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EPA

Scoping the Remedial Design

Office of Emergency and Remedial Response
Hazardous Site Control Division 5203G

Quick Reference Fact Sheet
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This fact sheet presents an overview of the Environmental Protection Agency (EPA) *Guidance for Scoping the Remedial Design*, a manual addressed to **Remedial Project Managers (RPMs)** that describes the predesign planning phase of the Superfund remedial process. The *Guidance* will also apply to Superfund Accelerated Cleanup Model (SACM) projects such as non-time-critical removals and non-emergency early actions. The *Guidance* provides information on managing Fund-lead and enforcement-lead sites; it includes a description of the required information collection activities, standard **Remedial Design (RD)** tasks, development of remediation schedules and cost estimates for remedial design, and instructions for preparing the **Statement of Work (SOW)**. Throughout the manual, the varying responsibilities of the RPM and other parties are distinguished according to the type of project (i.e., Fund- or enforcement-lead). See Highlight 1, which displays the manual's organization. This fact sheet briefly covers the same basic topics.

Highlight 1

Guidance for Scoping the Remedial Design

Chapter	Topic
1	Introduction
2	Developing a Project Management Plan
3	Information Collection
4	Developing the Preliminary Remedial Design Schedule
5	Developing an Estimate of Remedial Design Costs
6	Developing a Statement of Work for Remedial Design
7	Developing a Statement of Work for Remedial Design Oversight

PROJECT MANAGEMENT PLAN

The RPM's chief task is to achieve the goals of the **Record of Decision (ROD)** in a timely manner. To accomplish this end, the *Guidance* presents management options that allow flexibility for the RPM. This flexibility enables the RPM to take into account any constraining factors of the particular site such as restrictive technical or managerial requirements, schedule limitations, or experience of the contracting party. The effective Project Management Plan should include the following items:

- Description of organization and communications
- Determination of project constraints
- Development of a contracting strategy for **Remedial Design/Remedial Action (RD/RA)**.

INFORMATION COLLECTION

The RPM must verify that all necessary information for the completion of the design has been collected. The primary sources of information include the **Remedial Investigation/ Feasibility Study (RI/FS)** and the ROD. The information contained therein serves as the initial building block for developing the SOW and for identifying accurately the technical requirements to be fulfilled by the designer.

Information provided to the designer should cover the following points:

- A thorough description of the site conditions
- The remedy, technology, and design approach to be used for site cleanup
- Any **Applicable or Relevant and Appropriate Requirements (ARARs)**
- A summary of data already gathered
- The identification of other possible data needs or studies
- A statement of all unresolved or pending issues.

REMEDIAL DESIGN TASKS

The RD establishes the general size, scope, and character of a project. It details and addresses the technical requirements

(construction plans and specifications) of the **Remedial Action (RA)**. The RD begins with project planning and ends with the completion of a detailed set of engineering drawings and specifications.

To clarify the RD process, certain activities have been designated as standard tasks; although there are 13 standard RD tasks, some remain optional when certain remedies are selected for site cleanup. The tasks shown in Highlight 2 are typical of the RD tasks found in the SOWs for all **Response Action Contracts (RACs).** These standard tasks are almost identical to those tasks that have been used for the **Alternative Remedial Contracts Strategy (ARCS)** contracts that will eventually be replaced by the RACs contracts. Because the RPM's key role is in seeing that these tasks are performed properly, thorough knowledge and understanding of these design tasks and the conditions for their implementation are required.

Highlight 2
Remedial Design Standard Tasks[1]

1. Project Planning and Support
2. Community Involvement
3. Data Acquisition
4. Sample Analysis
5. Analytical Support and Data Validation
6. Data Evaluation
7. Treatability Study/Pilot Testing
8. Preliminary Design
9. Equipment/Services/Utilities
10. Intermediate Design
11. Prefinal/Final Design
12. Post-Remedial Design Support
13. Work Assignment Close Out

[1]The order of tasks as they appear in the SOW for RACs contracts; certain tasks may be conducted concurrently.

[2]Community involvement is a standard task conducted throughout the RD process.

REMEDIAL DESIGN SCHEDULES

The RPM is responsible for developing a preliminary independent schedule that will serve as the baseline for negotiating the final schedule with the contracting party (who has developed a schedule as well). Sample RD schedules are provided in the *Guidance* and are based on the nine basic remediation technologies used for site cleanup. The RPM's knowledge of site data will enable adaptation of the appropriate sample schedule for the remedy-specific category to be used at the site. Whenever more than one technology or remedy is selected for a site, the remedial schedule with the longest duration is chosen. Highlight 3 shows the nine principal remediation schedules and their estimated duration in months.

Highlight 3
Total Design Durations for Nine Remediation Categories/Schedules

Remedy	Total Duration[1]
1. Ground-Water Treatment—Complex	13–16
2. Ground-Water Treatment—Simple	10–13
3. Ground-Water Treatment—Simple (Expedited)	4–7
4. Treatment of Soils and Sludge—Complex	13–19
5. Treatment of Soils and Sludge—Simple	9–13
6. Civil Engineering—Complex	13–15
7. Civil Engineering—Simple	9–13
8. Civil Engineering—Simple (Expedited)	4–7
9. On-Site Thermal Destruction	12–15

[1]Estimated durations, in months, are based on completed remedial management contract design projects; durations could be reduced through the use of performance specifications or "off-the-shelf" designs.

Recommendations

The following recommendations are offered to further enhance the usefulness of a generic RD schedule:

- To maximize cost and technical efficiencies and to identify and correct possible deficiencies, initiate the technical reviews (biddability, constructibility, environmental, claims prevention, operability) during the intermediate design phase. For similar reasons, a **Value Engineering (VE)** screening should be initiated early in the project schedule, and a formal VE review, if deemed appropriate, should be conducted during the intermediate design phase. (*Note:* Biddability and VE reviews will not normally be required for **Potentially Responsible Party (PRP)**–lead RD projects.)
- Obtain specific information about duration requirements and current practices for procurement, **Interagency Agreements (IAGs)**, owner reviews, and so on, which may affect the start or overall duration of RD.
- For those sites where early RA starts are required to protect public health and safety or for other reasons, the RD/RA schedule can be organized to allow for early RD completion and RA implementation on the simplest operable units first. This allows earlier RA starts while proceeding simultaneously with design on more complex operable units.
- The standard tasks for RD services should provide a consistent method of reporting the progress of design work. They should be used to the maximum extent possible.

FUND-LEAD SITES

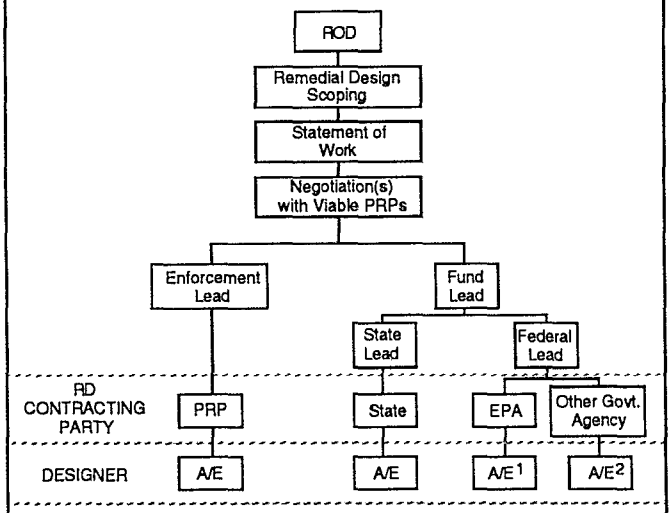
In addition to the general duties performed by the RPM—management, information collection, schedule preparation—the designation of the project as either Fund-lead or enforcement-lead will create different responsibilities for the RPM. Highlight 4 shows the RD process with different leads or *contracting* parties. For Fund-lead sites, the *Guidance* provides information on developing the **Independent Government Cost Estimate (IGCE)** and SOW for the RD.

Independent Government Cost Estimate

In preparing an IGCE for an RD project, the RPM should first divide the work into the 13 standard tasks. The activities to be performed under each task should then be outlined in as much detail as possible. Although many of the activities are similar for various sites, each site will have unique characteristics that require an individual evaluation of the resources necessary to complete the RD. To determine the needed resources, each of the tasks should be evaluated for the specific site to determine the expected complexity of accomplishing the task and to identify any site-specific obstacles that might affect completion of the task. The RPM should also consider factors such as the amount of detail required in each of the design documents and the level of expertise needed to evaluate the data and develop the documents. By dividing the work into discrete tasks and subtasks and by defining each functional activity and product in as much detail as possible in the SOW, the RPM can more accurately estimate the labor hours required to accomplish the work at an individual site. The RPM should use her or his best professional judgment, in conjunction with historical data from work assignments having a similar scope of work, to estimate the number of labor hours needed to complete each task.

Highlight 4

The RD Process with Different Leads[1]



[1]*EPA contractor (ARCS or RACs)*

[2]*Architect/Engineer or in-house design by USACE*

Note: For abbreviations, see Glossary in Guidance.

If EPA is the contracting party, the preparation of an IGCE is required before issuing a work assignment and the initiation of negotiations with the selected remedial designer. (See ***Federal Acquisition Regulation (FAR)*** at 48 CFR 36.605.) As the **Work Assignment Manager (WAM)** of the contract action, it is the RPM's responsibility to develop the IGCE during preparation of the work assignment for design. This estimate should include a projection of the labor hours necessary to accomplish the work, as well as subcontractor costs and **Other Direct Costs (ODCs)** such as travel and per diem, communications, equipment, sampling and laboratory analysis, printing, and computer time.

RPMs should seek the assistance of the Regional IGCE coordinator, who can review the estimate and provide information on labor rates and per diem, travel, and ODCs. The IGCE coordinators may also be able to provide computer program spread sheets to facilitate the drafting of the estimate. Tables showing the estimated labor hours per standard RD task for each of the nine remediation categories are provided in Appendix D of the *Guidance* for reference.

Statement of Work for Fund-Lead Sites

An SOW must be prepared regardless of who the contracting party may be; however, the required contents of the SOW will vary. For a Fund-lead project, the SOW will be used in developing either a cooperative agreement (with a State, Indian tribe, or locality) or an IAG; if EPA is the contracting party, the SOW is used to develop a work assignment to be issued to the designer.

The SOW for an RD work assignment should be clear, concise, and enforceable. The designer should not be required to perform tasks that cannot be measured. The SOW must establish the following:

- Intent of the assignment (project scope—all required activities to produce the final product)
- Project description (project scope—boundaries of the authorized project)
- Estimated RD schedule, including the schedule of submittals (documents detailing how and when the designer's compliance with the scope of work is reviewed and measured).

The SOW should describe project-specific professional services to be accomplished; these services are broken down into the 13 standard RD tasks. Understanding of the services is enhanced when each standard task is further defined and considered separately during the negotiations between the contracting

party and the designer. The division of the total services into discrete tasks to be performed, together with consideration of the constraints of the schedule and budget for each, form the basis for agreement between the contracting party and the designer. A model SOW for RD that is broken down into tasks and subtasks is included as an appendix to the *Guidance*.

ENFORCEMENT-LEAD SITES

That which ensures an effective Fund-lead SOW applies also to the enforcement-lead version as far as clarity, specificity, and thoroughness are concerned. However, for enforcement-lead RD projects, the RPM will prepare the SOW, which then becomes an attachment to the **Consent Decree (CD)**. The CD specifies the RD and RA project requirements to be met by the PRPs/Settling Defendants. Each Regional Office has a model SOW for enforcement-lead RD/RA that should be used by the RPM in developing a site-specific SOW.

A poorly written SOW can cause serious communication problems between EPA and the Settling Defendants. Ambiguity can result in misunderstandings and in turn result in the execution of activities that do not conform to the CD and the SOW. These misunderstandings can also produce incomplete submittals, schedule delays, and disputes—possibly requiring resolution in court. Therefore, the RPM should ensure that all appropriate agencies are involved in the early stages of SOW development and during reviews of the completed RD and RA.

Five key implementation-related items should be included in the SOW:

1. The treatment system or technology
2. Performance standards
3. Points of compliance
4. Demonstration of compliance
5. Schedule.

The treatment or remedy specified in the ROD should be incorporated verbatim into the SOW. The section in the SOW on performance standards is extremely important and must be clearly written to ensure enforceability. Performance standards should be specified for each medium and remedy component involved in the RA. Methods of demonstrating compliance with the specified standards and requirements of the remedy must be described in the SOW so that the RPM will know when criteria have been met and so that fulfillment of the ROD requirements can be ensured.

Remedial Action Tasks

The major difference between the Fund-lead SOW and the enforcement-lead SOW is that the latter includes RA tasks in addition to the RD tasks.

In the SOW, the RPM will specify the following: the RD/RA tasks that are relevant to the project, the major submittals (plans, drawings, and reports) associated with each of these tasks, and a delivery schedule for the submittals. However, even the best-written SOW might not address every potential problem. Therefore, once the SOW is final, it is critical that EPA meet with the Settling Defendants to discuss the SOW as well as the details of the RD/RA task requirements that guide the Settling Defendants' Work Plan.

The RD Oversight SOW

It is the RPM's responsibility to monitor compliance with all RD requirements included by incorporation or reference within the CD and SOW. The RPM is assisted by an Oversight Official who is contracted by EPA to provide technical support in reviewing submittals and monitoring on-site activities. The overall objective of oversight is to focus the RPM's efforts on environmental protection, consideration of public health concerns, overall project quality, scheduling, and preparation of design documents. When developing a site-specific SOW for RD oversight, it is the responsibility of the RPM to track the progress of the RD effort and to establish the level of oversight for the project accordingly. A model SOW for RD oversight is provided in the *Guidance* as Appendix E.

Depending on the complexity of the RD activities and on the Settling Defendants' performance record, the level of involvement varies in terms of what the RPM deems necessary to perform adequate oversight. However, in most instances, the RPM will ensure that EPA and its representatives perform the following activities:

- Review RD plan submittals (e.g., Work Plan, Health and Safety Plan, Quality Assurance Project Plan)
- Conduct periodic progress meetings with the Settling Defendants
- Ensure that information collection activities are proceeding safely and correctly
- Coordinate among all involved Government entities
- Verify task completion and compliance with all requirements
- Provide status reports as part of the community involvement task.

For more information concerning RD oversight, refer to the Fact Sheet entitled EPA Oversight of Remedial Designs and Remedial Actions Performed by PRPs, Pub 9355.5-01/FS, Feb. 1990.

Fore more information on scoping an RD, contact your RD/RA Regional Coordinator at:

EPA Headquarters
Hazardous Site Control Division
Design and Construction Management Branch (5203G)
(703) 603-8830

Note: This Fact Sheet is intended for informational purposes and cannot be relied upon to create any rights enforceable by any party in litigation with the United States.