



EPA

Expediting Remedial Construction

Office of Emergency and Remedial Response
Hazardous Site Control Division OS - 220

Quick Reference Fact Sheet

INTRODUCTION

Remedial action (RA) is the heart of the Superfund program because it is the implementation of solutions to the environmental problems at uncontrolled hazardous waste sites. Taking into consideration the nature and types of obstacles that generate delays in the remedial action process, this fact sheet describes various methodologies and alternatives to expedite the remedial construction process. While this information is applicable to all Superfund projects, it is geared toward expediting remedial construction on small (less than \$5 million) well defined projects utilizing proven technologies.

The most obvious method to accelerate remedial construction is to initiate construction sooner, i.e., speed up the planning and design process. Then contracting and construction options can be explored to best enhance site remediation. The following techniques for expediting remedial construction are discussed in this document:

- o Developing a "Remedial Management Strategy"
- o Phasing remedial design and construction
- o Fast-tracking the remedial design and remedial action (RD/RA) process
- o Contracting and procurement strategies

REMEDIAL MANAGEMENT STRATEGY

The remedial management strategy (RMS) is a systematic approach used to identify and establish the preferred contracting strategies to be used in the implementation of a remedial action. The objective is to look at each of the operable units that are part of the remedy described in the Record of Decision (ROD) and lay out a strategy for design and construction that meets all of the constraints imposed on the project. All limitations including weather, schedule deadlines, air quality criteria, and worker protection, must be identified. Once the construction sequence and constraints have been determined, the next step is to define the contract packages that best fit the project and determine the procurement method that should be used, i.e., sealed bidding or negotiated. The design team can then identify the type of contract that needs to be procured first and proceed in the most efficient manner to get the designs and remedial action underway.

The level of effort and the complexity of the RMS will vary significantly from project to project. In some cases there will be only one operable unit and only one contract package will be required. Even in such simple cases, it is important to think through the RD/RA process in as much detail as possible to identify

constraints that may affect the contractor's ability to perform the work to the schedule that has been established.

The following is a list of items that need to be addressed in the RMS:

- o Specific ROD goals and objectives
- o Phasing and operable units
- o Procurement method and contracting strategy
- o Determination of project constraints
- o Identification of potential project risks
- o Scheduling considerations
- o Health and safety considerations
- o Review requirements
- o Contractor, labor, and equipment availability concerns

The RMS establishes the overall course of action for the project. It is at this point that decisions are made about phasing portions of the project, fast-tracking design and construction, employing limited designs for specific elements, or utilizing alternative procurement methods. During development of the RMS, it is crucial that the contracting and procurement strategy be compatible with the amount of uncertainty and level of design specified. If the decision is made to utilize a minimal design, the contract type and procurement method should reflect this degree of uncertainty, i.e., a negotiated procurement resulting in a cost-reimbursable contract. More information concerning the RMS is available in EPA Directive 9355.5-10/FS.

PHASING REMEDIAL DESIGN AND CONSTRUCTION

An analysis of RD/RA project elements results in the determination that some can be effectively phased or time sequenced to accelerate them through the design and remediation proc-

ess. Phasing achieves an overall fast-track schedule and mitigates the continuing impact of the site to the environment and public safety. Large complex projects (or operable units) are broken down into smaller, more manageable remedial elements. All elements are worked in unison, but each individual element has its own schedule and moves at its own optimum rate through the remediation process.

Projects should be evaluated to determine what sets of remedial activities can be grouped or packaged together to accomplish phasing. Utilize the following criteria for grouping RD/RA activities into discrete work elements:

- o **Existing Information:** Existing information may be adequate to allow completion of certain design aspects (road development, utility installation), but may be lacking to allow completion of other design aspects.
- o **Type of Waste:** Segregation of a project into work elements based on nonhazardous (security fencing, access roads, utilities, erosion control) versus hazardous waste is a simple way to accelerate the construction start.
- o **Type of Media:** It may be desirable to phase work based on the segregation of one medium from another. Often the source medium is a soil or sludge which has contaminated another medium (groundwater). The RD/RA for the source pollution could be addressed separately from the RD/RA for the contaminated groundwater plume. Remediation of groundwater may be approached by initially installing a limited barrier well/treatment system and then expanding the treatment scheme as more information is obtained. This allows for quick action based upon limited design information with larger scale actions following.
- o **Technology Requirements:** The implementation of a simple remedy can be achieved more quickly than those requiring detailed design, fabrication, and specialized operation. By separating the work into independent work elements based on the type of technology, the initial remedial action start is enhanced.

Phasing is advantageous because the initial remedial action start is always accelerated. Smaller discrete work elements are more manageable and provide for better cost control.

Phasing enhances technical quality because knowledge obtained from prior work elements can be integrated into future work elements. It also allows for addressing regulatory and legal issues (State Superfund Contracts, permits) separately, within their own framework. Phasing does, however, result in some redundancy and duplication of effort in administrative areas such as design reviews and managing multiple contracts.

FAST-TRACKING RD/RA

Fast-tracking might be considered as a subset of phasing. Whereas phasing breaks large complex projects into smaller more manageable units, fast-tracking is a method to accelerate the implementation of those individual elements. There are several techniques in which RD/RA can be fast-tracked:

- o Expedite RD. Steps in the RD process are eliminated or shortened. However, short-cutting the process involves the assumption of some risk. Deciding only to use data collected during the RI/FS for design is one method of expediting. However, the design risks being delayed if the RI/FS data turns out to be marginal or incomplete. Other methods of expediting RD include:
 - Reduce the detail required in the design package. For many small projects (i.e. soil excavation, dismantling of structures, simple pump and treat systems), the design need only include a site layout drawing and a basic description of the work to be performed.
 - Use of standard specifications, in whole or with appropriate modifications, enables completion of remedial designs in significantly less time.
 - For simple projects, utilize the Health and Safety Plan, Quality Assurance Project Plan, and Community Relations Plan from the RI/FS for the RD and possibly, with minor changes, for the RA.
- o Optimize RD. Optimization is the rearrangement of the sequence in which RD elements are performed to enhance the overall schedule. It is done without the assumption of increased risk if no steps are eliminated or shortened. Some examples follow:
 - The site preparation portion of a design can

be completed and construction initiated while the rest of the design is still on-going.

- Schedule all design reviews in parallel with continuing design work so they are not on the critical path. Do all reviews simultaneously to expedite the resolution of recommendations.
- Develop the agreements for RI/FS site access to allow for access during RD/RA activities.
- Prepare work assignments for remedial action before completing the remedial design.

- o Fast-Track Construction. Some projects can be divided into separate stages for construction. This is generally accomplished by letting each stage of work out for construction as soon as the design effort on that particular stage of work has been completed (e.g. site prep, procurement of long-lead equipment, foundations). This approach has the advantage that the project will be started and completed sooner than would be possible if it were necessary to wait until all design work had been completed. However, when multiple contracting efforts are underway simultaneously, more coordination and administrative oversight is required. Another aspect of fast-track construction is ordering items that require long-lead times in advance of the time they will be needed on the job.

CONTRACTING ALTERNATIVES

The Federal Acquisition Regulation (FAR) provides for a wide selection of contract types available to EPA and contractors in order to provide needed flexibility in acquiring the large variety and volume of supplies and services required by agencies. Contract types vary according to the degree of responsibility assumed by the contractor for the costs of performance, and the amount and nature of the profit incentive offered to the contractor for achieving or exceeding specified standards or goals. The type of contract selected is heavily influenced by the amount of uncertainty in work to be performed and should be selected to coincide with the amount of detail incorporated into the design.

The most frequently used type of contract is a fixed-price contract (lump sum or unit price)

which is commonly used for the procurement of construction services. It is used when the site is well defined and reasonably definitive design or performance specifications are available.

Cost-reimbursement types of contracts provide for payment of allowable incurred costs. These contracts are most suitable for use when uncertainties involved in contract performance do not permit costs to be estimated with sufficient accuracy to use any type of fixed-price contract.

A time-and-materials contract is similar to a cost-reimbursement contract. It provides for acquiring materials at cost and services on the basis of direct labor hours at a specified rate. It is used when it is not possible to estimate accurately the extent or duration of the work with any reasonable degree of confidence.

PROCUREMENT STRATEGIES

There are three general categories of procurement: sealed bidding, negotiated procurement, and small purchase.

Sealed bidding is a method of contracting that

employs competitive bids, public opening of bids, and awards. This is the most common method of procuring construction services for the Federal Government. Sealed bidding requires that a detailed set of plans and specifications be prepared and always results in the award of a fixed-price contract. This process requires a minimum of 90 days after completion of the design (detailed plans and specifications).

Contracting by negotiation is more flexible than sealed bidding. The procedure includes the receipt of proposals from offerors, permits bargaining, and usually affords offerors an opportunity to revise their offers before award of a contract. Bargaining may apply to price, schedule, technical requirements, type of contract, or other terms of the contract. Negotiated procurements may be used for either a fixed-price or cost-reimbursement (including time-and-materials) contract. The time required for negotiating a contract is dependent upon the extent of bargaining required for the parties to reach agreement. Typically the time frame is 90 to 120 days.

For the acquisition of services, supplies, or construction with a value less than \$25,000, the FAR prescribes a separate set of small pur-

CONTRACT SELECTION MATRIX

FORM OF CONTRACT	UNCERTAINTY OF SITE DEFINITION		
	LOW	MEDIUM	HIGH
Fixed-Price: Firm-Fixed-Price (Lump Sum) Unit Price			
Cost-Reimbursement: Cost-Plus-Fee Time-and-Materials			

The most appropriate form of contract for a remedial action depends upon the amount of uncertainty in defining the site.

chase procedures that are greatly simplified over other procurement methods. This method of procurement may be applicable to small discrete elements of a project that require immediate attention.

PREPLACED AND PRE-QUALIFIED CONTRACTS

Another method to expedite initiation of remedial construction is to utilize preplaced contracts or pre-qualified contractors. There are several options currently available for use. These methods require approximately 30-60 days to initiate construction activities by eliminating the solicitation and audit requirements of site specific contracts, thus, reducing the time from design completion to construction initiation. Additionally, lengthy delays due to bid protests or bonding difficulties are eliminated.

The US Army Corps of Engineers (USACE) has developed methods to expedite the initiation of remedial action at Superfund sites by implementing two innovative contracting strategies: Preplaced Remedial Action (PRA) and Rapid Response (RR) contracts. Both PRA and RR contracts are cost-reimbursement type contracts and may be used for projects when delaying the remedial action for normal procurement actions results in possible detrimental effects on human health or the environment.

When requesting the USACE to use PRA or RR contracts, a brief explanation (a short paragraph) describing the need for the expedited contract action is required. The explanation should indicate the work is time critical and needs to commence within the next six months (this includes design time). In this case, the entire RD/RA process should be accelerated.

Preplaced Remedial Action Contracts: PRA

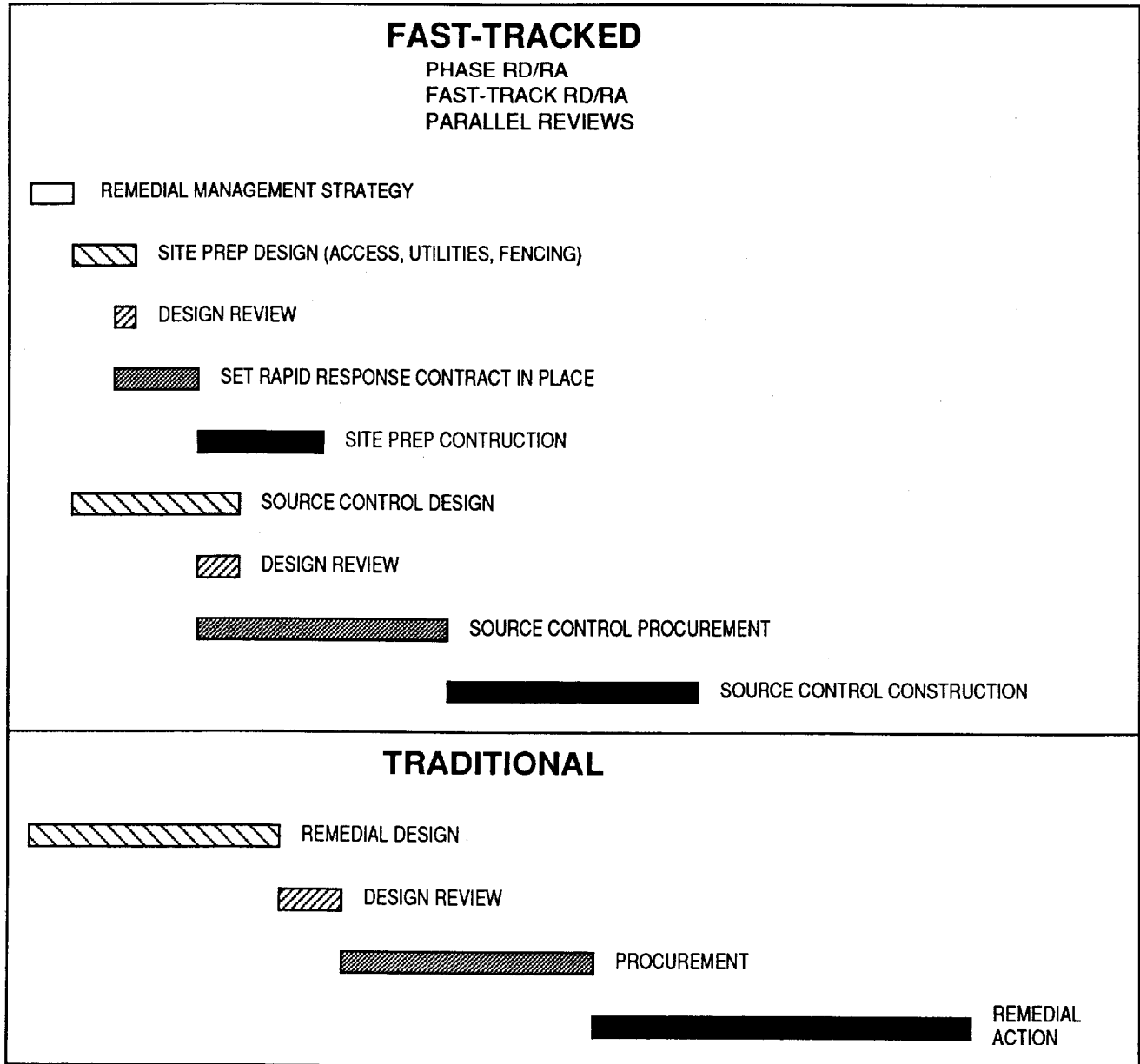
contracts are structured to implement full scale remedial actions. These contracts can be utilized with fixed-price delivery orders when detailed plans and specifications are available or with cost-reimbursement delivery orders if the site is less well defined.

Rapid Response Program Contracts: RR contracts are for demolition actions, closures, point source contamination control, and site stabilization. They are limited to \$2 million per delivery order and may be used for projects where it is necessary to abate, stabilize, mitigate, or eliminate hazardous or contaminated materials or structures. RR contracts normally do not require detailed plans and specifications; however, these contracts may be used to implement small, short term actions for which detailed plans and specifications are available.

Prequalified Offerors Procurement Strategy: The Prequalified Offerors Procurement Strategy (PQOPS), when completely in-place, will provide a list of prequalified contractors which have the capability of performing a specified technology (i.e. incineration, fixation). All contractors on the list will have been technically evaluated and deemed qualified to perform the specific technology. However, they are limited to providing the equipment for a specific technology and may not include all necessary site support (i.e., site access, excavation, materials handling, site closure) to fully implement the remedy. Currently, a bidders list is in place for incineration only.

To utilize PQOPS, a Request for Proposals (RFP) must be issued to all contractors on the list. The contractors, in turn, submit proposals which are evaluated and negotiated as any normal procurement. Detailed plans are not required, however enough site information and work description must be available for the proposers to formulate an offer. The PQOPS process requires two to three months from issuance of the RFP to award of the contract.

FAST-TRACKED VERSUS TRADITIONAL RD/RA



This figure illustrates relative time savings that may be achieved by fast-tracking a project. In this example, site preparatory work is started with a limited design while the design for the source control action continues. Assuming all design reviews are conducted in parallel, the fast-track procedures not only shorten the time necessary to initiate construction, but also accelerate completion of the project.