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DEFENSE SYSTEMS MANAGEMENT COLLEGE

PROGRAM MANAGEMENT COURSE
INDIVIDUAL STUDY PROGRAM

IMPLEMENTING THE TRI-SERVICE
INSTALLATION RESTORATION MISSION

STUDY PROJECT REPORT
PMC 77-2

Joseph H. Zarzycki
GS-12 DAC

FORT BELVOIR, VIRGINIA 22060

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DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE: IMPLEMENTING THE TRI-SERVICE INSTALLATION RESTORATION MISSION

STUDY PROJECT GOALS:

o To examine regulations pertinent to PM CDIR's tri-service mission and utilize portions to recommend the structure to be utilized in establishing a joint program.
o To analyze funding, reporting and staffing impacts on a joint service IR program.
o To develop an understanding of the environment the PM CDIR will be operating in by interviewing concerned individuals from OSD, the Air Force, and the Navy.
o To develop an implementing strategy.

STUDY REPORT ABSTRACT:

The Dept of the Army Project Manager for Chemical Demilitarization and Installation Restoration (PM CDIR) is responsible for restoration of designated Government sites which have become contaminated with chemical (military, hazardous and explosive), biological, radiological and associated materials. On 23 Jul 76, a Memorandum for the Secretaries of the Military Departments which was titled "Installation Restoration Programs" was jointly issued by the Assistant Secretary of Defense (Installations and Logistics) and the Director of Defense Research and Engineering. This Memorandum designated the Army as the lead Service for Installation Restoration technology development.

The paper analyzes issues associated with the management of the tri-service Installation Restoration effort by the PM CDIR. Recommendations for initiating joint service Installation Restoration projects are made. The paper discusses organizing, reporting, staffing, and funding requirements and problems; provides an understanding of organization interfaces; and recommends an implementing strategy.

Section I provides an Introduction. Section II is Background on the history of the Army's Installation Restoration (IR) program and on the IR Concept. Section III discusses the management of a joint IR program in terms of applicable guidance, necessary documentation and content of needed JOPs. Section IV deals with the organizations PM CDIR will be interfacing with and is broken down into three subsections: OSD, Dept of the Navy, and Dept of the Air Force. Section V begins by reviewing the 23 Jul 76 Memorandum; this is followed by a review of the results of the interviews with the two authors of the Memorandum. Section VI provides a suggested strategy for implementing the tri-service mission.

SUBJECT DESCRIPTORS:

Program/Project Management, Organization (10.02.02)

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IMPLEMENTING THE TRI-SERVICE INSTALLATION RESTORATION MISSION

An Executive Summary
of a
Study Report
by

Joseph H. Zarzycki
GS-12 DAC

November 1977

Defense Systems Management College
Program Management Course
Class 77-2
Fort Belvoir, Virginia 22060

Executive Summary

The purpose of this report is to discuss the management of the tri-service Installation Restoration effort by the Department of the Army Project Manager for Chemical Demilitarization and Installation Restoration (PM CDIR) and to make recommendations for the implementation of that mission. The paper discusses organizing, reporting, staffing, and funding requirements and problems; provides an understanding of organization interfaces; and recommends an implementing strategy.

The Department of the Army Project Manager for Chemical Demilitarization and Installation Restoration is responsible for restoration of designated Government sites which have become contaminated with chemical (military, hazardous, and explosive), biological, radiological and associated materials. On 23 July 1976, a Memorandum for the Secretaries of the Military Departments which was titled, "Installation Restoration Programs," was jointly issued by the Assistant Secretary of Defense (Installations and Logistics) and the Director of Defense Research and Engineering. This memorandum designated the Army as the lead Service for Installation Restoration technology development.

Since 1975, the Army, through the PM CDIR, has been engaged in a program, Installation Restoration, to deal with contamination problems that are the result of past manufacturing, storage, and testing operations. The Installation Restoration Program is divided into three phases: Installation Assessments, Technology Base Development, and Operations.

Based on interviews with concerned officials at OSD, it has been concluded that the PM CDIR has no responsibility to structure a DoD-wide

Installation Assessment effort. PM CDIR's current responsibility is seen as educating and advising the Air Force and Navy. Should an installation restoration requirement be defined within the Air Force or the Navy, a joint service project, structured with PM CDIR as the managing office for the Technology Base Development phase, is suggested by the writer.

Discussed is the management of such a joint Installation Restoration program in terms of applicable guidance, necessary documentation, and content of needed Joint Operating Procedures (JOPs). Structuring a joint Installation Restoration project will require the preparation of a Project Master Plan and Joint Operating Procedures. The JOPs recommended cover the following areas: staffing, funding, delineation of functional responsibilities, reporting, and deprojectizing (transition to the Operations phase). Suggestions for the content of the JOPs are provided.

The Air Force and Navy positions, relative to Installation Restoration programs, are viewed as contrasting. The Navy is interested in installation restoration and appears to have the existing organizations to accomplish an effort similar to the Army's Installation Assessment phase. The Air Force, on the other hand, does not see a need to devote any efforts to assessing potential IR problems; further, there is not an organizational structure comparable to the Navy's to accomplish an assessment effort.

ACKNOWLEDGEMENTS

I would like to express my appreciation to Colonel Frank A. Jones, Jr., Project Manager for Chemical Demilitarization and Installation Restoration, and Colonel Damon D. Wingfield, Assistant Project Manager for Installation Restoration, for their interest and encouragement throughout the preparation of this paper. I would also like to express my sincere thanks to LTC Larry A. Deem of the Defense Systems Management College faculty who served as my study project advisor and who provided guidance and insight during the course of the endeavor. Finally, I thank Marilyn J. Tischbin for the typing of the manuscript.

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by

Joseph H. Zarzycki
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November 1977

Study Project Advisor
LTC Larry A. Deem, USAF

SECTION I

INTRODUCTION

Topic Background

The Department of the Army Project Manager for Chemical Demilitarization and Installation Restoration is tasked with providing intensive and centralized management for the timely and effective accomplishment of: lethal chemical demilitarization and installation environmental restoration. Regarding Installation Restoration, the Project Manager Charter states that he is responsible for (Ref 14:1)[1]:

> The program for restoration of designated government sites which have become contaminated with chemical (military, hazardous and explosives), biological, radiological, and associated materials.

The Army through its Project Manager for Chemical Demilitarization and Installation Restoration has been engaged since mid-1975 in an intensive effort to study, assess and correct contamination problems which are the result of prior Army manufacturing, testing, and storage operations. In August of 1976, the Installation Restoration (IR) program was expanded to include a DoD-wide IR responsibility (Ref 10:1). This mission expansion was the result of a Director of Defense Research and Engineering (DDR&E) memorandum to the Secretaries of the Military Departments (Ref 7:1).

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[1]This notation will be used throughout the report for sources of quotations and major references. The first number is the source listed in the bibliography. The second number is the page in the reference.

Purpose of the Study Project

The purpose of this report is to discuss the management of the tri-service Installation Restoration effort by the Department of the Army Project Manager for Chemical Demilitarization and Installation Restoration (PM CDIR) and to make recommendations for the implementation of that mission. The paper discusses organizing, reporting, staffing, and funding requirements and problems; provides an understanding of organization interfaces; and recommends an implementing strategy.

Study Approach

To prepare for the paper, three types of research were accomplished:

Literature Search

Review of PM CDIR Files

Personal Interviews

A list of persons interviewed, with their corresponding title and organizational affiliation, as well as the type of interview conducted (telephone or in-person), is contained in the Annotated Bibliography. Interviews were held with key Army, Air Force and Navy representatives, with faculty members of the Defense Systems Management College (DSMC), and with personnel within the Office of the Secretary of Defense.

Organization of the Report

Section III of the paper contains guidance in the organizing, reporting, staffing, and funding areas noted above. A suggested approach for the unique Installation Restoration situation is provided. Section IV, entitled

Organizational Interfaces, discusses the results of the interviews conducted with the Navy and Air Force. This section focuses on the capability of existing organizations within the services to adapt to an Installation Restoration requirement and on Air Force and Navy attitudes toward installation restoration.

The results of the two interviews held at OSD are discussed in Section V. This data is perhaps the most significant portion of the paper. Section V begins by first discussing a DDR&E Memorandum to the Secretaries of the Military Departments; the subject of the memorandum is: Installation Restoration. This is followed by the results of the two interviews which are a clarification of the guidance provided in the memorandum and a discussion of the views on installation restoration as held by OSD.

Remarks made by OSD officials have an overriding impact on strategy for mission implementation. These views as well as other key points are utilized in drawing conclusions. Conclusions and recommendations are contained in Section VI.

In order to provide the reader with the necessary understanding of the Installation Restoration (IR) program and the PM CDIR, Section II, Background, follows directly. This section discusses PM CDIR mission and organization and provides information on the history of the IR program and on the IR concept.

Study Limitations

This paper deals with management issues surrounding the implementation of a joint service Installation Restoration program. There is no attempt

made to deal with the technical considerations involved in such a program, although the technical approach utilized by PM CDIR in performing Installation Restoration efforts is provided in summary form in the Background Section. The topic of funding a joint service effort is discussed; however, the paper does not attempt to develop a detailed financial management control system to be used in a joint service program.

SECTION II

BACKGROUND

Installation Restoration -- History

During the last several decades, the Army has been engaged in munitions development, testing, manufacturing, and various other operations at a number of installations throughout the United States. As a result of these activities, the installations have become contaminated with various chemical, biological, and radiological (CBR) materials. The contaminants were deposited in disposal basins, burial pits, test sites, impact ranges, production facilities, demilitarization areas, and storage yards. Although some of these areas were contaminated unintentionally through accidental spills or munitions deteriorating in storage, most of the contamination stemmed from intended and legitimate operations (Ref 12:35).

Historically, the Army had dealt with contamination only as specific problems surfaced. However, "changing times" have caused the Army to direct comprehensive effort to contamination problems in general. These include: (1) the increasing public and national interest in the environment; (2) the progressive encroachment of civilian communities to the borders of previously isolated Army installations; (3) the clear tendency of the Army to consolidate its real estate and release land for public uses; and (4) the growing concern that known contaminants could be migrating steadily to installation borders and pose a potential environmental or health hazard to now adjacent communities (Ref 12:1).

In recognition of the technical complexity, high cost, political visibility, and involvement of a wide range of Federal agencies, the Assistant Secretary of the Army for Installations and Logistics directed in March 1975 that the "installation restoration" effort be placed under project management control. The mission of providing intensive centralized management for installation restoration was combined with that of the existing Office of the Program Manager for Demilitarization of Chemical Materiel, which was redesignated the Project Manager for Chemical Demilitarization and Installation Restoration (Ref 12:2).

The initial Installation Restoration program concept was aimed at assessing Army installations suspected of having CBR contamination, developing decontamination technology, and developing plans to restore selected installations to a condition consistent with planned future use. The program concept was later restructured, based on DoD guidance, to focus primarily on those installations where contaminants were known to be or were suspected of migrating off Army posts and could pose an immediate public health hazard. Secondary emphasis is planned on decontamination of those installations which are planned for release to the public (Ref 12:37).

With expansion of his mission to include Installation Restoration, the PM CDIR was tasked to immediately direct his attention to Rocky Mountain Arsenal (RMA), Colorado, and the Weldon Spring Chemical Plant (WSCP) in St. Charles County, Missouri (Ref 11:1). RMA occupied a site of some 17,000 acres on the northeast of Denver, Colorado. It was established in 1942 for the production of toxic chemical and incendiary munitions and was later used primarily for nerve agent production and munitions filling operations. Over the years various types of contamination have resulted from the

operations at RMA. The waste products deposited in disposal basins have migrated into the groundwater and have been detected off the installation. This discovery prompted the Colorado Department of Health to issue "cease and desist" orders to control this migration. The immediate objective of the RMA installation restoration project is to establish an interim containment and water treatment system to demonstrate compliance with the "cease and desist" orders. The long range objective is to control and treat the sources of groundwater contamination (Ref 12:40-42).

The Weldon Spring Chemical Plant (WSCP) represents a 200-acre tract near St. Louis which was scheduled for excess due to much local interest in the site. WSCP is heavily contaminated with uranium and thorium (radiological contamination) and this extensive contamination precludes excessing of the property. An extensive survey effort and decontamination alternatives analysis is ongoing (Ref 12:51).

In 1976, the IR mission was expanded to include Pine Bluff Arsenal, Arkansas, where DDT problems were known to exist. Pine Bluff Arsenal had been the site of large scale DDT manufacturing and storage operations in the 1950's and 60's (Ref 12:54-56).

Also in 1976, the PM CDIR began studying the entire contamination picture within DA in order to assess other potential migration and/or excessing problems. A present outgrowth of this effort is the proposed decontamination of Frankford Arsenal (FFA) located in the City of Philadelphia. The arsenal has, over the years, been involved in a wide range of munitions-associated activities. There is strong political pressure being placed on the Army to take steps to allow the arsenal property to be returned to productive use. FFA was recently closed with

the resulting loss of several thousand jobs and property release to other Federal or to industrial users is not possible until hazards are removed from lands and buildings.

In August of 1976, PM CDIR was tasked by Department of the Army Headquarters to satisfy the Army's lead service Installation Restoration role (Ref 10:1). This mission expansion was the direct result of a 23 Jul 76 Director of Defense Research and Engineering memorandum; the memorandum was for the Secretaries of the Military Departments and its subject was Installation Restoration Programs (Ref 7:1). This memorandum was jointly signed by the Director of Defense Research and Engineering and the Assistant Secretary of Defense (Installations and Logistics). The memorandum is contained as Appendix A.

Actions taken to date to respond to this tasking have been limited in scope. The Navy and the Air Force, through DDR&E, have been provided with Installation Restoration guidance in the form of a concept plan which describes the IR approach as is being accomplished by the Army. This concept for IR is summarized in subsequent paragraphs. PM CDIR has also established a Tri-Service Installation Restoration Coordinating Committee which it chairs. The committee meets semi-annually to transfer information and was formed to serve as a vehicle for providing IR technical advice to the Air Force and Navy.

Installation Restoration -- Concept (Ref 13)

The IR concept is broken down into three major phases: Installation Assessments, Technology Base Development, and Operations. Installation Assessments has as its purpose the selection of installations which are

likely to require IR efforts either due to the potential for migration of contaminants resulting from prior operations or because extensive site decontamination is required prior to a desired excessing action being accomplished. The second phase, Technology Base Development, has as its objective the development of the technology and data required to solve a migration or decontamination problem. The third phase, Operations, is the actual accomplishment of decontamination, treatment, and disposal. These operations are based on plans developed during the Technology Base Development phase.

The Installation Assessments effort is being accomplished within the Army by the screening of all Army-held properties with the result being a prioritization of candidate installations. A records research team searches existing records and conducts extensive personal interviews to fully trace the history of operations at these candidate installations. Based on the records research report, in selected instances a preliminary survey is conducted during which limited sampling and analysis is accomplished. Where migration is suspected, limited geological and hydrological investigations are also undertaken. The results of this effort are a determination of whether or not a significant problem exists.

In those few cases where corrective action is required either due to offsite migration (a public health hazard) or a decontamination need, the Technology Base Development phase is entered into. This phase consists of an extensive sampling and analysis effort, geological and hydrological modeling and ecological studies. Frequently the contaminants of concern are military peculiar and as a result, there are data gaps which must be filled by R&D efforts. These include toxicological studies to arrive at

standards for the contaminants, the development of analytical methods to measure the contaminants at the low levels typically required by the standards (usually in the parts per billion range) and the development and piloting of treatment equipment to remove these contaminants to safe levels.

The Technology Base Development phase is both technically complex and costly requiring O&MA, RDT&E and sometimes Military Construction funding. Prior to entering into this effort, a project plan is prepared and submitted to the Assistant Secretary of the Army (IL & FM) for approval.

The Operations phase includes those efforts required to accomplish decontamination, treatment and/or containment of contaminants. The construction of necessary facilities, as well as the verification that operations have been successfully accomplished are also part of this phase.

By its very nature, the Installation Restoration maintains a high congressional visibility. This in part accounts for the additional reporting requirements placed on the PM CDIR. As with all Army project managers, PM CDIR semi-annually presents the Review and Command Assessment of Performance (RECAP). PM CDIR presents two RECAPs -- one for Chemical Demilitarization and one for Installation Restoration. The IR and CD RECAP scripts are also briefed to the ASA (IL & FM).

Additionally, mission accomplishment requires thorough coordination with interested Federal, State, and local agencies. Frequent dealings occur with the Environmental Protection Agency, the Department of Health, Education and Welfare, Department of the Interior, the Department of Energy, and the Nuclear Regulatory Commission.

To accomplish its mission, PM CDIR is organized to support both the Chemical Demilitarization and Installation Restoration programs. The PM is a full colonel; the two mission elements -- Chemical Demilitarization and Installation Restoration -- are managed by a GS-15 and a full colonel, respectively.

Support to these divisions is provided by the Program Management Office and the Technical Support Office. Technical Support Office provides expertise in areas common to both programs and is responsible for environmental impact statement preparation, safety engineering, and public affairs.

Within IR itself, one division has lead project responsibilities while the other provides technical specialists across the board to all project officers. The IR organization is staffed with 20 individuals, including 16 civilians and 4 officers; the civilian force includes 3 secretaries. The total PM CDIR staff, including field office personnel, is 91. Additional staffing for the IR effort is being sought, but the current DoD emphasis on the reduction of personnel strengths is making this difficult.

In the sections of this paper that follow, management of the tri-service Installation Restoration effort will be discussed. Key to the understanding of subsequent sections is the recalling that the Army's Installation Restoration program is composed of three phases: Installation Assessments, Technology Base Development, and Operations. In its concept plan for Installation Restoration efforts, which was provided to the other services, this same approach is required. Section III refers frequently to the Technology Base Development phase. Section IV points out Air Force and Navy capabilities for and attitudes towards problem identification, i.e., Installation Assessments. Section V provides OSD opinions, based on personal

interviews, on PM CDIR roles in tri-service Installation Assessments, Technology Base Development, and Operations.

SECTION III

JOINT SERVICE INSTALLATION RESTORATION PROJECT MANAGEMENT

Introduction

PM CDIR tri-service Installation Restoration program management efforts have been limited to date to IR Concept Plan preparation and distribution, and to chairing the IR Tri-Services Coordinating Committee. This section of the report discusses other actions which in the future are likely to be required in order to properly structure a joint service IR project.

The discussion that follows directly is concerned with the basic joint service project management guidance currently available within DoD. This is the 20 Jul 73 Army, Air Force and Navy "Memorandum of Agreement on the Management of Multi-Service Systems/Programs/Projects" (Ref 16:3). Remarks subsequent to the discussion on guidance are structured into six subsections: organizational documentation, staffing, functional responsibilities, funding, reporting, and deprojectizing. These six subsections contain information on other joint service project management experiences, reflect and apply the joint service guidance contained in the Memorandum of Agreement, and provide recommendations by the writer on appropriate future actions.

Guidance

In the area of joint service project management, the applicable regulation is AMCR 70-59 (AFSC/AFLC Regulation 800-2, NAVMATINST 5000.10A) "Acquisition Management: Management of Multi-Service Systems, Programs, and Projects" (Ref 16:1). The 20 Jul 73 Memorandum of Agreement noted

above contains the policy, responsibility and required documentation in this area and is Attachment 1 to the regulation. The regulation recognizes that every program is different and provides basic management principles for conducting multi-service programs (Ref 16:1). Although it is required guidance for those programs which are considered Major Weapon System Acquisitions and fall within the purview of DoD Directive 5000.1 (Ref 8:1), like 5000.1 much of it can and should be applied to other project management efforts.

Section 3 of the regulation describes the responsibilities of the Executive (lead) Service, Participating Services, and the designated PMO. Areas for consideration resulting from these statements of responsibility are: (1) staffing; (2) delineation of functional tasks; (3) funding; (4) reporting; and (5) deprojectizing. These areas are obviously of importance in any project management effort, and resolution of issues in these areas should be tailored to fit the specific circumstances of the project.

The regulation in Section 4 also specifies the documents to be used in managing multi-service projects (Ref 16:6). These documents are: a Multi-Service Program/Project Manager Charter, a Program/Project Master Plan, and Joint Operating Procedures (JOPs). These documents will be discussed in the subsection of the paper that follows and prior to addressing the five other areas noted above. Section 4 of the regulation also states that where Participating Services are affected by significant program actions, action will not be taken by the Project Manager without full consultation and coordination with the Participating Service (Ref 16:6).

Organizational Documentation

Unlike the acquisition of a weapons system, in the installation restoration effort there is no Air Force or Navy requirement for a specific number of systems to satisfy a need. In this case, the term requirement can best be viewed as a decontamination or treatment need and, therefore, there may be a requirement in the future to accomplish installation restoration at select Air Force and Navy installations. Presently, however, there is no knowledge of a definite requirement within either service.

The key milestone in the IR program is the point where the Installation Assessment phase has been completed and the determination has been made that the extensive Technology Base Development phase is required. Within the Air Force and Navy it will be at this point in time that a clear requirement for an Installation Restoration program will be defined.

This milestone requires the preparation of an IR project proposal. In the language of AMCR 70-59 dealing with the Project Master Plan, the Master Plan is defined as an integrated time-phased plan for the accomplishment of the tasks required to satisfy the requirement (Ref 16:6). This IR project proposal could become the joint-service IR Project Master Plan.

In the case of Army projects the Technology Base Development plan requires approval by higher headquarters prior to proceeding. In the case of joint service projects, per AMCR 70-59, the Master Plan would be "jointly approved for each individual service by persons officially appointed to approve such plans" (Ref 16:6). For Army Installation Restoration projects, approval is made by the Assistant Secretary (IL & FM); a similar approval by the Navy or Air Force Assistant Secretary having

responsibility for installations appears warranted.

By the 23 Jul 76 DDR&E Memorandum, the Army is charged with the responsibility for IR technology development and the providing of PM CDIR-developed technology to the other services. This responsibility makes PM CDIR the logical integrator of the entire Technology Base Development phase. With the approval of the Master Plan by higher headquarters, elements of both participating services for the specific IR project detailed in the plan would go under joing project management and overall responsibility would be placed within the Office of the PM CDIR.

To this point, PM CDIR's role will have been limited to one of providing advice, utilizing the Tri-Service Coordinating Committee to accomplish this advisory role. The initial approach for managing tri-service IR efforts can range from a very passive posture such as chairing the Tri-Service Coordinating Committee for IR to one of actively working within the Air Force and Navy to structure efforts to begin Installation Assessment efforts. The initial advisory posture is supported in Section V, OSD Guidance on Installation Restoration.

The three documents utilized to manage a joint service effort as called for in AMCR 70-59 are the Master Plan, the Project Charter, and the Joint Operating Procedures. The Master Plan was discussed above and an in-depth discussion of JOPs follows. Regarding a Multi-Service Program/Project Management Charter, it is the opinion of the writer that no such specific document is required. The current PM CDIR charter as provided by the Department of the Army Headquarters recognizes the joint service responsibility and addresses this in a general fashion. When an installation restoration requirement, as discussed above, is identified by

either the Air Force or the Navy and the necessary documentation in the form of JOPs and the Master Plan approved, then a PM CDIR charter revision would be appropriate. However, a jointly approved charter would not be warranted for two reasons. First, because the mission responsibility, authority, major functions, and description of relationships with other orgranizations, as called for by AMCR 70-59 in the paragraph describing the Multi-Service PM Charter (Ref 16:6), will already have been specified in the JOPs and Master Plan. And second, because unlike a joint project management office established for a specific weapons system acquisition program, PM CDIR has been established to manage a number of Chemical Demilitarization and Installation Restoration projects.

Because a requirement for a joint IR program will be certain and documented at the point the Master Plan is prepared, in the opinion of the writer, it is at that point that the roles of the participants should be clearly defined. The proper method for "identifying the detailed procedures and interactions necessary to accomplish significant aspects of the project" is the preparation of Joint Operating Procedures (Ref 16:6). The JOPs that are needed, in the writer's opinion, are described in the five subsequent subsection of the report.

Staffing

AMCR 70-59 calls for a Senior Representative to be assigned from each Participating Service (Ref 16:4). The JOP covering staffing should acknowledge that such a person has been appointed. Also called for is that the Senior Representative be assigned a key position in the PMO (Ref 16:4) and that he and the PM develop and negotiate the JOPs (Ref 16:6). Although

negotiation of JOPs between the PM and the Senior Representative is necessary in the opinion of the writer, the assignment of such an individual into the PMO is not. Again, the reasoning is that the requirement from the Air Force or Navy would represent only one of approximately 15 projects within the PMO. Should there ever be a number of IR projects from either the Air Force or the Navy being managed within PM CDIR, this position would warrant reexamination by both the Participating Service and the Army.

It is suggested that the Senior Representative be from the concerned Air Force or Navy Major Command and that he have direct access to the PM CDIR. Similarly, he should have access to the Commanding General of the Major Command. Along with his authority, his responsibility should also be clearly defined in the JOP.

At least one representative from the service having the IR requirement should be assigned to and collocated with the PM CDIR to serve as project officer(s) during the Technology Base Development phase. This action will allow integration of all efforts in this complicated technical phase to be accomplished within the PMO and, simultaneously, will achieve participation of the service having the requirement. The JOP should specify numbers, qualifications and duty assignments of the Participating Service personnel (Ref 6:4).

Some potential problems associated with not clearly defining the roles of the personnel from the Participating Service are noted in an article which recently appeared in the DSM Review which dealt with the joint Fuel-Air Explosive weapon development program (Ref 1: 58). The misunderstandings between the Air Force and Navy regarding physical location of personnel,

duties, and responsibilities were described. A major problem was the difference in participant role perception, with the Air Force envisioning a deputy PM whose task it was to interface with the PMO to ensure timely satisfaction of Air Force requirements and the Navy perceiving the deputy PM functioning in a manner identical to the other members of the PM's staff.

To ensure that a similar problem does not occur, the staffing JOP should contain as an annex the job descriptions, responsibilities, duties, qualifications and a suggested grade or rank for each one of the participating service representatives. Furthermore, the areas an individual could speak for the service and the limit of his authority in these areas should be defined.

Two additional potential problem areas which were not mentioned in the article are performance rating and participant cost reimbursement. The rating official for the participating service representatives should be stated. Logically, the PM CDIR would have the best information upon which to base a performance rating. Should it be impossible to have the PM CDIR as the rating official then the impact the PM's evaluation of the individual's performance should be delineated in the JOP. And finally, salary, permanent change of station (PCS), and travel costs of the participating service representatives should be borne by the MAJCOM having the IR requirement. Although this arrangement is called for in AMCR 70-59 (Ref 16:4), it should be detailed in the JOP to avoid a future problem.

Should there be more than one IR requirement, the above stated procedures should be followed in each case with the exception of having only one Senior Service Representative per Major Command should there be more

than one requirement from a MAJCOM. It is to be noted that AMCR 70-59 places the responsibility for establishing the manning requirements of the participating service and for integrating these individuals into the PMO on the lead service (Ref 16:4). Therefore, it is up to the Army to prepare the staffing plan which can serve as the basis for the JOP.

A final remark of a precautionary nature is necessary in this area of staffing. Information obtained from other DSMC Individual Study Projects (ISP) dealing with joint service project management indicate that harmony between senior personnel is critical to program success. This is pointed out in a May 1977 ISP (Ref 6:17) dealing with the Joint Service environment. In a paper prepared just a half a year earlier, it is stated that (Ref 1:14):

> The effectiveness of the overall management was not so much a function of the structure and manning of the program office as it was the working relationship and harmony of the senior personnel representing each service. Another factor is the attitude and understanding of joint service program requirements by executive and participating service management at the levels above the program office.

It is the opinion of the writer that the best way to plan for harmony is to clearly define at the outset what is to be accomplished by each participants, and where the limits of his or her authority lie.

Functional Responsibilities

Functional Responsibilities during the Technology Base Development phase would also be clearly delineated in a JOP. This JOP should state at the outset that PM CDIR will manage all functional efforts. It is logical that organizations currently performing similar R&D would accomplish the necessary R&D efforts to support a new requirement from within the Navy or Air Force. Aside from unexploded ordnance (UXO) detection technology, which the Navy has lead service responsibility for, it is likely that these

efforts would be Army performed. Defining, planning, controlling, and coordinating the needed R&D effort could be the responsibility of the individuals from the participating service functioning as project officers within the PMO.

Performance of the extensive soil and water sampling and analysis, which will be necessary at the installation under study, should be accomplished by the participating service utilizing either personnel from the installation of concern, in-house scientists and technicians from the participating service, or a contractual effort. Onsite management of these efforts would be the function of the contaminated installation and the office assigned this function would be the focal point for contacts between the project office and the installation. The delineation of performers for ecological studies, a data management program, and actual onsite pilot efforts would also be stated in this JOP; these functions could be performed either by Army organizations, organizations within the service having the requirement or by contract.

Funding

Funding to accomplish Technology Base Development efforts will come from two sources: RDT&E funds will come directly to PM CDIR from Army channels; O&M funds will come from the participating service to the MAJCOM. Direct Army funding for Installation Restoration R&D efforts is called for in the 23 Jul DDR&E memorandum (Ref 7:1). It is doubtful that O&M funds allotment will be entirely accomplished through PM CDIR. Most likely, the MAJCOM which has the IR requirement will wish to distribute funds directly to functional organizations within its service performing

tasks as defined in the above discussed JOP, rather than losing control of the funds when they are MIPRed to PM CDIR who will, in turn, MIPR the majority of the funds back to the functional performers within the participating service. Any Army performed work at the contaminated installation will have to be paid for by transferring funds to PM CDIR for disbursement.

This O&M funding arrangement will make management of the Technology Base Development phase difficult. A DSMC Individual Study Project report comparing three selected non-major weapon system joint projects noted that in the cases being considered, the PMs had little control over funds. In these cases, an extensive amount of coordination was required to assure funds were in fact being used in a manner consistent with project goals (Ref 2:28). It is recommended that the JOP state that all work statements with their associated funding levels will be accomplished under PMO direction. This should lead to program continuity even if it will not assure loss of fund control.

The 23 Jul 76 DDR&E memorandum (Ref 7:2) suggested that the IR funding needs be "identified through the A-106 reporting mechanism" (Ref 17). OMB Circular No. A-106 deals with reporting requirements for control and abatement of environmental pollution at Federal facilities. Pollution control needs can be identified in accordance with A-106 guidance using the RCS DD-I&L(SA) 1088. Valid needs, i.e., those approved by higher headquarters can then be structured into the service's POM submission. Theoretically, these valid environmental pollution control needs are not traded-off when budget cuts are made.

Plans for the control of migrating pollutants that are the result of past operations and their associated costs can be staffed for funding approval utilizing the A-106 reporting mechanism as a first step. Additionally, "Funds required for studies, management and monitoring associated with the definition and development of corrective measures and necessary equipment to assure compliance with standards..." (Ref 17:3) can be included. This last statement may enable some Technology Base Development phase funds to be budgeted for using the A-106 mechanism and, therefore, be relatively protected from budget cuts. It is uncertain whether sampling and analysis costs associated with obtaining a full definition of a migration problem would fall within the meaning of this statement. Unquestionably the A-106 mechanism is not applicable to those efforts at contaminated installations which pose no migration problem but which are to be excessed once they are decontaminated.

In the Technology Base Development phase, PM CDIR will be in the difficult position of seeing O&M funding cuts being made by the participating service, but not having control or reclama channels to restore the cut funds. The Senior Service Representative will have to be relied upon to attempt to restore arbitrarily cut funds. This in part justifies the need for the Senior Service Representative to be located within the MAJCOM staff organization.

Within the Army, the PM CDIR enjoys the favorable situation of having a dedicated account within the Army's Program 7 (Central Supply and Maintenance) Base Operations - Central Supply Activities Program Elements. Because this account covers only Installation Restoration, it is difficult to have O&MA funds redirected by higher headquarters. It also results in

the budget submission to Congress breaking out year to year increases and decreases to the IR program. Funding for IR efforts are of interest to congressmen whose states contain installations which are part of the IR program and, therefore, the program enjoys a favorable congressional view (Ref 25).

Areas such as the need to establish a dedicated account within the participating service or other procedures for attempting to prevent and deal with disruptive funding cuts to the project should be addressed in the funding JOP. This would be a major aspect of a JOP which should specify the entire financial management program.

Reporting

Reporting on the program within the participating service would be the responsibility of the Senior Service Representative. PM CDIR would be responsible for apprising the Senior Service Representative of project status (cost, schedule, and technical progress). Changes to the IR Master Plan or to the previously agreed-to JOPs would have to be worked out between the PM CDIR and the Senior Service Representative; this would include project schedule and technical effort changes necessitated by O&M budget cuts made by the participating service and Army R&D budget cuts affecting the project. The PM CDIR would report on the effort at the contaminated installation of the participating service as part of any program reviews given at OSD level.

The policy for interfacing with the Environmental Protection Agency and other Federal and State agencies having an interest in the project would have to be addressed in the JOP. The JOP would also have to detail

the mechanism for answering congressional inquiries which are a certainty in an IR program.

Deprojectizing

Once the Technology Base Development phase had been completed and the Operations phase begun, prime management responsibility could be transferred to the MAJCOM of concern. The PMO would serve in an advisory capacity and perform any treatment/decontamination validating role, if requested to do so. It is likely that the PMO would have to commit significant resources during the transition to accomplish contract placement, training and start up. This transition of lead responsibility and any functions the PM CDIR would accomplish during the Operations phase would be detailed in a JOP. Funding for any Army required support during Operations should be addressed in this JOP. Participating service personnel who had been in the PMO would be released back to their service, possibly to manage the Operations phase.

The actual preparation of this transition JOP might best be accomplished at the end of the Technology Base Development phase. At that point, the needs of the service regarding PM CDIR would be well defined and these specifics could be written into the JOP. However, the fact that a Transition to Operations JOP will be written and the understanding that the prime management responsibility for Operations rests with the MAJCOM having the IR requirement should be documented prior to initiating the Technology Base Development phase. There is no justification within the DDR&E memorandum for PM CDIR to be responsible for the actual performance of the treatment or decontamination operations at the Navy or Air Force installations; in fact, the OSD guidance specifies decontamination is

to be accomplished by the other services (Ref 7:4).

Along with the need to adequately consider the planning of a joint service IR project in advance of the actual requirement being placed upon the PM CDIR, it is also necessary to understand the environment the PMO is currently working in. The planning for a joint IR program in terms of organizing, staffing, funding and reporting has been dealt with in this section. The environment is OSD, the Department of the Navy, and the Department of the Air Force. The section that follows deals with this environment, that is, the Organization Interface.

SECTION IV

ORGANIZATION INTERFACES

OSD

The 23 Jul 76 OSD Memorandum dealing with Installation Restoration was signed by DDR&E and ASD (I&L). The recent change of administrations has led to a reorganization of OSD (Ref 20) with one result being a proposed modification to change the title of the Director of Defense Research and Engineering to the Under Secretary of Defense for Research and Engineering. The IR program interface will still be within the Office of the Deputy Director for Research and Advanced Technology. Within this office, the Assistant Director for the Environmental and Life Sciences will review PM CDIR R&D funding requests to satisfy Navy and Air Force requirements.

What was formerly the Assistant Secretary of Defense (Installations and Logistics) is now Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics). The Deputy ASD for Health and Environment was in the former organization; under the reorganization, this position has been expanded and retitled Deputy ASD for Energy, Environment and Safety. The position is still in the Office of the ASD (M, RA & L). The IR program interface is with the Deputy Assistant Secretary because of his overall environmental policy responsibility. However, also within ASD (M, RA & L), there is another key office with respect to the IR program and this is the Deputy Assistant Secretary (Installations and Housing).

The Deputy ASD (Energy, Environment & Safety) is concerned with the public health problems associated with the migration of pollutants from

installations that were contaminated by operations in years past. The Deputy ASD (Installations and Housing) is concerned with installations in general and, therefore, with those which are excess to DOD needs but cannot be released due to contamination. A further interface within the Office of the Deputy Assistant Secretary (Installations and Housing) is the DOD Explosives Safety Board. This organization will be involved when decontamination involves the removal of explosive material from former manufacturing facilities or when land is to be cleared of unexploded ordnance.

Department of Navy

PM CDIR's assigned point of contact within the Navy is the Naval Environmental Research Office, a staff office within the Naval Material Command. This organization, however, is double-hatted in that it has the staff responsibility for environmental matters for both the Chief of Naval Operations and the Naval Material Command. The Environmental Research Office in turn works closely with the Naval Facilities Command (NAVFAC), which is one of the five Naval Systems Commands (Ref 27).

NAVFAC has the technical and managerial responsibilities for the Navy and Marine Corps shore facilities pollution control program. It also is responsible for all Navy real property (installations) and has records of all contaminated land areas (Ref 3:16).

Under charter with CNA/CNM, NAVFAC carries out its pollution abatement function through the Naval Environmental Support Office (NESO) at Port Hueneme, California. This organization, in turn, contains regional environmental support offices and specialized support offices for aircraft,

ship, and ordnance environmental problems (Ref 26). NESO conducts surveys of each activity to help station personnel recognize environmental problems (Ref 4:17).

The Navy, like the Army, has had for many years an in-house manufacturing capability; in particular, there has been extensive explosive manufacturing over the years. Although there are no known contaminant migration problems, the potential for the migration of explosives-related contaminants does exist. A problem of explosives contamination migration was experienced in a location where RDX was found in the water table. The site was a former torpedo station and the problem stemmed from an area which had been used for the burning and leaching of waste products from manufacturing operations (Ref 27).

The Navy had indicated they are not aware of any migration problem and that unexploded ordnance (UXO) is the major installation contaminant. Concern over lands contaminated by UXO appears justifiable. A document entitled, "Ordnance Clearance Plan," which was published by the Department of Navy Ordnance Systems Command in 1974 (Ref 15) points out that there are approximately 750,000 land acres within the 50 United States contaminated with hazardous, unexploded ordnance. The degree of contamination and the nature of the contaminating ordnance vary widely, including gun munitions, aircraft munitions, and various chemical ordnance.

The facts that the Navy has undertaken the study of its land contamination problems and that there exists an established structure for managing environmental programs are of importance to the IR program. It means there is already in being an organization for prioritizing possible problem sites and conducting records searches; that is, accomplishing the first aspects

of an Installation Restoration program. These are the steps that can lead to the statement of an IR requirement with a resulting joint service effort. It is also important because it is an established information system for disseminating knowledge about Installation Restoration throughout the Navy.

The funding of environmental programs is also managed by the Navy's Environmental Support Office (NESO). The attainment of funds for the control of pollutants emanating from Federal facilities is typically accomplished in accordance with the procedures contained in OMB Circular A-106, with the A-106 mechanism being employed to correct such things as discharges from ongoing operations. It appears that NESO working with PM CDIR could provide a significant input to a joint project Master Plan and then function as the organization initiating the funding request.

The Navy expressed an interest in initiating an assessment of its installations and plans to seek PM CDIR advice in structuring its records research undertakings. The Ordnance Environmental Support Office (OESO) at Indian Head, Maryland, is the planned focal point for this undertaking (Ref 28). Indications are that records research efforts would begin in FY79 with initial efforts concentrating on assessing explosives-related problems.

Department of Air Force

The IR point of contact within the Air Force, as assigned by HQDA, is the Environmental Planning Division within the Engineering and Services Directorate, Office of the Air Force DCS Program and Resources. The primary function of the Environmental Planning Division is assuring that the Air Force is in compliance with the National Environmental Policy

Act of 1969 and all other environmental legislation.

The Real Estate Division, also within the Engineering and Services Directorate, has assembled information on contaminated property which would be excessed were it not contaminated. This office would have primary responsibility for land excessing. The Maintenance, Engineering and Supply Directorate within the organization of the DCS Systems and Logistics has the staff responsibility for decontamination of land contaminated with unexploded ordnance (Ref 24).

Unlike the Navy, there is no organization upon which to structure an IR program. Furthermore, the Air Force is not concerned with establishing such a structure, but rather maintains that there are no migration problems to be concerned with because if there were, they would be reported up through the command chain to the Environmental Planning Division (Ref 23). The Air Force contact has taken no action to date and plans no action to disseminate information about Installation Restoration.

In contrast to the Navy, there appears to be no appreciation with the Air Force IR contact point that the problems the Army is wrestling with are the result of operations conducted 20 or more years ago which are now beginning to emerge and which would not be considered by installation personnel when assessing environmental problems at their installations. The position taken by this office is that migration problems would have been surfaced through the A-106 reporting procedure if they existed (Ref 23).

Supporting the posture of non-interest in IR is the fact that the Air Force has only been in existence 30 years and essentially has no in-house manufacturing capability (chemicals, pesticides/herbicides, or explosives).

The potential for a public health problem caused by contaminant migration from Air Force testing or storage conducted years ago is far smaller than that from Army and Navy manufacturing operations. However, the Air Force does have a problem associated with contaminated land which would be excess were it not for the hazard associated with the contaminants. These areas consist for the most part of bombing sites contaminated with unexploded ordnance and old BOMARC missile sites which are radioactively contaminated.

Within the Air Force, responsibility for contaminated land survey, assessment and decontamination is not centralized. Problems associated with the decontamination of land are not the concern of the Environmental Planning Division; and while the Real Estate Division of the Engineering and Services Directorate is involved, it views itself as having no responsibility for initiating any action in the decontamination area (Ref 22). Decontamination responsibility at the Air Force staff level falls on DCS Systems and Logistics Maintenance, Engineering and Supply Division. Within the Air Force structure, AFR 87-4 places the actual responsibility for survey and removal of unexploded ordnance on the Air Force Logistics Command (Ref 9). Responsibility for survey efforts in the radiological area and for radiological decontamination is also the responsibility of the Air Force Logistics Command (Ref 21).

The situation regarding funding for an IR effort is likewise complicated. Should a potential migration problem surface, the request for funding to assess the problem would have to be initiated at the individual installation, go through the MAJCOM having responsibility, and be the concern of the Air Force staff's Environmental Planning Division. Regarding funding

for the cleanup of a land area which it is desirable to excess, there is considerable confusion as to which organization would be the funding request initiator. There are three variables involved -- type of contaminant involved, property holder, and staff office cognizant over life cycle phase during which contamination occurred. There is no clear guidance and no precedent upon which to base funding request initiation (Ref 22). The same confused funding picture would prevail should funds for a Technology Base Development effort be needed. This is a potential major problem area in structuring an Air Force/Army joint IR undertaking.

In summary, to contrast the Air Force to the Navy, whereas the Navy has an organization mechanism to fund for and to perform the initial efforts required of an IR program, i.e., prioritization of potential problem installations and the performance of records searches, no such structure exists in the Air Force. Additionally, the Air Force at this point in time does not see the need to devote any efforts to assessing the potential for IR problems at its installations.

SECTION V

OSD GUIDANCE ON INSTALLATION RESTORATION

The basic tasking document for the Installation Restoration tri-service mission is a DDR&E memorandum dated 23 Jul 76 (Ref 7). This memorandum was jointly signed by DDR&E and the Assistant Secretary of Defense for Installations and Logistics. The basic memorandum is a one-page document which includes a three-page attachment entitled, "Detailed Guidance on Installation Restoration Programs." The document is contained as Appendix A to enable the reader to make reference to it in the course of the discussion that follows.

The stated purpose of the memorandum is to provide "initial guidance and direction to Military Departments to assist in their implementation of present or future installation restoration programs." The Army is designated the lead service for the refinement of applicable technology and the development of new technology and necessary criteria or toxicological standards. When the memorandum was received by the Department of the Army, the decision was made to task PM CDIR with carrying out the Army's lead Service role (Ref 10:1).

The memorandum poses one overriding question: "What should be the extent of Army lead Service responsibility?" The answer is key to all other planning.

The DDR&E 23 Jul 76 memorandum states that in order to preclude duplication of effort the Army has been designated as the lead Service for (Ref 7:3):

> the compilation and refinement of applicable technology and for the development of new or improved technology and criteria or standards for the restoration program as it relates to all contamination including chemical, biological, and radiological. In this case, the other Departments will support the Army in the endeavor... The Army-developed technology will be the guiding factor in the eventual decontamination effort of DoD properties by the respective services once these properties are no longer essential to the Department's mission.

This paragraph clearly makes the Army responsible for RDT&E efforts dealing with CBR (chemical, biological, radiological) contamination as related to Installation Restoration. The associated R&D tasks accomplished during the Technology Base Development phase are typically: (1) the development of adequate analytical chemistry test methods to accurately measure contaminants at low levels; (2) toxicological studies necessary to establish standards in water for a contaminant, including a determination of carcinogenic effects; and (3) development and piloting decontamination equipment to remove contaminants to safe levels.

Unclear is the type of relationship to be established between Army and Navy and Army and Air Force. The two paragraphs subsequent to the paragraph quoted above task the Army with the preparation of a concept plan to (Ref 7:4):

> Assure proper integration of the present programs in the three services.
>
> Provide the basis for the development of detailed plans on those installations selected for in-depth assessment.

Do these statements place additional responsibility upon the Army regarding the development and management of an IR program within the other services? This question was on the mind of the author when this paper was undertaken. The precise role of the Army was also a question

on the minds of management within the PM CDIR and the subject of much discussion among the PM CDIR staff.

An attempt to clarify the level of Army responsibility was made during a 15 Sep 76 meeting at DDR&E. The meeting reaffirmed the Army's lead role in technology development and led to the establishment of the Tri-Service Coordinating Committee for Installation Restoration.

In the mind of the author, the definition of Army responsibility had still not been satisfactorily established to enable proper planning by PM CDIR. To explore this situation further, interviews were held with the two individuals who had jointly authored the 23 Jul 76 memorandum; one from the Office of the Deputy Director Research and Advanced Technology, DDR&E, and the other from the Office of the Deputy Assistant Secretary for Energy, Environment and Health, ASD MRA&L. In both cases, it was explained that in the interviewer's opinion there appeared to be a range of courses of action that PM CDIR could presently pursue; from -- merely serving as a chairman of the Tri-Service Coordinating Committee; to -- developing and directing IR programs throughout the DoD.

The DDR&E position (Ref 19) was that the Army role at this time should be close to that of purely being Tri-Service Coordinating Committee chairman. The functions to be accomplished are those of education of the Air Force and Navy to the IR program and methodology, and the transfer of technology developed by the Army.

Key to DDR&E's view of Installation Restoration among the services is the desire to ensure that scarce R&D resources are optimally utilized. In this regard, the Army had a lead role to play in IR technology development. DDR&E wishes to assure that no duplication of R&D efforts in the IR area

exists between the services and that the Navy and Air Force utilize the technology the Army has developed when possible to do so. Additional IR technology which may be required to support Navy or Air Force needs will be the Army's responsibility and RDT&E funds will be provided for the undertaking.

It was pointed out by the writer that much of the technology which has been developed by the Army is in the way of methodology in performing Installation Assessments (phase 1 of an Installation Restoration program). This included methodology for prioritization of potential problem areas, records searches, sampling and analysis techniques, and geotechnical investigation. With this in mind, did DDR&E desire an active effort be undertaken by PM CDIR to integrate the Installation Restoration concept into the Navy and Air Force?

For the Army to provide direction or exert any control over the efforts of the other services in the structuring and implementation of a comprehensive IR program was considered unachievable and undesirable by DDR&E. Furthermore, an unwillingness to impose any additional requirements in the area of Installation Restoration on the Air Force and Navy was expressed when this possibility was surfaced during the interview. Such a position is viewed by the writer as meaning that PM CDIR has no responsibility or mandate to structure an Installation Assessment effort within the other Services.

The position taken within the Office of the Deputy Assistant Secretary for Energy, Environment and Health was similar to the DDR&E position regarding scope of the tri-service effort currently required by PM CDIR (Ref 18). That is, the Army had two roles to play; the first is to

perform required R&D work, and the second is one of advisor to include arraying potential problems, analyzing problems, and prioritizing these problems.

It was indicated that there had been no intent within OSD to task the Army to structure an integrated Installation Restoration throughout DoD. Furthermore, the position being taken is that it is up to the Air Force and the Navy to look at their facilities and determine how vigorous an Installation Assessment effort is in order. The intention of the 23 Jul 76 memorandum was to have each service inventory its own installations for potential problem areas. It was not incumbent on the Army to prod the other services in this area. Similarly, funding for such assessment efforts was not the Army's concern.

It was stressed during this interview that it was the position within the Office of the Deputy Assistant Secretary for Energy, Environment and Safety that Installation Restoration efforts should be addressed to contaminant migration problems. Being responsible for environment and health, the migration of contaminants beyond defense property boundaries was the real concern of this office. An opinion provided to the interviewer was that decontamination of land for the purpose of release to the general public was non-cost effective, such lands are not problems from a public health or pollution standpoint, and there is no need to perform such restorative efforts. Restoration was purely being driven by political pressures and would result in a tremendous cost. Therefore, decontaminating such land was a waste of money which could better be spent to alleviate true public health problems.

Guidance provided during the interviews was consistent. In summary, the following can be stated based on the two OSD interviews:

The Army's primary role is the area of technology, including both development and transfer.

A second function is that of technical advisor in all aspects of Installation Restoration.

There has been no responsibility placed upon the Army to structure a DoD-wide IR program.

It is the responsibility of the Air Force and Navy to determine the extent to which they will formally structure an IR effort.

There is no intention of providing additional guidance to the Air Force and Navy in order to have them look more to the Army or to follow the Army's example in the IR area.

This guidance along with the planning suggestions contained in Section III and the information about the Navy and the Air Force relative to Installation Restoration provided in Section IV forms the basis of the recommendations that follow. Section VI begins by proposing a strategy to be adopted by PM CDIR for the tri-service IR effort.

SECTION VI

CONCLUSIONS AND RECOMMENDATIONS

Implementation Strategy

PM CDIR has developed a structured and rigorous approach for examining the Army's potential installation contamination problems and for focusing in on the few cases where in-depth data gathering and problem assessment are required. This methodology is termed the Installation Assessment phase of the three-phased IR program. Although there is a desire on the part of OSD to have this methodology made available to the Air Force and Navy, it has been made clear that PM CDIR does not have a responsibility to either structure such a program for the Air Force and Navy or to manage a DoD-wide Installation Assessment effort.

The question raised by the writer earlier in the paper, which was considered central to all planning, was "What is the extent of the Army's lead Service responsibility?" For the present, there is a responsibility to educate and advise the Navy and the Air Force to the extent education and advice is requested. The chairing of the Tri-Service Coordinating Committee for Installation Restoration fulfills this requirement.

The maintenance of a passive posture regarding tri-service involvement is necessary, in the opinion of the writer, for three reasons. First, there is currently a large Army IR workload within the PMO and scarce manpower resources can best be applied to these projects. Second, going beyond the role of educator and advisor at this point in time would not be supported by OSD. And third, there currently exists no known firm requirement for an IR project within the Air Force or Navy.

That IR requirement may well materialize in the future, however. The Army is not the only service whose past operations have created potential contamination migration situations; the Navy has over the years been involved in similar efforts, particularly in the explosives manufacturing area. Both the Navy and Air Force could be subjected to political pressures demanding unused or under-utilized land release. Based on the Army's experience, these types of situations have a history of suddenly surfacing with great pressures associated with their eruptions. And, although installation decontamination may be considered a non-productive use of defense dollars by OSD, the fact remains that pressures brought to bear by those who feel that DoD has a responsibility to clean up its contamination can be an overriding factor.

The determination by the Air Force or Navy that there is a major installation contamination problem which must be corrected in essence is the establishment of an IR project requirement. Ultimate containment/treatment and/or decontamination, that is -- Operations, can only be accomplished by first completing a fully integrated Technology Base Development effort.

Once a firm Installation Restoration requirement is identified, two factors will draw PM CDIR into the management of a joint service effort. First, the technical and managerial expertise required to run the typical technically complex and highly visible IR program only exists in one place -- PM CDIR. Second, the DDR&E memorandum directs the other services to come to the Army for at a minimum the R&D effort.

The statement of the requirement and the proposal for alleviating the problem through an integrated time and resource phased approach should

be documented in the project Master Plan. This is in accordance with the 20 Jul 73 Memorandum of Agreement on the Management of Multi-Service Projects (Ref 16:6). As is currently being accomplished with the Army's IR project proposal, the Master Plan should be approved by the Service Assistant Secretary having cognizance for Installations.

The Master Plan should also be provided to OSD for approval. This is necessary to ensure adequate RDT&E funds will be available for the project and to enlist support for the effort. In the opinion of the writer, the formal documentation of both the requirement and the planned judicious use of resources will result in the support from OSD which will be essential for project success.

To manage the Technology Base Development phase where an Air Force or Navy installation is involved, Joint Operating Procedures (JOPs) are necessary. It is recommended that JOPs be written for each of the following areas: staffing, reporting, funding, the delineation of functional task responsibilities, and deprojectizing (transition to operations). These documents will have to be agreed to by PM CDIR and a responsible official at the Major Command which has the IR requirement. Additionally, concurrence by appropriate service headquarters staff personnel will be required. Suggestions for the content of each of these documents is contained in Section III.

This occurrence can be dealt with in accordance with the suggestions made in Section III of this paper. That is, a Master Plan for the joint IR project should be developed by the service having the requirement and PM CDIR. Simultaneously, Joint Operating Procedures (JOPs) which will serve as contracts between the parties should also be written. The formal

commitment of plans to writing is the best way to achieve a clear understanding of the roles of the participants and, in the opinion of the writer, will go a long way toward making good joint service project management possible.

Other Recommendations

In addition to the strategy outlined above, there are two other actions which appear warranted. The first addresses the cost-effectiveness of Installation Restoration projects, and the second the interfacing with OSD.

The 23 Jul 76 DDR&E memorandum indicated that a cost/benefit analysis should be prepared by the Army and submitted to OSD prior to any program implementation (Ref 7:1). The development of the framework for a general cost/benefit model is necessary in the opinion of the writer. The specific circumstances of a joint project under consideration could then be inputted to the model.

Consideration of costs and benefits at this time also appears warranted in view of the comment frequently made to the writer that land restoration is obviously not cost-effective. It is not the opinion of the writer that Installation Restoration will usually be cost-effective; however, when life cost factors such as care, custody, security and environmental monitoring are considered, restorative efforts may be wise in some cases. There is also the benefit-side of the equation to be considered; that is -- what is the benefit to be accrued to DoD from restoration of lands which presently have no utility to DoD.

Secondly, it was noted that there are three organizations within OSD which have an impact on the IR program: Office of the Deputy Director (Research and Advanced Technology), DDR&E; Office of the Deputy Assistant Secretary (Energy, Environment and Safety), MRA&L; and Office of the Deputy Assistant Secretary (Installations and Logistics)M, RA&L. There has been little interface with the Deputy Assistant Secretary (I&L), yet in view of the sizeable land contamination problems existing in the services and the general conviction by the Air Force and Navy that their problems lie in the area of contaminated, non-useable and not needed land, this appears to be the key office in any future joint service efforts which might materialize. Any opportunity to open a line of communication with that office should be taken.

APPENDIX A

DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
WASHINGTON, D. C. 20301

JUL 27 2 10 PM '76

23 JUL 1976

OFFICE
SECRETARY OF THE ARMY

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS

SUBJECT: Installation Restoration Programs

The purpose of this memorandum is to provide initial guidance and direction to the Military Departments to assist in their implementation of present or future installation restoration programs.

The DoD has under its control a number of contaminated lands and facilities which may presently, or in the future, be declared excess to mission needs and, therefore, available for other public or private use: Some of these holdings contain contaminants which are migrating to adjacent properties. These migration problems should have first priority; actual restoration should be considered only when plans to reuse or excess the land are firm.

To minimize duplication of effort, we designate the Department of the Army as the lead Service for the compilation and refinement of applicable technology and for the development of new or improved technology and criteria or standards for the restoration program as it relates to all contamination including chemical, biological, and radiological. The other Departments will support the Army in the endeavor. To assure reasonable and cost effective programs, we request the Army to prepare a concept plan for each phase of the work outlining the approach, cost benefit analysis, and estimated funding requirements by category for approval by the cognizant OSD offices prior to implementation.

The attachment provides detailed guidance to all Military Departments regarding present or proposed installation restoration programs, provides for OSD coordination of requested concept plans, and allows for orderly progression of this necessary effort.

Assistant Secretary of Defense
(Installations and Logistics)

Director of Defense Research
and Engineering

Attachment

611689

OSD 401.23 7-23-76 FOIA 1-6-76

DETAILED GUIDANCE ON INSTALLATION RESTORATION PROGRAMS

The purpose of this memorandum is to provide initial guidance and direction to the military departments to assist in their implementation of present or future installation restoration programs.

The DoD has in its inventory a number of contaminated lands and facilities which may presently, or in the future, be declared excess to mission needs and, therefore, available for other public or private use. The Assistant Secretary of Defense (I&L) has recently received from the military departments a current, itemized listing of such contaminated excess properties. The contamination in those listings includes chemical, radiological, explosives, and military hardware. The Office of the Secretary of Defense's (OSD) coordination is essential to assure the maximum, efficient utilization of scarce manpower and financial resources which can be committed to this effort. Compounding the installation contamination problem is the fact that certain of the contaminants are migrating to adjacent properties.

The primary goal of the DoD environmental quality program is the abatement of pollution which has an immediate impact on public health and welfare. Any installation restoration program should attack as a first, but not exclusive priority, any problems of migration of contaminants from military installations. We suggest that this portion of the installation restoration (IR) effort be structured as follows:

- Proceed immediately to identify any contaminants migrating from DoD properties.
- Concentrate on real migration problems.
- Once identified, abate the migration by whatever measures are deemed necessary.
- Advise EPA, state and local governments of activities and progress.

Funding for this process should be identified through the A-106 reporting mechanism where it may receive proper Departmental support.

We recognize the need to develop standards and technology for eventual complete or partial restoration of contaminated DoD properties once they have been identified for DoD reuse in other missions or candidates to be excessed or as excess. This effort should be pursued in an orderly manner and should:

- Identify contaminants by sampling and analysis of all DoD locations where contamination is known or suspected.

- Determine restoration alternatives based on technical feasibility and economic acceptability.

- If non-existent, develop safety or toxicity criteria levels to which these contaminants must be reduced.

- Develop decontamination technology where needed.

At this stage we believe actual restoration, however, should be considered only when plans to reuse the land or excess it are firm. On the other hand, it is conceivable that to stop migration, selective restoration may need to be accomplished.

The Army, recognizing the increasing public focus on these excess and potentially excess properties and the Department's responsibilities under Executive Order 11724, has taken the initiative and developed a conceptual plan for restoration of selected Army properties and facilities. The Army plan is directed initially to problems at Rocky Mountain Arsenal, Colorado, and Weldon Springs, Missouri. As of this date, we recognize that there are no firm plans to excess the Rocky Mountain Arsenal (RMA) property, and that RMA does not fit the criteria outlined above. RMA does provide, however, unique technical and economic advantages to pilot methodology since there are a variety of chemical and biological contaminants of known history and geohydrology, plus personnel and facilities already on-site. RMA could be used, therefore, to pilot restoration technology where such technology (a) is the logical outgrowth of containment measures, or (b) is of such general applicability to assure that it has utility at other sites already candidates or excessed.

The Army efforts, to date, at RMA, have been interpreted by individuals at the Federal, state, and local levels to suggest that plans are imminent to excess RMA and, therefore, all of the property will be restored to general use. This misinterpretation of the installation restoration program should be corrected.

To minimize duplication of effort, we designate the Department of the Army as the lead service for the compilation and refinement of applicable technology and for the development of new or improved technology and criteria or standards for the restoration program as it relates to all contamination including chemical, biological and radiological. In this case, the other

Departments will support the Army in the endeavor. Of particular note is the contribution which can be made by the Department of the Navy through its expertise in the disposal of certain special munitions and explosives. The Army-developed technology will be the guiding factor in the eventual decontamination effort of DoD properties by the respective services once these properties are no longer essential to the Department's mission.

To assure proper integration of the present programs in the three services, we request that the Army prepare an overall concept plan which outlines the approach to be employed, a cost benefit analysis model, together with the estimated funding requirements by appropriation category. Included in this plan should be the conduct of preliminary site assessments to establish a priority listing of installations as candidates for some form of analysis and an appropriate time frame for implementation. Since the major portion of the IR to date has been directed to chemical, biological and radiological matters, the concept plan should initially address only these areas.

This concept plan will also provide the basis for the development of detailed plans on those installations selected for in-depth assessment and development of restoration alternatives and will indicate suitable decision milestones requiring DoD approval. The plan should be forwarded to the cognizant OSD offices NLT August 20, 1976.

The other military departments are requested to begin immediate discussions with the Army to insure that all contaminated areas are addressed. Following such discussions to determine the total magnitude of the problem and the information available from the other Services as to approaches and alternative solutions, a follow-on concept plan covering other areas of contamination should be forwarded to the cognizant OSD offices as above. These plans must be approved prior to implementation. Should unresolvable issues develop or additional guidance in the area be required, the matter should be submitted to these offices.

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