical information that is provided to bidders, monitor the overall procurement process and schedule, review written questions and responses, and attend any prebid and preconstruction conferences.
4. In an Invitation for Bid (IFB) or low bid procurement, the successful bidder is referred to as the lowest responsible bidder (offeror). If a request for cost and technical proposal (RFP) is used instead of the IFB, the procurement process and associated terminology for successful bidders are different (i.e., proposals in the competitive range versus lowest responsible bidder). The WAM/RPM should refer to 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) for more information on the different types of procurement.

4.1 Prebid (Pre-Solicitation) Activities

- 4.1.1 Printing & Distribution of Contract Documents. Print and distribute to prospective bidders the contract documents that were finalized during RD.
- 4.1.2 Advertising/Soliciting of Bids. Advertise and solicit bids for construction services. An advertisement shall be prepared and published in _____.
 - (1) Prebid (pre-solicitation) Meetings. The contractor shall arrange and attend prebid meetings to provide clarification on plans, specifications, and contract documents to all bidders.
 - (2) Resolution of Inquiries/Issuing Addenda. The contractor shall resolve bidder inquiries and document all contact with potential bidders, and issue amendments to contract documents if additional information becomes available that all bidders should be made aware of after solicitation.
 - (3) On-site Visits. The contractor shall participate in onsite visits that may be required to further clarify the services required.
- 4.1.3 Readvertise/Resolicit Bids, if necessary. The contractor shall readvertise and resolicit bids in accordance with the Federal Acquisition Regulations (FAR) requirements.

.4.2 PreAward Activities

.4.2.1 Receipt of Bids (offers). After receipt of all bids within the solicitation period, the contractor shall perform the necessary activities to review, compile, and evaluate all bids received. The contractor shall conduct any necessary reference checks to ensure qualifications of responsible bidders.

(1) Determination of Responsive, Responsible Bidders (offerors) or proposals in the competitive range.

(2) Perform Reference Checks

(3) Bid (offer) Tabulation

(4) Bid (offer) Analysis

.4.2.2 Receipt of Follow-up Items from Responsible Bidder(s) (offerors). The contractor shall request the necessary follow-up items (i.e., subcontracting plan), from the responsible bidder(s), if the follow-up items are evaluated as part of the selection criteria.

.4.2.3 Review of Equal Employment Opportunities (EEO), MBE Requirements, Small Disadvantaged Business (SDB) Subcontracting Plans. The contractor shall review the bidder(s) plans to ensure that the successful bidder meets the requirements set forth in the bidding documents.

.4.2.4 Request for Consent from EPA. After a comprehensive review of the lowest responsible bidder's submittals, the contractor shall request EPA's consent to award.

.4.3 Post Award Activities

.4.3.1 Attend Post Award Meetings/Preconstruction Conference. The contractor shall arrange and conduct the necessary post award meetings with the successful bidder, including the preconstruction conference. The purpose of the preconstruction meeting(s) is to develop common goals, lines of communication, and construction-specific procedures. The contractor shall prepare a meeting agenda, invite key personnel, and prepare minutes of the meeting.

.4.3.2 Review Permits, Insurance, Bonds. The contractor shall review the successful bidder's permit plan, insurance coverage, warranties, and bond to minimize site risks and potential financial damages.

.4.3.3 Review and Approve RA Subcontractor's Schedule. The contractor shall review the successful bidder's schedule and evaluate that schedule in regards to the overall project schedule.

.4.3.4 Review and Approve RA Subcontractor's Measurement and Payment Schedule

.4.3.5 Review RA Subcontractor's Submittals - Issue Notice to Proceed (NTP)

.4.3.6 Review Revisions/Addendum of RA Subcontractor's Submittals

7.5 Subcontract Management Support

The purpose of this task is to provide management and oversight of the subcontractor(s) responsible for remedial construction. This task begins with the RA contractor issuing a Notice to Proceed to the constructor and ends with the completion of the RA and final payment to the constructor. The contractor shall institute procedures, monitor progress, and maintain systems and records to ensure that the work proceeds according to requirements specified in the contract documents. The contractor shall perform the following subtasks:

1. EPA is required to perform technical and cost analyses for any changes to the construction contracts. Refer to ARCS Construction Contract Modification Procedures, OSWER Directive 9355.5001/FS, September 1989
2. The WAM/RPM may specify EPA review of any non-conformance reports to assess the status of construction activities.
3. The WAM/RPM should evaluate if value engineering support is required (see items .5.4.2 and .6.3.2) and then consult with the Project Officer or Contracting Officer for the latest guidance regarding value engineering proposals under the RAC contracts.

.5.1 Financial Management.

- .5.1.1 Review/Approve Invoices. The contractor shall promptly review and approve progress payments as determined prior to construction in the Measurement and Payment Schedule (see item .4.3.4).
- .5.1.2 Review/Approve Subcontract Modifications. The contractor shall promptly review any necessary subcontract modifications, confer with the WAM/RPM, and approve appropriate changes.
- .5.1.3 Maintain Tracking Systems. The contractor shall maintain the necessary tracking systems to monitor quality of work, resource requirements, and cost and schedule status.
 - (1) Construction Codes of Accounts
 - (2) Work Breakdown Structure (WBS)
 - (3) Schedule (CPM, PERT)

.5.2 Cost Monitoring.

- .5.2.1 Weekly/Monthly Tracking
- .5.2.2 Analyze Progress Payments. The contractor shall monitor costs of the constructor and all subcontractor(s) in relation to the status of construction or percentage of work completed. The contractor shall track and project progress payments to ensure the overall financial progress of the RA.
- .5.2.3 Monitor RA Subcontractor for Compliance with Davis-Bacon Act

.5.3 Engineering Support

- .5.3.1 Review Field Logs. On a weekly basis, the contractor's design team shall review field logs that document the daily activities and inspections. The contractor shall provide recommendations to improve site operations and inspections, if required.
- .5.3.2 Periodic Attendance at Meetings. At the subcontractor's request, the RA contractor shall attend any construction-related meetings to provide design clarification and technical support.

.5.4 Engineering Support Option

- .5.4.1 Review Field Change Requests. The contractor's design team shall review any changes to the construction documents and specifications due to actual field conditions and submit to EPA for review and approval.
- .5.4.2 Review VE Proposals. The contractor shall review any VE proposal submitted by the RA subcontractor.
- .5.4.3 Review Non-Conformance Reports
- .5.4.4 Review Re-Design Proposals

7.6 Detailed Resident Inspection (Resident Engineer)

This task includes the field supervision and documentation of the RA constructor's work as it proceeds onsite. The task begins with the constructor's mobilization to the site and ends with the final inspection. The contractor will provide the necessary personnel to observe the constructor's daily activities, procedures, and inspections on behalf of EPA.

1. The WAM/RPM must carefully review the design package to assure coordination and compatibility of Resident Engineer's inspection activities with construction contract documents.
2. The WAM/RPM should specify the expected written and/or photographic documentation to be recorded in the field.
3. The WAM/RPM should specify the required frequency and distribution for any field activity reports (RPM, State representative, etc.).

- .6.1 Attend Periodic Meetings. The contractor shall attend any meetings, at the request of the constructor, to provide clarification on contract documents and specifications.
- .6.2 Provide Field Presence and Oversight. The contractor shall provide a Resident Engineer to observe and document the daily field activities of the constructor. Specific subtasks may include:
 - .6.2.1 Maintain Field Logs and Daily Diaries
 - .6.2.2 Interpret Subcontract Documents
 - .6.2.3 Develop Sketches Reflecting Field Conditions
 - .6.2.4 Review Submitted Construction Drawings
 - .6.2.5 Prepare Reports on Inspections
 - .6.2.6 Monitor, Update, and Report Construction Progress
 - .6.2.7 Review/Recommend Time Extensions
 - .6.2.8 Coordinate with Home Office/Management Support
 - .6.2.9 Perform Davis-Bacon Act Inspections
 - .6.2.10 Conduct Final Inspection
 - (1) Conduct Site Walkover
 - (2) Prepare Draft Final Inspection Report
 - (3) Respond to Comments
 - (4) Prepare Final Inspection Report
- .6.3 Provide Engineering Support to Design Team
 - .6.3.1 Recommend Actions on Health and Safety Considerations
 - .6.3.2 Provide Support on VE Proposals.
 - .6.3.3 Review/Recommend Design Changes
 - .6.3.4 Provide Support on Change Order Requests. The Resident Engineer shall assist in the evaluation and processing of change order requests.
 - .6.3.5 Provide Support in Claims Resolution. The Resident Engineer shall maintain records to support the resolution of any claims filed by the constructor.
 - .6.3.6 Provide Support for Construction Schedule Changes
- .6.4 Perform Field Testing. The contractor shall provide the necessary personnel and equipment to collect any confirmatory samples, perform any necessary field testing, and conduct inspections of work.
- .6.5 Monitor Quality Assurance/Quality Control Procedures

7.7 Cleanup Validation

The purpose of this task is for the RA contractor to perform confirmatory sampling of any data collected by the constructor during construction and to verify that final cleanup levels or standards, as specified in the ROD,

have been achieved. This task may also include 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). Analyses of confirmatory samples, validation of data, and evaluation of results are included in this task. This task may begin during the early stages of construction, continue throughout construction, and end with the final inspection to ensure cleanup levels have been met.

1. The Work Breakdown Structure for field investigations, sampling, and analyses presented below was compiled for all phases of a remedial project from Remedial Investigation through final construction of the remedy. The detailed list is included to preserve the WBS. The WAM/RPM should specify in the SOW only the investigations that are required for RA.
2. Confirmatory sampling is usually quite focused and limited depending on the site and remedy-specific conditions. The WAM/RPM, in conference with the Technical Review Team, should determine the level of confirmatory sampling and specify the number of samples so both the contractor and the WAM/RPM can develop accurate cost estimates. The actual numbers may be refined upon negotiation with the contractor.
3. The cleanup validation activities may serve as the basis for site delisting and therefore, it is critical that the data quality objectives defined in the RA Work Plan and Sampling and Analysis Plan are met. In order to document construction procedures and results, which are defensible, Contract Laboratory Program data (level 4) are required.

- .7.1 Mobilization/Demobilization
 - .7.1.1 Mobilize. The contractor shall acquire all necessary equipment, supplies, and personnel to set up onsite operations for confirmatory sampling and analyses.
 - .7.1.2 Demobilize. The contractor shall dismantle and pack up all equipment associated with the confirmatory sampling activities.
- .7.2 Field Investigation
 - .7.2.1 Conduct Geological Investigations (Soils/Sediments)
 - (1) Surface Soil Sample Collection
 - (2) Subsurface Soil Sample Collection
 - (3) Soil Boring/Permeability Sampling
 - (4) Sediments Sample Collection
 - (5) Soil Gas Survey
 - (6) Test Pit.
 - .7.2.2 Conduct Air Investigations
 - (1) Sample collection
 - (2) Air Monitoring Station
 - .7.2.3 Conduct Hydrogeological Investigations: Groundwater
 - (1) Well Systems Installation
 - (A) Accomplish Mobilization
 - (B) Develop Wells
 - (C) Conduct Downhole Geophysics
 - (D) Install Monitoring Wells
 - (E) Install Test Wells
 - (F) Install Gas Wells.
 - (2) Collect Samples
 - (3) Collect Samples during Drilling (e.g. Hydro Punch or equivalent)
 - (4) Conduct Tidal Influence Study
 - (5) Perform Hydraulic Tests (pump tests)
 - (6) Measure Groundwater Elevation
 - .7.2.4 Conduct Hydrogeological Investigations: Surface Water

- (1) Collect Samples
- (2) Study Tidal Influence
- (3) Measure Surface Water Elevation
- .7.2.5 Conduct Waste Investigation
 - (1) Collect Samples (Gas, Liquid, Solid)
 - (2) Dispose of Derived Waste (Gas, Liquid, Solid)
- .7.2.6 Conduct Geophysical Investigation
 - (1) Surface Geophysical Activity
 - (2) Magnetometer
 - (3) Electromagnetics
 - (4) Ground Penetrating Radar
 - (5) Seismic Refraction
 - (6) Resistivity
 - (7) Site Meteorology
 - (8) Cone Penetrometer Survey
 - (9) Remote Sensor Survey
 - (10) Radiological Investigation
- .7.2.7 Conduct Ecological Investigation
 - (1) Wetland and Habitat Delineation
 - (2) Wildlife Observations
 - (3) Community Characterization
 - (4) Identification of Endangered Species
 - (5) Biota Sampling and Population Studies
- .7.2.8 Collect Contaminated Building Samples.
- .7.2.9 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 and the Waste Management Plan (For more information, refer to the Fact Sheet entitled, *Guide to Management of Investigation-Derived Wastes*, 9345.3-03FS [January 1992]).

.7.3 Sample Analysis

1. Analyses of soil and sediment samples (physical properties), surface and ground water samples, waste samples, discharge samples, and air samples are the most likely types of confirmatory samples taken during RA. However, additional analyses are presented below to preserve the WBS and to provide the WAM/RPM consideration with a comprehensive listing for consideration.
2. The WAM/RPM should consider adding a subtask for onsite laboratory analysis, if required. The constructor will usually provide this service through the construction contract and there may be no reason for the contractor to provide an independent onsite laboratory.
3. For cleanup validation and to ensure that the cleanup standards have been met, CLP analyses are more likely to be performed than screening analyses. Some screening analyses in combination with CLP may be required as construction proceeds. The WAM/RPM should specify the types of sample analyses required at specific milestones during construction.

- .7.3.1 Screening Type Laboratory Sample Analysis. The contractor shall arrange for and conduct the appropriate combination of screening analytical tests for any materials and/or confirmatory samples taken at the site:

- (1) Analyze Air and Gas Samples
 - (A) Organic

- (B) Inorganic
 - (C) Radiochemistry
- (2) Analyze Ground Water Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (3) Analyze Surface Water Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (4) Analyze Soil and Sediment Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (5) Analyze Waste (Gas) Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (6) Analyze Waste (Liquid) Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (7) Analyze Waste (Solid) Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (8) Analyze Biota Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (9) Analyze Bioassay Samples
- (10) Perform Bioaccumulation Studies

.7.3.2 CLP Type Laboratory Sample Analysis. The contractor shall arrange for and conduct the appropriate combination of CLP analytical tests for any materials and/or confirmatory samples taken at the site:

- (1) Analyze Air and Gas Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (2) Analyze Ground Water Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (3) Analyze Surface Water Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (4) Analyze Soil and Sediment Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (5) Analyze Waste (Gas) Samples
 - (A) Organic

- (B) Inorganic
- (C) Radiochemistry
- (6) Analyze Waste (Liquid) Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (7) Analyze Waste (Solid) Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (8) Analyze Biota Samples
 - (A) Organic
 - (B) Inorganic
 - (C) Radiochemistry
- (9) Analyze Bioassay Samples
- (10) Perform Bioaccumulation Studies

.7.4 Analytical Support and Data Validation

1. For RA, full data validation procedures are usually not necessary. The WAM/RPM may specify the level of data validation required.
2. The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

.7.4.1 Prepare and Ship Environmental Samples. The contractor shall ensure the proper management of samples in the field and arrange for shipment to the designated laboratory. Accurate chain-of-custody procedures for sample tracking, protective sample packing techniques, and proper sample-preservation techniques will be used.

- (1) Ground Water Samples
- (2) Surface and Subsurface Soil Samples
- (3) Surface Water and Sediment Samples
- (4) Air Samples
- (5) Biota Samples
- (6) Other Types of Media Sampling and Screening

.7.4.2 Coordinate with Appropriate Sample Management Personnel

.7.4.3 Implement EPA-Approved Laboratory QA Program.

.7.4.4 Provide Sample Management (Chain of Custody, Sample Retention, and Data Storage)

.7.4.5 Perform Data Validation. The contractor shall validate appropriate data to ensure that the confirmatory data are accurate and defensible.

- (1) Review Analysis Results against Validation Criteria
- (2) Provide Written Documentation of Validation Efforts

.7.5 Data Evaluation

1. The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.
2. The WAM/RPM should require the contractor to prepare and submit a Technical Memorandum to the WAM/RPM summarizing the quality of data, preliminary results of evaluation, and if significant data problems are identified early in the evaluation.

- .7.5.1 Data Useability Evaluation/Field QA/AC
- .7.5.2 Data Reduction, Tabulation, and Evaluation. The contractor shall evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. The contractor shall design and set up an appropriate database for pertinent information collected that will be used to validate the RA.
 - (1) Evaluate Geological Data (Soils and Sediments)
 - (2) Evaluate Air Data
 - (3) Evaluate Hydrogeological Data: Ground Water
 - (4) Evaluate Hydrogeological Data: Surface Water
 - (5) Evaluate Waste Data
 - (6) Evaluate Geophysical Data
 - (7) Evaluate Ecological Data
- .7.5.3 Modeling. The contractor shall perform limited and focused computer modeling of data (i.e., air monitoring data) to facilitate data evaluation and interpretation.
 - (1) Contaminant Fate and Transport
 - (2) Water Quality
 - (3) Ground Water
 - (4) Air
 - (5) Other Modeling
- .7.5.4 Develop Data Evaluation/Cleanup Status Report. Evaluate and present the sampling and analytical results in a summary report and submit to the WAM/RPM for review and approval. The report will assess the progress of the RA based on these results and identify any actions required. After the WAM/RPM's review, the contractor shall attend a meeting with EPA to discuss data evaluation results and next steps.

7.8 Remedial Action Implementation (Subpool 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 RA implementation. A funding reserve is allocated in this task to account for unforeseen site conditions and associated adjustments (i.e., change orders).

The use of MCACES Gold for construction cost estimates and the USACE WBS will provide consistency for construction cost estimates so that costs for similar RAs can be compared.

- .8.1 Remedial Action Subcontract Cost. The contractor shall monitor and track the costs associated with the constructor's implementation of the remedy.
- .8.2 Remedial Action Reserve (15% of Remedial Action Subcontract). The contractor shall monitor and track the reserve in relation to any approved change orders and notify the WAM/RPM when 75% of the reserve has been expended.

7.9 Project Performance (Operation and Maintenance [O&M])

The purpose of this task is to perform the activities necessary to protect the integrity of the remedy and to evaluate system performance. This task begins during the later stages of construction with the revision of the O&M manual and ends with submittal of final technical memoranda summarizing project performance.

The services provided here must be integrated with design document requirements. Design decisions will dictate the level of effort required of the RA contractor versus the constructor.

- .9.1 Operation and Maintenance (O&M)

- .9.1.1 Review O&M Manual. The contractor shall review and update the O&M Manual, as necessary, to include as-built drawings and equipment data sheets. The revised manual shall be submitted to the WAM/RPM 30 days prior to the start of operation.
 - (1) Describe/Analyze Potential Operating Problems
 - (2) Review Conformity to Applicable Performance and Operations Requirements
- .9.1.2 Ensure Adequate Training for O&M Staff. The contractor shall support all necessary training of the O&M staff, including State personnel and contractors.
- .9.1.3 Develop Corrective Action Plans. The contractor shall identify any potential system failures and develop corrective action plans, if necessary.
- .9.1.4 Review Records/Reporting Requirements
- .9.1.5 Review Laboratory Procedures
- .9.1.6 Review Process Systems
- .9.1.7 Review Safety and Emergency Systems. The contractor shall perform the necessary reviews of safety and emergency systems
- .9.1.8 Review Warranty Information and Files
- .9.2 System Performance
 - .9.2.1 Evaluate Equipment including operating parameters and performance. At a minimum, the performance data to be collected shall be as needed to satisfy the requirements for preparing the Cost and Performance Reports required under Section 7.9.3
 - .9.2.2 Performance Tests Oversight. The contractor shall oversee any performance tests conducted by the constructor and document procedures and results.
 - .9.2.3 Gather and Test Samples (see task 7 for details).
- .9.3 Report Project Performance
 - .9.3.1 The contractor shall prepare a technical memorandum to summarize the system's performance and required O&M procedures. The contractor also shall 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. The report shall summarize the performance data collected under section .9.2.1 as well as project costs. The Draft Technical Memoranda and Draft Cost and Performance Report shall be submitted to the WAM/RPM 30 days prior to the final inspection.
 - .9.3.2 Respond to Comments
 - .9.3.3 The contractor shall respond to any comments from EPA and prepare the Final Technical Memoranda and Cost and Performance Report within 10 days of receipt of comments.

7.10 Project Completion and Close Out

The purpose of the project completion and close-out activities is for the RA contractor to conduct the necessary inspections to verify completed work, make final payments, close out subcontracts, and prepare a Remedial Action Report.

1. The RPM/WAM should identify when government accepts transfer of the constructed facilities at the completion of the work assignment.
2. It is important for the WAM/RPM to consider the nature of any site improvements that will be funded with Superfund monies. Often reasonable activities that restore the physical appearance of the site and result in the long-term effectiveness of the remedy are included in the construction contract (i.e., road improvements). If not, the WAM/RPM may task the RA contractor to complete these activities.

- .10.1 Demobilization
 - .10.1.1 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 RA.
 - .10.1.2 Site Restoration. At the direction of the WAM/RPM, the contractor shall conduct reasonable activities that restore the physical appearance of the site (i.e., road restoration, fence removal, limited landscaping).
 - .10.1.3 Termination of Engineering Support Activities.
- .10.2 Pre-final/Final Activities
 - .10.2.1 Make pre-final/final inspection. The contractor shall conduct the prefinal inspection with the constructor and develop a punch list of deficiencies. The contractor shall prepare and submit a prefinal inspection report which includes the list of deficiencies, completion dates for outstanding items, and the date for a final inspection.
 - .10.2.2 Make Lockout Inspection. The contractor shall arrange for the final lockout inspection and determine if all terms of the contract have been satisfied.
- .10.3 Final Payment/Punch List
 - .10.3.1 As-built resolution/certification
 - .10.3.2 Trial Period Oversight
- .10.4 Remedial Action Report
 - .10.4.1 Prepare draft Remedial Action Report. The contractor shall prepare and submit to the WAM/RPM 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.
 - .10.4.2 Respond to Comments
 - .10.4.3 Prepare/Issue Final Remedial Action Report. After receipt of EPA comments, the contractor shall prepare and submit the final Remedial Action Report to the WAM/RPM.

7.11 Work Assignment Closeout

- .11.1 Return Documents to Government
- .11.2 Duplicate, Distribute, and Store Files
- .11.3 Archive Files
- .11.4 Prepare Microfiche, Microfilm, and Optical Disk
- .11.5 Prepare Closeout Report. The contractor shall include a breakdown on disk of final costs and level of effort (by P-level) in the same detail and format as the Work Breakdown Structure (Attachment 2).

Attachment 1
Summary of Major Submittals for the Remedial Action at
(Site)

TASK	DELIVERABLE	REF NO.	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
1.1.2	Site Trip Visit Report		3	10 days after site visit	7 days after receipt of report
1.1.4	RA Work Plan		3	30 days after initiation of work assignment (WA)	21 days after receipt of Work Plan
1.1.4	Final RA Work Plan		3	15 days after receipt of EPA comments	NA
1.2.1	Status Reports		3	Monthly and as directed by WAM/RPM	NA
2.1.2	Draft Community Relations Plan (CRP)		3	14 days after completion of community interviews	7 days after receipt of draft CRP
2.1.2	Final CRP		3	7 days after receipt of EPA comments	NA
3.1	Draft Revised Site Management Plan (SMP)		3	21 days after approval of RA Work Plan	14 days after receipt of SMP
3.1	Final Revised SMP		3	10 days after receipt of EPA comments	NA
3.1.1	Draft Revised Health and Safety Plan (HASP)		3	21 days after approval of RA Work Plan	14 days after receipt of plan
3.1.1	Final Revised HASP		3	10 days after receipt of EPA comments	NA
3.1.2	Draft Revised Sampling and Analysis Plan (SAP)		3	21 days after approval of RA Work Plan	14 days after receipt of plan
3.1.2	Final Revised SAP		3	10 days after receipt of EPA comments	NA
3.2	Draft Revised Pollution Control & Mitigation Plan		3	21 days after approval of RA Work Plan	14 days after receipt of plan

TASK	DELIVERABLE	REF NO.	NO. OF COPIES	DUE DATE (calendar days)	EPA REVIEW PERIOD
3.2	Final Revised Pollution Control & Mitigation Plan		3	10 days after receipt of EPA comments	NA
3.3	Draft Revised Construction Management Plan		3	21 days after approval of RA Work Plan	14 days after receipt of plan
3.3	Final Revised Construction Management Plan		3	10 days after receipt of EPA comments	NA
6.2.10	Draft Final Inspection Report		3	10 days after Final Inspection	NA
6.2.10	Final Inspection Report		3	7 days after receipt of EPA comments	NA
7.5.4	Draft Data Evaluation Summary Report		3	14 days after receipt of analytical results from laboratory	14 days after receipt of report
7.5.4	Final Data Evaluation Summary Report		3	7 days after receipt of EPA comments	NA
9.1.1	Draft Revised Operations and Maintenance (O&M) Manual		3	30 days before Final Inspection	21 days after receipt of report
9.3	Draft Technical Memorandum		3	10 days after completion of performance tests	21 days after receipt of memorandum
9.3	Final Technical Memorandum		3	10 days after receipt of EPA comments	NA
10.4	Draft Remedial Action Report		3	30 days after Final Inspection	21 days after receipt of report
10.4	Final Remedial Action Report		3	14 days after receipt of EPA comments	NA
11.5	Draft Closeout Report		3	30 days after final RA Report submitted	21 days after receipt of report
11.5	Final Closeout Report		3	14 days after receipt of EPA comments	NA
11.6	Final Costs		3	90 days after WA closeout	NA

Attachment 2
Work Breakdown Structure (WBS) for
Remedial Action (RA)

TASK 1 PROJECT PLANNING AND SUPPORT

1.0 Project Planning and Support

- .01 Project Planning
 - .01 Attend Scoping Meeting
 - .02 Conduct Site Visit (if necessary)
 - .03 Evaluate Existing Information (if necessary)
 - .04 Work Plan Development
 - .01 Draft Work Plan Development
 - .01 Develop Narrative
 - .02 Develop Cost Estimate
 - .03 Internal QA & Submission
 - .02 Final Work Plan Preparation
 - .01 Attend Negotiation Meeting
 - .02 Modify Draft Work Plan/Cost Estimate
 - .03 Internal QA & Submission
- .02 Project Management
 - .01 Prepare Periodic Status Reports
 - .01 Document Cost and Performance Status
 - .02 Prepare/Submit Invoices
 - .02 Meeting Participation/Routine Communications
 - .03 Maintain Cost/Schedule Control System
 - .04 Manage, Track, and Report Equipment Status
 - .05 Project Closeout
 - .06 Coordinate with Local Emergency Response Teams

TASK 2 COMMUNITY RELATIONS

2.0 Community Relations

- .01 Community Relations Plan (CRP) Development
 - .01 Conduct Community Interviews
 - .02 Prepare CRP
 - .01 Draft CRP
 - .02 Final CRP
- .02 Prepare Fact Sheets
- .03 Public Hearing, Meetings, & Availability Support
 - .01 Technical Support
 - .02 Logistical & Presentation Support
 - .03 Public Notice Support (writing, or placement of)
- .04 Maintain Information Repository/Mailing List

TASK 3 DEVELOPMENT AND UPDATE OF SITE SPECIFIC PLANS

3.0 Development and Update of Site Specific Plans

- .01 Update Site Management Plan
 - .01 Update Health & Safety Plan
 - .02 Update Sampling & Analysis Plan (Chemical Data Acquisition Plan)
 - .01 Quality Assurance Project Plan
 - .02 Field Sampling Plan
 - .03 Data Management Plan
- .02 Update Pollution Control & Mitigation Plan
 - .01 Transportation & Disposal Plan (Waste Management Plan)
- .03 Update Construction Quality Assurance Plan

TASK 4 PROCUREMENT OF SUBCONTRACT

4.0 Procurement of Subcontract

- .01 Prebid (Pre-Solicitation) Activities
 - .01 Printing & Distribution of Contract Documents
 - .02 Advertising/Soliciting of Bids
 - .01 Prebid (pre-solicitation) meetings
 - .02 Resolution of inquiries/Issuing Addenda
 - .03 On-site Visits
 - .03 Readvertise/Resolicit bids if necessary
- .02 Pre-Award Activities
 - .01 Receipt of Bids (offers)
 - .01 Determination of responsive, responsible bidders (offerors)
 - .02 Perform Reference checks
 - .03 Bid (offer) Tabulation
 - .04 Bid (offer) Analysis
 - .02 Receipt of follow-up items from lowest responsible bidder (offeror)
 - .03 Review of EEO, MBE requirements, SDB subcontracting plans
 - .04 Request for Consent from EPA
- .03 Post-Award Activities
 - .01 Attend Post Award Meetings/Preconstruction Conference
 - .02 Review permits, insurance, bonds, etc.
 - .03 Review & approve RA subcontractor schedule
 - .04 Review & approve RA subcontractor measurement and payment schedule
 - .05 Perform RA subcontractor Submittal Review - Issue Notice to Proceed (NTP)
 - .06 Review Revisions/Addendum of RA subcontractor Submittals

TASK 5 MANAGEMENT SUPPORT

5.0 Management Support

- .01 Financial Management
 - .01 Review & approve Invoices
 - .02 Review & approve Subcontract Modifications
 - .03 Maintain Tracking Systems
 - .01 Construction Codes of Accounts
 - .02 Work Breakdown Structure (WBS)
 - .03 Schedule (CPM, PERT, etc.)
- .02 Cost Monitoring
 - .01 Weekly/Monthly Tracking
 - .02 Analyze Progress Payments
 - .03 Monitor RA Subcontractor for Compliance with Davis-Bacon Act
- .03 Engineering Support
 - .01 Review Field Logs
 - .02 Periodic Attendance at Meetings
- .04 Engineering Support Option
 - .01 Review Field Change Requests
 - .02 Review VE Proposals
 - .03 Review Non-Conformance Reports
 - .04 Review Re-Design Proposals

TASK 6 DETAILED RESIDENT INSPECTION (Resident Engineer)

6.0 Detailed Resident Inspection

- .01 Attend Periodic Meetings
- .02 Provide Field Presence and Oversight
 - .01 Maintain Field Logs and Daily Diaries
 - .02 Interpret Subcontract Documents
 - .03 Develop Sketches Reflecting Field Conditions
 - .04 Review Submitted Construction Drawings
 - .05 Prepare Reports on Inspections
 - .06 Monitor, Update, & Report Construction Progress
 - .07 Review/Recommend Time Extensions

- .08 Coordinate with Home Office/Management Support
- .09 Perform Davis-Bacon Act Inspections
- .10 Final Inspection
 - .01 Conduct Site Walkover
 - .02 Prepare draft Final Inspection Report
 - .03 Respond to Comments
 - .04 Prepare Final Inspection Report
- .03 Provide Engineering Support to Design Team
 - .01 Recommend Actions on H&S Considerations
 - .02 Review/Recommend Action on VE Proposals
 - .03 Review/Recommend Design Changes
 - .04 Provide Support on Change Order Requests
 - .05 Provide Support in Claims Reduction
 - .06 Provide Support for Construction Schedule Changes
- .04 Perform Field Testing
- .05 Monitor Quality Assurance/Quality Control Procedures

TASK 7 CLEANUP VALIDATION

7.0 Cleanup Validation

- .01 Mobilization/Demobilization
 - .01 Mobilize (acquire equipment/supplies/personnel)
 - .02 Demobilize
- .02 Field Investigation
 - .01 Conduct Geological Investigations (Soils/Sediments)
 - .01 Surface Soil Sample Collection
 - .02 Subsurface Soil Sample Collection
 - .03 Soil Boring/Permeability Sampling
 - .04 Sediments Sample Collection
 - .05 Soil Gas Survey
 - .06 Test Pit
 - .02 Conduct Air Investigations
 - .01 Sample Collections
 - .02 Air Monitoring Station
 - .03 Conduct Hydrogeological Investigations - Groundwater
 - .01 Well Systems Installation
 - .01 Accomplish Mobilization
 - .02 Perform Well Development
 - .03 Conduct Downhole Geophysics
 - .04 Install Monitoring Wells
 - .05 Install Test Wells
 - .06 Install Gas Wells
 - .02 Sample Collection
 - .03 Hydro Punch
 - .04 Tidal Influence Study
 - .05 Hydraulic Tests (Pump Tests)
 - .06 Groundwater Elevation Measurement
 - .04 Conduct Hydrogeological Investigations—Surface Water
 - .01 Sample Collection
 - .02 Tidal Influence Study
 - .03 Surface Water Elevation Measurement
 - .05 Conduct Waste Investigation
 - .01 Sample Collection (Gas, Liquid, Solid)
 - .02 Derived Waste Disposal (Gas, Liquid, Solid)
 - .06 Conduct Geophysical Investigation
 - .01 Surface Geophysical Activity
 - .02 Magnetometer
 - .03 Electromagnetics
 - .04 Ground Penetrating Radar
 - .05 Seismic Refraction

- .06 Resistivity
- .07 Site Meteorology
- .08 Cone Penetrometer Survey
- .09 Remote Sensor Survey
- .10 Radiological Investigation
- .07 Conduct Ecological Investigation
 - .01 Wetland and Habitat Delineation
 - .02 Wildlife Observations
 - .03 Community Characterization
 - .04 Identification of Endangered Species
 - .05 Biota Sampling/Population Studies
- .08 Collect Contaminated Building Samples
- .09 Dispose of Investigation Derived Waste
- .03 Sample Analysis
 - .01 Screening Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Groundwater Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .09 Analyze Bioassay Samples
 - .10 Perform Bioaccumulation Studies
 - .02 CLP-Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Groundwater Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic

- .02 Inorganic
- .03 Radiochemistry
- .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .09 Analyze Bioassay Samples
- .10 Perform Bioaccumulation Studies
- .04 Analytical Support and Data Validation
 - .01 Prepare and Ship Environmental Samples
 - .01 Groundwater Samples
 - .02 Surface and Subsurface Soil Samples
 - .03 Surface Water & Sediment Samples
 - .04 Air Samples
 - .05 Biota Samples
 - .06 Other Types of Media Sampling and Screening
 - .02 Coordinate with Appropriate Sample Management Personnel
 - .03 Implement EPA-Approved Laboratory QA Program
 - .04 Provide Sample Management (Chain of Custody, Sample Retention, & Data Storage)
 - .05 Perform Data Validation
 - .01 Review Analysis Results Against Validation Criteria
 - .02 Provide Written Documentation of Validation Efforts
- .06 Data Evaluation
 - .01 Data Useability Evaluation/Field QA/QC
 - .02 Data Reduction, Tabulation and Evaluation
 - .01 Evaluate Geological Data (Soils/Sediments)
 - .02 Evaluate Air Data
 - .03 Evaluate Hydrogeological Data—Groundwater
 - .04 Evaluate Hydrogeological Data—Surface Water
 - .05 Evaluate Waste Data
 - .06 Evaluate Geophysical Data
 - .07 Evaluate Ecological Data
 - .03 Modeling
 - .01 Contaminant Fate and Transport
 - .02 Water Quality
 - .03 Groundwater
 - .04 Air
 - .05 Other Modeling
 - .04 Document Data Evaluation Efforts

TASK 8 REMEDIAL ACTION IMPLEMENTATION (SUBPOOL ACTIVITIES)

8.0 Remedial Action Implementation

- .01 Remedial Action Subcontract Cost

- .02 Remedial Action Reserve (15% of Remedial Action Subcontract)

TASK 9 PROJECT PERFORMANCE

9.0 Project Performance (O&M)

- .01 Operation & Maintenance (O&M)
 - .01 Review O&M Manual
 - .01 Describe/Analyze Potential Operating Problems
 - .02 Review Conformity to Applicable Performance & Operations Performance
 - .02 Ensure Adequate Training for O&M Staff
 - .03 Develop Corrective Action Plans (if necessary)
 - .04 Review Records/Reporting Requirements
 - .05 Review Laboratory Procedures
 - .06 Review Process Systems
 - .07 Review Safety and Emergency Systems
 - .08 Review Warranty Information and Files
- .02 System Performance
 - .01 Evaluate Equipment
 - .02 Site Restoration
 - .03 Gather and Test Samples (see Task 7 for details)
- .03 Report Project Performance
 - .01 Develop Draft Technical Memoranda and Cost and Performance Report
 - .02 Respond to Comments
 - .03 Prepare Final Technical Memoranda and Cost and Performance Report

TASK 10 PROJECT COMPLETION AND CLOSE OUT

10.0 Project Completion and Close Out

- .01 Demobilization
 - .01 Removal of Temporary Facilities
 - .02 Site Restoration
 - .03 Termination of Engineering Support Activities
- .02 Pre-Final/Final Activities
 - .01 Make Pre-Final/Final Inspection
 - .02 Make Lockout Inspection
- .03 Final Payment/Punch List
 - .01 As-built Resolution/Certification
 - .02 Trial Period Oversight
- .04 Remedial Action Report
 - .01 Prepare Draft Remedial Action Report
 - .02 Respond to Comments
 - .03 Prepare/Issue Final Remedial Action Report

TASK 11 WORK ASSIGNMENT CLOSE OUT

11.0 Work Assignment Close Out

- .01 Return Documents to Government
- .02 File Duplication/Distribution/Storage
- .03 File Archiving
- .04 Microfiche/Microfilm/Optical Disk
- .05 Prepare Closeout Report

Attachment 3 Regulations and Guidance Documents

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RD process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.
3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
4. Community Relations in Superfund — A Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.
5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.
8. Data Quality Objectives for Remedial Response Activities, U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.
9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.
11. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.
14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
20. Interim Guidance on Compliance with Applicable and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.
26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.

28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.
29. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
30. *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.
31. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.
33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.
38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
39. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
44. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.

Attachment 4

TRANSMITTAL OF DOCUMENTS FOR ACCEPTANCE BY EPA						DATE:	TRANSMITTAL NO.
TO:				FROM:		<input type="checkbox"/> New Transmittal	
							<input type="checkbox"/> Resubmittal of Transmittal No. _____
SUBTASK NO.	DELIVERABLE					NO. OF COPIES	REMARKS
ACCEPTANCE ACTION							
DOCUMENTS FOUND ACCEPTABLE (LIST BY SUBTASK NO.)				NAME/TITLE/SIGNATURE OF REVIEWER			
				DATE			

Attachment 5

TRANSMITTAL REGISTER

[illegible]

MODEL STATEMENT OF WORK FOR REMEDIAL ACTION OVERSIGHT

____ SITE, _____ COUNTY, _____ STATE

ATTACHMENTS

Attachment 1. Summary of Major Submittals for the Remedial Action Oversight at ____ (Site)	21
Attachment 2. Work Breakdown Structure	23
Attachment 3. Regulation and Guidance Documents	28
Attachment 4. Transmittal of Documents for Acceptance by EPA	30
Attachment 5. Transmittal Register	31

Purpose of RA Oversight Model SOW

1. **To tell the contractor what EPA wants done.** This model SOW is for contractors to provide oversight of RAs being conducted by Potentially Responsible Parties (PRPs). Be as specific as possible in describing what the RA oversight contractor is required to do. In that way, the contractor will understand the requirements, will write a RA Oversight Work Plan and associated budget to meet those requirements, and will be ultimately responsible for satisfying those requirements. Whenever there is an absolute requirement (e.g., that the contractor prepare the Quality Assurance Project Plan (QAPP) in accordance with QAMS-005/80, December 29, 1980), state that requirement.
2. **To give the contractor a structure for recording costs.** A structured cost schedule will simplify cost comparisons of specific tasks being performed at similar RA oversight projects.

Use of Work Breakdown Structure (WBS)

1. A WBS was developed for this model SOW for the WAM/RPM to track the initial and final costs of each element and to share these data with other Federal agencies. The WBS is, essentially, the outline for this model SOW and is included as Attachment 2 to this document.
2. If an element is not to be used, **do not** change the numbering system, instead, insert "Not used" for that element number after deleting the text for that element.
3. For elements in the SOW for a given project, additional descriptions (e.g., type of samples and estimated number) should be added to the SOW for the contractor and WAM/RPM to develop estimated costs on a common basis.

8.0 Introduction

.0.1 Site Description

Provide a brief site description that contains information relative to RA oversight planning and implementation such as location, operational history, remedial response history, waste types, quantities, and milestones specified in the Record of Decision (ROD) and Remedial Design (RD) documents.

.0.2 Purpose

The purpose of this SOW is to provide the framework and requirements for the contractor to provide oversight of the construction and implementation of the RA, including system start-up and diagnostic testing, operation and maintenance, and performance monitoring, at _____ (site). Actual construction and implementation of the RA shall be performed by the PRP's constructor. The ROD issued on _____ (date) describes the RA selected for this site, and the RD documents provide the construction and implementation detail required to achieve the selected RA. The goal is to complete the RA by _____. The estimated completion date for this work assignment is _____.

Many contractors, subcontractors, and other participating team members will be involved in the completion of the RA. The WAM/RPM may consider identifying and defining each team member to avoid potential confusion. Upfront definitions will ensure that the names and titles of team members are used consistently throughout the completion of the RA, and that the roles and responsibilities of each team member are clear in the SOWs, project plans, and other critical project and contract documents.

For the purposes of this model SOW, the "contractor" is defined as the firm responsible for performing the SOW. The contractor is under contract with EPA to provide oversight of the "RA constructor," who is under contract with the PRPs. The contractor may be contracted through the Alternate Remedial Contracting Strategy (ARCS) or Remedial Action Contractor (RAC) contracting vehicles, but will not be performing RA construction or implementation tasks.

For a PRP-lead remediation project, it is likely that RD and RA would be performed by PRP constructors and contractors, with oversight provided by EPA contractors. This model SOW is written with the assumption that the contractor (providing RA oversight) is not the same as the contractor that provided RD oversight. If the same contractor is used, some of the tasks described in this model SOW could be modified or "Not used."

.0.2.1 Description of the RA

A brief description should include a summary of the general response objectives for the subject site, the selected RA described in the ROD to achieve those objectives, and a description of subsequent RD documents required for construction and implementation of the RA.

.0.2.2 Objectives of Oversight. The primary objective of PRP oversight is to ensure that the RA, as specified in the ROD and the RD documents, is accurately interpreted and adhered to during construction and implementation. The RA must protect public health and the environment during the life of the project and must comply with the terms of the Settlement Agreement or Consent Decree (CD). Successful RA oversight is accomplished by observing and documenting that the PRP has complied with all applicable laws, regulations, and requirements, and has met all performance standards specified in the CD.

.0.3 General Requirements

.0.3.1 The contractor shall perform RA oversight in accordance with this SOW and shall ensure consistency with the ROD, RD documents produced for the site, the CD, the *Remedial Design and Remedial Action Handbook* (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995) and other relevant guidance used by EPA in conducting RAs. The primary contact for this work assignment is _____, Tel. (____) _____; the secondary contact is _____, Tel. (____) _____.

- .0.3.2 A summary of the major deliverables and the schedule for submittal is attached. See Attachment 1.
- .0.3.3 Specifically, the RA involves the construction and implementation of _____ (briefly describe the major components of the RA).
- .0.3.4 The contractor shall furnish all necessary and appropriate personnel, materials, and services needed, or incidental to, performing and completing the RA oversight.
- .0.3.5 A list of primary guidance and reference material is listed in Attachment 2. In all cases, the contractor shall use the most recently issued guidance.
- .0.3.6 The contractor shall maintain RA oversight files as specified in the contract and by the WAM/RPM.
- .0.3.7 The contractor shall communicate at least weekly with the WAM/RPM, either in person or through conference calls, to report on RA oversight progress.
- .0.3.8 The contractor shall notify the WAM/RPM when 75 percent and when 95 percent of the approved work assignment budget has been expended.
- .0.3.9 The contractor shall document all decisions that are made in meetings and conversations with EPA or the PRP. The contractor shall forward this documentation to the WAM/RPM within 2 working days of the meeting or conversation.

Although the contractor is being tasked to document decisions made in meetings and conversations with EPA or the PRP, the WAM/RPM is ultimately responsible for documenting the decisions and should not solely rely on the contractor to do this.

- .0.3.10 EPA will provide oversight of contractor activities throughout the RA oversight efforts. EPA review and approval of the contractor's 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 during the contractor's oversight of the PRP's remedial activities. EPA will review the deliverables prepared during the oversight to assess the likelihood that the RA will achieve its remediation goals and that all performance requirements applicable to the RA have been correctly identified and implemented. However, acceptance of deliverables by EPA does not relieve the contractor of responsibility for the adequacy of the deliverable.

.0.4 Oversight Official

The contractor shall designate an Oversight Official (i.e., the contractor's site manager responsible for the work assignment) to report directly to the WAM/RPM during RA oversight. The Oversight Official is the point-of-contact (POC) from the contractor, who acts as a liaison between the WAM/RPM, the PRP, the PRP's RA constructor, and the PRP's Independent QA Team. The Oversight Official is responsible for providing technical support in monitoring PRP compliance with the CD. Specific responsibilities of the Oversight Official include ensuring that the PRP is working with an Independent QA Team, assisting in the review of professional qualifications, reviewing RA submittals, and providing summary and activity reports to the WAM/RPM.

.0.5 Equipment Transfer

At the completion of the RA, or when government property is no longer required at the site, the contractor shall arrange for the proper disposition of government-furnished or contract-acquired property (purchased with contract funds) in accordance with the contract requirements. The disposition (transfer, sale, or abandonment) of government personal property and the tracking of such equipment shall be coordinated with the Contract Property Administrator. For additional information, refer to *Contractor's Guide for Control of Government Property*, Office of Administration and Resources Management, December 1988.

.0.6 Project Closeout

At the completion of the RA, the contractor shall perform all necessary project closeout activities as specified in the contract. These activities may include closing out any subcontracts, indexing and consolidating project records and files, and providing a technical and financial closeout report to EPA. Final costs shall be reported to EPA electronically, categorized by each cost element in the WBS.

8.1 Project Planning and Support

The purpose of this task is to plan for the execution and overall management of this SOW. Technical and management activities required to oversee the PRP's implementation of the RA, along with associated costs, are developed during the planning phase and are detailed in the contractor's RA Oversight Work Plan. Activities required for general work assignment management, including preparation of monthly progress report and invoices, that will occur throughout the duration of the project are included in this task. This task may begin before or after approval of the final RD and will continue through the RA oversight work assignment closeout.

.1.1 Project Planning

- .1.1.1 Attend Scoping Meeting. The contractor shall attend a scoping meeting to be held at the EPA Regional Office before or concurrent with developing the contractor's RA Oversight Work Plan.

Location of meetings and the WAM/RPM's expectations for the number of contractor personnel to attend should be specified for cost estimation purposes. Consider having the RD oversight contractor, if different than the RA oversight contractor, attend initial meetings and site visits to present any special considerations and to facilitate the transfer of site and design information prior to the development of the RA Oversight Work Plan.

- .1.1.2 Conduct Site Visit. The contractor shall conduct a one-day site visit with the WAM/RPM during the project planning phase to develop a conceptual understanding of the site and the RA scope and requirements. A Health and Safety Plan (HASP) is required for the site visit. The contractor shall prepare a letter report that documents all EPA, RA constructor, RA oversight contractor, and site personnel present at the visit, all decisions made during the visit, any action items assigned, including person responsible and due date, any unusual occurrences during the visit, and any portions of the site that were not accessible to the contractor and the impact of this on oversight of the RA. This report shall be submitted to the WAM/RPM within 10 calendar days of the site visit.
- .1.1.3 Evaluate Existing Information. The contractor shall obtain, copy (if necessary), and review available information pertaining to the site from EPA. The contractor shall evaluate the existing data and documents, including the ROD, the CD, and the PRP's RA Work Plan, if available. The specific reference documents to be reviewed are listed in Attachment 3.

The WAM/RPM may want to specify that the contractor focus on the review of RD documents submitted by the PRP's RD contractor. The contractor should perform a relatively thorough review of final design documents to gain an understanding of the RA to be constructed and implemented at the subject site. A detailed review of earlier stages of design (i.e., review of preliminary and intermediate design documents, described under Task 6.7.1 in the WBS) would not likely be required of the RA oversight contractor.

In addition to providing the contractor with final design documents, the WAM/RPM may want to compile summaries contained in project reports to describe the nature and extent of contamination, cleanup goals and objectives, the selected RA, and critical aspects of the ongoing community relations program. The WAM/RPM could also provide reference documents for the selected RA, such as technology summaries and fact sheets.

- .1.1.4 Develop Technical Project Goals and Objectives. The contractor shall prepare data needs and data quality objectives (DQOs) for analytical sampling to be performed during oversight. The goals and objectives should be used to define the analytical methods and protocols, decontamination procedures, and EPA reporting levels (e.g., I, II, III, IV) required to match those used by the PRP's RA constructor.

- (1) Not used - Develop Conceptual Site Model
- (2) Identify Preliminary Project Requirements
 - (a) Data Needs and Data Quality Objectives
 - (b) Not used - RA Objectives and Potential Alternatives
 - (c) Not used - Possible Treatability Studies
 - (d) Not used - ARARs and/or Standards
 - (e) Not used - NEPA Requirements
 - (f) Not used - Other Regulatory Requirements/Restrictions

The WAM/RPM should require the contractor to identify DQOs for the collection of samples during RA oversight. Other requirements and standards that may be applicable to the contractor's SOW should also be identified.

.1.1.5 Develop RA Oversight Work Plan

- (1) Develop Draft RA Oversight Work Plan. The contractor shall prepare and submit a Draft RA Oversight Work Plan within 45 calendar days after initiation of the work assignment. The contractor shall use information from the EPA-approved PRP's RA Work Plan, if available, appropriate guidance, and direction provided by the WAM/RPM as the basis for preparing the RA Oversight Work Plan. RA oversight work must be coordinated and properly sequenced with EPA and PRP RA activities. Submit the original to the Contracting Officer, one copy to the Project Officer, and one copy to the WAM/RPM.

1. The WAM/RPM should verify the work plan submittal timeframe with the PO.
2. Additional copies of the work plan can be submitted to the WAM/RPM if specified, for distribution to other technical staff.

- (a) Develop Narrative. The RA Oversight Work Plan shall include a comprehensive description of project tasks, the procedures to accomplish them, quality assurance/quality control (QA/QC) systems and project-specific QA/QC

procedures to be followed, project documentation, and project schedule. Specifically, the RA Oversight Work Plan shall include the following:

- Identification of RA project elements and the associated oversight tasks including review of PRP planning, construction, and implementation documentation. This task will result in a detailed breakdown of subtasks within the WBS tasks.
 - The contractor's technical approach to each task to be performed, including a detailed description of each task, the assumptions used, the information needed for each task, any information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. Information shall be presented in a sequence consistent with the work breakdown structure format defined in the standard WBS.
 - A schedule with specific dates for completion of each required activity and submission of each deliverable required by this SOW. This schedule shall also include information regarding timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for EPA.
 - A project communications and management plan and contractor reporting requirements, such as meetings and presentations to EPA at the conclusion of major phases of the project.
- (b) Develop Cost Estimate. The contractor's estimated cost to complete the work shall be broken into Level of Effort (by P-level) and cost for each element of the Work Breakdown Structure (Attachment 2) and submitted to EPA on disk.
- (c) Perform Internal QA and Submit Draft RA Oversight Work Plan
- (2) Prepare Final RA Oversight Work Plan. The contractor shall prepare a Final RA Oversight Work Plan 15 days after receipt of EPA comments on the draft. This final version shall incorporate comments on the draft version as directed by the WAM/RPM.
- (a) Attend Negotiation Meeting. The contractor shall attend a Work Plan negotiation meeting at the EPA Regional Office. EPA and the contractor will refine the SOW requirements and funding issues related to the RA Oversight Work Plan.
- (b) Modify Draft RA Oversight Work Plan and Cost Estimate.
- (c) Perform Internal QA and Submit Final RA Oversight Work Plan.

1.1.6 Review PRP Plans. The contractor shall review upfront plans prepared by the PRP's RA constructor. These plans should constitute a complete set of construction-related work plans and project plans, based on generic guide specifications for construction.

The review of PRP plans under this task includes those plans which can be prepared prior to the preparation of detailed construction plans. The review of detailed construction plans is described in Task 6.7, "Review of PRP Documents." Generic guide specifications for construction may be used by the PRP's RA constructor to prepare these upfront PRP plans. The RA oversight contractor should recognize the preliminary level of detail that can be expected during their review of upfront plans.

- (1) Review PRP Site Management Plan
 - (a) Review PRP Pollution Control & Mitigation Plan
 - (b) Review PRP Transportation and Disposal (of site-derived wastes) Plan
- (2) Review PRP Health and Safety Plan
- (3) Review PRP Sampling and Analysis Plan
 - (a) Review PRP Quality Assurance Project Plan
 - (b) Review PRP Field Sampling Plan
 - (c) Review PRP Data Management Plan
- (4) Review Other PRP Plan(s)

.1.2 Preparation of Site-Specific Plans

The site-specific plans to be prepared by the contractor may consist of revisions or modifications to existing plans. If the RA oversight contractor was also the RD oversight contractor, this task should be abbreviated to reflect only revisions to existing plans. Similarly, if a new RA oversight contractor is being used, previous site plans can be provided by the WAM/RPM as examples to streamline this task.

.1.2.1 Not used

.1.2.2 Develop 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. Whenever possible, use the HASP developed for the RI/FS and/or RD oversight work assignments in preparing the HASP for RA oversight. Provisions in the RA constructor's HASP may also be incorporated into the contractor's HASP.

1. The HASP may not constitute an Emergency Response Plan. Site conditions may warrant the preparation of a separate Emergency Response Plan.
2. EPA does not approve the contractor's HASP, but reviews it to ensure that it is complete and adequately protective.

.1.2.3 Develop Sampling and Analysis Plan (SAP) or Chemical Data Acquisition Plan to reflect the specific objectives of data acquisition to be conducted during RA construction oversight. The SAP will outline the data collection and QA/QC requirements of sampling and analysis to be conducted by the contractor. The SAP may be composed of the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) under separate covers, or it may be a single document, containing the essential elements of both the FSP and QAPP. The contractor shall use the SAPs prepared for the RI/FS and/or RD oversight portions of the project, whenever possible.

The Sampling and Analysis Plan (SAP) may not be required for certain RA oversight WAs. If required, the SAP can be prepared by updating the SAP prepared for the RD. The contractor may collect split (or duplicate) samples for laboratory analysis as samples are collected by the PRP's RA constructor. These split samples are collected under Task 6.5 to assess the quality of analytical results provided by the PRP. For a direct comparison, samples should be analyzed using the same analytical methods and EPA reporting levels as those used by the PRP's RA constructor.

- (1) Develop Quality Assurance Project Plan in accordance with QAMS-005/80 (December 29, 1980). The QAPP shall describe the project objectives and QA/QC protocols to be used in achieving the desired DQOs. The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for RA objectives identified in the National Contingency Plan (NCP). The selected analytical methods and reporting levels shall parallel those being used by the PRP's RA constructor.
- (2) Develop Field Sampling Plan to define the oversight sampling and information-collection methods that shall be used for the project. It shall include sampling objectives, sample locations and frequency, sampling equipment and procedures, sample handling and analysis, and description of which samples are to be analyzed through the Contract Laboratory Program (CLP), which through other sources, and

the justification for those decisions. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. The FSP developed for the RI/FS or RD oversight should be used whenever possible in preparing the FSP for the RA oversight activities.

- (3) Develop Data Management Plan to address requirements for project management systems including tracking, storing, and retrieving data. The plan shall also identify software to be used, minimum data requirements, data format, and backup data management. The plan shall address both data management and document control for all RA oversight activities.

1.2.4 Other Plan(s)

1.3 Project Management

1. The WAM/RPM should specify the format for submissions; e.g., Monthly Progress Reports, if there are Region-specific requirements or if you have specific requirements.
2. During construction, there may be especially active periods and the WAM/RPM should specify additional communication requirements or status reports from the contractor. Also, the WAM/RPM should arrange for personal visits to the site during these times.

1.3.1 Prepare Periodic Status Reports. The contractor shall prepare Monthly Progress Reports.

- (1) Document Cost and Performance Status. The contractor shall document the technical progress and status of each task in the WBS for the reporting period in accordance with contract requirements. The contractor shall report costs and level of effort (by P-level) for the reporting period as well as cumulative amounts expended to date.
- (2) Prepare and Submit Invoices. Monthly invoices will be prepared and submitted in accordance with the level of detail as specified in the contract.

1.3.2 Meeting Participation and Routine Communications. The contractor shall attend project meetings, provide documentation of meeting results, and shall contact the WAM/RPM by telephone on a weekly basis to report project status. The contractor shall notify the WAM/RPM immediately if inconsistencies with the design or non-compliance with the CD or applicable or relevant and appropriate requirements (ARARs) are apparent. The contractor shall describe the problem and provide recommended solutions in a technical memorandum to the WAM/RPM.

1.3.3 Not Used - Maintain Cost/Schedule Control System.

1.3.4 Not used - Perform Value Engineering

1.3.5 Not used - Perform Engineering Network Analysis

1.3.6 Not used - Manage, Track, and Report Equipment Status.

1.3.7 Work Assignment Closeout. The contractor shall perform the necessary activities to closeout the work assignment in accordance with contract requirements.

1.4 Subcontract Procurement and Support Activities

Other than a CLP laboratory, it is unlikely that the contractor will require subcontractors for RA oversight activities. A special laboratory may be desired in addition to a CLP laboratory to perform geotechnical testing or biologic parameter testing for certain sites. Using non-CLP laboratories should be considered on a case-by-case basis.

- .1.4.1 Identify and Procure Subcontractors. The contractor shall identify, solicit, and award any subcontracts that are required to complete the RA oversight activities.
 - (1) Not used - Drilling Subcontractor
 - (2) Not used - Surveying Subcontractor
 - (3) Not used - Geophysical Subcontractor
 - (4) Not used - Site Preparation Subcontractor
 - (5) Analytical Services Subcontractor(s)
 - (6) Not used - Waste Disposal Subcontractor
 - (7) Not used - Treatability Subcontractor(s)
 - (8) Other(s)
- .1.4.2 Develop Subcontractor QA/QC Program. The contractor shall review, approve, and monitor the subcontractor's QA/QC program and conduct audits, as required.
- .1.4.3 Perform Subcontract Management. The contractor shall perform the necessary management and oversight of any subcontractor(s) needed for RA oversight. The contractor shall institute procedures, monitor progress, and maintain systems and records to ensure that the work proceeds according to contract requirements. The contractor shall review and approve subcontractors' invoices and issue any necessary contract modifications.

8.2 Community Relations

The contractor shall provide community relations support to EPA throughout the RA. The contractor shall provide community relations support in accordance with *Community Relations in Superfund: A Handbook*, June 1988. This task begins with the approval of the contractor's RA Oversight Work Plan and continues throughout the duration of the work assignment.

1. Generally, EPA retains responsibility for community relations during a PRP-lead RA. The CD may specify the level of PRP participation in these activities and the WAM/RPM should define the role of the contractor and the level of interaction with the PRP.
2. A variety of possible community relations activities may be appropriate during the RA, based on the characteristics and specific circumstances at your site. Refer to the *Community Relations in Superfund: A Handbook, Chapters 6 and 7 and Appendix A*, for suggested community relations activities during RA activities.
3. With implementation of the remedy, site activity increases and so does the likelihood of community concerns and questions. In addition to the community relations activities listed below in the WBS, the WAM/RPM may consider the following activities to communicate progress during construction: arranging site tours and workshops, establishing observation decks, and videotaping cleanup activities. These activities may be covered under Task 6.2.3.1, "Technical Support," or added to the WBS as a separate item and numbered accordingly (i.e., 6.2.3.5). The WAM/RPM should plan for and develop a proactive and effective program with the assistance of the Regional Community Relations Specialist.
4. The WAM/RPM should review the current community relations plan, if one exists, and direct the contractor to update the existing CRP to address activities and concerns specific to the RA.
5. The WAM/RPM should specify the format for Community Relations submissions (e.g., fact sheets, news releases) if there are EPA Region-specific or other requirements.

.2.1 Develop Community Relations Plan

.2.1.1 Conduct Community Interviews. The contractor shall assist the WAM/RPM in conducting community interviews to identify community concerns associated with the RA. The contractor shall assist the WAM/RPM in identifying key community members, establishing an interview schedule, conducting interviews, and summarizing the results.

.2.1.2 Update the CRP. The contractor shall update the existing CRP to address community relations requirements and community concerns during the RA.

- (1) **Draft CRP.** The contractor shall update the CRP and submit a draft version within 14 days after completion of the community interviews.
- (2) **Final CRP.** Within 7 days of receipt of EPA comments, the contractor shall submit a final CRP.

.2.2 Prepare Fact Sheets

The contractor shall assist the WAM/RPM in preparing a fact sheet that informs the public about activities related to the final design, the schedule for the RA, activities to be expected during construction, measures to be taken to protect the community, provisions for responding to emergency releases and spills, and any potential inconveniences such as excess traffic and noise that may affect the community during the RA.

1. This subtask may have been completed during the RD. In that case, the WAM/RPM may task the contractor to revise the fact sheet before construction begins with the current schedule, expected conditions, and relevant points of contact.
2. Depending on the complexity of the RA, the WAM/RPM should consider communicating construction progress by sending out regular fact sheets. Specify to the contractor the anticipated number of fact sheets, topics, and number of copies required.

.2.3 Public Meetings and Availability Support

The number and locations of anticipated public meetings should be identified in the SOW for cost estimation purposes. Similarly, the WAM/RPM should specify the number of contractor personnel expected to be in attendance at the public meetings.

- .2.3.1 Technical Support. The contractor shall assist the WAM/RPM in providing technical support for community meetings that may be held during the RA. This support may include preparing technical input to news releases, briefing materials, arranging other community relations vehicles (i.e., site tours), and helping the WAM/RPM to coordinate with local agencies.
- .2.3.2 Logistical and Presentation Support. The contractor shall assist the WAM/RPM in preparing technical briefing materials and in arranging for the logistical details for the meetings.
- .2.3.3 Public Notice Support. The contractor shall assist the WAM/RPM in drafting public notices, announcing the public meetings, and placing the notice in a local paper of general circulation.

.2.4 Maintain Information Repository and Mailing Lists

The contractor shall assist the WAM/RPM in developing or revising site mailing lists and maintaining a repository of information on activities related to RA, as described in Appendix A.8, page A-19, of *Community Relations in Superfund: A Handbook*, June 1988.

8.3 Data Acquisition Oversight

This task involves oversight of the PRP's collection of samples during the RA. The review of the PRP's project plans required for this sampling effort is performed under Task 6.1.1.6. This task begins with EPA's approval of the PRP's SAP, FSP, and QAPP prior to the PRP's mobilization, and ends with the PRP's demobilization at the completion of the RA.

Mobilization and demobilization oversight includes ensuring that the PRP's RA constructor and their subcontractors efficiently perform start-up and closeout field activities per the overall schedule in the CD. The RA oversight contractor should monitor site preparation and the construction of utilities and temporary facilities, and ensure that an appropriate work sequence is followed while minimizing site disturbances. A logical sequence for major mobilization and demobilization activities to be conducted by the RA constructor may be as follows:

Mobilization

- stage and organize equipment and materials onsite
- prepare exclusion zone, decontamination area, and waste storage/staging area
- construct utilities and temporary facilities

Daily Demobilization

- consolidate and store debris and excess materials
- decontaminate personnel and equipment
- maintain secure waste storage/staging area

Final Demobilization

- dismantle utilities and temporary facilities that are no longer required
- ensure site has minimum disturbances (i.e., remove trash, debris, excess materials)
- properly label waste stored/staged onsite, and ensure that provisions are in-place for its removal

.3.1 Mobilization and Demobilization Oversight

.3.1.1 Identify Field Support Equipment/Supplies/Facilities. The contractor may require a field trailer and related utilities if it is infeasible to share the RA constructor's trailer. Other support equipment, supplies, or facilities required for performing oversight activities should be identified in this task.

.3.1.2 Mobilization Oversight. Mobilization activities to be conducted by the PRP's constructor include preparing an exclusion zone, staging and organizing onsite equipment, and constructing utilities and temporary facilities.

- (1) Not used - Site Preparation
- (2) Installation of Utilities
 - (a) Install Electric Distribution
 - (b) Install Telephone/Communication System
 - (c) Install Water/Sewer/Gas Distribution
 - (d) Install Fuel Line Distribution
- (3) Construction of Temporary Facilities
 - (a) Construct Decontamination Facilities
 - (b) Construct Sample or Derived Waste Storage Facility
 - (c) Construct Field Offices
 - (d) Construct Mobile Laboratory
 - (e) Construct Other Temporary Facilities

.3.1.3 Demobilization Oversight. Demobilization activities to be conducted by the PRP's constructor include consolidating and storing materials, decontaminating personnel and equipment, and maintaining a secure waste storage/staging area.

- (1) Removal of Temporary Facilities
- (2) Site Restoration

.3.2 Perform Field Investigation Oversight. Field activities that require oversight include site reconnaissance, data acquisition of air, groundwater, surface water, and other environmental media

samples, as well as the characterization, management and disposal of investigation-derived wastes (IDW). The contractor shall ensure the proper collection and management of samples acquired by the PRP, including accurate chain-of-custody (COC) procedures for sample tracking, protective sample-packing techniques, and proper sample-preservation techniques. Ensure that the PRP characterizes and disposes 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).

The WAM/RPM should specify the expected written and/or photographic documentation to be recorded in the field. The WAM/RPM also should specify the type of field activity reports expected by the WAM/RPM, the frequency, and the required distribution (WAM/RPM, State representative, etc.).

- .3.2.1 Perform Site Reconnaissance Oversight
 - (1) Ecological Resources Reconnaissance
 - (2) Well Inventory
 - (3) Residential Well Sampling
 - (4) Land Survey
 - (5) Topographic Mapping
 - (6) Field Screening
- .3.2.2 Perform Geological Investigations Oversight - Soils and Sediments
- .3.2.3 Perform Air Investigations Oversight
- .3.2.4 Perform Hydrogeological Investigations Oversight - Groundwater
 - (1) Well Systems Installation
 - (2) CLP Sample Collection
 - (3) Screening Sample Collection. A screening sampling event can consist of temporary sampling points to estimate the approximate distribution and range of contaminant concentrations. CLP sampling can then be performed after the screening event to confirm specific concentrations. Screening techniques include temporary piezometers, well points, and direct push technology (DPT) sampling techniques such as piezocones, resistivity cones, groundwater samplers, and soil gas samplers.
 - (4) Tidal Influence Study
 - (5) Hydraulic Tests (Pump Tests)
 - (6) Groundwater Elevation Measurement
- .3.2.5 Perform Hydrogeological Investigations Oversight - Surface Water
- .3.2.6 Perform Waste Investigation Oversight
- .3.2.7 Perform Geophysical Investigation Oversight
- .3.2.8 Perform Ecological Investigation Oversight
- .3.2.9 Perform Contaminated Building Samples Oversight
- .3.2.10 Perform Disposal of Investigation-Derived Wastes Oversight
- .3.2.11 Prepare Data Acquisition Oversight Reports

8.4 Analysis of Split Samples

.4.1 Perform Screening-type Laboratory Sample Analysis

The contractor shall request appropriate analytical services to match those being used by the PRP's RA constructor. Using the same level of analysis will provide the data required to perform an accurate quality comparison. The contractor should reference the procedures outlined in the *User's Guide to the Contract Laboratory Program*, EPA, December 1986. Frequently, the PRP's RA constructor will use EPA Level II analytical reporting using non-CLP methods for this task; the RA oversight contractor should use the same level of analysis.

.4.1.1 Analyze Air and Gas Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.2 Analyze Groundwater Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.3 Analyze Surface water Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.4 Analyze Soil and Sediment Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.5 Analyze Waste (Gas) Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.6 Analyze Waste (Liquid) Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.7 Analyze Waste (Solid) Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.8 Analyze Biota Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.1.9 Analyze Bioassay Samples

.4.1.10 Perform Bioaccumulation Studies

.4.2 Perform CLP-type Laboratory Sample Analysis

The contractor shall request appropriate analytical services to match those being used by the PRP's RA constructor. Using the same level of analysis will provide the data required to perform an accurate quality comparison. The contractor should reference the procedures outlined in the *User's Guide to the Contract Laboratory Program*, EPA, December 1986. Typically, the PRP's RA constructor will be using EPA Level IV analytical reporting using CLP methods for this task; the RA oversight contractor should use the same level of analysis.

.4.2.1 Analyze Air/Gas Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.2 Analyze Groundwater Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.3 Analyze Surface water Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.4 Analyze Soil and Sediment Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.5 Analyze Waste (Gas) Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.6 Analyze Waste (Liquid) Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.7 Analyze Waste (Solid) Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.8 Analyze Biota Samples

- (1) Organic
- (2) Inorganic
- (3) Radiochemistry

.4.2.9 Analyze Bioassay Samples

8.5 Analytical Support and Data Validation of Split Samples

The contractor shall collect split (or duplicate) samples of samples collected by the PRP's RA constructor, and shall arrange for the analysis and validation of those samples. The contractor's split samples are to be compared to samples collected by the PRP's RA constructor to assess the validity of the RA constructor's sampling program. The sample collection, analysis, and validation task begins with reserving sample slots in the CLP, and ends with the contractor's data validation letter report.

1. Sample collection procedures, analytical methods, and EPA reporting levels for the contractor's split samples should be consistent with the procedures, methods, and levels being used by the PRP's RA constructor.
2. For RA oversight purposes, full data validation procedures are usually not necessary. The WAM/RPM may want to specify the level of data validation required.
3. The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.

.5.1 Prepare and Ship Environmental Samples. The contractor shall properly collect and manage split samples in the field, and arrange for appropriate shipment to the designated laboratory. The contractor shall follow the procedures specified in the contractor's SAP, FSP, QAPP, and HASP for proper sample preservation and protective sample packing, and then ship via an overnight carrier to the designated laboratory.

- .5.1.1 Groundwater Samples
- .5.1.2 Surface and Subsurface Soil Samples
- .5.1.3 Surface water and Sediment Samples
- .5.1.4 Air Samples
- .5.1.5 Biota Samples
- .5.1.6 Other Types of Media Samples

.5.2 Coordinate With Appropriate Sample Management Personnel. The contractor shall arrange shipment and delivery schedules with the appropriate sample management personnel and provide any clarification on the data collection procedures that may be required.

.5.3 Implement EPA-Approved Laboratory QA Program. The contractor shall ensure the QA/QC protocols, as specified in the QAPP, are followed.

.5.4 Provide Sample Management (COC, sample retention, and data storage). The contractor shall follow accurate COC procedures for sample tracking.

.5.5 Perform Data Validation. The contractor shall perform appropriate data validation to ensure that the data are accurate and defensible. The contractor shall review the appropriate laboratory data packages according to the protocols specified in the contractor's RA Oversight Work Plan and complete the necessary summary tables, validation worksheets, and DQO summary forms. The contractor shall prepare and submit a data validation letter report within 21 calendar days of receipt of the analytical results.

- .5.5.1 Review Analysis Results Against Validation Criteria
- .5.5.2 Provide Written Documentation of Validation Efforts

8.6 Data Evaluation of Split Samples

This task involves comparison of the PRP's data that is collected during the RA with data resulting from the analysis of split samples collected by the contractor during RA oversight. Data evaluation begins with the receipt of analytical data from the data acquisition task and ends with the submittal of a Data Evaluation Summary Report. Specifically, the contractor shall compare, evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables.

1. The WAM/RPM should specify the format for submissions if there are Region-specific or other requirements.
2. The WAM/RPM should specify that the contractor prepare and submit a Technical Memorandum to the WAM/RPM if new analytical data needs or significant data problems are identified during the evaluation.

- .6.1 Data Useability Evaluation and Field QA/QC. The contractor shall review the data collected and the QA/QC protocols to evaluate if the data are appropriate for the intended use.
- .6.2 Data Reduction, Tabulation, and Evaluation. The contractor shall evaluate, interpret, and tabulate data in an appropriate presentation format for analysis. The contractor shall design and set up an appropriate database for pertinent information collected that will be used to validate the RA. Data management should be performed according to the contractor's Data Management Plan.
 - .6.2.1 Evaluate Geological Data - Soils and Sediments
 - .6.2.2 Evaluate Air Data
 - .6.2.3 Evaluate Hydrogeological Data - Groundwater
 - .6.2.4 Evaluate Hydrogeological Data - Surface Water
 - .6.2.5 Evaluate Waste Data
 - .6.2.6 Evaluate Geophysical Data
 - .6.2.7 Evaluate Ecological Data
- .6.3 Modeling. The contractor shall perform limited and focused computer modeling of data (e.g., air monitoring data) to facilitate data evaluation and interpretation.
 - .6.3.1 Contaminant Fate and Transport
 - .6.3.2 Water Quality
 - .6.3.3 Groundwater
 - .6.3.4 Air
 - .6.3.5 Other Modeling
- .6.4 Develop Data Evaluation Report. The contractor shall evaluate and present results in a Data Evaluation Summary Report to submit to the WAM/RPM for review and approval. The report will include a comparison between the contractor's split sample data and the PRP's data, will provide an assessment of this comparison, and will identify any actions required. After the WAM/RPM's review, attend a meeting with EPA to discuss data evaluation results and next steps.

8.7 Review of PRP Documents

Task 6.1.1.6 in the WBS is "Review of PRP Plans," which is intended to include the review of upfront, generic project plans, such as the SAP, FSP, QAPP, and HASP. This task (Task 6.7) is intended to include the review of updates, amendments, or modifications to the upfront plans, as well as the review of detailed construction plans, specifications, and related submittals.

This task involves work efforts to review detailed construction plans and related documents prepared by the PRP's RA constructor. In addition to the review of project plans (e.g., SAP, FSP, QAPP, HASP) under Task 6.1.1.6, the RA oversight contractor shall perform reviews as directed by the WAM/RPM. The following factors are to be considered during the review of PRP submittals:

- Technical requirements of the ROD, Unilateral Administrative Order (UAO), Administrative Order of Consent (AOC), CD, and compliance with ARARs
- Standard professional engineering practices
- Applicable statutes, EPA policies, directives and regulations
- Spot checking design calculations to assess accuracy and quality of design activities
- Examination of planning and construction schedules for meeting project completion goals

The contractor shall review the planning, construction, and implementation documentation as directed by the WAM/RPM to ensure professional quality, technical accuracy, and compliance with the ROD and CD, CERCLA guidance, and ARARs. Specific documents to be reviewed include the PRP's RA Work Plan, Construction QAPP (CQAP), cut sheets, material lists, equipment lists and specifications, operation and maintenance plans, and updates or modifications to the upfront project plans (e.g., SAP, FSP, QAPP, HASP).

.7.1 Not used - Review of PRP Remedial Design Documents

Task 6.7.1 in the WBS is "Review PRP Remedial Design Documents." Because RD documents should be provided to the contractor to review under Task 6.1.1.3, this task is not likely to be required.

.7.2 Review of PRP Remedial Action Documents. The contractor's review of PRP documents should be focused on the technical and engineering aspects of the detailed construction-related submittals. Letter reports shall be submitted upon the completion of each review by the contractor within 21 calendar days of the start of the review, identifying specific issues and suggested revision or other action.

- .7.2.1 Site Management for Construction
- .7.2.2 PRP's Remedial Action Work Plan
- .7.2.3 O&M Manual
- .7.2.4 Remedial Action Report
- .7.2.5 As-build Drawings
- .7.2.6 Construction QAPP
- .7.2.7 Construction QA Reports

8.8 Remedial Action Oversight

This task is intended to include general field oversight of the PRP's RA constructor during construction and implementation of the RA. This task is separate from other field tasks to be performed under the SOW (e.g., mobilization/demobilization oversight and data collection oversight). Field observations, recordings, photographs, and other compliance-related oversight activities are to be performed under this task.

This task includes work efforts to provide technical field oversight of PRP RA activities to ensure that construction and implementation is performed in accordance with RD plans, specifications, and the CD. Oversight activities include observing and recording compliance with specific aspects of project plans and design documents, photographing major field activities, maintaining a daily field notebook, and providing reports to the WAM/RPM. The contractor's Oversight Official should coordinate with the PRP's Independent QA Team and communicate and report to the WAM/RPM according to an agreed-upon schedule.

.8.1 On-site Oversight of Construction

The WAM/RPM must define the appropriate level of oversight needed. For example, will oversight be continuous over a long period or are short visits appropriate, will overnight stays be required, and is one person adequate to oversee the whole RA?

.8.2 Periodic RA Oversight Reports

The appropriate frequency and level of detail must be specified (i.e., whether the reports are to be weekly or periodic, whether the content is to be short and informal or very detailed).

.8.3 Participation in Remedial Action Meetings

.8.3.1 EPA Regional Office Meeting

.8.3.2 On-site Meetings

8.9 Technical Meeting Support

This task includes work efforts related to attendance at and documentation of meetings with EPA, PRPs, PRP constructors and contractors, and state and local regulatory agencies. The contractor shall attend meetings and provide documentation of meeting results. Within 7 days after a meeting, the contractor will submit to the WAM/RPM a written report summarizing the meeting results. Meetings may be scheduled to coincide with the following specific milestones during the RA:

- Review of PRP RA Work Plan
- PRP preconstruction conference
- Technical progress meetings between the PRP constructor and the Independent QA Team
- Kick-off, progress, and completion of any confirmatory (split) sampling
- Prefinal/final inspections

8.10 Work Assignment Closeout

- .10.1 Return Documents to Government
- .10.2 Duplicate, Distribute, and Store Files
- .10.3 Archive Files
- .10.4 Prepare Microfiche, Microfilm, and/or Optical Disk
- .10.5 Prepare Closeout Report. The contractor shall include a breakdown on disk of final costs and Level of Effort (by P-level) in the same detail and format as the Work Breakdown Structure (Attachment 2).

ATTACHMENT 1
SUMMARY OF MAJOR DELIVERABLES FOR THE REMEDIAL ACTION OVERSIGHT AT
_____(SITE)

TASK	DELIVERABLE	REF NO.	NO. OF COPIES	DUE DATE (Calendar Days)	EPA REVIEW PERIOD
1.1.2	Site Visit Letter Report		3	10 days after site visit	7 days after receipt of report
1.1.5	Draft RA Oversight Work Plan		3	45 days after initiation of work assignment (WA)	30 days after receipt of work plan
1.1.5	Final RA Oversight Work Plan		3	15 days after receipt of EPA comments	NA
1.1.6	Draft Technical Memoranda Summarizing Review of Upfront PRP Plans		3	30 days after initiation of WA	14 days after receipt of memoranda
1.1.6	Final Technical Memoranda Summarizing Review of Upfront PRP Plans		3	10 days after receipt of EPA comments	NA
1.2.2	Draft Health and Safety Plan (HASP)		3	21 days after approval of RA Work Plan	14 days after receipt of plan
1.2.2	Final HASP		3	10 days after receipt of EPA comments	NA
1.2.3	Draft Sampling and Analysis Plan (SAP)		3	21 days after approval of RA Work Plan	14 days after receipt of plan
1.2.3	Final SAP		3	10 days after receipt of EPA comments	NA
1.3.1	Status Reports		3	Monthly and as directed by WAM	NA
1.3.2	Technical Memoranda Summarizing Meeting Results, Project Status, and Non-Compliance Issues		3	As required	NA
2.1.2	Draft Community Relations Plan (CRP)		3	14 days after completion of community interviews	7 days after receipt of draft CRP
2.1.2	Final CRP		3	7 days after receipt of EPA comments	NA

5.5	Data Validation Letter Report		3	21 days after receipt of analytical results from laboratory	NA
6.4	Draft Data Evaluation Summary Report		3	45 days after receipt of analytical results from laboratory	14 days after receipt of report
6.4	Final Data Evaluation Summary Report		3	7 days after receipt of EPA comments	NA
7.2	Draft Letter Report Summarizing Review of PRP RA Documents		3	21 days after receipt of PRP document from EPA	14 days after receipt of letter report
7.2	Final Letter Report Summarizing Review of PRP RA Documents		3	10 days after receipt of EPA comments	NA
8.2	Draft RA Oversight Reports		3	As required	As required
8.2	Final RA Oversight Reports		3	7 days after receipt of EPA comments	NA
9.0	Draft Technical Memoranda Summarizing Meeting Results		3	7 days after attendance at meeting(s)	10 days after receipt of memoranda
9.0	Final Technical Memoranda Summarizing Meeting Results		3	7 days after receipt of EPA comments	NA

Attachment 2
Work Breakdown Structure (WBS) for
Remedial Action Oversight

8.0 Remedial Action Oversight

.01 Project Planning and Support

.01 Project Planning

- .01 Attend Scoping Meeting
- .02 Conduct Site Visit
- .03 Evaluate Existing Information
- .04 Develop Technical Project Goals & Objectives
 - .01 Not Used - Develop Conceptual Site Model
 - .02 Preliminary ID of Project Requirements
 - .01 Data Needs & DQOs
 - .02 Not Used - RA Objectives & Potential Alternatives
- .05 Work Plan Development
 - .01 Draft Work Plan Development
 - .01 Develop Narrative
 - .02 Develop Cost Estimate
 - .03 Internal QA & Submission
 - .02 Final Work Plan Preparation
 - .01 Attend Negotiation Meeting
 - .02 Modify Draft Work Plan/Cost Estimate
 - .03 Internal QA & Submission
- .06 Review of PRP Plans
 - .01 Review PRP Site Management Plan
 - .01 Review PRP Pollution Control and Mitigation Plan
 - .02 Review PRP Transportation and Disposal Plan
 - .02 Review PRP Health and Safety Plan
 - .03 Review PRP Sampling & Analysis Plan
 - .01 Review PRP Quality Assurance Project Plan
 - .02 Review PRP Field Sampling Plan
 - .03 Review PRP Data Management Plan
 - .04 Other PRP Plan(s)

.02 Preparation of Site Specific Plans

- .01 Not used
- .02 Develop Health & Safety Plan
- .03 Sampling & Analysis Plan (Chemical Data Acquisition Plan)
 - .01 Quality Assurance Project Plan
 - .02 Field Sampling Plan
 - .03 Data Management Plan
- .04 Other Plan(s)

.03 Project Management

- .01 Prepare Periodic Status Reports
 - .01 Document Cost and Performance Status
 - .02 Prepare/Submit Invoices
- .02 Meeting Participation/Routine Communications
- .03 Not Used - Maintain Cost/Schedule Control System
- .04 Not Used - Perform Value Engineering
- .05 Not Used - Perform Engineering Network Analysis
- .06 Not Used - Manage, Track, and Report Equipment Status
- .07 Work Assignment Closeout

.04 Subcontract Procurement/Support Activities

- .01 ID and Procurement of Subcontractors

- .01 Not Used - Drilling Subcontractor
- .02 Not Used - Surveying Subcontractor
- .03 Not Used - Geophysical Subcontractor
- .04 Not Used - Site Preparation Subcontractor
- .05 Analytical Services Subcontractor(s)
- .06 Not Used - Waste Disposal Subcontractor
- .07 Not Used - Treatability Subcontractor(s)
- .08 Other(s)
- .02 Contractor QA/QC Program
- .03 Perform Subcontract Management
- .02 Community Relations
 - .01 Community Relations Plan (CRP) Development
 - .01 Conduct Community Interviews
 - .02 Update CRP
 - .01 Draft CRP
 - .02 Final CRP
 - .02 Prepare Fact Sheets
 - .03 Public Hearing, Meetings, & Availability Support
 - .01 Technical Support
 - .02 Logistical & Presentation Support
 - .03 Public Notice Support (writing, or placement of)
 - .04 Maintain Information Repository/Mailing List
- .03 Data Acquisition Oversight
 - .01 Mobilization/Demobilization Oversight
 - .01 ID Field Support Equipment/Supplies/Facilities
 - .02 Mobilization
 - .01 Not Used - Site Preparation
 - .02 Installation of Utilities
 - .01 Install Electrical Distribution
 - .02 Install Telephone/Communication System(s)
 - .03 Install Water/Sewer/Gas Distribution
 - .04 Install Fuel Line Distribution
 - .03 Construction of Temporary Facilities
 - .01 Construct Decontamination Facilities
 - .02 Construct Sample/Derived Waste Storage Facility
 - .03 Construct Field Offices
 - .04 Construct Mobile Laboratory
 - .05 Construct Other Temporary Facilities
 - .03 Demobilization Oversight
 - .01 Removal of Temporary Facilities
 - .02 Site Restoration
 - .02 Field Investigation Oversight
 - .01 Site Reconnaissance Oversight
 - .01 Ecological Resources Reconnaissance
 - .02 Well Inventory
 - .03 Residential Well Sampling
 - .04 Land Survey
 - .05 Topographic Mapping
 - .06 Field Screening
 - .02 Geological Investigations (Soils/Sediments) Oversight
 - .03 Air Investigations Oversight
 - .04 Hydrogeological Investigations Oversight - Groundwater
 - .01 Well Systems Installation
 - .02 CLP Sample Collection
 - .03 Screening Sample Collection

- .04 Tidal Influence Study
- .05 Hydraulic Tests (Pump Tests)
- .06 Groundwater Elevation Measurement
- .05 Hydrogeological Investigations Oversight — Surface Water
- .06 Waste Investigation Oversight
- .07 Geophysical Investigation Oversight
- .08 Ecological Investigation Oversight
- .09 Contaminated Building Samples Oversight
- .10 Disposal of Investigation-Derived Waste Oversight
- .11 Prepare Data Acquisition Oversight Reports
- .04 Sample Analysis of Splits
 - .01 Screening Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Groundwater Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .09 Analyze Bioassay Samples
 - .10 Perform Bioaccumulation Studies
 - .02 CLP-Type Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .02 Analyze Groundwater Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
 - .03 Analyze Surface Water Samples
 - .01 Organic
 - .02 Inorganic

- .03 Radiochemistry
- .04 Analyze Soil/Sediment Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .05 Analyze Waste (Gas) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .06 Analyze Waste (Liquid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .07 Analyze Waste (Solid) Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .08 Analyze Biota Samples
 - .01 Organic
 - .02 Inorganic
 - .03 Radiochemistry
- .09 Analyze Bioassay Samples
- .10 Perform Bioaccumulation Studies
- 05 Analytical Support and Data Validation of Split Samples
 - .01 Prepare and Ship Environmental Samples
 - .01 Groundwater Samples
 - .02 Surface and Subsurface Soil Samples
 - .03 Surface Water & Sediment Samples
 - .04 Air Samples
 - .05 Biota Samples
 - .06 Other types of media sampling and screening
 - .02 Coordinate with appropriate Sample Management personnel
 - .03 Implement EPA-approved Laboratory QA program
 - .04 Provide Sample Management (Chain of Custody, sample retention, & data storage)
 - .05 Perform Data Validation
 - .01 Review analysis results against validation criteria
 - .02 Provide written documentation of validation efforts
- .06 Data Evaluation of Split Samples
 - .01 Data Useability Evaluation/Field QA/QC
 - .02 Data Reduction, Tabulation and Evaluation
 - .01 Evaluate Geological Data (Soils/Sediments)
 - .02 Evaluate Air Data
 - .03 Evaluate Hydrogeological Data—Groundwater
 - .04 Evaluate Hydrogeological Data—Surface Water
 - .05 Evaluate Waste Data
 - .06 Evaluate Geophysical Data
 - .07 Evaluate Ecological Data
 - .03 Modeling
 - .01 Contaminant Fate and Transport
 - .02 Water Quality
 - .03 Groundwater
 - .04 Air
 - .05 Other Modeling
 - .04 Develop Data Evaluation Report
- .07 Review of PRP Documents
 - .01 Not Used - Review PRP Remedial Design Documents

- .01 Not Used - Review Preliminary Design
- .02 Not Used - Review Intermediate Design
- .03 Not Used - Review Pre-Final/Final Design
- .02 Review PRP Remedial Action Documents
 - .01 Site Management Plan for Construction
 - .02 Remedial Action Work Plan
 - .03 O&M Manual
 - .04 Remedial Action Report
 - .05 As Built Drawings
 - .06 Construction QAPP
 - .07 Construction QA Reports
- .08 Remedial Action Oversight
 - .01 On-Site Oversight of Construction
 - .02 Periodic RA Oversight Reports
 - .03 Participation in Remedial Action Meetings
 - .01 Region Office Meetings
 - .02 On-Site Meetings
- .09 Technical Meeting Support
- .10 Work Assignment Close Out
 - .01 Return Documents to Government
 - .02 File Duplication/Distribution/Storage
 - .03 File Archiving
 - .04 Microfiche/Microfilm/Optical Disk
 - .05 Prepare Closeout Report

Attachment 3 Regulations and Guidance Documents

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RD process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.
3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
4. Community Relations in Superfund — A Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.
5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.
8. Data Quality Objectives for Remedial Response Activities, U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.
9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.
11. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.
14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
20. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.
26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.

28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.
29. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
30. *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.
31. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.
33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.
38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
39. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
44. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.

Attachment 4

TRANSMITTAL OF DOCUMENTS FOR ACCEPTANCE BY EPA		DATE:	TRANSMITTAL NO.
TO:		FROM:	<input type="checkbox"/> New Transmittal <input type="checkbox"/> Resubmittal of Transmittal No. _____
SUBTASK NO.	DELIVERABLE	NO. OF COPIES	REMARKS
ACCEPTANCE ACTION			
DOCUMENTS FOUND ACCEPTABLE (LIST BY SUBTASK NO.)		NAME/TITLE/SIGNATURE OF REVIEWER	
		DATE	

Attachment 5

[illegible]

**MODEL STATEMENT OF WORK FOR
NON-TIME CRITICAL REMOVAL SUPPORT**

To be added at a later date.

**MODEL STATEMENT OF WORK FOR
NON-TIME CRITICAL ACTION SUPPORT**

To be added at a later date.