

200 30228034

AD-A276 590



2

Logistics Management Institute

# Making the Transition to a Wildlife Refuge

A Strategic Planning Report for the Rocky Mountain Arsenal

AR301R1



94-06839



General & public relations

LMI

94 3 01 010



## Executive Summary

### MAKING THE TRANSITION TO A WILDLIFE REFUGE

Rocky Mountain Arsenal's (RMA's) mission for 40 years was the development, production, and demilitarization of chemical agents and weapons. Today, the Army is cleaning up environmental contamination before turning over the property to the U.S. Fish and Wildlife Service (FWS) for use as a wildlife refuge.

The RMA Program Manager (PM) is responsible for executing the Army's cleanup program, which will consist of a number of projects to be specified in a "record of decisions" (ROD). That ROD, which is expected to be signed late in FY94 or early in FY95, will legally commit the Army to complete the projects by specific dates.

The Army must adequately fund the program – we base our analysis of the program on a projected baseline spending level of \$180 million to \$200 million annually over a 10-year program schedule – and give the program manager the authority to staff the organization with the number of personnel needed to execute it. If the Army fails in either of those areas, the resulting delays could be construed as noncompliance with the ROD and the Army could be subject to fines and legal action. However, overfunding the program is not a productive alternative.

We find that additional funding does not reduce the completion time significantly (e.g., a 25 percent *increase* in annual funding rate reduces the completion time 2 years). On the other hand, reduced funding significantly increases the completion time and the total cost of the program (e.g., a 25 percent decrease in annual funding extends the completion time by 8 to 9 years). Thus, we recommend that the Army fund the cleanup effort at a rate of \$180 million annually to complete the job by the year 2005 or shortly thereafter.

To execute a \$180 million annual program, we recommend the Army approve a staffing level of 264 persons for the program manager's office (PMO) and that the PMO include two deputy-level officials to assist in the coordination of the engineering, contracting, and other support functions. This recommendation is in

contrast to the approximately 230 personnel currently working for the program manager (213 authorized plus temporaries and overhires).

While personnel actions can take place before an Army organization is officially established, many such actions must await approval of the organization. The Army needs to have a functioning organization in place at the time it signs the ROD. We recommend that the organization proposed by this report be approved no later than 1 December 1993 in anticipation of a mid-1994 signing of the ROD.

To assure a timely and effective transfer of RMA property to the FWS, we recommend the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) take the following steps:

- Ensure the approval of the funding and the manpower resources needed for the remediation program at RMA.
- Develop an Army-wide strategic site remediation plan that includes a sequencing of all individual Army environmental restoration sites and a procedure for the orderly transfer of experienced engineering and contracts personnel to the next site in the sequence.

In addition to requesting the funding and manpower resources needed to conduct the remediation, the PM should take the following steps in preparation for signing the ROD:

- Develop a personnel transition program to train current employees for new positions and to counsel them on their career options.
- Set up training programs in contract administration for currently employed engineers.
- Initiate a cooperative effort with the FWS to determine the details for the orderly transition of the property and facilities to the FWS and to ensure that the support functions (e.g., power, water, road maintenance) required by the PM for follow-on, long-term operations and monitoring are available.
- Award a contract to an environmental engineering firm that specializes in contract monitoring to act as consultants to in-house engineers.
- About a third of the way through the remediation program, determine when the transition to the monitoring phase should begin, whether the long-term Army presence should be government employees or contractors, and the future value and use of the Analytical Laboratory, the Technical Information Center, and the Administrative Record Facility.

## CONTENTS

	<u>Page</u>
Executive Summary .....	iii
Figures .....	vii
Chapter 1. Introduction .....	1-1
Objective .....	1-1
Background .....	1-1
Organization of the Report .....	1-2
Chapter 2. U.S. Army Role in Remediation of the RMA Facility .....	2-1
The Remediation Process .....	2-1
Pre-ROD Role .....	2-3
Active Remediation Phase .....	2-5
Transition to U.S. Fish and Wildlife Service .....	2-5
Monitoring and Oversight Phase .....	2-8
Support Functions .....	2-8
Chapter 3. Organization Planning Considerations .....	3-1
Assumptions .....	3-1
Organizational and Staffing Factors .....	3-2
Chapter 4. Organizational Structure and Staffing Requirements (FY95 - FY05) .....	4-1
Organizational Structure .....	4-2
Personnel Staffing .....	4-5
Chapter 5. Remediation Program Issues .....	5-1
Fully Staffing the Program Manager's Organization to Perform its Mission .....	5-1
Annual Level of Funding for the Remediation Program .....	5-2
Postremediation Program Utilization of Engineering and Contracting Personnel .....	5-4
Transition of Responsibility for the Facility .....	5-4

## CONTENTS (Continued)

	<u>Page</u>
Long-Term Uses for the Laboratory Facility and the Technical Information Center .....	5-5
Use of a GOCO Structure for the Remediation Program, FY95 Through FY05 .....	5-6
Long-Term Reduction of the PMRMA Personnel Staffing .....	5-7
Chapter 6. Recommendations .....	6-1
Appendix A. Organizational Structure and Staffing for the Remediation of Rocky Mountain Arsenal Program FY95 - FY05 .....	A-1 - A-25
Appendix B. FY94 to FY95 Staff Transition Planning .....	B-1-B-9
Appendix C. Organizational Alternatives .....	C-1 - C-18
Appendix D. Functions and Staffing Requirements: FY95 - FY05 .....	D-1 - D-29
Appendix E. Glossary .....	E-1-E-4

## FIGURES

	<u>Page</u>
2-1. Remediation Program Components .....	2-3
2-2. Simultaneous Remediation Actions .....	2-6
2-3. Functional Requirements .....	2-10
4-1. Proposed Organizational Structure: Remediation Program, Rocky Mountain Arsenal .....	4-2
4-2. Staffing Summary PMRMA Organization FY95 - FY05+ .....	4-3
4-3. Rise and Fall in the Environmental Engineering Workload, FY95 - FY05 .....	4-6
5-1. Remediation Funding Level Examples .....	5-3
5-2. Relative Relationship of Engineering Phases for a Remediation Program .....	5-9
5-3. Managing Work Force to Workload .....	5-9
5-4. Implement One Reduction in Force .....	5-10
5-5. Use Augmentation to Provide Manageable Downsizing .....	5-11

# CHAPTER 1

## INTRODUCTION

### OBJECTIVE

This strategic transition planning report has two major objectives:

- To provide an assessment of the organizational structures and the personnel staffing levels and skills mix that will be required to manage the remediation of the facility that was formerly the U.S. Army Rocky Mountain Arsenal (RMA)
- To present issues that must be considered during the following times:
  - ▶ The planning for the remediation of the facility
  - ▶ The transition of responsibility for the property to the U.S. Fish and Wildlife Service (FWS)
  - ▶ The long-term U.S. Army involvement after it transfers the property to the FWS.

### BACKGROUND

The RMA is located on the northern boundary of the city of Denver, Colorado, the capital of the state. In addition to a Federal Environmental Protection Agency (EPA) regional headquarters being there, Denver is home to a highly environmentally aware population. Over a period of 4 decades, the Army has developed, produced, and demilitarized such chemical agents and weapons as mustard gas and GB nerve agent at RMA. In addition, space not used by the Army was leased to private-sector chemical companies for the production of commercial substances such as pesticides. One of the chief participants in these ventures was the Shell Oil Company, which eventually became a responsible party at the RMA site along with the Army. Over the years, those activities and the actions associated with them have contaminated the structures and the land at RMA with the chemicals used for production and with the byproducts of that production.

In 1974, the Army began a systematic investigation into the contamination problem at RMA. Based on the findings of the investigation, the Army's goal became

to contain pollution and prevent additional off-post migration. Extensive containment and prevention projects and continuous monitoring have enabled the Army to meet that goal.

In November 1988, the Army announced that RMA was no longer an active military installation and that the sole mission of the Army presence at the facility would be to clean up the site pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (Docket No. CERCLA VIII-89-13) of 1980. A Federal Facilities Agreement (FFA) spells out responsibilities and general directions for cleaning up the facility. The goal of the Army and the other signatories to the FFA is to make significant portions of the facility available as open space for the public at the earliest practicable date. The ultimate objective is to convert the facility to a wildlife refuge under the management of the USFWS.

Evolution of the RMA facility as it exists today to a wildlife refuge under the jurisdiction of the USFWS requires long-term strategic planning. The record of decisions (ROD) will provide the guidance for the technical decisions that will be required for the remediation projects that will be part of the Program Manager's (PM's) remediation program. The ROD is a legally binding agreement in which all significantly affected parties accept the settlement of the nature and extent of the problem, the means and actions by which remediation will be conducted, and the schedule for completion of the actions. Its importance stems from the fact that it sets out the future actions at the site for an extended period and to some degree, it ends discussion of all that occurred before.

#### **ORGANIZATION OF THE REPORT**

In Chapter 2, we describe the role that the Army is expected to play in cleaning up the facility that was previously a defense chemical production site.

Chapter 3 describes the primary factors that we considered and the assumptions we made in developing the organizational structures and the staffing levels that will be needed for the remediation program.

In Chapter 4, we present an overview of the organization and staffing levels proposed for FY95 – FY05.<sup>1</sup> Appendix A gives a complete description of that organization. Appendix B discusses some personnel issues, Appendix C describes the alternative organizational structures considered, and Appendix D provides detailed descriptions of the functions the organization will perform and how the relative staffing levels were determined.

Chapter 5 discusses issues that must be dealt with in planning, resourcing, and executing the remediation program and the transition to a wildlife refuge under the responsibility of the FWS. Appendix B discusses the personnel issues that must be considered for both periods.

Chapter 6 provides recommendations to address the issues dealt with in Chapter 5 and Appendix B. It provides recommendations for the Program Manager, RMA (PMRMA), and because of the political magnitude of this program and the Army's legal responsibility to ensure the success of this remediation, it recommends actions to be taken by the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health).

This report does not address the Army's activities beyond the major projects envisioned in the ROD. An Army presence is likely through or beyond 2005 and possibly through 2030 to perform long-term remediation activities and conduct monitoring programs. Where postremediation activities are linked to decisions that must be made in the short term (prior to 1996), we have discussed them in this report. Otherwise, the activities are too distant for current action to be meaningful.

---

<sup>1</sup>In the text, we use 2005 (FY05) as the final year for the remediation effort. We recognize, however, that the effort cannot be tied to an exact time. The primary remediation objectives, exclusive of groundwater treatment, could be achieved as early as 2002 or as late as 2015, depending on the level of funding and staffing.

## CHAPTER 2

### U.S. ARMY ROLE IN REMEDIATION OF THE RMA FACILITY

The remediation of the former RMA will be a long-term process because of the magnitude and complexity of the undertaking. The statutory provisions for the remediation process require extensive public interaction, and as a result, the participants in the process include a wide array of organizations. The lead parties include the former owners and operators of the facility (primarily the Army and Shell Oil Company)<sup>1</sup> and the future owners (the USFWS). The role of these primary participants will change in distinct phases as the property remediation process moves toward completion. Not only will the degree of involvement change as the ownership interest shifts, but the nature of the activities themselves will change as the remediation process continues. In this chapter, we describe the context within which the Army must develop an organizational structure and personnel staffing plans.

#### THE REMEDIATION PROCESS

The remediation at RMA is being conducted under the protocol governing Superfund sites as laid out in the CERCLA and associated regulations. That protocol provides the following series of steps required by law in completing a site remediation:

- *Preliminary assessment (PA)*: a rapid assessment of the hazard posed by a site.
- *Site investigation (SI)*: a more detailed follow-up investigation once the site has been determined to pose a hazard. Its intent is to identify the nature and extent of the pollution and threat.
- *Remedial investigation (RI)*: an even more rigorous investigation intended to provide all the engineering parameters required for the effective design of a remediation action.

---

<sup>1</sup>Under the terms of a compliance agreement already concluded for the RMA property, the Army and Shell are the primary parties responsible for decontaminating RMA. The agreement includes an Army-Shell cost-sharing formula.

- *Feasibility study (FS)*: a review of the technologies available to treat the pollution problem and a comparison of the alternatives in terms of effectiveness, dependability, and cost.
- *Record of decisions (ROD)*: a document issued by the regulator to codify the decisions that have been reached on the remediation solutions to be used.
- *Remedial design (RD)*: detailed design of the pollution-control facilities.<sup>2</sup>
- *Remedial action (RA)*: construction and operation of the project facilities.
- *Long-term operations*: continued operation of some project facilities (such as groundwater treatment) after the bulk of the other project actions are complete.
- *Long-term monitoring (LTM)*: periodic sampling of the site to ensure no vestiges of pollution remain or are escaping from containment facilities.

Figure 2-1 shows the general incidence and level of engineering effort that will be applied to these activities as the project evolves. It is important to note from the outset that the phases overlap as different projects proceed. For that reason, the Army must adopt a comprehensive strategic view of the complexity of the RMA project early in the process.

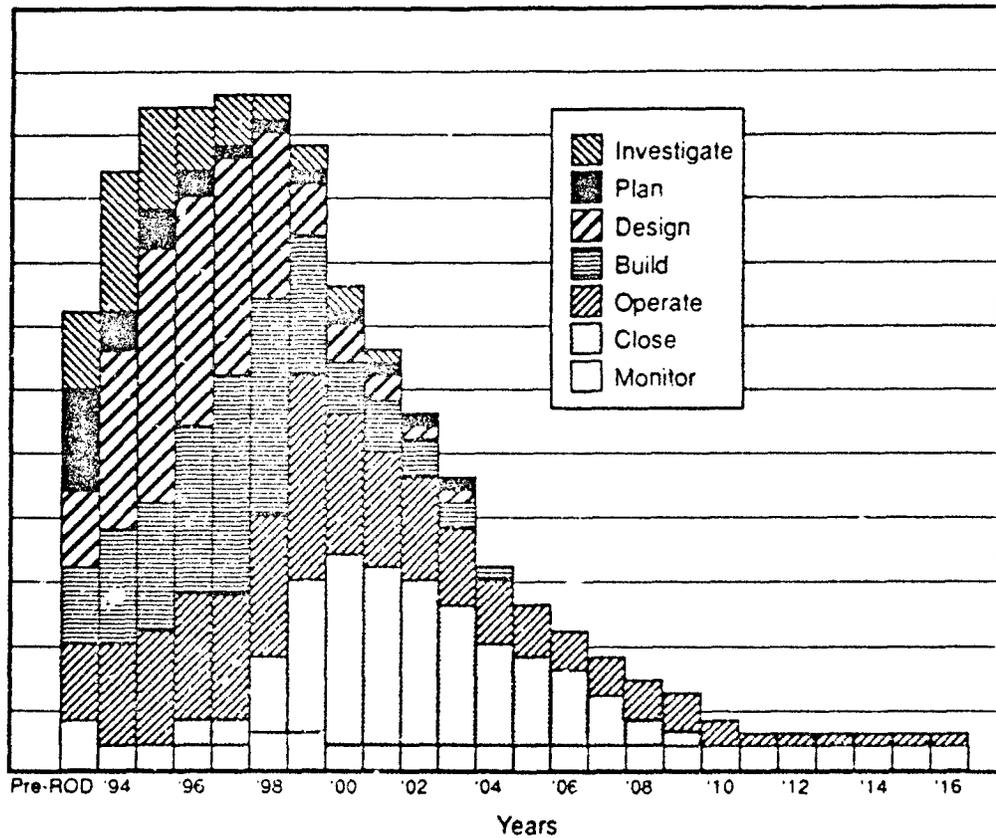
Aside from the steps required by law, other actions must be taken as a matter of necessity or to protect public health. For example, even before formal studies are conducted, emergency response actions may be needed to control immediate pollution threats or to prevent further pollutant migration.

Ordinarily, closure actions (the actions needed to remove the pollution control facilities after completing the remediation) such as the closure of a landfill are not considered formal steps in the remediation process, but they do comprise a major project management task and may have important environmental regulatory implications. In addition, significant effort may be entailed in convincing a regulatory agency to agree that the work on the site is complete and that no further work on the part of the original parties is required. That effort is especially challenging because it has never been successfully done on such a large scale.

---

<sup>2</sup>In addition to facilities that directly address the process of controlling and eliminating pollution, ancillary and support facilities will be required as will projects to mitigate natural resource impacts or to create desirable land-use outcomes. We include all of these activities when we speak of project-related "facilities."

Relative mix of engineering effort required



Note: Does not include an extensive, largely fixed, facility-support requirement

FIG. 2-1. REMEDIATION PROGRAM COMPONENTS

**PRE-ROD ROLE**

To date, the Army's role in remediation of the RMA facility has been to engage in extensive and costly activities to contain and delineate the pollution problem. As a result of those expenditures, the planning and study phases of the remediation process (i.e., the PA, SI, RI, and FS) are largely complete. Currently, the Army is approaching its first major milestone, the completion of the ROD.

The RMA site was identified as a health risk and placed on the National Priorities List after preliminary assessments; the site is now in the remedial investigation/feasibility study (RI/FS) phase. Current activities at RMA are directed

toward refining the technical definition of the pollution problem and identifying and comparing feasible remediation solutions for it. Thus, the primary mission is focused on activities that support these determinations: soil and water sample analysis and modeling to predict the extent and direction of contaminant flows and studies to determine the effectiveness of various remediation technologies on the specific contaminants.

Because of the size and complexity of the effort and the limited resources to permit everything to be done concurrently, individual sites at RMA have progressed through the process at different speeds; thus, some are still in the pollutant delineation phase while others are at the end of the feasibility study test phase. Ordinarily, feasibility studies are based on technical literature and on bench-scale testing of technology; again because the scope of the RMA remediation is unprecedented and some of the contaminants are unique, bench-scale testing has been considered inadequate for some of the feasibility demonstrations. Thus, extensive construction and test runs of the actual proposed treatment facility are required.

While its proposed projects are going through the full CERCLA process, PMRMA has embarked on an aggressive schedule of interim response actions (IRAs) intended to prevent pollution from getting worse or more widespread. Those IRAs also require engineering planning, design, construction, and operation, and many of them are already in the operational phase.

Thus, at RMA, different projects are in different phases at the same time: remedial investigations and feasibility assessments for those actions that will be included in the ROD and construction and operation for the interim response sites. As a result, a range of expertise is currently available within the limited scope of those remedies initiated to date. However, the current activities will be dwarfed (in terms of engineering intensity, although not necessarily in cost) by the full-scale remediation actions that will begin after the ROD is completed. The experience to date of some of the RMA staff in developing and operating current pre-ROD projects (largely groundwater treatment projects) does not mean that after the ROD is signed, all staff members will have the expertise or capacity to handle the larger and more diverse workload of projects.

At present, a great deal of the work is performed under contract, especially the large, continuing actions such as the operation of the water treatment systems that are already in place as part of the IRA process. The RMA engineering staff, however, is sufficiently large and technically qualified to participate in the continuing investigation and feasibility study work; in those areas, the Government role as a decision maker is important enough that the RMA staff is essentially the lead; contractors, where used, perform technical functions as directed.

#### **ACTIVE REMEDIATION PHASE**

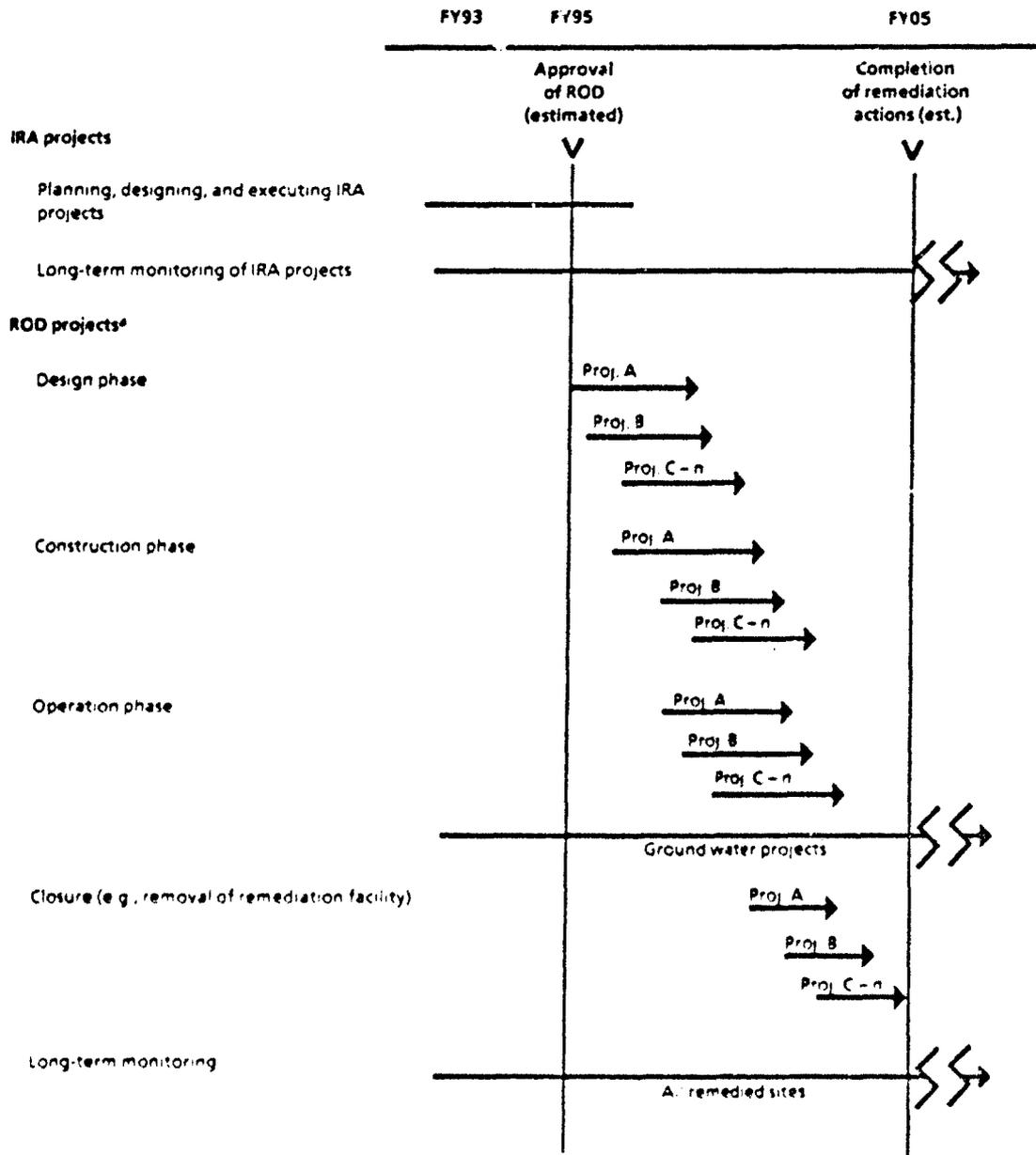
After the ROD has been signed, the parties responsible for cleaning up the RMA property will be legally obliged to move forward. Any reduction in funding for the remediation effort or any "slow-rolling" of staffing for the project team that results in the delayed execution of required work could be construed as noncompliance with the ROD and thus invite a legal action against the Army.

During the active remediation phase, extensive facilities will be designed, built, and operated to treat polluted soil and water. As shown on Figure 2-2, each large project expected to be in the ROD will overlap other projects and will take several years to complete. The facilities for each project may take a year or more to design and another year or more to build, and they may be operated from a year to many years to treat the polluted water or soil. Based on the problem definition as it has been developed so far, we expect significant efforts to be devoted to cleaning the groundwater and treating the soil. In addition, polluted structures will have to be dismantled and their residue may have to be disposed of in protected containment structures (i.e., landfills).

Conceptually, the active remediation phase is an extension of the pre-ROD phase, with more emphasis placed on the practical engineering tasks and less on conceptual analysis. Because of the nature of the tasks, the contractors take on the engineering lead role, while RMA engineers perform operational oversight, planning review, and contract management roles.

#### **TRANSITION TO U.S. FISH AND WILDLIFE SERVICE**

Under the Rocky Mountain Arsenal National Wildlife Refuge Act of 1992, the property is to be turned over to the FWS when the remediation has progressed sufficiently to permit RMA's safe use as a wildlife refuge.



\* The ROD projects will be executed by commercial contractors. Each phase of each project will be executed in sequence, with several projects being worked concurrently. The length of each project and number of projects being worked on concurrently can only be estimated at this time. Most of the PMPMA staff will be engaged in preparing and overseeing these contracts, i.e., their involvement in each phase will include preparing requests for proposals (RFPs) and the statements of work (SOWs) for those RFPs, preparing solicitations, evaluating proposals, awarding contracts, and monitoring the contractor's performance.

FIG. 2-2. SIMULTANEOUS REMEDIATION ACTIONS

## Tentative USFWS Vision

In general, the FWS plans to run the refuge as a unique entity with some of the austerity of a traditional wildlife refuge and some of the public access and education programs expected in a national park. To control random access that may be expected near a major metropolitan area, the FWS plans to retain the existing fence line and control entry by a gate system and random patrols by FWS personnel. A limited security force will be needed to provide such security and to inspect the fence for needed repair.

The FWS envisages a large-volume visitor facility on the property boundary. In addition, a larger but less accessible interior facility will permit more detailed visitor education and serve as a research headquarters for FWS scientists. In order to minimize disruption to the wildlife on the property from visitors to the interior facility, a single traffic route will serve it and the FWS administrative and maintenance activities. While the FWS has not yet determined the specific location of the building, we assume that in the interest of saving funds and minimizing disruption, buildings in RMA's main administration area will be used.

Aside from its mission activities (education and scientific research), the USFWS will have to employ a small number of facilities maintenance personnel and a facility and program management staff to perform technical and administrative support. It estimates that approximately 50 full-time equivalent (FTE) staff members supplemented by a hundred or more volunteers will be needed to execute its direct and support mission activities. Because FWS already maintains a significant presence in the Denver area, those 50 FTEs will require no on-site administrative support: the full range of personnel support activities can be provided by the Denver office.

## Facility Transfer Plan

Actual transfer of the facility may require some overlapping of responsibilities for a few of the facility's support services because the remediation work will be completed in phases and because even after completion of the remediation work, the Army will be responsible for the upkeep of long-term treatment (mostly groundwater treatment) and for monitoring processes and facilities.

The specific activities at the RMA facility after transition to USFWS are not yet well-defined. The transition will take place so far in the future that detailed planning now would probably be a waste of resources; this report, however, should serve to show that some prior planning is needed for the many administrative details that *must* be initiated in the near term. In the absence of a USFWS planning document, the Army is having difficulty developing a complete transition plan for itself because such a plan depends in part upon knowing what support the Army will receive from USFWS and what it will have to provide for itself.

## MONITORING AND OVERSIGHT PHASE

Although it will turn most of the property over to USFWS, the Army will retain responsibility for the long-term remediation activities and monitoring facilities and will operate them. How the long-term Army mission will be carried out (in terms of the degree of contracting that can occur, the size of the essential Army work force, and the level of support required to maintain that work force) will have to be determined in the future (e.g., FY00 or later).

The general nature of the monitoring and oversight activities is more easily described. The Army will be responsible for inspecting the long-term remediation facilities and ensuring they remain in effective working order, examining monitoring reports to identify deviations and develop methods or proactive programs to prevent potential malfunctions of the facilities, and supervising contracted work at the facilities.

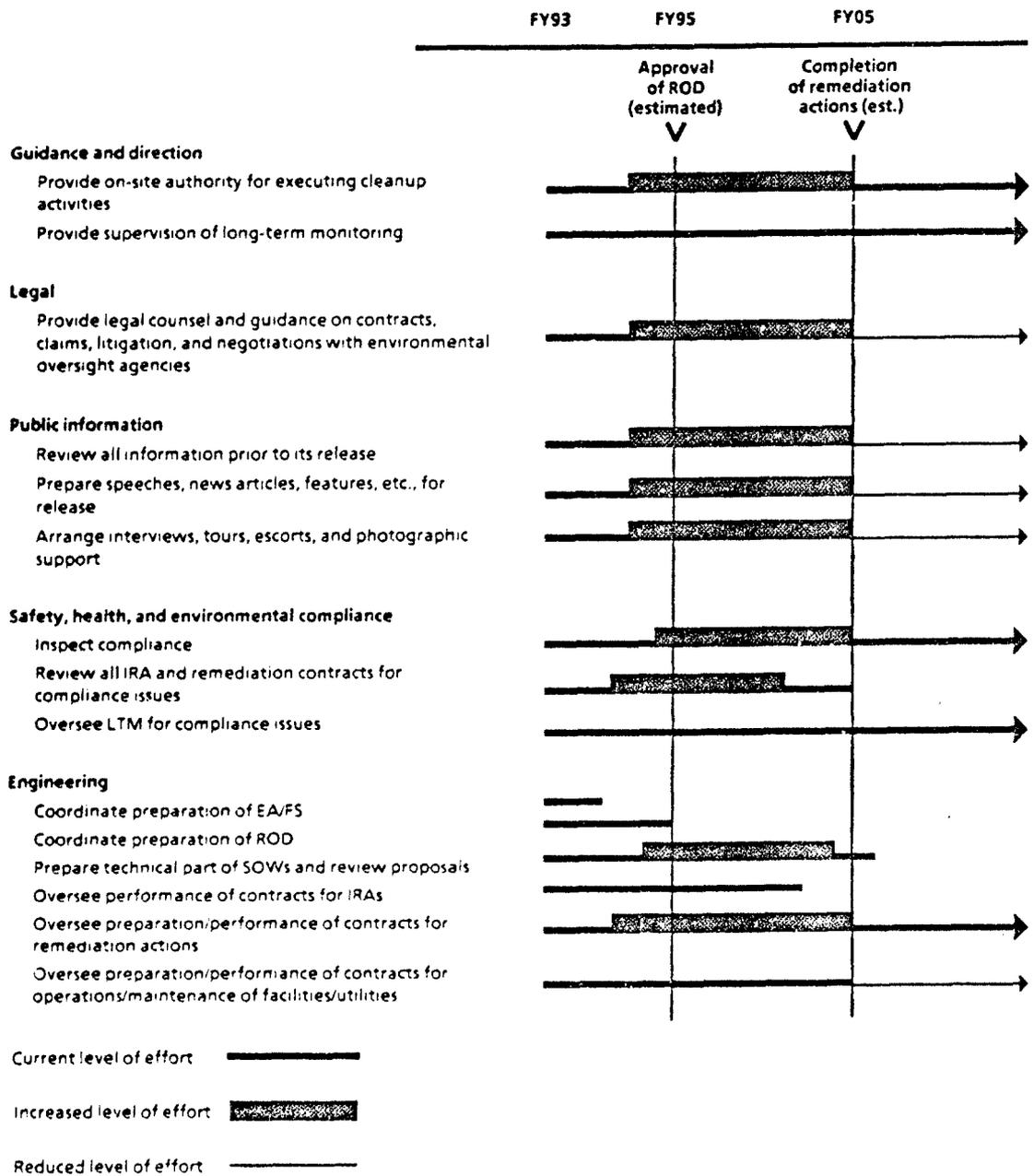
## SUPPORT FUNCTIONS

The general program descriptions presented in this chapter cover the primary focus of activity at the former RMA property: remediation of environmental contamination. That activity is in essence an engineering function. However, in carrying out the project, a number of supporting functions are needed to make the

primary activity possible. Such support includes technical functions such as laboratory analytic services, maintenance of the Administrative Record, logistics support to ensure the availability of needed supplies and a place to keep them, and general administrative support.

It is important to draw a distinction between a "function" and an "organization." For instance, motor vehicle maintenance is a function that must be performed if the remediation project requires transportation. Whether that function is performed by a Government organization through in-house labor or under contract is another matter. In this report, we use the term function to refer to the activity being performed not the organization that performs it.

Figure 2-3 lists the major functions (grouped by functional area) the Army will have to perform to execute its remediation program at RMA during the period FY95 – FY05. These functions are explained in detail in Appendix D.



**Note:** This figure indicates that a function must be performed, not who will perform it. TDA = table of distribution and allowance, EA/FS = environmental assessment/feasibility study, and GFE = Government-furnished equipment.

**FIG. 2-3. FUNCTIONAL REQUIREMENTS**  
(To support remediation actions and long-term monitoring)



## CHAPTER 3

### ORGANIZATION PLANNING CONSIDERATIONS

In this chapter, we discuss the assumptions we made and the factors that must be considered in determining the organizational structure and staffing that PMRMA will require to conduct the remediation program.

#### ASSUMPTIONS

We made assumptions in three areas to enable us to move forward with our analysis: the date the ROD will be signed, the date remediation operations will terminate, and the availability of commercial remediation contractors.

##### Date of the ROD

We assume that the ROD will be signed during 1994 or 1995. The actual date of the signing has little bearing on our findings, although if it is signed after 1995, some remediation actions will have been at least partially completed as a result of the continuing IRA program. The date does, however, serve as the starting time in all our displays.

##### Completion Date

We assume that most of the remediation operations and associated closure actions will be completed about 2005 (again assuming a ROD signing in 1994 or 1995). Unlike the start date, the target end date can make a significant difference to the pace and scope of the effort required in each year of the project's life. In this study, our goal was to provide PMRMA with a rapid assessment of the situation for preliminary decision-making; thus, we did not perform a detailed analysis of alternative remediation scenarios. However, we do provide a limited discussion of the possible impacts of schedule changes (see Chapter 5).

##### Availability of Commercial Remediation Contractors

By 2000, numerous remediation programs will be in progress at Government facilities and private sites. Competition to hire qualified environmental cleanup

contractors will be intense for several years as the demand for their services exceeds their pool of experienced workers. We assume that as time proceeds and projects are completed (perhaps by FY05), the pool of experienced workers will increase and competent contractors will be readily available.

## **ORGANIZATIONAL AND STAFFING FACTORS**

The following factors had an effect on our recommendations (see Chapter 6) and in some cases, on the issues (see Chapter 5).

### **Total Funding**

At present, we do not know what specific remediation activities must be performed at RMA. Our estimates of the organizational requirements are driven by our knowledge of the alternatives in the Detailed Analysis of Alternatives and an assessment of the overall effort in terms of the patterns of activity and the pace at which activity is expected to occur.

Our analysis is based on a projected total spending level of \$180 million to \$200 million annually, a figure that is expected to remain essentially constant and be affected only by inflation. At present, that amount consists of \$40 million to \$45 million in internal expenses and \$140 million to \$150 million in contracts. Because many of the administrative functions are either step functions or all-or-nothing activities, the need for PMRMA staff does not vary directly with the proposed activity level.

The \$180+ million annually is not necessarily the ideal; it is simply the baseline against which changes can be measured. However, it was arrived at through a process of practical experience at RMA over the past few years. Before the Army makes any changes to that funding level, it should consider the following:

- Slowing the pace results in some personnel billet savings; but as a result of the historical increase in environmental costs (usually double or triple basic inflation), such delays to achieve short-term savings produce higher costs in the long run. In addition, since the facility will continue in existence and the work force will continue to operate, each year unnecessarily spent on the project will force the project to incur the \$20 million to \$25 million infrastructure costs for base operations.
- Increasing the flow of funds certainly increases the number of personnel available to prosecute a more vigorous program; however, in many cases the

capacity of the remediation process is limited and unable to absorb more effort effectively.

This funding level issue is discussed in greater detail in Chapter 5 and illustrated subsequently in Figure 5-1.

### **Use of the Corps of Engineers**

Our assessment of the personnel requirement for the overall program indicates that, in the absence of an unacceptably protracted scenario, the PMRMA will need to consider U.S. Army Corps of Engineers (USACE) support, for two primary reasons:

- The USACE has a mandated role in supervising military construction (MILCON) projects. Until recently, PMRMA has not been required to engage such assistance because projects have been an offshoot of research activities. However, in the post-ROD phase, the situation becomes less clear. Acquisition strategies will have to be defined to determine which projects will be funded by MILCON or by the Defense Environmental Restoration Account. Those strategies will define the level of involvement by the USACE.
- A peak in remediation efforts will occur during the period when design, construction, and operations projects are being conducted concurrently. During that period, PMRMA will be faced with a requirement to engage an additional number (12 – 25) of engineers under 3-year hiring agreements or to supplement the engineering work force with external support. That short-term requirement could be accommodated by using contract support or by using the USACE if qualified engineers were available (as opposed to being committed to other projects).

Despite the large size of the PMRMA budget for remediation, relatively little is marked for the in-house work force. We recommend that USACE assistance be targeted to those areas in which it has the most experience and that on-site engineers (for whom PMRMA must pay) be assigned to perform the work as part of a project team. Although a USACE cell of consulting engineers with appropriate experience derived from other remediation projects would be a valuable addition to the PMRMA's assets, it must enhance the PMRMA's capabilities and not become an extra layer of "review." Effective, detailed, prior planning of project staffing will be required to ensure that the PMRMA can capitalize on the USACE contribution.

## Contracting

Our assessment was initially based on the need for the performance of specific functions without regard to who would do the work. That approach allowed us to determine the scope of the effort without confining our evaluation to current organizations and practices. Having established the need, we then proceeded to consider which organization, if any, was best suited to perform the function.

Three factors must be included in any assessment of PMRMA in-house staffing: the PMRMA activity will be reduced to a tiny group once the property is ready for release to USFWS; the Federal government will continue to use hiring freezes as a cost-control tool; and holding labor space authorizations down as much as possible is a practical necessity. In view of these considerations, we have in several cases recommended that the Army transfer to a contract service supplier some of the functions currently performed by in-house labor.

In proffering that recommendation, we assume that no legal obstacles would prevent such a phased transfer. Guidance from the Army Materiel Command provides for such situations;<sup>1</sup> the PMRMA general counsel stated that all employee work groups incorporate the standard reduction in force (RIF) clause in their contracts. PMRMA has already made clear the intent to retrain all displaced eligible and interested employees for available vacant positions. We recommend that support contracts for replacement services include a provision compelling the contractors to fill their needs with former RMA employees at roughly comparable rates during the initial years of the contract; that provision is relatively standard in many contracts and would help defuse any remaining issues among those who have not been absorbed into the work force elsewhere at RMA.

## Legal Framework

The primary statutory provisions affecting the RMA activities are the Rocky Mountain Arsenal National Wildlife Refuge Act of 1992, which specifies that the property is to be turned over to the USFWS once remediation has been completed, and the CERCLA, which specifies how the cleanup process is to be conducted. The Refuge Act poses few challenging mandates for the Army, while CERCLA imposes a large number of requirements. In addition, the Army is bound by a number of other

---

<sup>1</sup>A *Planning and Information Guide for Reductions in Force, Transfer of Function, Workforce Reductions, and Base Closure*, Army Materiel Command, March 1990.

statutes and regulations (including its own) on other issues (e.g. personnel administration) that affect the organization design process.

### ***Personnel Requirement Assessments***

Before assessing the personnel requirements of PMRMA, we interviewed officials in the U.S. Army Force Integration Support Activity (USAFISA) and the Office of the Army Deputy Chief of Staff for Personnel to identify Army policies for establishing organizations. We found that regulations and procedures manuals have been developed for detailed personnel assessments of existing organizations (e.g., for documenting the need for small changes to an organization's work force or for documenting grade-level changes for individual workers). However, the current procedure is to compare a new organization with existing similar size organizations or use parametric approaches documented by the *Manpower Staffing Standards Study* (MS3) process. We determined that the Army has no organization similar to the one that will be required by PMRMA. Furthermore, we found that the current USAFISA staffing standards and the MS3 process models are generally not appropriate for the activities to be conducted at RMA. In the absence of a comparable Army organization, we considered the history of the RMA program itself, seeking out probable growth and contraction of current activities and reviewing the degree to which such activities could be performed by contract labor.

Our quantification of the staffing requirements for the post-ROD remediation organization is based on the guidance from the PMRMA that the program should be completed by approximately FY05 (understanding that long-term groundwater treatment could continue to the middle of the 21st century). From that guidance and a projection by the Engineering Division, FMRMA, that it will take approximately \$180 million annually to complete the program by FY05, we determined the number of engineering and contracting personnel needed to execute a program of this magnitude. As part of this quantitative assessment of the engineering and contracting requirements, we used the USACE Superfund Staffing Model as a baseline for initial staffing assessments. And as a check, we compared RMA activities to R&D facilities that are similar in size.

Once we determined the staffing for these two functions, we based all other staffing assessments on supporting them. Appendix D discusses the staffing assessment for each function.

### *Environmental Approach*

The environmental legal world consists of evolving statutes and regulations. Aside from dramatic new reporting requirements, the Superfund Amendments Reauthorization Act made no substantive changes to the remediation process. Many officials in the Administration have expressed the desire to be environmentally active, and yet some have also expressed reservations about the Superfund process (which affects the CERCLA statute). Those seemingly conflicting expressions were not even imagined as recently as 2 years ago. The Administration may choose an environmentally sensitive approach and make the process more stringent and complex, or it may adopt a position that would make the process more flexible. Because of that uncertainty, we assume the process will remain essentially unchanged or the changes will apply only to future transactions.

### *Environmental Liabilities*

The RMA remediation project is conducted under a detailed statutory and judicial program. The process itself is dictated by CERCLA, but the details by which the steps in the process will be carried out are specified in agreements that are then converted to court orders to give them the force of law. When Congress fails to appropriate sufficient funds to have its own mandates carried out, the Army has often been able to have the mandates waived, suspended, or ignored since Congress will not appropriate further money to pay penalties for not following its first law. The judiciary system follows no such restraints; it levies sanctions without regard to the ability of a specific installation or program to pay, as long as the Army has the money somewhere in its appropriation; additionally, criminal penalties may be levied on the individuals responsible for the failure to comply with the agreements/orders.

Two principal agreements concern the PMRMA. One is the current Federal Facility Agreement, under which the basic remediation program framework is established, and the second is the ROD, which will specify how and when each of the contamination sites on the former RMA property is to be remediated.

Criminal penalties can be imposed on Federal officials for failure to provide adequate funding, but the courts have not established that such penalties can be applied to the Congress for failing to appropriate funds. Thus, the PMRMA and other

officials up through the Secretary of the Army might become liable for congressional action or inaction.

## CHAPTER 4

### ORGANIZATIONAL STRUCTURE AND STAFFING REQUIREMENTS (FY95 – FY05)

This chapter describes how the organizational structure and personnel staffing requirements for FY95 – FY05 were determined and our proposed recommendations for satisfying both of them. The structure and staffing described are for use during the period between the signing of the ROD and the completion of most of the ROD projects, i.e., closure of the projects by removing equipment or dismantling the facilities associated with the projects. As the remediation projects are completed, this organizational structure will be incrementally dissolved until only a small cell remains. Prior to the peaking of the engineering requirement (in about FY00), a strategic plan for decrementing the long-term operations and monitoring structure should be prepared by RMA.

Figure 4-1 shows the organizational structure we propose. We believe that with a staffing of between 264 and 298 personnel (see Figure 4-2), that structure will best support the PMRMA's remediation program. The following were the key considerations in the formulation of the organizational structure and personnel staffing:

- The organization is to serve a remediation program and is not to be an installation or a permanent TDA organization.
- The duration of the program is limited, and the program workload rises at first and then declines.
- The actual remediation projects will be performed by commercial environmental organizations. The engineers assigned to the PM's team will manage contracts and monitor contractors.

Figure 4-2 is the summary of the organization and staffing that the PM will require to perform the remediation program. It does not reflect staffing levels of a typical government organization or a base operation activity, particularly with respect to the grade levels and grade level progression for career opportunity. The structure is for an organization that can execute a highly visible, politically sensitive, remediation program and then be disbanded; the grade levels are set to retain, or

attract, the best people. A detailed description of each of the subordinate organizations within this proposed structure and staffing is provided in Appendix A.

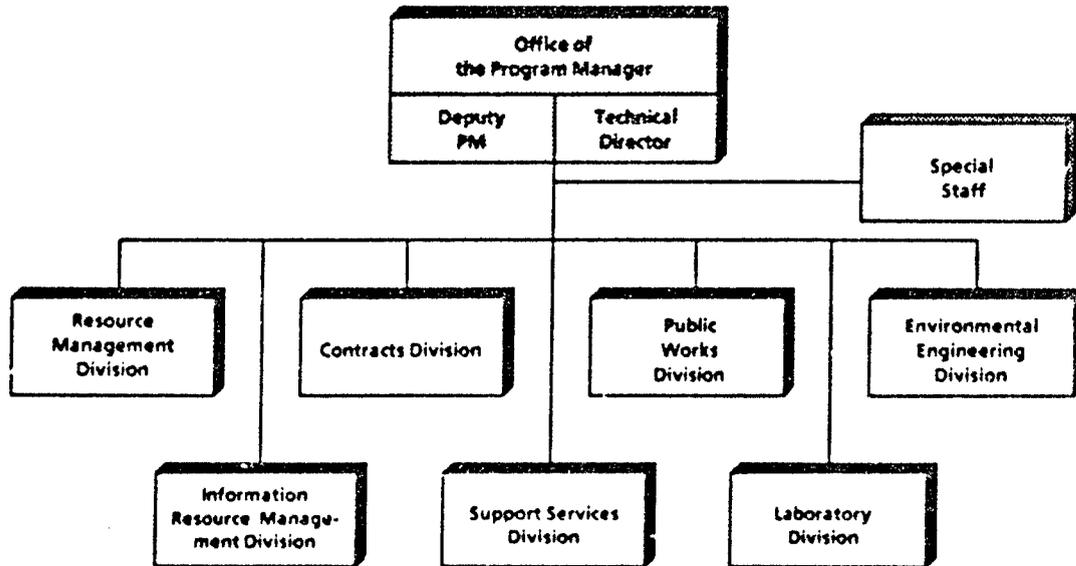


FIG. 4-1. PROPOSED ORGANIZATIONAL STRUCTURE: REMEDIATION PROGRAM, ROCKY MOUNTAIN ARSENAL (FY95 - FY05)

## ORGANIZATIONAL STRUCTURE

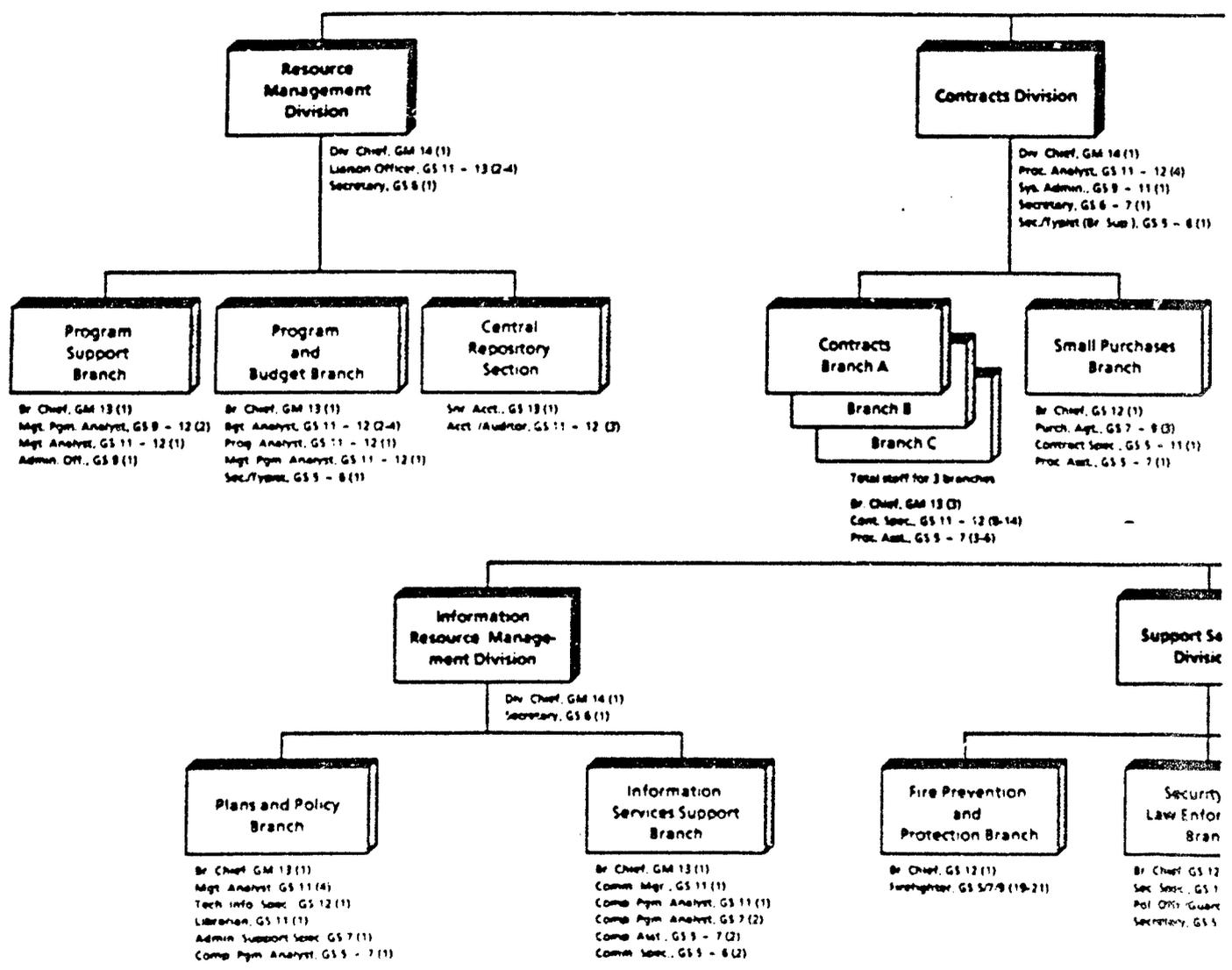
The proposed organizational structure was selected from the following alternatives:

- *Status quo*: This alternative entails basically the same organization the PM currently has, i.e., a special staff and seven divisions, including two engineering divisions.
- *Consolidated engineering functions*: This alternative has only one engineering division (versus the two in the current organization).
- *Two primary functions*: This alternative uses the concept of two directorates, one for the engineering function and the other for the management of all of the functions needed to support engineering activities. Each directorate would be headed by a senior individual, who would resolve virtually all problems in an area (freeing the PM from many of the time-consuming issues that currently require time), involving the PM only when absolutely necessary.

Total staffing required = 264 - 298

the Prog  
Deputy  
PM

PM, 8 (1)  
DPM, GM 15 (1)  
Tech Dir., GM 15 (1)  
Sec. (PM), GS 8 (1)  
Sec. (DPM), GS 7 (1)



\* To be determined

FIG. 4-2. STAFFING SUMMARY PMRMA ORG

Office of  
Program Manager

Technical  
Director

Special Staff

Office of Chief Counsel

Public Affairs Office

Safety, Health, and  
Environmental Office

Ch. Legal Counsel, GS 14 (1)(LTC)  
Atty. Envir. Law, GS 13 (1-2)(MAJ)  
Atty. Procurement, GS 14 (1)  
Paralegal Spec., GS 11 - 12 (1)  
Legal Spec., GS 7 (1)  
Secretary, GS 6 (1)

Chief, Public Aff. Off., GS 14 (1)  
Public Aff. Spec., GS 11 - 13 (4-5)  
Secretary, GS 6 (1)

Ch. Safety, Health & Env. Prot., GS 14 (1)  
Env. Prot. Spec., GS 11 - 13 (1)  
Envir. Eng., GS 11 - 13 (1)  
Safety Eng., GS 11 - 13 (1)  
Safety & Occ. Health Mgr., GS 11 - 13 (1)  
Quality Assurance Mgr., GS 12 - 13 (1)  
Compliance Mgr., GS 7 - 11 (3-5)  
Indus. Hygienist, GS 11 - 13 (2)  
Inter. Treaty Lia. Off., GS 9 - 11 (1)  
Secretary, GS 6 (1)

Public  
Works  
Division

Div. Chief, GM 13 (1)  
Ch. Eng., GS 11 - 12 (1)  
Interdisc. Eng., GS 11 - 12 (1)  
Eng. Tech., GS 9 - 11 (3)  
Civ. Insp., WG 10 (1)  
Mech. Insp., WG 10 (1)  
Elect. Insp., WG 10 (1)  
Secretary, GS 6 (1)

Environmental  
Engineering  
Division

Div. Chief, GM 15 (1)  
Admin. Asst., GS 7 - 9 (1)  
Secretary, GS 6 - 7 (1)

Remedial  
Operations Branch

Br. Chief, GM 14 (1)  
Gen. Eng., GS 11 - 13 (1)  
Interdisc. Eng., GS 11 - 13 (3-4)  
Env. Prot. Spec., GS 11 - 13 (2)  
Envir. Eng., GS 11 - 13 (2-3)  
Eng. Tech., GS 9 - 11 (4-5)  
Secretary, GS 6 (1)

Remedial Action  
Branch A

Br. Chief, GM 14 (1)  
Env. Prot. Spec., GS 11 - 13 (1)  
Interdisc. Eng., GS 11 - 13 (6-7)  
Env. Scienc., GS 11 - 13 (1)  
Eng. Tech., GS 9 (6-7)  
Secretary, GS 6 (1)

Remedial Action  
Branch B

Br. Chief, GM 14 (1)  
Env. Prot. Spec., GS 11 - 13 (1)  
Interdisc. Eng., GS 11 - 13 (6-7)  
Env. Scienc., GS 11 - 13 (1)  
Eng. Tech., GS 9 (6-7)  
Secretary, GS 6 (1)

Remedial Planning  
and  
Monitoring Branch

Br. Chief, GM 14 (1)  
Envir. Eng., GS 11 - 13 (4-5)  
Interdisc. Eng., GS 11 - 13 (1-2)  
Civ. Eng., GS 11 - 13 (2)  
Env. Scienc., GS 12 (1)  
Env. Prot. Spec., GS 12 (1)  
Eng. Tech., GS 7 - 11 (3-4)  
Secretary, GS 6 (1)

Services  
Division

Div. Chief, GM 13 (1)  
Secretary, GS 6 (1)

Inventory and  
Procurement  
Branch

Inventory Mgt. Spec., GS 12 (1)  
Inventory Mgt. Spec., GS 11 (1)  
Inv. Mgt. Spec., GS 5 (7)(B-3)  
Inv. Mgt. Spec., GS 5 - 6 (1)

Logistics  
Branch

Br. Chief, GS 12 (1)  
Inv. Proc. Mgt. Spec., GS 9 - 12 (3-5)  
Mgmt. Mgt. Spec., GS 11 (1)  
Supply Spec., GS 9 - 11 (3)  
Realty Spec., GS 9 (1)  
Inventory Mgt. Spec., GS 7 - 9 (3)  
Trsf. Mgt. Spec., GS 7 - 9 (1)  
Equip. Spec., GS 9 (1)  
Mobile Equip. Insp., WG 10 (2)  
Equip. Cont. Insp., GS 5 - 6 (1)  
Supply Clerk, GS 5 - 7 (1)  
Secretary, GS 5 (1)

Laboratory  
Division

Div. Chief, GM 14 (1)  
Secretary, GS 6 (1)

Quality Assurance  
Branch

Br. Chief, GM 13 (1)  
Chemist, GS 11 - 13 (7)  
Info. Mgt. Spec., GS 12 (1)  
Phys. Sci. Tech., GS 7 - 9 (1)

Analysis Branch

Br. Chief, GM 13 (1)  
Chemist, GS 11 - 12 (6)  
Phys. Scientist, GS 11 - 12 (2)  
Phys. Sci. Tech., GS 7 - 9 (1)

- *Hybrid concept:* This alternative incorporates the consolidation of the engineering functions and the use of two senior individuals for resolving problems.

A detailed description of the alternatives and their pros and cons is presented in Appendix C.

We recommend the Army adopt the hybrid concept. Its organizational structure (Figure 4-1) is a combination of simplicity and functionality. It still contains seven divisions (like the status quo alternative), but it provides the PM with two deputy-level individuals to assist in coordination and communication with the PM staff. The primary advantages of this structure are as follows:

- It retains the basic divisional structure of the PM organization, thereby creating minimal organizational turbulence.
- All primary staff (i.e., division chiefs) have direct access to the PM if required, but the PM's day-to-day span of control is supplemented by having two senior level decision-makers to assist him.
- Having one individual in charge of the engineering function will lead to more rapid, consistent, and coordinated resolution of issues and will permit a continuing focus on one set of objectives.
- The nonengineering divisions have to coordinate with only one engineering division chief rather than conducting the same coordination twice (as in the status quo alternative) to support essentially the same functions.

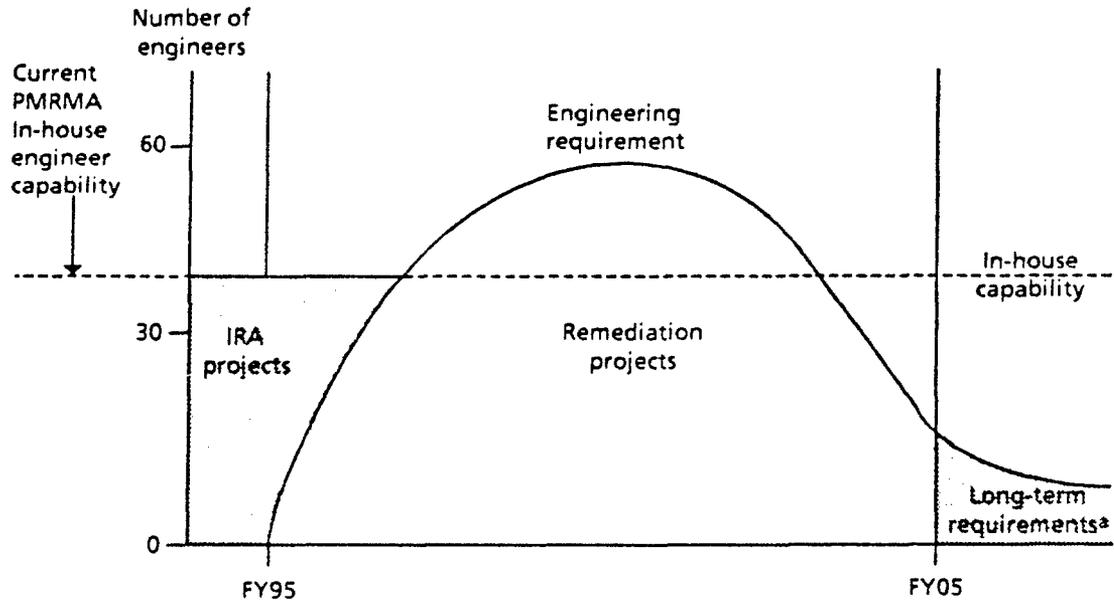
#### PERSONNEL STAFFING

The staffing shown in Figure 4-2 is based on our assessment of the numbers and types of personnel that will be required for the functions that need to be performed and the funding levels that will be available to execute them. The overall personnel staffing requirements are based on the engineering and the contracting functions, which are driven by the amount of money to be spent annually on remediation contracts (currently estimated to be \$140 million to \$150 million of the estimated \$180+ million total annual funding). The staffing for all other functions is based on supporting the engineering and contracting mission functions. The general approach used for the assessment is discussed in Chapter 3. A more detailed explanation of the staffing, by function, is provided in Appendix D.

The minimal proposed total staffing of 264 personnel is deemed to be the least number of people needed on the site to support a program of approximately

\$180 million annually. If that funding increases in the peak program years, the total strength required would tend to increase toward 298 personnel, the maximum number.

The duration of the program will be limited. During the first few years of the program, the workload is expected to rise and then begin to decline. Figure 4-3 shows this phenomenon. It also shows that during the first year or two of the program – the start-up phase – a part of the proposed staffing level will be used to complete previously started interim response action projects. In the early years, as the IRA projects are completed, the individuals that have been working on them will be available to meet the increasing need for additional staff for the remediation program.



\* This consists of both operations and monitoring.

FIG. 4-3. RISE AND FALL IN THE ENVIRONMENTAL ENGINEERING WORKLOAD, FY95 - FY05

At some point, the need for engineers to supervise the execution of contracts for all three types of engineering support will exceed the number of engineers available in this staffing scheme. That period, which is shown in Figure 4-3 as occurring when the operation of the remediation projects starts, is expected to last for about 18 to 24 months. During that time, the PM will require additional engineering support.

We recommend that after determining the peak requirement, the PM, rather than recruit permanent staff, should seek additional support from another government source such as the USACE on a temporary basis or from a commercial firm that specializes in overseeing environmental operation contracts; government engineers can be used to monitor either. (For projects that involve new construction, the PM will be required to obtain augmentation from USACE to administer and oversee the contracts for the construction.) Under this concept, the PM can continue to have sufficient staff throughout the period during which most contracts involve remediation project operation and, when the peak period has passed, the Army will be able to reassign its now highly experienced environmental design and construction engineers to programs at other locations.

In addition to using contracts for the remediation projects, the PM's organization will use contracts to provide base operations support (e.g., motor pool vehicle maintenance) for activities that have a workload that fluctuates considerably or that are projected to be phased out early in the remediation program. That approach will provide for the peak workload part of the engineering function and will help minimize the staffing of the PM's organization and the personnel turbulence throughout the life of the project.

## CHAPTER 5

### REMEDIATION PROGRAM ISSUES

In this chapter, we address the major issues the Army must face in planning for the remediation of RMA, making the transition of responsibility to USFWS, and completing its long-term involvement after the transfer of the property. Where a recommendation on an issue is appropriate, we present it in Chapter 6.

#### **FULLY STAFFING THE PROGRAM MANAGER'S ORGANIZATION TO PERFORM ITS MISSION**

Traditionally, Army organizations and Federal tasks in general have used personnel hiring restrictions to deal with budget limitations, under the theory that customer service will just have to suffer or products will just have to be delayed. That approach is not acceptable at RMA, where the Army is subject to legally enforceable cleanup agreements.

This report provides an assessment of the number of personnel that it will take to enable the PMRMA to complete the remediation of the Rocky Mountain facility. Our assessment is based on the premise that the Army will be required to complete the remediation program in approximately 10 years, at a cost of \$180 million to \$200 million a year. The assessment is based on the number of people physically needed to execute an annual program of \$180 million, not for authorizations or TDA spaces.

The Army will have to fulfill the commitments for which it has responsibility, based on the ROD. Senior Army management must recognize the following constraints in deciding how to support the needs of PMRMA:

- The remediation program at the site of the RMA evokes intense political and public interest.
- The program will require adequate staffing. Any shortages in the staffing will result either in a failure to perform the work or a failure to properly supervise commercial contracts. In the latter case, which could involve approximately \$150 million in remediation contracts annually, inadequate staffing could significantly increase the chances of waste, fraud, and abuse.

- The program will be executed by a temporary organization and as such, should not be subject to normal staffing guidelines such as hiring freezes. In fact, failure to fill personnel requirements will cause the program to drag on longer, thereby causing an even greater total payroll cost over time.

#### ANNUAL LEVEL OF FUNDING FOR THE REMEDIATION PROGRAM

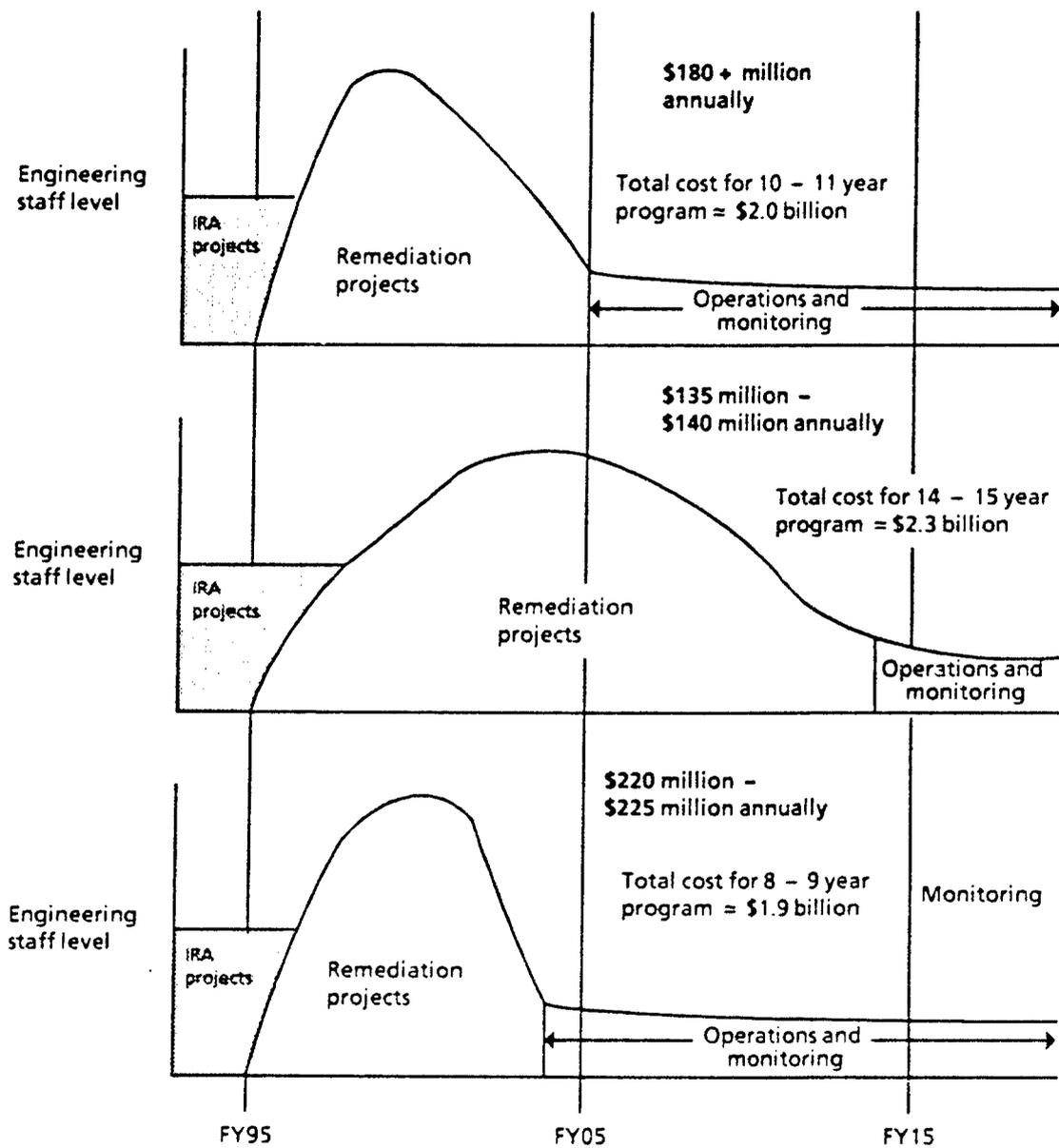
Figure 5-1 portrays the effect of three levels of funding. The first level totals approximately \$180 million annually (\$140 million to \$150 million for environmental engineering contracts and \$40 million to \$45 million for program support). It is the primary level we were asked to use in developing an organization and a staffing recommendation.<sup>1</sup> At that level, the remediation of the facility should take approximately 10 to 11 years to complete and cost approximately \$2 billion. While Figure 5-1 is stylized for illustrative purposes, it is based on the phased completion of projects shown in Figure 2-1. The funding for program support is an annual level of effort for remediation contracts between \$100 million to \$200 million (we do not have an evaluation of the cost of support if the remediation project funding were beyond that range). If the annual funding is reduced below \$130 million, the length of time to complete the program will increase, but the total cost over time of the remediation contracts would remain generally the same. However, the overall cost of the program would increase by \$40 million – \$45 million for each year the program is extended (the cost of the relatively inflexible level of the Federal work force).

The second level in Figure 5-1 illustrates this effect, i.e., it shows the increase in completion time and total cost that the Army would incur if it reduced the total funding for the program to \$135 million to \$140 million annually. The remediation of the facility would not be completed until approximately FY13 or FY14, and the total cost as a result of this "cost savings" approach would rise from approximately \$2 billion to approximately \$2.3 billion.

The third level in Figure 5-1 portrays what the program time and cost would look like if the total funding were increased to \$225 million annually. As can be seen, the saving in time is only about 2 years because some parts of the process cannot be

---

<sup>1</sup>These figures are based on the following cost estimates provided by PMRMA's Remedial Action Division: total cleanup to include IRA costs = \$1.350 million; Military Construction, Army for remediation facilities = \$225 million; and a program management base operations cost = \$40 million annually.



**Notes:** Total costs are based on those from FY95 to the completion of the project. Those costs do not include operation of long-term groundwater treatment facilities and monitoring. Staffing levels are not to scale.

**FIG. 5-1. REMEDIATION FUNDING LEVEL EXAMPLES**

compressed by applying more funds. Thus, a substantial increase in annual funding buys only a 20 percent time savings and only a 5 percent decrease in life-cycle costs.

#### **POSTREMEDIATION PROGRAM UTILIZATION OF ENGINEERING AND CONTRACTING PERSONNEL**

Because the remediation program at the RMA facility will be the most technologically advanced and the largest of its kind to date, the engineers and contracting personnel assigned to the PMRMA will gain a level of experience and expertise second to none. However, at some point in the program, probably about the eighth year, fewer such personnel will be needed by the PM.

The ideal situation would be to have another large-scale Army remediation site that is prepared legally, organizationally, and financially to begin operation. Having a cleanup site ready and waiting would enable the Army to have a place to transfer these highly skilled and experienced remediation personnel.<sup>2</sup> Without such an opportunity, these personnel will be hired by private-sector companies or will be assigned to government positions in which their skills will be used ineffectively (at the same time that the Army will be undergoing experience-based training with another group of professionals at another remediation site). Additionally, a program of appropriate reassignment would give these government employees a career path and would signal to them that their skills and experience are highly valued. Such a reassignment program could possibly be part of an Army strategic remediation program execution plan.

#### **TRANSITION OF RESPONSIBILITY FOR THE FACILITY**

Turning the facility over to the USFWS will require detailed planning and extensive coordination with USFWS because even after the remediation projects are complete, the Army will still have to keep a presence at the facility for long-term monitoring. The transition can take place in one of three ways: a total change of responsibility all on 1 day, a phased turnover of all responsibilities over a short period of time, or a partial turnover.

---

<sup>2</sup>Other alternatives include assignment to USACE environmental organizations, the PM for Non-Stockpile Chemical Disposal (under the U.S. Army Chemical Materiel Destruction Agency), or the Army Corps of Engineers.

In the partial turnover, the USFWS would assume almost all of the responsibility for the facility, but the Army would retain those functions that it deems necessary to allow it to fulfill its obligations (e.g., telecommunications and utilities contracts for its administrative building, laboratory, and monitoring sites). Retaining responsibilities will require extensive coordination and detailed memorandums of understanding (MOUs) but will enable the Army to retain control over conditions necessary to ensure the accomplishment of its long-term obligations. USFWS is currently in the process of conducting the planning that is required for the partial turnover. When the Army no longer has obligations at the facility (based on today's laws and technologies, these objectives may last for many more years), responsibility for any remaining functions can be transferred to the USFWS, or whoever is in charge at that time.

#### **LONG-TERM USES FOR THE LABORATORY FACILITY AND THE TECHNICAL INFORMATION CENTER**

The analytical laboratory and the Administrative Record Facility (ARF) were built specifically to support the PMRMA. Both are state-of-the-art facilities and represent a substantial investment by the Army in time and money. Because of that cost, the Army needs to consider using those facilities to provide services beyond support to the PMRMA and beyond the immediate post-ROD period.

The analytical laboratory is one of the finest in the Army and is certainly the best available for site remediation analysis support. Its importance will be manifest during the remediation projects when it will be used extensively and be the repository for all of the test results. After the remediation projects are complete, the laboratory will still be used to analyze samples and store test results but undoubtedly at a significantly reduced level. Because this facility is located near a major transportation hub, it provides the Army (and, indeed, the Federal government) with a resource that could be used to support other remediation efforts, particularly after the remediation projects for PMRMA have been completed and its mission is reduced to supporting the long-term Army cell remaining at the refuge.

The ARF was built specifically to house the Technical Information Center (TIC), which includes the administrative record, the environmental data base, and the technical library. Automated and paper copies of all relevant legal documents constitute the administrative record. The technical library consists of many site-specific studies, and the environmental data base provides the remediation data with

geographic coordinates and displays. Altogether, the TIC forms an extensive library of information on facility remediation; it provides an excellent source of baseline data for research and analysis. Continual expansion of its contents and capabilities makes the TIC an unequaled environmental information research source. With today's emphasis on the environment, on cleanups and remediation, etc., its contents and availability should be advertised throughout DoD and could be extended to the Federal and state governments. It could, in fact, become a revenue source if other organizations sought to make use of the data.

Currently, the location of the TIC is tied to the location of the administrative record. Should the legal requirement to keep the paper copy of the administrative record be eliminated or should the contents of the administrative record be moved to a permanent storage location, the need for the information in electronic form will still exist. Although the data base for the ARF and the other technical information for this research function could be located anywhere because of today's telecommunications capabilities, the Army should consider keeping the TIC function in place at the RMA facility as long as an Army presence remains.

The Army should consider developing a business plan to identify the potential value of these two resources and alternatives for their development. The staffing levels required to support such alternative activities have not been reflected in this report.

#### **USE OF A GOCO STRUCTURE FOR THE REMEDIATION PROGRAM, FY95 THROUGH FY05**

The environmental cleanup program for the remediation of the RMA facility could be executed by a government-owned, contractor-operated (GOCO) program (versus the type of organizational structure proposed in this report). Army leadership could remain (probably an Army colonel), along with a few other government civilians (e.g., contracting specialists and compliance specialists), but the remediation program would be executed by environmental engineering contractors and monitored by other environmental management contractors. Similar efforts are under way at sites managed by the U.S. EPA and by the Department of Energy.

In determining alternative organizational structures for use for executing the remediation program from FY95 through FY05, we evaluated the use of a GOCO structure. We found that option has the following benefits:

- It takes advantage of the technical and project management knowledge base of environmental contractors.
- It requires a minimal number of government employees (a positive factor in this era of hiring freezes and reduced staffing).
- It eliminates the need to hire new government employees for the RMA program only to have to release them a few years later.

The GOCO approach has some shortcomings. Since RMA is the Army's first major remediation site, the program must be executed as free of technical and political disputes as possible. Therefore, the importance of the following shortcomings must be weighed carefully when compared with the benefits previously listed:

- The signatories of the FFA and the State of Colorado are probably expecting a significant Army presence throughout the cleanup period; anything less could be politically unacceptable.
- The Army would not have as firm a control of the program as it would if it were using its own personnel to supervise the environmental engineering contractors.
- If contractors supervise the execution of the engineering projects, no government personnel will have the opportunity to gain that experience or receive that training. The training and experience are considered important because the Army has a long-term cleanup mission after the RMA projects are finished, both in completing the RMA long-term operations and monitoring activities, and in cleaning up many additional sites nationwide.

#### **LONG-TERM REDUCTION OF THE PMRMA PERSONNEL STAFFING**

The initial level of staffing recommended for the PM's organization is based on the combined workload of completing the IRAs that were started before the signing of the ROD and starting the actions that are required to put design and construction contracts in place for the remediation projects. Elsewhere in this document (Chapter 4), we pointed out that as the IRAs are completed, the services of persons who worked on them will be needed to help with the increasing workload caused by the concurrent preparation of design and construction contracts and monitoring of the new contracts. The workload of the PM's organization peaks as construction

contracts are completed and operations oversight is added to the design and construction activities. We also pointed out the possibility of having an "oversight-type" contractor monitor contract operations at the remediation facilities and using government personnel to oversee those contractors.

Figure 5-2 shows the engineering staff required to provide oversight for the remediation contracts, given a contract funding level of approximately \$140 million of a \$180 million annual program.<sup>3</sup> Toward the end of this program, the workload shifts toward long-term monitoring actions. The incremental starts envisioned for the projects in the early years of the program provide for a similar decrease in levels of activity in later years; thus, a relatively gradual drawdown phase can be expected from FY02 through FY05 (approximately). Nonetheless, attrition does not ordinarily provide for a convenient decrease in the number of personnel in accordance with organizational needs, and at least one RIF (or transfer to other assignments in the Army) of many of the engineering professionals can be anticipated in FY03. Given the need for support organizations based on the scope of the engineering mission, it should be apparent that proportionate reductions in each of the support divisions may also be required, either simultaneously or shortly after the reductions in the engineering work force.

During the peak activity period (FY98 through FY01), the need for engineers will significantly exceed the number required at any other time. Rather than attempting to hire personnel for a limited period, the Army could take an alternative approach and supplement the PMkMA work force from external resources. As suggested in Chapter 4, this augmentation might be possible by using Corps of Engineers personnel or through private-sector independent verification and validation contracts. Given constraints on hiring authority and the problems associated with hiring employees for only 2 to 3 years, we assume that PMRMA will not attempt to add engineers on short-term assignments. Thus, augmentation will be required and it will be needed in the relatively near future (approximately FY98).

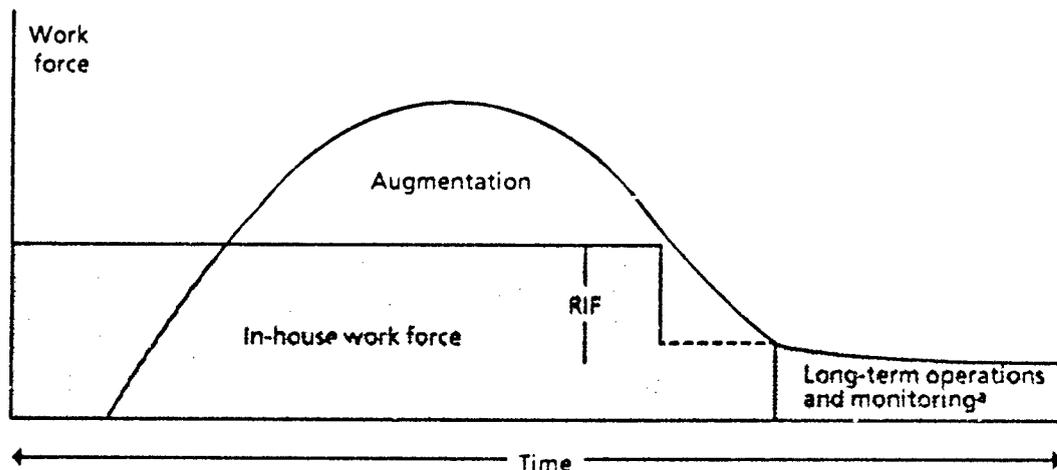
Figures 5-3, 5-4, and 5-5 illustrate how the Army can manage the work force. If the effort is made to maximize the PMRMA work force within the mission requirements (Figure 5-3), the natural inertia of the personnel system combined with the uncertainty among the PMRMA staff over layoff plans will produce a chaotic

---

<sup>3</sup>Figure 5-2 has been stylized for illustrative purposes but is based on the phased completion of projects as shown in Figure 2-1.



Figure 5-4 illustrates what could happen if the PMRMA chooses to retain the organic work force as long as possible and then conduct a major RIF. If that scenario is chosen, the PMRMA then faces a requirement to build an extensive contract support capacity, reduce it (FY01 to FY03), and attempt to rebuild it (FY03 to FY05). Whether the environmental contracting community will be interested in this opportunity (given that by FY02, many other remediation projects will be under way around the country) is another matter; in any event, time and money will be wasted bringing a contractor back up to speed on RMA issues.



\* In the long term, the oversight of these activities may be conducted by a mix of government and contractor employees

FIG. 5-4. IMPLEMENT ONE REDUCTION IN FORCE

Another alternative is for PMRMA to view the peak activity period as a period not just to supplement the PMRMA in-house engineering force but rather to build up a long-term augmentation capability. That approach would allow attrition among PMRMA engineers to provide a gradual, manageable reduction process, with the difference between workload and work force being taken up by the augmentation force (as shown in Figure 5-5). That augmentation force will itself diminish as the projects approach completion.

Whatever strategy is employed, PMRMA will reach an irrevocable decision point toward the end of the peak activity period, approximately FY02. At that time, attrition of the PMRMA work force must begin or contract augmentation must be

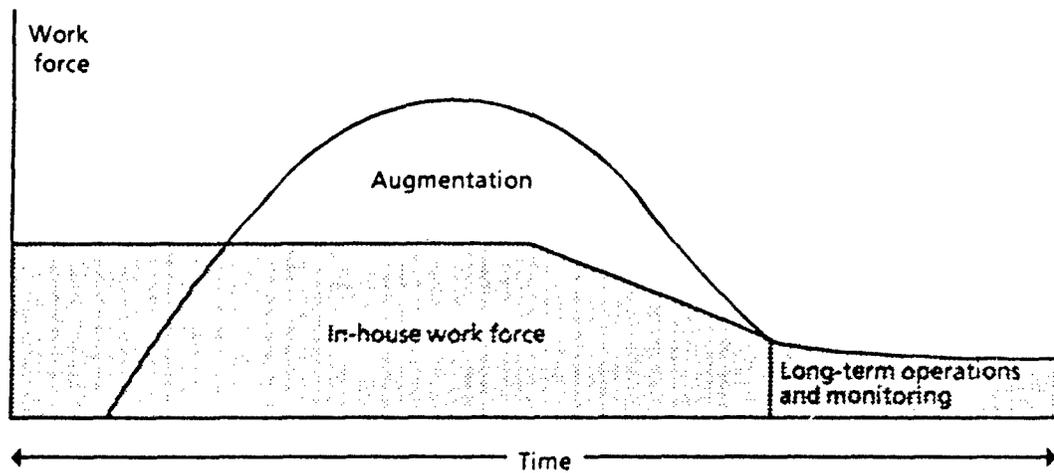


FIG. 5-5. USE AUGMENTATION TO PROVIDE MANAGEABLE DOWNSIZING

reduced. We recommend that the augmentation strategy accompanied by a manageable, decremental attrition process, as depicted in Figure 5-5, be adopted by PMRMA.

## CHAPTER 6

### RECOMMENDATIONS

This chapter presents recommendations for actions that need to be taken before the ROD is signed and actions that should be taken when the Army has acquired knowledge and experience from the first few years of the program. The recommendations include actions to ensure that personnel and funding will be available for the start of the program and actions to be taken during the program to determine the most appropriate way to make the transition from the remediation phase to the long-term monitoring phase. Although all of the recommendations are important, those that deal with providing funds may warrant special interest because of the legal liability (as discussed in Chapter 3) of failure to provide adequate funding to meet deadlines.

The majority of our recommendations are for actions by the PM. However, in three areas, we feel the recommendations need to be addressed at the Headquarters, Department of the Army (HQDA) level.

The PMRMA should take the following actions:

- Approve the organizational structure and staffing proposal shown in Figure 4-2.
- Request that a TDA that reflects the organization and staffing in Figure 4-2 and that has an "authorized" column equal to 264 spaces, be approved by HQDA.
- Request (through appropriate command channels) that the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) take actions, as recommended in this chapter, to enable the PMRMA to staff 100 percent of the organization's personnel requirements.
- Screen the individuals with engineering skills that are currently employed by PMRMA to determine which have experience in managing contracts and in monitoring contractors. Set up a contract management and monitoring training program for those that require it.

- Contract with an engineering firm that specializes in monitoring environmental engineering contracts to act as a consultant for the in-house engineers.
- Develop a personnel transition program that provides (1) training or retraining opportunities to enable current employees to qualify for authorized positions within the PM's TDA; (2) transfer counseling; and (3) retirement and termination counseling.
- Sponsor the joint Army-USFWS development of a detailed transition plan for turning the facility over to the USFWS.
- Sponsor a study to identify the value to the Army of the RMA laboratory facility and the Technical Information Center data base and, if appropriate, develop a business plan for those resources.
- Approximately a third of the way through the remediation program, sponsor studies to determine the following:
  - ▶ Cost-benefit criteria for analyzing when and how the PM should begin the transition of the organization from its remediation program profile to the structure and staffing that will be required for the monitoring phase.
  - ▶ Whether the long-term Army presence should comprise government employees or a GOCO work force.
  - ▶ Long-term use of the analytical laboratory and the Technical Information Center.

The Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) should do the following:

- Take the necessary action prior to the start of the remediation program to ensure that the PMRMA's organization can be staffed at 100 percent of the people needed for the remediation effort. Specifically, this recommendation includes actions to ensure the following:
  - ▶ The PMRMA's request for a TDA increase in manpower spaces authorized is approved.
  - ▶ The PM can fill all personnel requirements. That occurrence could be provided in the form of a waiver from hiring freezes or authority for the PMRMA to manage to budget.
- Commit (i.e., "fence") \$180 million a year in the Army's environmental budget request, pending signing of the ROD. Upon signing, fence an appropriate annual dollar figure, based on the projects that are approved in

the ROD to enable the PM to plan the execution of the Rocky Mountain Remediation Program.

- Develop a strategic site remediation plan that includes a sequencing of Army-wide installations to be cleaned up and a description of how the engineering and contracting personnel assigned to a remediation program would be transferred to the next program in the sequence (i.e., the manpower space authorizations and any individual that wanted to transfer with that space authorization).

**APPENDIX A**

**ORGANIZATIONAL STRUCTURE AND STAFFING  
FOR THE  
REMEDICATION OF ROCKY MOUNTAIN ARSENAL PROGRAM  
FY95 - FY05**

**ORGANIZATIONAL STRUCTURE AND STAFFING  
FOR THE  
REMEDiation OF ROCKY MOUNTAIN ARSENAL PROGRAM  
FY95 - FY05**

This appendix describes each of the suborganizations in the organization that is being proposed for use by the Program Manager (PM) in executing the remediation mission at the location that was formerly Rocky Mountain Arsenal (RMA). This structure and staffing are for use during the period after the signing of the record of decisions (ROD) through the completion of the majority of the ROD projects, including closure of the projects, i.e., the removal of equipment or dismantling of any facilities associated with the projects.

**ORGANIZATION AND PERSONNEL STAFFING**

The organization and staffing described are based on the functions that the PM's organization will have to execute to perform the remediation program at the projected funding level of \$180 million annually. The proposed structure does not reflect staffing levels of a typical government organization or installation base operation activity, particularly with respect to the grade levels and grade level progression for career opportunity because it is for an organization that is to execute a remediation program and then be disbanded.

The following subsections provide a brief description of each office and a table with the staffing recommendation by title, series, number required, and recommended grade range. A detailed discussion of the functions that each office performs is presented in Appendix D. (*Note: The detailed description of the specific duties for each office appears in the PMRMA's 10-1 document.*)<sup>1</sup> A summary of the staffing requirements is superimposed on the organization chart shown in Figure 4-2. A summary of the staffing by position series is shown in Table A-27, and a summary of the staffing by grades is shown in Table A-28.

---

<sup>1</sup>*Missions and Functions, Program Manager Rocky Mountain Arsenal, Department of the Army PMRMA Regulation No. 10-1, 15 June 1991.*

### Program Manager Office

The PM provides overall guidance and direction for executing remediation and monitoring projects, planning for and expending resources, responding to public and official inquiries, and providing basic operating support (e.g., lights, telephones, electricity) for the execution of all actions that occur during the post-ROD period.

The deputy program manager (DPM) assists in the management and operational control of the overall program, while the Technical Director provides technical engineering advice and acts as the Program Manager's Office (PMO) quality control person. The PM and DPM each have a secretary to handle their individual correspondence requirements and to execute normal command-level office actions. Table A-1 shows the staffing of the PMO.

TABLE A-1  
STAFFING OF THE OFFICE OF THE PROGRAM MANAGER

Title	Series	Number required	Grade
Program Manager	GS-800 or -1300	1	a
Deputy Program Manager	GS-800	1	GM 15
Technical Director	GS-800	1	GM 15
Secretary (PM)	GS-318	1	GS 8
Secretary (DPM)	GS-318	1	GS 7

a Army colonel (Grade: O-6) or equivalent government civilian.

### Office of Chief Counsel

Attorneys/advisors provide legal counsel and support to the PM in three categories: environmental law, procurement law, and law associated with government organizations, installations, and personnel. Since contractors will perform the majority of the remediation work and some of the base support functions, the individuals in this office will spend much of their time reviewing contracts. Table A-2 shows the staffing of the Office of Chief Counsel.

TABLE A-2

STAFFING OF THE OFFICE OF CHIEF COUNSEL

Title	Series	Number required	Grade
Chief Legal Counsel	GS-905	1	GS 14/LTC
Attorney/Advisor: Environmental Law	GS-905	1 - 2	GS 13 <sup>a</sup> /MAJ
Attorney/Advisor: Procurement	GS-905	1	GS 14
Paralegal Specialist	GS-950	1	GS 11 - 12
Legal Specialist	GS-986	1	GS 7
Secretary	GS-318	1	GS 6

<sup>a</sup> One of the environmental law positions could be military [military occupation specialty 55A, Grade O-4]. That assignment would provide an opportunity for field experience for The Judge Advocate General (TJAG) staff members.

**Public Affairs Office**

The Public Affairs Office advises PMRMA on the public's perception of RMA actions and proactively keeps the public informed of the Army's perspective of its responsibilities and how it is fulfilling those responsibilities. This function includes conducting presentations, producing a newsletter, providing escorts for visitors, and providing trained still and video photographers to record events of interest or those associated with the remediation program. The public affairs specialists also assist the PMRMA by sponsoring morale and welfare initiatives for the organization, such as arranging work force activities and recognition programs. This office also performs functions associated with the Privacy Act and Freedom of Information Act. Table A-3 shows the staffing of the Public Affairs Office.

**Safety, Health, and Environmental Office**

The Safety, Health, and Environmental Office is responsible for advising the PMRMA on issues related to Federal and state Occupational Safety and Health Administration (OSHA) and environmental laws and regulations and ensuring that all activities associated with the remediation program at RMA are carried out under applicable laws and regulations. The office reviews contracts and contractor operating policies to ensure that considerations for safety, health, and environmental issues are included; ensures that contractors have necessary operating permits; and

TABLE A-3

STAFFING OF THE PUBLIC AFFAIRS OFFICE

Title	Series	Number required	Grade
Chief, Public Affairs Office	GS-1035	1	GS 14
Public Affairs Specialists	GS-1035	4 - 5*	GS 11 - 13
Secretary	GS-318	1	GS 6

\* Will require an additional two if RMA internal publicity effort is not performed under contract

performs on-site inspections. Additionally, this office performs two other critical functions for the PM. It is responsible for providing the program's overall quality assurance and for taking actions associated with international treaty compliance. Table A-4 shows the staffing of the Safety, Health, and Environmental Office.

TABLE A-4

STAFFING OF THE SAFETY, HEALTH, AND ENVIRONMENTAL OFFICE

Title	Series	Number required	Grade
Chief, Safety, Health, and Env. Protection	GS-028	1	GS 14
Env. Protection Specialist	GS-028	1	GS 11 - 13
Environmental Engineer	GS-819	1	GS 11 - 13
Safety Engineer	GS-803	1	GS 11 - 13
Safety and Occ. Health Manager	GS-018	1	GS 11 - 13
Industrial Hygienist	GS-690	2	GS 11 - 13
International Treaty Liaison Officer	GS-301	1	GS 9 - 11
Quality Assurance Manager	GS-343	1	GS 12 - 13
Compliance Inspector	GS-802	3 - 5	GS 7 - 11
Secretary	GS-318	1	GS 6

**Note:** The Army maintains a number of OSD; Headquarters, Department of the Army (HQDA), and Corps of Engineers active duty billets, the effective performance of which depends on a broad knowledge of environmental programs. While we see no technical reason for assigning active-duty military personnel to this function, any one of the 028 positions or the 819 position could be filled with an appropriately trained officer, thus providing an experienced military officer for future DoD environmental situations.

## Environmental Engineering Division Staffing

### *Office of the Division Chief*

The Chief of the Environmental Engineering Division has the overall responsibility for the technical execution of the remediation program. His responsibilities include ensuring that contracts are in place at the proper time to perform the remediation projects without interruption; coordinating with the other division chiefs to ensure that they are aware of the support requirements of the engineering staff; and keeping the PM, DPM, Technical Director, and the PM's staff (e.g., Public Affairs) informed of details critical to the performance of the remediation program. An administrative assistant coordinates the division's activities, handles sensitive correspondence, and keeps track of suspense items (e.g., status of contracts) to ensure they are taken care of before they become a problem. A secretary handles normal administrative office functions. Table A-5 shows the staffing of this office.

TABLE A-5  
STAFFING OF THE OFFICE OF THE CHIEF, ENVIRONMENTAL  
ENGINEERING DIVISION

Title	Series	Number required	Grade
Division Chief	GS-801	1	GM 15
Administrative Assistant	GS-301	1	GS 7 - 9
Secretary	GS-318	1	GS 6 - 7

### *Engineering Branches*

The four Engineering Branches have the responsibility for ensuring that the projects indicated in the ROD are executed. The actual remediation projects specified in the ROD will be executed by commercial environmental companies, with the engineers in the branches acting as the Contracting Officer's Technical Representatives (COTRs), the critical liaison between the government and the contractor. They will be assisted by engineering technicians, and where required, by environmental protection specialists. The following subsections describe the functions of the Engineering Branches.

### ***Remedial Operations Branch***

The Remedial Operations Branch is responsible for managing and directing the operations, maintenance, and alterations of all actions associated with the environmental restoration of RMA in accordance with environmental and safety regulations. It develops engineering design criteria for the projects within the program; establishes goals and strategies for the program; and provides technical direction for the operation and maintenance of contamination control/treatment systems, decontamination facilities, and storage facilities. Table A-6 shows the staffing for this branch.

**TABLE A-6**

**STAFFING FOR THE REMEDIAL OPERATIONS BRANCH**

<b>Title</b>	<b>Series</b>	<b>Number required</b>	<b>Grade</b>
Branch Chief	GS-801	1	GM 14
General Engineer	GS-801	1	GS 11 - 13
Interdisciplinary Engineer	GS-8XX	3 - 4	GS 11 - 13
Environmental Protection Specialist	GS-028	2	GS 11 - 13
Environmental Engineer	GS-819	2 - 3	GS 11 - 13
Engineering Technician	GS-802	4 - 5	GS 9 - 11
Secretary	GS-318	1	GS 6

### ***Remedial Action Branches***

The two Remedial Action Branches are responsible for the design and construction of all new facilities and projects required to conduct the contamination cleanup program at RMA. Their responsibilities include providing engineering and design supervision/oversight to Shell Oil Company, contractors, and other government agencies involved in the design and construction of remedial action facilities. These branches also provide technical data for permit actions required for operation of contamination and decontamination control systems. Because the staffing requirements are the same, the consolidated staffing for the two branches is shown in one table, Table A-7.

TABLE A-7

STAFFING FOR THE REMEDIAL ACTION BRANCHES

Title	Series	Number required	Grade
Supervisor, General Engineer (Br. Ch.)	GS-801	2	GM 14
Environmental Protection Specialist	GS-028	2	GS 11 - 13
Interdisciplinary Engineer	GS-8XX	12 - 14	GS 11 - 13
Environmental Scientist	GS-1301	2	GS 11 - 13
Engineering Technician	GS-802	12 - 14	GS 9 - 11
Secretary	GS-318	2	GS 6

*Remedial Planning and Monitoring Branch*

The Remedial Planning and Monitoring Branch is responsible for reviewing new and innovative technologies for remediation, and where deemed appropriate, conducting pilot-scale programs for technologies that could be potentially implementable during remediation. It determines the magnitude and probability of actual and potential damage to human health and the environment and provides guidance and support to design and construction efforts. This branch also conducts a comprehensive monitoring program for air, water, soils, and biota. Staffing for this branch is shown in Table A-8.

**Contracts Division Staffing**

*Office of the Division Chief*

The Division Chief is responsible for ensuring that all of the activities associated with contracts for the remediation projects and contracts for goods or services to support the PM's program, are executed effectively and efficiently. This includes preparation of the solicitation, including the coordination to get the technical statement of work (SOW) prepared correctly; coordination of the evaluation of proposals; execution of the award of the contract; and administration of the contract throughout its life. These activities cannot be done under contract and are required for all acquisitions from major remediation projects to small purchases.

**TABLE A-8**  
**STAFFING FOR THE REMEDIAL PLANNING AND MONITORING BRANCH**

Title	Series	Number required	Grade
Supervisor, Environmental Engineer	GS-819	1	GM 14
Environmental Engineer	GS-819	4 - 5	GS 11 - 13
Interdisciplinary Engineer	GS-8XX	1 - 2	GS 11 - 13
Civil Engineer	GS-810	2	GS 11 - 13
Environmental Scientist	GS-1301	1	GS 12
Environmental Protection Specialist	GS-028	1	GS 12
Engineering Technician	GS-802	3 - 4	GS 7 - 11
Secretary	GS-318	1	GS 6

The Office of the Division Chief is staffed with a secretary to handle normal administrative office functions for the division, a system administrator for the automated contracting system, four procurement analysts, and a secretary/typist to provide administrative support to the Contract Branches as required. Table A-9 shows the staffing of the Office of the Chief, Contracts Division.

**TABLE A-9**  
**STAFFING OF THE OFFICE OF THE CHIEF, CONTRACTS DIVISION**

Title	Series	Number required	Grade
Division Chief	GS-1102	1	GM 14
Procurement Analyst	GS-1102	4	GS 11 - 12
System Administrator	GS-301	1	GS 9 - 11
Secretary	GS-318	1	GS 6 - 7
Secretary/Typist (Branch Support)	GS-318	1	GS 5 - 6

### **Contracts Branches**

As shown on Figure 4-2, the Contracts Division has four branches. Three of those branches will process contracts in support of the remediation program, and the fourth will be responsible for nonproject contracting and small purchases. The staffing requirements of the remediation projects branches will depend on the requirements of the engineering branches they support. We believe all three will be organized the same initially. Therefore, we will not name the individual branches nor break out their exact staffing; we will only present the total number of each type of personnel we feel will be required to process and monitor over \$140 million in contracts annually.

Table A-10 shows the staffing to be distributed among the three Contracts Branches of the division. Table A-11 shows the staffing for the Small Purchases Branch.

**TABLE A-10**  
**STAFFING FOR THE THREE CONTRACTS BRANCHES**

<b>Title</b>	<b>Series</b>	<b>Number required</b>	<b>Grade</b>
Branch Chief (Contracts)	GS-1102	3	GM 13
Contract Specialist	GS-1102	8 - 14	GS 11 - 12
Procurement Assistant	GS-1106	3 - 6	GS 5 - 7

### **Information Resource Management Division**

#### ***Office of the Division Chief***

The Division Chief of the Information Resource Management Division is responsible for planning and budgeting for all activities of the five areas associated with the information mission area: automation, telecommunications, visual information, publications and printing, and records management. A secretary handles normal office administrative functions. Table A-12 shows the staffing for the Office of the Division Chief.

TABLE A-11

STAFFING OF THE SMALL PURCHASES BRANCH

Title	Series	Number required	Grade
Branch Chief	GS-1102	1	GS 12
Purchasing Agent	GS-1105	3	GS 7 - 9
Contract Specialist	GS-1102	1	GS 5 - 11
Procurement Assistant	GS-1106	1	GS 5 - 7

TABLE A-12

STAFFING OF THE OFFICE OF THE CHIEF, INFORMATION RESOURCE MANAGEMENT DIVISION

Title	Series	Number required	Grade
Division Chief	GS-1412/-301	1	GM 14
Secretary	GS-318	1	GS 6

*Plans and Policy Branch*

The Plans and Policy Branch is responsible for planning for the resources required to provide for the PM's information requirements. Branch personnel are responsible for providing systems analyses to determine user information requirements, establishing and maintaining inventory control of ADP hardware and software, acting as the ADP security manager, and establishing automation initiatives to support day-to-day PMRMA operations. Additionally, this branch is responsible for the administrative record and technical library. Table A-13 shows the staffing for the branch.

*Information Services Support Branch*

The Information Services Support Branch is responsible for providing the voice, data, and telecommunications support for PMRMA. Its responsibility includes the systems administration functions, communications security functions, maintenance

TABLE A-13

STAFFING OF THE IRM PLANS AND POLICY BRANCH

Title	Series	Number required	Grade
Branch Chief	GS-301	1	GM 13
Technical Information Specialist	GS-1412/-1410	1	GS 12
Management Analyst	GS-343	4	GS 11
Librarian	GS-1410	1	GS 11
Administrative Support Specialist	GS-341	1	GS 7
Computer Programmer Analyst	GS-334	1	GS 5 - 7

of telecommunications equipment, and the operation of a telecommunications center. This branch is also responsible for the operation of the local area network, electronic mail, and operation and maintenance of all installation Tier I and Tier II information mission area equipment and systems. The functions of this branch will be executed primarily under contract; the individuals assigned to this branch will be responsible for contractor oversight. Table A-14 shows the branch staffing.

TABLE A-14

STAFFING OF THE INFORMATION SERVICES SUPPORT BRANCH

Title	Series	Number required	Grade
Branch Chief	GS-301	1	GM 13
Communications Manager	GS-391	1	GS 11
Computer Programmer Analyst	GS-334	1	GS 11
Computer Programmer Analyst	GS-334	2	GS 7
Computer Assistant	GS-335	2	GS 5 - 7
Communications Specialist	GS-391	2	GS 5 - 6

## Laboratory Division Staffing

### *Office of the Division Chief*

The Division Chief is responsible for coordinating both the in-house and contractor-provided analytical support for the remediation program. That support includes providing in-house chemical analyses via the fixed-site and mobile monitoring laboratories, plus contract oversight and all Quality Assurance (QA)-associated functions for the generation of analytical data at contract laboratories. Table A-15 shows the staffing for the office.

TABLE A-15

STAFFING OF THE OFFICE OF THE CHIEF, LABORATORY DIVISION

Title	Series	Number required	Grade
Division Chief	GS-1320	1	GM 14
Secretary	GS-318	1	GS 6

### *Quality Assurance Branch*

The Quality Assurance Branch sets the quality assurance program objectives and requirements, prepares SOWs, and administers the technical oversight of the analytical support contracts; i.e., the individuals in this branch work directly with engineering contractors and contract laboratories to ensure that the sampling and analytic activities are conducted in accordance with the established standards. This branch is also responsible for auditing field sampling operations, assisting with the provision of mobile monitoring capabilities, and providing the quality control (QC) and data management activities. Table A-16 shows the branch staffing.

### *Analysis Branch*

The Analysis Branch is responsible for operation of the fixed-site laboratory that was specifically built to support the PMRMA's efforts. Its personnel screen samples provided by contractors, analyze special samples that the PM does not want

**TABLE A-16**

**STAFFING OF THE QUALITY ASSURANCE BRANCH**

Title	Series	Number required	Grade
Branch Chief	GS-1320	1	GM 13
Chemist	GS-1320	7	GS 11 - 13
Information Management Specialist	GS-1410/-1412	1	GS 12
Physical Science Technician	GS-1311	1	GS 7 - 9

to send to a commercial laboratory, and perform analyses of samples that require a quick turnaround. Table A-17 shows the staffing for the branch.

**TABLE A-17**

**STAFFING OF THE ANALYSIS BRANCH**

Title	Series	Number required	Grade
Branch Chief	GS-1320	1	GM 13
Chemist	GS-1320	6	GS 11 - 12
Physical Scientist	GS-1301	2	GS 11 - 12
Physical Science Technician	GS-1311	1	GS 7 - 9

**Resource Management Division Staffing**

***Office of the Division Chief***

The Division Chief is responsible for financial and manpower management, cost and economic analysis, internal review, audit compliance for the PMO, and supervision of a system to manage the remediation agreement between the Army and the Shell Oil Company. A secretary handles normal office administrative functions. Table A-18 shows the staffing for the office.

TABLE A-18

STAFFING OF THE OFFICE OF THE CHIEF, RESOURCE MANAGEMENT DIVISION

Title	Series	Number required	Grade
Division Chief	GS-343	1	GM - 14
Liaison Officer	GS-560/-343	2 - 4	GS 11 - 13
Secretary	GS-318	1	GS 6

This office is also staffed with liaison officers who will be stationed (permanently or on extended TDY as required) at support headquarters (or higher headquarters) to ensure PMRMA requirements are met on time.

***Program and Budget Branch***

The Program and Budget Branch is responsible for both the fiscal and manpower management programs for the PM. Its fiscal responsibilities include formulating programs and budgets, reviewing expenditure requests, tracking cost, and executing the PM's financial review and analysis program. Branch personnel also represent the PM in matters associated with audits by Army and external agencies, review all contracts for financial implications, and develop policies relating to inter-Service and intra-Service agreements.

Manpower management responsibilities include programming manpower resource requirements and then initiating, monitoring, and taking other actions to fill manpower spaces and process personnel actions. Those other actions include individual training. Additionally, this branch acts as payroll coordinator and approval authority for travel advances and settlements. Table A-19 shows the branch staffing.

***Program Support Branch***

The Program Support Branch is responsible for overseeing Internal Management Control, coordinating and taking follow-up action on all personnel actions, and acting as the primary training coordinator for the PMRMA organization. Table A-20 shows the staffing for this branch.

TABLE A-19

STAFFING OF THE PROGRAM AND BUDGET BRANCH

Title	Series	Number required	Grade
Branch Chief	GS-560	1	GM 13
Budget Analyst	GS-560	2 - 4	GS 11 - 12
Program Analyst	GS-345	1	GS 11 - 12
Management and Program Analyst	GS-343	1	GS 11 - 12
Secretary/Typist	GS-318/-322	1	GS 5 - 6

TABLE A-20

STAFFING FOR THE PROGRAM SUPPORT BRANCH

Title	Series	Number required	Grade
Branch Chief	GS-560/-340	1	GM 13
Management Program Analyst	GS-343	2	GS 9 - 12
Management Analyst	GS-343	1	GS 11 - 12
Administrative Officer	GS-341	1	GS 9

*Central Repository Section*

The Central Repository Section is responsible for executing the Army's part of the remediation cost-sharing agreement with the Shell Oil Company. Specifically, it operates a repository where copies of all primary cost documentation of Shell Oil Company and the Army are filed; prepares and submits Army cost claims; cooperates with Shell in auditing each other's cost documentation; and acts as the PM's representative in all matters pertaining to the agreement between the Army and Shell. Table A-21 shows the section staffing.

TABLE A-21

STAFFING OF THE CENTRAL REPOSITORY SECTION

Title	Series	Number required	Grade
Senior Accountant	GS-510	1	GS 13
Accountant/Auditor	GS-510/-511	3	GS 11 - 12

**Support Services Division Staffing**

*Office of the Division Chief*

The Support Services Division Chief is responsible for logistics support (e.g., supply and transportation support), security and law enforcement, fire prevention and firefighting, and all of the associated activities that are needed to provide these support services (e.g., tools and equipment and the capability to repair the equipment). A secretary provides all of the normal office administrative support. Table A-22 shows the staffing for the office.

TABLE A-22

STAFFING OF THE OFFICE OF THE CHIEF, SUPPORT SERVICES DIVISION

Title	Series	Number required	Grade
Division Chief	GS-301/-346	1	GM 13
Secretary	GS-318	1	GS 6

*The Fire Prevention and Protection Branch*

The Fire Prevention and Protection Branch is responsible for responding to fire calls; providing emergency medical treatment; and assisting with on-post hazardous material incidents on a 24-hour-a-day, 365-day-a-year basis. Additionally, it also maintains on-post fire protection systems, performs fire safety and equipment

inspections, promotes fire prevention awareness, and coordinates fire prevention training. Table A-23 shows the branch staffing.

TABLE A-23

STAFFING FOR THE FIRE PREVENTION AND PROTECTION BRANCH

Title	Series	Number required	Grade
Branch Chief	GS-081	1	GS 12
Firefighter (emergency medical treatment qualified)	GS-081	19 - 21	GS 5/7/9

*Security and Law Enforcement Branch*

The Security and Law Enforcement Branch is responsible for perimeter security, security of government and other property within the boundaries of the RMA, traffic control, vehicle registration, processing of security clearance requests, and maintenance of a personnel identification system. Its staffing is shown in Table A-24.

TABLE A-24

STAFFING FOR THE SECURITY AND LAW ENFORCEMENT BRANCH

Title	Series	Number required	Grade
Branch Chief	GS-080	1	GS 12
Security Specialist	GS-080	1	GS 11
Police Officer/Guard	GS-083/GS-085	28 - 31	GS 5/7/9
Secretary	GS-318	1	GS 5 - 6

### **Logistics Branch**

The Logistics Branch ensures that the PMRMA has the supplies and transportation support required for the remediation program and for the support of the PM's staff. The majority of the services will be provided by commercial contractors, with branch personnel being responsible for overseeing the execution of the contract. The services it provides include requisitioning, receiving, storing and issuing supplies and equipment (including Government-furnished equipment); ensuring that government vehicles and other mechanical equipment are accounted for and maintained; managing the documentation required for transportation of material (including hazardous material), both inbound and outbound; and managing the accountability and maintenance program for the equipment required to support the remediation program. The branch staffing is shown in Table A-25.

**TABLE A-25**

**STAFFING FOR THE LOGISTICS BRANCH**

Title	Series	Number required	Grade
Branch Chief	GS-346	1	GS 12
Industrial Property Management Specialist	GS-1103	3 - 5	GS 9 - 12
Maintenance Management Specialist	GS-1601	1	GS 11
Supply Specialist	GS-2001/-2005	3	GS 9 - 11
Realty Specialist	GS-1170	1	GS 9
Inventory Management Specialist	GS-2010	3	GS 7 - 9
Traffic Management Specialist	GS-2130	1	GS 7 - 9
Equipment Specialist	GS-1670	1	GS 9
Mobile Equipment Inspector	WG-5801	2	WG 10
Equipment Control/Dispatcher	GS-303	1	GS 5 - 6
Supply Clerk	GS-2005	1	GS 5 - 7
Secretary	GS-318	1	GS 5

## Public Works Division Staffing

The Public Works Division is responsible for the buildings and roads at RMA. It maintains existing roads and buildings and closes those that are no longer needed. In addition to building maintenance, this division provides for housekeeping, utilities, water, and sanitation. Road maintenance includes snow removal. The individuals in this division will primarily be responsible for assisting in developing and monitoring the contracts that will be used to obtain these services from commercial sources. The public works function has been established as a separate entity (in this case, the PM indicated a desire for it to be designated as a division) in recognition that this function will be one of the first to make the transition to the United States Fish and Wildlife Service. The division staffing is shown in Table A-26.

TABLE A-26

### STAFFING FOR THE PUBLIC WORKS DIVISION

Title	Series	Number required	Grade
Division Chief	GS-801	1	GM 13
Civil Engineer	GS-810	1	GS 11 - 12
Interdiscipline Engineer	GS-8XX	1	GS 11 - 12
Engineering Technician	GS-802	3	GS 9 - 11
Civil Inspector (Structural and Finishing)	WG-3601	1	WG 10
Mechanical Inspector	WG-4701	1	WG 10
Electrical Inspector	WG-2805/-2810	1	WG 10
Secretary	GS-318	1	GS 6

### STAFFING SUMMARY

A summary of the staffing requirements by position title is presented in Table A-27, and a summary by grade is shown in Table A-28.

TABLE A-27

## SUMMARY OF STAFFING REQUIREMENTS BY POSITION SERIES

Title	Series	Number required	Grade
Program Manager	GS-800 or -1300 <sup>a</sup>	1	TBD
Deputy Program Manager	GS-800	1	GM 15
Technical Director	GS-800	1	GM 15
Chief, Environmental Engineering Division	GS-801	1	GM 15
Chief, Information Resource Management Division	GS-1412/-301	1	GM 14
Chief, Resource Management Division	GS-343	1	GM 14
Chief, Engineer Branches <sup>b</sup>	GS-801	3	GM 14
Chief, Remedial Planning and Monitoring Branch	GS-819	1	GM 14
Chief, Contracts Division	GS-1102	1	GM 14
Chief, Laboratory Division	GS-1320	1	GM 14
Chief, Safety, Health, & Environmental Protection	GS-028	1	GS 14
Chief, Public Affairs Office	GS-1035	1	GS 14
Attorney/Advisor: Procurement	GS-905	1	GS 14
Chief, Legal Counsel	GS-905	1	GS 14/LTC
Chief, Support Services Division	GS-301/-346	1	GM 13
Chief, Information Services Support Branch	GS-301	1	GM 13
Chief, Program & Budget Branch	GS-560	1	GM 13
Chief, Public Works Division	GS-801	1	GM 13
Chief, Plans and Policy Branch	GS-301	1	GM 13
Chief, Laboratory Branches <sup>d</sup>	GS-1320	2	GM 13
Chief, Program Support Branch	GS-560/-340	1	GM 13
Attorney/Advisor: Environmental Law	GS-905	1 - 2	GS 13/MAJ
Chief, Contracting Branches <sup>c</sup>	GS-1102	3	GS 13
Senior Accountant	GS-510	1	GS 13
Chief, Logistics Branch	GS-346	1	GS 12
Quality Assurance Manager	GS-343	1	GS 12 - 13
Environmental Protection Specialist	GS-028	1	GS 12
Environmental Scientist	GS-1301	1	GS 12
Chief, Security and Law Enforcement Branch	GS-080	1	GS 12
Technical Information Specialist	GS-1412/-1410	1	GS 12
Civil Engineer	GS-810	1	GS11 - 12

Note: TBD = to be determined

<sup>a</sup> Grade series of PM were a civilian position

<sup>b</sup> Remedial Operations Branch and Remedial Action Branches A and B

<sup>c</sup> Contracts Branches A, B, and C

<sup>d</sup> Quality Assurance Branch and Analysis Branch

TABLE A-27

## SUMMARY OF STAFFING REQUIREMENTS BY POSITION SERIES (Continued)

Title	Series	Number required	Grade
Chief, Fire Prevention and Protection Branch	GS-081	1	GS 12
Chief, Small Purchases Branch	GS-1102	1	GS 12
Information Management Specialist	GS-1410/-1412	1	GS 12
Safety and Occupational Health Manager	GS-018	1	GS 11 - 13
Environmental Protection Specialist	GS-028	5	GS 11 - 13
Liaison Officer	GS-560/-343	2 - 4	GS 11 - 13
Industrial Hygienist	GS-690	2	GS 11 - 13
General Engineer	GS-801	1	GS 11 - 13
Safety Engineer	GS-803	1	GS 11 - 13
Civil Engineer	GS-810	2	GS 11 - 13
Environmental Engineer	GS-819	7 - 9	GS 11 - 13
Interdisciplinary Engineer	GS-8XX	16 - 20	GS 11 - 13
Public Affairs Specialists	GS-1035	4 - 5	GS 11 - 13
Environmental Scientist	GS-1301	2	GS 11 - 13
Chemist	GS-1320	7	GS 11 - 13
Management and Program Analyst	GS-343	2	GS 11 - 12
Program Analyst	GS-345	1	GS 11 - 12
Accountant/Auditor	GS-510/-511	3	GS 11 - 12
Budget Analyst	GS-560	2 - 4	GS 11 - 12
Procurement Analyst	GS-1102	4	GS 11 - 12
Contract Specialist	GS-1102	8 - 14	GS 11 - 12
Interdisciplinary Engineer	GS-8XX	1	GS 11 - 12
Physical Scientist	GS-1301	2	GS 11 - 12
Chemist	GS-1320	6	GS 11 - 12
Paralegal Specialist	GS-950	1	GS 11 - 12
Management Analyst	GS-343	4	GS 11
Maintenance Management Specialist	GS-1601	1	GS 11
Communications Manager	GS-391	1	GS 11
Security Specialist	GS-080	1	GS 11
Librarian	GS-1410	1	GS 11
Computer Programmer Analyst	GS-334	1	GS 11
Industrial Property Management Specialist	GS-1103	3 - 5	GS 9 - 12
Management Program Analyst	GS-343	2	GS 9 - 12
International Treaty Liaison Officer	GS-301	1	GS 9 - 11
Engineering Technician	GS-802	19 - 22	GS 9 - 11
Administrative Officer	GS-341	1	GS 9

TABLE A-27

## SUMMARY OF STAFFING REQUIREMENTS BY POSITION SERIES (Continued)

Title	Series	Number required	Grade
Supply Specialist	GS-2001/-2005	3	GS 9 - 11
System Administrator	GS-301	1	GS 9 - 11
Realty Specialist	GS-1170	1	GS 9
Equipment Specialist	GS-1670	1	GS 9
Secretary (PM)	GS-318	1	GS 8
Compliance Inspector	GS-802	3 - 5	GS 7 - 11
Engineering Technician	GS-802	3 - 4	GS 7 - 11
Administrative Assistant	GS-301	1	GS 7 - 9
Purchasing Agent	GS-1105	3	GS 7 - 9
Physical Science Technician	GS-1311	2	GS 7 - 9
Inventory Management Specialist	GS-2010	3	GS 7 - 9
Traffic Management Specialist	GS-2130	1	GS 7 - 9
Computer Programmer Analyst	GS-334	2	GS 7
Administrative Support Specialist	GS-341	1	GS 7
Legal Specialist	GS-986	1	GS 7
Secretary (DPM)	GS-318	1	GS 7
Secretary	GS-318	2	GS 6 - 7
Secretary	GS-318	12	GS 6
Contract Specialist	GS-1102	1	GS 5 - 11
Firefightere	GS-081	19 - 21	GS 5/7/9
Police Officer/Guard	GS-083/-085	28 - 31	GS 5/7/9
Supply Clerk	GS-2005	1	GS 5 - 7
Computer Programmer Anaiyst	GS-334	1	GS 5 - 7
Procurement Assistant	GS-1106	4 - 7	GS 5 - 7
Computer Assistant	GS-335	2	GS 5 - 7
Equipment Control/Dispatcher	GS-303	1	GS 5 - 6
Secretary	GS-318	3	GS 5 - 6
Communications Specialist	GS-391	2	GS 5 - 6
Secretary	GS-318	1	GS 5
Electrical Inspector	WG-2805/-2810	1	WG 10
Mechanical Inspector	WG-4701	1	WG 10
Mobile Equipment Inspector	WG-5801	2	WG 10
Civil Inspector	WG-3601	1	WG 10

\* Emergency medical treatment qualified

TABLE A-28

SUMMARY OF STAFFING REQUIREMENTS BY GRADE

Title	Range of number required
Program Manager	1
GM 15	3
GM 14	8
GS 14	4
GM 13	11
GS 13	2 - 3
GS 12 - 13	1
GS 12	8
GS 11 - 13	50 - 59
GS 11 - 12	31 - 39
GS 11	9
GS 9 - 12	5 - 7
GS 9 - 11	24 - 27
GS 9	3
GS 8	1
GS 7 - 11	6 - 9
GS 7 - 9	10
GS 7	5
GS 6 - 7	2
GS 6	12
GS 5 - 11	1
GS 5/7/9	47 - 52
GS 5 - 7	8 - 11
GS 5 - 6	6
GS 5	1
WG 10	5
Total	264 - 298

---

**APPENDIX B**

**FY94 TO FY95 STAFF TRANSITION PLANNING**

## FY94 TO FY95 STAFF TRANSITION PLANNING

This appendix describes the relationship of the personnel staffing proposed in Chapter 4 of the main text and Appendix A to the staffing in the current Army table of distribution and allowance (TDA). It provides a summary of the positions in the current TDA that will not be required in the proposed organization, a summary of the positions that are required but are not on the current TDA and will never be filled, and a discussion of what will need to be considered in making the transition from the current staffing to staffing of the proposed organization.

### COMPARISON CONSIDERATIONS

The Army TDA used in this comparison is dated March 1993. It shows 261 required and 211 authorized spaces. (The actual on-hand strength during the period we performed this study averaged 233 people.) Rather than compare our proposed 264 required spaces to the current TDA required spaces, we compared them position by position to the current authorized figure because during normal times (apart from hiring freezes), the Program Manager (PM) can only hire against authorized spaces and not against required spaces (i.e., people, not spaces, do the work, and therefore, the required strength is useless to the commander when the authorized strength does not match the requirements.)

Generally speaking, the organization specified by the current TDA is structured to continue to execute the current interim response actions (IRAs) while preparing documentation and taking actions in anticipation and support of the signing of the record of decisions (ROD). The skills required for this interim mission, for both the engineering function and the support function are not much different than those required for the post-ROD remediation program that is scheduled to start around 1995. Therefore, most of the positions being compared are the same, and in many cases the number needed is the same.

## **COMPARISON OF THE PROPOSED STAFFING TO THE CURRENT TDA**

We compared the current and the proposed TDAs in terms of position series and grade series. In most cases, the authorized spaces (positions) on the current TDA were a match to positions on the proposed structure although not necessarily in the same division or branch; the comparison was facilitated by the fact that the proposed structure used grade ranges, which made matching somewhat easier. Mismatches occurred when the positions on the proposed staffing structure did not have a direct position series match with any position on the current TDA (potential new position) and when positions on the current TDA did not have a direct position series match with any positions on the proposed staffing structure (potential position abolishments). In this analysis, names were not associated with the paragraph and line numbers for the current TDA; the assessment was based solely on whether the position was authorized. With that approach, personalities did not become an issue in determining the appropriateness of the organizational structure.

### **New Positions**

Table B-1 is a summary of the positions in the staffing recommendation presented in this report that cannot be traced to any similar positions on the current TDA. As would be expected, about half of the new requirements are directly for the engineering or contracting function. The remaining positions are for personnel to support those two functions.

### **Position Abolishments**

Table B-2 is a summary of positions currently on the Rocky Mountain Arsenal (RMA) TDA for which no similar position could be found in the staffing recommendation in this report (i.e., positions that do not appear on the proposed TDA). Not shown in Table B-2 are 34 overhire positions that are currently filled but do not appear on the TDA. Table B-3 provides a summary of the positions that are currently not authorized and are not planned for in the proposed TDA but contain real people (i.e., overhires). The significance of those positions is that unless the personnel in them can qualify directly or with some retraining for positions on the new TDA, they will be out of jobs in the near future.

**TABLE B-1**  
**NEW TDA POSITIONS**

Title	Series	Proposed grade	Number gained
Chemist/Branch Chief	GS-1320	GM 13	1
Procurement Branch Chief	GS-1102	GM 13	1
Quality Assurance Manager	GS-343	GS 12 – 13	1
Procurement Analyst/Branch Chief	GS-1102	GS 12	1
Technical Information Specialist	GS-1412/-1410	GS 12	1
Chemist	GS-1320	GS 11 – 13	2
Environmental Protection Specialist	GS-028	GS 11 – 13	3
Industrial Hygienist	GS-690	GS 11 – 13	1
Interdisciplinary Engineer	GS-8XX	GS 11 – 13	2
Liaison Officer	GS-560/-343	GS 11 – 13	1 – 3
Public Affairs Specialist	GS-1035	GS 11 – 13	2 – 3
Contract Specialist	GS-1102	GS 11 – 12	1 – 7
Management Analyst	GS-343	GS 11 – 12	1
Procurement Analyst	GS-1102	GS 11 – 12	4
Communications Manager	GS-391	GS 11	1
Management Analyst	GS-343	GS 11	3
Industrial Property Management	GS-1103	GS 9 – 12	3 – 5
Management Program Analyst	GS-343	GS 9 – 12	1
Engineering Technician	GS-802	GS 9 – 11	11 – 14
Supply Specialist	GS-2001/-2005	GS 9 – 11	1
Compliance Inspector	GS-802	GS 7 – 11	3 – 5
Engineering Technician	GS-802	GS 7 – 11	3 – 4
Inventory Management Specialist	GS-2010	GS 7 – 9	1
Purchasing Agent	GS-1105	GS 7 – 9	1
Administrative Support Specialist	GS-341	GS 7	1
Computer Programmer Analyst	GS-334	GS 7	2
Legal Specialist	GS-986	GS 7	1
Contract Specialist	GS-1102	GS 5 – 11	1
Firefighter <sup>a</sup>	GS-081	GS 5/7/9	4 – 6
Procurement Assistant	GS-1106	GS 5 – 7	2
Secretary	GS-318	GS 5 – 6	1
Civil Work Inspector	GS-3601	WG 10	1
Electrical Inspector	GS-2805/-2810	WG 10	1
Mechanical Work Inspector	GS-4701	WG 10	1
Mobile Equipment Inspector	GS-5801	WG 10	2
Total	—	—	67 – 86

<sup>a</sup>Emergency medical treatment qualified

**TABLE B-2**  
**POSITIONS ABOLISHED**

Title	Series	Grade	Number lost
Supervisory General Engineer	GS-801	GM 14	1
Program Analyst	GS-345	GS 12	1
Administrative Officer	GS-341	GS 11	1
Asbestos Inspectors	(Not listed)	GS 11	5
Program Analyst	GS-345	GS 9	1
Management Assistant	GS-344	GS 7	1
Gen. Communications Equip. Operator	GS-392	GS 6	1
Management Assistant (Typing)	GS-344	GS 6	1
Supply Clerk	GS-2005	GS 5	1
Mail Clerk	GS-305	GS 4	1
Total	—	—	14

**TRANSITION STAFFING CONSIDERATIONS**

The discussion in this section assumes that the organization and staffing recommended in Chapter 4 are approved in total and that the Program Manager, RMA (PMRMA) is allowed to fill each position (at least to the minimum strength) without regard to hiring freeze restrictions.

Staffing the organization that is needed for the remediation program has two sides: filling new (or previously vacant) positions and making provisions for the incumbents in positions that are not required. At RMA, this includes incumbents of TDA positions that are being lost and overhire positions that will be replaced by authorized positions (in the past year, overhires have averaged about 30 people). Incumbents in positions that are no longer needed can be transferred to new position series for which they qualify (or could qualify if retrained), transferred to another Government organization, or released through a reduction in force.

The tables in this appendix show positions, not individuals. Therefore, for each position being lost, either TDA or overhire position, the PMRMA will have to determine whether the incumbent has the skills, experience, and aptitude for a direct transfer to a new position or whether he/she can be retrained for a new position. If that individual has the right credentials for the new position, the PMRMA will have

TABLE B-3

## UNAUTHORIZED, UNPLANNED, STAFFED POSITIONS

Title	Series	Grade	Number lost
Procurement Analyst	GS-1102	GM 13	1
Contract Price/Cost Analyst	GS-1102	GS 12	1
Industrial Property Management Spec.	GS-1103	GS 12	1
Maintenance Supervisor	GS-4701	WS 10	1
Equipment Operator Supervisor	GS-5701	WS 10	1
Electrician Foreman	GS-2805	WS 09	1
Water Treatment Plant Supervisor	GS-5409	WS 07	1
Pipefitter Leader	GS-4204	WL 10	1
Crane Operator	GS-5725	WG 11	1
Pipefitter	GS-4204	WG 10	5
Sheet Metal Mechanic	GS-3806	WG 10	1
Welder	GS-3703	WG 10	1
Electrician (High Voltage)	GS-2810	WG 10	1
Engineering Equipment Operator	GS-5716	WG 10	2
Chemical Plant Operator	GS-5427	WG 10	1
Heavy Mobile Equipment Mechanic	GS-5803	WG 10	1
Automotive Mechanic	GS-5823	WG 10	1
Electrician	GS-2805	WG 10	1
Water Treatment Plant Operator	GS-5409	WG 09	2
Painter	GS-4102	WG 09	1
Carpenter	GS-4607	WG 09	1
Industrial Equipment Repairer	GS-5352	WG 07	1
Motor Vehicle Operator	GS-5703	WG 6 - 8	2
Warehouse Worker (Forklift Operator)	GS-6907	WG 06	3
Laborer	GS-3502	WG 02	1
Total	—	—	34

to determine whether the individual wants the new position. Perhaps the incumbent will prefer assistance in transferring (with retraining if required). If such a transfer within or to another government agency is not possible, the individual will have to be released from Federal government service in accordance with appropriate personnel regulations.

## **New Positions**

Filling the vacant positions cited as required for the proposed organization could include recruiting from within the Army, DoD, or the Federal government or hiring a new government employee. In any case, the PMRMA should ensure that the individual understands that the duration of the position is limited. The specific period for which each position will be required can be determined or estimated at a later time, but the recruiting action needs to be started prior to the signing of the ROD in order to have the personnel on hand when they are needed.

## **Planning for the Transition**

Planning for the transition should begin as soon as possible. Many of the following actions that will be required need not wait for the proposed structure and staffing to be approved:

- Presented organization and staffing plans to the employees so that they can understand the goal toward which the PMRMA is working and so that those whose positions will be abolished when the proposed staffing is approved can begin to plan.
- Incorporate specifics of training into the PMRMA plans now so that the PM can obtain the funding, identify the training sources, and specify the schedule to cover absences while individuals are at their training.
- Develop a personnel transition program that includes the following:
  - ▶ Training for individuals who will be changing position series within the new TDA. Priority for training funds should be given to individuals whose current position is being abolished.
  - ▶ Counseling (i.e., guidance and assistance) to enable employees to determine where available positions exist elsewhere in the government and to assist them in applying for positions.
  - ▶ Retirement counseling procedures.
  - ▶ Reduction in force counseling procedures.

- As soon as possible, award contracts for any RMA support activities that have become or will become so small that they cannot support a permanent government suborganization or personnel retained to execute them and require the contractor to maintain a surge capability to cover unscheduled workload peaks.

**APPENDIX C**

**ORGANIZATIONAL ALTERNATIVES**

## ORGANIZATIONAL ALTERNATIVES

In the development of alternative organization structures for the Program Manager, Rocky Mountain Arsenal (PMRMA), we considered three basic organizational issues. The first was the overall structure of the PMRMA office, and the second was the structure for the engineering function. Most functions within the PMRMA can be operated on a self-contained basis, but the engineering function is so large and so evolutionary over the life of the program that several organizational alternatives are possible. Finally, we considered the PMRMA within the Army structure in terms of organizational assignment; that discussion is included in the main text in Chapter 3. This appendix provides a more detailed discussion of the organizational alternatives than does the main text.

### PROGRAM MANAGEMENT STRUCTURE

The Rocky Mountain Arsenal (RMA) remediation program<sup>1</sup> is extraordinarily complex. It deals with problems that are difficult to define and requires the application of technological solutions whose content and scope are unprecedented. It requires the coordination of teams of multidisciplinary experts and the accommodation of the views and power of outside political officials and groups. Finally, it requires an immense logistics effort in terms of forecasting, planning for, and using enormous financial resources to ensure that the right amount of people and materials are in place at the right time either through internal effort, purchase, or contract.

While all this is going on, the size and sensitivity of the project give it extremely high visibility, so that the PM is continually beset with demands on his time from a multitude of officials and other observers who want to offer advice, opinions or

---

<sup>1</sup>In conventional DoD language, "program" tends to refer to a funding process while "project" refers to a goal-oriented, limited-duration activity. Using that language, the PMRMA mission is to conduct project management on a large scale, with a number of subordinate tasks. However, in developing this review of organizational considerations, we needed to distinguish between the overall management (including logistic support) and the specific engineering tasks. So, in this text, "program" refers to the overall effort to remediate the former RMA property and "project" refers to specific efforts with regard to the various individual remedial actions. In the same vein, when we speak of "RMA," we mean the property on which the remediation is being conducted -- the geographic location -- rather than the active Army facility with its missions and tenants.

directives, or just to come over and see what is being done, all of which affects the PM's ability to spend time managing the program. As a result of these factors – common to many individual project activities but magnified in the case of the program to conduct remediation at RMA – it is essential to have an organization that can carry out the program and be responsive to the PM's needs without requiring all of his time merely to keep things moving. Thus, the PMRMA's organization must be able to execute a program that consists of the following two primary components: the technical work that must be completed and the logistics of supporting that work with a wide range of essential services. In addition, the PM needs special advice and assistance to deal with the intense visibility of the overall program as well as with individual projects within the program, and this must be rendered by staff specialists (such as lawyers and public affairs specialists) who must report directly to the PM.

The considerations and concerns discussed above must be reflected in the organization of the PMRMA office. We identify four alternatives that offer a varying degree of centralized control. Centralized control, i.e., having all of the major functions report directly to the PM, gives the PM maximum direct control but requires a full-time involvement. Decentralized control gives the PM increased time for external response but requires increasing levels of delegation. Variations to the alternatives are possible, but these are the principal approaches. Although we recommend an approach based on pure project management considerations, the alternative that is selected should be the one that most closely fits the PM's preferred management style and takes into consideration the capabilities of the personnel available to fill the positions.

#### **ALTERNATIVE 1: STATUS QUO**

The PMRMA organization that exists today, before the record of decisions (ROD) is signed, evolved from incremental changes to a table of distribution and allowances (TDA) structure designed to support an Active Army installation. Thus, the organization contains the normal collection of staff agencies reporting directly to the installation commander. At a normal installation, the garrison commander plays an essential but relatively minor role compared to the roles of commanders of major troop organizations – the mission components of the installation's activities. With the arrival of the project mode at RMA, mission organizations were grown ad hoc; they were added to the structure as they evolved and all reported directly to the PM as the senior official of the activity. Thus, the PM has had to manage the progress of

the technical work (the mission) and continue to serve as garrison commander. As a result, all activities compete for the PM's time. This organization is shown in Figure C-1.

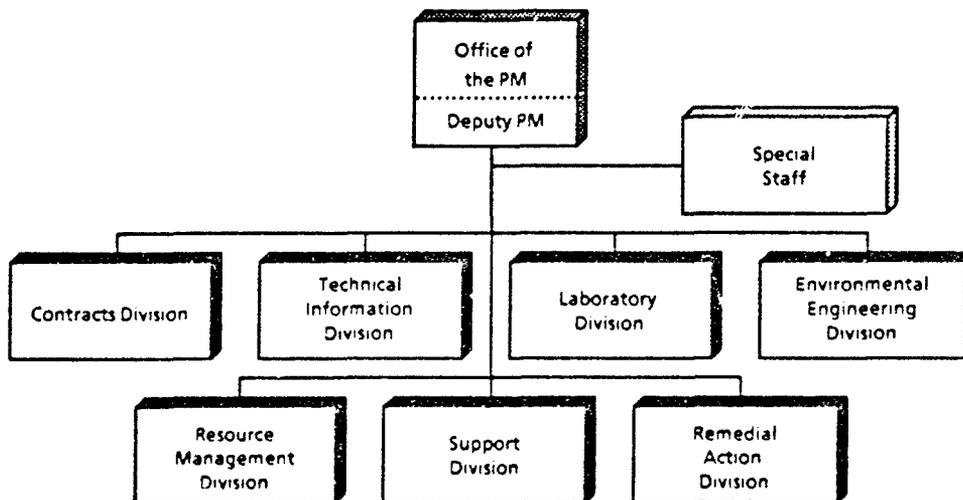


FIG. C-1. ALTERNATIVE 1: STATUS QUO

The organizational structure for the "status quo" alternative is the same as the FY93 structure, i.e., the Office of the Program Manager, the Special Staff, and seven divisions. In this alternative, the responsibility for the engineering function is split between two division chiefs (the chiefs of the Environmental Engineering Division and the Remedial Action Division), while the support for the remediation program is divided among five division chiefs. All seven of the division chiefs, plus the Special Staff, report to the PM.

The advantages of this alternative structure are as follows:

- It will create minimal organizational turbulence when the remediation activities begin after the signing of the ROD because the organizational structure and the supervisory chain are virtually unchanged.
- It has allowed RMA to develop and implement several major interim remedial actions effectively.

The disadvantages of this alternative structure are as follows:

- Two engineering chiefs, five other division chiefs, and a special staff report to the PM. In addition to a wide span of control, conflicts can be resolved only by the PM.
- The engineering activities are split between two divisions. The net result is that the PM is the first level at which a single individual is in charge of all of the engineering activities (versus having a single individual at the division or directorate level in charge of all of the engineering activities and responsible to the PM). In short, it places the engineering divisions in competition with one another rather than seeing the mission projects as a coherent whole. Additionally, it complicates the evolutionary progress of projects from one phase to another by shifting them back and forth between divisions.
- Each engineering division chief has to negotiate/coordinate with several other division chiefs for support. This results in duplicate negotiation for the same resources by two individuals, with each having to do this with up to five different individuals.
- Each nonengineering division chief must coordinate with two engineering division chiefs to provide similar forms of support for projects that have significant overlaps.

Because of the wide span of control, the success of this organizational structure depends on a highly skilled balancing act by the PM.

#### **ALTERNATIVE 2: CONSOLIDATED ENGINEERING FUNCTION**

The second alternative organizational structure is based upon a simple premise: all engineering functions should be grouped under one senior individual. This alternative (Figure C-2) provides for the consolidation of project-related engineering functions into a single organization that facilitates the sharing of ideas and people.

In this alternative, all functions are executed by divisions that continue to report directly to the PM. The change is that the two engineering divisions have been combined into one division, with branches being the next subordinate level. In addition to proposing a single engineering organization, we recognize the need for considering the organization of the engineers at the branch level within that division.

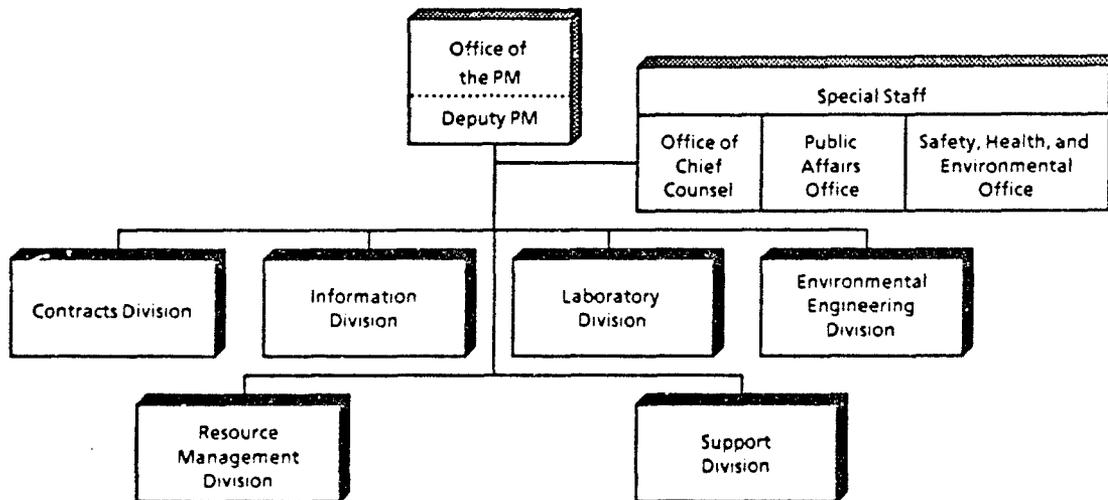


FIG. C-2. ALTERNATIVE 2: CONSOLIDATED ENGINEERING FUNCTION

The advantages of this alternative structure are as follows:

- It will require one less layer of engineering management than the Alternative 1 structure.
- It will combine the engineering functions under one individual, thereby enhancing a consistency of approach as projects move from phase to phase as well as provide a commonality of processes across all engineering activities.
- It will reduce the PM's span of control by one division chief from the present organization.
- It will reduce the need for a duplication of coordination by the other division chiefs.
- It will create minimum turbulence during implementation because it represents minimal change from the existing PMRMA organization.

The disadvantages of this alternative structure are as follows:

- The PM's span of control will remain large.
- The PM will continue to be the primary source for resolving conflicts between engineering division chiefs.
- The Engineering Division Chief will have to coordinate with five other division chiefs to get support.

This alternative organizational structure would represent only a minor modification to the current way of doing business and would therefore be quite easy to implement. That very incrementalism, however, means that it would not resolve many of the disadvantages and would add very little to the advantages.

### **ALTERNATIVE 3: TWO PRIMARY FUNCTIONS CONCEPT**

Alternative 3 is based on the observation that if all of the mission functions (i.e., the engineering functions) have been absorbed into a single organization, only the support functions remain. The effective management of those support functions is just as important as the direct mission functions, and the overall size of the support staff when combined is considerably larger than the size of the engineering staff although the engineering staff has a higher proportion of professionals. Placing these two very different roles under two equal senior managers provides the PM with a limited number of subordinates (even counting the special staff) and an organization that can function with a minimum of supervision. Those conditions would free the PM to focus on long-term program issues, political external impacts, and crises, thus managing on an exception basis rather than a supervisory basis.

This alternative consists of two large organizations designated as directorates (see Figure C-3). The directors of these two organizations would be able to coordinate the overlapping aspects of the functions under their control (such as the clear interaction required between Resource Management and Contracts) to provide coherent support to a complex and fluid mission. At present, the PM must carry this burden; the proposed organization would require the PM to arbitrate only when the directors could not agree on a plan of action.

The feasibility of this structure is questionable when examined in the light of political constraints. Specifically, the contracting function must remain as a separate organization because it must retain direct access to the head of the major organization served;<sup>2</sup> in this case, it must have direct access to the PM. While we believe this to be an overly stringent interpretation of the statute, the Army is committed to it. Because of the sensitivity of the administrative record and binding agreements to keep the record as a responsibility of the PM, the administrative record manager must also have direct access to the PM.

---

<sup>2</sup>Office of Federal Procurement Policy Act (Paragraph 27,620.42).

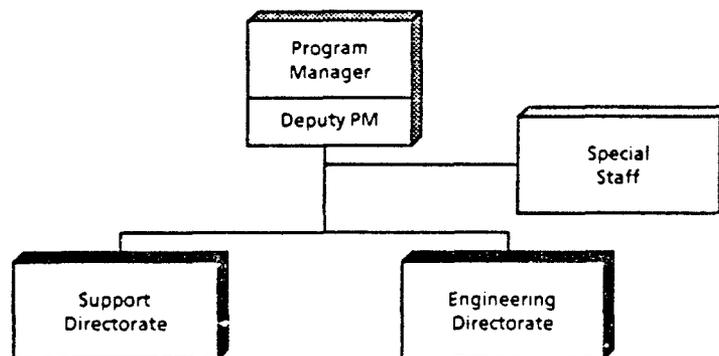


FIG. C-3. TWO PRIMARY FUNCTIONS CONCEPT

#### ALTERNATIVE 4: HYBRID ORGANIZATION (RECOMMENDED ALTERNATIVE)

Alternative 4 (Figure C-4) consists of the best features of the previous alternatives. It is based upon the use of divisions, each of which carries out discrete functions (thus, it has only one engineering division). It also provides the PM with two deputies, one designated the Deputy PM and the other the Technical Director. These individuals, while not exercising line authority over the division chiefs, assist the PM and free him from day-to-day problems. This concept reduces the PM's coordination burden to a manageable level, meets the direct-access requirements of applicable statutes and regulations, and allows the PM maximum flexibility in the use of the available senior managers.

The advantages of this alternative structure are as follows:

- Coordination of engineering support activities through two deputies reduces the PM's span of control for routine actions. This consolidation enables the PM to spend less time on day-to-day issues and more time on such high-level issues as interfacing with senior individuals in the Army, DoD, Congress, state and local government, and the news media. However, it still allows the division chiefs direct access to the PM when needed.
- Having engineering and support deputies who are highly experienced with extensive managerial expertise will lead to better oversight and coordination within and among the functions because the deputies will view issues from the perspective of the entire functional area or the overall remediation program.

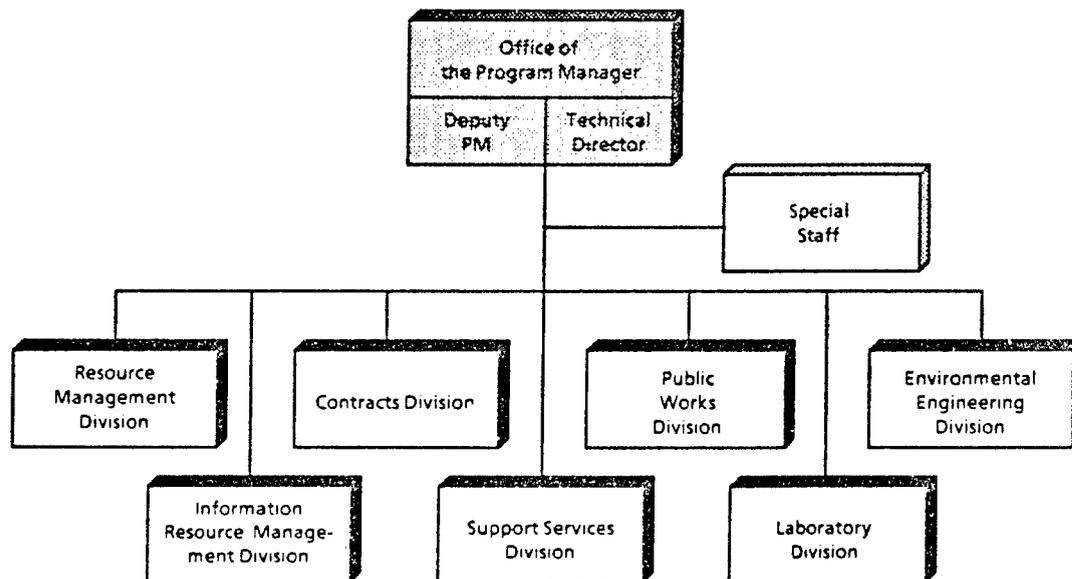


FIG. C-4. ALTERNATIVE 4: HYBRID ORGANIZATION

- The individuals in charge of the support and other functions do not have to coordinate with two different engineering chiefs.

The disadvantage of this alternative structure is that because of the ad hoc role of the deputies, as opposed to having clear line authority, it requires strong, experienced individuals in the two deputy positions.

#### DETAILED DISCUSSION OF ALTERNATIVE 4

After reviewing the three ways of organizing at the first level below the PM, we believe that the structure shown in Figure C-4 will provide the PMRMA with the best organization for managing the remediation program. Therefore, we offer the following more detailed description of it.

In this alternative, the PM's office is augmented with an additional deputy-level manager, designated the Technical Director. As shown in Figure 4-2, the first level below the PM is broken down into the functional divisions. The structure and functions of the Special Staff remain generally the same as today.

The structure for the Contracts Division consists of four branches rather than the two it previously had. One additional branch has been added to handle the anticipated increase in the major contract workload, while the other, the Small Purchases Branch, has been added because of the individuality and the magnitude of the workload expected for that component of the contracting mission.

Consolidation of all of the engineering functions under one division provides one individual for the PM to rely on to coordinate all of the remediation projects through all of the engineering life-cycle phases for all of the different environmental media. Additionally, this division provides a single focal point for the other division chiefs, the Special Staff, and subordinates within the engineering function to contact when an environmental engineering issue arises that needs to be coordinated or resolved.

The former facilities engineering and maintenance section has been designated the Public Works Division in recognition of its role in supporting all of the PM's constituents and in conformity with guidance from Headquarters, Army Materiel Command (HQ USAMC).<sup>3</sup>

#### **ORGANIZING FOR ENGINEERING OPERATIONS**

The discussion thus far has treated the engineering function as a single homogeneous entity. For the purpose of discussing the PMRMA's overall organization, that simplification is satisfactory. However, the function is in fact quite diverse in the mix of skills and experiences needed and available. Additionally, the engineering function requires so many people that multiple groups or branches are required simply for management and administration, and any discussion of the arrangement of these groups is necessarily an assessment of second-level organizational alternatives. We considered three principal approaches for aligning the second-level engineering organizations: basing the possible organizations on project phases, on the nature of the subprojects themselves, and on multidisciplinary teams. Each of these approaches is discussed in this appendix.

---

<sup>3</sup>In implementing Defense Management Decision Report 967, the Acting Secretary of the Army directed that as of 1 October 1993, "all . . . facilities engineering organizations are to be redesignated as Public Works organizations." (Memo from Chief, Remedial Action Division, dated 20 May 1993. Subject: *Logistics Management Institute Transition Plan*).

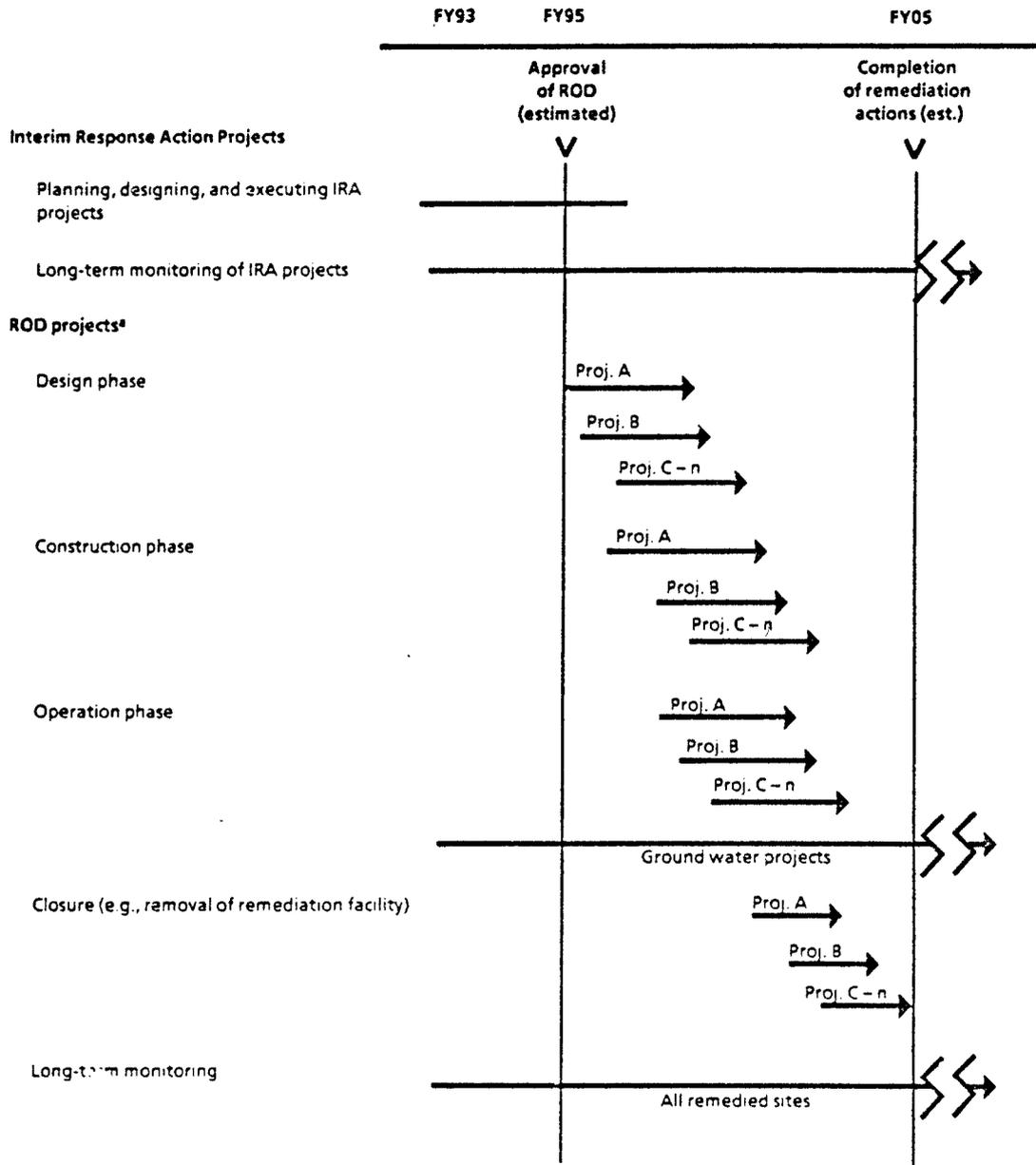
## Background to Organizational Approaches

The cleanup of RMA will be performed in a definable series of actions, or phases: site investigation, project planning, design, construction, remedy operation, site closure, and long-term operations and monitoring. For any given site, these phases could require 1 to 3 years each, with long-term operations and monitoring continuing for 10 to 30 years. Because of that variability, we can expect that after the first 2 to 3 years following the signing of the ROD, multiple phases will occur simultaneously at RMA as different sites move at different speeds. Figure C-5 emphasizes the simultaneous incidence of different phases of the projects and that multiple projects can be in the same phase at the same time.

The organizational design for engineering functions is driven by three principal constraints. Foremost is ensuring that the right expertise is available at the right time. Next is the understanding that the RMA engineers will largely be engaging in project and contract management rather than hands-on work. Finally, there is the practical need to provide a work force that remains generally stable. While the projects will result in a certain degree of growth and decline over their life cycles, the management of work force changes must not create a major distraction to the effective management of the projects themselves; particularly important is the need to avoid a midproject requirement that results in the addition of new personnel at the same time that others are being laid off. To avoid excessive peaking, some consideration may have to be given to the use of external resources, such as U.S. Army Corps of Engineers (USACE) employees on temporary duty or third-party quality assurance/quality control (QA/QC) contractors, to supplement the RMA staff in their oversight role during particularly intense project periods.

Clearly, the need for the right expertise at the right time is paramount. The size, cost, and importance of this program do not allow major errors from inexperience or for contractors misleading the Contracting Officer's Technical Representatives (COTRs). Both technical and management experience are needed; technical experience in the scientific and environmental fields primarily applicable to the project and management experience in supervising a major contract of a particular type.

Complicating the issue are the facts that each project phase requires different management expertise and each project requires different technical expertise. While



<sup>a</sup> The ROD projects will be executed by commercial contractors. Each phase of each project will be executed in sequence, with several projects being worked concurrently. The length of each project and number of projects being worked on concurrently can only be estimated at this time. Most of the PMRM staff will be engaged in preparing and overseeing these contracts; i.e., their involvement in each phase will include preparing requests for proposals (RFPs) and the statements of work (SOWs) for those RFPs, preparing solicitations, evaluating proposals, awarding contracts, and monitoring the contractor's performance.

FIG. C-5. SIMULTANEOUS REMEDIATION ACTIONS

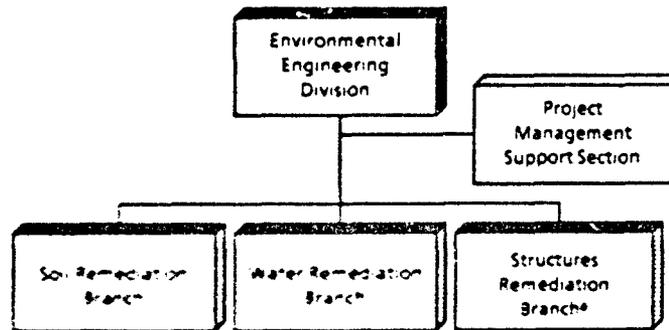
the phases overlap to a great extent, significantly different approaches and backgrounds are required in the management of each phase type. For instance, the approach to developing a sampling protocol and well field layout depends on an understanding of statistical methods of finding contaminants, standards of professional practice, and subsurface behavior. Such projects tend to define themselves as they proceed, and a large part of the project monitor's role is to anticipate the need for, and identify the reasonableness of, deviations from the plan, especially to control tendencies on the contractor's part to induce "scope creep."

By contrast, supervision of a construction contract generally involves an understanding of conventional building practices and physical constraints, labor law and building codes, transportation and supply issues, and unit cost approaches. Such projects tend to be closely defined from the start in fixed-cost terms, thus requiring a more critical eye from project management personnel; that critical monitoring includes detection of possible corner cutting by the contractor. In such work, cost, schedule, and quality are the primary issues. Clearly, such a contract requires a different management approach. The history of contract failures is replete with instances of situations that were out of control because a contracting officer or COTR was unable to make the transition from one type of management to another.

The projects at RMA are not homogeneous, either from project to project or within a single site. Many projects require dealing with several or all of the environmental operating modes: soil, water, groundwater, air, and structural remediation. In addition, some projects require work to restore, sustain, or reintroduce natural resources. The technical skills, in terms of knowledge of environmental law and the underlying physical or natural science, differ for each of those media.

#### Potential Organizational Approaches

These factors lead to three general approaches to project management by PMRMA. The first approach (Alternative A) would align engineers in groups based on their environmental media expertise (the approach shown in Figure C-6). A second approach (Alternative B) would align them based on their life-cycle management experience (as shown in Figure C-7). The third approach (Alternative C) provides for a pool of personnel to be drawn on for project teams led by a cadre of experienced life-cycle project managers (shown in Figure C-8).



\* Each branch performs long term monitoring for its media

FIG. C-6 ALTERNATIVE A ENGINEERING FUNCTION BY MEDIA

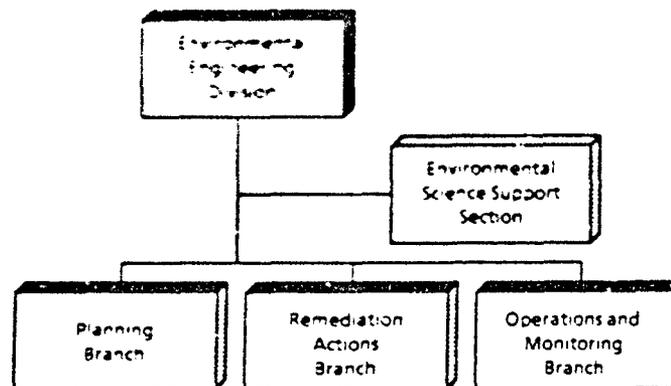


FIG. C-7. ALTERNATIVE B: ENGINEERING FUNCTION BY LIFE-CYCLE PHASE

Engineers cannot be force-fit into expert groups based on their availability; either they have the requisite experience or they must be trained to qualify. Without that experience, RMA runs the risk of having engineers in charge of construction projects (for instance) without having the technical or managerial skills, simply because they were assigned to the "construction group." In Alternatives A and B, if the depth among the media experts is not sufficient to address all phases of a project or if the project management experts do not have sufficient media backgrounds to address all relevant technical considerations, the PM must develop a mechanism for providing technical support to the teams. Such a mechanism could be a cell within the engineering directorate (shown on Figures C-6 and C 7 as a support section); or it

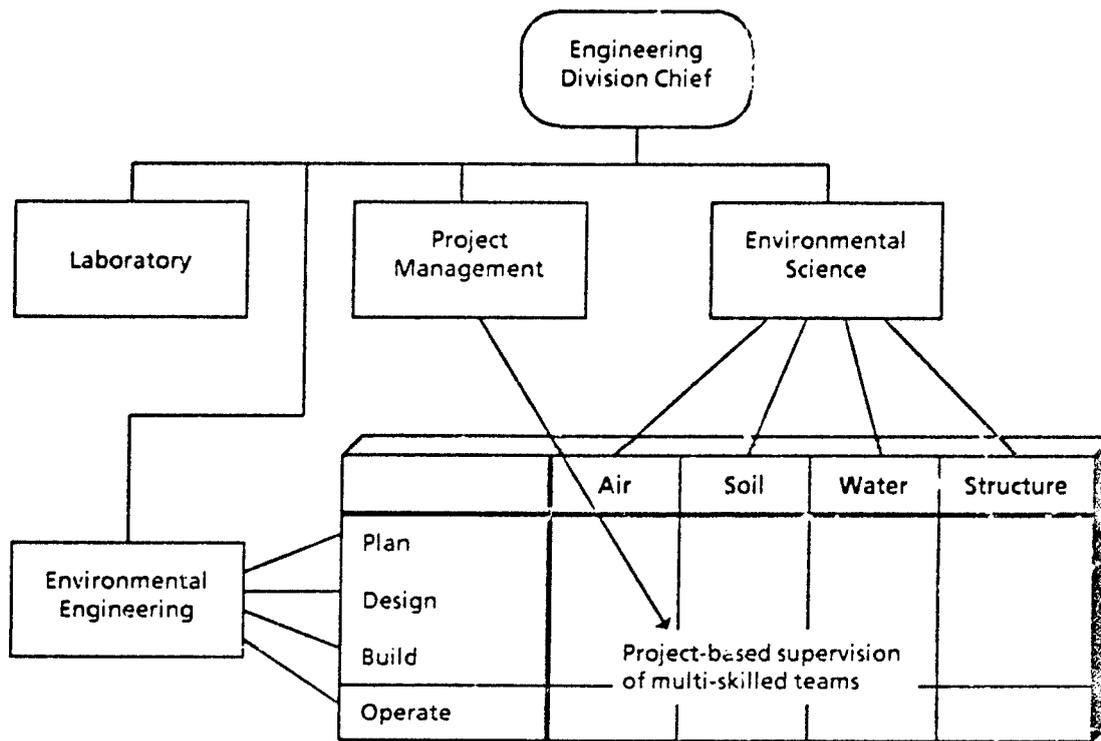


FIG. C-8. ALTERNATIVE C: MATRIX ORGANIZATION FOR THE EXECUTION OF THE ENGINEERING FUNCTION

could be provided on a consultative basis by external organizations such as the USACE.

Based on our initial interviews, we believe that the RMA staff has extensive experience in the various media programs involved in the remediation of the RMA contaminated sites, because each site has been subjected to at least a site investigation process, and thus RMA personnel are familiar with each site and the applicable regulatory framework. Because several of the interim response action (IRA) projects have gone through to the long-term monitoring stage and several RMA staff members were on hand when those projects were initiated, we believe that a cadre of people at RMA is familiar with each phase of the project process. However, because the bulk of the work to date has been in investigations, we cannot be certain that the depth of experience in the management of each of the phases is the same.

The most complex alternative for the execution of the engineering function is to establish a matrix organization, as depicted in Figure C-8.<sup>4</sup>

A matrix organization attempts to replace a traditional organization (i.e., one in which divisions of labor are based on bringing together similar technical skills) with an organization aimed at creating multidisciplinary teams to be applied to specific projects. Such an organization can be developed to varying degrees; indeed, to some extent RMA has operated in this way already in its division of labor between IRAs and planning for future actions under the ROD.

The matrix provides for an employee to be assigned permanently to a functional group in which peers from the same discipline can retain their skills (through interaction, continuing training or education, etc.) under the supervision of a person with appropriate technical knowledge. The employee is evaluated on how well he/she supports the project teams with technical expertise. From a management perspective, such an organization avoids having a generalist project manager conduct training and management activities for a multidisciplinary group of experts and allows for in-house "contracting" with the functional branch head for a certain level of support rather than having to maintain an expert on the project team and thereby paying full time for part-time support. The functional branch chief is allowed to concentrate on the technical expertise and general administrative support of the branch personnel and is not held responsible for the progress of projects. The matrix, then, provides for efficient use of direct resources and time, allows a focus on the mission to be performed, and permits expertise to be disseminated across all projects. Additionally, it allows personnel to migrate without any organizational trauma as individual projects shut down.

Because of the advantages noted, the matrix approach is favored by many project organizations. It does, however, tend to create administrative complications. The principal problem is that it provides each employee with two supervisors: the one managing a functional branch to which the employee is permanently assigned and the other managing the project on which the employee happens to be working. In fact, the employee may be working on more than one project at a time and thus acquires even more supervisors. This approach also gives rise to a situation in which

---

<sup>4</sup>Much of the following discussion of the matrix is taken from Linn C. Stuckenbruck, "The Matrix Organization," *The Implementation of Project Management: The Professional's Handbook*, Drexel Hill, Pa.: The Project Management Institute, 1982.

employees may be overcommitted; the organization must devise some method of setting priorities across projects, generally through the intervention of a common higher grade manager. Another obvious problem for the matrix is that it requires a higher ratio of supervisors than pure functional organizations. While this approach may result in a more efficient process in the end, it is often difficult to convince outside observers (or funding authorities) that adding more overhead will result in increased efficiency, especially when it is generally conceded that the matrix is such a complex concept that often it has been known to fail.

We present this discourse on the matrix because no analysis of organizational structures for a major project on the scale of the RMA restoration would be adequate without at least considering it as a form. In our view, it is an essential approach in cases in which a project requires the input of strikingly different viewpoints, especially in a creative or politically sensitive process. The situation confronting RMA does not meet that requirement: the post-ROD technical requirements will no longer be politically sensitive because all major parties will have signed the ROD, nor should they require extensive inventiveness because they will be specified in the ROD. The various engineering disciplines supporting the projects, while different, are fairly homogeneous. The only issue of difference among the engineers will be the extent of their experience in managing specific phases of projects. This problem can be solved either by organizing around it or by providing a cadre of staff experts for general support, as indicated in Alternatives A and B. Otherwise, the benefits to be gained do not justify the increase in supervisory overhead. Additionally, the matrix approach always carries with it the potential for total breakdown of the communications or management system; the large costs and political visibility of the RMA program make that risk unreasonable when alternative forms would accomplish the desired results even though not quite as efficiently.

#### **Implementing the Possible Organizations for the Engineering Division**

We considered the three possible organizations described in Alternatives A, B, and C. Alternative C, the matrix organization, was discarded because of its track record of complexity and confusion. The choices then were reduced to organization by media or by project phase (which is roughly how engineering has been operating). In the absence of more detailed information about the qualifications and experience of each of the PMRMA engineers, our recommendation is Alternative B.

**APPENDIX D**

**FUNCTIONS AND STAFFING REQUIREMENTS: FY95 – FY05**

## FUNCTIONS AND STAFFING REQUIREMENTS: FY95 – FY05

This appendix provides a description of the functions and staffing levels that will be required by the Program Manager (PM) to execute the remediation mission at the location that was formerly the Rocky Mountain Arsenal (RMA). The functions correspond to those shown in Figure D-1. The functional descriptions in this appendix address only the major duties; a complete list of the activities for each function is better addressed in an organization and functions manual (e.g., the PMRMA 10-1 document).<sup>1</sup> The staffing is based on the effort that is deemed to be required to support the remediation program after the signing of the record of decisions (ROD), a program of limited duration, and not for a permanent organization. Therefore, the number of personnel required does not reflect staffing levels for a typical government organization or installation base operation activity, particularly with respect to the grade levels and grade-level progression for career opportunity.

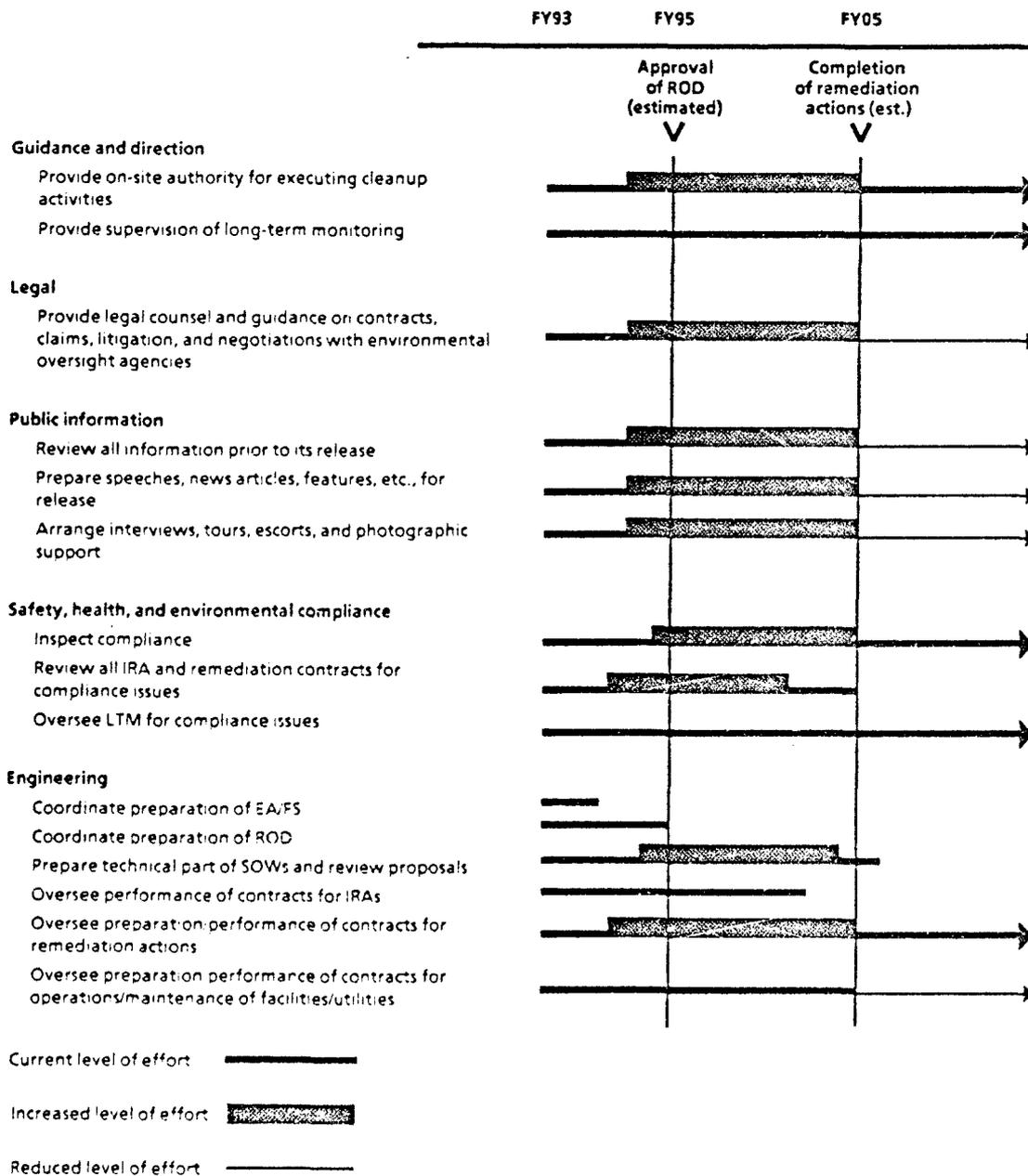
The point is that this is a remediation program and two key issues must be recognized:

- *Rocky Mountain Arsenal no longer exists as it once was.* RMA should not be looked at as an installation or table of distribution and allowance (TDA) organization but rather as a location at which the Army must execute a remediation program.
- *The Program Manager will need people to carry out the mission.* Manpower terms such as "authorized," "required," and "hiring freezes" are not relevant for projects, they are for installations and permanent organizations. If the projects cited in the ROD are to be executed in the time prescribed, the PM needs people, not vacant manpower spaces.

The functional descriptions are presented in the following order: guidance and control (including the PM's personal staff), mission (specifically monitoring contractors and managing contracts), and program support. The descriptions of the functions are based on the premise that the remediation mission is the focus of the activity at RMA after the signing of the ROD. The amount of activity will be based

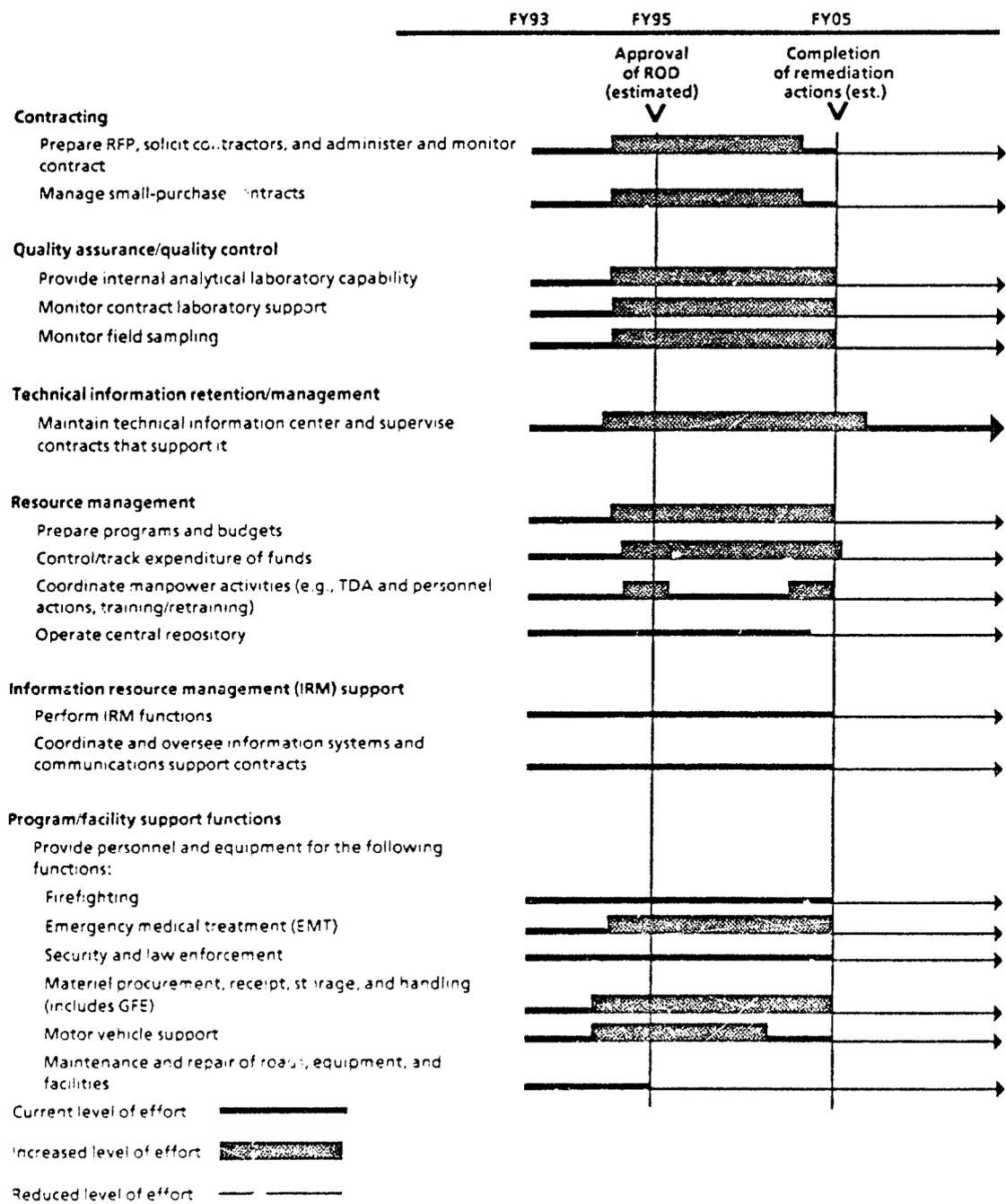
---

<sup>1</sup>*Mission and Functions, Program Manager Rocky Mountain Arsenal, Department of the Army PMRMA Regulation No 10-1, 15 June 1991.*



**Note:** This chart indicates that a function must be performed, not who will perform it. EA/FS = environmental assessment/feasibility study; LTM = long-term monitoring; IRA = interim response action; GFE = Government-furnished equipment; SOW = statement of work; and RFP = request for proposal

**FIG. D-1. FUNCTIONAL REQUIREMENTS**  
 (To support remediation actions and long-term monitoring)



**Note:** This chart indicates that a function must be performed, not who will perform it. EA/FS = environmental assessment/feasibility study; LTM = long-term monitoring; IRA = interim response action; GFE = Government-furnished equipment; SOW = statement of work; and RFP = request for proposal.

**FIG. D-1. FUNCTIONAL REQUIREMENTS (Continued)**  
 (To support remediation actions and long-term monitoring)

on the amount of money that will be spent on the remediation (currently estimated to be \$180 million per year). A program of this magnitude and political sensitivity requires guidance and control – hence the PM and the PM's personal staff – and a significant number of support functions, with their type and personnel requirements being driven by the magnitude of the remediation projects that are being executed.

The discussion in this appendix covers the period after the ROD through the completion of the majority of the ROD projects and includes closure of the projects, i.e., the removal of equipment or dismantling of any facilities associated with the projects. Projects in which ground water is an issue are examples of cases for which the remediation technique selected might require longer term operations.

Each function is described with respect to its relationship to the RMA remediation program and the staffing that will be required to perform the function. Staffing levels for the engineering and contracting functions are based on projected funds to be spent on projects, and the staffing for all other functions is based on supporting those two mission functions. Where we could determine additions or deletions to the current FY93 staffing levels, we cited them. For activities that will still be required in FY95 – FY05, where we could not find work factors in the literature or other documentation, we recommend, as the baseline, similar staffing to that which has served the RMA facility in the recent past.

All staffing level recommendations were validated through a management staffing audit, which consisted of interviewing the manager of each function currently performed at RMA to get input on the following:

- The staffing that would be required to perform that function in FY95 – FY05.
- The effect that the increase in mission requirements would have on other functional areas, i.e., the other areas that might experience an increase or decrease in staffing requirements.

Administrative requirements (e.g., secretarial support) that are required to support management overhead (e.g., Division Chief, Branch Chief) will not be included in the staffing requirement for each individual function described in this appendix. Instead, along with management overhead positions, they are addressed in association with the organizational alignment of the functional staffing requirements in Appendix A.

## **GUIDANCE AND DIRECTION**

### **Description of Function**

Remediation of the RMA facility will require a combination of political sensitivity and technical expertise and a blend of strong leadership and management skills. The political sensitivity of this program is such that the individual who has overall responsibility for it (i.e., the Program Manager), as well as those immediately around that person, must be aware of their relationships to their military chain of command, other Federal agencies, the State of Colorado, and the local population.

These relationships must be well documented and the information provided to all individuals on the project team, including contractors and other nongovernment personnel, so that they can understand the full impact of the actions in which they are involved. That understanding will allow the PM to issue guidance and direction that is clear, timely, and meaningful to those working on the remediation projects.

Specific guidance and direction must be provided for executing remediation programs and monitoring programs, planning for and expending resources, responding to public and official inquiries, and providing basic operating support (e.g., lights, telephones, electricity) for the execution of all actions that occur during the post-ROD period.

### **Discussion of Staffing Considerations**

The Office of the Program Manager will see an increase in its current activity level as the signing of the ROD approaches. It will result from a combination of more reporting requirements (e.g., to higher headquarters and to the external agencies to which the PM must be responsive because of political implications), additional requests for guidance from the subordinate organizations because of their increased workload and visibility, and the requirement for the PM to provide added supervision over the individuals that are charged with actually executing the remediation activities. The higher level of workload will continue throughout the remediation phase, decreasing only after the last project has been completed.

When the ROD is signed and project planning, design, and execution actually begin, we expect an increased amount of high-level interest (e.g., more queries from congressional-, state-, and local-level individuals and from the media). Therefore, the PM position will have to continue to be a senior Army officer or an equivalently

senior government civilian because that person must deal with sensitive issues that could be detrimental to the Army if handled incorrectly or inappropriately. As a result, the PM's time for addressing internal management of the projects will be even further limited than it is today; the PM will come to depend heavily on the deputy, or deputies, assigned to the project.

Load factors are not available for execution of this function; however, experience at RMA over the past 2 to 3 years and experience from other similar projects (although none compares to this in size) indicate the following is the approximate staffing that will be required to provide the leadership and guidance for the remediation of the RMA facility.

- Program Manager, GS-800 or 1300 Series: 1 person
- Deputy Program Manager, GS-800 Series: 1 – 2 persons.

## LEGAL SERVICES

### Description of Function

The remediation of the hazardous waste sites at the RMA facility is highly sensitive to changing statutes and regulations. Since the majority of the remediation work and some of the associated work to support the remediation program will be done by contractors, each contract will require a thorough legal review. Although the work will be performed by contractors, the Army remains responsible in the eyes of the regulators and would be the primary defendant in lawsuits. As such, the PM will need frequent legal counsel. Additionally, because the PM's team consists of a work force of military and civilian employees, the normal functions of labor and disciplinary law must continue.

The requirements for legal support to PMRMA fall into the three categories: environmental law, procurement law, and law associated with government organizations or installations (referred to here as base operations law).

- *Environmental law:* The requirements for environmental law support include advising PMRMA at public hearings and in regulatory negotiations, interpreting Federal and state environmental statutes and regulations, preparing for and conducting litigation in suits brought against RMA on environmental grounds, and reviewing project plans and activities for conformity with regulatory agreements.

At present, the responsibility for "conceptual" environmental law (work on future projects and regulatory compliance agreements) is performed through the Office of The Judge Advocate General (TJAG) in Virginia. PMRMA legal staff currently supports the project in (and has the expertise in) "operational" environmental law, i.e., interpretation of matters involving ongoing projects.

- *Procurement law:* Procurement law involves providing advice to PMRMA and contracting staff on contract law issues, including presolicitation planning, review of the SOW preparation and the award processes, and contract closeout. The local staff also provides advice on claims and protests and serves as PMRMA's representative in all litigation.
- *Base operations law:* The primary activities in base operations support law involve labor-related laws and the Uniform Code of Military Justice (UCMJ). Ancillary areas of practice include establishing or serving on a number of boards and committees; interpreting ethical standards and conducting training; answering inquiries from Congress, Headquarters, Department of the Army (HQDA), and the general public; and providing personal property claim service to Active Duty military personnel assigned to PMRMA. Where possible, legal assistance is also provided to local-resident retirees.

## Discussion of Staffing Considerations

### *Environmental Law*

Once the ROD is signed, remediation projects will be performed as specified in the ROD or on the basis of technical modifications to the ROD. We expect the bulk of the requirement for this function to involve legal issues on continuing projects, an area in which the RMA legal staff is expert.

The operational legal requirements are generally not as labor-intensive to support as initial "conceptual" law because the questions tend to focus on the permissibility of deviations from a defined agreement. Thus, although PMRMA will need additional legal support if it is to assume the full legal workload, the PM will not need the entire three labor years of administrative support that TJAG has provided during FY92 and FY93. One additional lawyer and one administrative assistant will be adequate to handle the workload. However, the PMRMA will have to still keep in close contact with TJAG because of that office's experience and its historical relationship as an advocate for the PMRMA's decisions.

### ***Procurement Law***

The total number of annual procurements supporting PMRMA will not change significantly from the volume that was processed annually in FY91 through FY93, assuming the funding available for contracts for FY95 – FY05 will be \$100 million – \$150 million of the remediation program's \$180+ million annual budget. Although some of the contracting work was being handled elsewhere in FY92 and FY93, RMA was the only legal staff that conducted reviews for the procurements. Thus, unless proven otherwise during the actual remediation project years, it seems that only one procurement lawyer is needed, given the appropriate level of administrative support.

### ***Base Operations Law***

The existence of a work force requires that labor laws and agreements be met, regardless of the size of the work force. For normal civilian workers, the volume of grievance actions generated is small. For military workers, the potential for actions under UCMJ is directly proportional to the population because the basic ground rules under UCMJ are well understood, particularly by members of the officer corps. In either case, those actions are well-established processes. They can be performed as additional duties by lawyers whose primary focus is on the environmental law or procurement law requirement. Support for personal property claims and other claims could be handled by the PM legal staff but would probably be handled through a memorandum of understanding with a local Staff Judge Advocate Office if one is still available in the FY95 time period.

In addition to the professional staffing, the legal function has a requirement for administrative support (e.g., typing, copying, and other secretarial assistance), whether it is organized as a separate function or part of an office with another function.

Legal office organization assumes the use of personnel with legal orientation to perform routine law functions (e.g., library maintenance, routine forms, etc.) as well as traditional administrative functions and assumes that "office management" duties will be performed as collateral duties by paralegals who also perform basic legal research. The following personnel will be required for this function:

- Attorney/Advisor, General, GS-905 Series: 1 person

- Attorney/Advisor, Environmental Law, GS-905 Series: 1 - 2 persons
- Attorney/Advisor, Procurement, GS-905 Series: 1 person
- Paralegal Specialist, GS-950 Series: 1 - 2 persons
- Legal Specialist, GS-986 Series: 1 person.

## **PUBLIC INFORMATION**

### **Description of Function**

The Army's activities at RMA invoke an unusually high level of interest because RMA is located on the northern boundary of Denver, the capital of Colorado, a Federal EPA regional headquarters, and home to a highly environmentally aware population. As a result, public involvement with RMA activities at official and group levels is high.

The public affairs function is to advise PMRMA on the public's perception of RMA actions and to keep the public informed of the Army's perspective of its responsibilities and how it is fulfilling those responsibilities. Other Federal agencies in the Denver area operate public affairs functions, and RMA must coordinate with those agencies to produce a consistent Federal view of any issue. PMRMA is the point of contact for all congressional and other external requests for information and approves all outgoing position statements.

Beyond the reactive mission, PMRMA must engage the communities around RMA proactively to tell the RMA story in the Army's words. Public affairs specialists are needed to conduct the generic portions of such presentations, although technical support from project engineers or other program staff personnel may be required.

In addition, the public affairs function will have the normal duties associated with supporting a fixed installation or permanent organization. PMRMA must support morale and welfare initiatives at RMA through events, awards, and information, including the organization of work force activities and recognition programs and producing a newsletter. Visitors must be provided with escorts and, where appropriate, protocol visits have to be arranged. The public affairs function

---

<sup>2</sup>Because the RMA project is primarily an environmental issue, one of these personnel should be the Chief Counsel. Assignment of a military officer as Chief Counsel would provide an opportunity for project leadership on an activity of Army-wide significance; a grade of O-5 would be appropriate for the Chief Counsel.

also includes providing trained still and video photographers to record events of interest at RMA and catalog and archive those visual records.

#### **Discussion of Staffing Considerations**

To perform this mission, PMRMA needs two trained public affairs people to focus on increasing its external outreach task (e.g., coordination of an increased number of speakers) and two to three people to provide continuing advice to PMRMA on events and hearings (on the reactive portion of the task). In addition, secretarial support is needed for the preparation of announcements, releases, etc.

Two dedicated staff members are needed to publish RMA internal publicity documents if the work is done in-house. Since the publishing requirement has been successfully performed under contract since FY92, it is reasonable that it should continue to be contracted in the future, requiring only minimal supervision. Public Affairs Specialists, GS-1035 Series (4 – 5 persons)<sup>3</sup> will be required for this function.

#### **SAFETY, HEALTH, AND ENVIRONMENTAL COMPLIANCE**

##### **Description of Function**

Although the focus of the remediation projects specified for the former RMA under the ROD is to restore the air, water, and soil to regulatory standards, the projects themselves must be conducted in a manner that meets regulatory standards for safety, health, and environmental protection. In addition, ancillary activities (e.g., the operation of motor parks, heating plants) that are carried out to support the remediation program without contributing to any specific project must also be carried out under applicable laws and regulations. Those laws and regulations are sufficiently complex and fluid that a dedicated staff is required to stay current with them to perform required administrative functions (such as obtaining operating permits) and provide technical expertise to operators to ensure that they are following regulations. This supervisory role includes monitoring of in-house activities and contracted activities and actions under the sponsorship of the Shell Oil Company.

---

<sup>3</sup>An additional two persons will be needed if the RMA internal publicity effort is not contracted.

The following activities must be performed to satisfy the safety, health, and environmental protection function during the remediation project period:

- Advise PMRMA on issues related to Federal and state Occupational Safety and Health Administration and environmental laws and regulations, and on requirements under Army regulations and programs.
- Assist operating unit managers in obtaining and ensuring that contractors have necessary operating permits.
- Represent the PMRMA in regulatory negotiations over permit issuance, compliance inspections, and violations resolution.
- Provide on-site inspections and technical assistance to prevent noncompliant actions.
- Ensure that government and contractors' workers have received relevant safety, health, and environmental protection training.
- Collect, maintain, and disseminate data on environmental or safety issues as needed by PMRMA or external authorities.
- Review contracts and both government and contractor operating policies, to ensure that considerations for safety, health, and environmental issues are included.

#### Discussion of Staffing Considerations

An expert is needed in each of the three compliance areas (safety, health, and environmental protection) to review contracts and plans, to visit sites, and to provide expertise in each specialty. With the types of projects that are expected to be under way concurrently, environmental engineers, safety engineers, and environmental protection specialists, as well as several compliance technicians to perform field inspections, will be needed.<sup>4</sup> This function will also require two industrial hygienists to conduct specialized site visits and plan reviews of the many projects requiring expertise in human risk issues (such as asbestos removal or chemical disposal) and a safety manager to complete the administrative requirements of the Army's safety

---

<sup>4</sup>The Army maintains a number of OSD, HQDA, and U.S. Army Corps of Engineers (USACE) Active Duty billets. Effective performance in those billets depends on a broad knowledge of environmental programs. While the Army has no technical reason for assigning Active Duty military personnel to this function, any one of the 028 or 319 Series positions could be filled with an appropriately trained officer, thus providing an experience base for future DoD environmental situations.

program and advise the PMRMA on continuing safety issues. The following personnel will be required for this function.

- Environmental Protection Specialist, GS-028 Series: 1 – 2 persons
- Environmental Engineer, GS-819 Series: 1 – 2 persons
- Safety Engineer, GS-803 Series: 1 person
- Compliance Inspectors, GS-802 Series: 3 – 5 persons
- Safety and Occupational Health Manager, GS-018 Series: 1 person
- Industrial Hygienist, GS-690 Series: 2 persons.

## **ENGINEERING SUPPORT**

### **Description of Function**

The engineering support function provides the technical knowledge and oversight required to ensure that the remediation projects that will be done by field-experienced contractors are appropriately conceived, correctly built/equipped, and properly operated.

Since the technology to be used for the remediation projects will be specified in the ROD, the engineers that will perform this function for the PMRMA need not be researchers. Additionally, since the remediation projects will actually be executed by professional, field-experienced contractors, the support engineers will not directly perform the remediation work. Their role is to act as the Contracting Officer's Technical Representative (COTR), the critical interface between the government and the contractor. As such, their primary requirements are that they have the knowledge needed to review the contractor's work and be able to determine the correctness or quality of the work and the reasonableness of a contractor's explanation as to why a project must be delayed or why it requires redirection or additional funding.

After the ROD is in place, the engineering function will be required to recommend the conceptual solutions to the remediation problems, prepare the detailed design of an agreed upon solution, construct the required facilities or use remediation equipment, operate the facility, and subsequently close the site. Each of these activities is required on almost every remediation project, projects that will be in different phases at any given time. This function will also be required to complete

the IRAs that were started prior to the signing of the ROD but that are not affected by it and to continue to oversee the operation of the water treatment plants.

#### **Discussion of Staffing Considerations**

We reviewed the engineering function workload factors at RMA over the past 2 to 3 years and the references to workload factors used by other "cutting edge" facilities such as DoD laboratories. That review indicates that one COTR can handle up to five contract tasks (depending upon their complexity) simultaneously, or a total volume of \$1 million to \$3 million in contracts (depending on the number and complexity of the contracts and the amount of hardware costs included in the contract size). Although any given engineer may operate at the extremes of this range, we will use it as the baseline workload factor range for determining the staffing for this function.

We expect that the most labor-intensive engineering requirements (measured in effort and dollars) are found in the design phase. In the construction phase, costs are higher, but the number of engineers required is not greatly increased (e.g., the level of engineering oversight required for a large building is usually not any greater than for a less costly, smaller one). Large costs during the operations phase of the remediation are usually the result of daily materials consumption rather than increasing effort. Thus, we expect that initially (i.e., during the design phase) each engineer will be able to manage only \$1.5 million in contracts, but as the construction phase begins, their monitoring capability will move toward the \$3 million mark. In addition, during the early years of the remediation, interim actions started before the ROD was signed will still be under way and will require more oversight.

Based on the discussion above and a projected annual budget of \$140 million to \$150 million (\$100 million – \$110 million/year in the first year or two) to execute the projects specified in the ROD, we use the factor of \$1.5 million to \$3 million per engineer to arrive at a requirement of a minimum of 33 to a maximum of between 50 – 70 professional engineers and environmental scientists. Our suggested staffing for this function is a range of 33 – 51 personnel,<sup>5</sup> with the lower number being for the first 1 – 2 years after the signing of the ROD and the upper

---

<sup>5</sup>The number of professional engineers required could be somewhat reduced by the use of engineering technicians to perform field inspections and document preparation with professional engineer oversight. Discussions with engineering management at RMA indicate that they believe an engineer-to-engineering-technician ratio of about 1.1 will be adequate for their situation.

parameter for the period when numerous remediation projects are active concurrently, i.e., either in the construction, operation, or closure phase. The upper parameter of 51 is a reflection of our discussion that fewer engineers/dollar would be needed in the follow-on phases than in the design phase because of the ability to monitor greater dollar amounts in the later phases.<sup>6</sup> However, it should be recognized that at its peak, this function may require augmentation to a level of 55 – 70 engineers for a short period of time (e.g., 12 – 24 months). With this in mind, the USACE or a commercial contractor that specializes in monitoring engineering projects may be sources of relief during this short surge period.

In recommending the skill mix in our staffing assessments, we have assumed that it will be necessary for engineers to move from one branch or project to another as the phases change and that not enough engineers will be available to permit tight specialization. Additionally, the majority of RMA engineers must be able to serve as COTRs with contractors who will have issues that cross disciplines. Therefore, we suggest that the majority of the engineer positions be staffed with interdisciplinary engineers who have their secondary qualification in civil, chemical, electrical, or mechanical engineering (the specific mix of these secondary qualifications can best be determined once the ROD projects have been specified).

In addition to the professional engineers and engineering technicians, environmental protection specialists should be available to assist in assessing and commenting on the environmental compliance impact of proposed actions.

The decision on whether to organize the engineering function along phase lines (design, build, operate), media lines (water, soil, and air projects), or life-cycle project teams is discussed in Appendix C.

However, in all configurations, the capability to provide any of these skills must be maintained. The following are the personnel that will be required for this function.

- General Engineer, GS-801 Series: 4 – 6 persons
- Environmental Engineer, GS-819 Series: 8 – 16 persons

---

<sup>6</sup>The estimates are based on adaptations of parameters from the current USACE Superfund Staffing Model and a review of engineering work force levels of other large projects/laboratories; these have been modified to reflect the levels of effort needed to support PMRMA activities to date.

- Interdisciplinary Engineer, GS-XX Series: 16 – 22 persons
- Environmental Protection Specialist, GS-028 Series: 4 – 6 persons
- Engineering Technician, GS-802 Series: 20 – 25 persons
- Environmental Scientists, GS-1301 Series: 5 – 7 persons.

## **CONTRACTING**

### **Description of Function**

While the mission of the PM's office is the remediation of RMA, the majority of the activities associated directly with or supporting the remediation will be contracted. Therefore, the contracting function will be a primary part of the execution of the remediation mission.

This function includes preparing the request for proposals (RFP) or other solicitation documents (including the coordination to get the technical SOW prepared correctly), coordinating the evaluation of proposals, executing the award of the contract, and administering the contract throughout its life. These activities are required whether for a major remediation project or for a small purchase.

### **Discussion of Staffing Considerations**

In the past, most contract actions for RMA have been handled by external agencies. As of 1991, RMA developed its own contracting activity to deal with the unique problems posed by a restoration on as large a scale. Although RMA's contracts office handled only \$35 million in contracts in FY92, it was designed to be able to handle a larger load. By 1995, RMA's contracting staff will have 3 – 4 years of unique experience in environmental restoration contracting. This experience, plus the lessons learned during that time, will enable the individuals in the contracting function to provide efficient, timely contracting support to the PM.

In general, we estimate that one contract specialist can handle \$7 million to \$10 million in contract obligations in a given year. (That effort includes planning work on future contracts that do not have fund obligation actions associated with them.) Based on the projected budget for the remediation projects (\$100 million to \$150 million a year) a total of 15 – 20 contracting personnel will be needed. This number includes 3 – 5 individuals that will support the program by focusing on nonproject contracting and small purchases. In addition to the contracts negotiation

and monitoring effort, a considerable administrative burden is associated with this function in terms of document preparation; as such, this function will require an administrative staff in addition to the clerical support it will require as part of its overhead.

Once the major post-ROD contracts are in place and the projects settle into an execution and monitoring mode for the operating contracts, personnel requirements for the contracting function will diminish. However, at its peak, as with the engineering function, the staffing of the contracting function (as presented below) may require augmentation for a short period of time (e.g., 12 to 24 months) midway through the FY95 – FY05 period. As with the engineering function, the USACE may be a source of relief during the short surge period. The following are the personnel that will be required for this function.

- Contracting Manager, GS-1102 Series: 3 – 4 persons
- Procurement Analyst, GS-1102 Series: 3 – 5 persons
- Contract Specialist, GS-1102 Series: 9 – 14 persons
- Purchasing Agent, GS-1105 Series: 3 – 4 persons
- Procurement Assistant, GS-1106 Series: 4 – 7 persons
- System Administrator, GS-301 Series: 1 person.

## LABORATORY OPERATIONS

### Description of Function

The laboratory function meets the project's need for the following:

- On-site laboratory facilities and analytical support, including both fixed-site and mobile monitoring laboratories
- Contract laboratory support for the analysis of all environmental media and the development or improvement of new analytical methods to meet program objectives
- Quality assurance (QA)/quality control (QC) oversight of contract laboratories and field sampling crews

- Chemistry review expertise
- Input to the overall environmental data bases that contain chemistry-related data.

The Laboratory Division directly supports all engineering programs and contract tasks that deal with sampling and chemical analysis data generation. That support entails setting the QA program objectives and requirements, directly interacting with engineering contractors and contract laboratories, and auditing all sampling and analysis-related activities. The Laboratory Division defines and reviews all quality-related documentation required by contractors. In addition, it prepares the SOWs and technically administers the analytical support contracts that complement the technical support contracts and provide the majority of contract laboratory analysis capability to PMRMA. Administering the quality aspect of the chemistry program is the responsibility of the Quality Assurance Branch. That administration includes both the contract laboratory portion and the oversight of Analysis Branch efforts in the on-site laboratory.

Most of the on-site analytical function is performed by the Analysis Branch of the Division. It is responsible for the operation of the on-site environmental laboratory. The newly constructed facility was designed to provide dedicated analytical support to the PMRMA cleanup. The laboratory maintains the capability to screen and analyze for the chemical warfare agents previously manufactured at the arsenal plus a wide variety of other supportive analyses. In particular, unknown materials and fast turnaround samples are brought to the facility for analysis. The fixed-site laboratory also plays host to a variety of contractors and other government agencies performing work for PMRMA. The laboratory also serves as a platform for the various remedial contractors (i.e., a government-furnished facility), thereby eliminating the need to set up and operate several laboratory trailers for various programs.

Another part of the Division's responsibility is to provide, as GFE, mobile monitoring laboratories that can be used for real-time, field-safety monitoring at sampling or remediation sites. That effort is supported by the Quality Assurance (QA) Branch personnel who oversee and assist with operations in the on-site laboratory. Two mobile platforms are currently in use at RMA and will continue to support various field operations in the future.

The Division performs routine review of technical plans, work plans, sampling plans, and field Standard Operating Procedures for the engineering divisions. It also reviews all quality-associated documents generated as a requirement of various contract efforts.

Finally, the Division ensures that all laboratory data are collected in hard copy for archiving and that all electronically submitted data are received and properly entered.

#### Discussion of Staffing Considerations

The current workload of oversight of contracted analytical functions is being performed by five chemists and a physical science technician. Upon execution of the ROD contracts, the workload for these functions will increase by an estimated 20 – 30 percent as the number of projects that are being executed concurrently increases and each requires sampling monitoring. The requirements will increase fairly constantly and then begin to decrease as projects are completed. The increase in the workload will require an additional 1 – 2 chemists for this function.<sup>7</sup>

The fixed-facility analytical laboratory function is expected to remain fairly constant during the FY95 – FY05 time period because of the acquisition and use of mobile laboratories. The current plan is to have two mobile laboratories; one will be GFE and will be issued to a contractor to be operated as part of a contract for a project and the other will be operated by government personnel (two people are required per mobile lab).

Management of the QA/QC function will require one individual to provide overall supervision and two supervisory chemists. As with its current operation, this function will require individuals to plan, coordinate, manage, and perform physical science functions, technicians to support the chemists, and an information management specialist. The following personnel will be required for this function:

- Chemist, GS-1320 Series: 13 – 14 persons<sup>8</sup>
- Physical Scientist, GS-1301 Series: 2 – 3 persons

---

<sup>7</sup>During the 18 – 24-month peak workload period (i.e., when the maximum number of projects are in process concurrently), this function may require contractor augmentation.

<sup>8</sup>Contract analytical services could be used to support peak workload periods, with the government personnel performing contract monitoring and administration.

- Physical Science Technician, GS-1311 Series: 2 persons
- Information Management Specialist, GS-1410/-1412 Series: 1 person.

## TECHNICAL INFORMATION RETENTION/MANAGEMENT

### Description of Function

The technical information retention/management function consists of overseeing the receipt, storage, and dissemination of technical, environmental, and legal information and documents that pertain to the remediation activities at RMA. This function includes monitoring contractors who perform the actual data entry and automated system support for these areas (including data management functions) and coordinating and interacting with government and other authorized organizations on the release and/or sharing of technical data. Associated with this mission-related information management function is the requirement to support (and to provide the physical place for) the Joint Administrative Record and Document Facility (JARDF). An additional duty that accompanies the JARDF function is the requirement to provide an individual to serve as JARDF custodian and chairperson of the JARDF Committee.

### Discussion of Staffing Considerations

During the post-ROD period, the amount of data and documentation that will have to be processed and stored will increase; however, the real increase in workload for this function will be in the area of responding to requests for information from individuals associated with the execution of the remediation program and individuals from external agencies (e.g., media, Congress, and Federal and state agencies). This increase is expected to begin just before the signing of the ROD and continue throughout the period of the project execution. Because of the importance of being able to retrieve the right information on time, this function should be performed by an individual with a thorough knowledge of the data base and how the elements of data relate to each other (i.e., a technical information specialist).

For the most part, most of the workload will be performed by contractors. The increase in the workload of the individuals currently associated with this function will involve having to monitor a somewhat larger amount of contractor activity and possibly having to assist in writing modifications to contracts to accommodate

changes or increases in the workload not covered under the current contract. The following personnel will be required for this function.

- Technical Information Specialist, GS-1412 Series: 1 person
- Computer Programmer Analyst, GS-334 Series: 1 person
- Librarian (Science and Engineering), GS-1410 Series: 1 person.

## RESOURCE MANAGEMENT

### Description of Function

Resource management (RM) entails financial management and manpower management. RMA is faced with the additional requirement to operate a system to manage the remediation agreement between the U.S. Army and the Shell Oil Company.

The primary activities associated with the financial part of the resource management function include the formulation of programs and budgets, control of the budgets and funds, and cost tracking. Additionally, this function also entails matters associated with audits by both Army and external agencies, development of policies relating to inter-Service and intra-Service agreements, and review of all contracts for financial implications.

Manpower management includes programming for manpower resource requirements and initiating, monitoring, and taking actions associated with filling manpower spaces and processing personnel actions, to include individual training.

In accordance with the agreement with the Shell Oil Company, the Army is responsible for cooperating with Shell in auditing each other's cost documentation and operating a central repository in which copies of all primary cost documentation of Shell Oil Company and the Army can be filed.

Significant decisions made at Army Secretariat, Army Staff, and Major Command levels have the potential to affect RMA resources (both financial and personnel). As such, the RM function also includes the requirement to represent RMA's interests and explain RMA's requirements at those headquarters. This is usually accomplished through the use of liaison personnel.

## Discussion of Staffing Considerations

The workload of this function will be affected differently in the post-ROD period. In the financial management area, in addition to having to review more and larger contracts for budget implications, there will be a steady increase in the requirement to provide oversight of contract dollars as the number of contracts being worked concurrently increases. Given that the amount of dollars on contract at any one time will increase by 20 to 50 percent of the dollar amount being monitored in FY92 and FY93, there will be a requirement to increase the number of individuals performing budget analysis by two to three personnel.

The manpower activity will experience an increase in activity (1) just prior to and in the initial phases after, the signing of the ROD, when there will be a requirement to acquire personnel to fill the program position vacancies and (2) near the end of the project execution and closure phase, where the individuals onboard will be phased out of the program team. Phasing out could include retirements, transfers, or reduction in force (RIF) actions. An administrative officer will be required to ensure the execution of this portion of the RM function.

The Central Repository Section is projected to remain the same during the remediation project years. Even when the contract dollars increase, the number and scope of the vouchers, which is what this function's workload is generally dictated by, will remain relatively the same. At some point in time, this function may diminish or go away completely if Shell is allowed to make a financial settlement. The following personnel will be required for this function:

- Budget Analyst, GS-560 Series: 3 – 5 persons
- Program Analyst, GS-345 Series: 1 – 2 persons
- Management Analyst, GS-343 Series: 2 – 4 persons
- Administrative Officer, GS 341 Series: 1 person
- Accountant, GS-510 Series: 2 persons
- Auditor, GS-511 Series: 2 persons.

## INFORMATION RESOURCE MANAGEMENT SUPPORT

### Description of Function

This management function includes planning for and managing all of the resources (i.e., policies, people, funding, equipment, and data) that are required by an organization to execute activities associated with automation, telecommunication, visual information, publications and printing, and records management (i.e., the five areas covered under the term *Information Mission Area*). Specific activities that these resources are used to support are systems administration functions, to include system security; information security; systems analysis, requirements determination, and planning for equipment and software upgrade and modernization; maintenance of information mission area equipment; and the operation of a telecommunications center, a COMSEC site, and voice communications.

### Discussion of Staffing Considerations

This function consists primarily of the preparation, monitoring, and oversight of contracts. The workload for this function during the ROD remediation project period should remain approximately the same as its FY92 and FY93 levels. Therefore, the skills and number of personnel required for this function during the FY95 – FY05 period should remain approximately the same. The automatic support contracts will require individuals with computer experience; the communications activities will require communications and electronics experience; and records management, publications and printing, and associated administrative requirements (e.g., Privacy Act, Freedom of Information Act, mail and distribution) will require administration specialist skills. The following are the personnel that will be required for this function.

- Computer Specialist, GS-334 Series: 3 – 5 persons
- Computer Specialist, GS 335 Series: 1 – 2 persons
- Communications Specialist, GS-391 Series: 2 – 3 persons
- Administrative Support Specialist, GS-341 Series: 1 – 2 persons
- Management Analyst, GS-343 Series: 3 – 5 persons.

## PROGRAM/FACILITY SUPPORT FUNCTION

### Description of Function

This function includes those activities required to support any project or mission that is executed on a standalone basis, i.e., the project or mission must provide its own base support at the facility or installation where the mission function is being conducted. For the RMA remediation program, these support activities include providing facilities and facility maintenance (e.g., buildings), utilities, road network, logistics support (e.g., supplies for government personnel use, GFE, and transportation support), security and law enforcement, fire prevention (e.g., fire inspections) and firefighting, and all of the associated activities that are required to make it possible to provide these support services (e.g., tools and equipment and the capability to repair the equipment).

Provision for facilities and roads includes ensuring that those that are in use are maintained and that those that are no longer needed do not have resources expended on them. Provision for buildings includes maintenance, housekeeping, and the provision of utilities, water, and sanitation.

Security and law enforcement includes perimeter security, security of government and other property within the boundaries of RMA, traffic control, vehicle registration, processing of security clearance requests, and maintenance of a personnel identification system.

Fire protection includes responding to fire calls, providing EMT, assisting with on-post hazardous material incidents, maintaining on-post fire protection systems, and performing fire safety and equipment inspections. This is a 24-hour-a-day, 365-day-a-year mission.

Logistics support includes ensuring that supplies and equipment are accounted for upon receipt, storing them, and issuing them as required; ensuring that government vehicles and other mechanical equipment is accounted for and maintained; managing the documentation required for transportation of material/equipment, to include hazardous material, both inbound and outbound; and managing the accountability and maintenance program for the equipment required to support the remediation program.

## Discussion of Staffing Considerations

### *Roads and Facilities*

Maintenance of roads and buildings will be changing in FY95 – FY05 as new buildings are built to support remediation projects and the roads to them require increased attention and as buildings are torn down and roads to them are no longer needed. As opposed to the past, when a stable level of effort was needed to execute this function, the rise and fall in the activity level associated with the maintenance of the buildings and road network will result in a rise and fall in the need for personnel staffing support. Accordingly, execution of this function may best be provided through a contract that allows for variable support with the in-house staffing for this function limited to providing personnel to monitor the execution of the various activities provided under the contract. Requirements for the management of this function include experience involving engineering and architectural projects, and work with facilities, structures, processing/power plants, grounds and roadways. Specific skills needed for this function include civil, mechanical, and electrical engineering. The following are the personnel that will be required for this function.<sup>9</sup>

- Civil Engineer, GS-810 Series: 1 person
- Engineering Management Specialist, GS-801 Series: 1 person
- Interdiscipline Engineer, GS-8XX Series: 1 – 2 persons
- Engineering Technician, GS-802 Series: 2 – 4 persons
- Civil Inspector, WG-3601 Series: 1 person
- Mechanical Inspector, WG-4701 Series: 1 person
- Electrical Inspector, WG-2805/-2810 Series: 1 person.

### *Security and Law Enforcement*

Requirements will increase when the ROD has been signed, particularly when the construction for the remediation projects begins. Increased contractor activity will bring about an increased requirement for traffic control, badge issue and

---

<sup>9</sup>If the work that is currently performed by the Maintenance, Mechanical, and Electrical Sections (currently part of the Facilities Engineering and Maintenance Branch) is not contracted out, this function will have to be staffed to perform these activities also, probably at the current level (i.e., 20 manpower spaces) or slightly higher during peak periods.

exchange, and investigation of incidents (e.g., theft, accidents). The increase in workload should be accommodated by increasing the security force approximately two to three personnel over the FY92 and FY93 staffing level. The following are the personnel that will be required for this function.

- Security Specialist, GS-080 Series: 2 persons
- Police Officer/Guard, GS-083/GS-085 Series: 28 – 31 persons.

### ***Firefighting and EMT***

Requests for fire inspections and requests for firefighting and emergency medical treatment (EMT) responses are expected to increase with the increased level of activity after the signing of the ROD, especially during the construction phase. Hazardous material (HAZMAT) incidents may also increase during construction or razing operations. A review of the installation's records indicates that there has been a call for response about every 2 weeks (about 20 calls per year for an ambulance, with the rest being responses to fire incidents). As long as requests for any of the emergency services occur individually, the FY92 and FY93 staffing level would be adequate (e.g., usually four to five individuals are on duty at one time, with a requirement for one individual to remain at the station and at least two EMT technicians to respond on each call). However, if more than one request arises at a time (be they fire, medical, or HAZMAT), and only four individuals are on duty at the time, the inadequate staffing of this function may not be able to adequately deal with life and death situations. With the increased amount of personnel (contractors) and activity on the installation, the probability of simultaneous response requirements increases.

Per Title 10, Section 2465, United States Code, the firefighting function cannot be contracted. Therefore, to provide the staffing to accommodate the multiple-incident scenario (e.g., to ensure that each shift has a minimum of five persons at all times), either two or three more persons or some other method is needed to provide additional specially trained government personnel for each shift during the construction and project execution period (estimated to be 3 – 5 years). These individuals need not be firefighters but must be able to perform the nonfirefighting support duties currently performed by firefighters (e.g., operating the base station, performing EMT duties, or responding to a hazardous material incident), thus allowing the firefighters that are on duty to be available to perform their primary

task, that of fighting fires. Examples of alternative types of support include supplementing the PM's firefighting organization with Army EMT technicians, or the reestablishment of a detachment of military personnel from the U.S. Army Technical Escort Unit (similar to the one that supported RMA during the 1960s – 1980s). Firefighter, GS-081 Series: 19 – 21 persons,<sup>10</sup> will be required for this function.

### ***Logistics Services***

Current plans call for a large amount of GFE to be provided during the post-ROD remediation phase. As the number of projects being executed concurrently increases, the workload associated with ordering and accounting for the GFE is going to increase significantly, hence a requirement for additional staffing for this activity. Movement of material, both accountable and expendable, will increase during project construction and project execution. This activity will require a logistics management specialist to coordinate the overall supply support operation; supply specialists to handle the documentation; a traffic management specialist to keep track of the inbound and outbound shipments; and warehouse personnel to receive, store, and issue materiel. Additionally, the logistics function will be responsible for oversight/administration of all of the real estate activities/transactions associated with the transition of RMA.

The warehousing duties can be performed using a contract as long as the Army has an accountable employee and an auditing procedure to monitor the contractor's performance. With the Logistics Branch facing possible retirement of several of its current employees during the period 1994 – 1999, phasing in of contract support – instead of hiring new employees for a short time – would seem to be an appropriate course of action.

### ***Equipment Accountability and Maintenance***

We anticipate that the majority of maintenance will be performed using contracts. Therefore, this function will require personnel with experience in automobile, heavy equipment, and general equipment maintenance to provide input into the contract preparation and to monitor the execution of the services performed

---

<sup>10</sup>If augmented by other resources to respond to multiple incidents (e.g., EMT technicians or Army technical escort personnel), this figure could be reduced to the FY92 – FY93 level of 16 firefighters.

under the contract. Additionally, there will be a requirement to account for all equipment assigned to the PMRMA (e.g., a property book function) and coordinate the use and maintenance schedule of all equipment, to include General Services Administration vehicles. The following are the personnel that will be required for this function.<sup>11</sup>

- Logistics Management Specialist, GS-346 Series: 1 person
- Industrial Property Management Specialist, GS-1103 Series: 3 – 5 persons
- Maintenance Management Specialist, GS-1601: 1 person
- Supply Specialist, GS-2001/-2005 Series: 3 – 4 persons
- Inventory Management Specialist, GS-2010 Series: 2 – 3 persons
- Traffic Management Specialist, GS-2130 Series: 1 person
- Equipment Specialist, GS-1670 Series: 1 – 2 persons
- Realty Specialist, GS-1170 Series: 1 person
- Mobile Equipment Inspector, WG-5801 Series: 1 – 2 persons
- Equipment Control/Dispatcher, GS-303 Series: 1 person.

#### OVERHEAD

Overhead staffing consists of individuals not specifically required to perform mission or support activities but required for the management of these activities (e.g., a Division or Branch Chief) or to perform clerical and administrative functions associated with the management overhead (e.g., the Division secretary). The number required of each of these will depend on the organization structure of the Program Manager's team. As such, since this appendix addresses just functional requirements, overhead requirements are not included. They are included, however, in Appendix A.

---

<sup>11</sup>If the warehousing and the motor pool activities are not contracted out, this function will require an additional four to six individuals for each of these

**APPENDIX E**

**GLOSSARY**

## GLOSSARY

ADP	=	Automated Data Processing
ARF	=	administrative record facility
CERCLA	=	Comprehensive Environmental Response, Compensation, and Liability Act
COTR	=	Contracting Officer's Technical Representative
DPM	=	Deputy Program Manager
EA/FS	=	environmental assessment/feasibility study
EMT	=	emergency medical treatment
EPA	=	Environmental Protection Agency
FFA	=	Federal Facilities Agreement
FTE	=	full-time equivalent
GFE	=	Government-furnished equipment
GOCO	=	government-owned, contractor-operated
HQDA	=	Headquarters, Department of the Army
IRA	=	interim response action
IRM	=	information resource management
JARDF	=	Joint Administrative Record and Document Facility
LTM	=	long-term monitoring
MILCON	=	military construction
MOU	=	memorandum of understanding
MS3	=	<i>Manpower Staffing Standards Study</i>
OSHA	=	Occupational Safety and Health Administration
PM	=	Program Manager
PMO	=	Program Manager's Office

PMRMA = Program Manager, Rocky Mountain Arsenal  
QA/QC = quality assurance/quality control  
RA = remedial action  
RD = remedial design  
RFP = request for proposals  
RI/FS = remedial investigation/feasibility study  
RIF = reduction in force  
RMA = Rocky Mountain Arsenal  
ROD = record of decisions  
SOW = statement of work  
TDA = table of distribution and allowances  
TIC = Technical Information Center  
TJAG = The Judge Advocate General  
UCMJ = Uniform Code of Military Justice  
USACE = U.S. Army Corps of Engineers  
USAFISA = U.S. Army Force Integration Support Activity  
USFWS = U.S. Fish and Wildlife Service

# REPORT DOCUMENTATION PAGE

Form Approved  
OPM No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources gathering, and maintaining the data needed, and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE September 1993	3. REPORT TYPE AND DATES COVERED Final	
4. TITLE AND SUBTITLE Making the Transition to a Wildlife Refuge: A Strategic Planning Report for the Rocky Mountain Arsenal			5. FUNDING NUMBERS C MDA903-90-C-0006 PE 0902198D	
6. AUTHOR(S) Paul Koshetar, Jr.; Douglas M. Brown				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Logistics Management Institute 6400 Goldsboro Road Bethesda, MD 20817-5886			8. PERFORMING ORGANIZATION REPORT NUMBER LMI-AR301R1	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) COL Eugene H. Bishop Program Manager Rocky Mountain Arsenal Commerce City, CO 80022			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT A: Approved for public release; distribution unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) This report has two major objectives: <ul style="list-style-type: none"> <li>To provide an assessment of the organizational structures and the personnel staffing levels and skills mix that will be required to manage the remediation of the facility that was formerly the U.S. Army Rocky Mountain Arsenal production facility</li> <li>To present issues that must be considered during the following times: <ul style="list-style-type: none"> <li>The planning for the remediation of the facility</li> <li>The transition of responsibility for the property to the U.S. Fish and Wildlife Service</li> <li>The long-term U.S. Army involvement after it transfers the property to the USFWS.</li> </ul> </li> </ul> <p>The report recommends that the Army fund the cleanup of RMA at the rate of \$180 million per year (to complete the job by year 2005) and staff the PM's organization with 264 - 294 personnel. Because of the political magnitude of the program and the Army's legal responsibility to ensure the success of this remediation, the report provides recommendations for both the PM/RMA and for the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health).</p>				
14. SUBJECT TERMS Remediation, decontamination, disposal, Rocky Mountain Arsenal, ROD, clean-up, staffing			15. NUMBER OF PAGES 131	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	