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Navy/Marine Corps Installation Restoration Manual

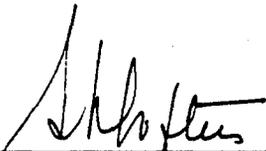


February 1992

PREFACE

Since the Navy's first Installation Restoration (IR) Manual was published in May 1988, many changes have occurred in our IR Program. New laws have been passed, model language for Federal Facility Agreements was negotiated with the United States Environmental Protection Agency (EPA), the Department of Defense (DOD) developed the Department of Defense and State Memorandum of Agreement (DSMOA), and we have had to adapt our program to meet ever changing and increasing requirements.

This manual is a revision and update to incorporate the many changes which have occurred in the IR Program since 1988. It represents a compilation of Defense Environmental Restoration Program requirements, policy, and guidance for both the United States Navy and the United States Marine Corps. It synthesizes the laws and regulations which define the IR Program, and also those which affect it. The organization and responsibilities of the DOD and the Department of the Navy (DON) offices, commands, and installations as they pertain to this program are summarized in its pages. The manual provides detailed discussions of terminology and procedures to be used in the implementation of the program. Funding eligibility and priority are discussed as are reporting and information management systems. The manual provides information on research, development, testing and evaluation as they relate to installation restoration. Finally, the manual provides a list of references and sources for obtaining information. This information should allow the Navy and Marine Corps to identify, investigate, and clean up their former hazardous waste sites while ensuring appropriate coordination both within the Department of the Navy and externally.



VADM S. F. Loftus
Deputy Chief of Naval
Operations (Logistics)
United States Navy



LTGEN R. J. Winglass
Deputy Chief of Staff for
Installations and Logistics
United States Marine Corps

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EXECUTIVE SUMMARY

INTRODUCTION

The purpose of the Department of the Navy (DON) Installation Restoration (IR) Program is to identify, assess, characterize, and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills at Navy and Marine Corps activities.

The purpose of this manual is to provide current policy, guidance, and information on the IR Program for those who are responsible for its implementation.

Given the nature and extent of its operations, the DON has been involved with toxic and hazardous materials for several decades. These materials, if released into the environment, could lead to significant damage of important natural resources upon which both man and nature depend. This potential has been recognized by the Department of Defense (DOD) and actions are being taken to ensure against future hazards from existing operations, as well as to clean up previously disposed of materials that pose real threats to the environment. Each of the DOD components, including the DON, is implementing an IR Program to address the hazardous waste site problem found on properties currently under its jurisdiction. The Corps of Engineers has been tasked to clean up sites which are no longer owned or used by the DOD Services. This program is known as the Formerly Used Defense Sites (FUDS) Program.

The DON has been actively engaged in the IR Program since 1980 and has taken an aggressive, proactive approach to the problem of hazardous waste sites found at Navy/Marine Corps installations. Site identification has taken place at virtually all Navy/Marine Corps installations and actions are either being taken or planned to respond to those potential threats identified. In so doing, the DON is complying with both its legal obligations and its obligation to the community to protect public health, natural resources, and the environment.

The complex nature of the problems facing the DON in these efforts requires a carefully coordinated, interdisciplinary approach for their resolution. The DON IR Program requires coordination within the chain-of-command and encourages appropriate citizen involvement and coordination with non-DOD agencies.

Scope of the IR Program

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) establish a series of programs for the cleanup of hazardous waste disposal and spill sites nationwide. One of those programs, the Defense Environmental Restoration Program (DERP), is codified in SARA Section 211 (10 USC 2701). The IR Program is a component of the DERP. DERP objectives, as stated in the law are:

1. Identification, investigation, research and development, and cleanup of contamination from hazardous substances, pollutants, and contaminants.
2. Correction of other environmental damage (such as detection and disposal of unexploded ordnance) which creates an imminent and substantial endangerment to the public health or welfare or to the environment.

3. Demolition and removal of unsafe buildings and structures, including buildings and structures of the DOD at sites formerly used by or under the jurisdiction of the Secretary.

The IR Program primarily addresses DERP's first two objectives for sites on currently owned installations. DERP and the IR Program are funded under a special transfer account, the Defense Environmental Restoration Account (DERA), which also is codified in SARA, Section 211 (10 USC 2703).

DERA funding can be used for corrective action at Solid Waste Management Units (SWMUs) under the Resource Conservation and Recovery Act (RCRA), as amended. RCRA provides for current and future hazardous waste management practices, as well as cleanup of past disposal sites at permitted or interim status Navy/Marine Corps installations.

The IR Program is not an all-encompassing environmental program. It focuses on the cleanup of contamination from past hazardous waste operations and past hazardous material spills. Specific eligibility criteria are:

1. The IR Program is intended to address the cleanup of contamination and damage resulting from past, not current, activities.

2. The IR Program is primarily intended to clean up hazardous substances. It may, though, address any pollutant and/or contaminant which endangers public health, welfare, or the environment, including petroleum, oil, and lubricant (POL) products and supports research associated with unexploded ordnance detection and range clearance.

3. The quantity of substances which will trigger IR Program eligibility is termed the reportable quantity. The reportable quantity varies from substance to substance and may be as low as one pound. Sites suspected of containing at least the reportable quantity of a substance may be included in the IR Program.

4. The IR Program addresses sites both on and off of the National Priorities List (NPL). The NPL is a list, developed by the U.S. Environmental Protection Agency (EPA), of the sites nationwide which pose the greatest risk to public health and thus warrant priority responses.

5. The IR Program includes sites on DON-controlled properties, or any off-base area contaminated by the migration of hazardous substances from DON-controlled property, and which are in the United States, its territories, or possessions.

Sites which have never been owned or operated by the DON, but to which the DON contributed hazardous substances are called Third Party Sites. Under certain circumstances, Third Party Sites are DERA eligible, but require actions distinct from those for IR sites. FUDS are DERA eligible but are handled by the Corps of Engineers. Information relevant to Third Party Sites and FUDS is given separately in this manual. Navy/Marine Corps installations on foreign soils are subject to the relevant Status of Forces Agreement (SOFA) and are not subject to IR Program requirements.

Purpose of the IR Manual

The purpose of this manual is to provide current policy, guidance, and information about the IR Program to those personnel, at all levels within the Navy and Marine Corps, who have responsibility for ensuring its proper and timely implementation. The objective is to provide a management approach to meeting the requirements of various applicable statutes and regulations that face our personnel.

Within the DON IR Program, this management responsibility is shared by the installation, Naval Facilities Engineering Command (NAVFACENGCOM), Echelon 2 commands, Chief of Naval Operations (CNO)/Commandant of the Marine Corps (CMC), and Office of the Secretary of the Navy (SECNAV).

To accomplish this goal, this manual focuses on the requirements for bringing an IR Program site through the process of identification, investigation, and, if necessary, cleanup. It also provides data that can be used to ensure appropriate coordination of the IR Program within and outside the DON, as required.

This guidance is intended to be consistent with the guidelines, rules, regulations, and criteria associated with CERCLA/SARA, RCRA, and other applicable laws, as well as the Navy Environmental and Natural Resources Program Manual, OPNAVINST 5090.1A and the Marine Corps Environmental Compliance and Protection Manual, MCO P5090.2. Work already completed will not be redone to comply with current requirements as reflected in this document.

Applicable legal requirements are constantly evolving. As these requirements change, the DON IR Program must change to meet the new mandates. This necessitates periodic updating of this manual, which is provided in loose leaf format.

A final note: This guidance should not be taken as a replacement for well-informed judgment or innovative solutions and approaches to adapt the IR Program to the novel characteristics of a particular site, the needs of local populace, or the overall mission of the Department of the Navy. Nor should this guidance, in the event of a conflict with statutory or regulatory requirements, be interpreted as superseding such statutory or regulatory requirements.

CHAPTER ONE

1.0 BACKGROUND: LEGAL AND HISTORICAL CONTEXT OF THE INSTALLATION RESTORATION (IR) PROGRAM

Department of Defense (DOD) efforts to address the problem of hazardous waste sites on DOD installations preceded the Comprehensive Environmental Response, Compensation, and Liability Act and the Superfund Amendments and Reauthorization Act of 1986 (CERCLA/SARA) by several years. In 1975, the U.S. Army began a pilot program to investigate past hazardous waste disposal sites at DOD installations.

Defense Environmental Quality Program Policy Memorandum (DEQPPM) 80-6 of 24 June 1980 required DOD components to identify their abandoned hazardous waste disposal sites and to establish a prioritized program for conducting record searches at their installations. DEQPPM 81-5 of 11 December 1981, superseded DEQPPM 80-6 and defined the Installation Restoration (IR) Program as a four-phased program:

- a. Phase I - Problem Identification
- b. Phase II - Confirmation and Quantification
- c. Phase III - Technology Development
- d. Phase IV - Planning and Implementation of Appropriate Remedial Actions

In response to the DOD IR Program, the DON developed the Navy Assessment and Control of Installation Pollutants (NACIP) Program. This program was instituted in 1980 by OPNAVNOTE 6240 and MCO 6280.1 of 30 January 1981. The current DON IR Program is authorized under OPNAVINST 5090.1A dated 2 October 1990 and MCO P5090.2 dated 26 September 1991.

SARA was passed on 17 October 1986 and Executive Order (E.O.) 12580 was signed by the President 23 January 1987. These events caused the DOD to issue interim policy guidance on CERCLA/SARA in a letter dated 4 March 1987.

Significant impacts on the DON IR Program resulting from the passage of SARA and issuance of DOD CERCLA/SARA policy guidance were:

- a. CERCLA/SARA and related regulations became statutory requirements.
- b. Terminology and procedures for the IR Program were changed to match those given in the National Contingency Plan (NCP).
- c. The U.S. Environmental Protection Agency (EPA) and states were given broader power to review, comment, and, in some instances, approve key IR program documents and decisions.
- d. SARA established specific reporting requirements, schedules for Federal agencies to complete certain actions, and timetables as follows:

- No later than 6 months after the inclusion of a Federal facility on the National Priorities List (NPL), the Federal agency must commence a remedial investigation and feasibility study (RI/FS) for such facility,
- Within 180 days after EPA has reviewed the results of the RI/FS, the Federal agency shall enter into an interagency agreement with EPA for the expeditious completion by the Federal agency of all necessary remedial action on the Federal NPL site,
- Remedial actions at Federal facilities subject to interagency agreements shall be completed as expeditiously as practicable,
- Each Federal agency responsible for compliance with section 120 of CERCLA shall furnish an annual report to the Congress concerning its progress in implementing the requirements of section 120, and
- For property transferred by Federal agencies, the agency shall include in the contract for the sale or other transfer of real property which is owned by the United States and on which any hazardous substance was stored for one year or more, known to have been released, or disposed of, a notice of the type and quantity of hazardous substance and notice of the time at which such storage, release, or disposal took place, to the extent such information is available on the basis of a complete search of agency files.

To fully understand the Navy's and Marine Corps' responsibilities under CERCLA/SARA and the NCP, one must not only understand these laws, but must understand other laws and regulations which affect the IR Program. One of the most significant laws which is a part of the DON IR Program is the Resource Conservation and Recovery Act (RCRA). Originally passed in 1976 and amended in 1984, RCRA has become a significant consideration in DON efforts to clean up past hazardous waste sites.

1.1 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) 42 USC 9601

CERCLA, commonly referred to as the Superfund, authorized Federal action to respond to the release, or substantial threat of release, into the environment of hazardous substances, or to pollutants or contaminants which may present an imminent and substantial danger to public health or welfare. CERCLA authorized the creation of a trust fund which can be used by EPA to clean up emergency and long-term hazardous waste problems. DOD was not covered by the trust fund; however, Congress set up special funding outside CERCLA, the Defense Environmental Restoration Account (DERA), to pay the cost of DOD responses to hazardous waste sites.

1.2 Superfund Amendments and Reauthorization Act of 1986 (SARA)

Superfund had a sunset date under CERCLA of 30 September 1985. SARA was passed as Public Law 99-499 on 17 October 1986 to reauthorize the fund and to amend the authorities and requirements of CERCLA and associated laws. In 1990 Congress extended the authorization of CERCLA until 30 September 1994. SARA is divided into five major titles:

- a. TITLE I - PROVISIONS RELATING PRIMARILY TO RESPONSE AND LIABILITY - contains most of the amendments to CERCLA. Of particular interest to the IR Program is Section 120

which addresses response actions at Federal facilities. The Defense Environmental Restoration Program (DERP) and the IR Program are subject to and must be consistent with Section 120 (42 USC 9620).

b. TITLE II - MISCELLANEOUS PROVISIONS - includes additional amendments to CERCLA and other associated laws. DERP is codified into law (as Section 211 of SARA) and amended as Chapter 160 of Title 10 of United States Code. Thus, DERP is not a component of CERCLA, as amended, though it is subject to and must be consistent with CERCLA.

c. TITLE III established the Emergency Planning and Community Right To Know Act of 1986 to address community awareness and preparedness for dealing with hazardous substance releases. Though Title III does not apply directly to Federal agencies, DOD policy is to comply with its provisions to the extent practicable within the bounds of national security and other considerations. Title III provisions would require installations to upgrade their Spill Prevention, Control and Countermeasures (SPCC) plans, train personnel in hazardous substance response, and notify local emergency planners of the existence of hazardous substances on the installations. For Navy guidance, see OPNAVINST 5090.1A, Chapter 9 or MCO P5090.2, Chapter 11. Title III requirements are covered in Office of the Deputy Assistant Secretary of Defense (Environment) (ODASD(E)) letter dated 3 July 1987.

d. TITLE IV established the Radon Gas and Indoor Air Quality Research Act of 1986 to address indoor air quality issues. Guidance regarding radon is contained in OPNAVINST 5090.1A, Chapter 6 and MCO P5090.2, Chapter 6.

e. TITLE V - AMENDMENTS OF THE INTERNAL REVENUE CODE OF 1986 - amended and reauthorized the provisions for Superfund, related funds, and their revenue sources as found in Section 4611 of the Internal Revenue Code. Title V is not applicable to the DON as the DON does not receive funding from the Superfund nor does it pay taxes to the Superfund, both of which are the subjects of this particular title. (Future references to CERCLA, as amended by SARA, will be "CERCLA" in text.)

The changes of primary importance to the IR Program are in Section 211 (DERP) and Section 120 (Federal Facilities) of SARA.

1.3 National Contingency Plan (NCP) 40 CFR 300

The NCP is the basic regulation that implements the statutory requirements of CERCLA and Section 311 of the Clean Water Act (CWA). As a regulation, it has the full force of law and must be complied with by the DON.

The NCP revision required by SARA was completed and became effective on 8 March 1990 (see 55 CFR 8813). The NCP "provides the organizational structure and procedures for preparing for and responding to discharges of oil and release of hazardous substances, pollutants, and contaminants." The NCP also outlines actions required upon discovery and following notification of a release of a reportable quantity of a hazardous substance.

The NCP provides two responses to hazardous substance releases or threatened releases: removal and remedial. Removal actions are short-term responses to address immediate and significant dangers to the public or the environment at any hazardous waste site but are not necessarily final solutions; remedial

actions are final (note that a final solution may involve leaving contaminants on-site) but not necessarily prompt measures to provide a permanent remedy.

The Navy performs removal and remedial actions for contamination from past hazardous waste disposal operations and spills through its IR Program.

The NCP (40 CFR Part 300) currently contains the following subparts:

- A- Introduction
- B- Responsibility and Organization for Response
- C- Planning and Preparedness
- D- Operational Response Phases for Oil Removal
- E- Hazardous Substance Response
- F- State Involvement in Hazardous Substance Response
- G- Trustees for Natural Resources
- H- Participation by Other Persons
- I- Administrative Record for Selection of Response Action
- J- Use of Dispersants and Other Chemicals
- K- Federal Facilities [Reserved]

Appendices to Part 300:

- A- Uncontrolled Hazardous Waste Site Ranking System; A Users Manual
- B- National Priorities List
- C- Revised Standard Dispersant Effectiveness and Toxicity Tests
- D- Appropriate Actions and Methods of Remedying Releases

Section 300.110 of the NCP establishes the National Response Team (NRT) to accomplish planning and coordination for the NCP. The NRT consists of representatives from numerous Federal agencies, including EPA and DOD.

DON, as a component of DOD, will provide the on-scene coordinator (OSC) for all releases of hazardous substances from Navy installations or vessels and such person shall be the Federal OSC. OPNAVINST 5090.1A and MCO P5090.2 discuss the designation and responsibilities of OSCs.

In the case of an oil discharge from a Navy installation or vessel, the U.S. Coast Guard or EPA will provide the Federal OSC. The Federal OSC will monitor the response efforts of the DOD. If the Federal OSC determines DOD response is inadequate or inappropriate, then the Federal OSC may assume direct operational command of the clean-up efforts.

Federal OSCs are responsible for developing regional contingency plans and for the Federal response in the area of the OSC's responsibility. OPNAVINST 5090.1A requires each Navy on-scene coordinator (NOSC) to prepare oil and hazardous substance pollution contingency plans providing coverage for the assigned area. These plans shall be coordinated and consistent with Federal regional OSC plans.

1.4 Resource Conservation and Recovery Act of 1976 (RCRA) 42 USC 6901, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) (PL 98-616)

RCRA establishes a national strategy for the management of ongoing solid and hazardous waste operations. RCRA provides for cradle-to-grave tracking of hazardous material and includes record keeping on generation, transportation, storage, and disposal of those materials. States and territories administer RCRA after EPA has approved their program. Currently 45 states, the District of Columbia, and Guam have EPA approved Hazardous Waste Management Programs. The list of states with approved programs is contained in Appendix B.

Prior to the 1984 Amendments, the term "corrective action", in the RCRA regulatory context, referred only to remedial action for ground water contamination (40 CFR Part 264, Subpart F and Part 265, Subpart F).

The 1984 Amendments greatly expanded authorities for requiring corrective action for releases of hazardous waste and hazardous constituents at facilities that manage hazardous waste. Now it extends to a wide range of responses for releases to all media from waste management activities.

The corrective action authority is intended to provide EPA, or the state which has primacy via an approved plan, the ability to control ground water contamination, surface water contamination, soil contamination, air pollution from volatile organic compounds and particles, and fire and explosions.

They accomplish this by exercising the following statutory authorities: RCRA Sections 3004(u), 3004(v), and 3008(h) (42 USC 6924(u), 6924(v), and 6928(h)).

a. Section 3004(u) requires corrective action be included as a permit condition for releases of hazardous waste at a treatment, storage, or disposal facility that is seeking or renewing a permit in order to address releases of hazardous wastes or constituents from any solid waste management unit (SWMU).

1. Corrective action is required for all releases of hazardous waste or hazardous constituents of any solid waste regardless of the time at which waste was placed in the disposal facility.

2. EPA defines the term "releases" broadly to include any spilling, leaking, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.

3. SWMU includes any discernable waste management unit from which hazardous constituents may migrate, irrespective of whether the unit was intended for management of solid or

hazardous waste. EPA considers the following units as SWMUs: landfills, surface impoundments, waste piles, land treatment units, incinerators, injection wells, tanks (including 90 day accumulation tanks), container storage areas, and transfer stations. The above list provides examples and is not all inclusive. RCRA excludes certain materials under the definition of solid waste including domestic sewage, irrigation return flows, and secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided.

4. EPA defines the term "facility" to include all contiguous property under control of the owner at which the units subject to permitting are located.

b. Section 3004(v) authorizes corrective action beyond a facility's boundary. Corrective action must be taken for releases of hazardous waste that have migrated beyond the facility's border. This action is necessary to protect public health and the environment unless the facility owner or operator can demonstrate it cannot obtain permission to undertake such action from the adjacent property owner.

c. Section 3008(h) provides for corrective action to address releases of hazardous wastes (constituents omitted), whether or not from a SWMU, at facilities authorized to operate under interim status pursuant to Section 3005(e) (42 USC 6925(e)).

1. EPA takes the position that Section 3008(h) also applies to existing facilities that should have, but failed to, obtain interim status. This expansive reading of Section 3008(h) is based on the legislative history and common sense notion that a facility not complying with interim status requirements should not be treated better than a facility that does. The universe of RCRA facilities to which the corrective action authority potentially applies includes treatment, storage, or disposal facilities regardless of whether they are continuing operations or closing.

2. Section 3008(a) orders can be issued to Federal facilities on the basis that corrective action is a precondition to obtaining a permit, and the RCRA waiver of sovereign immunity subjects the Federal government to permitting requirements.

The phrase "corrective action or such other response measure" includes:

- a. Containment stabilization or removal of the source of contamination.
- b. Studies to assess nature and health risks of contamination.
- c. Identification and evaluation of the remedies.
- d. Design and construction of the chosen remedy.
- e. Implementation of the remedy.
- f. Monitoring to determine the effectiveness of the remedy.

A brief outline of the corrective action process is as follows (Proposed Corrective Actions Rule 55 FR 30798, July 27, 1990):

a. **RCRA Facility Assessment (RFA)**: The purpose of this assessment is to gather information on all actual or potential releases and determine the need for RCRA facility investigation (RFI). This assessment is a prerequisite to obtaining an operating permit or post-closure permit and is similar to a CERCLA preliminary assessment/site inspection (PA/SI) (See Chapter 4). It is important to be very active in this part of the process. Successful negotiations with EPA/state at this time can reduce the number of SWMUs which must go through a RFI and in some cases prevent locations, such as one time spills, from being included as SWMUs. The use of IR investigation reports can also help satisfy any subsequent investigation requirement.

b. **Interim Measures (IM)**: These are steps taken to immediately abate problems and keep existing problems from worsening. This action is similar to CERCLA removal action or interim remedial action.

c. **RCRA Facility Investigation**: This investigation consists of studies which fully characterize the nature, extent, and rate of migration of the release and is similar to the CERCLA remedial investigation (RI).

d. **Corrective Measures Study (CMS)**: The purpose of this study is to develop and evaluate corrective action alternatives and recommend appropriate corrective action measures. This is similar to the CERCLA feasibility study (FS).

e. **Remedy Selection**: This involves the selection of a remedy that will most effectively abate the threat to human health and the environment. This process is similar to CERCLA remedy selection under Section 9621, except there is less flexibility because the RCRA process does not include consideration of applicable or relevant and appropriate requirements (ARARs), cost effectiveness, use of permanent solutions and toxicity, mobility or volume.

f. **Corrective Measures Implementation (CMD)**: This involves the design, construction, operation, maintenance, and performance monitoring of the corrective action selected. This is similar to CERCLA remedial design/remedial action (RD/RA) and long term monitoring and maintenance.

1.5 Clean Water Act (CWA)

The purpose of the CWA is to restore and maintain the quality of the nation's waters. The NCP was originally established by the CWA, Section 311, to allow the Coast Guard and EPA to act to clean up spills of oil and hazardous substances when they were released into the waters of the United States. The NCP has since been expanded under CERCLA authority to its current scope. Petroleum products are not defined as hazardous substances under CERCLA.

1.6 Clean Air Act of 1970 (CAA), 42 USC 1857, as amended by the Clean Air Act Amendments of 1990 (PL 101-549)

The Clean Air Act (CAA) establishes ambient air quality standards for basic air pollutants, regulates the release of hazardous substances to the ambient air, and mandates that Federal agencies comply with state statutes and regulations regarding clean air. Its requirements must be implemented as part of the IR Program in cases where response actions include the release of contaminants to the air.

1.7 National Environmental Policy Act (NEPA), 42 USC 4321

The primary requirement of NEPA is the incorporation of environmental considerations into the decision-making process on major Federal actions which significantly impact the quality of the human environment. NEPA is a procedural statute which requires that a Federal decision-maker consider the environmental impacts of a proposed action, while also ensuring that the public is fully informed of the proposal and its impacts and given adequate opportunity to comment.

NEPA procedural requirements are satisfied through functional equivalency considerations where EPA is the lead agency for CERCLA and RCRA response actions. Similarly, it is Navy policy (OPNAVINST 5090.1A, Section 13-5.20) and Marine Corps policy (MCO P5090.2, Section 14418), that where the DON has the lead, follows the NCP, and fulfills public participation requirements, there is no need for separate NEPA documentation. (See Section 7.8, NEPA, for further discussion of RCRA/NEPA compliance).

1.8 Executive Orders 12088 (13 October 1978) and 12580 (23 January 1987)

Though Federal facilities were not separately addressed in the original CERCLA or the NCP, two E.O.s provided Federal agencies with the responsibility of cleaning up their facilities. E.O. 12088 delegated Federal agencies the responsibility of ensuring compliance with applicable pollution control standards.

E.O. 12580 delegated the President's authority under CERCLA and SARA to various Federal agencies, including DOD.

1.9 Other Laws

CERCLA/SARA requires that other Federal laws and more stringent promulgated state laws and regulations be considered when conducting response actions. ARARs of other laws and potential waivers to ARARs are discussed in Chapter 5 of this manual. Examples of laws which might be applied as ARARs are RCRA, the Toxic Substances Control Act (TSCA), and the Safe Drinking Water Act (SDWA).

1.10 State Mini-Superfund Laws

Section 120(a)(4) (42 USC 9620(a)(4)) of CERCLA provides that state laws concerning removal, remedial action, and enforcement apply to removal and remedial actions at Federal facilities not included on the National Priorities List (NPL). State laws must be consistent with CERCLA in order to apply to Federal facilities under Section 120(a)(4). To be consistent, state laws must:

- a. Set out a comprehensive scheme for remedial enforcement.
- b. Establish health-based standards through an objective process such as ARARs.
- c. Include cost effectiveness as an element.
- d. Be free of discriminatory application to Federal facilities.

1.11 Guidance Documents

Current EPA, DOD, and Navy/Marine Corps guidance and policy are found in the documents listed in Appendix C, References.

It is Navy/Marine Corps policy, in accordance with CERCLA 120(a)(2), that all actions carried out under the IR Program shall be accomplished in compliance with all applicable requirements of CERCLA/SARA and that terminology utilized by the IR Program shall be consistent with that used in CERCLA/SARA and the NCP.

Although EPA policy and guidance is not mandatory and does not carry the same legal weight as regulations, it is Navy/Marine Corps policy that IR response actions follow EPA guidance in determining the reasonable interpretation and application of the regulations. In addition, CERCLA 120(a)(2) prohibits the Navy/Marine Corps from adopting any guidelines, rules, etc., that are inconsistent with EPA's guidelines and rules.

CHAPTER TWO

2.0 ORGANIZATION AND RESPONSIBILITIES

This chapter summarizes the organization and responsibilities of Department of Defense (DOD) and Department of the Navy (DON) offices, commands, and installations as they pertain to the DON Installation Restoration (IR) Program. Figure 2-1 shows the chain of command for these organizations. The following sections describe their responsibilities.

OPNAVINST 5090.1A, MCO P5090.2, and the annual U.S. Navy Environmental and Natural Resources Program Plan also describe responsibilities for those involved in the Navy IR Program. The Chief of Naval Operations (CNO) and Commandant of the Marine Corps (CMC) periodically revise OPNAVINST 5090.1A and MCO P5090.2, respectively, to reflect changes in their programs relating to environmental and natural resources.

The "Directory of Federal Contacts on Environmental Protection" (NEESA), December 1990, gives names, addresses, codes, telephone numbers, and areas of cognizance for personnel in these environmental offices and at the installations. This document is updated approximately every two years. Alphanumeric codes indicate specific parts of larger organizations.

2.1 Office of the Deputy Assistant Secretary of Defense (Environment) - ODASD(E)

ODASD(E) was created in mid-1986 to serve as a focal point for DOD-wide environmental policy and planning.

ODASD(E) represents DOD before Congress, Federal and state agencies, news media, and the public in environmental matters. ODASD(E) is responsible for policy, management, and oversight of the Defense Environmental Restoration Program (DERP), including all aspects of hazardous waste management.

One of the principal Superfund Amendments and Reauthorization Act (SARA) mandated changes in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that affects the DOD is a centralization of responsibility for DERP within an office of the Secretary of Defense which the Secretary has designated to be ODASD(E). The broad DOD responsibilities mandated by Executive Order 12580 are outlined in Figure 2-2 and can be summarized as follows:

- a. Close interaction with EPA, state, and local regulatory agencies in implementing the National Contingency Plan.
- b. Special notification to the Department of Health and Human Services and EPA of hazardous wastes that are specific to DOD installations.
- c. Integration of public review and comment in numerous activities associated with implementing the National Contingency Plan.
- d. Annual reports to Congress explaining DERP activities under SARA Section 211.

CHAIN OF COMMAND FOR THE NAVY INSTALLATION RESTORATION PROGRAM

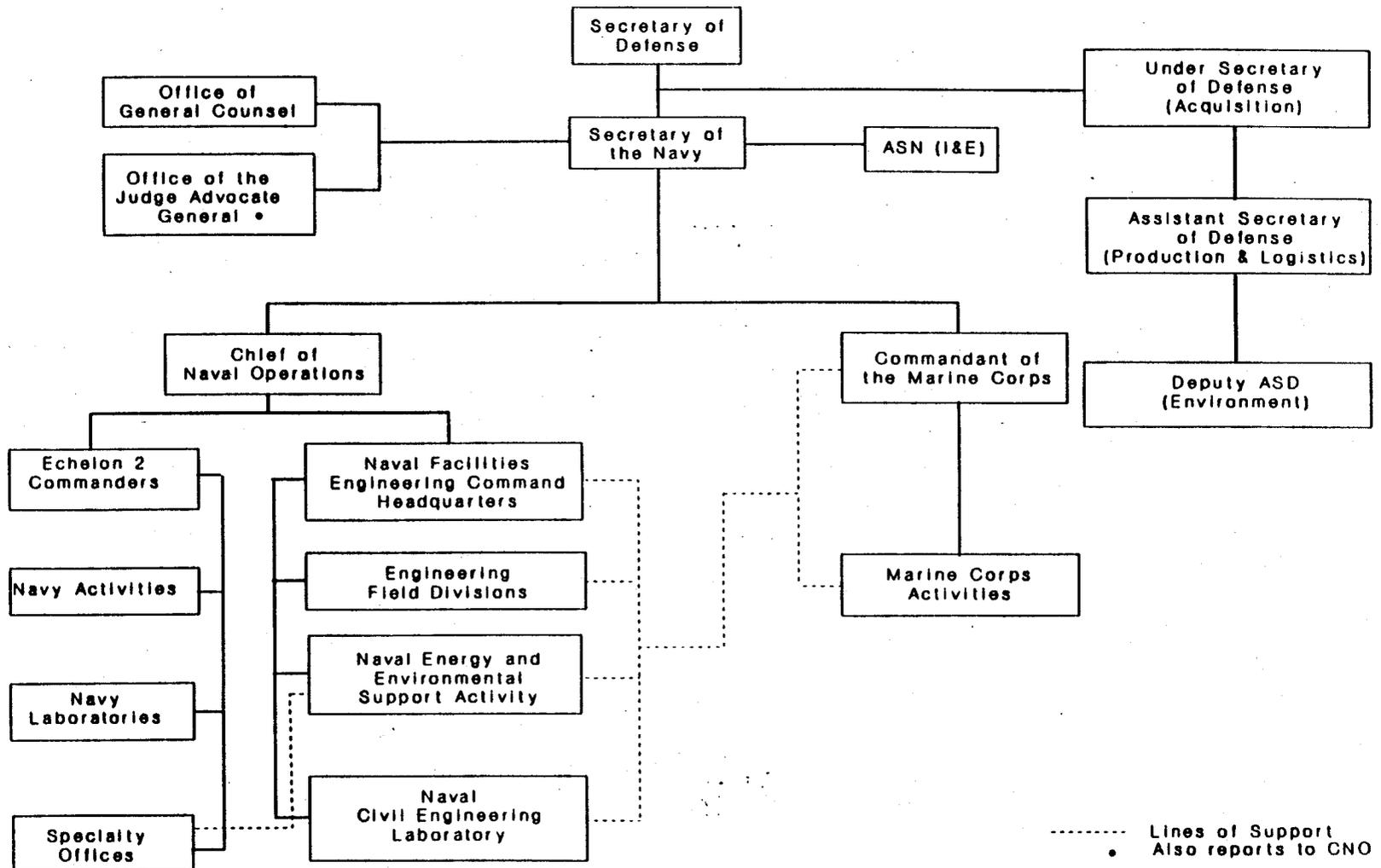
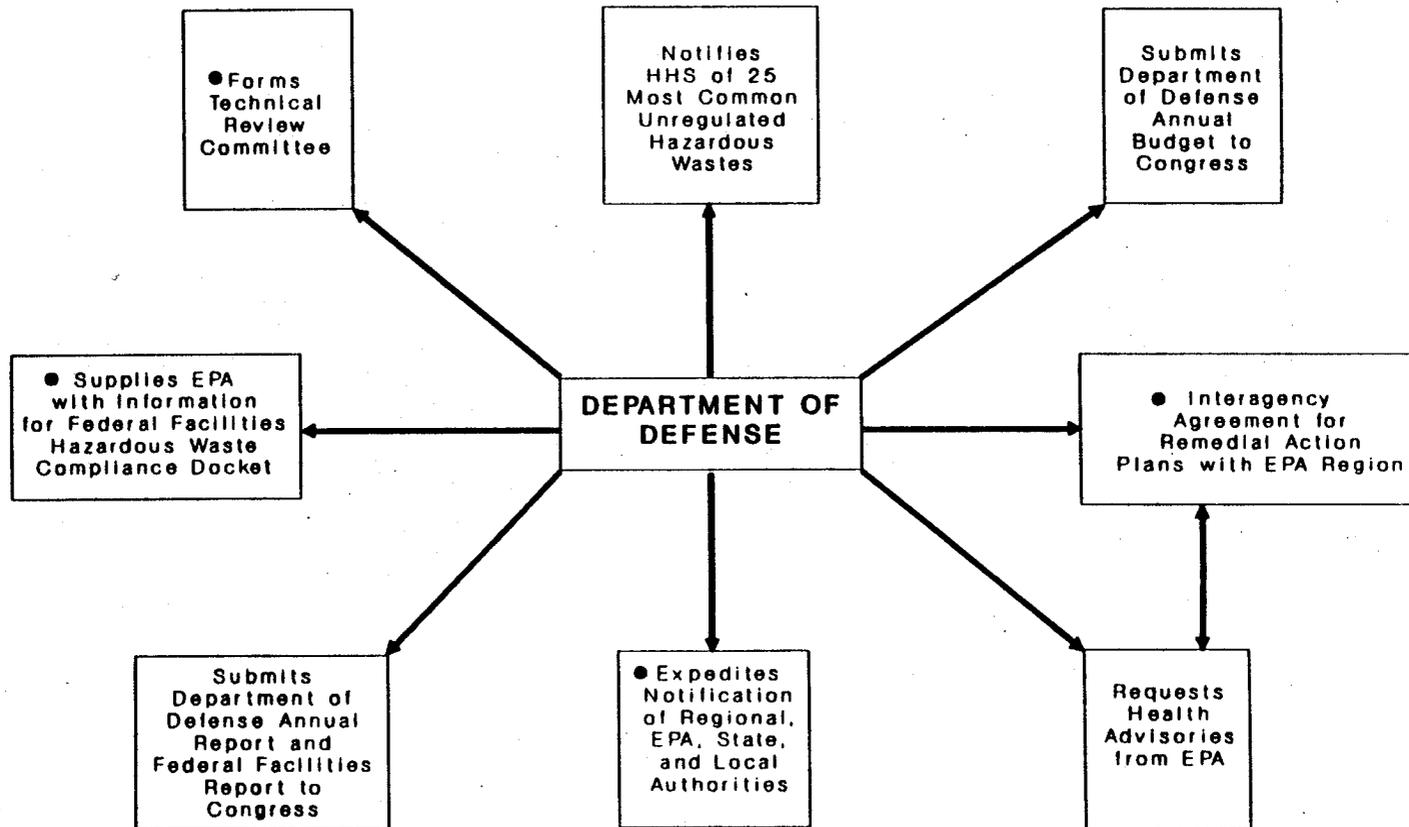


Figure 2-1

OUTLINE OF DOD RESPONSIBILITIES IN IMPLEMENTING SARA, CERCLA, AND NCP REQUIREMENTS UNDER E.O. 12580



● Primarily the Responsibility of the Services

Figure 2-2

2.2 Secretary of the Navy

2.2.1 Office of the Assistant Secretary of the Navy (Installations and Environment) (OASN(I&E))

OASN(I&E) is the Secretary of the Navy's designated focal point for the DOD IR Program. It coordinates with ODASD(E) on policy issues and has ultimate responsibility for conduct of the Navy/Marine Corps IR Program. Responsibilities of OASN(I&E) include:

- a. General policy oversight for Navy/Marine Corps IR program
- b. Oversight, review and approval of Navy/Marine Corps IR program and budget changes and new IR program and budget proposals
- c. Representation of DON with Federal, state and local environmental agencies on all matters of installation restoration
- d. Representation of DON with senior level DOD officials and committees, such as the ODASD(E) quarterly IR progress reviews.

2.2.2 Office of General Counsel (OGC)

OGC is responsible for providing environmental legal counsel and litigation support. The Environmental Law Office, under the direction of the Assistant General Counsel (Installations and Environment), provides legal advice and assistance to ASN(I&E) and CNO (OP-45) on all matters pertaining to environmental law and policy. Environmental litigation support is a shared responsibility between the OGC Litigation Office and the Office of the Judge Advocate General (JAG) General Litigation Division. Other sources of environmental legal expertise are located at Marine Corps Headquarters and Area Counsel's Offices, Navy Systems Command Headquarters, Echelon 2 commands, Naval Facilities Engineering Command (NAVFACENGCOM) Engineering Field Divisions (EFDs) and at some Navy installations. OGC attorneys are responsible for:

- a. Counseling to ensure that the Department of the Navy meets the legal requirements of CERCLA/SARA, and other applicable laws and regulations.
- b. Assisting in negotiations between the DON and EPA, the states, or third parties.
- c. Assisting in litigation where the DON is a party.

2.2.3 Office of the Judge Advocate General (JAG)

The JAG coordinates with OGC to ensure that consistent legal advice is provided to both uniformed and civilian attorneys in the field on matters requiring headquarters level review and provides litigation support on selected cases. The Deputy Assistant Judge Advocate General (Environmental Law) is dual hatted as the Deputy Assistant General Counsel (Installations and Environment) and is assigned to the Environmental Law Office. The General Litigation Division shares responsibility for litigation support with the OGC Litigation Office, and acts as agency counsel in agreed cases. Members of the Judge Advocate General's Corps (and Marine Corps Judge Advocates) are assigned to operational commands and support facilities and are responsible for:

- a. Providing legal advice to their commanders on legal requirements of CERCLA/SARA and other applicable laws and regulations,
- b. Assisting with negotiations involving their commander, and
- c. Providing litigation support as necessary.

2.3 Chief of Naval Operations (CNO)

The Environmental Protection, Safety and Occupational Health Division (OP-45) is responsible for:

- a. Establishing policy and directing, coordinating, and monitoring the IR Program within the Navy.
- b. Coordinating with OASN(I&E), ODASD(E), CMC, and with non-DOD agencies involved in environmental restoration matters.
- c. Submitting program and budget requests to ODASD(E), forwarding funds for execution, and providing program oversight.

2.4 Commandant of the Marine Corps (LFL)

The Land Use and Military Construction Branch (LFL) is responsible for:

- a. Coordinating with CNO/OP-45, NAVFACENGCOM, and the EFDs to ensure equitable and timely allocation of funding from the Defense Environmental Restoration Account (DERA) to support remediation of releases of hazardous substances at Marine Corps installations.
- b. Providing oversight for the implementation of the IR Program for the remediation of past hazardous waste disposal sites at Marine Corps installations.
- c. In conjunction with the Office of Legislative Affairs and OASN(I&E), monitoring proposed Federal environmental legislation for impact on Marine Corps operations affected by the IR Program.

2.5 Echelon 2 Commands

Echelon 2 commands, the Navy commands under CNO, are responsible for:

- a. Ensuring that subordinate installations identify IR Program requirements to NAVFACENGCOM EFDs.
- b. Ensuring program information and guidance is passed to their installations.
- c. Ensuring that subordinate installations fulfill their responsibilities under the Navy IR Program.
- d. Ensuring that public participation and other legal requirements are met at installations with sites.

- e. Ensuring that installation budgets reflect resource requirements to support the IR Program.

2.6 Naval Facilities Engineering Command (NAVFACENGCOM)

NAVFACENGCOM's responsibilities include:

- a. Operating the IR Program for CNO and CMC, including the necessary overall planning, programming, budgeting, and execution.
- b. Preparing quarterly status reports for CNO and CMC and other reports for DOD, EPA, Office of Personnel Management (OPM), and other agencies, as directed by CNO and in support of CMC, including semiannual IR execution plans for CMC and Echelon 2 Commands.
- c. Providing program and technical support as directed by CNO, as well as in support of similar requirements from CMC.
- d. Developing and supporting Defense Environmental Restoration Account (DERA) resource requests and managing funds allocated for program execution.
- e. Resolving issues and problems associated with conduct of the IR Program, and raising the issues to CNO/CMC where necessary.
- f. Performing IR studies and remedial action projects by contract, in-house effort, or combination.
- g. Training remedial project managers (RPMs).
- h. Forwarding final proposed Federal Facility Agreements (FFAs) and state agreements to CNO and CMC for review and submission to OASN(I&E) for signature.
- i. Participating in remediation planning meetings with other potentially responsible parties (PRPs) and agencies, forwarding proposed remediation agreements to CNO/CMC and OGC (Litigation) for review and comment, signing and administering the agreements and disseminating information to all interested parties at all stages of the process.

2.6.1 Engineering Field Divisions (EFDs)

NAVFACENGCOM's seven EFDs are as follows:

- Atlantic Division (LANTDIV), Norfolk, Virginia
- Pacific Division (PACDIV), Pearl Harbor, Hawaii
- Western Division (WESTDIV), San Bruno, California
- Chesapeake Division (CHESDIV), Washington, DC
- Northern Division (NORTHDIV), Philadelphia, Pennsylvania

- Southern Division (SOUTHDIV), Charleston, South Carolina
- Southwestern Division (SOUTHWESTDIV), San Diego, California

In addition, WESTDIV has a subordinate Engineering Field Activity (EFA) in Silverdale, Washington.

Each EFD has its own geographical area of cognizance as shown by Figure 2-3. Within its area of cognizance each EFD is responsible for:

- a. Developing and performing site-specific projects to assess and control contamination in conjunction with installations.
- b. Tracking project progress to meet schedule requirements.
- c. Coordinating, at all stages, with installation Commanding Officers/Generals and regulatory agencies prior to initiating projects and through project completion.
- d. Supporting installations with the Technical Review Committee (TRC) and Community Relations Plan (CRP).
- e. Preparing the Record of Decision (ROD) and forwarding the ROD to the installation Commanding Officer/General with a recommended alternative.
- f. Maintaining administrative record files and distributing copies as required.
- g. Preparing project plans, reports, and contract documents; coordinating review and comments; and distributing final documents to the appropriate installation and Echelon 2 command.
- h. Providing technical and financial oversight during project performance.
- i. Providing site specific technical, progress, and budgeting information to satisfy program reporting requirements.
- j. Providing IR study results to planning and real estate personnel and working with acquisition project managers to ensure that hazardous waste site conditions are taken into account by other Navy programs and projects before irreversible decisions are made.
- k. In coordination with the installation, negotiating FFAs and state remediation agreements as delegated by NAVFACENGCOM.
- l. Preparing No Further Response Action Planned (NFRAP) documentation.
- m. Preparing Hazard Ranking System (HRS) scoring packages.

Engineering Field Divisions of the Naval Facilities Engineering Command

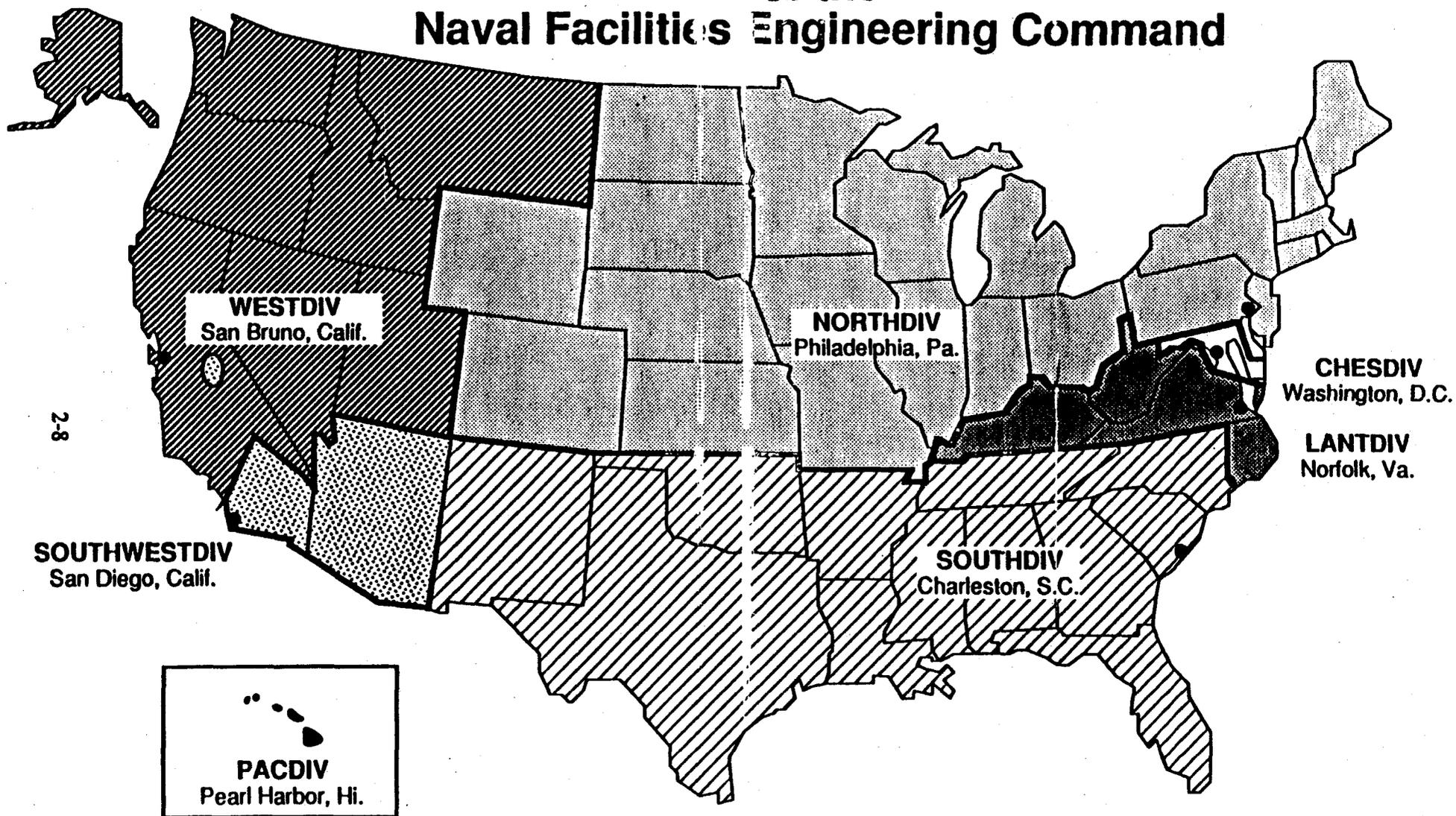


Figure 2-3

2.6.2 Naval Energy and Environmental Support Activity (NEESA)

NEESA is a support activity for the NAVFACENGCOM Assistant Commander for Environment, Safety, and Health (Code 18). It is located at Construction Battalion Center (CBC) Port Hueneme, California. NEESA's responsibilities include:

- a. Providing technical studies, specialized field teams (including technology transfer teams), and field support guidance (i.e., manuals, guides, and standard procedures) to assist installations and EFDs in complying with IR Program requirements, including written program quality assurance strategy.
- b. Providing EFDs with recommendations and technical assistance for conducting remedial investigation/feasibility studies (RI/FSs), remedial actions (RAs), and long-term monitoring, including administering the Remedial Action contracts and conducting peer reviews of proposed RAs.
- c. Developing and performing site specific projects to assess and control contamination in support of installations with concurrence of EFDs.
- d. Maintaining a library of program documents.
- e. Developing and maintaining a computerized data base of program information and training other Navy personnel in its use.
- f. Managing all IR Program information and preparing program management reports.
- g. Providing programmatic and technical analyses as requested by NAVFACENGCOM HQ, EFDs, and installations.
- h. Administering the specialty offices to address unique IR problems related to marine and ordnance operations.
- i. Providing IR-related training such as Health and Safety Training and Resident Officer in Charge of Construction (ROICC) training.

2.6.3 Specialty Offices

The following specialty offices, administered by NEESA via the Naval Environmental Protection Support Service (NEPSS), are also available to provide environmental support for the IR Program. Their mandate is to provide technical support and data in situations where hazardous waste (i.e., heavy metals, ordnance components) are present or suspected in soil and water environments and in litigation involving such situations.

- a. Ordnance Environmental Support Office (OESO), Naval Ordnance Station, Indian Head, Maryland.
- b. Marine Environmental Support Office (MESO), Naval Ocean Systems Center, San Diego, California.

2.7 Bureau of Medicine and Surgery (BUMED).

BUMED, acting through its executive agent, the Navy Environmental Health Center (NEHC), is responsible for providing consultative support to include, but not be limited to the following:

- a. Providing support in the areas of health assessments, toxicological profiles, health/safety training, review of human health evaluations and ecological risk assessments.
- b. Interfacing with the Agency for Toxic Substances and Disease Registry (ATSDR) concerning ATSDR's legally mandated health assessments.
- c. Assisting NAVFACENCOM and installations during public meetings and with responses to community concerns regarding program health and safety.

2.8 Installations

Commanders and Commanding Officers/Generals of Navy and Marine Corps installations are responsible for:

- a. Notifying Federal, state and local officials when a release is discovered.
- b. Ensuring that all applicable statutory and regulatory requirements including safety and health, training (for installation personnel), and natural resources are met during site assessment and response actions.
- c. Providing necessary review and comment on IR plans of action, reports, etc.
- d. Forwarding IR Program studies to the EPA and state regulatory agencies within thirty days of completion unless otherwise required in an FFA.
- e. O&M funding and support for long-term monitoring and operation and maintenance of sites.
- f. Providing an installation contact and logistic support for IR projects at their installation.
- g. Establishing and conducting periodic meetings of the Technical Review Committee (TRC) for IR Program sites.
- h. Providing information as required for updating Pollution Control Report (PCR) exhibits to EFDs for all IR Program needs (i.e., studies, remedial actions, salaries, support costs).
- i. Preparing and implementing a public participation program, including a CRP, for IR Program sites.
- j. Selecting the remedy and signing the decision documents for all IR Program sites. (For National Priorities List (NPL) sites, EPA will review and make final decision.)
- k. Participating in negotiations of FFAs and state agreements.

l. Notifying appropriate commands of any EPA or state notice of PRP action, and supporting PRP response.

m. Ensuring that IR Program site conditions are considered prior to land use planning, development, or operation, especially in regard to Military Construction (MILCON) and special project development. IR Program review must be incorporated into the shore facilities planning process.

n. Ensuring that appropriate information is placed in the information repository(s).

o. Informing the public of the availability of technical assistance grants (TAGs) for installations on the NPL.

2.9 Remedial Project Managers (RPMs)

Remedial project managers (RPMs) shall be assigned by the Naval Facilities Engineering Command to manage remedial or other response actions at installations with IR Programs. The RPM is the prime contact for remedial or other response actions being taken (or needed) at sites in the IR Program. The RPM's responsibilities include:

- a. Coordinating, directing and reviewing the IR Program work.
- b. Assuring compliance with the National Contingency Plan (NCP).
- c. Recommending action for decisions.

The RPM's period of responsibility begins prior to initiation of the RI/FS (see Chapter 5), and continues through design, remedial action, NFRAP, or deletion of the site from the NPL.

CHAPTER THREE

3.0 RESPONSE ACTIONS

This chapter provides detailed discussion of a number of response actions associated with the Installation Restoration (IR) Program, which are not specifically included in the standard Preliminary Assessment/Site Inspection (PA/SI), Remedial Investigation/Feasibility Study (RI/FS), or Remedial Design/Remedial Action (RD/RA) phases. The following is a list of response actions discussed:

- a. Removal Actions
- b. Spill Response versus Past Operations Response
- c. Emergency Response
- d. No Further Response Action Planned

3.1 Removal Actions

Section 104 of CERCLA/SARA (Superfund Amendments and Reauthorization Act) provides that removal actions are part of the response process and are often the first response to a release or threatened release. Removals can be undertaken at any time during the remedial process. Notwithstanding Section 120 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the DOD and DON have broad authority under CERCLA Section 104 and Executive Order (E.O.) 12580 to carry out removal actions when the release is on, or the sole source of the release is from, the DON installation.

At any site, irrespective of the inclusion on the National Priorities List (NPL), where the DON or EPA determines that there is a threat to human health or the environment, the DON will use any appropriate means to abate, minimize, stabilize, mitigate, or eliminate the release or threat of release. The following factors need to be considered in determining the appropriateness of a removal action:

- a. Actual or potential exposure of nearby human populations, animals, or food chains from hazardous substances or pollutants or contaminants
- b. Actual or potential contamination of drinking water supplies or sensitive ecosystems
- c. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release
- d. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate
- e. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released
- f. Threat of fire or explosion

- g. Availability of other appropriate Federal/state response mechanisms to respond to a release**
- h. Other situations or factors which may pose threats to public health or welfare or the environment.**

The following examples of removal actions are not all-inclusive but provide representative responses to removal requirements:

- a. If humans or animals have access to the release, fences, warning signs, or other security or site control precautions should be put in place.**
- b. Run-off or run-on diversion controls should be used to prevent the further spread of contamination where precipitation or run-off from other sources may enter the release area.**
- c. Where there is a need to maintain structural integrity, a berm, dike, or impoundment stabilization should be considered.**
- d. Capping of contaminated soils or sludges should be employed where needed to reduce migration of hazardous substances into soil, groundwater, and air.**
- e. Chemicals, absorbents, and other materials should be used to retard the spread of the release or mitigate its effects.**
- f. Highly contaminated soils should be removed from a drainage area to prevent the further spread of contamination.**
- g. Drums, barrels, tanks or other bulk containers that contain or may contain hazardous substances should be removed, especially where it will reduce the likelihood of spillage, exposure to humans and animals, or reduce fire explosion potential.**
- h. To provide an uncontaminated source of drinking water, an alternative water supply should be considered.**

Alternatives which attain or exceed applicable or relevant Federal public health and environmental requirements, Federal criteria, advisories and guidance, and state standards will be considered in selecting a removal action. When the Navy/Marine Corps is notified of a release or threat of release which may require a remedial action, the PA should be done as soon as possible. However, a new PA does not have to be done if a PA has already been performed. A PA is required if the site is new and was not screened previously. If the Navy/Marine Corps determines that the removal action will not fully address the threat or potential threat posed by the release, the Navy/Marine Corps will ensure an orderly transition from removal to remedial response activities.

The National Contingency Plan (NCP) establishes two different procedures depending upon whether:

- a. There exists at least a six month planning period prior to initiating the removal, or**
- b. The removal is an emergency.**

The specific responsibilities and procedures of removal actions under these two situations will be carried out as outlined below.

3.1.1 Removal with a Six Month Planning Period

a. The cognizant EFD and the installation will ensure that an administrative record has been established for the site and that the public has been informed of its existence. For those installations where an administrative record has been established, the cognizant EFD will ensure that information relating to the removal is added to the record and that the public is informed of this addition.

b. The Navy Major Claimant or the CG/CO at Marine Corps installations will ensure that the installation has a formal community relations plan (CRP) in effect, including designation of a spokesperson available to inform the community of actions taken, respond to inquiries, solicit community concerns about the IR Program through interviews, and establish a local information repository at or near the site.

c. If field sampling is required, the EFD will develop a sampling and analysis plan (SAP) with both field sampling and quality assurance/quality control (QA/QC) components and forward the plan to EPA for review and comment. This is a specific requirement in the NCP (see Section 300.420(c)(4)). The NCP does not require that a copy of the sampling plan be given to the state; however, the EFD shall forward a copy to the state for information. If timely review is not provided, the EFD may continue with the removal program procedures outlined below but should note in the administrative record that EPA was provided the opportunity to review the sampling plan.

d. The EFD will prepare an Engineering Evaluation/Cost Analysis (EE/CA) which is a brief analysis of the removal alternatives for the site. Recommended criteria for evaluating potential removal alternatives include effectiveness of the option to minimize or stabilize the threat to public health, consistency with anticipated final remedial action, consistency with applicable or relevant and appropriate requirements (ARARs), and cost effectiveness.

e. The EFD will provide the EE/CA to the respective installation Commanding Officer/General for review.

f. The EFD will prepare and the installation will publish a notice of availability and brief description of the EE/CA in a major local newspaper and provide at least a 30 day comment period.

g. The EFD will prepare written responses to significant comments for inclusion in the administrative record file.

h. The EFD will prepare an Action Memorandum (AM) which serves as the primary decision document substantiating the need for the removal action, identifying the selected action, explaining the rationale for the removal, and responding to significant public comments. The EE/CA should be attached to the AM as a reference.

i. The EFD Commanding Officer will forward the AM and a recommendation to the respective installation Commanding Officer/General for approval and signature.

j. The EFD will start the on-site removal action.

3.1.2 Emergency Removals

- a. The respective installation will notify its Navy on-scene coordinator (NOSC)/Marine Corps on-scene coordinator (OSC) to alert him/her of the situation.
- b. The respective installation will notify the EPA, state and local officials and the EFD, "unless there is imminent and substantial endangerment to human health or the environment and consultation would be impractical."
- c. The cognizant EFD will notify NAVFACENGCOM (Code 181) who in turn will notify OP-453 and/or CMC (LFL).
- d. If time permits, the EFD will prepare an AM briefly summarizing the conditions at the site, identifying the selected removal action and the rationale for the response action. The EFD will forward the AM to the installation Commanding Officer/General for review and signature.
- e. If there is insufficient time to prepare an AM prior to initiating the on-site removal action, the EFD will obtain verbal approval from the installation Commanding Officer/General and start on-site removal. The EFD will immediately follow up with an AM for the installation Commanding Officer/General's signature, documenting the rationale for removal.
- f. The EFD will prepare and the installation will publish a notice of availability of the administrative record file in a major local paper within 60 days of initiation of the removal action. The EFD must provide at least a 30 day public comment period on the removal action that is underway or that has been completed. This public comment period must start within 60 days of initiation of the removal action.
- g. The EFD will include written responses to significant comments in the administrative record file.
- h. If the emergency removal action is expected to extend beyond 120 days from the initiation of the on-site removal action, the EFD needs to ensure that a formal CRP is in effect.

Should a situation arise where the EFD and the installation cannot reach a consensus on the execution of a removal action, the matter must be referred to CMC(LFL) or the Echelon 2 level or the CNO (OP-45) for resolution.

3.2 Spill Response versus Past Operations Response

The IR Program responds to situations resulting from past practices and operations. The IR Program does not provide the framework for planning or response to oil discharges and hazardous substance releases from current operations. Contingency planning and spill response are not part of the IR Program because they are included in ongoing base operations.

Some sites which have been included in the IR Program are locations where spills occurred in the past and contaminants remained after response actions were completed. Those contaminants may be present at concentrations high enough to pose a threat to human health or the environment and, therefore, have been included as IR sites.

When IR Program investigations or cleanups are being conducted, appropriate spill prevention and response plans should be developed for possible IR Program project impacts. For example, if contaminated materials from an old site are being containerized for transport off-base, provisions for containment and cleanup of spillage or residues from that operation should be part of the IR Program project.

3.3 Emergency Response

Pursuant to CERCLA 104, E.O. 12580 and the NCP (40 CFR Part 300), the DON has the authority to respond to "emergency" situations, i.e., those circumstances which may immediately endanger human life, health, or the environment. If an IR site appears to be causing an emergency situation, the DON is responsible for taking appropriate action to protect people and the environment from the threat.

Emergencies need immediate actions to control or eliminate the risk posed by the site. The following paragraphs describe some examples of situations which require immediate action:

- a. Threat of fire or explosion posed by ignitable or explosive residues found in a waste site formerly used to dispose/detonate ordnance.
- b. Accidents or other events which result in the release or spread of hazardous substances such as: an airplane crash, a truck hauling hazardous waste turns over, or the unexpected release of a hazardous substance during IR remedial work.

3.4 No Further Response Action Planned (NFRAP)

The NCP, Section 300.5, Definitions, defines "sites that EPA decides do not warrant moving further in the site evaluation process, " as "No Further Response Action Planned" (NFRAP). These sites are not removed from EPA's "CERCLIS" data base after completion of evaluations in order to document that evaluations took place and to avoid needless repetition of these actions in the future.

The DON should not expend resources on sites which pose little or no threat to humans or the environment. A no further action decision can be made at several points within the remedial process, but must be based on a defensible and properly documented "assessment of risk to human health and the environment" (not to be confused with "Baseline Risk Assessment" or "Risk Assessment"). A NFRAP decision can be reached at the end of a PA, SI, or RI (when a Baseline Risk Assessment would have been completed as part of the RI and be available to support the NFRAP decision).

The DON may apply this procedure at both NPL and non-NPL installations to describe those locations where it has been determined that no further action is required, based upon appropriate investigation. Reports documenting those investigations should be forwarded to EPA and State regulators.

Decisions to cease evaluating the IR Program site may be made, if:

- a. On the basis of a PA, all available data indicate that no hazardous substances, pollutants, or contaminants were released or are likely to be released, or
- b. On the basis of a SI, results of a sampling program or other information indicate that there has not been nor is there likely to be a release, or

c. On the basis of a Baseline Risk Assessment, it is shown that the release poses no significant threat, or

d. On the basis of a complete RI/FS, the No Action alternative is the preferred alternative considering all the criteria applicable to remedy selection.

Remedial project managers (RPMs) should be alert to document opportunities for a NFRAP decision, including situations where a SI indicates that there is justification to proceed with some sites, while recommending NFRAP at others.

At some NPL installations, sites have been included during the Federal Facility Agreement (FFA) negotiation process before a site inspection has been conducted. In those circumstances "site screening" should be conducted at the initiation of the RI/FS under the FFA. The results of this screening process will determine if further response action is warranted. The NFRAP category should be used to describe those sites at NPL installations where site screening demonstrates that no further response action is warranted.

Resource management tools such as the Hazard Ranking System (HRS) II or the Defense Priority Model (DPM) will not be used alone to justify No Action decisions.

To support the objective of prudent resource management, calculation of an HRS prescore based on data gathered during the PA and/or Screening Site Inspection (SSI) may be a worthwhile endeavor (see Section 4.3). The prescore provides:

- a. An indication of whether the site will be a candidate for the Superfund NPL list.
- b. An indication of whether the site poses a threat to human health and the environment.

In addition to calculating an HRS prescore, the no further action alternative shall be substantiated with an assessment of risk to human health and the environment. This assessment shall take into consideration the adverse health and environmental impacts if no further action is taken. Due to the lack of adequate field and analytical data, this assessment will probably be more qualitative than quantitative. However, an assessment, even though somewhat subjective, is meaningful if based on known characteristics of the contaminants (i.e., toxicity, persistence, mobility), potential pathways of contact/transport (i.e., direct contact, air route, groundwater route, surface water route, fire and explosion), types and numbers of targets (i.e., type, number, age, contact concentration), and maximum concentration levels of exposure (as contained in ARARs). This assessment of risk should not be confused with a health assessment, which is part of the overall risk assessment process, nor does it have to involve highly analytical procedures such as modelling.

NFRAP decision documents should be prepared by the EFD and signed by the installation commander in accordance with CERCLA. Upon signature of the documents, the installation will forward the NFRAP decision documentation to appropriate regulatory agencies for their information and ensure that the public receives notification (using procedures similar to those identified in Section 10.1.7). As appropriate, the documentation needs to include:

- a. Discussion of how human health and the environment are protected both now and in the future.

b. Discussion of how Federal and state ARARs are attained.

It should also be understood that the status of NFRAP sites at both NPL and non-NPL installations may change as a result of additional or new information.

CHAPTER FOUR

4.0 PRELIMINARY ASSESSMENT/SITE INSPECTION (PA/SI)

This chapter identifies proper terminology to use and procedures to follow in the pre-remedial phase of response actions under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The preliminary assessment/site inspection (PA/SI) procedures outlined in this chapter are comparable in scope and effort to the Preliminary Review (PR), Visual Site Inspection (VSI), and Sampling Visit (SV) which comprise the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA).

To establish the overall perspective of how a PA and SI fit into the overall remedial action process, the steps that make up the remedial action process and the sequence in which they are normally undertaken are illustrated in Figure 4-1. Figure 4-2 provides a graphic representation of how four "other actions" often required in the remedial process relate to the basic PA/SI, Remedial Investigation/ Feasibility Study (RI/FS), and Remedial Design/ Remedial Action (RD/RA) phases of remedial projects. The figure illustrates when/how these "other actions" (removals, no further action, operable units and continued site monitoring) relate to the basic remedial sequence of activities. One of these actions should be exercised when:

a. The need to implement a removal is recognized in order to quickly control or remove the source of a release, limit exposure of humans to a release, or respond to an imminent threat (see Section 3.1 for criteria and procedures for removals).

b. It is clear that no further action is required because there is no evidence that a CERCLA release occurred, a release has been shown by an assessment of risk (not to be confused with a "risk assessment" or "Baseline Risk Assessment") to be an insignificant threat to human health or the environment, or it is the preferred alternative in a feasibility study considering all applicable criteria (see Section 3.4 for guidance on deciding to take no further action).

c. The opportunity arises for implementing operable units prior to selection of the remedial action if early actions are necessary or appropriate to achieve significant risk reduction quickly and they will not be inconsistent with nor preclude implementation of the expected final remedy (see Section 6.2.1). Note: an operable unit is defined in the National Contingency Plan (NCP) as a discrete portion of a remedial response that by itself eliminates or mitigates a release, threat of a release or pathway of exposure and that requires no additional action to accomplish its objective. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site.

d. Site conditions of regulatory agencies require continued site monitoring beyond the scope of the remedial investigation (continued site monitoring is discussed in Section 6.3).

Steps in the remedial action process are discussed below in the sequence that they are normally undertaken. The purpose, possible subsequent steps, tasks, documentation, and coordination requirements for each step are summarized in the accompanying figures. Flow charts are presented for selected steps to illustrate the relationship between steps.

REMEDIAL ACTION PROCESS

PA/SI

Identification

DISCOVERY & NOTIFICATION

PRELIMINARY ASSESSMENT

SITE INSPECTION

RI/FS

Investigation

RI/FS SCOPING

SITE CHARACTERIZATION

TREATABILITY INVESTIGATION

SELECTION OF REMEDY

DEVELOP ALTERNATIVES

SCREEN ALTERNATIVES

DETAILED ANALYSIS OF ALTERNATIVES

RD/RA

Cleanup

REMEDIAL DESIGN

REMEDIAL ACTION

POST-PROJECT ACTIVITIES

SC

Site Closeout

NFRAP or DELISTING

LEGEND

———— Non-Optional Steps

- - - - - Optional Actions

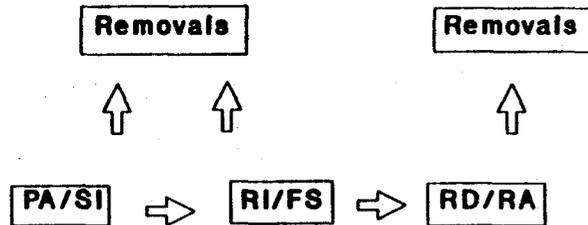
◇ ○ NFRAP decision may be made here

NOTE: (1) If situation warrants, removals or long-term monitoring may be implemented at most of the steps shown
 (2) This process can be modified to meet site-specific needs

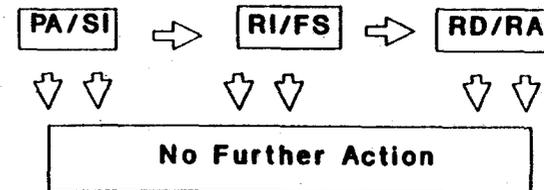
Figure 4-1

Removals, No Further Action, Operable Units and Continued Site Monitoring in Relation to the Remedial Action Process

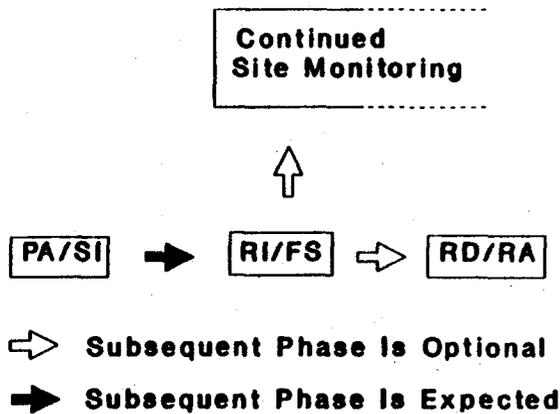
Removals



No Further Action



Continued Site Monitoring



Operable Units

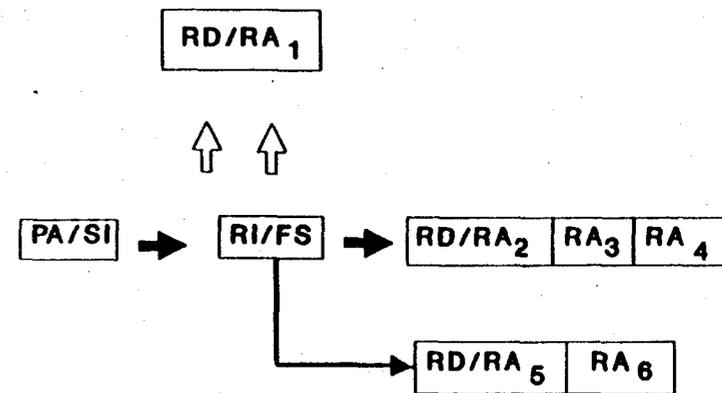


Figure 4-2

The Superfund Amendments and Reauthorization Act (SARA) establishes specific dates and time intervals which Navy/Marine Corps installations on the National Priorities List (NPL) must use in implementing CERCLA, SARA, and National Contingency Plan (NCP) requirements. Navy/Marine Corps policy requires that non-NPL response actions be accomplished in accordance with the NCP. Further, certain installation restoration (IR) projects may require compliance with procedures and schedules dictated by other statutes. For example, where a RCRA corrective action permit is required, specific compliance schedules will probably be spelled out in the permit. Dates and timing requirements are discussed at appropriate locations throughout this guidance.

4.1 Discovery and Notification

Site discovery and notification is the first step in addressing uncontrolled or abandoned hazardous waste sites at Navy/Marine Corps installations.

The IR Program is not the only method to locate and identify hazardous waste disposal sites that may pose a threat to the public. It is important to note that CERCLA, Section 103, specifies that a release (as defined in CERCLA, Section 101(22)) or threat of a release may be discovered by:

- a. A person in charge of a vessel, off-shore or on-shore facility who has knowledge of any non-permitted release of hazardous substances (as listed by EPA) in quantities equal to or greater than:
 1. That promulgated by EPA
 2. One pound quantities; unless superseded by 1.
- b. Notification of a release by a Federal or state permit holder when required by its permit.
- c. Inventory efforts or random/incidental observation by government agencies or the public.
- d. Other sources.

It is the responsibility of installation Commanding Officers/Generals to report releases of hazardous substances. Any release must be reported to EPA, the state, and relevant local authorities, per 10 USC 2705. In addition, if the release exceeds a reportable quantity per CERCLA, the installation must also notify the National Response Center (NRC).

The NRC and state emergency response centers in delegated states, which are communication centers for activities related to hazardous waste releases or response actions, must be contacted by the Commanding Officer/General, or his/her authorized representative, whenever there is a release or threat of release from his/her vessel or installation. If notification to the NRC is not practical, the regional EPA designated on-scene coordinator (OSC) or the Coast Guard should be contacted. Reportable quantities are listed in 40 CFR 302.4.

As part of the planning and preparation for response to releases or spills on Navy installations, a Navy On Scene Coordinator (NOSC) has been designated to coordinate pollution contingency planning and direct Navy oil and hazardous substance pollution efforts in a predesignated area. Shoreside NOSCs are normally regional environmental coordinators predesignated by the area coordinators (see Chapter 2 in OPNAVINST 5090.1A). Fleet NOSCs are the numbered fleet commanders who direct fleet operations

within assigned ocean areas. The NOSC is the Federal OSC for Navy hazardous substance releases. For Marine Corps installations, see Chapter 9 of MCO P5090.2. OPNAVINST 5090.1A and MCO P5090.2, respectively, describe the designation and responsibilities of OSCs. One of the principal activities of the OSC is to determine the need at a specific site for either:

- a. Immediate removal action (wherein the hazard is physically removed under emergency situations), or
- b. Remedial action.

The Commanding Officer/General is also responsible, under SARA, Section 211, for promptly notifying the regional office of EPA and appropriate state and local authorities of each of the following:

- a. The discovery of releases or threatened releases of hazardous substances at the facility
- b. The extent of the threat to public health and the environment which may be associated with any such release or threatened release
- c. Proposals to carry out response actions with respect to any such release or threatened release
- d. The initiation of any response action with respect to such release and the commencement of each distinct phase of such activities.

Upon site discovery and notification, the EFD identifies a remedial project manager (RPM) whose responsibilities include ensuring that all IR Program requirements are addressed.

Figure 4-3 summarizes elements of the discovery and notification step.

4.2 Preliminary Assessment (PA)

Navy/Marine Corps installations in compliance with CERCLA have the responsibility to carry out a PA at a hazardous waste site as part of the remedial process. Likewise, during a removal action, a PA may be required as discussed in Section 3.1. If a PA has not been conducted previously, a PA should be done as soon as possible when installations or sites are listed on the Federal Agency Hazardous Waste Compliance Docket (see Section 5.11.1). Navy/Marine Corps policy requires PAs to be completed within 12 months of discovery or listing on the EPA docket, (see OPNAVINST 5090.1A, Chapter 13 and MCO P5090.2, Chapter 14).

NAVFACENGCOM EFDs or NEESA will accomplish the PA at all appropriate installations. The principal purpose of the PA is to collect information for use in assessing the existence of hazardous wastes at a site and determining the potential for hazardous waste migration. The NCP definition of a PA is: "...review of existing information and an off-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A PA may include an on-site reconnaissance, if appropriate."

PAs should routinely include on- and off-site reconnaissance. The NCP requires that a "PA shall consist of a review of existing information about a release such as information on the pathways of exposure,

ELEMENTS OF THE DISCOVERY AND NOTIFICATION STEP



- | | |
|--|--|
| Purposes | <ul style="list-style-type: none"> • Characterize release from available information • Report releases in excess of reportable quantity to the National Response Center, Governor of the State, EPA Region (Installation Commanding Officer) |
| Potential Subsequent Actions | <ul style="list-style-type: none"> • Preliminary assessment • Removal |
| Tasks | <ul style="list-style-type: none"> • Determine appropriate response action |
| Documentation | <ul style="list-style-type: none"> • Contact reports • Correspondence |
| Additional Site Management Activities | <ul style="list-style-type: none"> • Notify National Response Center, Governor EPA Region, and Regional Response Team (Installation Commanding Officer) |
| EPA/State Activities | <ul style="list-style-type: none"> • Enter site in Federal Agency Hazardous Waste Compliance Docket (EPA) |

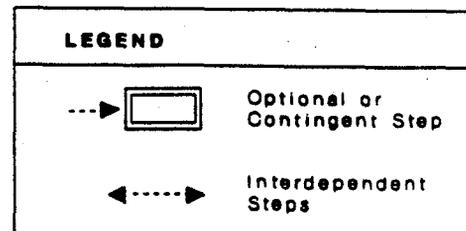


Figure 4-3

exposure targets, and source and nature of release." The elements of an off-site reconnaissance could typically include:

- Determining pathways or possible off-site migration that could transport contaminants to human or environmental receptors.
- Determining types and numbers of potential receptors.
- Looking for visible signs of off-site migration such as stressed vegetation, leachate seeps, etc.
- Determining availability of data from state or local authorities that could indicate the presence of off-site contamination attributable to on-site sources, for example, groundwater analysis data from the state geologists' office or state water quality board, routine stream water monitoring data from the water quality board, ambient air monitoring data from the state or local air quality board, etc.

The terms "off-site", "on-site", and "off-base" require proper interpretation in order to properly implement an IR Program project at a Navy or Marine Corps installation. Accordingly, to maintain consistency with the NCP, the following definitions are established:

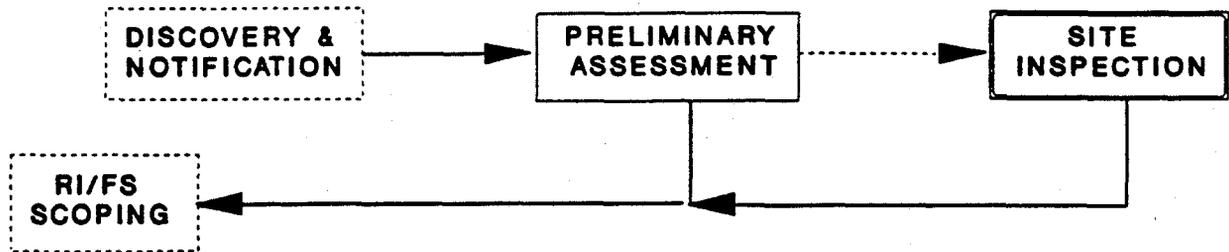
- a. On-site, which may include off-base property, refers to the immediate area encompassing a hazardous waste site. Specifically, NCP, Section 300.400(e)(1), defines on-site as, "The areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action." A particular installation could have several waste "sites" within the base boundary. (Note: an entire installation may be defined as a "National Priorities List (NPL) site" with multiple "waste sites" within its boundary.)
- b. Off-site refers to the area surrounding a hazardous waste site and could include "on-base", as well as "off-base", property.
- c. Off-base refers to property owned by parties other than the Navy or Marine Corps and outside the installation boundary.

The proper use of these terms becomes very important when addressing certain activities associated with the remedial process, especially when dealing with regulatory agencies. For example, off-site reconnaissance could include property adjacent to the site but within a base and/or outside the base boundary, depending on the proximity of the waste site to the boundary. Further, proper use of these terms becomes increasingly important when addressing, for example, exemptions from permit requirements for response actions within a base boundary that may involve remediation of more than one site, or transfer of waste material between sites for purposes of treatment, etc., and do not involve off-site (e.g., off-base) activities. Guidance is provided throughout this manual where actions, such as permitting, are heavily influenced by whether the remedial action is on-site, off-site, or off-base.

Figure 4-4 summarizes the elements of the PA step. The PA is developed from readily available information and includes:

- a. Identifying pathways of exposure and exposure targets
- b. Identifying the source and nature of the release or threat of release

ELEMENTS OF THE PRELIMINARY ASSESSMENT STEP



Purposes

- Eliminate from further consideration those releases that pose neither threat nor potential threat to public health, welfare, or the environment
- Determine source and nature of release, pathways of exposure, exposure targets, and threat to public health or welfare
- Determine need for removal or remedial action

Potential Subsequent Actions

- No action
- Site inspection
- RI/FS
- Removal

Tasks

- Records Search
- Photo interpretation
- Interviews
- Site visit

Documentation

- Preliminary Assessment Report (EFD or NEESA)
- EPA Preliminary Assessment form

Additional Site Management Activities

- Notify natural resources trustee if natural resources damage expected (installation)

EPA/State Activities

- Review PA

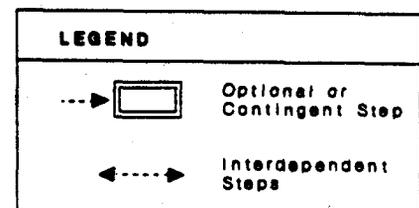


Figure 4-4

- c. Evaluating the magnitude of the potential threat
- d. Evaluating factors necessary to make the determination of whether a removal is necessary.

The PA component of the remedial action can be developed by gathering and reviewing the following types of information:

- a. Site management practices
- b. Information from generators
- c. Photographs
- d. Analyses of historical photographs
- e. Literature searches
- f. Personal interviews
- g. Perimeter (off-site) inspection to determine the potential for release
- h. On-site inspection, if more information is needed.

Background data should be reviewed for information concerning the site's history. The historical data should provide the following information:

- a. Past disposal and waste management practices
- b. Information from generators and transporters
- c. Hydrogeologic data
- d. Status of current permits
- e. Environmental sampling plan
- f. Worker/non-worker injury or exposure
- g. Surrounding land use.

A documentation record including sources of information and a narrative summary should be included in a PA Report. Detailed guidance for performance of PAs under CERCLA is contained in *Guidance for Performance of Preliminary Assessments Under CERCLA*, OSWER Directive No. 9345.0-01A, September 1991. This is EPA Headquarters guidance. Individual EPA regions may require PA information in a different format. It is the responsibility of the Navy/Marine Corps to comply with regional EPA requirements.

The first section of EPA's PA Form requests general information concerning the site location, responsible parties, a characterization of potential hazards, and a priority assessment. This assessment establishes the relative priority for follow-on actions, e.g., an immediate removal action to address an imminent threat to human health or the environment. Specifically, this portion of the PA Report requires the following information:

- a. Site location, including latitudinal and longitudinal coordinates
- b. Site owner, operator, and type of ownership
- c. Status of RCRA permits
- d. Site status
- e. Description of disposed wastes and potential hazards to the environment
- f. A recommendation as to whether a site inspection should be conducted.

The second section of the PA Form requests information concerning disposed wastes. Specifically, this section contains data concerning the wastes' physical state at the time of disposal, the total waste quantity at the site, waste characteristics (e.g., reactive, corrosive, flammable), specific waste types, and hazardous substances or feedstocks that may be at the site.

The last section of the PA Form is a description of hazardous conditions and incidents that have occurred or are occurring at the site. Sixteen subsections require specific information concerning the observed, potential or alleged releases to the groundwater, surface water, soil and air, as well as releases that may present fire or explosive conditions. In addition, information gathered during the PA is evaluated to determine whether a release has contaminated a drinking water source or the food chain; exposed the surrounding population or on-site workers to health hazards; damaged floral and faunal species or off-site property; or contaminated sewers, storm drains, or wastewater treatment plants; as well as whether unstable containment of wastes and illegal or unauthorized dumping has occurred. An estimate of the total population potentially affected, comments, and references that document previous information should be provided.

Once completed by the EFD or NEESA, the EFD or NEESA will provide the PA to the installation Commanding Officer/General for review and forwarding to the cognizant EPA region and the state per OPNAVINST 5090.1A/MCO P5090.2. A copy of the forwarding letter should be sent to NEESA, Code 112E2.

A suggested format for the Preliminary Assessment Report is described below:

- a. Narrative summary of relevant information such as:
 1. History of the site
 2. Nature of hazardous materials
 3. Description of hazardous conditions, incidents, and permit violations

4. Routes of contaminant migration
5. Possible affected populations and resources
6. Recommendations and justifications
7. References to supporting data sources

b. Completed EPA Form 2070-12 (Potential Hazardous Waste Site Preliminary Assessment Form, included as Appendix D to *Guidance for Performance of Preliminary Assessments under CERCLA*)

c. Supporting documentation such as:

1. Copies of communications related to the site
2. Copies of photographs, maps, and sketches
3. Copies of reference papers
4. Copies of relevant pages from reports and documents used during the PA

CERCLA, Section 105(d), authorizes states to directly petition Federal facilities to conduct a PA if the state believes that a hazardous substance release or threat of release exists at the Federal facility. The Federal facility must conduct the PA within one year of receiving the petition or explain why the assessment is not appropriate. If notified of a petition, the installation should request NAVFACENGCOM assistance. States will be notified by the EPA and Federal facilities concerning responses to petitions and other PA/SIs that will be initiated in their state. The states will be given the opportunity to suggest possible data sources and review and comment on the PA Report. The states' role in Federal facility response actions is discussed in Section 5.11.

It should be noted that in past years, during the early days of the DON IR Program, some preliminary assessments were conducted and report documents prepared that are not in conformance with today's recommended format. There is no need to reformat such information merely for the sake of conformance if the PA information is complete and adequate to make a decision regarding the need for further action. Additionally, if a new site is discovered at an installation with an on-going IR project, then the installation and EFD should decide if a PA is required for the new site, or if the new site can be integrated with the other sites into the on-going site inspection or remedial investigation/feasibility study. Factors to be considered when making such a decision could be, for example:

- Whether the origin and type of contaminant is similar to the pollutants at existing sites, and
- From a technical standpoint, how compatible would investigative techniques for the new site be with ongoing or planned actions for the existing site(s), and
- How would integration of the new site into ongoing activities affect the overall site(s) assessment schedule, cost, project management and coordination, and

- The pros and cons of other potential impacts on human health and the environment if the site investigations are combined or conducted separately.

After appropriate evaluation, the RPM should also consider No Further Response Action Planned (NFRAP) for the new site (see Section 3.4).

For additional information on the EPA requirements for PAs, consult the following document:

Guidance for Performance of Preliminary Assessments under CERCLA. OSWER Directive 9345.0-01A, NTIS PB929963303, September 1991.

4.3 Site Inspection (SI)

The NCP defines a SI as "... an on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the PA and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate" (NCP, Section 300.420 (c)).

EFDs conduct SIs at sites that are recommended for further investigation at the end of the PA. Because of the level of effort and expense required to fully investigate, sample, analyze, and prepare documentation to support a Hazard Ranking System (HRS) II scoring package, EPA recommends that SIs be conducted in two phases. First, a Screening Site Inspection (SSI) is conducted and, depending on findings, a follow-on more detailed Listing Site Inspection (LSI) is completed. The field data required to support and substantiate a final HRS II score and NPL listing can be substantial. Accordingly, before such efforts are expended, a screening exercise is cost effective and appropriate. Further, the preliminary HRS II score based on a SSI can provide a relative indication of how further remedial efforts should be prioritized within the overall IR Program. The overall objective of the SSI is to provide information to support a recommendation that a site should either go on to the LSI or be considered as "no further action". At Navy/Marine Corps installations where contamination has not been confirmed or the extent of contamination characterized, the concept of a two-phased SI may be prudent. The SSI data collection is to verify and substantiate data collected during the PA, collect additional data to characterize the site and its environment, and collect physical environmental samples for analysis. The LSI is a more comprehensive field sampling, analysis, and data gathering exercise. SSI reports should contain the same elements as the LSI, but the level of detail is less extensive.

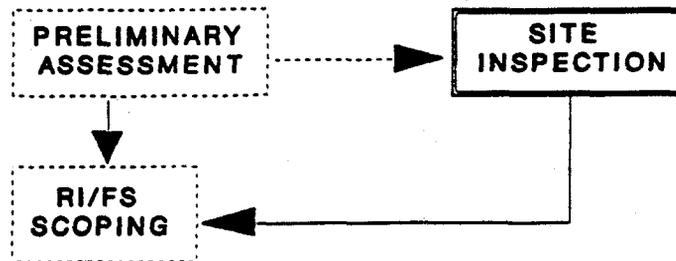
The LSI (hereinafter referred to as the SI) uses results of the SSI as a basis to determine if more detailed delineation of the amounts and potential migration of the hazardous waste is warranted. EFDs will accomplish SIs at appropriate Navy/Marine Corps installations.

If the SI indicates that removal action may be appropriate, then a removal site evaluation shall be initiated (see discussion in Section 3.1).

Prior to conducting field sampling as a part of a SI, a two-part Sampling and Analysis Plan (SAP) (see Section 4.5) should be developed. Part one of the plan is the Field Sampling Plan (FSP) (Section 4.5.1). Part two is a Quality Assurance Project Plan (QAPP) (Section 4.5.2).

Figure 4-5 summarizes elements of the SI step.

ELEMENTS OF THE SITE INSPECTION STEP



Purposes

- Eliminate from further consideration those releases that pose neither threat nor potential threat to public health, welfare, or the environment
- Collect data to characterize the release for effective rapid initiation of RI/FS
- Determine need for removal and/or remedial action

Potential Subsequent Actions

- No action
- RI/FS
- Removal
- Monitoring

Tasks

- Prepare Work Plan, Sampling and Analysis Plan, and Worker Health and Safety Plan
- Sample soils, sediments, groundwater, surface water as appropriate

Documentation

- Work Plan, Sampling and Analysis Plan, and Worker Health and Safety Plan
- Site Inspection report
- HRS scoring package

Additional Site Management Activities

- Submit SI report and HRS scoring package to EPA and the State within 30 days (installation)
- Comment on EPA proposal to include site on NPL

EPA/State Activities

- HRS Scoring
- HRS Quality Assurance/Quality Control
- NPL Proposal
- NPL Listing

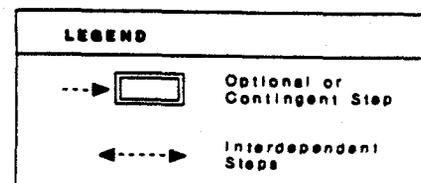


Figure 4-5

A SI report (both SSI and LSI) should provide information such as:

- a. Site location and inspection information**
- b. Waste management data and information on disposal practices**
- c. Detailed description of hazardous site conditions and incidents**
- d. Descriptive permit and facility information**
- e. Water, demographic, and environmental data**
- f. Sample data and field information**
- g. Owner, operator, generator, and transporter information**
- h. Information on past response actions**
- i. Information on past regulatory or enforcement actions**
- j. Conclusions and recommendations.**

The preparation of a SI report requires that sufficient information be collected to define past and present site waste operations and present site conditions resulting from waste operations. The site information and data are collected by carrying out procedures that address certain aspects of the site. These procedures include:

- a. Reviewing site operator records**
- b. Interviewing past and present site personnel**
- c. Conducting off-site surveys**
- d. Conducting on-site and off-site sampling**
- e. Analysis of samples (approved lab and quality assurance/quality control (QA/QC) requirements).**

On-site sampling should determine the nature of any disposed or stored wastes (source identification). Additionally, appropriate soil, air, groundwater, surface water, and sediment samples should be taken in the vicinity of any suspected source and along expected migration pathways to determine the existence and the approximate extent of any contamination.

Off-site surveys (which may include off-base areas) should be conducted to assess the population, land use, and operation that may affect, or be affected by, site operations and conditions. These surveys should identify adjacent land ownership, land use, water supplies, waste disposal practices, and potential receptors of any wastes that may migrate off the site (air, surface, or groundwater).

Off-site sampling should be carried out to determine the possible contamination of any off-site receptors due to waste disposed or stored on the site. Off-site sampling should also be carried out to identify contamination that may have resulted from off-site waste disposal practices on properties adjacent to the site. Off-site sampling may consist of air, soil, groundwater, surface water, sediment samples, vegetation, and food-chain organisms. Off-site sampling should also include ground waters and surface waters that are used as water supplies.

SI report conclusions and recommendations for further action are based on an assessment of risk posed by contaminants on the site. A preliminary assessment of risk at this step of the remedial process provides a consistent means for evaluating and documenting threats to human health and the environment. Under the NCP (Sect. 300.430(d)(4)) a baseline risk assessment is required as part of the Remedial Investigation and is used to help establish acceptable exposure levels for use in developing remedial alternatives in the Feasibility Study. The assessment performed as part of the SI will probably be more qualitative than quantitative since a thorough analysis involving fate and transport modelling is not within the scope of the SI. The quality of the assessment and confidence level will depend upon the breadth and depth of data (e.g., number of samples analyzed), how much is known about the contaminants present, their toxicity, persistence, and mobility, and potential human and environmental receptors. The SI report should contain such an assessment with appropriate qualifiers and confidence levels stated. Specifically, the assessment should include:

- a. An identification of the contaminants present, their concentrations, toxicity, persistence, mobility, and health-based or environmental standards for each
- b. The likely pathways and transport mechanisms by which the contaminants can/do reach the human and environmental receptors
- c. Any adverse impacts the contaminants will have on the receptors if no further actions are taken
- d. The confidence level placed on the assessment.

The documents used and reviewed in carrying out the SI and in the preparation of the report should be referenced or enclosed as a part of the SI report and HRS package and submitted by the installation to the regional EPA and cognizant state offices (OPNAVINST 5090.1A and MCO P5090.2). This information is critical to the decision of no further action or the recommended action to be followed after the SI.

EPA's suggested format for the SI report is as follows:

- a. Executive Summary
- b. Narrative discussion of the following:
 1. Background
 - (a) Location
 - (b) Site layout

- (c) Site ownership history
 - (d) Permit and regulatory history
 - (e) Remedial actions to date
 - (f) Summary trip report
2. Environmental setting
- (a) Topography
 - (b) Surface waters
 - (c) Geology and soils
 - (d) Groundwater
 - (e) Climate and meteorology
 - (f) Land use
 - (g) Population distribution
 - (h) Water supply
 - (i) Critical environments
3. Site photographs and sketches
4. Waste characterizations
- (a) Waste quantities
 - (b) Waste disposal methods and locations
 - (c) Waste types
5. Laboratory data
- (a) Summary of laboratory results
 - (b) Quality assurance review
6. Toxicological and chemical characteristics
7. Conclusions and recommendations (including Preliminary Risk Assessment)

8. Bibliography
9. HRS II scoring (preliminary)
- c. Completed EPA Form 2070-13 (Potential Hazardous Waste Site, Site Inspection Report) or equivalent
- d. Supporting Documentation Records
 1. Copies of communications related to the site
 2. Copies of photographs, maps, and sketches
 3. Copies of reference papers
 4. Copies of relevant pages from reports and documents used during the SI.

For additional information on the EPA requirements for SIs, consult the following documents:

- a. *Expanded Site Inspection Transitional Guidance for FY-88*, EPA Directive 9345.0-02, February 1988.
- b. *Revised Hazard Ranking System for Uncontrolled Hazardous Waste Sites*, EPA Directive 9355.0-04, December 1990.

4.4 Hazard Ranking System (HRS)

Using a hazard ranking system (HRS), EPA must score hazardous waste sites by their potential to affect human health, welfare, and the environment. Hazardous waste sites receiving the highest scores (i.e., having the highest potential for affecting human health, welfare, and the environment) are put on the NPL. Information from the PA and SI is used for scoring Navy/Marine Corps hazardous waste sites. Until enactment of SARA, Navy/Marine Corps installations were not officially listed on the NPL as published in the Federal Register. However, under the NCP, hazardous waste sites will be evaluated for placement on the NPL using any of the following procedures:

- a. The Hazard Ranking System (Revised December 1990, HRS II; see Appendix A to the NCP)
- b. Designation by a governor as the state's highest priority release with the greatest danger to public health, welfare, or the environment (among known releases in the state). Each state designates at least one site.
- c. EPA may include on the list a site where the release satisfies all the following criteria:
 1. The Agency for Toxic Substances and Disease Registry (ATSDR) has issued a public health advisory that recommends dissociation of individuals from the release.
 2. EPA determines that the site poses a significant threat to public health.

The HRS II is a means of applying uniform technical judgment regarding the potential hazards presented by a facility relative to other facilities. It does not address the feasibility, desirability or degree of cleanup required, nor does it address the timing or ability to carry out remedial action. DON policy is that sites which have been previously scored using HRS I will not be rescored, unless required by the EPA Regional Office. The HRS II is based on a numerical scoring system which ranks a site on the basis of:

- a. Potential and rate at which hazardous substances may affect human health, welfare, and the environment.
- b. The overall magnitude of these effects on human health, welfare, and the environment.

A site is proposed for the NPL if the site score is 29.5 or greater.

The EFD will complete a draft scoring package, and the installation will forward it, exclusive of the calculated score (for Navy/Marine Corps information only), to the EPA. This will assist in ensuring accurate scoring by EPA and provide first-hand data to evaluate EPA's final score. If EPA proposes a site for inclusion on the NPL, the basis for that proposal should be reviewed by the EFD and installation and comments should be forwarded by the installation during the comment period.

4.4.1 Site Inspections and Federal Facility Agreements (FFAs)

Sites are proposed and included on the NPL after being scored by EPA using the HRS. For Superfund sites, this means a PA and a SI have been completed, or information similar in nature to that obtained through a PA/SI is available, and a score has been calculated. However, in some instances, FFA negotiations at Navy or Marine Corps installations may concern several sites on the installation and, at that time, some of the PA/SIs may not have been completed. In such situations, care should be taken during FFA negotiations to not inappropriately assume that a RI/FS is required for each site. During the FFA negotiations it should be made clear that where PA/SI efforts have not been completed, those sites should be addressed as a discrete group. Further, the agreed plan of action should reflect this site screening so that appropriate response to the risks posed by those sites may be properly incorporated into the FFA (see Section 5.1).

4.5 Sampling and Analysis Plan (SAP)

The Sampling and Analysis Plan (SAP) contains the Field Sampling Plan (FSP) and the Quality Assurance Project Plan (QAPP). Proper planning and QA/QC are essential for field sampling associated with all phases of the IR Program process. (Even in the very early phases of the program the highest level of QA/QC should be demanded. Thus, data obtained early in the process can be considered valid throughout and decisions to design programs and expend money based on information this data provides will be justifiable.)

The EPA formats for the QAPP and FSP contain generalized, nonsite-specific protocols and standard operating procedures (SOPs) intermixed with actual project planning and Data Quality Objectives.

Data quality objectives (DQOs) are quantitative and qualitative statements specified to ensure that data of appropriate quality are collected during IR Program field activities. DQOs are developed prior to data

collection and should be specified for all data collection activities that take place during SI, RI, post-project monitoring, and when additional data needs are identified during the FS, RD, or RA.

Additional guidance regarding the DQO development process can be found in *Data Quality Objectives for Remedial Response Activities: Development Process*; and *Example Scenario: RI/FS Activities at a Site with Contaminated Soils and Ground Water* (EPA, March 1987).

DQOs are incorporated into the SAP and should be continually reviewed, reevaluated, and revised as needed based upon the results of each data collection activity.

The following sections describe the QAPP and the FSP. The QAPP refers to the laboratory aspects of the project while the FSP defines in detail the sampling and gathering methods and locations to be used in a project.

4.5.1 Field Sampling Plan (FSP)

The Field Sampling Plan (FSP) describes the number, type, and location of samples, the types of analyses, and decontamination procedures. It also identifies the personnel to perform each task. The plan should be based on the types of hazardous materials expected and their potential off-site migration routes. References for sampling at hazardous waste sites include:

1. *Characterization of Hazardous Waste Sites - A Methods Manual, Vol II - Available Sampling Methods* (U.S. EPA, 1984).
2. *Compendium of Superfund Field Operations* (U.S. EPA, December 1987).

Suggested elements to be included in a FSP are given in Table 4-1.

4.5.2 Quality Assurance Project Plan (QAPP)

A Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to ensure the validity of analytical data generated during project execution. The purpose of the plan is to ensure that all technical data generated are accurate, representative, and will ultimately withstand judicial scrutiny, should such a need arise.

QC consists of a system of checks on field sampling and laboratory analysis (through the use of field blanks, duplicates, documentation of all sample movement, chain of custody records, etc.) to provide supporting information on the methods employed to ensure quality analytical data.

QA consists of overview checking to certify that the QC procedures have been properly implemented to produce accurate data. QA is generally a supervisory and peer review oversight function.

All QA/QC procedures should be in accordance with applicable professional technical standards, EPA and state requirements, government regulations and guidelines, and specific project goals and requirements.

TABLE 4-1

SUGGESTED FORMAT FOR FIELD SAMPLING PLAN

- 1. Site Background**
- 2. Sampling Objectives**
 - Sample location
 - Sample purpose/data quality objective (DQO)
- 3. Sample Location and Sample Frequency**
 - Project
 - QA/QC
- 4. Sample Designation**
 - Project
 - QA/QC
- 5. Sampling Equipment and Procedures**
 - Equipment
 - Decontamination
 - Sample Taking
 - Waste Handling
- 6. Sampling Handling and Analysis**

A QAPP incorporates the following activities:

- a. Sample collection, control, chain-of-custody, and analysis;
- b. Document control;
- c. Laboratory instrumentation, analysis, and control; and
- d. Review of project deliverables.

Specifically, the QAPP should contain 14 elements. These elements are listed in Table 4-2. The required information for each of the elements of a QAPP need not be generated each time a QAPP is prepared. Only those aspects of a QAPP that are specific to the site being investigated need to be explicitly described. If site-specific information is already contained in another document (e.g., the Field Sampling Plan) it need only be referenced. Similarly, any information contained in planning or guidance documents such as the project work plan should only be referenced and not repeated in the QAPP.

For additional information, contact the NEESA Environmental Protection Department at (805) 982-4839 or autovon 551-4839.

4.6 Non-NPL Sites

IR Program responses may be subject to CERCLA, RCRA, or state removal and remedial action laws. When RCRA applies, IR responses may be conducted in accordance with the corrective action provisions contained in a permit or consent order.

IR responses conducted under CERCLA will be identified as either sites which are on the NPL or those sites which are non-NPL sites. The DON retains control over the CERCLA response action at non-NPL sites. It is DON policy to work with the EPA and state environmental organizations to ensure that appropriate consideration has been given to compliance with applicable state laws and regulations; however, the final ROD is the DON's responsibility and will be signed by the installation commander.

Navy/Marine Corps policy requires that non-NPL response actions be accomplished in accordance with the NCP. For additional information regarding this process see Section 5.2.

State (and local) applicable or relevant and appropriate requirements (ARARs) will be considered during a CERCLA IR Program response action whether the site is on the NPL or not. ARARs are used for establishing the standards for cleanup as a function of the chemicals involved, the location, the suspected health impacts, or the response action technologies proposed at the site. ARARs are discussed further in Chapter 5 of this guidance document.

4.7 Technical Review Committee (TRC)

SARA, Section 211, requires that whenever possible and practical, a TRC shall be established for the purpose of reviewing and commenting on actions and proposed actions respecting releases or threatened releases at the installation.

TABLE 4-2

SUGGESTED FORMAT FOR QUALITY ASSURANCE PROJECT PLAN

Title Page

Table of Contents

- 1. Project Description**
- 2. Project Organization and Responsibilities**
- 3. QA Objectives for Measurement**
- 4. Sampling Procedures**
- 5. Sample Custody**
- 6. Calibration Procedures**
- 7. Analytical Procedures**
- 8. Data Reduction, Validation, and Reporting**
- 9. Internal Quality Control**
- 10. Performance and Systems Audits**
- 11. Preventative Maintenance**
- 12. Data Assessment Procedures**
- 13. Corrective Actions**
- 14. Quality Assurance Reports**

It is the Navy's/Marine Corps' goal to use this requirement to facilitate technical input from all affected parties.

4.7.1 Membership of the TRC

This committee should be established after a release or threat of release has been confirmed at the installation. This will normally take place upon completion of the PA and SI. A TRC shall be established at all installations with sites, whether NPL or non-NPL. The installation Commanding Officer/General, with EFD assistance, shall set up the TRC (OPNAVINST 5090.1A, Section 13-3.14 or MCO P5090.2, Section 14308).

The TRC shall include at least one representative of the installation and cognizant EFD, EPA, appropriate state and local authorities, and a public representative of the community involved. EPA and the state should be encouraged to provide the TRC with representatives who have the authority to make decisions concerning implementation of specific proposals. Local authorities and the public should be encouraged to provide representatives with appropriate technical backgrounds.

Experience has shown that the following additional guidance can be beneficial, if followed when carrying out the TRC function.

- a. The TRC has no official charter. It is neither an advisory group nor a decision-making body.
- b. The number of committee members should be limited to a manageable number.
- c. Local government and public representatives should be selected on technical qualifications rather than their political or activist status in the community.
- d. Whenever appropriate, natural resources trustees and installation natural resources managers should be invited to attend.
- e. A news release may be issued following the meeting.
- f. TRC meetings are not public meetings and should not be recorded or transcribed.
- g. Minutes of a general nature should be prepared by the installation, sent to TRC members, and retained in the Administrative Record.

CHAPTER FIVE

5.0 REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)

The purpose of the remedial investigation/feasibility study (RI/FS) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is to determine the nature and extent of the threat presented by a release and, where appropriate, to evaluate proposed remedies. This chapter details the RI/FS process, including Federal Facility Agreements (FFAs) and Interagency Agreements (IAGs), the Record of Decision (ROD), recordkeeping, and the role of the state in the remedial process. Under the Resource Conservation and Recovery Act (RCRA), the RCRA Facilities Investigation (RFI) and Corrective Measures Study (CMS) are the rough equivalent of the CERCLA RI/FS. One distinction is that the RFI is usually completed as a separate step from the CMS, whereas the RI and FS usually occur in an iterative manner.

5.1 Federal Facility Agreement (FFA)

The DON will enter into FFAs at its National Priorities List (NPL) sites as early as possible after the requirement for a RI/FS has been identified. These agreements have high priority and are intended to establish roles and responsibilities, and improve communications between all parties by allowing EPA and the state to review all work so that ultimately selection of remedial action will be less argumentative. FFAs at NPL sites will outline the working relationship between the states, EPA, and the DON. They will clearly lay out mutual obligations; OPNAVINST 5090.1A and MCO P5090.2 require that the following procedures be observed when carrying out FFA action:

- a. The Navy/Marine Corps will enter into agreements only if the provisions are realistically attainable and structured to avoid excessive reporting, duplication of effort, and other administrative practices that reduce the efficiency of the overall remedial response.
- b. The Navy/Marine Corps will continue efforts to define problems at its sites and move aggressively to determine appropriate remedial actions. Negotiations on an agreement should in no way impede the Navy's/Marine Corps' responsibility to protect the public from harmful exposures. They should also not halt efforts to get remedial action decisions addressing its sites.
- c. The Navy/Marine Corps will consult fully with EPA and the states regarding continuing installation restoration (IR) efforts while negotiating the terms of the FFA.
- d. NAVFACENCOM, via the EFDs and in conjunction with the installation, will take the lead in negotiating agreements. Proposed agreements shall be coordinated with CNO/CMC and OGC (Environmental Law Office).
- e. Model language established by agreement between DOD and EPA will be used as the basis for negotiations. Once negotiations have been initiated, any changes to the model language which purport to satisfy the requirements of CERCLA, Section 120, will be discussed with OGC (Environmental Law Office).
- f. FFAs under CERCLA, Section 120, will be signed by the ASN(I&E). Final agreements will be forwarded to the CNO/CMC for review and forwarding to ASN(I&E).

g. FFAs should not be confused with Federal Facilities Compliance Agreements (FFCAs) under RCRA.

h. FFAs will become interagency agreements (IAGs) when the statutory requirements are incorporated after the ROD.

5.2 General Description

For IR responses under CERCLA, the Superfund Amendments and Reauthorization Act (SARA) mandates that the National Contingency Plan (NCP) procedures be followed at all Navy/Marine Corps hazardous waste sites for NCP steps up to and including the Hazard Ranking System (HRS) II Scoring step. A Navy/Marine Corps site receiving a score greater than 28.5 is likely to be proposed for inclusion on the NPL. Navy/Marine Corps installations that are proposed for inclusion on the NPL must then follow the remaining NCP steps for the NPL site. Because there is nothing in the NCP that states it applies only to NPL sites, Navy/Marine Corps policy is to follow the procedures outlined in the NCP at all IR sites.

SARA requires that the DON apply state statutes and regulations as applicable and relevant or appropriate requirements (ARARs) at non-NPL sites. Navy/Marine Corps hazardous waste sites posing a threat to human health or the environment, irrespective of NPL listing, will be remediated.

There are some distinctions regarding NCP steps to be followed between installations with non-NPL sites when compared with those which have NPL sites.

a. The timing requirements for NCP steps after HRS II Scoring are not mandated for non-NPL sites. The DON can decide on a general timing requirement for the post-HRS II Scoring NCP steps at Navy/Marine Corps installations with non-NPL sites. However, to continue moving forward in the Defense Environmental Restoration Program (DERP), Navy/Marine Corps installations having non-NPL sites should strive to adhere to the same timing requirements as at NPL sites.

b. Although CERCLA and the NCP do not require a ROD or an IAG at non-NPL sites, it is Navy/Marine Corps policy that the EFD write a decision document and the installation forward it and request EPA and state sign-off, especially when the state involved has a mini-superfund law. Although regulatory agency sign-off is not necessary for the Navy/Marine Corps to proceed with site cleanup, it will help promote progress toward completion of the remedial action process. An IAG is not necessary at non-NPL sites. However, some states with state CERCLA statutes are interested in signing agreements. If the DON chooses to sign these agreements, these agreements should follow the FFA model language as much as possible. However, these agreements should not give the state the right to choose the remedial action.

The purpose of the RI/FS phase is to determine the nature and extent of the threat presented by a release and, if sufficient need is documented by site sampling data and a baseline risk assessment, to evaluate proposed remedies. The end product of a RI/FS is the selection of a remedial action that:

a. Is supported by valid site data and a Baseline Risk Assessment.

b. Is judged to be the best means of meeting the need for remedial action in light of nine criteria, including:

1. Overall protection of human health and the environment
2. Compliance with ARARs
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short-term effectiveness
6. Implementability
7. Cost
8. State acceptance
9. Community acceptance (40 CFR 300.430 (f)(1))

The EFD is responsible for conducting RI/FSs on behalf of the installation Commanding Officer/General. The RI is generally performed concurrently and in an interdependent fashion with the FS as shown in Figure 5-1.

The process for achieving a selected remedy and remedial action is described in this section. Note that virtually all of the requirements discussed in the sections of this chapter will have to be addressed during a RI/FS to successfully achieve the end product.

The RI is conducted to obtain data about the site as well as waste characteristics, hazards, and routes of exposure. Information pertinent to treatability of wastes and the performance of treatment processes is also assembled.

During the FS, a number of potential remedial alternatives are developed and screened, and the most promising subset of alternatives is compared against a range of factors and evaluated.

Incorporated within the RI/FS process is a baseline risk assessment. The baseline risk assessment summarizes and interprets RI data, identifies contaminant transport pathways and receptors, and assesses actual or potential harm. It justifies the need for remedial action and serves to focus remedial action alternatives.

A RI/FS is concluded by selection of the remedy after consideration of public and regulatory agency comments. The selection is documented by a ROD for NPL sites and by a decision document for non-NPL sites.

The RI/FS steps illustrated in Figure 5-1 may have to be implemented in an iterative manner depending on the complexity of the site. Scoping, site characterization, and evaluation of detailed alternatives are the steps most likely to require repetition or reconsideration.

For additional information on conducting a RI/FS, refer to *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (EPA, October 1988).

PHASED RI/FS PROCESS

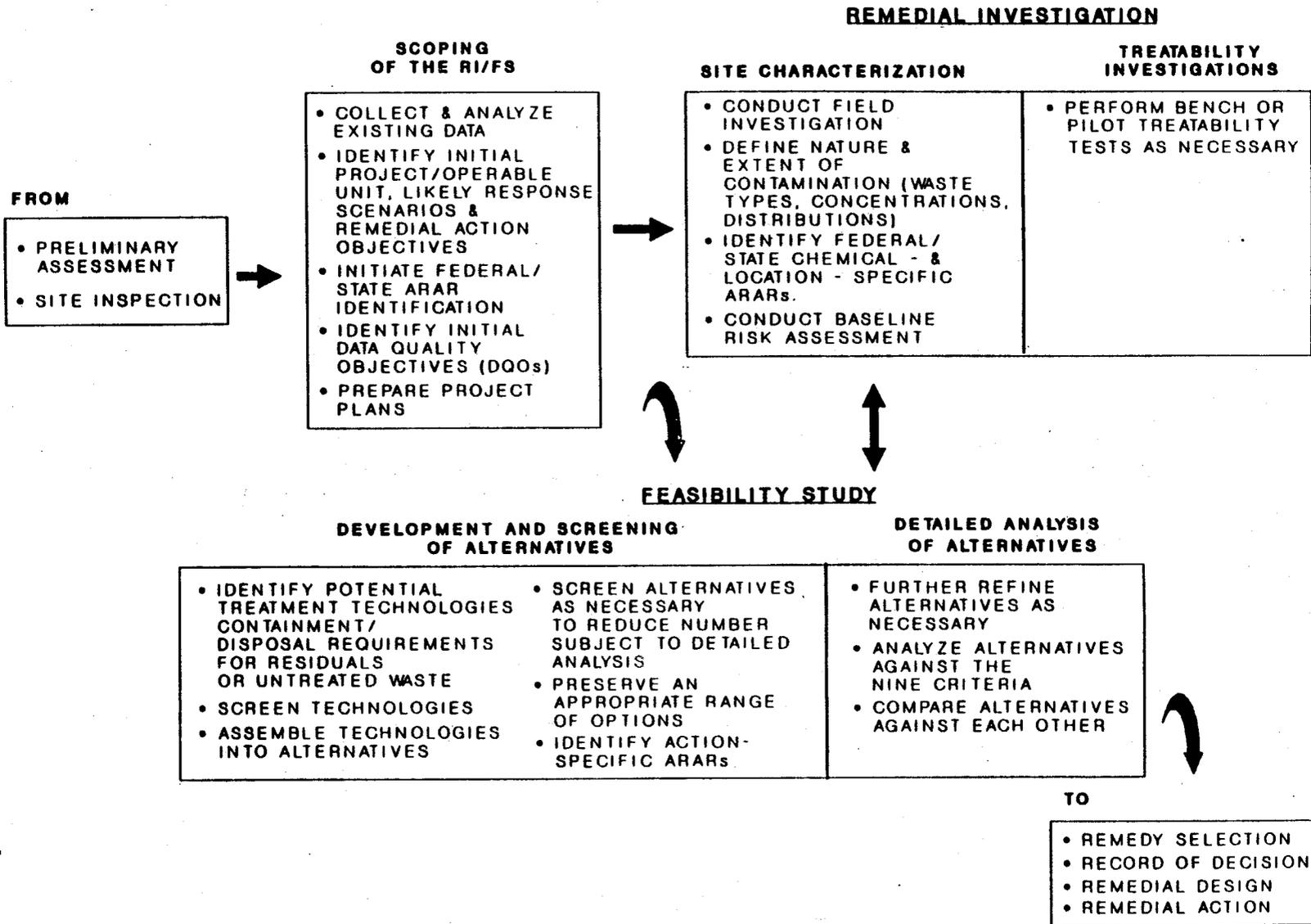


Figure 5-1

5.3 RI/FS Scoping

The following activities are normally conducted during the RI/FS scoping process.

a. Identify the RI/FS study area. The specific IR Program sites to be evaluated should be designated. The media that may be contaminated and populations and resources that may be exposed to the contamination should be delineated on a conservative basis from available information. Properties, transportation routes, treatment and disposal facilities, and any environmental resources that may be used for or are directly impacted by potential remedial actions should be identified as the basis for evaluating location-specific ARARs and the environmental impacts of alternatives.

b. Determine appropriate response mechanisms. EFDs and installations should use the following criteria to assess whether, and what types of, remedial actions will be considered:

1. Population, environmental, and public welfare concerns
2. Rates of exposure
3. Amount, concentration, hazardous properties, environmental fate and transport (e.g., ability and opportunities to bioaccumulate, persistence, mobility, etc.), and forms of substances present
4. Hydrogeological factors (e.g., soil permeability, depth to saturated zone, hydrogeologic gradients, proximity to a drinking water aquifer, and flood plains and wetlands proximity)
5. Current and potential groundwater use (e.g., the appropriate groundwater classes under the system established in the EPA groundwater protection strategy)
6. Climate
7. The extent to which the source can be adequately identified and characterized
8. Whether substances at the site can be reused or recycled
9. The likelihood of future releases if the substances remain on the site
10. Extent to which natural or man-made barriers currently contain the substances and the adequacy of the barriers
11. The extent to which the substances have migrated or are expected to migrate from the area of the original location or new location, if relocated, and whether future migration may pose a threat to public health, welfare, or the environment
12. The extent to which the Federal environmental and public health requirements are applicable or relevant and appropriate to the specific site and the extent to which other Federal criteria, advisories, and guidance and state standards are to be considered in developing the remedy
13. The extent to which contamination levels exceed applicable or relevant and appropriate Federal requirements or other Federal criteria, advisories, and state standards

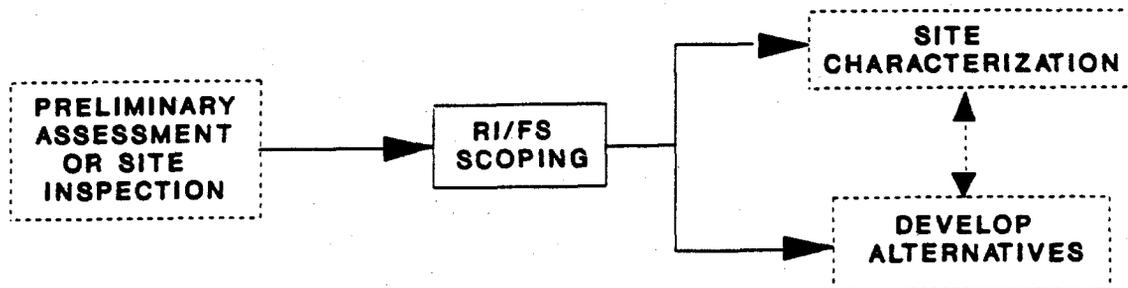
14. Impact of the contamination on air, land, water, and/or the food chain
 15. Ability to implement and maintain the remedy until the threat is permanently abated.
- c. Determine appropriate authorities/responsibilities. The EFD, in coordination with the installation Commanding Officer/General, will:
1. Identify the appropriate state regulatory agency and EPA regional office involved in the project
 2. Identify which state and Federal laws are applicable
 3. Determine the roles that the installation and EFD will play in studying the site
 4. Establish decision-making roles
 5. Determine the source of project funding.
- d. Identify likely response scenarios, potentially applicable technologies, and operable units that may correct site problems.
- e. Identify quantity and types of data which will be required to support response.
- f. Develop a work plan to include a Sampling and Analysis Plan (SAP) (see Section 4.5), incorporating a Field Sampling Plan (FSP) (Section 4.5.1) and a Quality Assurance Project Plan (QAPP) (Section 4.5.2), and a site Health and Safety Plan (HSP) (see Section 12.3). Site specific data needs, the evaluation of alternatives, and documentation of the selected remedy should reflect the scope and complexity of the site problems being addressed.
- g. Identify the need for and set priorities for removals, operable units, and continuing monitoring requirements while the RI/FS is being conducted.
- h. Identify preliminary Federal contaminant- and location-specific ARARs based on available and confirmatory data, if collected. Submit Federal ARARs to state regulatory agency and request state ARARs (see Section 5.4.2).

Figure 5-2 lists the elements of RI/FS scoping. Figure 5-3 shows, in a flow diagram, how these key elements are related.

A RI/FS seldom will be so predictable that all activities can be accurately forecast during initial scoping. The remedial project manager (RPM) should be prepared to adjust the scope of activities as new information is developed. Establishing decision points at which the scope of ongoing and future activities will be reexamined may be helpful in managing contracts and in communicating progress to other interested parties. Likely decision points are:

- a. The conclusion of each round of site sampling during Site Characterization

ELEMENTS OF THE RI/FS SCOPING STEP



Purposes

- Describe type and content of studies needed to initiate response actions
- Determine need for removal actions
- Determine appropriate response mechanisms and authorities
- Identify preliminary RI/FS and environmental assessment study areas
- Set priorities for implementation of removal actions, operable units, and RI/FS phases

Potential Subsequent Actions

- Site Characterization
- Development of Alternatives
- Removal Actions
- Operable Units

Tasks

- Prepare Work Plan (EFD and installation)
- Determine preliminary ARARs (EFD)
- Begin to formulate likely remedial alternatives (EFD)
- Develop Sampling and Analysis Plan and Worker Health and Safety Plan (EFD and installation)

Documentation

- Sampling and Analysis Plan (QAPP & FSP)
- Worker Health and Safety Plan
- RI/FS Work Plan

Additional Site Management Activities

- Establish local information repository (installation) and administrative record (EFD)
- Request preliminary State ARARs (EFD)
- Establish Technical Review Committee (installation and EFD)
- For sites proposed or listed on NPL, begin FFA negotiation (EFD and installation)
- Prepare Community Relations Plan (installation and EFD)

EPA/State Activities

- Review Federal ARARs and provide State ARARs (State)
- Negotiate FFA for NPL Sites (EPA and State)

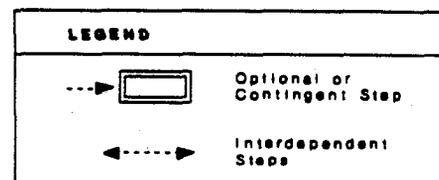


Figure 5-2

FLOW DIAGRAM FOR RI/FS SCOPING

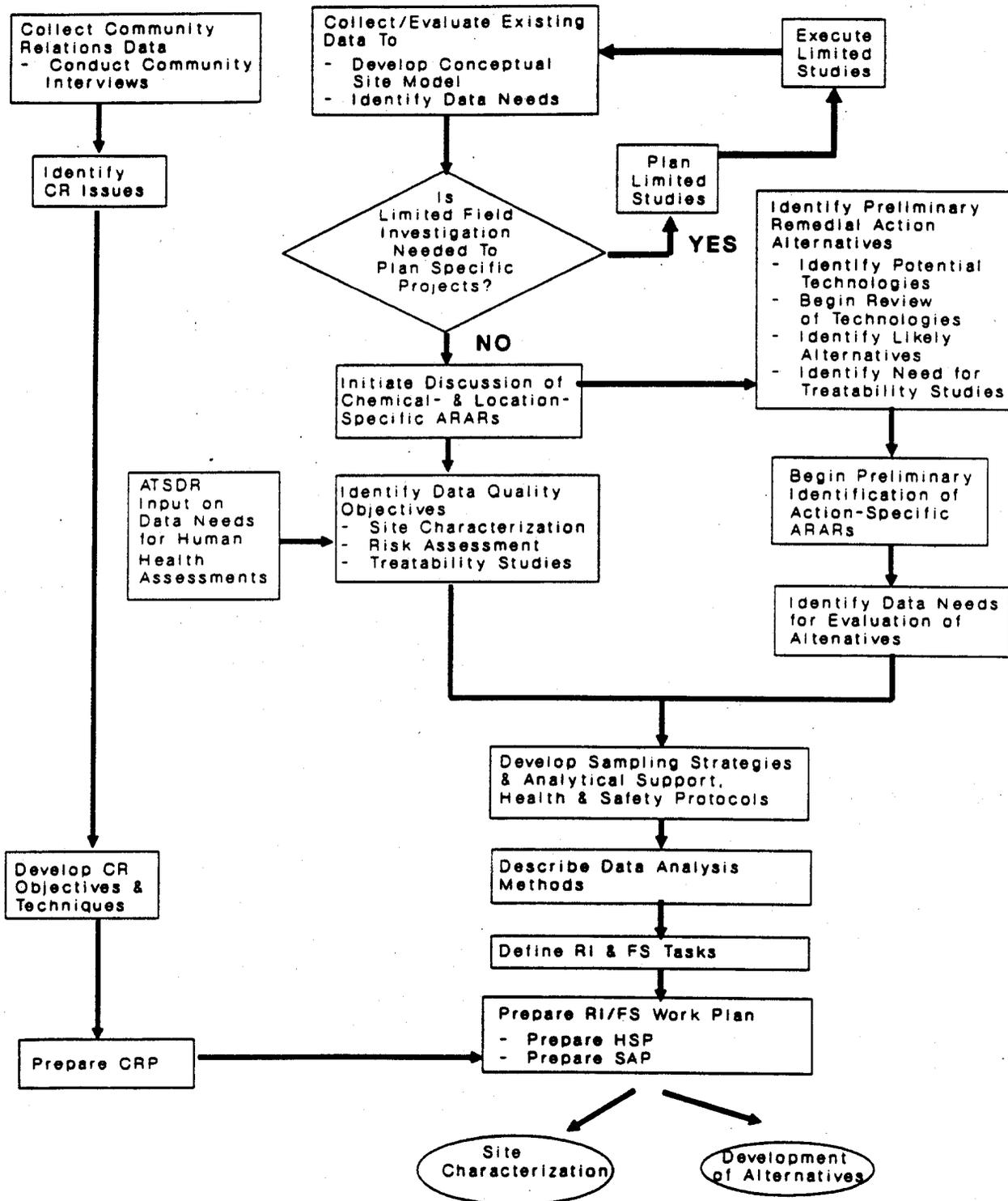


Figure 5-3

- b. During baseline risk assessment preparation
- c. The conclusion of screening alternatives
- d. During or after bench or pilot scale testing of technologies
- e. After implementation of removals or operable units.

5.4 Remedial Investigation (RI)

The purpose of the remedial investigation (RI) is to collect data necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives. To characterize the site, the DON shall, as appropriate, conduct field investigations, including treatability studies, and conduct a baseline risk assessment. The RI provides information to assess the risks to human health and the environment and to support the development, evaluation, and selection of appropriate response alternatives. Site characterization may be conducted in one or more phases to focus sampling efforts and increase the efficiency of the investigation. Because estimates of actual or potential exposures and associated impacts on human and environmental receptors may be refined throughout the phases of the RI as new information is obtained, site characterization activities should be fully integrated with the development and evaluation of alternatives in the feasibility study (FS). Bench- or pilot-scale treatability studies shall be conducted, when appropriate and practicable, to provide additional data for the detailed analysis and to support engineering design of remedial alternatives.

5.4.1 Site Characterization

During site characterization, the SAP developed during scoping is implemented. Field data are obtained and analyzed to assess the nature of any threats the site poses to human health or the environment and to support the analysis and design of potential response actions. Field data analysis and interpretation should be based on the quality assurance/quality control (QA/QC) requirements outlined in the QAPP. This will ensure that legally defensible data are obtained and used in the site characterization. The major steps in site characterization include:

- a. Collecting soil, sediment, groundwater, surface water, and air samples specified in the SAP.
- b. Analyzing samples in the laboratory.
- c. Evaluating laboratory results to characterize the site.
- d. Determining the adequacy of data for developing and evaluating remedial alternatives.
- e. Developing a baseline risk assessment.

Results of the site characterization are documented in a draft Remedial Investigation Report. The EPA recommended format for this report is presented in Table 5-1 (from *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, OSWER Directive 9355.3-01).

TABLE 5-1

RECOMMENDED REMEDIAL INVESTIGATION REPORT FORMAT

Executive Summary

1. Introduction

- 1.1 Purpose of Report**
- 1.2 Site Background**
 - 1.2.1 Site Description**
 - 1.2.2 Site History**
 - 1.2.3 Previous Investigations**
- 1.3 Report Organization**

2. Study Area Investigation

2.1 Includes field activities associated with site characterization. These may include physical and chemical monitoring of some, but not necessarily all, of the following:

- 2.1.1 Surface Features (topographic mapping, etc.) (natural and manmade features)**
- 2.1.2 Contaminant Source Investigations**
- 2.1.3 Meteorological Investigations**
- 2.1.4 Surface/Water and Sediment Investigations**
- 2.1.5 Geological Investigations**
- 2.1.6 Soil and Vadose Zone Investigations**
- 2.1.7 Ground/Water Investigations**
- 2.1.8 Human Population Surveys**
- 2.1.9 Ecological Investigations**

2.2 If technical memoranda documenting field activities were prepared, they may be included in an appendix and summarized in this report chapter.

3. Physical Characteristics of the Study Area

3.1 Includes results of field activities to determine physical characteristics. These may include some, but not necessarily all, of the following:

- 3.1.1 Surface Features**
- 3.1.2 Meteorology**
- 3.1.3 Surface/Water Hydrology**
- 3.1.4 Geology**
- 3.1.5 Soils**
- 3.1.6 Hydrogeology**
- 3.1.7 Demography and Land Use**
- 3.1.8 Ecology**

4. Nature and Extent of Contamination

4.1 Presents the results of site characterization, both natural chemical components and contaminants in some, but not necessarily all, of the following media:

- 4.1.1 Sources (lagoons, sludges, tanks, etc.)**
- 4.1.2 Soils and Vadose Zone**
- 4.1.3 Groundwater**
- 4.1.4 Surface Water**
- 4.1.5 Air**

TABLE 5-1 (Continued)

- 5. Contaminant Fate and Transport
 - 5.1 Potential Routes of Migration (i.e., air, groundwater, etc.)
 - 5.2 Contaminant Persistence
 - 5.2.1 If they are applicable (i.e., for organic contaminants), describe estimated persistence in the study area environment and physical, chemical, and/or biological factors of importance for the media of interest.
 - 5.3 Contaminant Migration
 - 5.3.1 Discuss factors affecting contaminant migration for the media of importance (e.g., sorption onto soils, solubility in water, movement of groundwater, etc.)
 - 5.3.2 Discuss modeling methods and results, if applicable.
- 6. Baseline Risk Assessment
 - 6.1 Human Health Evaluation
 - 6.1.1 Exposure Assessment
 - 6.1.2 Toxicity Assessment
 - 6.1.3 Risk Characterization
 - 6.2 Environmental Evaluation
- 7. Summary and Conclusions
 - 7.1 Summary
 - 7.1.1 Nature and Extent of Contamination
 - 7.1.2 Fate and Transport
 - 7.1.3 Risk Assessment
 - 7.2 Conclusions
 - 7.2.1 Data Limitations and Recommendations for Future Work
 - 7.2.2 Recommended Remedial Action Objectives

Appendices

- A. Technical Memoranda on Field Activities (if available)
- B. Analytical Data and QA/QC Evaluation Results
- C. Risk Assessment Methods

Source: Guidance For Conducting Remedial Investigations and Feasibility Studies Under CERCLA, OSWER Directive 9355.3-01, U.S. Environmental Protection Agency, October 1988

If the results of field observations or laboratory analysis show that site conditions are significantly different from what was understood during initial scoping, then rescoping and additional sampling may be necessary. Results may indicate that the threat is more immediate than previously understood, in which case removals (see Section 3.1) or operable units (see Section 4.0) may be initiated. However, if the baseline risk assessment shows that a significant threat does not exist, then the RPM prepares a no action ROD or a Decision Document.

5.4.2 Applicable or Relevant and Appropriate Requirements (ARARs)

One of the significant differences between response actions conducted under RCRA and those conducted under CERCLA is the determination of cleanup levels. Under RCRA, cleanup levels are established by the regulators based upon their assessment of actions necessary to protect human health and the environment.

Under CERCLA, Section 121 (d), an important consideration in the RI/FS process is the requirement that remedial actions comply with ARARs of Federal laws and more stringent, promulgated state laws. EPA's *Interim Guidance on Compliance with ARARs* (9 July 87) defines ARARs as follows:

A requirement under other environmental laws may be either "applicable" or "relevant and appropriate" to a remedial action, but not both. A two-tier test may be applied: first, to determine whether a given requirement is applicable; then, if it is not applicable, to determine whether it is nevertheless relevant and appropriate.

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site.

Applicability implies that the remedial action or the circumstances at the site satisfy all of the jurisdictional prerequisites of a requirement. For example, the minimum technology requirement for landfills under RCRA would apply if a new hazardous waste landfill unit (or an expansion of an existing unit) were the selected remedy for a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or state law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

The relevance and appropriateness of a requirement can be judged by comparing a number of factors, including the characteristics of the remedial action, the hazardous substances in question, or the physical circumstances of the site, with those addressed in the requirement. For example, while RCRA regulations are not applicable to closing undisturbed hazardous waste in place, the RCRA regulation for closure by capping may be deemed relevant and appropriate.

A requirement that is judged to be relevant and appropriate must be complied with to the same degree as if it were applicable. However, there is more discretion in this determination. It is possible for only part of a requirement to be considered relevant and appropriate with the rest being dismissed if judged not to be relevant and appropriate in a given case.

To-be-considered (TBC) requirements are non-promulgated advisories (such as reference doses or potency factors), criteria, and guidance issued by Federal and state governments. TBC requirements do not have the status of ARARs. However, Section 300.400(g)(3) of the NCP specifies that TBC requirements shall be identified as appropriate where ARARs do not exist, or where ARARs have been determined to be insufficient to ensure protection of human health and the environment for a particular release. However, as described below, TBC requirements may be considered in determining the necessary level of cleanup for protection of health or the environment.

5.4.2.1 Types of ARARs

There are several different types of requirements that CERCLA response actions may have to meet. The classification of ARARs below is offered for illustrative purposes.

a. Ambient or chemical-specific requirements set health or risk-based concentration limits or ranges in various environmental media for specific hazardous substances, pollutants, or contaminants. Examples are:

1. Maximum contaminant levels
2. Federal Water Quality Criteria
3. National Ambient Air Quality Standards
4. RCRA Groundwater Protection Standards.

These requirements may set protective cleanup levels for the chemicals of concern in the designated media, or indicate an acceptable level of discharge (e.g., air emission or wastewater discharge, taking into account water quality standards) where chemical discharge occurs in a remedial activity. If a chemical has more than one such requirement, the more stringent ARAR should be complied with. There are, at present, a limited number of actual ambient or chemical-specific requirements. In order to achieve remedies that are protective of health and the environment, it may frequently be necessary to use chemical-specific advisory level TBC requirements such as Carcinogenic Potency Factors or Reference Doses. While not actually ARARs, these chemical-specific advisory levels may factor significantly into the establishment of protective cleanup levels. Guidance for establishing such chemical-specific, health-based cleanup level is given in the *Superfund Exposure Assessment Manual* (EPA 540/1-88/001, April 1988).

b. Performance, design, or other action-specific requirements set controls or restrictions on particular kinds of activities related to management of hazardous substances, pollutants, or contaminants. For example:

1. RCRA regulations for closure of hazardous waste storage or disposal units
2. RCRA incineration standards
3. Clean Water Act (CWA) pretreatment standards for discharges to Publicly-Owned Treatment Works (POTWs) (40 CFR 403).

These requirements are triggered not by the specific chemicals present at a site but by the particular remedial activities that are selected to accomplish a remedy. Since there are usually several alternative actions for any remedial site, very different requirements can come into play. These action-specific requirements may specify particular performance levels, actions, or technologies, as well as specific levels (or methodology for setting specific levels) for discharged or residual chemicals.

c. Locational requirements set restrictions on activities depending on the characteristics of a site or its immediate environs. Examples include:

1. Federal and state siting laws for hazardous waste facilities
2. Sites on the National Register of Historic Places.

These requirements function like action-specific requirements. Alternative remedial actions may be restricted or precluded depending on the location or characteristics of the site and the requirements that apply to it.

It is important to understand that ARARs can be identified only on a site-specific basis. In determining what ARARs are applicable, the RPM should consult local counsel and/or regulatory specialists. Every ARAR decision is a mixed technical/legal decision. This is especially true when dealing with state ARARs. CERCLA, Section 121(d)(2)(A), states that remedies must comply with "any promulgated standard, requirement, criteria, or limitation under a state environmental or facility siting law that is more stringent than any Federal standard, requirement, criteria, or limitation."

The key to identifying state ARARs is to consider those which are:

- a. Promulgated requirements of general applicability
- b. Legally enforceable.

Remedial actions conducted entirely on-site need only comply with the substantive aspects of ARARs and not the administrative aspects, such as permitting (specifically exempted under CERCLA, Section 121(e)) or administrative reviews. Remedial actions which are not conducted entirely on site must comply with substantive and administrative aspects, including permitting. Since entire Navy/Marine Corps installations are listed as sites on the NPL, remedial actions which are conducted within an installation's property lines should be considered "on-site", and thus need only comply with substantive requirements of ARARs. Administrative procedures are not considered ARARs but should be considered when planning and implementing remedial actions.

Additional guidance on identifying and complying with ARARs can be found in *CERCLA Compliance with Other Laws Manual: Interim Final, Part I* (EPA, August 1988) and *Part II* (EPA, August 1989).

In order to avoid inordinate delay or duplication of effort, the RPM should work closely with the EPA and the states to ensure that each is notified of the requirements the others have determined to be applicable or relevant and appropriate and to ensure that appropriate ARARs are identified and considered at critical steps in the remedial planning process as outlined in Table 5-2. The EFD RPM, in consonance with the installation, should negotiate with the EPA and the state to resolve any differences of opinion regarding Federal or state ARARs.

TABLE 5-2

DON AND STATE ROLES IN IDENTIFYING

COMPLIANCE WITH ARARS

<u>STEP</u>	<u>DON</u>	<u>STATE</u>
RI/FS Scoping	Identify preliminary contaminant- and location-specific ARARs. Initiate communications to facilitate identification of State ARARs.	State requested to provide preliminary contaminant- and location-specific ARARs within 30 days of receipt of request (NCP Section 300.515(g)(2)) or within the time period specified in the FFA (for NPL sites).
Site Characterization	Review Federal contaminant- and location-specific ARARs and TBC requirements.	State requested to verify contaminant- and location-specific ARARs and TBC requirements.
Screen Alternatives	Identify action-specific ARARs for each proposed alternative.	State requested to identify action-specific ARARs for alternatives that passed through screening process within 30 days of request, or as specified in the FFA (for NPL sites).
Detailed Analysis of Alternatives	All ARARs and TBC requirements for each alternative are examined as a package to determine what is needed to comply with other laws and to be protective.	State requested to certify identification of action-specific ARARs.
Selection of Remedy	Selected alternative must be able to attain all Federal and State ARARs unless statutory waivers are invoked.	
Remedial Design	Ensure that technical specifications of construction attain ARARs.	State consulted to ensure that all identified ARARs are updated as needed.

A remedial action must meet all Federal and state ARARs upon completion unless one of the following waivers is found to be applicable under CERCLA, Section 121 (d)(4)(A-F), or Section 300.430(f)(1)(ii)(C) of the NCP:

- a. The action selected is only part of a total remedial action that will meet the ARAR when completed.
- b. Compliance with the ARAR at the site will result in greater risk to human health and the environment than alternative options.
- c. Compliance with the ARAR is technically impractical from an engineering perspective.
- d. The remedial action selected will attain a standard of performance that is equivalent to that required under the otherwise applicable requirement through use of another method or approach.
- e. For state ARARs, the state has not consistently applied (or demonstrated the intention to consistently apply) the ARAR in similar circumstances at other remedial actions within the state.

If an ARAR is waived for a proposed remedial action, CERCLA, Section 121(f)(3)(a), requires that at least 30 days prior to the publication of the ROD, the DON must provide an opportunity for the state to concur or not concur with the proposed remedial action. If the state concurs, or does not act within 30 days, the remedial action may proceed. If the state does not concur with the remedial action selected and desires to have the remedial action conform to the ARAR, the state may bring an action in the U.S. District Court within 30 days of notification for the sole purpose of determining whether the remedial action selected is supported by substantial evidence.

Removals shall, to the greatest extent practicable considering the emergency nature of the situation, attain or exceed Federal and state ARARs. Waivers from attaining Federal and state ARARs, as previously discussed in this section, may be used, where applicable, for removals. In cases where the attainment of ARARs is not practicable, documentation must be produced that explains why the removal precludes the attainment of all ARARs. As described at the beginning of this section, TBC requirements should be considered in formulating the removal, as appropriate and where necessary, to be protective.

5.4.3 Baseline Risk Assessment

The Baseline Risk Assessment should be prepared as an integral part of the Site Characterization step in an RI/FS. Continuation of the RI/FS is contingent upon findings in the Baseline Risk Assessment that releases create substantial threats to human health or the environment.

Baseline Risk Assessments are an evaluation of the potential threat to human health and the environment in the absence of any remedial action. The information developed in the Baseline Risk Assessment provides the basis for:

- a. Determining whether or not remedial action is necessary;
- b. Developing and evaluating remedial action alternatives;
- c. Justifying the performance of a remedial action;

- d. Satisfying the NCP requirement to complete a detailed analysis of the no action alternative, including potential public health impacts; and
- e. Focusing on the contamination problem associated with the site.

The Baseline Risk Assessment process can be divided into four components:

- Contaminant Identification;
- Exposure Assessment;
- Toxicity Assessment; and
- Risk Characterization.

The relationships between these components are illustrated in Figure 5-4.

The objective of Contaminant Identification is to screen the information that is available on hazardous substances or wastes present at the site and to identify contaminants of concern in order to focus subsequent efforts in the risk assessment process. Indicator chemicals are selected, if needed, as part of this process. Indicator chemicals represent the most toxic, mobile, and/or persistent substances among those identified or those substances at the site for which the best information is available. In general, if less than 10 to 15 chemicals are identified at a site, then indicator chemical selection is not necessary. In such situations, all of the chemicals present at the site are evaluated.

The objectives of an Exposure Assessment are to identify actual or potential exposure pathways, to characterize the potentially exposed populations, and to estimate exposure levels. At sites where contamination has reached a human exposure point, actual site monitoring data collected during the remedial investigation may be used in the evaluation of potential effects. At sites where contamination has not yet reached the point of human exposure, it will be necessary to estimate how and when such exposure will take place. Chemical fate and transport equations and models may be useful for identifying potential pathways and predicting exposures. At most sites, a combination of site monitoring data and environmental modeling results will be required to estimate chemical concentrations at exposure points.

In addition to human exposure assessment, biological and ecological impacts must be considered in the baseline risk assessment. The flora and fauna in and around the site must be identified and included in the assessment process, with particular emphasis placed on identifying sensitive environments, especially with regard to endangered species and their habitats and those species consumed by humans or found in human food chains. Species that have key ecological functions in particular ecosystems, such as primary or secondary producers, decomposers, scavengers, predators, or species that occupy key positions in the food chains of humans or other species are of prime importance. Bioaccumulation by food chain organisms, such as aquatic invertebrates and fish, may be particularly important to both environmental risk and human risk assessment.

Detailed guidance on conducting Exposure Assessments is available in the *Superfund Exposure Assessment Manual* (EPA, April 1988). Additional guidance can be found in the *Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA, October 1988) and

COMPONENTS OF THE BASELINE RISK ASSESSMENT PROCESS

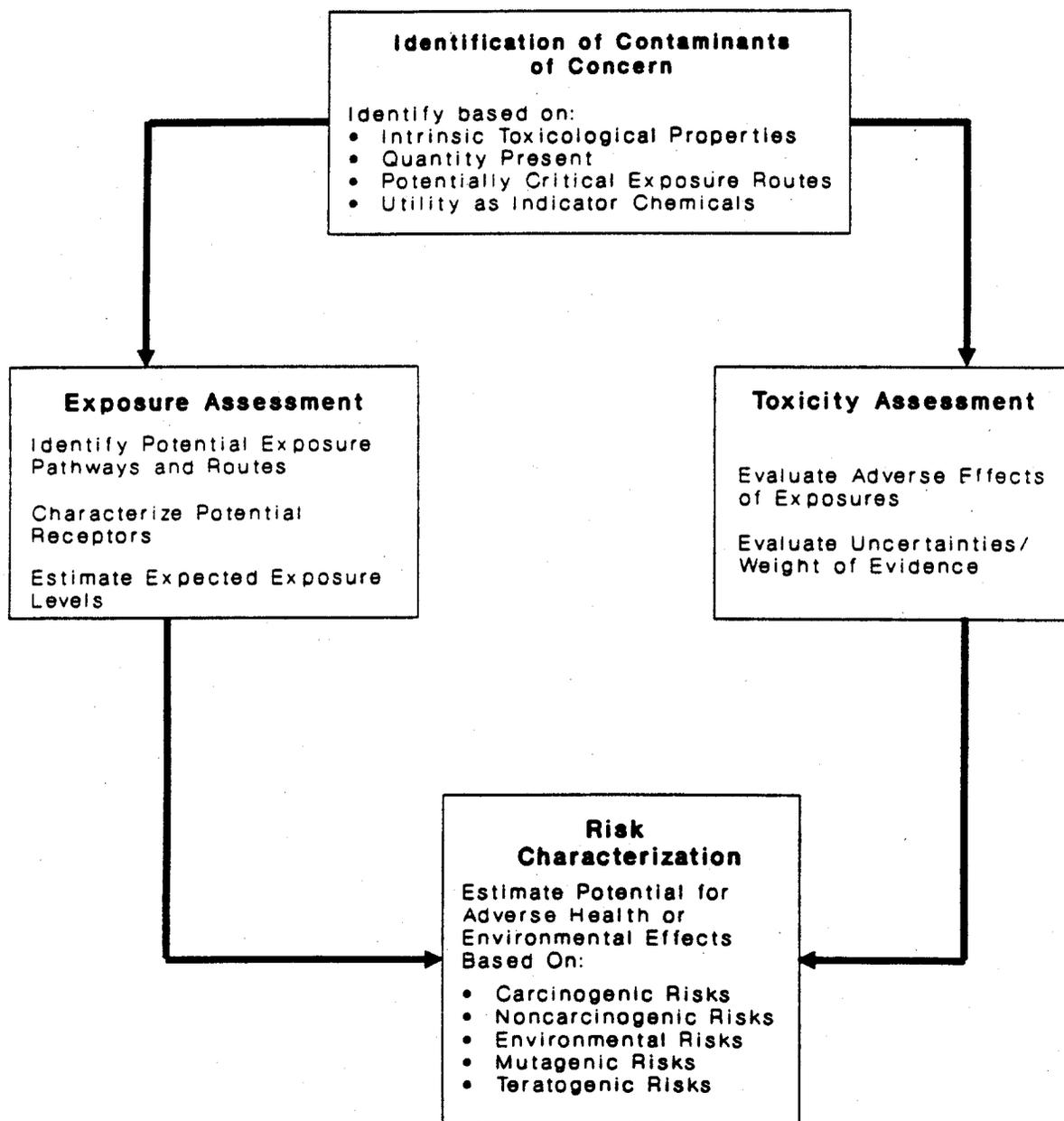


Figure 5-4

Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (EPA, December 1989).

Following the Exposure Assessment, Federal and state contaminant-specific ARARs and TBC requirements should be determined on a site-specific basis, as previously discussed in Section 5.4.2. If all indicator chemicals at a site have ARARs, then the remainder of the Baseline Risk Assessment process is not necessary. In these cases, the comparison of predicted exposure point concentrations of indicator chemicals to ARARs will suffice as a Baseline Risk Assessment.

For indicator chemicals that do not have ARARs, human exposures through air, groundwater, surface water, and other exposure routes (e.g., dermal absorption, soil ingestion) are estimated, and the final steps of the Baseline Risk Assessment – Toxicity Assessment and Risk Characterization – are undertaken.

The objective of a Toxicity Assessment is to compare acceptable levels of contamination with actual levels identified during the Exposure Assessment. Contaminant-specific ARARs, when available, should be used to determine acceptable levels. When ARARs are not available, acceptable levels should be based on concentration levels which would attain reference doses for noncarcinogens, and potency factors for carcinogens. Additional guidance for employing reference doses and potency factors for calculating acceptable concentrations in environmental media, and for determining toxicity descriptions for substances for which reference doses or potency factors have not been developed, is contained in the *Superfund Public Health Evaluation Manual* (EPA, October 1986) and *Toxicology Handbook: Principles Related to Hazardous Waste Site Investigations* (EPA, 1985).

The final component of the Baseline Risk Assessment process, Risk Characterization, is the process of estimating the potential of an adverse health or environmental effect under the various scenarios of exposure derived in the Exposure Assessment. This objective is attained by integrating information developed during the Exposure and Toxicity Assessments to characterize the potential or actual carcinogenic, noncarcinogenic, environmental, mutagenic, and teratogenic risks.

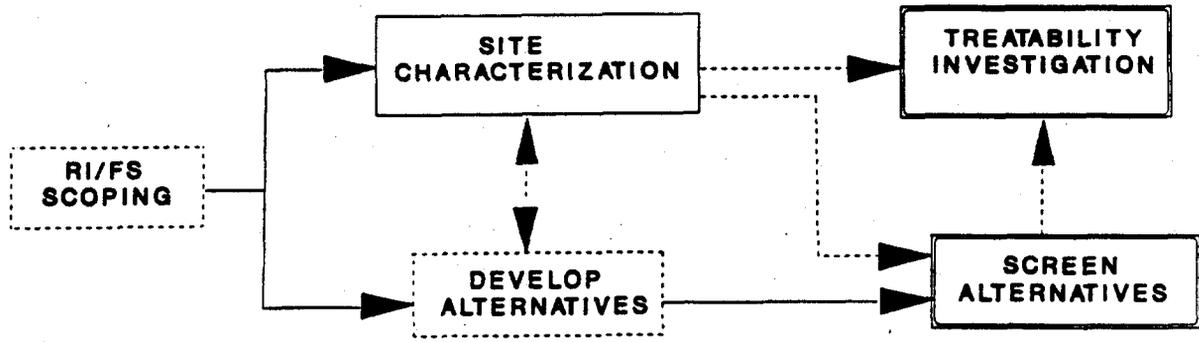
The results of the Baseline Risk Assessment may indicate that the site does not pose an actual or potential threat to human health or the environment. In these cases, the RI/FS will be terminated, and this decision will be documented in accordance with Section 5.7.

Figure 5-5 lists the elements of site characterization. Figure 5-6 shows, in a flow diagram, how key elements are related.

5.5 Feasibility Study (FS)

The primary objective of the feasibility study (FS) is to ensure that appropriate remedial alternatives are developed and evaluated such that relevant information concerning the remedial action options can be presented to a decision-maker and an appropriate remedy selected. The development and evaluation of alternatives shall reflect the scope and complexity of the remedial action under consideration and the site problems being addressed. Development of alternatives shall be fully integrated with the site characterization activities of the RI.

ELEMENTS OF THE SITE CHARACTERIZATION STEP IN A REMEDIAL INVESTIGATION



Purposes

- Determine extent of threat to human health or the environment
- Provide basis for determining types of response actions to be considered

Potential Subsequent Actions

- Additional Field Investigations
- Development of Alternatives (may be concurrent)
- Screening of Alternatives

Tasks

- Implement Sampling and Analysis Plan (EFD)
- Redefine RI/FS study area (EFD)
- Redefine Remedial Action goals (EFD & installation)
- Review ARARs (EFD)
- Prepare Baseline Risk Assessment (EFD)
- Scoring for Defense Priority Model (EFD)

Documentation

- Draft RI report (optional)
- Baseline Risk Assessment (may be combined with RI report)

Additional Site Management Activities

- Request State to verify ARARs (EFD)

EPA/State Activities

- Verify ARARs (State)

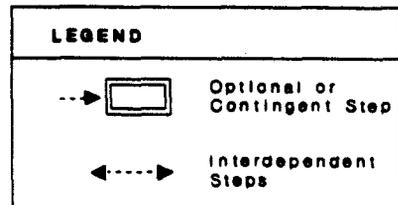


Figure 5-5

FLOW DIAGRAM FOR SITE CHARACTERIZATION

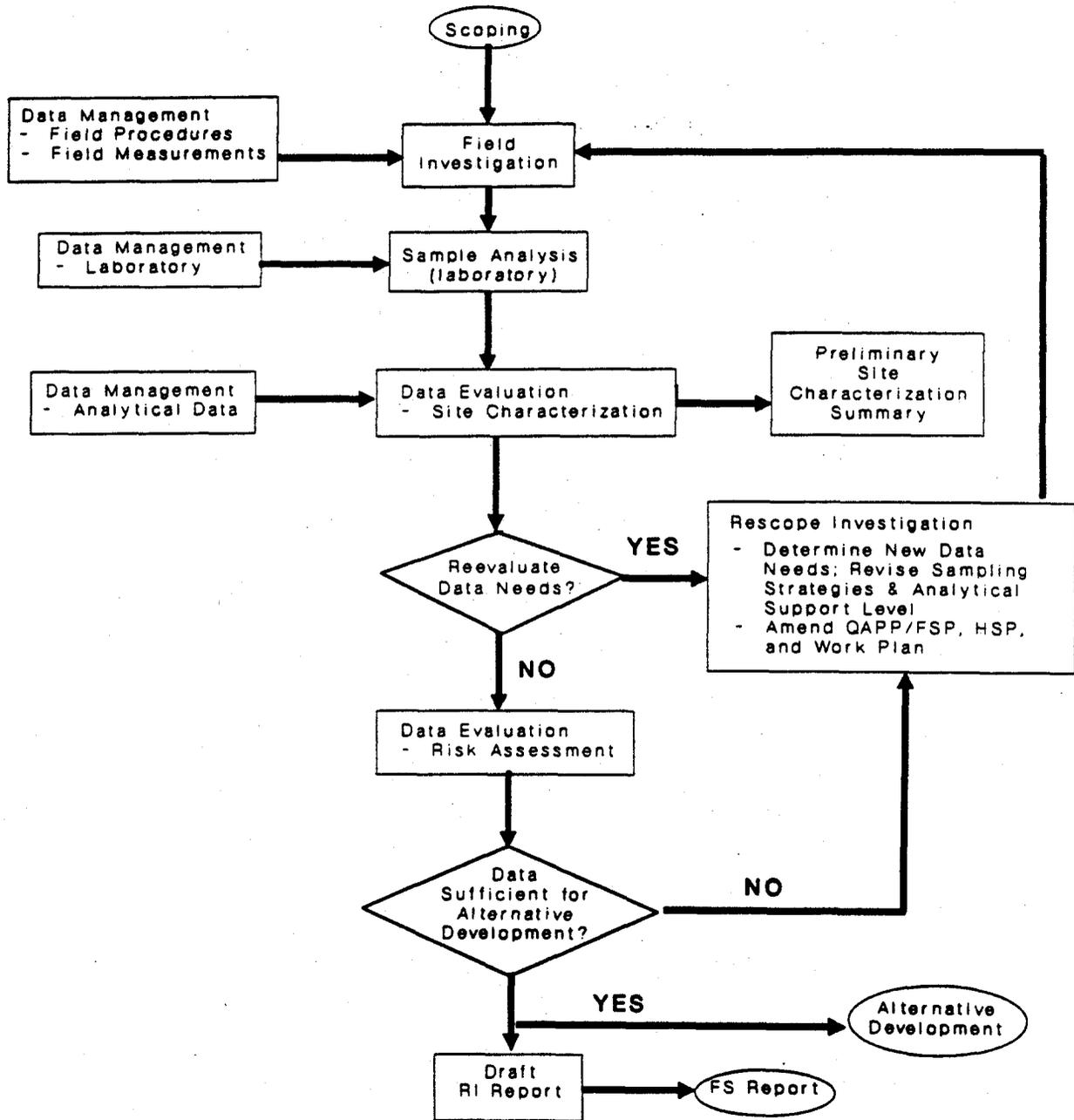


Figure 5-6

5.5.1 Alternative Development

Depending on the number, spatial distribution, and complexity of sites in the RI/FS study area, a number of specific control technologies may ultimately be combined in the selected remedy. The process of identifying, evaluating, and selecting the right remedy begins with a review of control technologies and institutional controls (such as land use restrictions) that are appropriate to the site(s) and the threat it poses.

Appendix D of the NCP lists control technologies that should be considered. Technologies that are not appropriate for use on any site in the RI/FS study may be eliminated from further consideration. To show that such technologies were reviewed, they may be listed in an appendix to the FS with brief statements indicating why each was considered to be inappropriate.

Appropriate technologies and institutional controls are then combined on a site-by-site basis to formulate complete, potentially protective alternatives for permanent remediation.

The set of alternatives being developed for evaluation must include a "no action" alternative. As discussed in Chapter 3, resources should not be expended on sites which pose little or no threat to humans or the environment. Also, a "no action" alternative may result from location-specific ARARs (e.g., endangered species). Decisions to cease evaluating IR sites may be made:

- a. On the basis of a PA if all available data indicate that no hazardous substances, pollutants, or contaminants were released or are likely to be released
- b. On the basis of a site inspection (SI), if reasonable efforts to obtain samples or other information indicate that there has not been nor is there likely to be a release
- c. On the basis of a Baseline Risk Assessment if it is shown that the release poses no significant threat
- d. If, during completion of the RI/FS, the "no action" alternative is the preferred alternative considering all the criteria applicable to remedy selection, further action can be terminated.

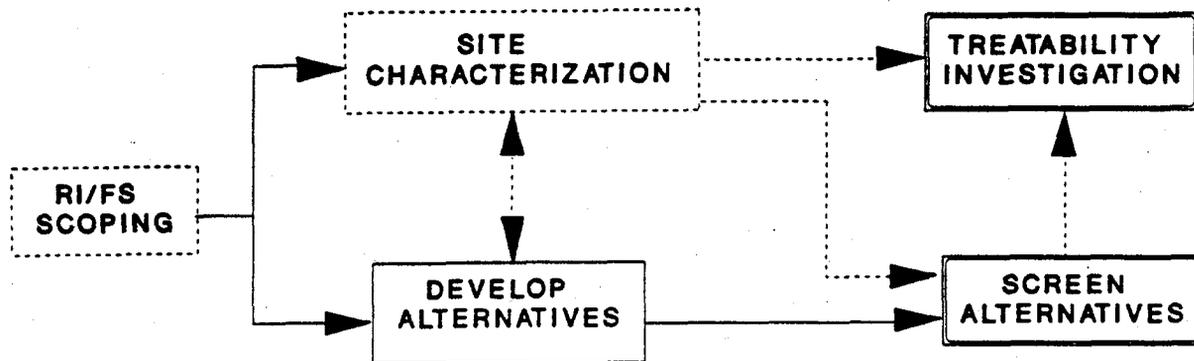
Figure 5-7 lists the elements of the alternative development. Figure 5-8 shows, in a flow-diagram, how these key elements are related.

5.5.2 Alternative Screening

As appropriate, and to the extent sufficient information is available, the short and long term aspects of the following three criteria shall be used to guide the development and screening of remedial alternatives:

- a. Effectiveness in reducing the threat
- b. Implementability
- c. Cost

STEPS IN THE DEVELOPMENT OF ALTERNATIVES IN A FEASIBILITY STUDY



Purposes

- Determine need for remedial action or operable units
- Identify potential remedial action alternatives

Potential Subsequent Actions

- Screen alternatives

Tasks

- Identify potential treatment technologies (EFD)
- Identify containment/disposal requirements for residual or untreated wastes (EFD)
- Evaluate technologies (EFD)
- Assemble suitable technologies into alternative remedial actions (EFD)
- Identify action-specific ARARs (EFD)

Documentation

Additional Site Management Activities

EPA/State
EPA/State

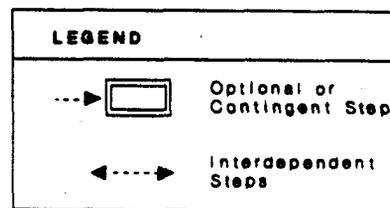


Figure 5-7

FLOW DIAGRAM FOR THE DEVELOPMENT OF ALTERNATIVES

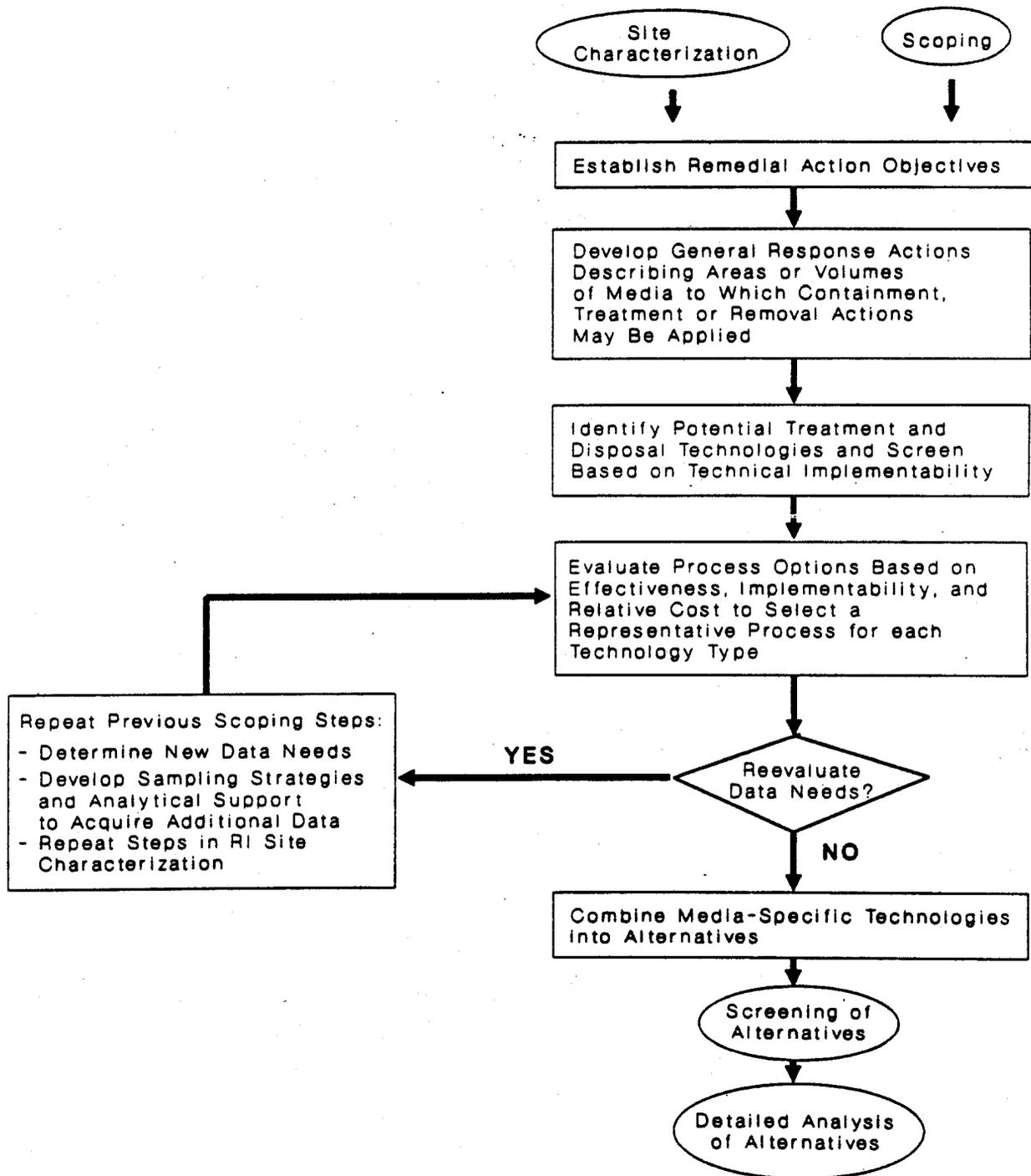


Figure 5-8

5.5.2.1 Effectiveness

This criterion focuses on the degree to which an alternative reduces toxicity, mobility, or volume through treatment, minimizes residual risks and affords long-term protection, complies with ARARs, minimizes short-term impacts, and how quickly the alternative achieves protection. Alternatives providing significantly less effectiveness than other, more promising, alternatives may be eliminated. Alternatives that do not provide adequate protection of human health and the environment shall also be eliminated from further consideration.

5.5.2.2 Implementability

This criterion focuses on the technical feasibility and availability of the technologies each alternative would employ and the administrative feasibility of implementing the alternative. Alternatives that are technically or administratively infeasible or that would require equipment, specialists, or facilities that are not available within a reasonable period of time may be eliminated from further consideration.

5.5.2.3 Cost

The costs of construction and any long-term costs to operate and maintain the alternatives shall be considered. Costs that are grossly excessive compared to the overall effectiveness of alternatives may be considered as one of several factors used to eliminate alternatives. Alternatives providing effectiveness and implementability similar to that of another alternative by employing a similar method of treatment or engineering control, but at greater cost, may be eliminated.

At this stage, costs should be order-of-magnitude (+50%, -30%), but should include long-term operation and maintenance, as appropriate. Factors such as constructability, expected opposition from the public, impact on the installation's mission, compatibility with planned land uses, and availability of material, equipment, technical expertise, or off-site treatment and disposal facilities may be considered in evaluating implementability. Demonstrated ability of component technologies to achieve design goals should be addressed in evaluating effectiveness. Adverse environmental impacts that are predictable at this stage should also be considered in evaluating effectiveness. Calculations, assumptions, and references supporting these evaluations will be documented in the FS.

Alternatives that would provide no clear advantage in implementability, effectiveness or cost may be eliminated from consideration. However, alternatives that offer significant advantages by one criterion should be retained for detailed analysis even if they are inferior by other criteria.

Once the set of alternatives is identified that will be subjected to detailed analysis, they should be reviewed to identify any Federal location-specific or action-specific ARARs (see Section 5.4.2) that would apply to each alternative's implementation or operation. Descriptions of the alternatives and applicable ARARs should normally be transmitted to state regulatory agencies for identification of any state ARARs that may be more stringent. Alternatives need to be reviewed to determine if a permit is required. Permit applications often require considerable time and effort and should be identified as early as possible in the remedial process.

The alternatives should also be reviewed at this point to determine whether any treatability investigation efforts are needed either to better define or cost an alternative, or to provide information for predicting an alternative's effectiveness and environmental impacts.

Figure 5-9 lists the elements of the alternative screening step.

5.5.3 Treatability Investigation

Considered to be a part of the RI, the treatability investigation is an optional step that depends on information requirements for subsequent detailed analysis of alternatives. Treatability investigation may include:

- a. Collection of additional field data
- b. Bench- and pilot-scale treatability testing
- c. Literature surveys for candidate control technologies.

As is the case with any field data collection, a SAP (see Section 4.5) and a Site HSP (see Section 12.3) should be prepared prior to collection of additional field data and may be appropriate for treatability testing.

Figure 5-10 lists potential elements of the Treatability Investigation step.

5.5.4 Detailed Analysis of Alternatives and the Draft Feasibility Study

Once a limited number of viable alternatives has been developed and ARARs have been identified (see Section 5.4.2), the alternatives are evaluated against nine criteria specified in 40 CFR 300.430 and listed in Table 5-3. Note that state and community acceptance may not be evaluated fully until the proposed plan is published and public review is completed during the selection of remedy step. The analysis of short-term effectiveness will include, as appropriate, an evaluation of any impacts on the installation's mission.

Analyses of ARARs, long-term effectiveness and permanence, and the environmental impact component of short-term effectiveness will provide the evaluations required for compliance with the National Environmental Policy Act (NEPA).

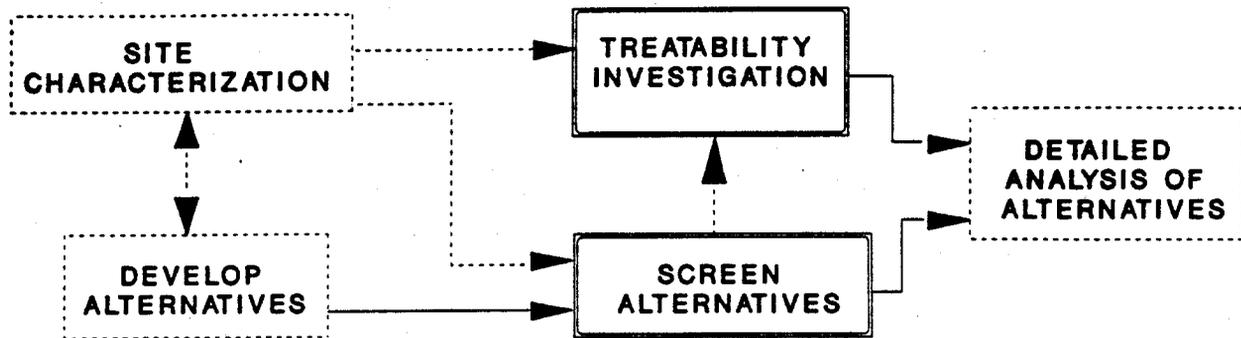
The detailed analysis of alternatives is presented in a FS or may be combined with the results of the RI in a combined RI/FS. The recommended format for a FS is presented in Table 5-4.

Figure 5-11 lists the elements of the detailed analysis of alternative step. Figure 5-12 shows, in a flow diagram, how key elements are related.

5.6 Selection of Remedy, the Proposed Plan, and Decision Documents

To begin the selection of remedy step, the Engineering Field Division (EFD) and installation will identify a preferred alternative from those evaluated in the FS. Identification of the preferred alternative will be based first on each alternative's ability to satisfy the threshold criteria previously identified in Table 5-3, and then on trade-offs among alternatives considering the primary balancing criteria. Further, results of the risk assessment must be factored into the remedy selection process. The purpose of the risk assessment analysis is to provide decisionmakers with an understanding of both the current risks and potential future risks if no action is taken. Therefore, as part of the overall decision making process, a

ELEMENTS OF THE ALTERNATIVE SCREENING STEP IN A FEASIBILITY STUDY



Purposes

- Narrow list of potential remedial alternatives for detailed analysis

Potential Subsequent Actions

- Field investigations
- Detailed Analysis of Alternatives

Tasks

- Screen alternatives for
 - Effectiveness (EFD and installation)
 - Implementability
 - Cost

Documentation

Additional Site Management Activities

- Notify State of final alternatives for action/location-specific ARARs (EFD and installation)

EPA/State Activities

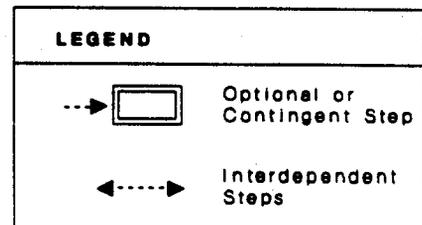
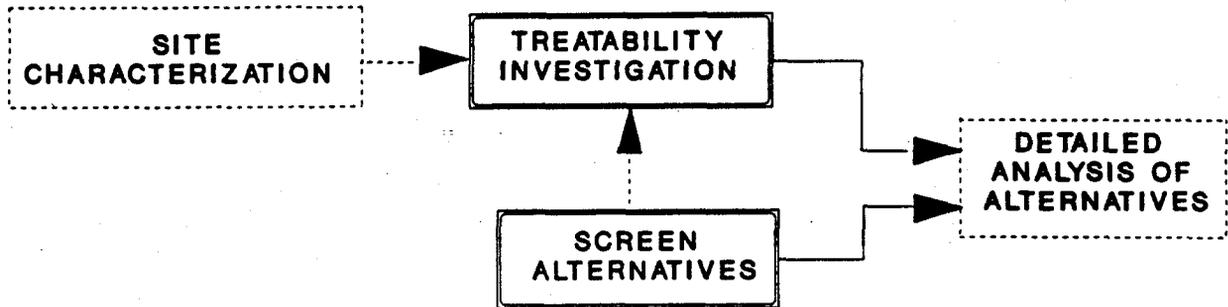


Figure 5-9

ELEMENTS OF THE TREATABILITY INVESTIGATION STEP IN A REMEDIAL INVESTIGATION



Purposes

- Obtain data for detailed evaluation of alternatives

Potential Subsequent Actions

- Detailed Analysis of Alternatives (EFD)

Tasks

- Literature surveys on treatment technologies (EFD)
- Bench- and pilot-scale Feasibility tests (EFD)
- Collect additional field data (EFD)
- Include analysis/comparison of test results with ARARs

Documentation

- Remedial Investigation report (EFD)

Additional Site Management Activities

EPA/State Activities

- Review RI Report (State and EPA)

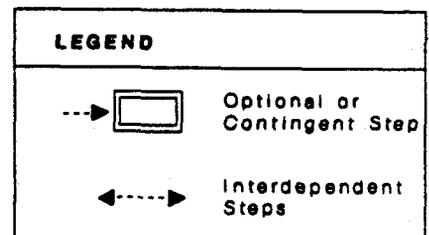


Figure 5-10

TABLE 5-3

**CRITERIA FOR EVALUATING AND COMPARING ALTERNATIVES
GROUPED BY THEIR ROLES IN SELECTING THE REMEDY**

Threshold Criteria - must be satisfied unless waived in accordance with 40 CFR 300.430 (f)(1)(ii)(C)

- **Overall protection of human health and the environment combines:**
 - Long-term effectiveness and permanence
 - Short-term effectiveness
 - Compliance with ARARs
- **Compliance with ARARs categorized as:**
 - contaminant-specific
 - location-specific
 - action-specific
 - other criteria advisories and guidance

Primary Balancing Criteria - form basis for comparison

- **Long-term effectiveness and permanence based on:**
 - residual risk from untreated waste or treatment residuals remaining after remediation
 - adequacy and reliability including reliance on land-disposal, potential need to replace, and risks posed should components need replacement.
- **Reduction of toxicity, mobility, or volume through treatment considering:**
 - processes used
 - amount of hazardous substances, pollutants or contaminants that are destroyed, treated, or recycled
 - degrees of reduction in toxicity, in mobility, and in volume
 - irreversibility of treatment
 - type, quantity, persistence, toxicity, mobility, and propensity to bioaccumulate of remaining hazardous substances
 - reduction in principal threats at the site
- **Short-term effectiveness including:**
 - community impacts during implementation
 - impacts on workers and the effectiveness and reliability of protective measures
 - environmental impacts during implementation and the effectiveness and reliability of mitigating measures
 - time until protection is achieved
- **Implementability including:**
 - technical feasibility including technical difficulties and unknowns in construction and operation, reliability, ease of replacement or augmentation, and ability to monitor effectiveness
 - administrative feasibility including need to coordinate with other agencies and ability and time required for permits and approvals
 - availability of services, materials, equipment, and specialists

TABLE 5-3 (Continued)

- **Cost including:**
 - capital, both direct and indirect
 - annual operation and maintenance
 - net present value

Modifying Criteria - considered in remedy selection

- **State acceptance including:**
 - preferences for and concerns with alternatives
 - comments on ARARs and proposed use of waivers
- **Community Acceptance**

TABLE 5-4 RECOMMENDED FEASIBILITY STUDY REPORT FORMAT

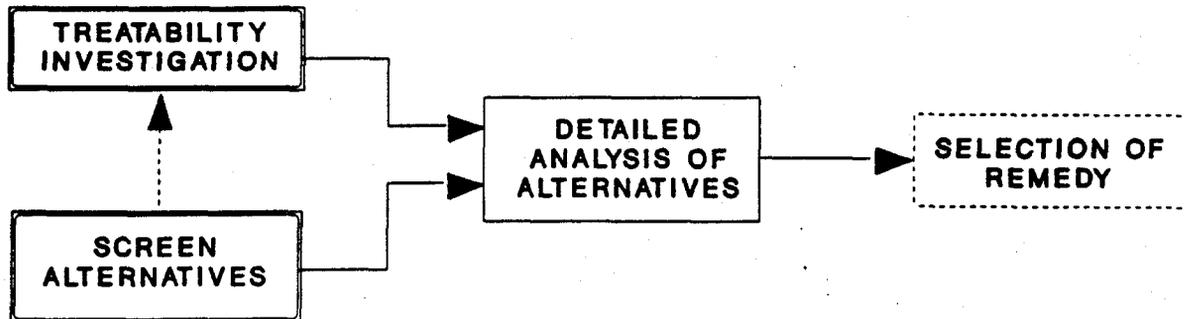
Executive Summary

1. Introduction
 - 1.1 Purpose and Organization of Report
 - 1.2 Background Information (Summarized from RI Report)
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Nature and Extent of Contamination
 - 1.2.4 Contaminant Fate and Transport
 - 1.2.5 Baseline Risk Assessment
2. Identification and Screening of Technologies
 - 2.1 Introduction
 - 2.2 Remedial Action Objectives - Presents the development of remedial action objectives for each medium of interest (i.e., groundwater, soil, surface water, air, etc.). For each medium, the following should be discussed:
 - Contaminants of interest
 - Allowable exposure based on risk assessment (including ARARs)
 - Development of remediation goals
 - 2.3 General Response Actions - For each medium of interest, describes the estimation of areas or volumes to which treatment, containment, or exposure technologies may be applied.
 - 2.4 Identification and Screening of Technology Types and Process Options - For each medium of interest, describes:
 - 2.4.1 Identification and Screening of Technologies
 - 2.4.2 Evaluation of Technologies and Selection of Representative Technologies
3. Development and Screening of Alternative
 - 3.1 Development of Alternatives - Describes rationale for combination of technologies/media into alternatives. Note: This discussion may be by medium or for the site as a whole.
 - 3.2 Screening of Alternatives (if conducted)
 - 3.2.1 Introduction
 - 3.2.2 Alternative 1
 - 3.2.2.1 Description
 - 3.2.2.2 Evaluation
 - 3.2.3 Alternative 2
 - 3.2.3.1 Description
 - 3.2.3.2 Evaluation
 - 3.2.4 Alternative 3
4. Detailed Analysis of Alternatives
 - 4.1 Introduction
 - 4.2 Individual Analysis of Alternatives
 - 4.2.1 Alternative 1
 - 4.2.1.1 Description
 - 4.2.1.2 Assessment
 - 4.2.2 Alternative 2
 - 4.2.2.1 Description
 - 4.2.2.2 Assessment
 - 4.2.3 Alternative 3
 - 4.3 Comparative Analysis

Bibliography
Appendices

SOURCE: EPA, October 1988

ELEMENTS OF THE DETAILED ANALYSIS OF ALTERNATIVES STEP IN A FEASIBILITY STUDY



Purposes

- Describe, evaluate and compare alternatives
- Selection of Remedy

Potential Subsequent Actions

Tasks

- Describe alternatives in sufficient detail for analysis (EFD)
- Evaluate and compare alternatives (EFD) according to
 - overall protection of human health and the environment
 - compliance with ARARs
 - long-term effectiveness and permanence
 - reduction of toxicity, mobility, or volume through treatment
 - short term effectiveness
 - implementability
 - cost
 - state acceptance
 - community acceptance

Documentation

- Feasibility Study or RI/FS

Additional Site Management Activities

- Request State certify identification of ARARs (EFD and installation)

EPA/State Activities

- Review Feasibility Study (State and EPA)
- Certify identification of ARARs (State)

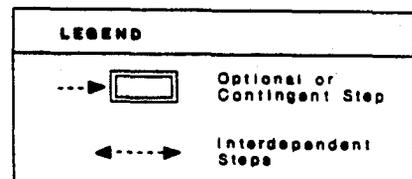


Figure 5-11

FLOW DIAGRAM FOR DETAILED ANALYSIS OF ALTERNATIVES

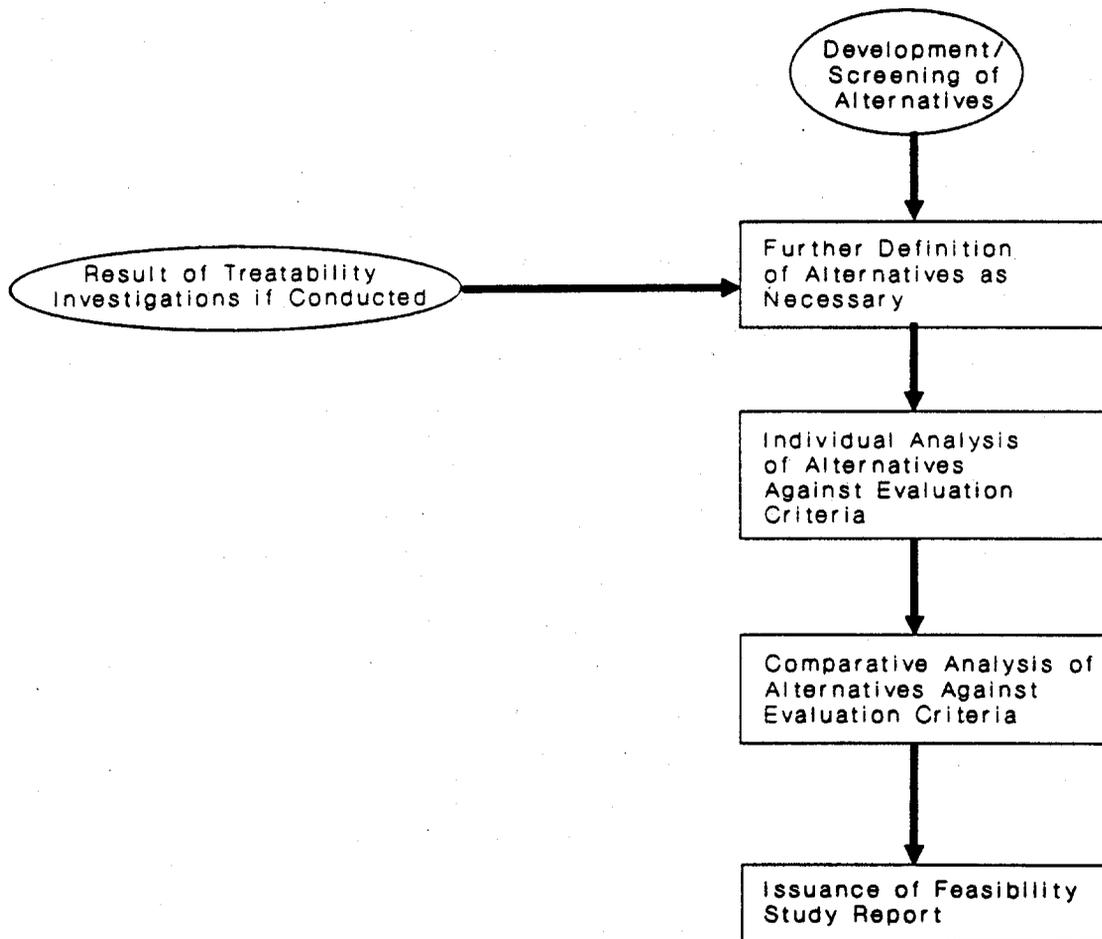


Figure 5-12

reasonable maximum exposure scenario should be developed. This scenario includes the types of chemicals human and environmental receptors are being exposed to and the toxicity levels that are likely to present appreciable risk of significant adverse effect over time. The scenario reflects the type(s) and extent of exposures that could occur based on the likely or expected use of the site (or surrounding areas) in the future.

The reasonable maximum exposure scenario should be presented to the decisionmaker so that possible implications of decisions regarding how to best manage uncertainties can be factored into the risk management remedy selection. In the final component of the risk assessment process, a characterization of the potential risks of adverse health or environmental effects for each of the exposure scenarios derived in the exposure assessment is developed and summarized. The results of the RI and the Baseline Risk Assessment will therefore serve as the primary means of supporting the selected remedy or documenting a no-action decision.

The preferred alternative is presented to the public by the installation in a proposed plan that also briefly describes the other alternatives that were considered and summarizes the information relied upon to select the preferred alternative (see Section 10.1.5). If waivers to ARARs (see 40 CFR 300.430(f)(1)(ii)(C)) are required, an explanation of the basis for the waiver should be included. Any formal state comments on ARARs or alternative selection should also be summarized in the proposed plan.

The FS and proposed plan are sent to regulatory agencies for review and comment in accordance with the requirements described in Section 5.7 and any additional measures specified in the Community Relations Plan (CRP, see Section 10.3.1).

Following public and regulatory agency review, the Remedial Project Manager (RPM) will summarize significant comments received and will prepare responses. The proposed responsiveness summary will be distributed to each DON party involved in the initial identification of the preferred alternative. The RPM will coordinate the DON's reaction to public and agency comments, revise the responsiveness summary accordingly, and adopt or amend the preferred alternative accordingly to arrive at the selected remedy. At NPL sites, the DON will coordinate the responsiveness summary with the EPA and the state as specified in the FFA.

The selection will be documented in a decision document for non-NPL sites, operable units, or removals for NPL sites, or in a ROD for final remedial actions at NPL sites (see Section 5.7). If design or construction is to be phased due to funding limitations or complexity of the remedy, the operable units should be identified. All decision documents and RODs will be signed by the installation Commanding Officer/General. At the time the proposed ROD is presented, the Commanding Officer/General shall also be afforded the administrative record for review. This record shall include a brief analysis of the potential long- and short-term environmental impacts of the remedy suggested and, if appropriate, a discussion of the feasible alternatives and remedies that have been considered during the study process. The administrative record shall also set out any public comments received addressing the choice of remedy which have been generated by the proposed plan, and the DON response to those comments. The Commanding Officer/General shall carefully review the proposed ROD and administrative record. If the Commanding Officer/General concurs with the proposed ROD, then he/she shall sign it. If the Commanding Officer/General disagrees or has questions on the ROD, he/she shall discuss and resolve the questions with the EFD.

For NPL sites, the ROD is forwarded to the EPA regional office for concurrence. If EPA disagrees with the DON's selection of remedial action, then EPA will select the remedy. The DON has final decision authority for non-NPL sites. A notice of the decision and of the availability of the ROD/decision document should be publicized in accordance with public participation guidance (see Chapter 10).

See *EPA Guidance on Preparing Superfund Decision Documents* (EPA, June 1989) for additional information on preparation of Proposed Plans, Decision Documents, and RODs.

Figure 5-13 lists elements of the selection of remedy step.

5.7 Record of Decision/Decision Document

To support the selection of a RA, all facts, analyses of facts, and site-specific policy determinations considered in the course of accomplishing actions specified in this chapter shall be documented, as appropriate, in a ROD. This documentation should be in a level of detail appropriate to the site situation and included in the administrative record required under subpart I of the NCP. This documentation should explain how evaluation criteria used in the FS were used to select the remedy.

The ROD documents the selection of a site-specific remedy (ROD documents are similar to the documentation prepared upon completion of an Environmental Impact Statement (EIS)). The difference is that, under CERCLA/SARA, the ROD is a much more comprehensive document which carefully shows that the decision being reached is consistent with NCP. A decision document for a non-NPL site must contain the elements of a ROD but does not require state or EPA approval before initiating the remedy.

The ROD describes the following statutory requirements related to the scope and objectives of the action (NCP Section 300.430(f)(5)(ii)):

- a. How the selected remedy is protective of human health and the environment, explaining how the remedy eliminates, reduces, or controls exposures to human and environmental receptors
- b. Federal and state ARARs for the site that the remedy will attain
- c. ARARs of other Federal and state laws that the remedy will not meet, the waiver invoked, and the justification for invoking the waiver
- d. How the remedy is cost-effective, i.e., explaining how the remedy provides overall effectiveness proportional to its cost
- e. How the remedy utilizes permanent solutions and alternative treatment solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable
- f. Whether the preference for remedies employing treatment which permanently and significantly reduces the toxicity, mobility, or volume of the hazardous substances, pollutants, or contaminants as a principal element is, or is not, satisfied by the selected remedy. If this preference is not satisfied, the ROD must explain why a remedial action (RA) involving such reductions in toxicity, mobility, or volume was not selected.

ELEMENTS OF THE SELECTION OF REMEDY STEP



- | | |
|--|--|
| Purposes | <ul style="list-style-type: none"> • Select remedial action |
| Potential Subsequent Actions | <ul style="list-style-type: none"> • No further action • Monitoring • Removal • Operable units |
| Tasks | <ul style="list-style-type: none"> • Select remedial action |
| Documentation | <ul style="list-style-type: none"> • Proposed Plan • Notice of Proposed Plan availability • Public meeting transcript • Record of Decision or Decision Document including responses to comments on Proposed Plan • Notice of ROD availability |
| Additional Site Management Activities | <ul style="list-style-type: none"> • Public meeting on Proposed Plan |
| EPA/State Activities | <ul style="list-style-type: none"> • Review Proposed Plan • Participate in public meeting, if appropriate |

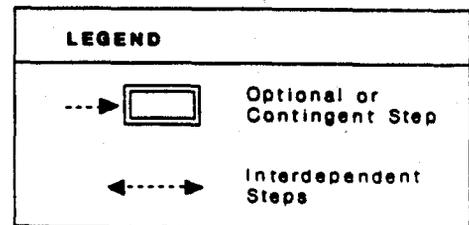


Figure 5-13

The ROD also:

- a. Indicates, as appropriate, the remediation goals, discussed in the FS, that the remedy is expected to achieve. Performance should be measured at appropriate locations in the groundwater, surface water, soils, air, and other affected environmental media. Measurement relating to the performance of the treatment processes and the engineering controls may also be identified, as appropriate.
- b. Discusses significant changes and the response to comments received during review of the FS.
- c. Describes whether hazardous substances, pollutants, or contaminants will remain at the site such that a review, no less often than every five years, would be required.
- d. When appropriate, provides a commitment for further analysis and selection of long-term response measures within an appropriate timeframe.

See Section 10.1.7 for ROD public participation requirements.

5.8 Interagency Agreement (IAG)

For any installation listed on the NPL, CERCLA, Section 120(e), requires the EPA to review the results of the RI/FS. Within 180 days after EPA review of the RI/FS, the DON must enter into an IAG with EPA for the expedited completion of all necessary remedial action (RA) at the facility. The DON considers that EPA's review of the RI/FS is not completed until issuance of the ROD.

The DON policy is to negotiate and sign Federal Facility Agreements (FFAs) as soon as possible after the installation is proposed for listing on the National Priorities List. This FFA becomes an IAG for a specific operable unit upon completion of the ROD for that operable unit and the identification of the selected remedial alternative, a schedule for the completion of each remedial action and arrangements for long term operation and maintenance of the facility. In most instances the FFA, which forms the basis for the IAG, will identify several separate sites which can be grouped into operable units. The FFA becomes the IAG for each operable unit upon completion of the corresponding ROD and IAG requirements for each operable unit. As additional sites and operable units reach the ROD stage, no further action is required except for the notification of the public pursuant to Section 117 of CERCLA and the terms of the FFA. At no time during the process of transforming the FFA to the IAG shall additional negotiation or signature be required by the DON, EPA, or the state. Although the FFA/IAG document will always be available for public review pursuant to Section 117 of CERCLA and the terms of the FFA, no additional public comment on that document is required when an operable unit reaches the ROD stage.

Table 5-5 contains a brief synopsis of this phase of the remedial process.

5.9 Generic Time Line for RI/FS

The actual time required to conduct an RI/FS for a particular site will depend on a variety of factors. Nominal times in months and a generic sequence of activities for conducting a RI/FS are illustrated in Figure 5-14.

TABLE 5-5

FEDERAL FACILITY AGREEMENT (FFA)

Purpose	For NPL sites, establish and document concurrence with EPA on remedy (not required for Non-NPL sites)
End Point	Remedial design
Task	Incorporate IAG requirements into FFA (EFD) Notify Public (Installation & EFD)
Documentation	Review of alternatives and selection process Schedule Arrangements for operation and maintenance
Site Management Activities	FFA becomes IAG Incorporate IAG requirements in Administrative Record (EFD) Notice to Public (Installations & EFD)

GENERIC TIME LINE FOR RI/FS

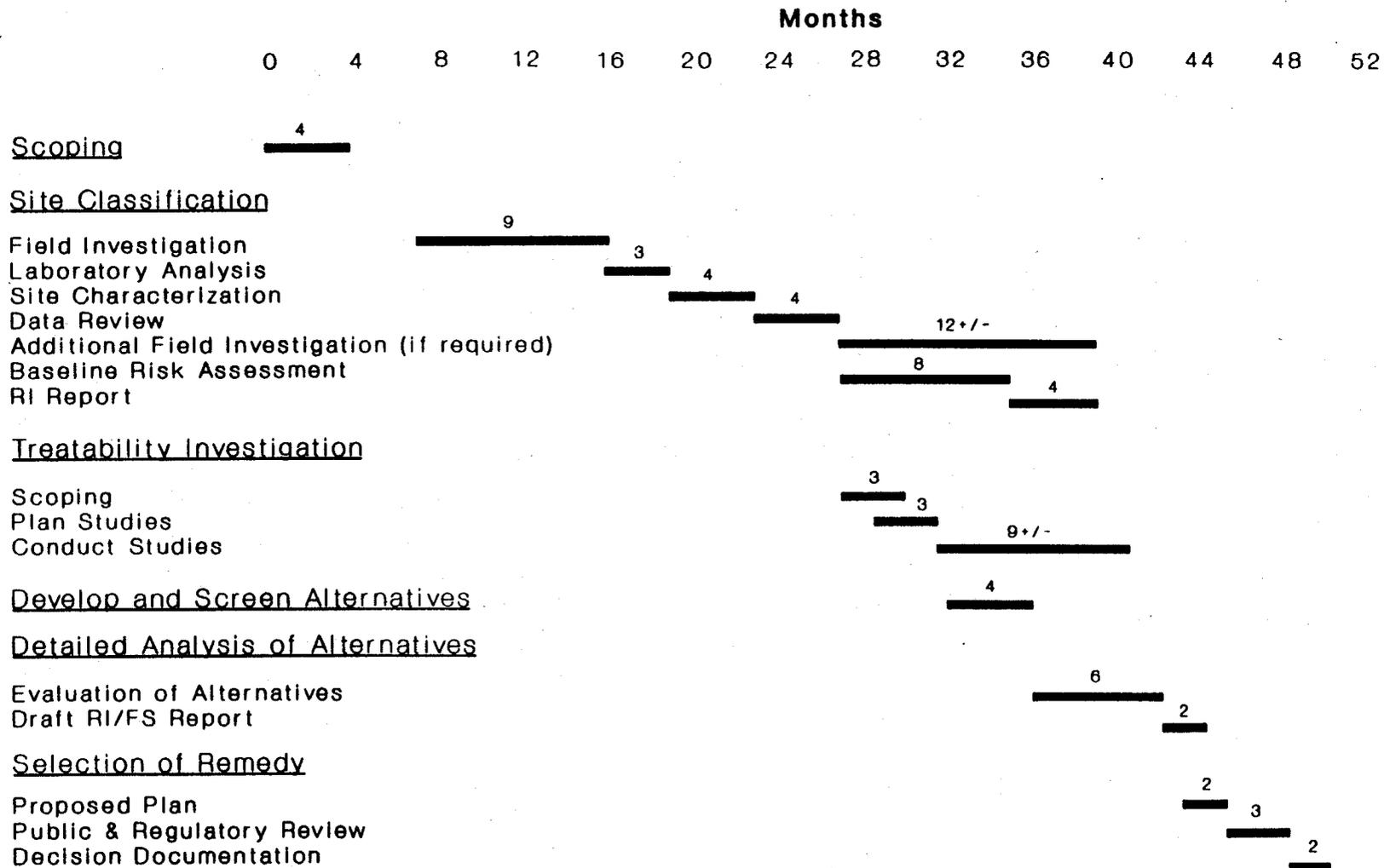


Figure 5-14

5.10 Record Keeping

5.10.1 Administrative Record

The RI/FS is a critical part of the overall administrative record upon which the decision-maker bases a final decision concerning the appropriate action to be taken regarding a hazardous waste site.

Section 113(K) of CERCLA/SARA requires the establishment of an administrative record which forms the basis for the selection of a response action. E.O. 12580 delegates these responsibilities to the heads of executive agencies and departments. EPA retains the authority to promulgate regulations which govern the creation of this administrative record.

Regardless of the nature of the hazardous waste site, be it on the NPL or not, an administrative record must be maintained. The EFD must establish and update the administrative record and send copies to the installation, state, and EPA as appropriate. Installations shall ensure that a copy of the administrative record is available to the public at or near the hazardous waste site and notice of the availability is part of the record. This record will form the basis for any future legal action concerning the site and actions taken by the Navy/Marine Corps at the site of concern. The EFD will maintain an administrative record file, which is the collection of documents and an index of those documents which make up the administrative record. The administrative record file should be established at the start of the remedial investigation or removal action.

EPA will be issuing regulations which will specifically detail the documents which must be placed in the administrative record. Tables 5-6 and 5-7 provide draft guidance from EPA (29 May 1987) on the documents which should be part of an administrative record for removals and remedial actions, respectively.

Expedited response actions should be treated like removals for purposes of compiling an administrative record; RI/FSs should be treated as a phase of a remedial action and not a removal for purposes of the administrative record.

It must be emphasized that although regulations may not yet exist regarding the administrative record, the statute mandates that one be kept. A copy of the administrative record needs to be available near the site as part of the public participation requirement.

Final documents which are part of the DON's decision-making process should be kept as part of the administrative record. Draft documents should only be included if they contain information that forms the basis of selection of the response action and the information is not included in any other document in the administrative record file. If questions arise, local counsel's advice should be sought. The RPM should review the administrative record file when developing the proposed plan for remedy selection and identify those documents which support the site-specific remedy outlined in the proposed plan. Those documents comprise the administrative record for that site.

5.10.2 Information Repository

During removal actions and remedial actions at hazardous waste sites, the installation shall establish an information repository at or near the location of the response action. The information repository should contain a copy of items made available to the public, including information on Technical Assistance

TABLE 5-6

DOCUMENTS FOR REMOVAL ACTIONS ⁽¹⁾

- Notice of availability of record for public information
 - QA/QC'd raw data ⁽²⁾
 - Removal Preliminary Assessment Report
 - Site Investigation Report
 - Any other factual data relating to reasons why a particular removal action at the site was selected
 - Chain of Custody forms ⁽²⁾
 - Engineering Evaluations
 - Cost analysis documents
 - Final data summary sheets of technical models used to evaluate the site
 - Action Memorandum
 - ATSDR health assessment (draft versions not included)
 - Memoranda on major site-specific policy and legal interpretations (e.g., off-site disposal availability, compliance with other environmental statutes, special coordination needs (e.g., dioxin)).
 - Information from telephone logs relied on in selecting response
 - New technical information (such as appropriate TRC minutes)
 - Guidance documents and technical sources ⁽³⁾
 - Health and Safety Plan
- Community Relations Plan
 - Public Comments, if any
 - Responses to significant comments
 - Copies of any notices, including notices to states, Natural Resources Trustees, notices of availability of information
 - Documentation of meetings during which the public and any other involved parties present information upon which the DON bases its decision on selection of a removal action (may be after-the-fact restatement of issues raised)
 - Administrative Orders
 - Affidavits or other sworn statements of expert witnesses
 - Amendments to Action Memorandum, including ceiling increase Action Memoranda, and Action Memoranda on technical changes; information which caused the DON to change the decision, comments, and responses to comments
 - Documentation of opportunity for consultation with the state on the scope of the removal action; comments from state, if any, and responses to substantive comments.
 - Index of documents in the record

Footnotes:

- ⁽¹⁾ Drafts can be included in the information repository at the time they are submitted to the regulatory agency; however, when the final is placed in the Administrative Record, the drafts should be removed from the information repository.
- ⁽²⁾ QA/QC'd raw data (e.g., results of QC runs, chromatograms, mass spectra) and chain of custody forms are part of the record and available to the public, but need not be in the same physical location as the administrative record or in the information repository at or near the site.
- ⁽³⁾ Guidance documents and technical sources may be kept in a central location by the RPM. They need not be in each site-specific record. The index to the record should reference titles of relevant guidance documents and technical sources.

TABLE 5-7

DOCUMENTS FOR REMEDIAL ACTIONS ⁽¹⁾

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Notice of availability of record for public information ● Preliminary Assessment Report ● Site Inspection Report ● Any relevant removal documents (if removal action completed or on-going at site). ● QA/QC'd raw data ⁽²⁾ ● Data summary sheets (usually part of the FS) ● Chain of custody forms ⁽²⁾ ● Quality Assurance Program Plan (QAPP) ● Initial work plan and any amendments thereto ● RI/FS (final deliverable released for public comment) ● Any other factual data relating to reasons for selecting the remedial action at the site ● Memoranda on site-specific major policy and legal interpretations, (e.g., off-site disposal availability) ● Information from telephone logs relied on in selecting response ● Guidance documents and technical sources ⁽³⁾ ● Community Relations Plan ● Proposed plan and brief analysis of plan ● Feasibility Study (final deliverable released for public comments) ● Endangerment Assessment or other public health assessment ● ATSDR Health Assessment (draft versions not included) ● Copies of any notices, including notices to states, Natural Resources Trustees, notices of availability of information ● Public comments (including a late comments section) | <ul style="list-style-type: none"> ● Health and Safety Plan ● Documentation of meetings during which the public and any other involved parties present information upon which the DON bases its decision on selection of a remedial action (may be after-the-fact restatement of issues) ● New technical information presented (such as appropriate TRC minutes) ● Documents relating to state involvement (e.g., ARAR determinations, opportunity to comment on screening of alternatives, FS, proposed plan, selected remedy) ● Responses to substantive comments ● Transcript of required public meeting(s) on the proposed plan ● Record of Decision (ROD), including statement of basis and purpose of selected action; summary of alternatives considered; an explanation of why the DON chose the preferred alternative; explanation of any statutory preferences under Section 121(b) not met; explanation of significant differences between the Proposed Plan and ROD ● Amendments to the ROD, information which caused the DON to change its decision, comments and responses to those comments ● Relevant documents generated during a RCRA corrective action proceeding at the site, if applicable ● Administrative Orders ● Affidavits or other sworn statements of expert witnesses ● FFA at NPL sites ● Index of documents in the record |
|---|---|

Footnotes:

- ⁽¹⁾ Drafts can be included in the information repository at the time they are submitted to the regulatory agency. However, when the final is placed in the Administrative Record, the drafts should be removed from the information repository.
- ⁽²⁾ QA/QC'd raw data (e.g., results of QC runs, chromatograms, mass spectra) and chain of custody forms are part of the record and available to the public, but need not be in the same physical location as the administrative record or in the information repository at or near the site.
- ⁽³⁾ Guidance documents and technical sources may be kept in a central location by the RPM. They need not be in each site-specific record. The index to the record should reference titles of relevant guidance documents and technical sources.

Grants (TAGs), releases, brochures or fact sheets about response actions, and notices which propose delisting of a site from the NPL. The administrative record file should be a part of the information repository. The installation should notify interested parties of the establishment of the information repository.

5.11 State Role in the Remedial Process

Section 120 of CERCLA and 10 USC 2705 requires state and local officials' involvement in the remedial process. The specific requirements are highlighted in the following sections.

5.11.1 Federal Agency Hazardous Waste Compliance Docket

A governor may petition EPA to evaluate any facility included on the docket (CERCLA, Section 120(d)(2)).

5.11.2 RI/FS on NPL Site

The Navy/Marine Corps will commence RI/FS on NPL sites in consultation with EPA and appropriate state authorities (CERCLA, Section 120(e)(1)).

5.11.3 Annual Report to Congress

The DON must submit a detailed description, on a state-by-state basis, of the status of each facility subject to this section and that report will also be submitted to the affected state (CERCLA, Section 120(e)(5)).

5.11.4 Involvement in On-going Investigation

The DON and EPA will afford to relevant state and local officials the opportunity to participate in the planning and selection of the RA. This will include the review of all applicable data as they become available and the development of studies, reports, and action plans. State involvement will be in accordance with CERCLA, Section 121 (CERCLA, Section 120(f)) (10 USC 2705).

5.11.5 Degree of Cleanup

The state may use standards that are more stringent than Federal standards, requirements, criteria, or limitations, if they are legally applicable or relevant and appropriate, promulgated standards, requirements, criteria, or limitations under a state environmental or facility siting law (CERCLA, Section 121(d)(2)(A)).

However, Section 121(d)(4)(E) of CERCLA provides that the remedy does not have to comply with identified state standards if the state has not consistently applied (or demonstrated the intention to consistently apply) the standard, requirement, criteria, or limitation in similar circumstances at other remedial actions within the state.

5.11.6 State Involvement Regulations

EPA has promulgated regulations providing for substantial and meaningful involvement by each state in initiation, development, and selection of RAs to be undertaken in that state (NCP, Section 300, 500-525).

The regulations provide:

- a. Participation in long-term planning process for all remedial sites.
- b. Reasonable opportunity to review and comment on each of the following:
 1. RI/FS and all data and technical documents leading to its issuance
 2. Planned RA identified in the RI/FS
 3. Engineering design following selection of the final RA
 4. Other technical data and reports relating to implementation of the remedy.
- c. An opportunity to review any proposed decision to exercise authority of CERCLA, Section 121(d)(4)[waivers].
- d. Notice of negotiations with potentially responsible parties (PRPs), opportunity to participate in negotiations, and, subject to CERCLA, Section 121 (f)(2)(A), to be a party of any settlement.
- e. Notice and opportunity to comment on proposed plan for RA as well as on alternative plans under consideration. A proposed decision will contain response to comments from the state including an explanation regarding any decision on compliance with promulgated state standards (CERCLA, Section 121(f)(1)(G)).
- f. Prompt notice and explanation of each proposed action to the state in which the facility is located.

5.11.7 State Challenge to Exercise of Waiver at Federal Facility

If final selection remedy does not meet ARARs because of the exercise of the waiver authority, the DON must provide an opportunity for the state to concur or not concur in such selection at least 30 days prior to the publication of the final RA plan. If the state concurs, or does not act within 30 days, the RA may proceed (CERCLA, Section 121(f)(3)).

If the state does not concur and desires to have the RA conform to such ARARs, the state may act as follows:

- a. Bring an action in the Federal district court in which the facility is located within 30 days of notification for the sole purpose of determining whether the finding is supported by substantial evidence.

b. If the state establishes to the Federal District Court, on the administrative record, that the finding is not supported by substantial evidence, the RA must be modified to conform to such ARARs.

c. If the state fails to establish that the finding was not supported by substantial evidence and if the state pays, within 60 days of judgment, the additional costs attributable to meeting such ARARs, the RA must be selected to meet such ARARs. If the state fails to pay within 60 days, the RA selected will proceed through completion.

CHAPTER SIX

6.0 REMEDIAL DESIGN/REMEDIAL ACTION AND LONG-TERM MONITORING

This chapter discusses the following four topics identified under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

- a. Permits and approvals
- b. Remedial design/action
- c. Long-term monitoring
- d. Operations and maintenance.

Under the Resource Conservation and Recovery Act (RCRA) the comparable elements make up Corrective Measures Implementation (CMI) (see Figure 7-1).

6.1 Permits and Approvals

Upon completing the record of decision (ROD), the DON must proceed with the remedial design and remedial action (RD/RA) which have been determined to be the best remedies for the hazardous waste release or threat of release. This effort will normally be accomplished by an Engineering Field Division (EFD) contractor.

The National Contingency Plan (NCP), Section 300.400(e), provides that no Federal, state, or local permit is required for the portion of any removal or remedial action conducted entirely on the site. Although the DON is relieved from the procedural requirements of obtaining permits for on-site actions, it is not relieved from the substantive requirements of other laws which may be applicable or relevant and appropriate requirements (ARARs). Off-site remedial actions must comply with both substantive and procedural requirements identified as ARARs.

If the remedial action requires wastes to be transported to another location, the hazardous material must be taken to a facility operating in compliance with RCRA and other applicable state and Federal laws, such as the Toxic Substances Control Act (TSCA). The facility's individual unit receiving the waste must not be releasing or leaking pollutants, and other regulated units at the facility must be controlling all releases in accordance with RCRA.

6.2 Remedial Design/Remedial Action (RD/RA)

6.2.1 Remedial Design (RD)

The purpose of remedial design is to convert the conceptual design for the selected remedy into a final design that is biddable and implementable. If the selected remedy was divided into operable units, the design may also be divided accordingly at the discretion of the DON. Similarly, the frequency and level of internal design reviews are at the discretion of the remedial project manager (RPM) within the limits set forth in CERCLA agreements or RCRA orders or permits.

Parts of remedial actions may be implemented separately as operable units to:

- a. Quickly achieve significant reductions in risk while other parts of the remedial action are being evaluated, selected, or designed
- b. Provide a construction management tool for implementing large, complex, or multi-year remedial actions
- c. Expedite the completion of total site cleanup.

Whether operable units are implemented before or after selection of the final remedial action, they should not be inconsistent with the final action nor preclude its implementation. Operable units are also subject to requirements for decision documentation, administrative records, information repositories (see Sections 5.10.2 and 10.7), and public participation (see Chapter 10).

The final design package will typically include final design plans and specifications, a construction cost estimate, a draft Operation and Maintenance Plan, a draft Monitoring Plan, and a final Quality Assurance Program Plan (see Section 4.5.2).

As appropriate, specifications may include requirements that the remedial action contractor develop and document compliance with:

- a. A Site Security Plan
- b. A Site Health and Safety Plan (see Section 12.3)
- c. A Fugitive Dust and Water Runoff Control Plan including ambient conditions monitoring during construction
- d. Plans for mitigating other environmental impacts including natural resources and ecological integrity considerations.

If, during the remedial design step, new information comes to light that would substantially alter the scope, cost, implementability, or effectiveness of the remedial action, the previous selection of remedy step may have to be repeated, including public participation requirements. Refer to the NCP and seek guidance from higher command should this occur.

The Community Relations Plan (CRP), prepared during the remedial investigation/feasibility study (RI/FS) stage, should be reviewed and revised early, as necessary, in the remedial design step (see Section 10.3.1).

Permits, approvals, and site access agreements, if required, will generally be obtained during remedial design. Cooperation between the RPM and installation legal, engineering, or public affairs staff may be needed to secure these.

After completion of the final engineering design, a fact sheet must be issued to notify the media and public and, as appropriate, a public briefing conducted.

Figure 6-1 lists key elements of the remedial design step.

6.2.2 Remedial Action (RA)

Upon completion of the remedial design, the EFD will begin implementation of remedial action (RA) with the award of a contract to construct the selected alternative. The remedial action step involves implementation of plans and specifications. Implementation of the RA requires close cooperation between the Navy Resident Officer in Charge of Construction (ROICC), the RPM and the installation.

The RPM is the technical manager of the remedial action and is responsible for oversight functions which continue to exist such as coordinating with EPA, the state, and local officials, maintaining the Administrative Record, participating in appropriate community relations, and assuring overall quality assurance/quality control (QA/QC). Supervision of the remedial action by the RPM or his/her designee includes operations inspection and evaluation of progress reports, contingencies, and claims.

The Navy ROICC is the construction manager for the remedial action. He/she is responsible for ensuring that the work is accomplished per plans and specifications and in a fashion which protects human health, welfare, and the environment. Because the RA has been agreed upon in consultation with regulatory agencies, the ROICC cannot make field changes without having first coordinated them through the RPM.

The ROICC should monitor the contractor's site Health and Safety Plan (HSP) and other procedures for compliance with the Occupational Safety and Health Act (OSHA) regulations (29 CFR 1910). The ROICC ensures that the approved QA/QC plan is followed, both for implementing the selected alternative and for accomplishing field sampling to verify that cleanup levels are attained.

Figure 6-2 lists elements of the remedial action step.

Additional guidance for implementing remedial design and remedial actions may be found in EPA's *Superfund Remedial Design and Remedial Action Guidance* (EPA, June 1986).

As discussed in Chapter 3, removals may be implemented at any time during the remedial action process. Most removals will be implemented within a short period following discovery of a site. However, some imminent threats may not be revealed until after remedial action has begun. Other removals may be justifiable during the RI/FS stage.

To qualify as a removal, remedies must:

- a. Be implemented in response to an imminent threat, or
- b. Be effective in controlling the source or potential source of contamination, or
- c. Substantially reduce the possibility of human exposure to hazardous substances (see Section 3.1).

Removals implemented just for source control or for limiting exposure should be compatible with any remedial action that may be selected or be inexpensive enough to be considered expendable. Removals implemented in response to an imminent threat need not be compatible with future remedial actions, need not be shown to be cost-effective, and need not achieve ARARs if the urgency of the situation precludes

ELEMENTS OF THE REMEDIAL DESIGN STEP



Purposes	<ul style="list-style-type: none"> • Prepare Scope of Work, specifications, and bid documents • Select Remedial Action contractor • Prepare RD/RA Work Plan
Potential Subsequent Actions	<ul style="list-style-type: none"> • Remedial Action
Tasks	
Preaward Activities	<ul style="list-style-type: none"> • Prepare Scope of Work, specifications, and bid documents (EFD) • Advertise (EFD) • Evaluate bids (EFD) • Select contractor (EFD) • Award contract(s) (EFD)
Post Award Activities	<ul style="list-style-type: none"> • Monitor contractor's effort (EFD) • Revise Community Relations Plan (CRP), as necessary (installation) • Conduct pilot scale testing, as necessary
Documentation	<ul style="list-style-type: none"> • Revised CRP (installation) • Scope of Work, specifications, and bid documents (EFD) • RD/RA Workplan • Remedial Design Fact Sheet
Additional Site Management Activities	
EPA/State Activities	

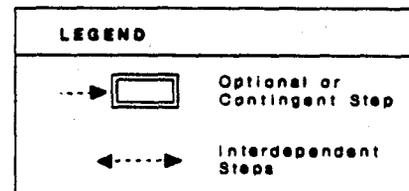
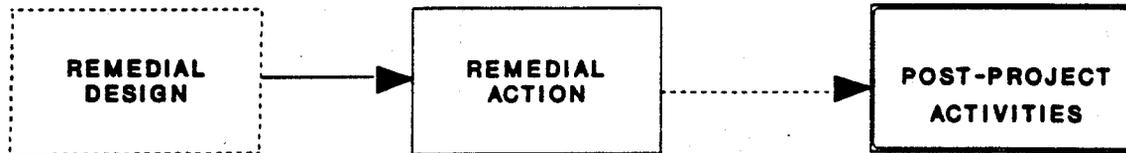


Figure 6-1

ELEMENTS OF THE REMEDIAL ACTION STEP



Purposes

- Install remedial technologies
- Implement land use controls
- Program for post-project activities

Potential Subsequent Actions

- Post-project Activities
- Long Term Monitoring
- No Further Action

Tasks

- Field activity management (installation and EFD)
- Implement land use restrictions (installation)

Documentation

- Worker Health and Safety Plan
- Sampling and Analysis Plan for Post-project Activities
- Contractor documentation of work performed, equipment installed, site worker, and visitor logs; compliance with Worker Health and Safety Plan; and compliance with Data Quality Objectives
- "As-built" drawings (EFD)
- O&M Manual for electro-mechanical equipment (EFD)

Additional Site Management Activities

- Program O&M resources for post-project activities (installation)

EPA/State Activities

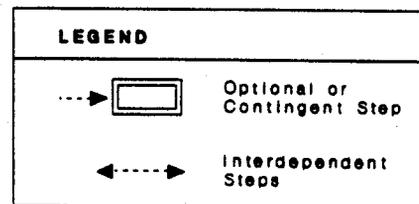


Figure 6-2

deliberation of these goals. However, if the situation allows, these goals should be considered prior to implementation of a removal. Although this guidance allows considerable flexibility in determining how imminent a threat may be to justify a removal (see Section 3.1), the RPM should consider taking action as an operable unit (see Section 4.0) duly identified during the scoping, site characterization, or development of alternatives steps of a RI/FS. All decisions to implement removals under CERCLA authority must be explained in a decision document (see Section 5.7). Depending on the urgency, a decision document may follow the decision to implement, and even the action itself.

6.3 Long-Term Monitoring

During the Installation Restoration (IR) Program, an installation may need to conduct long-term monitoring in two instances. First, as a demonstration that a remedial action not only has worked, but continues to work. For example, if the required remedial action is a clay cap, regulatory agencies may require continuation of monitoring to show that the cap is preventing rainfall from leaching through a contaminated area. Second, a RI/FS may show a low level of contamination that does not require remedial action. The Navy/Marine Corps may need to monitor the contamination to ensure that it does not rise above trigger levels. This section addresses the following issues.

- Monitoring decisions
- Funding responsibility
- Responsibility for monitoring
- Cessation of monitoring

Navy/Marine Corps installations will undertake long-term monitoring when appropriate in accordance with applicable law. If a RI/FS shows detectable contamination that is below the level that requires a remedial action, the Navy/Marine Corps may be required to continue monitoring in order to detect any increases in contamination level. As much as possible, the decision to conduct long-term monitoring should be outlined in a formal plan that lists the locations of the monitoring points, sampling frequency, parameters for laboratory analysis, and how to analyze the data. The plan should also outline what happens if certain "triggers" are reached, such as an increased or decreased level of contamination. The plan should cover who should be notified and what action must be taken.

Defense Environmental Restoration Account (DERA) IR funds will pay for the start-up of a monitoring program and the first ten years of operation. After that, the installation must pay the costs associated with long-term monitoring. Installations will have to budget for long-term monitoring just as they budget for other operations. In the case of tenants, the Class II property holder (owner of buildings, facilities, and utilities) should be responsible for funding long-term monitoring. Hosts and tenants could decide if they want to modify this. For example, if a tenant is in a better position to conduct the long-term monitoring program, the tenant may also want to fund it.

Each installation must individually decide if it can do the work with in-house resources or contract for the work. Long-term monitoring has many similarities to short-term monitoring efforts in a RI/FS. Although sampling points (normally wells) may be in place, the installation will need to maintain them and protect them from accidental contamination and vandalism. Monitoring not only includes sample collection and laboratory analysis, but also sample preservation, chain of custody procedures, laboratory

QA/QC, and analyzing the results of the laboratory data. Each installation must assess its capabilities. Does it have people to collect samples? Is there a qualified in-house laboratory? Does the long-term monitoring plan identify the triggers or will it take complicated statistical analysis techniques to determine trigger levels?

Contracts for long-term monitoring should resemble RI/FS contracts for short-term monitoring. If an installation does decide to get contract support, it may want to use an existing EFD contract.

Long-term monitoring records may be used in future administrative and legal actions. NEESA has developed an automated database that is available for data retention. This service can be accessed by the installation, RPM, or other interested party through the NAVFACENGC COM EFD. In addition to the actual monitoring data, installations should retain information on how the sampling was performed, chain of custody logs, laboratory reports, and laboratory QA/QC procedures.

Actual analysis of the data must be detailed in the long-term monitoring plan. Since the long-term monitoring data must withstand legal challenges, QA/QC for such laboratories should be the same as QA/QC for RI/FS laboratories. This is also true for QA/QC on all field work.

Long-term monitoring does not necessarily mean monitoring forever. Obviously, if the low levels of contamination continue, so will the monitoring. However, if contaminant levels rise, the installation may need to put the site back into the IR Program for further remedial action. The actual trigger levels must be spelled out in the long-term monitoring plan. It is also possible that regulatory agencies that initially agreed to the long-term monitoring may require further remedial action due to tightening standards, even if there is no increase in contamination. There may be new scientific data supporting more stringent cleanup standards. New remedial technologies may do better cleanup jobs or lower the cost to the point of making cleanup cost-effective. If a site must go to remedial action, it can rejoin the formal IR Program.

It is also possible that monitoring may show the pollutant is decreasing and long-term monitoring is no longer appropriate. The long-term monitoring plan will address low limits, how long monitoring must show the lower levels, and if any approval is needed to confirm the decision to cease long-term monitoring. As a minimum, installations will consult with their EFDs before stopping a long-term monitoring program.

6.4 Operations and Maintenance

Operations and maintenance activities are dictated by the amount of hazardous substances remaining at the site after the completion of the remedial action. RCRA land disposal closure standards apply to waste removed from the site under CERCLA. If hazardous materials remain, post-closure groundwater monitoring is required. Only in those cases where no hazardous substances remain at a site and no residual groundwater contamination is present, is it possible to avoid groundwater monitoring. If the remedial action results in any hazardous substance remaining at the site, CERCLA, Section 121(c), requires review of such action at least every 5 years after the initiation of the remedial action. It is the installation's responsibility to ensure that this review is conducted and further action taken, if necessary. The EFDs will assist as necessary.

In accordance with CERCLA, Section 121(c), if hazardous substances, pollutants, or contaminants remain at a site after the remedial action step, the installation Commanding Officer/General, with technical

assistance from the EFD, will review monitoring records to ensure that human health and the environment are being protected. The compliance review will be made every five years beginning with the initiation of the remedial action step until the remedy is no longer needed.

Many remedial technologies will require operation and maintenance of electro-mechanical equipment after the remedial action is installed. Structures and earthworks may require maintenance. Most sites that have hazardous substances remaining after the remedial action is installed will require periodic monitoring. Appropriate plans for these post-project activities will have been identified in the FS, ROD or decision document, detailed during remedial design, and implemented as appropriate.

Operation and maintenance of equipment will be an on-going process. Monitoring and recording data must also be continued. This will require monitoring reports and compliance review reports.

Operation, maintenance, and monitoring activities are eligible for DERA funding for a period of ten years after completion of the remedial action, after which installation Operation and Maintenance, Navy (O&M,N)/Operation and Maintenance, Marine Corps (O&M,MC) funds will be used. In cases where the remedy is divided into operable units, the ten year limit applies to individual operable units.

Figure 6-3 lists key elements of post-project activities.

6.5 Site Closeout

The end point for all sites that enter the remedial action phase is closeout. A closeout is appropriate when no further response actions, under the IR Program, are considered appropriate for the site. The methods for accomplishing a site closeout are discussed in the following sections.

6.5.1 National Priorities List (NPL) Delisting

Section 300.425(e) of the NCP identifies the actions that must have been completed and the procedures to follow in deleting a site from the NPL. Sites having releases may be deleted from or recategorized on the NPL, when no further response is appropriate.

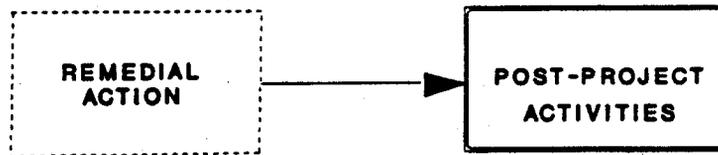
Response actions and deletion procedures as they relate to DON sites are summarized as follows:

a. The cognizant EFD will notify the EPA regional office that appropriate response actions have been taken/completed and request that the site be deleted from the NPL.

b. EPA will consult with the state prior to developing the notice of intent to delete. In making a determination to delete a site from the NPL, EPA will consider, in consultation with the state, whether any of the following criteria has been met:

1. The DON and any other responsible parties have implemented all appropriate, required response actions.
2. No further response action by the DON and other responsible parties is appropriate.
3. The RI has shown that the release poses no significant threat to public health or the environment and, therefore, the taking of remedial measures is not appropriate.

ELEMENTS OF THE POST-PROJECT ACTIVITIES STEP



Purposes

- Ensure continued compliance with project goals

Potential Subsequent Actions

- No Further Action
- Reinitiation of Response Action, if necessary

Tasks

- Periodic review of compliance with project goals (installation and EFD)
- Operation and maintenance of electro-mechanical equipment (installation)
- Monitoring (installation)

Documentation

- Monitoring reports (installation)
- Compliance review reports (installation)

Additional Site Management Activities

EPA/State Activities

- Review monitoring reports and 5-year compliance reviews as required

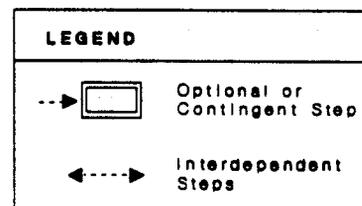


Figure 6-3

c. Releases will not be deleted from the NPL until the state in which the release was located has concurred on the proposed deletion. EPA provides the state 30 working days for review of the deletion notice prior to its publication in the Federal Register.

d. Whenever there is a significant release from a site deleted from the NPL, the site will be restored to the NPL without application of the hazard ranking system (HRS).

e. To ensure public involvement during the proposal to delete a site from the NPL, EPA will:

1. Publish a notice of intent to delete in the Federal Register and solicit comment through a public comment period of a minimum of 30 calendar days.

2. In a major local newspaper of general circulation at or near the site that is proposed for deletion, publish a notice of availability of the notice of intent to delete.

3. Place copies of information supporting the proposed deletion in the information repository, described in Section 300.430(c)(2)(iii) of the NCP, at or near the site proposed for deletion. These items shall be available for public inspection and copying.

4. Respond to each significant comment and any significant new data submitted during the comment period and include this response document in the final deletion package.

f. EPA will place the final deletion package in the local information repository once the notice of final deletion has been published in the Federal Register.

Support of the above actions is accomplished by providing information to the EPA and cognizant state during their review process, as well as for public notification and information purposes. Pertinent documents identified above will be placed in the information repository located near the site (see Sections 5.10.2 and 10.7).

Sites that are deleted from the NPL are not designated as No Further Response Action Planned (NFRAP) sites.

6.5.2 Non-NPL Sites

The cognizant EFD or installation will:

a. Notify the EPA regional office and the state that appropriate response actions have been taken/completed (installation).

b. Prepare documentation which shows that (EFD):

1. The DON has implemented all appropriate, required response actions.

2. No further response action by the DON is appropriate.

c. Designate the site or group of sites for which response actions have been taken/completed as NFRAP (EFD).

d. Ensure public notification by (installation):

1. Placing the documentation to support the NFRAP in the information repository, described in Section 300.430(C)(2)(iii) of the NCP, at or near the site.

2. Publishing a notice, to inform the public that the documentation to support a NFRAP is available in the information repository, in a major local newspaper of general circulation.

Site closeout procedures established in Federal Facility Site Remediation Agreements negotiated with states should be followed at installations where such agreements have been signed.

CHAPTER SEVEN

7.0 OTHER INSTALLATION RESTORATION (IR) PROGRAM CONSIDERATIONS

This chapter discusses a number of issues which are associated with the IR Program including the following areas of interest:

- a. Resource Conservation and Recovery Act/Comprehensive Environmental Response, Compensation and Liability Act (RCRA/CERCLA) Interface
- b. Underground Storage Tank (UST) Sites
- c. Real Property Transactions and Management
- d. Off-Station (third party) sites where the Navy/Marine Corps is a Potentially Responsible Party (PRP)
- e. CERCLA Citizen Suit Provision
- f. Formerly Used Defense Sites (FUDS)
- g. Government Owned Contractor Operated (GOCO) Facilities
- h. National Environmental Policy Act (NEPA)
- i. Off-Base Contamination

7.1 RCRA/CERCLA Interface

Navy and Marine Corps hazardous waste sites are regulated by multiple Federal, state, and local statutes and regulations. These legal requirements are enforced by multiple Federal, state, and local regulatory agencies. Generally, it is the regulator that has the prerogative, within the scope of their authority, to determine which enforcement mechanism applies to each IR Program effort. This means that facilities with different geographic locations are likely to have different legal requirements placed upon them for responses to releases and threats of release at hazardous waste sites.

Within these prerogatives, regulators have certain requirements that do not differ from location to location. For example, regulators cannot direct a response action at an IR Program site which would require the Navy or Marine Corps to violate another legal or regulatory requirement. At times, apparent contradictions result from a lack of understanding of the scope of legal requirements on the part of one or both parties. This occasionally occurs because parties prefer, for their own reasons, one law or regulation over another for meeting compliance requirements at a given site or within a given geographic area.

The DOD has been granted the authority to be the lead agency when responding to releases or threats of releases from Navy/Marine Corps sites under CERCLA and the National Contingency Plan (NCP). EPA and the states have extensive authority under CERCLA, RCRA, and other state laws to ensure that

"adequate" responses are taken. These "dual" responsibilities can result in conflicts when different agencies exercise their respective authority.

Generally, a hazardous waste site is identified by the Navy/Marine Corps, or as a result of a regulatory inspection, such as EPA conducting a RCRA Facility Assessment (RFA). When the Navy/Marine Corps discovers a site, and determines that it should be included in the IR Program, the DON exercises the authority delegated by Executive Order (E.O.) 12580 to conduct a response under CERCLA. As the DON progresses with that response, EPA may subsequently include that site within an RFA. Once a site is identified in an RFA, the "process" of the response which is conducted at that site changes to RCRA. Information gathered under the IR Program should be evaluated to determine how it may best be used to meet the requirements of the RFA, RCRA Facility Investigation (RFI), Corrective Measures Study (CMS) or Corrective Measures Implementation (CMI). It is also possible to be accomplishing a RCRA corrective action and be proposed for and subsequently included on the National Priorities List (NPL). Again, the value of information gathered under the IR Program should be applied to whichever response process is required.

The purpose of the IR Program is to respond to releases and threats of releases in a timely and legally acceptable manner. This includes responses under the corrective action provisions and the UST provisions of RCRA. EPA and the states have a duty to oversee and enforce the laws and regulations which direct these responses. Everyone must realize that protection of human health and the environment is the ultimate objective regardless of one's role.

Refer to Figure 7-1 for a side-by-side summary of the RCRA and CERCLA processes.

7.2 Underground Storage Tank (UST) Sites

7.2.1 Background

Subtitle I of the Hazardous and Solid Waste Amendments (HSWA) of 1984 established a national regulatory program for managing USTs containing hazardous material, including CERCLA hazardous substances and petroleum products. Hazardous wastes stored in USTs were already regulated under RCRA.

Although EPA was directed to promulgate UST regulations, which can be found at 40 CFR 280 and 281, the program was designed to be administered by states. Both state and local governments were permitted to establish regulatory programs with more stringent standards than those established by EPA.

UST policy, found in OPNAVINST 5090.1A, Chapter 14 and MCO P5090.2, Chapter 13, is to comply with all applicable Federal, state, and local regulations pertaining to Navy/Marine Corps USTs. NAVFACENGCOM issued UST program guidance on 14 November 1989 which discusses the Navy's UST program in detail.

For purposes of clarification, it should be noted that cleanup of past contamination from USTs is a part of the IR Program. Funding issues are covered in section 7.2.3 and are discussed in detail in Chapter 8, Funding, of this manual.

RCRA SUBTITLE C CORRECTIVE ACTION VS. CERCLA RESPONSE ACTION

RCRA CORRECTIVE ACTION

RCRA FACILITY ASSESSMENT (RFA)

- Preliminary Review (PR)
- Visual Site Inspection (VSI)
- Sampling Visit (SV)

INTERIM MEASURES

- Short-term Remediation
- Temporary Fixes
- Alternate Water Supplies

RCRA FACILITY INVESTIGATION (RFI)

- Background Data Review
- Environmental Setting Investigation
- Sources Characterization
- Contamination Characterization
- Potential Receptors Characterization

CORRECTIVE MEASURES STUDY

- Identify & Develop Alternatives
- Evaluate Alternatives
- Justify & Recommend Corrective Measure

REMEDY SELECTION

- Remedy that abates threat to Human Health & the Environment

CORRECTIVE MEASURES IMPLEMENTATION (CMI)

- Develop Implementation Plan, Program Plan & Community Relations Plan
- Corrective Measures Design
- Construction and Implementation

CERCLA REMEDIAL ACTION

PRELIMINARY ASSESSMENT/SITE INSPECTION

- Preliminary Assessment (PA)
- Site Inspection
- HRS Scoring

REMOVAL ACTIONS

- Emergency Removals
- Planned Removals (>6 mos)

REMEDIAL INVESTIGATION

- Site Specific Data Collection
- Source Characterization
- Contamination Characterization
- Waste Mixtures, Media Interface Zones
- Hydrogeological and Climate Factors
- Characterization of Affected Media
- Potential Routes of Exposure
- Extent of Migration

FEASIBILITY STUDY

- Define Objectives & Nature of Response
- Develop Alternatives
- Conduct Detailed Analysis of Alternatives

REMEDY SELECTION

- Select a Remedy that:
 - Protects Human Health & Environment
 - Attains Federal & State ARARs
 - Is Cost Effective
 - Utilizes Permanent Solutions/ Resource Recovery
 - Reduces Toxicity, Mobility or Volume

REMEDIAL DESIGN/REMEDIAL ACTION

- Design Remedy
- Perform Remedial Action
- Perform Operations & Maintenance
- Monitoring

Figure 7-1

7.2.2 Navy/Marine Corps Policy

USTs are defined, generally, as all tanks and attached piping containing regulated substances in which the tank volume (including piping) is 10 percent or more beneath the surface of the ground. Some specific exclusions are identified in Chapter 14 of OPNAVINST 5090.1A and MCO P5090.2, Chapter 13.

Navy policy requires installations with USTs to have an UST management plan which contains the following information:

- a. Listing of all USTs at the installation
- b. The regulatory requirements for each UST
- c. A plan of action for achieving and maintaining compliance through monitoring, removal, repair, retrofit, replacement, and remediation of UST systems.

Marine Corps policy requires installations to comply with Federal, state and local regulations, to maintain a tank inventory and develop a tank management strategy.

The inventory should include:

- a. An initial baseline tank data base
- b. Up-to-date tank information (number of tanks, location, age, size, material stored, use/condition status, environmental sensitivity).

The tank management strategy requires installations to look beyond the specific regulatory compliance tasks at hand and consider a comprehensive approach to long-term UST storage needs. The intent of the strategy is to maximize UST system efficiency while minimizing costs. The management strategy should consider:

- a. Consolidation of existing UST systems to enable closure, via removal or in place abandonment, of unneeded tanks.
- b. Utilization of aboveground or vaulted underground tanks for tank replacement.
- c. Timely completion of upgrade or replacement requirements for tanks that are essential to installation operations so as to diminish the risks of potential leaks, tank shutdown and increased cleanup costs.

7.2.3 Funding Guidance

The overall Navy/Marine Corps UST program is complex and encompasses tank management, including new tank design; tank operation and maintenance; tank upgrade; leak detection; repair; and remedial action for releases to the environment.

UST actions are usually accomplished through one of the following funding categories:

- a. Centrally managed Navy Pollution Abatement (PA) funds (Navy only)
- b. Navy Major Claimant/installation funds
- c. Marine Corps Operations and Maintenance (O&M, MC) funds, to include Headquarters (HQ) and/or installation managed funds
- d. Marine Corps Programmed Military Construction (MILCON) (Tank replacement)
- e. Centrally managed Defense Environmental Restoration Account (DERA) funds.

PA funds may be used for UST actions, if the action is required by Federal or state regulation and if actions fall into one of the following categories:

- a. Removal or permanent closure of all abandoned USTs
- b. Installation of initial groundwater monitoring systems for USTs in use as of 22 December 1988
- c. Conducting initial tank tightness testing for USTs in use as of 22 December 1988
- d. Initial installation of leak detection, corrosion protection, and spill/overfill protection systems for USTs in use as of 22 December 1988
- e. Site assessment studies for USTs in operation before 22 December 1988. This includes tank testing and environmental monitoring to support tank closures and tank inventories to determine tank status and compliance with regulations.
- f. Initial development of UST management plans.

DERA funds may be used for cleanup of contamination from USTs. ODASD(E) guidance (see Chapter 8, Funding) identifies and defines appropriate uses of DERA money for UST actions.

If UST actions are not included within PA or DERA eligibility criteria, installations or major claimants must fund these actions. DERA and PA eligible UST actions may also require funding by the installation or major claimant when these funds are not available in time to meet regulatory deadlines. Examples of UST actions which must be funded by installations and major claimants are:

- a. Removal or permanent closure of non-leaking USTs, if not required by state regulation
- b. Annual or periodic regulatory requirements, such as groundwater sampling, tank tightness testing, and inventory control
- c. Maintenance of leak detection, corrosion protection, and spill/overfill prevention systems
- d. Tank replacement

e. New tank construction/installation, maintenance, record keeping/inspections, and management plans.

For all aspects of the UST program, except for cleanups under DERA, Marine Corps installations should follow guidance detailed in MCO P5090.2.

7.2.4 Reporting

UST reporting, for which the installations are responsible, generally takes one or more of three possible alternatives. Tank registration, inventory tracking, and registration and status are accessed through an information management system maintained by the Facilities Systems Office (FACSO).

If an UST cleanup is funded by DERA, then that site information should be added to the IR data base.

Finally, pollution control reports (PCRs) should be used to identify UST information for inclusion into the A-106 Report which is submitted by the DON to the Office of Management and Budget (OMB). These data are sent to NEESA for data entry. PCRs for Navy installations are sent to NEESA via the respective EFD program manager. Marine Corps installations should submit PCRs in accordance with MCO P5090.2, Chapter 3.

Further information and discussion of the above reports may be found in Chapter 9, Reporting.

7.3 Real Property Transactions and Management

EFD real estate and planning personnel are responsible for ensuring that the IR Program is considered prior to engaging in real property transactions and as part of all land management decisions.

7.3.1 Sale or Transfer of Real Property

40 CFR 373.1 requires, in accordance with CERCLA, Section 120(h)(1), that all Federal agencies entering into a contract for the sale or other transfer of real property include a notice that identifies whether hazardous substances were stored on the property for one year or more or were released or disposed of on the property. This notice must identify the type and quantity of such hazardous substance and the time at which such storage, release, or disposal took place. This requirement includes a transfer of real property between Federal agencies.

CERCLA 120(h)(3) requires that each deed for property where hazardous waste was stored, released, or disposed of shall contain specified information regarding the hazardous substances and a covenant warranting that:

1. All remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property has been taken before the date of such transfer and,
2. Any additional remedial action found to be necessary after the date of such transfer will be conducted by the United States. When the DON reports property as excess to the General Services Administration (GSA), it is responsible for informing GSA of all inherent hazards and for the expense and supervision of decontamination of the property (41 CFR 101-47.401-4)

The DON should be equally alert to potential hazardous substance contamination when it purchases or otherwise obtains real property. Property transfer evaluations, which seek to identify past land uses and possible contamination, should be completed prior to entering any real property transaction. If it is necessary to acquire a known contaminated site, the extent of the contamination should be reflected in the appraisal and the purchase price. Navy/Marine Corps personnel involved in the sale or transfer of real property should refer to the *NAVFAC Contracting Manual, P-68*, and the *NAVFAC Real Estate Procedural Manual, P-73*, to ensure proper consideration has been given to the IR Program.

7.3.2 Base Realignments and Closures (BRAC)

As Navy/Marine Corps installations are closed in accordance with Base Realignment and Closure (BRAC) procedures, IR Program efforts must continue. IR Program requirements must be identified and completed in accordance with CERCLA, the Superfund Amendments and Reauthorization Act (SARA) and the NCP. Congress has established guidelines for funding the necessary investigations and cleanups and established a specific fund account for IR Program work at BRAC installations. Progress under the IR Program continues at locations included and proposed in BRAC (1988). Should Congress establish future BRAC procedures, they will be implemented accordingly.

Methods are being investigated to meet the BRAC goals of transferring property from Federal agency control while still accomplishing IR cleanups. Close coordination with regulators and the impacted communities is necessary. Some alternatives being explored involve:

- a. Transfer of available "clean" portions of property while IR Program is completed on the "dirty" portions,
- b. Controls on future land use plans to ensure protection of human health at locations where IR Program cleanup levels are established at "industrial levels", and
- c. Retention of access rights for long-term monitoring of sites where groundwater monitoring may be required, but surface actions are completed and the site may be used safely.

7.3.3 Land Management

The DON is responsible for ensuring that real property planning and management decisions fully consider IR and potential site contamination issues.

Remedial project managers (RPMs) should ensure that EFD planning and real estate personnel are aware of contaminated sites at Navy/Marine Corps installations. Installation Master Plans, which are maintained by the EFDs, should be amended to contain the locations of IR sites and, because Master Plans are updated at five year intervals, EFD Planning Division files should contain the appropriate IR documents for use by the planners in the interim between updates.

Planners who are locating new facilities, such as housing areas, need to know where contaminated sites are located and should interact with RPMs regarding the nature of the contamination, the length of the IR process, and likely effects of the contaminated site on the proposed real property use.

Similarly, EFD real estate personnel involved in outleasing Navy/Marine Corps property need to be aware of contaminated sites or contaminated groundwater so that appropriate decisions can be made

regarding whether to outlease or the nature of the allowed uses for the outlease. For example, one should not outlease property for use as a tomato farm which would require irrigation with contaminated water.

Outleases should contain restrictions which protect DON property from contamination by the tenant. In particular, outleases should include a reference to 10 USC 2692 which states that the Secretary of Defense may not permit the use of a DOD installation for the storage or disposal of any toxic or hazardous material that is not owned by DOD.

7.4 Off-Station (Third Party) Sites Where the Navy/Marine Corps Is a Potentially Responsible Party (PRP)

An off-station or third party site is a private, state or municipally-owned or operated hazardous waste site which received Navy/Marine Corps hazardous waste and now requires corrective action under CERCLA. EPA will seek to recover trust fund expenditures for assessment and cleanup costs from PRPs or get PRPs to fund assessment and cleanup costs themselves without use of the trust fund. PRPs may be any of the following:

- a. The present owner or operator of the hazardous waste facility
- b. The owner or operator of the hazardous waste facility at the time hazardous waste was disposed there
- c. Anyone who transported hazardous waste to the facility
- d. Anyone who arranged for disposal at the site.

EPA uses the following procedure to notify and work with PRPs:

a. The EPA Regional Office sends a "Special Notice" certified letter to the PRPs. This notification may occur before, during, or after EPA responses at a site. The EPA letter generally informs PRPs of their potential liability, provides a list of other known PRPs, and calls for PRPs to do any or all of the following:

- (1) Voluntarily remove their hazardous waste from the site
- (2) Provide all available documentation on hazardous waste sent to the site (CERCLA requires PRPs to provide this information)
- (3) Voluntarily attend a meeting where EPA regional personnel will describe the problem and potential liability in more detail.
- (4) Indicate a willingness to negotiate settlement for costs incurred by EPA to date.

b. The EPA Region will generally encourage PRPs to form a steering committee to undertake studies and site cleanup directly or by using an EPA contractor. The committee will determine appropriate division of costs between the PRPs and means of cost recovery from PRPs who do not participate in the committee.

c. Where EPA chooses not to recommend committee formation or where the committee is unable to reach agreement with EPA, EPA may proceed with the cleanup using the CERCLA Trust Fund and initiate enforcement litigation against PRPs to recover CERCLA Trust Fund expenditures. DON policy regarding third party sites may be summarized as follows:

(1) When formally notified by EPA, state, or local authorities that an installation is a PRP at a CERCLA site, the installation must notify the following commands by message: the installation's chain of command, COMNAVFACENGCOM, the cognizant NAVFACENGCOM EFD, Judge Advocate General (JAG), Office of General Counsel (OGC)(Environmental Law and Litigation Offices), and CNO (OP-45)/CMC(LFL). The message must describe the main points of the notice. At the same time, the installation must mail a copy of the notifying letter and all other appropriate documents to the same addressees. NAVFACENGCOM, through the appropriate EFD, will take the lead role in negotiating with EPA, U.S. Attorney's Office, and the PRP Steering Committee. EFDs will fully support the installations involved when community relations issues involving these sites arise.

(2) EFD personnel shall cooperate with the PRP steering committee and provide it with information which is requested regarding the Navy's/Marine Corps' hazardous waste that has been sent to that site. Once the DON's "fair share" has been agreed to by the committee and the personnel representing the DON on the committee, the DON will deal directly with personnel from the EPA Regional Office and/or the U.S. Attorney's Office to work out the details of paying the agreed-upon amount. EFDs should seek environmental legal advice from the OGC and/or Navy JAG.

(3) NAVFACENGCOM must report semiannually to CNO (OP-45)/CMC(LFL) on the status of Navy involvement in off-station CERCLA sites, including the name of the off-station site, each Navy/Marine Corps installation involved in the site, the status of DON fair share negotiations and the estimated funding requirements by fiscal year.

(4) Use of Defense Environmental Restoration Account (DERA) funds for the DON's negotiated fair share of study, administrative, and cleanup costs for the site is authorized as long as such costs are not incurred or assessed pursuant to a judgement (e.g., consent decree) or as part of a compromise settlement for which payment out of the Judgement Fund is authorized. However, DERA money may not be used to pay for outside counsel costs or costs associated with PRP committee legal expenses. EFD environmental counsel should work with EFD technical staff to ensure DON interests are protected while at the same time not paying unallowable costs.

7.5 CERCLA Citizen Suit Provision

The Superfund Amendments and Reauthorization Act (SARA) added a new provision, Section 310, allowing citizen suits to enforce the requirements of CERCLA/SARA. Suits can be brought for either:

a. Violation of any standard, regulation, condition, requirement, or order which has become effective pursuant to CERCLA, including any provision of a Section 120 agreement regarding Federal facilities

b. An alleged failure to perform any act or duty imposed by CERCLA, including an act or duty under Section 120 which is not discretionary.

The plaintiff must provide a 60-day notice to the alleged violator before any suit can be brought.

If an installation receives a notice of intent to sue, it should immediately notify appropriate EFD legal personnel and OGC (Environmental Litigation).

OGC will notify appropriate Department of Justice/U.S. Attorney personnel for assistance in defense, as required.

During the 60 days following the notice of intent to sue, DON personnel should identify relevant facts and information for use in negotiation or litigation, whichever occurs first.

7.6 Formerly Used Defense Sites (FUDS)

The FUDS process parallels the IR Program process phases; however, the program structure is different. FUDS has two major components, inventory and remediation. In the inventory phase, projects are investigated to determine if the site is eligible, i.e., was it formerly controlled by DOD and did DOD cause, or potentially cause, the contamination problem.

FUDS are distinguished from PRP sites because typically PRP sites are contaminated areas which are identified as part of the EPA Superfund and are located on property which has not been formerly owned or controlled by DOD. "Controlled" in the FUDS sense includes directing, or having the right to direct, operations at a site.

The remediation phase includes the preliminary assessment/site inspection (PA/SI), remedial investigation/feasibility study (RI/FS), record of decision (ROD), and remedial design/remedial action (RD/RA) just like the remainder of the IR Program.

In 1985, DOD designated the Army Assistant Chief of Engineers (ACE) as executive agent for the FUDS Program, and this charter was renewed in 1990.

The Corps of Engineers has established functional activity assignments based on the category of the project. To simplify the issue of what Corps of Engineers office is handling a particular FUDS site, call the local District Office or call Mr. Tom Walsh, Chief of Formerly Owned Sites Division, U.S. Army Corps of Engineers, at (202) 504-4705.

The role of the responsible Corps of Engineers office regarding FUDS is extensive and includes:

- a. Responding to PRP notices
- b. Establishing DOD positions for RI/FS and RD/RA
- c. Negotiating allocation of DOD responsibility for RI/FS and RD/RA
- d. Signing DOD agreements for RI/FS
- e. Accepting funds from the PRP for project obligations
- f. Initiating cost recovery actions
- g. Executing RI/FS and other provisional RD/RA.

The DON responsibility for FUDS sites which were formerly DON sites is informational only. Should local interest arise, questions regarding the status should be passed to appropriate Corps of Engineers officials.

EFD environmental counsel should participate in questions regarding classification of a site as a PRP vice a FUDS site.

7.7 Government Owned Contractor Operated (GOCO) Facilities

GOCO facilities require special consideration and procedures when carrying out IR-type activities. The Navy's liability and responsibility for cleanup of sites at GOCO facilities is based upon its status as "owner" of the facility. Past and present contractors share this liability since they are "operators" or "generators" at these facilities. Absent special contractual provisions to the contrary, Navy/Marine Corps policy is to require current GOCO contractors to pay for any and all cleanup costs associated with their operation of Navy facilities.

Navy actions to fulfill its CERCLA responsibilities should be consistent with its contractual requirements with the GOCO contractor. Failure to coordinate may result in a claim by the operating contractor under a Navy contract or loss of potential claims by the Navy against the operator.

OPNAVINST 5090.1A requires that the following policy be followed when implementing the IR Program at GOCOs:

a. A PA/SI will be done by NAVFACENCOM at Navy GOCOs. DERA funds shall be used for the PA/SI. NAVFACENCOM will coordinate with the corresponding Echelon 2 command prior to starting the study.

b. Once the PA/SI has been completed, the results will be provided to the Echelon 2 command for action. If the PA/SI recommends additional follow-up work, the Echelon 2 command will immediately initiate discussions with the contractor pertaining to contractor responsibility for and participation in any cleanup efforts. Since the contractor may be liable for the cleanup, he/she will be offered the opportunity to conduct any follow-up studies. The Navy will ensure that any work done by the contractor is consistent with CERCLA, the NCP, and the IR Program. Therefore, the Echelon 2 command will involve COMNAVFACENCOM as a technical representative in all aspects of the program, including review and comment on all submittals.

c. If the contractor declines to perform the follow-up studies, the Echelon 2 command will request COMNAVFACENCOM to conduct the work under the IR Program. DERA funds will be used and all costs associated with the follow-up studies will be identified for future cost recovery actions if such action is appropriate.

d. Similar scenarios will be followed for any RD/RAs, including removal actions and interim remedial actions. The Navy will pursue cost recovery actions against the contractor where appropriate.

e. All actions (i.e., studies and cleanups) done at GOCOs on Navy property will be consistent with CERCLA and the NCP. Administrative records and community relations plans will be done at all the GOCOs. Technical Review Committees (TRCs) are recommended but not mandatory unless DERA funding is being used to conduct the studies and cleanup.

If a GOCO is placed on the NPL, all timetables associated with CERCLA Section 120 apply and the Navy shall ensure that these are met. Federal Facility Agreements (FFAs) will be negotiated by the Navy for GOCO facilities located on Navy-owned property, which are placed on the NPL. These negotiations will be handled by the EFDs in accordance with the guidance found in Section 5.1. The negotiation and signing of the FFA by the Navy should in no way be construed as acceptance by the Navy of the contractors/operators share of the liability for cleanup costs associated with the site.

7.8 National Environmental Policy Act (NEPA)

As discussed in Chapter 1 of this manual, NEPA requires the incorporation of environmental impacts associated with major Federal actions into the decision-making process. The Navy/Marine Corps policy, as identified in OPNAVINST 5090.1A and MCO P5090.2, regarding compliance with the NEPA/CERCLA interface is simply stated as follows: "IRP actions that follow NCP and fulfill public participation requirements are deemed to have complied with NEPA."

RPMs should ensure that NEPA considerations, such as a discussion of the existing environment, environmental impacts (long and short-term), alternatives, and mitigation are included in the RI/FS documentation. For additional information and guidance regarding NEPA, see Chapter 5 of OPNAVINST 5090.1A or Chapter 5 of MCO P5090.2.

7.9 Off-Base Contamination

In some cases contamination which is discovered on a DON installation is either migrating off the installation or is coming onto the installation from off-base sources. CERCLA 104(e) access and inspection monitoring has been delegated to DOD under E.O. 12580 when the release is on, or the sole source of the release is from, DOD property. When the release is migrating from DON controlled property, the DON needs to investigate the geographic boundaries of the contaminated site and may be required to enter real property which does not belong to the Federal government. For releases migrating onto DON controlled property, access to private property must be obtained by EPA. The legal right of entry for the purpose of investigating contamination can be handled in a variety of ways.

- The EFD and installation can approach the landowner and seek permission to enter for the required investigations. This may require payment or the landowner may allow access for free.
- The EFD and installation may need to get NAVFACENGCOM HQ to coordinate assistance from the Department of Justice to either condemn a right of entry or provide a compliance order allowing access and entry.

In either case, the EFD legal staff should be involved as soon as it is determined that a right of entry onto adjacent land is necessary to determine the extent of contamination.

The Commanding Officer/General of the installation will review and sign all RODs and decision documents involving the clean up of contamination on land that is not controlled by the DON, but which is the DON's responsibility for cleanup.

Sites involving off-base contamination may be NPL sites or non-NPL sites. If the site is an NPL site, language may appear in the FFA requiring access to land that does not belong to the Federal government.

Considerations for off-base access must be taken into account when entering into FFAs and agreeing to timetables for completion of work.

Non-NPL sites will not have FFAs; however, they may also require access to property not controlled by DON. Again, access requirements should be taken into consideration when agreeing to timetables for completion of work.

CHAPTER EIGHT

8.0 FUNDING/ELIGIBILITY/PRIORITY

Section 211 of the Superfund Amendments and Reauthorization Act (SARA) creates the Defense Environmental Restoration Program (DERP). As part of this program, Congress established the Defense Environmental Restoration Account (DERA). All funds appropriated by Congress in support of the DERP are appropriated into DERA. Funds from DOD DERA are transferred to the services for uses consistent with the DERP.

The DON competes with the other services for available funds on an annual basis. The DON receives its share based on identified funding requirements and a determination of priorities by DOD.

8.1 DERP Sub-elements

The DERP is comprised of three sub-elements: Installation Restoration (IR), Other Hazardous Waste Operations (OHW), and Building Demolition and Debris Removal (BD/DR).

8.2 DERP Priorities

The following priorities are established for IR Program activities. Priority 1 work should be funded before Priority 2 work, and Priority 2 before Priority 3. All DERP projects should be categorized under the priorities.

8.2.1 IR Program

Priority 1 includes projects which:

- a. Eliminate human exposure, address imminent threats or are necessary to protect human health;
- b. Are time critical;
- c. Are necessary to comply with all applicable Federal, state and local requirements related to DERA-eligible site cleanup, or official agreements between the Navy/Marine Corps and regulatory agencies;
- d. Maintain progress at proposed or listed National Priorities List (NPL) sites.

Examples of Priority 1 work are:

- Eliminating human exposure to contamination or removing an imminent threat (e.g., providing alternate water supplies);
- Taking time critical actions to stabilize a site and/or achieve life cycle cost savings;
- Meeting SARA Section 120 requirements and other statutory requirements related to DERA-eligible site investigation and cleanup;

- Complying with court orders and agreements with regulatory agencies related to DERA-eligible site investigation and cleanup (e.g., interagency agreements (IAGs), Resource Conservation and Recovery Act (RCRA) 3008(h) consent orders);
- Conducting remedial investigation/feasibility study (RI/FS) and remedial design/remedial action (RD/RA) at proposed or listed NPL sites;
- Demonstrating innovative and cost-effective cleanup technology at a proposed or listed NPL site;
- Operating and maintaining existing remedial systems (up to 10 years);
- Funding for Cooperative Agreements with states and territories for technical support services associated with site cleanup;
- Support to the Agency for Toxic Substances and Disease Registry (ATSDR) for public health evaluations at NPL sites;
- Program management expenses necessary to support Priority 1 work.

Priority 2 includes:

- a. Additional activities necessary to assure adequate health protection of installation personnel and the public;
- b. Activities to maintain IR Program progress.

Examples of Priority 2 work are:

- Conducting preliminary assessments/site inspections (PA/SIs) at installations not listed on the Federal Facilities Hazardous Waste Compliance Docket (SARA, Section 120);
- Conducting RI/FSs and RD/RAs at sites not included on the NPL;
- Studies to locate underground tanks not used since January 1984, activities to determine whether a release has occurred, and response to release (unless response is incidental to tank replacement);
- Response to releases from in-service tanks discovered during initial integrity testing (leak detection monitoring) per 40 CFR 280 where testing is conducted prior to the regulatory date of December 22, 1993;
- Program management expenses necessary to support Priority 2 work;
- Studies and support for toxicological data collection and methodology on risk exposure of hazardous waste generated by the Navy/Marine Corps, including support to ATSDR for toxicological profiles for unregulated hazardous substances commonly found on Navy/Marine Corps installations and Navy/Marine Corps support to EPA for health advisories concerning drinking water contaminants;

- Activities undertaken by the Navy/Marine Corps to meet its responsibilities at third party sites;
- Response actions necessary to excess real property assets (this does not include activities associated with Base Realignment and Closure (BRAC) I or proposed BRAC II).

Priority 3 includes:

- a. Research, development and demonstration (RD&D) which has broad applicability and high potential to reduce costs or improve the pace or quality of work;
- b. Projects to improve environmental quality;
- c. Projects which demonstrate leadership.

Examples of Priority 3 work are:

- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) response activities which do not fall into Priority 1 or 2;
- Studies and support for research, development, demonstration, test and evaluation (RDDT&E) of innovative and cost-effective technologies for cleanup of hazardous waste sites, DOD-unique wastes or other techniques widely applicable to DOD;
- Program management expenses necessary to support Priority 3 work;
- Studies to accelerate the cleanup process.

8.2.2 Other Hazardous Waste (OHW) Program

The following priorities are established for OHW activities. In general, Priority 1 work should be funded before Priority 2 work, and Priority 2 before Priority 3.

Priority 1

- a. Procurement of equipment and conduct of studies for hazardous waste minimization/recycling projects with a three year or less pay back period;
- b. Program management, manpower, civilian salaries, and training to support an effective program.

Priority 2

- a. Procurement of equipment and conduct of studies for hazardous waste minimization/recycling projects with a greater than three year but five year or less pay back period;

b. Studies and support for RDDT&E pertaining to hazardous waste management and treatment of disposal methods, including hazardous waste minimization/recycling (10 USC 2702), and RDDT&E of unexploded ordnance (UXO) detection and range clearance technology.

Priority 3

- a. Procurement of equipment and conduct of studies for hazardous waste minimization/recycling projects with a greater than five year pay back period;
- b. Other OHW requirements not included in the above categories.

8.2.3 Building Demolition/Debris Removal (BD/DR) Program

BD/DR Priorities

The following priorities are established for BD/DR activities. In general, Priority 1 work should be funded before Priority 2 and 3 work.

Priority 1

- a. Demolition of buildings or the removal of debris which is an imminent threat to human safety or health or to the environment;
- b. Demolition of buildings or the removal of debris at Formerly Used Defense Sites (FUDS) provided such lands were transferred to state or local governments or native corporations.

Priority 2

- a. Demolition of buildings or the removal of debris which constitutes a safety hazard on inactive installations.

Priority 3

- a. Demolition of buildings or the removal of debris which constitutes a safety hazard on active installations.

8.3 DERA Eligible/Ineligible Projects

The 1 January 1981 date for use in determining project eligibility for DERA has been eliminated. During initial program development in response to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the DON used 1 January 1981 as a cutoff date for determining which releases required response under CERCLA. With the continuing national interest in cleaning up old sites, reflected by the amendment and continuing reauthorization of the Federal Superfund program and the establishment of DERP/DERA, use of that cutoff date is no longer appropriate. The use of DERA for remediation due to past activities should still be a rule of thumb when considering whether DERA is an appropriate fund source for projects.

Funding requirements in annual submissions to DASD(E) for RAs, operable units and other remedial projects that do not qualify as removals must include a valid Defense Priority Model (DPM) score.

Generally, projects eligible for DERA funding include CERCLA cleanups, RCRA corrective actions, and RCRA underground storage tank cleanups. The following is a partial list of efforts which are eligible for DERA funding based on current DASD(E) guidance.

8.3.1 Activities Eligible for DERP Funding

- a. Investigations to identify, confirm and determine the risk to human health and the environment, feasibility studies; remedial action plans and designs; and removal or remedial actions.
- b. Research, development and technology demonstration necessary to conduct cleanups.
- c. Expenses associated with cooperative multi-party cleanup plans and activities, including litigation expenses.
- d. Remedial actions to protect or restore (not enhance) natural resources damaged by contamination from past hazardous waste disposal activities.
- e. Cleanup of low level radioactive waste sites which have been identified as IR Program sites.
- f. Management expenses associated with the IR Program. Management expenses are those overhead costs required for adequate program oversight and management, including indirect costs as defined in the Federal Acquisition Regulation (FAR), Section 31.203.
- g. Operation and maintenance costs for the first ten years of operation of remedial systems and monitoring systems.
- h. Immediate actions necessary to address health and safety concerns such as providing alternate water supplies or treatment of contaminated drinking water, when the hazard results from a release from Navy/Marine Corps property.
- i. Studies to locate underground tanks not used since January 1984, activities to determine whether a release has occurred, and cleanup of contamination.
- j. Response to releases from in-service tanks discovered during initial integrity testing (leak detection monitoring) per 40 CFR 280 where testing is conducted prior to the regulatory date of December 22, 1993.
- k. CERCLA response actions necessary prior to excess of real property assets, excluding requirements associated with BRAC I or BRAC II installations.
- l. CERCLA response actions and eligible RCRA corrective actions (see items below) approved in Federal Facility Agreements/Interagency Agreements (FFAs/IAGs).
- m. Corrective actions at solid waste management units (SWMUs) required by 3004(u), 3004(v) and 3008(h) of RCRA.

n. Other actions taken pursuant to RCRA (e.g., closures or corrective actions at regulated treatment, storage or disposal (TSD) units) at sites if they were identified in the Defense Environmental Restoration Program Management Information System (DERPMIS) as of September 30, 1990. (All other closure or corrective actions at RCRA regulated TSD units must be funded by non-DERA appropriations.)

o. Studies and support for RD&D of innovative and cost-effective technologies for cleanup of hazardous waste sites, for DOD-unique wastes or other techniques widely applicable to DOD.

p. Support services provided by another agency in accordance with 10 USC 2701(d).

8.3.2 Other Hazardous Waste (OHW) Operations

a. Procurement of equipment and conduct of studies to minimize hazardous waste generation that have broad Navy/Marine Corps applicability or substantially reduce wastes within the Navy/Marine Corps.

b. Data collection, training and technology transfer efforts which support waste minimization.

c. Research, development, studies, and technology demonstrations related to hazardous waste minimization, recycling, treatment or disposal needs.

d. Studies and support for toxicological data collection and methodology on risk of exposure to hazardous wastes, including studies and support for commonly found unregulated hazardous substances by ATSDR and for DOD Health Advisories by the EPA.

8.3.3 Building Demolition and Debris Removal (BD/DR)

a. Demolition of buildings or removal of debris which constitutes a safety hazard on lands formerly used by the Navy/Marine Corps, provided such lands were transferred to state or local governments or native corporations.

b. Demolition of buildings or removal of debris which constitutes a safety hazard on installations.

8.3.4 Activities Not Eligible for DERP Funding

a. Closing or capping sanitary landfills unrelated to a hazardous waste cleanup action.

b. Construction of hazardous waste storage, transfer, treatment or disposal facilities, except when part of an IR Program response action.

c. Testing or repair of active underground tanks and costs of replacing leaking underground tanks.

d. Costs of testing, storing, disposing or replacing polychlorinated biphenyl (PCB) transformers.

- e. Costs of asbestos surveys, containment, removal or disposal, except where incidental to a DERP response action.
- f. Costs of spill prevention and containment measures for currently operating equipment and facilities.
- g. Cleanup costs of spills covered or required to be covered by spill prevention, control and countermeasures (SPCC) plans.
- h. Costs of operation, maintenance or repair to hazardous waste treatment, storage, or disposal facilities which are currently in use (i.e., regulated or permitted), except when part of a DERP response action.
- i. Costs of hazardous waste disposal operations, including associated management and operational costs, unless the costs result from implementation of a DERP response action.
- j. Overseas Environmental Restoration activities.
- k. State support services prior to October 17, 1986, past state costs not reasonably documented, and state services in support of non-Environmental Restoration Program funded cleanup activities or FUDS, unless approved by DASD(E).
- l. Actions (contingency response and closure) at regulated TSD units which meet standards under 40 CFR 264, and which have been issued a final operating permit under 40 CFR 270, unless the site was identified in DERPMIS as of September 30, 1990.
- m. Facility improvements to meet RCRA operating standards at TSD units.
- n. Fines and other monetary penalties imposed by regulatory agencies.

8.4 Defense Priority Model

The Defense Priority Model (DPM) is a management tool developed by DASD(E) for use by the components to rank RD/RA in priority order for budgetary purposes. This is accomplished at the remedial project manager (RPM) level and is based on actual field data.

8.5 Funding Remedial Actions of Military Construction (MILCON) Scope

Hazardous waste cleanup projects which are classified as military construction projects should be programmed and budgeted in the normal military construction account. In those cases where use of normal military construction procedures will result in a substantial danger to public health, welfare or the environment, the cleanup project should be proposed for funding in the DERP. Written requests for such funding should be submitted to NAVFACENCOM via the EFD and be accompanied by:

- a. The justification and current cost estimate of the project
- b. The justification for carrying out that project under DERA (why the project cannot be included in the normal project cycle).

The following is an excerpt from SARA, Section 211:

Section 2810. Construction projects for environmental response actions

- (a) Subject to subsection (b), the Secretary of Defense may carry out a military construction project not otherwise authorized by law (or may authorize the Secretary of a military department to carry out such a project) if the Secretary of Defense determines that the project is necessary to carry out a response action under chapter 160 of this title or under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.).
- (b) (1) When a decision is made to carry out a military construction project under this section, the Secretary of Defense shall submit a report in writing to the appropriate committees of Congress on that decision. Each such report shall include:
 - (A) the justification for the project and current estimate of the cost of the project; and
 - (B) the justification for carrying out the project under this section.
- (2) The project may then be carried out only after the end of the 21-day period beginning on the date the notification is received by such committees.
- (c) In this section, the term 'response action' has the meaning given that term in section 101 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601).

8.6 Facilities Project Planning and Construction At/Near Contaminated Sites

Site contamination which is discovered during the planning, design, or construction of Navy/Marine Corps installation projects, especially MILCON projects, can delay project completion, increase cost, and adversely impact the Navy's/Marine Corps' mission. Project planning, construction, and environmental personnel should work together to avoid siting projects on contaminated sites and take appropriate action when contamination is discovered during any of the project stages.

In an effort to identify contamination problems or potential problems early in the siting process, the EFD should review available information from IR studies, including records searches, personal interviews, soil borings, chemical and physical analysis and other relevant data. Soil investigations performed for determining foundation conditions should seek evidence of contamination.

The base environmental staff should ensure that public works personnel are informed about the location of IR Program sites and formal review of all siting proposals should consider the proximity and potential impact of IR Program sites at an early stage. Base personnel, including individuals from the Public Works Department, who are working in or around contaminated sites should be informed of the geographic boundaries of the sites and should receive appropriate training at a level related to the nature of their work and the nature of the site contamination (see Chapter 11).

The EFD, Base Public Works Department, and Base or EFD Contracting Office should work together to develop a notification procedure for all contractors who are working or may be working in or near a contaminated site, and who are not known to be trained in hazardous waste cleanup operations and management procedures. This includes, for example, identification of the geographic boundaries of the site prior to allowing contractors into the area even where the contractors are building security fencing around the contaminated site. This notification may include immediate training in proper health and safety procedures (see Chapters 11 and 12), and should take into consideration the nature of the work to be accomplished and the nature and location of the hazardous substances.

DERA funds may be used in certain circumstances where contamination is discovered in conjunction with military construction. DASD(E) funding guidance should be reviewed for DERA applicability. Priorities for funding projects related to MILCON projects are based on the DASD(E) guidance and not on the impact to the project schedule.

If contamination is discovered or suspected at a proposed project site before design begins, DERA may be used to investigate the nature and extent of contamination to determine the necessary cleanup or control measures, and to fund the environmentally acceptable alternative. This may be accomplished by adding the site to an on-going IR study or initiating a study if one is not already underway at the installation. The priority of IR studies should not be changed as a result of other project requirements.

If site contamination is discovered between project design authorization and start of construction (usually award of contract), DERA funds may be used to accomplish the necessary response action. The lowest cost, environmentally acceptable, response is eligible for DERA funding. Project funds must pay for additional costs required for project construction.

If site contamination is discovered after construction begins, project funds must be used to accomplish the necessary investigations and cleanup. DERA funds can be used after the start of construction only to the extent required to satisfy CERCLA; any more may be augmenting the project funds. If, as a result of contamination, the project is resited or terminated, DERA funds may be used to complete the necessary investigations and cleanup.

8.7 Federal Facility Agreement (FFA) Funding

Funding requirements based on Federal Facility Agreements (FFAs) and/or consent agreements should be separately documented and clearly distinguished from other DERA requirements. Any consequences associated with failure to fund the FFA requirements should also be described and forwarded with the funding request. During budget submissions, the DON will forward to DASD(E) all funding commitments made in a finalized FFA (following public comment), which includes clauses identifying DERA as the source of funding for those FFAs.

8.8 Regulatory Oversight Costs

The process established by the Defense/State Memorandum of Agreement (DSMOA), as negotiated and signed between DOD and the states, shall be used to provide DERA funds to state regulatory agencies for payment of oversight costs. These costs should include state oversight, inspection, review/comment, participation in meetings, and public outreach programs related to the DON IR Program within that state.

The DON also shall use DERA funds to pay state oversight costs associated with FFAs that require state involvement at DON NPL sites. However, where neither a FFA nor a DSMOA exists, the DON does not have authority to use DERA funds to pay state oversight costs.

Similar costs associated with EPA oversight are not eligible for payment under DERA. The DOD supports EPA's budget requests so that proper funding levels are provided for adequate EPA oversight of the DERP.

8.9 Other Federal Agency Costs

Purchase of technical support/services can be funded through the DERA. Other Federal agencies, such as Fish and Wildlife Service, U.S. Geological Survey (USGS), other DOD agencies, and ATSDR may provide assistance to the DON's IR Program. Purchase of technical support/services from these agencies may be funded through DERA. However, there needs to be a determination concerning whether the Economy Act applies and Contractor Advisory and Assistance Services (CAAS) authority is needed for such support/services.

Although the DON does not provide funding for DOD's oversight of the DON IR Program, it is important that the DON identify outyear funding requirements for its program so that DOD can establish future dollar baselines which can then be used to identify the amount of DERA funding necessary for DOD's overall DERP management requirements.

CHAPTER NINE

9.0 REPORTS AND INFORMATION SYSTEMS

This chapter summarizes the reports required as part of the Installation Restoration (IR) Program and discusses the information systems used to track the IR Program and compile reports. It is separated into those reports and information which are external to the DON and those which are internal, and discusses the information management sources used to generate the reports.

9.1 External Reports

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) mandates numerous reporting requirements. Although DASD(E) is responsible for accomplishing the Defense Environmental Restoration Program (DERP) in accordance with CERCLA and the Superfund Amendments and Reauthorization Act (SARA), installations, NAVFACENGCOM, and the chain-of-command play an important role in the generation of information and in its flow. It is imperative that all the participants in the IR Program document the steps of their response process, including requested and completed interactions with EPA, state and local governments, and the local communities. A number of external reports are compiled by DASD(E) from DON information and then provided to Congress, EPA and other regulators, special interest groups and other interested parties.

9.1.1 CERCLA Section 103(a)

This section in CERCLA requires the Commanding Officer/General of a facility or vessel to immediately report to the National Response Center (NRC) [(800) 424-8802] when he/she discovers a release of a hazardous substance in a reportable quantity from his/her facility or vessel. 40 CFR Section 302.5 sets forth reportable quantities in a 24 hour period. It is important that appropriate Federal and state agencies also be notified of releases upon discovery. Responsibilities for response to releases are described in detail in OPNAVINST 5090.1A and MCO P5090.2 and are also discussed in Section 3.1 of this manual.

9.1.2 CERCLA Section 103(c)

This section in CERCLA required the submittal of a report notifying EPA of the existence of any site where hazardous substances might have been stored, treated, or disposed, from which there could potentially be a release. Although the initial reporting date under this section of CERCLA was 9 June 1981, EPA continues to compile all information reported under Section 103(c) in a data base called "CERCLIS", from which they track responses. The Navy/Marine Corps installation shall report any release of a reportable quantity (see Section 4.1).

9.1.3 CERCLA Section 120(e)(5)

This section requires DOD to submit an annual report to Congress which must include, at a minimum, the following information:

- a. Progress in reaching Interagency Agreements (IAGs).
- b. Specific cost estimates and budgetary proposals involved in each IAG.

- c. Summary of public comments regarding each proposed IAG.
- d. Description of the instances where no agreement was reached.
- e. Progress in conducting remedial investigations/feasibility studies (RI/FSs) at National Priorities List (NPL) sites.
- f. Progress in conducting remedial actions.
- g. Progress in conducting remedial action at facilities not on the NPL.

DOD obtains information about the Navy/Marine Corps IR Program for this report from the Defense Environmental Restoration Program Management Information System (DERPMIS) and special information calls. The special information calls for "good news" stories, pictures of response actions, and other narrative information are issued in August of each year. The end of year DERPMIS data are used to generate tables included in the report. The report is issued in the February--March time frame for the preceding fiscal year.

9.1.4 President's Budget Submit

SARA requires DOD to submit a DERP report as part of the DOD annual budget request. This information is compiled from responses to DASD(E)'s budget call, which is forwarded for action in July, with the response due in August. Information supporting the Navy and Marine Corps requirements for Defense Environmental Restoration Account (DERA) funds is provided by CNO to DASD(E) to be included in the DOD budget submit.

9.2 External Information Systems

DOD maintains management information systems which contain data about the IR Program and are used to manage and report program information. The DON provides data for these systems per DOD direction.

9.2.1 Defense Environmental Restoration Program Management Information System (DERPMIS)

DERPMIS is a system developed for DOD to track cost and status data on the IR Program. DERPMIS was developed in 1988 and is used to prepare information included in DOD's annual report to Congress (see Section 9.1.3). The IR Program reports and the Navy/Marine Corps automated Pollution Control Report (PCR) were the original sources of data for DERPMIS. Revisions and new data are provided by the remedial project managers (RPMs). The DERPMIS contains information on installations, sites, and costs of the response actions conducted under the IR Program.

As a DOD system, DERPMIS is designed for on-line interactive updates by the services. For quality assurance/quality control (QA/QC) purposes, the Navy/Marine Corps updates are compiled at NEESA, using the DERPMIS programs on a stand-alone personal computer, then forwarded to DOD on a quarterly basis.

9.2.2 Defense Environmental Management Information System (DEMIS)

In addition to gathering IR Program data in DERPMIS, DOD gathers environmental and IR Program data through DEMIS. DEMIS supplies data for DOD program management purposes. DOD is developing an electronic file transfer capability for DEMIS to improve the system updating procedures.

DEMIS is divided into four parts:

- a. Environmental Compliance data, including information on notices of violation, program project plans, fines assessed/paid, compliance agreements, and audits.
- b. Pollution Prevention data, including information on recycling/reuse, Resource Conservation and Recovery Act (RCRA) management and compliance and National Environmental Policy Act (NEPA) management and compliance.
- c. Environmental Restoration data. For Navy/Marine Corps, all information needed for DEMIS is reported in DERPMIS; no separate IR data call is required to support DEMIS.
- d. Natural and Cultural Resources data such as natural resources plans and programs, natural resources potentials, natural resources acreage, natural resource finances, cultural resources programs, cultural resource finances, natural and cultural resources personnel, pest management program, natural resources reserve account and endangered species funding.

9.3 Internal Reports

This section discusses Navy/Marine Corps reports used for management of the IR Program and to respond to information requests.

9.3.1 Pollution Control Report (PCR)

The PCR system satisfies Office of Management and Budget (OMB) A-106 reporting requirements and provides Navy/Marine Corps with a budget planning tool.

For the DON IR Program, any work funded with DERA money will have a PCR project showing "IR" as the sub-appropriation code. Costs from these projects should be the same as costs entered in DERPMIS.

RPMS are responsible for establishing and maintaining PCR projects for their IR Program projects and installations are responsible for submitting and maintaining PCRs for IR Program salary and support costs.

9.3.2 CNO Quarterly Status Report

CNO receives updated information to assist in IR Program management in the CNO Quarterly Status Report. This report summarizes information on program progress, compiled from the information prepared for DERPMIS updates.

9.4 Internal Information Systems

A number of existing management information systems contain data on the IR Program for Navy/Marine Corps use. Additional systems are under development. The primary systems are described in this section.

9.4.1 Facilities Systems Office (FACSO) IR Data System

The FACSO IR Data System contains IR Site Narratives. In the future, these narratives will be incorporated in the IR module of the Environmental Quality Information Services (EQIS) (see Section 9.4.2).

The installation and site narratives are updated by the RPMs annually. They are used by CNO as site reference material in preparing information briefings, responding to inquiries about IR Program efforts, and in support of Congressional hearings.

The Activity Narratives, which contain information about installations which have sites on the NPL, are used in DOD's annual report to Congress required by CERCLA Section 120(e)(5) (see Section 9.1.3). They are provided annually for that report.

9.4.2 Environmental Quality Information Services (EOIS)

The Environmental Quality Information Services (EQIS), currently under development, consists of two interrelated efforts: the Naval Environmental Bulletin Board System (NEBBS) and the Naval Environmental Compliance Information System (NECIS).

NEBBS is a bulletin board system providing information sharing services: electronic mail, policy statements, news, technical libraries and bulletins--as well as the ability to interrogate various environmental data systems such as the NECIS.

The NECIS is a collection of environmental data bases providing data sharing services with access available through the NEBBS "conduit"; and vertically integrated to include installation and management needs for software tools and information. Managers (CNO, CMC, major claimants, EFDs, installations) will be provided software to access needed data elements on line for off-line processing. Managers can develop specialized reports as required or analyze alternatives with spreadsheets on personal computers. Local telephone numbers will be provided to all participants. NECIS also provides software tools to installations (Public Works Departments) to do their jobs. With computer support, we expect data will be better maintained. The software will also provide for data submittal automatically.

NECIS itself is subdivided into the Naval Environmental Protection Data Base (NEPDB) to describe the data repository located on a host computer and the Activity and Management Automated Environmental System (AMAES) to describe the software modules developed for and provided to environmental professionals to store, retrieve, and process environmental information both on their desktop and by access to central systems.

Currently, information needs are supported through a compilation of systems which are not wholly integrated or automated. The Navy/Marine Corps DERPMIS information (see Section 9.2.1) is maintained on a personal computer at NEESA and is cross-checked for QA/QC purposes with PCR (see

Section 9.3.1), the Navy's internal fiscal accounting system, FIS, and the Facilities Systems Office (FACSO) IR Data System (see Section 9.4.1). Work is underway to automate and link the various support systems to meet Navy/Marine Corps needs into a system which has yet to be named. It will be an element of the Navy's environmental management information system EQIS.

In the future, the Navy plans to use these data base systems to prepare the IR module of EQIS. There will be links to the FIS, the PCR system, and the Remedial Action Contracts Management Information System (RACMIS) (currently under development).

9.5 Marine Corps Environmental Compliance Tracking System (COMPTRAK)

The Marine Corps has developed a compliance tracking system to track and monitor environmental compliance deficiencies at Marine Corps installations. The automated system will provide a data base of environmental compliance requirements, violations and budget requirements that will be maintained at the installation and CMC(LFL). Data will be used to fulfill A-106, A-11 and 10 year projection requirements. For additional information on COMPTRAK, see MCO P5090.2, Chapter 3 or the COMPTRAK User's Manual.

CHAPTER TEN

10.0 COMMUNITY RELATIONS

This chapter outlines the legal and regulatory requirements for public participation in the Installation Restoration (IR) Program, and discusses the public affairs and community relations actions which should be accomplished.

10.1 Legal Requirements

The Superfund Amendments and Reauthorization Act (SARA), Section 117, Public Participation, requires that prior to adoption of any plan for remedial action the Navy/Marine Corps must take the following steps.

a. Publish a notice and brief analysis of the proposed plan and make such a plan available to the public.

b. Provide a reasonable opportunity for submission of written and oral comments through a public meeting at or near the facility regarding the proposed plan and any proposed findings under SARA, Section 121(d)(4) (relating to cleanup standards). The Navy/Marine Corps will make a transcript of the meeting and make such transcript available to the public.

c. Publish notice of the final remedial action plan adopted and make this document available to the public before commencement of any remedial action. Such a final plan will be accompanied by a discussion of any significant changes (and the reasons for such changes) in the proposed plan and a response to significant comments, criticisms, and new data submitted in written or oral presentations.

d. Publish all notices in a major local newspaper. Publication is defined as publishing in a major local newspaper of general circulation. It also means making the notice available to the public at or near the facility of issue.

10.1.1 National Contingency Plan (NCP), Section 300.415: Removal Action

A spokesperson will be designated by the Navy/Marine Corps to inform the community of actions taken, respond to inquiries, and provide information concerning the removal. He/she will also coordinate releases or statements made by participating agencies, and notify immediately affected citizens, state and local officials, and when appropriate, civil defense or emergency management agencies.

For removals where the Navy/Marine Corps determines that a removal is appropriate, and less than six months exists before on-site removal activity must begin, the Navy/Marine Corps will:

a. Publish a notice of availability of the administrative record file established pursuant to NCP, Section 300.820, in a major local newspaper of general circulation within 60 days of initiation of on-site removal activity.

b. Provide a public comment period, as appropriate, of not less than 30 days from the time the administrative record file is made available for public inspection pursuant to NCP, Section 300.820(b)(2).

c. Prepare a written response to significant comments pursuant to NCP, Section 300.820(b)(3).

10.1.2 Action Extending Beyond 120 Days

For removal actions where on-site action is expected to extend beyond 120 days from the initiation of on-site removal activities, the lead installation will:

a. Conduct interviews with local officials, community residents, public interest groups, or other interested or affected parties, as appropriate. This will be done to solicit their concerns, information needs, and how or when citizens would like to be involved in the process.

b. Prepare a formal community relations plan (CRP) based on the interviews and other relevant information, specifying the community relations activities that the Navy/Marine Corps expects to undertake during the response.

c. Establish an information repository.

d. Place an administrative record file in at least one repository.

e. Inform the public of the establishment of an information repository and provide notice of availability of the administrative record file for public review.

(If the installation has already completed each of the above tasks, it is not required to do them again specifically for the removal. Instead, they would be required to announce to the public that information pertaining to the removal would be added to the information repository and administrative record. Interviews do not need to be conducted specifically on the removal action.)

10.1.3 Actions with Planning Period of at Least Six Months

For removal actions with a planning period of at least six months prior to initiation of on-site removal, the lead installation will:

a. Comply with all the requirements of a 120 day removal prior to the completion of the engineering evaluation/cost analysis (EE/CA).

b. Publish a notice of availability and brief description of the EE/CA in a major local newspaper of general circulation pursuant to NCP, Section 300.820.

c. Provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments after the completion of the EE/CA pursuant to NCP, Section 300.820(a). Upon timely request, the Navy/Marine Corps will extend the public comment period by a minimum of 15 days.

- d. Prepare a written response to significant comments pursuant to NCP, Section 300.820(a).

10.1.4 NCP, Section 300.430; Remedial Investigation/Feasibility Study (RI/FS) and Selection of Remedy

For RI/FS, the lead installation will:

- a. Conduct interviews with local officials, community residents, public interest groups or other interested or affected parties, as appropriate, to solicit their concerns and information needs, and to learn how and when citizens would like to be involved.
- b. Prepare a formal CRP based on the interviews and other relevant information, specifying the community relations activities that the Navy/Marine Corps expects to undertake during the remedial response.
- c. Establish at least one local information repository at or near the location of the response action. This should contain a copy of items made available to the public, including information that describes the technical assistance grants (TAGs) application process. Inform the public of the establishment of the information repository.
- d. Inform the community of the availability of TAGs.

10.1.5 NCP, Section 300.430(f)(3); Community Relations to Support Selection of Remedy

For community relations to support the selection of remedy (after preparation of the proposed plan), the lead installation will:

- a. Publish a notice of availability and brief analysis of the proposed plan in a major newspaper of general circulation.
- b. Make the proposed plan and supporting analysis and information available in the administrative record file.
- c. Provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments on the proposed plan and the supporting analysis and information including the RI/FS. Upon timely request, the Navy/Marine Corps will extend the public comment period by a minimum of 30 additional days. (Note that a 60 day public comment period will not alleviate the public's ability to ask for an extension of 30 days. However, schedules should be built including the maximum time for public comment.)
- d. Provide the opportunity for a public meeting to be held during the public comment period at or near the site regarding the proposed plan and the supporting analysis and information.
- e. Keep a transcript of the public meeting and make the transcript available to the public.
- f. Prepare a written summary of significant comments, criticisms, and new relevant information submitted during the public comment period and the Navy/Marine Corps response to each issue. This responsiveness summary will be made available with the record of decision (ROD).

10.1.6 After Publication of the Proposed Plan

Community relations after publication of the proposed plan and prior to the adoption of the selected remedy in the ROD will take into account the following:

a. If new information is made available that significantly differs from the original proposal in the proposed plan, include a discussion of the significant changes and reasons for the changes in the ROD.

b. If a change could not reasonably be anticipated by the public based on the information available in the proposed plan or the supporting analysis and the information in the administrative record, then the Navy/Marine Corps will, prior to adoption of the selected remedy in the ROD, issue a revised proposed plan and seek additional public comment. This will include a discussion of the significant changes and the reasons for such changes, per the public participation requirements.

10.1.7 When ROD Is Signed

When the ROD is signed, the Navy/Marine Corps will:

a. Publish a notice of availability of the ROD in a major newspaper of general circulation.

b. Make the ROD available for public inspection and copying at or near the facility at issue prior to the commencement of any remedial action.

10.1.8 NCP, Section 300.435: Remedial Design/Remedial Action (RD/RA), Operation and Maintenance

Prior to initiation of RD, the lead installation will review the CRP to determine whether it should be revised to describe further public involvement activities during RD/RA that are not already addressed or provided in the CRP.

If the RA differs significantly from the remedy selected in the ROD with respect to scope, performance, or cost the Navy/Marine Corps will:

a. Publish an explanation of significant differences when the differences in the RA change, but do not fundamentally alter, the remedy selected in the ROD with respect to performance or cost.

b. Propose an amendment to the ROD if the differences in the RA alter the basic features of the selected remedy with respect to scope, performance, or cost.

10.2 Responsibilities

Commanding Officers/Generals of Navy and Marine Corps installations will:

a. Implement a public relations/community relations program including and based upon a CRP (see Section 10.3.1)

- b. Keep regional environmental coordinators and Engineering Field Divisions (EFDs) informed of all public affairs actions
- c. Inform the public of the availability of TAGs
- d. Establish and maintain the information repository
- e. Request COMNAVFACENGCOM and EFD support for community relations programs, including assisting installations with their CRP.

The pertinent EFD can assist the installation by obtaining the assistance of an architect-engineer (A-E) to provide support in the preparation and implementation of a CRP. The EFD can also review the CRP for the installation to determine if the CRP meets Federal and DON requirements.

10.3 Navy/Marine Corps Public Affairs Guidance

The following directives provide Navy and Marine Corps public affairs guidance:

- a. OPNAVINST 5090.1A 13-5.14
- b. MCO P5090.2 14413

DON requirements are more comprehensive than the NCP; for example: the Navy requires formal CRPs at all IR Program sites, whether or not they are National Priorities List (NPL) sites. Any installation can do more than is required in the Navy/Marine Corps guidance.

The installation must appoint a point of contact (POC) or spokesperson (possibly the Public Affairs Officer (PAO) at the installation) for community relations activities. His/her name should be made available to the community. The POC will be responsible for receiving all inquiries and releasing information concerning the installation.

A log of all phone calls and questions concerning the installation and a record of action taken as a result of these calls should be kept by the POC. This should include answers to questions and other follow-ups.

The installation is responsible for compiling a site mailing list. The mailing list should include:

- a. Federal, state, and local (county, city, and township) elected officials
- b. Environmental and citizens groups
- c. EPA regional officials
- d. State environmental and health department officials
- e. Local health department
- f. Media contacts (TV, radio, newspaper)

- g. Individuals who request to be on the list.**

A contractor can be used to help the installation complete this task. Contractor support should be arranged through the pertinent EFD.

10.3.1 Community Relations Plan (CRP)

A formal CRP must be developed and implemented for removal and RAs at all IR sites, unless the action is an emergency action. The CRP should be completed before the beginning of the RI and will consist of:

- a. Background and history of community involvement at the site, including local activity and interest, key issues, and site history**
- b. IR objectives**
- c. Community relations activities to be used to meet stated objectives**
- d. A mailing list as described above. (Individuals and those interviewed should only be included if they give written permission.)**

The CRP must be based on discussions with state and local officials, civic and community organizations, interested residents and local news media representatives to gain a first-hand understanding of the major community concerns and issues, the level of public interest, and the information needs of citizens. Commands should focus on receiving input from those interviewed. Real concerns of citizens (e.g., threats to health) which may be masked by emotional demands to effect immediate cleanup should be identified. Encourage citizens by showing them that their contributions are valuable and will be considered.

The installation must closely coordinate the CRP with the EFD PAO, the remedial project manager (RPM), and also with the regional environmental coordinator.

Contracting help can be used by the installation to prepare a CRP. Contractor support can be arranged through the pertinent EFD. However, DON must not relinquish control of the CRP to a contractor. A contractor should assist DON in preparing the CRP and implementing a Community Relations Program.

Public information activities must be closely integrated with the technical activities of a site study and RA. A close working relationship should be built between the technical staff, public affairs staff, and others supporting the efforts. The installation is responsible for keeping the EFD RPM and PAO informed of all community relations activities.

10.4 Sites on National Priorities List (NPL)

For sites on the NPL, installations will:

- a. Inform the public of the availability of TAGs.**

b. Coordinate news releases and other public participation activities with the EPA and state as required in the Federal Facility Agreement (FFA).

10.5 Non-NPL Sites

At non-NPL sites, the installation is to follow Navy/Marine Corps, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and NCP guidance. If the state in which the site is located has its own legislation and guidance on community relations, the installation should incorporate as much of this guidance as possible into its CRP so long as it does not conflict with Federal and Navy/Marine Corps guidance.

10.6 Resource Conservation and Recovery Act (RCRA) Sites

At RCRA sites funded by the Defense Environmental Restoration Account (DERA), public participation and community relations should be conducted as if the site were a CERCLA site. All CERCLA CRP requirements should be met.

10.7 Information Repositories

Public information repositories are collections of site information and may include items (such as newspaper articles) which are related to the site but not suitable for incorporation in the administrative record file. Typical locations for information repositories might be public libraries, town halls, or public health offices. Locations should have handicapped access, be open in the evenings and on weekends, and have copying facilities available. The installation is responsible for establishing, maintaining, and deciding what should be in the repository. The integration of community relations activities with the use of the information repository may be a key element of the CRP. The administrative record should be included as part of an information repository. Decisions as to which documents or information should be incorporated in the administrative record should be made by the RPM.

10.8 Technical Assistance Grants (TAGs)

CERCLA, Section 117, Public Participation, indicates that TAGs are:

a. Subject to such amounts as are provided in appropriations acts and per rules promulgated by the President. The President may make grants available to any group of individuals which may be affected by a release or threatened release at any installation which is listed on the NPL under the NCP. Such grants may be used to obtain technical assistance in interpreting information with regard to the nature of the hazard, RI/FS, ROD, RD, selection and construction of RA, operation and maintenance, or removal action at such facility.

b. Subject to a limit of \$50,000 for a single grant recipient.

EPA and DOD are in the process of negotiating a memorandum of agreement (MOA) which would provide for EPA to administer TAGs and for DOD to fund them. There are specific requirements for recipients of these grants. When an installation is placed on the NPL, the Commanding Officer/General should contact EPA for the appropriate information and guidance on requirements for grant recipients. This information should then be made available to the public through news releases, fact sheets, public meetings, or through any other method deemed to be appropriate, and should be included in the

information repository. Several functional FFAs actually state that EPA will administer and fund the TAGs.

CHAPTER ELEVEN

11.0 TRAINING

Personnel at all levels in the chain-of-command need to be aware of the Installation Restoration (IR) Program, its importance, and of the requirements of the program. Thus, all appropriate personnel need training (see Table 11-1) which will inform them of their responsibilities in helping to fulfill the goals of the IR Program. A Navy Training Plan (NTP) and Marine Corps Environmental Training Program (MCETP) are currently under development to address environmental and natural resources training issues. This document will contain detailed information concerning the required and recommended training for personnel involved in hazardous material and hazardous waste (HM/HW) operations and the courses available which will satisfy the IR Program requirements.

11.1 IR Program Orientation

Personnel involved in HM/HW operations at IR Program sites, management personnel responsible for these sites, as well as real estate, planning and EFD staff, should receive an IR Program orientation which includes the following topics:

- a. Program background
- b. Overview of applicable legislation
- c. General responsibilities of personnel
- d. Goals of program.

11.2 CERCLA/SARA

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, commonly referred to as the Superfund law) authorizes Federal action to respond to the release or threatened release of a hazardous substance (HS), from any source, into the environment.

The Superfund Amendments and Reauthorization Act (SARA) reauthorized CERCLA, amended its authorities and requirements, and established the Defense Environmental Restoration Program (DERP). The DERP outlines DOD requirements and establishes a fund account for DOD HW disposal sites.

It is important for appropriate personnel to receive training in the content and requirements of these acts. The level of training received by an individual should depend on that individual's responsibilities under the IR Program and will be addressed in the NTP and the MCETP.

11.3 RCRA

The Resource Conservation and Recovery Act (RCRA, also known as the Solid Waste Disposal Act) regulates the management of solid waste and HW. The Hazardous and Solid Waste Amendments (HSWA) of 1984 amended RCRA to include the cleanup through corrective action of past releases of HW at RCRA-regulated facilities.

**Table 11-1
Proposed IR Training Program**

	C.O. and X.O.	OGC/ JAG	Environ Manager	ROICC/ staff	Public Affairs Officer	Emerg. Response Team	Contract Officer	EFD staff	EFD RPM	Visitors to IR site
1. IR Program Orientation	X	X	X	X	X	X	X	X	X	
2. CERCLA/SARA	X	X	X	X			X	X	X	
3. RCRA	X	X	X	X			X	X	X	
4. HM/HW Indoctrination	X	X	X	X	X	X	X	X	X	
5. Legal Responsibilities	X	X	X	X				X	X	
6. Health & Safety	X	X	X	X	X	X	X	X	X	X
7. HM/HW Control and Management	X		X	X		X				
8. HM/HW permitting/ recordkeeping		X	X	X			X		X	
9. Emergency Response Contingency Planning	X	X	X		X					
10. Emergency Response Procedures	X	X	X	X	X	X		X	X	X
11. Spill Response and Cleanup				X		X	X			
12. Community Relations	X	X	X	X	X	X	X	X	X	

Appropriate personnel should receive training on the content and requirements of RCRA. The level of training should be based on the individual's responsibilities and will be addressed in the NTP and the MCETP.

11.4 HM/HW Indoctrination

Personnel involved in HM/HW operations and management personnel responsible for IR Program sites should receive an HM/HW indoctrination course which covers:

- a. The importance of HM/HW management
- b. Overview of applicable legislation
- c. Overview of the activity's HM/HW management program.

11.5 Legal Responsibilities

In addition to CERCLA, RCRA and SARA, HM/HW is regulated by requirements of the Hazardous Materials Transportation Act, Occupational Safety and Health Act (OSHA), the Clean Water Act (CWA), the Clean Air Act (CAA), the Toxic Substances Control Act (TSCA), and the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Personnel with authority over the legal aspects and environmental programs of the site need to participate in training which familiarizes them with the legal responsibilities of activity personnel under these acts and their regulations.

11.6 Health and Safety

Training must be an integral part of the total response health and safety program. Hazardous waste (HW) site training is required by SARA, Sections 126(b)(1) and 126(d). The actual training requirements are detailed in the Occupational Safety and Health Administration (OSHA) standards in 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, and are summarized below and provided in Table 11-2. This training must continue at frequent intervals in order for personnel to maintain their proficiency in the use of equipment and their knowledge of safety requirements. All employees working on-site exposed to HSs, health hazards or safety hazards and their supervisors and management responsible for the site shall receive training meeting the requirements of this section before they are permitted to engage in HW operations.

11.6.1 Basic Requirements

Health and Safety HW training is required for the following categories of employees:

- a. All employees exposed to HSs, health hazards, or safety hazards must have 40 hours of off-site instruction and 3 days of field experience. Training must be as practical as possible and include hands-on use of equipment and exercises designed to demonstrate and practice classroom instruction.

The level of training shall be consistent with job function and responsibility.

- b. On-site management and supervisors of personnel engaged in HM operations shall receive training equal to the above, plus eight additional hours on managing such operations.

Table 11-2 Health and Safety Training Requirements

Hazardous Waste Clean-Up Sites	
Staff	
• Routine site employees	40 hours initial 24 hours field 08 hours annual refresher
• Routine site employees (minimal exposure)	24 hours initial 08 hours field 08 hours annual refresher
• Non-routine site employees	24 hours initial 08 hours field 08 hours annual refresher
Supervisor/Managers of	
• Routine site employees	40 hours initial 24 hours field 08 hours hazardous waste management 08 hours annual refresher
• Routine site employees (minimal exposure)	24 hours initial 08 hours field 08 hours hazardous waste management 08 hours annual refresher
• Non-routine site employees	24 hours initial 08 hours field 08 hours hazardous waste management 08 hours annual refresher

Treatment, Storage, and Disposal Sites	
Staff	
• General Site employees	24 hours initial or equivalent 08 hours annual refresher
• Emergency response personnel	Trained to a level of competency Annual refresher

Note: See 29 CFR 1910.120 (e) and (p)(7).

Other Emergency Response Staff	
Level 1 - First responder (awareness level)	Sufficient training or proven experience in specific competencies Annual refresher
Level 2 - First responder (operations level) ²	Level 1 competency and 8 hours initial or proven experience in specific competencies Annual refresher
Level 3 - HAZMAT technician ³	24 hours of Level 2 and proven experience in specific competencies Annual refresher
Level 4 - HAZMAT specialist ⁴	24 hours of Level 3 and proven experience in specific competencies Annual refresher
Level 5 - On-the-scene incident commander ⁵	24 hours of Level 2 and additional competencies Annual refresher

Note See 29 CFR 1910.120 (q)(8).

¹ Witnesses or discovers a release of hazardous materials and who is trained to notify the proper authorities

² Responds to releases of hazardous substances in a defensive manner, without trying to stop the releases

³ Responds aggressively to stop the release of hazardous substances

⁴ Responds with and in support to HAZMAT technicians, but who has specific knowledge of various hazardous subst.

⁵ Assumes control of the incident scene beyond the first-responder awareness level

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c. Trainers must be trained at a level higher than, and including, the subject matter they are teaching.

Employees in a. and managers in b. shall receive eight hours of refresher training annually. Work experience may qualify in place of the initial training. Employees and supervisors successfully completing training will receive a written certificate.

11.6.2 Personal Protective Equipment (PPE) Use

Training in PPE use allows the user to become familiar with the equipment in a nonhazardous situation and increases the efficiency of operations performed by workers wearing PPE (see Section 12.8).

Training should be completed prior to actual PPE use in a hazardous environment and should be repeated at least annually. At a minimum, the training portion of the PPE program should delineate the user's responsibilities.

The discomfort and inconvenience of wearing PPE can create a resistance to the conscientious use of PPE. One essential aspect of training is to make the user aware of the need for PPE and to instill motivation for the proper use and maintenance of PPE.

11.7 HM/HW Control and Management

Personnel involved in HM/HW operations need training in HM/HW control and management in order to ensure the proper handling of all HM/HW. Training should be provided to these personnel which includes:

- a. Characterization and classification of HM/HW
- b. Proper completion of manifests
- c. Proper use of Material Safety Data Sheets (MSDSs)
- d. Specific aspects of the HM/HW Management Program relevant to the trainee's specific job. This training should include procedures for HM/HW:
 1. Use
 2. Handling
 3. Inspection
 4. Labeling
 5. Packaging
 6. Transportation
 7. Treatment
 8. Storage

9. Disposal.

Personnel should receive HM/HW indoctrination training prior to participating in this training.

11.8 HM/HW Permitting/Recordkeeping

Personnel involved in the administrative and legal aspects of managing an IR Program site should receive training in applicable permitting and recordkeeping topics, such as:

- a. General facility standards
- b. Land disposal
- c. Incineration
- d. Corrective action
- e. CERCLA/RCRA interface
- f. Reports required of HM/HW generators
- g. Facility management planning.

Personnel should receive HM/HW indoctrination training prior to participating in this training.

11.9 Emergency Response Contingency Planning

Key activity personnel require training in developing a HS incident response contingency plan. Training in this area should be designed to improve a manager's awareness of the hazards involved in spill response and to ensure that all HS spills, fires and explosions are responded to safely, efficiently, and per the National Oil and Hazardous Substance Pollution Contingency Plan (NCP, 40 CFR 300). Training should address legal, technical and financial aspects of contingency planning and encompass such topics as:

- a. Pertinent statutes
- b. Local, state and Federal responsibilities
- c. Contracts and cooperative agreements
- d. Development of a response plan
- e. Types and storage of HM
- f. Preventive measures
- g. Local, state and Federal ordinances.

11.10 Emergency Response Procedures

Since immediate, informed response is essential in an emergency, all site personnel and others entering the site (visitors, contractors, off-site emergency response groups, other agency representatives) must have some level of emergency training. Emergency training is required by SARA (specific requirements are found at 29 CFR 1910.120) and by RCRA (specific requirements are found at 40 CFR 264.16).

All personnel and visitors should be briefed on basic emergency procedures such as decontamination, emergency signals, and evacuation routes.

Personnel who are members of an emergency response team must be trained to contain and terminate releases. They must be trained in:

- a. Hazard recognition
- b. Identification of HM
- c. Safe operating procedures
- d. Control, containment and/or confinement procedures
- e. Decontamination
- f. Termination procedures.

The level of competency which an individual is expected to demonstrate is dependent on that individual's specific responsibilities as a member of the response team.

11.11 Spill Response and Cleanup

Personnel responsible for participating in spill response and cleanup operations should receive training covering the following topics:

- a. First-response considerations
- b. Hazard evaluation
- c. Site entry, control and decontamination procedures
- d. Containment methods
- e. Disposal operations
- f. Health and safety considerations and requirements
- g. Use of field monitoring instruments.

11.12 Community Relations

It will be necessary for management and technical response staff, as well as public affairs staff, to meet with citizens, participate in meetings, review citizen comments, consider how citizen input might affect response decisions, and help document the Navy's or Marine Corps' response to citizen input. Thus, it is recommended that management, technical staff and public affairs staff participate in training concerning:

- a. Avoiding conflict
- b. Conducting and participating in effective meetings
- c. Building good media relations
- d. Identifying areas for citizen input.

11.13 Training Certification and Recordkeeping

Employees and supervisors who have received and successfully completed the required training and field experience for their positions must be certified by the instructor as having satisfied the requisite training. A written certificate will be given to each person certified. Any person who has not been certified or who does not meet the equivalent training requirements will be prohibited from engaging in hazardous waste operations.

A record of training should be maintained in each employee's personnel file to confirm that every person assigned to a task has had adequate training for that task, and that every employee's training is up-to-date. RCRA (see 40 CFR 264.16) requires that training records on current personnel be kept until closure of the facility; training records on former employees must be kept for at least three years from the date the employee last worked at the facility.

11.14 References

29 CFR 1910.120. *Hazardous Waste Operations and Emergency Response.*

40 CFR 264.16. *Personnel Training.*

National Institute for Occupational Safety and Health (NIOSH). *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.* October 1985.

U.S. EPA. *Protecting Health and Safety at Hazardous Waste Sites: An Overview.* September 1985.

CHAPTER TWELVE

12.0 HEALTH AND SAFETY

Provisions for the protection of the health and safety of workers engaged in hazardous waste operations are required by the Superfund Amendments and Reauthorization Act (SARA), Section 126(a). As directed by this section of SARA, the Occupational Safety and Health Administration (OSHA) issued a rule, 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response. This rule specifies the requirements for protecting the health and safety of workers involved in hazardous substance response activities.

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 CFR 300) provides for the protection of workers involved in response actions under the NCP. In accordance with 40 CFR 300.150, Worker Health and Safety, response actions under the NCP (which include the Installation Restoration (IR) Program) must comply with the requirements of 29 CFR 1910.120.

Where state OSH laws exist, these laws may also apply to response actions. The safety and health requirements of other Federal agencies may also apply (e.g., Department of Transportation (DOT) requirements for hazardous material (HM) carriers).

The requirements of this chapter apply to any Federal (installation) or contractor activities at an IR Program site.

12.1 Definitions

Definitions for the following terms used in this text are taken from 29 CFR 1910.120.

a. **Health hazard.** Health hazard means a chemical, mixture of chemicals or a pathogen for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins (liver), nephrotoxins (kidneys), neurotoxins (nerves or nervous tissue), agents which act on the hematopoietic (blood) system, and agents which damage the lungs, skin, eyes, or mucous membranes. It also includes stress due to temperature extremes.

b. **Immediately dangerous to life and health (IDLH).** An atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life, or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere.

c. **Oxygen deficiency.** That concentration of oxygen by volume below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where the percentage of oxygen by volume is less than 19.5 percent oxygen.

d. **Personal protective equipment (PPE).** Any material or device worn to protect a worker from exposure to or contact with any harmful substance or force. For IR Program work, it includes protective clothing, respiratory devices, and protective shields and barriers.

e. **Site safety and health officer.** That individual located on a hazardous waste site who is responsible and has the authority and knowledge necessary to implement the Site Health and Safety Plan (HSP) and verify compliance with applicable safety and health requirements. Under DON policy, this person has the authority to stop work on the site upon his/her determination that an imminent health or safety hazard, or other potentially dangerous situation exists. This authority extends over subcontractors.

The following terms are defined in the *Navy Occupational Safety and Health Program Manual (OPNAVINST 5100.23B)*.

f. **Action Levels (AL).** Unless otherwise specified in a NAVOSH standard, one-half the relevant permissible exposure limit (PEL), threshold limit value (TLV), etc.

1. **Biological monitoring and medical surveillance** shall be initiated when an employee's exposure to a particular contaminant exceeds the allowable AL for a specified period of time.

2. **Engineering and administrative controls** shall be initiated when an employee's exposure to a particular contaminant exceeds the PEL for a specified period of time. When an employee's exposure is greater than the AL, but less than the PEL, engineering controls shall be initiated to reduce the workplace environmental level to a minimum. Thereafter, any combination of engineering and administrative controls may be used to maintain employee exposure at or below the PEL.

g. **Permissible Exposure Limit (PEL).** The PEL is the maximum permissible concentration of a toxic chemical or exposure level of a harmful physical agent (normally averaged over an 8-hour period) to which an employee may be exposed.

h. **Threshold Limit Value (TLV).** Threshold limit values are established by the American Conference of Governmental Industrial Hygienists (ACGIH). TLVs refer to airborne concentrations of a substance and represent conditions under which it is believed that nearly all workers may be exposed day after day without adverse effect.

12.2 Responsibility for Site

When an IR Program site is undergoing active response action, the contractor is responsible, under the terms of his contract, for implementing the requirements of this chapter. These requirements include developing a Site HSP, establishing access control, enforcing standard operating safety procedures, implementing medical surveillance procedures, providing for environmental and personnel monitoring, providing for the availability and use of appropriate personal protective equipment (PPE), and establishing emergency procedures. However, although the contractor is responsible for implementing these requirements, the remedial project manager (RPM) should review the contractor's procedures, plans and enforcement for adequacy.

In addition, the RPM is responsible for the site during the time period after the site is identified as an IR Program site but prior to the beginning of response action work by the contractor. At this time, the RPM and the installation need to determine whether the site poses exposure problems. If it does, then the RPM must develop, and the installation must enforce, access control procedures. In addition, the RPM and the installation, with the contractor's help, if necessary, must develop an interim Site HSP which incorporates all relevant requirements of this chapter.

Hereinafter, it should be recognized that responsibility for implementing the requirements discussed in this chapter rests with either the contractor or the RPM depending on the status of the site. However, in either case, the RPM is responsible for ensuring that these requirements are being enforced. References to the "contractor" should be taken to refer to the RPM or the installation if the contractor has not yet assumed responsibility for the site and if the requirements are applicable to the site in its present condition.

12.3 Site Health and Safety Plan (HSP)

The purpose of the Site HSP is to establish procedures for protecting the health and safety of response personnel during all operations conducted at an IR site, including emergencies. This plan must contain information about the known or suspected hazards, routine and special safety procedures that must be followed, and other instructions for safeguarding the health of the responders.

A Site HSP must be prepared by the contractor and reviewed by the RPM for each hazardous substance response (i.e., each hazardous waste site). Before operations at a site commence, all safety aspects of site operations should be thoroughly examined. A safety plan is written based on the anticipated hazards and expected work conditions. The plan should be conspicuously posted or distributed to all response personnel (workers, supervisors, contractor and government inspectors, and emergency response personnel) and discussed with them by the site safety and health officer. The plan must be periodically reviewed to keep it current and technically correct. These reviews should take place at the same time that other site activities are reexamined in accordance with the established decision points (see Section 5.3).

The plan must contain safety requirements for routine (but hazardous) response activities and also for unexpected site emergencies. The major distinction between routine and emergency site safety planning is the ability to predict, monitor, and evaluate routine activities. A site emergency is unpredictable and may occur at any time.

The Site HSP, as a minimum, will address the following:

- a. Names of key personnel and alternates responsible for site safety and health and appointment of a site safety and health officer
- b. A safety and health risk analysis for each site task and operation
- c. Site access and control (see Section 12.4)
- d. Site standard operating procedures (see Section 12.5)
- e. Training assignments (see Chapter 11)
- f. Medical surveillance requirements (see Section 12.6)
- g. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used; methods of maintenance and calibration of monitoring and sampling equipment to be used (see Section 12.7)

h. Personal protective equipment (PPE) to be used for each of the site tasks and operations being conducted (see Section 12.8)

i. Site control measures

j. Decontamination procedures

k. An emergency response plan meeting the requirements of 29 CFR 1910.120(l)(1) and (l)(2) for safe and effective responses to emergencies (see Section 12.9), including the necessary PPE and other equipment. The RPM should provide this to the installation emergency response team for coordination while the contractor is on the installation.

l. Confined space entry procedures.

m. A spill containment program meeting the requirements of 29 CFR 1910.120(j).

n. Identification of known contaminants including ALs, PEL or TLV for each contaminant. The HSP should state required actions if one of these limits is reached or exceeded.

Pre-entry briefings will be held prior to initiating any IR site activity and at such other times as necessary to ensure that workers, supervisors, inspectors, and emergency response personnel are apprised of the Site HSP and that it is being followed.

Inspections must be conducted by the site safety and health officer or, in the absence of that individual, another individual acting on behalf of the DON, as necessary, to determine the effectiveness of the Site HSP. Any deficiencies in the effectiveness of the Site HSP must be corrected.

12.4 Site Access and Control

The contractor is responsible for determining to what degree access to the site needs to be controlled. The contractor must then determine the best method for controlling access and be responsible for enforcing access control procedures. Visitors should be briefed by the site Safety Officer on standard operating safety procedures prior to entering the site (see Sections 11.6 and 12.5).

12.5 Standard Operating Safety Procedures

Standard operating safety procedures must be established for IR response actions and should include safety precautions and operating practices that all responding personnel must follow. The following practices are recommended in the EPA publication *Standard Operating Safety Guides* (1988):

a. Personal practices

(1) Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as contaminated.

(2) Hands and face must be thoroughly washed upon leaving the work area.

(3) Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

(4) No facial hair, which interferes with a satisfactory fit of the mask-to-face seal, is allowed on personnel required to wear respirators.

(5) Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, do not walk through puddles, leachate, or discolored surfaces; kneel on the ground; or lean, sit, or place equipment on drums, containers, or the ground.

(6) Medicine and alcohol can exacerbate the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel on response operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverages should be avoided, in the off-duty hours as well as during response operations.

b. Operations

(1) All personnel going onto an IR site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications. This training is described in Chapter 11.

(2) Any required respiratory protection and chemical protective clothing must be donned by all personnel prior to going into areas designated for wearing protective equipment.

(3) Personnel on-site must use the buddy system when wearing respiratory protection. As a minimum, two other persons, suitably equipped, are required as safety backup during initial site entry.

(4) Visual contact must be maintained between pairs of on-site and safety personnel. Entry team members should remain close together to assist each other during emergencies.

(5) During continual operations, on-site workers should act as safety backup for each other. Off-site personnel will provide emergency assistance.

(6) Personnel should practice unfamiliar operations off-site prior to doing the actual procedure on an IR site.

(7) Site entrance and exit locations must be designated and emergency escape routes delineated. Warning signals for site evacuation must be established.

(8) Communications using radios, hand signals, signs, or other means must be maintained between initial entry members at all times. Emergency communications should be prearranged in case of radio failure, site evacuation, or other reasons.

(9) Wind indicators, visible to all personnel, should be strategically located throughout the site.

(10) Personnel and equipment in the contaminated area should be minimized, consistent with effective site operations.

(11) Work areas for various operational activities must be established.

(12) Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established based on expected site conditions.

12.6 Medical Surveillance

Medical surveillance requirements for contractor employees should be documented in the response action contract. Navy/Marine Corps personnel must also comply with the medical surveillance requirements of 29 CFR 1910.120. Contractor programs may provide useful information for programs for Navy/Marine Corps personnel. EFDs and installations should ensure that appropriate personnel are included in a medical surveillance program.

12.6.1 Personnel Covered

A medical surveillance program will be instituted for the following personnel:

- a. All personnel who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limits for these substances, without regard to the use of respirators, for 30 days or more a year
- b. All personnel who wear a respirator for 30 days or more a year
- c. Personnel who are members of a hazardous material emergency response team, defined as personnel designated to plug, patch, or otherwise temporarily control or stop leaks from containers which hold hazardous substances or other health hazards.

12.6.2 Frequency of Medical Examinations and Consultations

Medical examinations and consultations will be made available to each individual covered under Section 12.6.1 on the following schedules:

- a. Prior to assignment
- b. At least once every 12 months for each individual covered
- c. At termination of employment or reassignment to an area where the individual would not be covered if he or she had not received an examination within the last 6 months
- d. As soon as possible upon notification by an individual that he or she has developed signs or symptoms indicating possible overexposure to hazardous substances or other health hazards or that an unprotected person has been exposed in an emergency situation

e. At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.

12.6.3 Content of Medical Examinations and Consultations

The medical examinations, as required above, will include a medical and work history. It will place special emphasis on symptoms related to the handling of hazardous substances and other health hazards and to fitness for duty, including the ability to wear required PPE under conditions (i.e., temperature extremes) that may be expected at the work site. The medical examination should also include a determination of the ability of the individual to wear a respirator, if wearing a respirator will be a job requirement.

The content of medical examinations or consultations made available to individuals identified in Section 12.6.1 will be determined by the examining physician.

12.6.4 Examination by a Physician and Costs

All medical examinations and procedures will be performed by or under the supervision of a certified occupational medicine physician, and will be provided without cost to the individual, without loss of pay, and at a reasonable time and place.

12.6.5 Information Provided to the Physician

The following information will be provided to the examining physician:

- a. A copy of 29 CFR 1910.120
- b. A description of the individual's duties as they relate to his or her exposures
- c. The individual's exposure levels or anticipated exposure levels
- d. A description of any PPE used or to be used (including the associated level of hazard, see Section 12.8.1)
- e. Information from any previous medical examinations of the individual which is not readily available to the examining physician.

12.6.6 Physician's Written Opinion

A copy of a written opinion from the examining physician will be obtained and furnished to the individual.

The physician's written opinion should include the following:

- a. The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use.

- b. The physician's recommended limitations upon the employee's assigned work.
- c. The results of the medical examination and tests if requested by the employee.
- d. A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.
- e. The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposures.

12.6.7 Recordkeeping

An accurate record of medical surveillance will be retained. An individual's medical records should contain the following information:

- a. Any occupational exposure
- b. Person's use of respirators and personal protective clothing
- c. Any work-related injuries
- d. Physician's written opinion of medical problems and treatment
- e. Record of all medical examinations.

12.7 Environmental and Personnel Monitoring

Air monitoring will be used to identify and quantify airborne levels of hazardous substances and other health hazards in order to determine the appropriate level of personnel protection needed on site. As a first step, air monitoring must be conducted to identify any IDLH or other dangerous situations. As a minimum, periodic monitoring should be conducted when:

- a. Work begins on a different portion of the site
- b. Contaminants other than those previously identified are being handled
- c. A different type of operation is initiated
- d. Personnel are handling leaking drums or containers or working in areas with obvious liquid contamination.

After IR site cleanup operations commence, those personnel likely to have the highest potential exposures to hazardous substances or other health hazards likely to be present above established permissible exposure limits must be monitored.

12.8 Personal Protective Equipment (PPE)

Anyone entering an IR site must be protected against potential hazards. The purpose of PPE is to shield or isolate individuals from the chemical, physical, and biologic hazards that may be encountered at the site. Training considerations for the selection and use of adequate PPE are given in Section 11.6.2.

12.8.1 PPE Selection

PPE which will protect personnel from the hazards and potential hazards they are likely to encounter as identified during the site characterization and analysis will be selected and used. Selection will be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, the task-specific conditions and duration, and the hazards and potential hazards identified at the site. PPE is separated into four levels of protection based on four defined levels of hazards (see 29 CFR 1910.120, Appendix B). Considering the defined levels of hazard will aid in the selection of PPE.

The following factors should also be considered in the selection of PPE:

- a. Permeation
- b. Degradation
- c. Penetration
- d. Heat transfer
- e. Durability
- f. Flexibility
- g. Temperature effects
- h. Ease of decontamination
- i. Compatibility with other equipment
- j. Duration of use.

12.8.2 Immediately Dangerous to Life and Health (IDLH) Situations

Positive pressure, self-contained breathing apparatus, or positive pressure air-line respirators equipped with an escape air supply must be used during IDLH or potentially IDLH conditions. Totally-encapsulating chemical protective suits (Level A protection, as defined in Appendix B of 29 CFR 1910.120) will be used in conditions where contact of the skin by the hazardous substance may result in an IDLH situation.

12.8.3 Requirements

PPE will be selected and used to meet the requirements of 29 CFR 1910, Subpart I and 29 CFR 1910.120. A PPE program will be established for IR site cleanup operations and will address site hazards, PPE selection, PPE use, work mission duration, PPE maintenance and storage, PPE decontamination, PPE training and proper fitting, PPE donning and doffing procedures, PPE inspection, PPE in-use monitoring, evaluation of the effectiveness of the PPE program and limitations during temperature extremes.

12.8.4 Testing of PPE

29 CFR 1910.120 contains certain testing capabilities required for particular items of PPE. Appendix A of 29 CFR 1910.120 sets forth non-mandatory examples of tests which may be used to evaluate compliance with these required capabilities.

12.9 Emergency Situations

Emergencies generally require prompt action to prevent or reduce undesirable effects. Immediate hazards of fire, explosion, and release of toxic vapors or gases are of prime concern. Emergencies vary greatly in respect to types and quantities of material, hazards, numbers of responders involved, type of work required, population affected, and other factors. Coordination with appropriate installation emergency response teams during project planning stages will ensure safe and effective emergency response.

12.9.1 Recognition and Prevention

On a day-to-day basis, individual personnel should be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of hazardous situations can avert an emergency. Before daily work assignments, regular meetings should be held. Discussion should include:

- a. Tasks to be performed
- b. Time constraints (e.g., rest breaks, air tank changes)
- c. Hazards that may be encountered, including their effects, how to recognize symptoms or monitor them, concentration limits, or other danger signals
- d. Emergency procedures.

After daily work assignments, a debriefing session should be held to review work accomplished and problems observed.

12.9.2 Emergency Response Plan

In emergencies, time is not available to write lengthy and detailed safety and health plans. Hence, general plans for emergency response must be developed prior to responding and implemented when an emergency occurs. A plan for responding safely and effectively to emergency situations that might

develop at the site must be developed and included as part of the overall Site HSP. The emergency response plan for on-site and off-site emergencies must address, as a minimum, the following:

- a. Pre-emergency planning
- b. Personnel roles, lines of authority, training, and communication
- c. Emergency recognition and prevention
- d. Safe distances and places of refuge
- e. Site security and control
- f. Evacuation routes and procedures
- g. Decontamination
- h. Emergency medical treatment and first aid
- i. Emergency alerting and response procedures
- j. Critique of response and follow-up
- k. PPE and emergency equipment.

12.9.3 On-site Emergency Response

In addition to the elements for the emergency response plan required above, the following elements must be included in on-site emergency response plans:

- a. Site topography, layout, and prevailing weather conditions
- b. Procedures for reporting incidents to local, state, and Federal governmental agencies.

The on-site emergency response plan must be compatible and integrated with the disaster, fire and/or emergency response plans of appropriate local, state, and Federal agencies.

The on-site emergency response plan will be rehearsed regularly as part of the overall training program for site operations.

The on-site emergency response plan will be reviewed periodically and, as necessary, be amended to keep it current with new or changing site conditions or information.

An alarm system must be installed at the IR site per 29 CFR 1910.165 to notify personnel of an on-site emergency situation, to stop work activities if necessary, to lower background noise in order to speed communication, and to begin emergency procedures.

Based upon the information available at the time of the emergency, the incident should be evaluated, appropriate site response capabilities should be activated, and appropriate steps should be taken to implement the on-site emergency response plan.

12.9.4 Procedures for Handling Off-site Emergency Incidents

The senior official responding to an incident involving a hazard substance or waste must establish an incident command system (ICS). All emergency responders and their communications will be coordinated and controlled through the ICS.

The official-in-charge must identify, to the extent possible, all hazardous substances or conditions present. Based on the hazardous substances and/or conditions present, the official-in-charge will implement appropriate emergency operations and ensure that the PPE worn is appropriate for the hazards to be encountered.

A self-contained breathing apparatus must be worn at all times by each person receiving possible exposure to hazardous substances or other health hazards during initial emergency response operations.

The official-in-charge must limit the number of emergency response personnel at the emergency site to those who are actively performing emergency operations. However, operations in hazardous areas must be performed using the buddy system in groups of two or more.

Back-up personnel must stand by with equipment ready to provide assistance or rescue. Qualified basic life support personnel, as a minimum, must also be standing by with medical equipment and transportation capability.

The official-in-charge should designate a safety officer who is knowledgeable in fire fighting or rescue operations and hazardous substance handling procedures, with specific responsibilities to identify and evaluate hazards and to provide direction with respect to the safety of operations for the emergency at hand. When activities are judged by the safety officer to be unsafe and/or to involve an imminent danger condition, the safety officer must have the authority to alter, suspend, or terminate those activities.

After emergency operations have terminated, the official-in-charge must implement appropriate decontamination procedures.

12.9.5 Emergency Medical Care and Treatment

The medical program must address emergency medical care and treatment of response personnel, including possible exposures to toxic substances and injuries resulting from accidents or physical hazards. The following items should be included in emergency care provisions:

- a. Name, address, and telephone number of the nearest medical facility
- b. The facility's ability to provide care and treatment of personnel exposed or suspected of being exposed to toxic substances
- c. Administration arrangements for accepting patients

- d. Arrangements to quickly obtain ambulance, emergency, fire, and police services
- e. Emergency showers, eyewash fountains, and first aid equipment readily available on-site
- f. Provisions for the rapid identification of the substance to which the worker has been exposed
- g. Procedures for decontamination of injured workers and preventing contamination of medical personnel, equipment, and facilities
- h. Protocols for heat stress and cold exposure monitoring, and working in adverse weather conditions
- i. Medical evacuation requirements.

12.9.6 Post-Emergency Response Operations

Upon completion of the emergency response, if it is determined that it is necessary to remove hazardous substances, health hazards or contaminated material such as contaminated soil or other elements of the natural environment, such operations must meet all requirements of this chapter.

12.10 Health Assessments and Toxicological Profiles

The Comprehensive Environmental Response, Compensation and Liability Act and the Superfund Amendments and Reauthorization Act (CERCLA/SARA) established the Agency for Toxic Substances and Disease Registry (ATSDR). This organization must perform a health assessment on all National Priorities List (NPL) sites. If a Navy site was on the NPL prior to SARA passage, this assessment must have been completed by December 1988. For all other sites on the NPL, the health assessment must be completed within one year after the date of proposal for inclusion on the NPL.

It is the supporting EFD's responsibility to notify the ATSDR that a site is or has been proposed for listing on the NPL and needs a health assessment. ATSDR should be contacted through their representative at each EPA regional office or at the following address:

Agency for Toxic Substances and Disease Registry
1600 Clifton Road, NE
Mail Stop E 28
Atlanta, GA 30333
Phone: (404) 639-0700

ATSDR also provides toxicological profiles for unregulated hazardous substances found at DOD sites, per SARA, Section 211. These profiles may assist in evaluating human health impacts of contamination during the remedial investigation/feasibility study (RI/FS). To obtain a toxicological profile, call the number above.

EFDs shall notify the Navy Environmental Health Center (NEHC) regarding any site visits or other interaction with ATSDR.

12.11 References

29 CFR 1910.120. *Hazardous Waste Operations and Emergency Response.*

U.S. EPA. *Standard Operating Safety Guides*, Office of Emergency and Remedial Response, Hazardous Response Support Division. July 1988.

U.S. EPA. *Superfund Removal Procedures, Revision Number Three*, OSWER Directive 9360.0-03B. February 1988.

National Institute for Occupational Safety and Health (NIOSH). *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*. October 1985.

U.S. EPA. *Protecting Health and Safety at Hazardous Waste Sites: An Overview*. September 1985.

U.S. Navy. *Navy Occupational Safety and Health Program Manual*, OPNAVINST 5100.23B.

CHAPTER THIRTEEN

13.0 RESEARCH, DEVELOPMENT, TESTING, AND EVALUATION (RDT&E)

Hazardous waste (HW) site cleanups can be complex and costly processes. Current cleanup technologies must be used unless new and better technologies are developed. The purpose of RDT&E with respect to the DON Installation Restoration (IR) Program is to identify better, more cost-effective cleanup technologies and to make them available when and where they may be needed. These new technologies may be developed by the DON, the services, or other Federal agencies such as the Environmental Protection Agency (EPA). This chapter discusses available DON, service, and EPA RDT&E resources.

13.1 DON RDT&E Organization and Responsibilities

RDT&E is the key to fulfilling Secretary of Defense Richard Cheney's pledge for DOD to "be the Federal leader in environmental protection and compliance", and Deputy Assistant Secretary of Defense (Environment) Thomas Baca's commitment for DOD to "demonstrate effectiveness in installation restoration...and avoid the need for future cleanup." The practical application of these policies is embodied in the Chief of Naval Operations' business strategy to "reduce the cost of regulatory compliance and oversight." To achieve these goals, DON Environmental Restoration (ER) RDT&E combines classic long-term investment in research with site-specific focus. To make maximum use of scientific and engineering talent, the DON draws upon expertise within several organizations.

13.1.1 Organization and Participation

The Naval Facilities Engineering Command (NAVFACENGCOM) is the central manager of Navy effort under the Defense Environmental Restoration Program (DERP). The Naval Civil Engineering Laboratory (NCEL), with its longstanding experience in shore facilities RDT&E, provides major ER R&D. When expertise in near-shore, receiving water impact is needed, NAVFACENGCOM turns to the Naval Ocean Systems Center (NOSC). Ordnance waste sites and range cleanups pose a special challenge for which NAVFACENGCOM calls on the talents of the Naval Sea Systems Command (NAVSEASYS COM) ordnance community through the Ordnance Environmental Support Office (OESO) at Naval Ordnance Station, Indian Head, MD. Where technology opens doors of opportunity in technical base development, NAVFACENGCOM seeks input from the Naval Research Laboratory (NRL). NAVFACENGCOM also keeps an eye on basic scientific research conducted under the auspices of the Chief of Naval Research for possible application. Each of the ER R&D providers makes use of knowledge residing in academia and EPA through contracted or cooperative agreements.

In the area of basic and technology development research potential NAVFACENGCOM is assisted by a program manager associated with the David Taylor Research Center (DTRC). Through the Installation Restoration Technology Coordinating Committee (IRTCC) and cognizant of the concept of interactive reliance within the DOD laboratory community, NAVFACENGCOM and its R&D providers stay in touch with developments in other services and collaborate with the Army and Air Force, where possible. Since a requirements generator, namely the Superfund legislation with its compliance deadlines, is still the driving force, the transition of technology to current applications is the most important element of the program. For this task, NAVFACENGCOM relies on the Naval Energy and Environmental Support Activity (NEESA), supplemented by engineering and contract expertise at NAVFACENGCOM Engineering Field Divisions (EFDs).

13.1.2 Management

The DON has made the conscious decision to integrate ER RDT&E into the basic framework of the DON. The loose-knit structure of labs or providers is tied together by a long-term master plan for RDT&E required by the Deputy Chief of Naval Operations (DCNO) (Logistics). This Technology Development Plan (TDP) joins the diverse participants in a common purpose for the good of the Navy, including drawing upon work of the other services and the Department of Energy (DOE) to prevent duplication of effort. The R&D TDP is administered by NAVFACENCOM for the Environmental Protection, Safety and Occupational Health Division of the Office of the Chief of Naval Operations (OP-45). In the same participative manner, the execution of research is a collaborative effort of a specific NAVFACENCOM action officer, the principal investigator, a NEESA transition coordinator, EFD engineer, and the site-specific user or customer point of contact.

13.1.3 Results

Since most DON ER R&D is associated with a problem at a specific site, research goes into effect immediately. For information concerning successful DON ER R&D projects, contact the NAVFACENCOM Environmental Restoration Division at (703)325-8176.

13.2 Installation Restoration Technology Coordinating Committee (IRTCC)

The IRTCC was chartered in December 1981 by the Defense Environmental Quality Program Policy Memorandum (DEQPPM) 81-5 to facilitate the exchange of programmatic and technical information among DOD components. The Department of the Army was designated the lead service to chair this Committee.

The IRTCC serves as a working group which coordinates environmental technology research, development, and implementation programs among the services. It provides a mechanism for the exchange of technical information derived from DOD environmental programs with emphasis on IR in order to:

- a. Enhance inter-service technology transfer
- b. Disseminate policy guidance to program managers
- c. Avoid unnecessary duplication of development efforts
- d. Develop a common technical information base for tri-service coordination with the U.S. EPA, DOE, and other Federal departments.

The Committee is composed of:

- a. A principal representative from each service/agency:
 1. U.S. Army
 2. U.S. Navy

3. U.S. Air Force
4. Defense Logistics Agency.

b. A representative from the Office of the Deputy Assistant Secretary of Defense (Environment) (ODASD(E))

c. Additional representation from each service's organizational elements with mission activities related to the IRTCC goals and activities.

The Commander of the U.S. Army Corps of Engineers Toxic and Hazardous Materials Agency is, by charter, the chairperson and designates an executive secretary and a recording secretary.

The IRTCC meetings are hosted by each service/agency in rotation and are held at least semi-annually.

At IRTCC meetings, service representatives present reviews and highlights of their current and planned IR technology development efforts and demonstrations of remedial actions at actual hazardous waste contamination sites. Information is exchanged regarding:

- a. Techniques, procedures, and equipment for conducting remedial investigations and feasibility studies
- b. Remedial action technologies
- c. Contaminant exposure and control criteria
- d. Analytical and quality assurance/quality control techniques
- e. Ongoing technology development efforts and implementation of newly developed technology, including pollution prevention.

13.2.1 Workshops

Tri-service workshops on specific IR and pollution prevention problem areas as well as technology development efforts are fostered by the IRTCC. These workshops are designed to involve developer, user, and production planning offices. They have been highly successful in providing a common perspective to all organizations. Subjects of some of the workshops have been:

- a. Paint sludge disposal
- b. Detection of volatile organic compounds (VOCs) in soil
- c. In situ treatment technology for soils and water
- d. Electroplating wastes
- e. Thermal destruction of hazardous wastes

- f. Quality assurance and quality control of chemical analyses
- g. Biodegradation of explosive/propellant-related contaminants.

The IRTCC participates in the DOD Apportionment Review, an annual joint review of each service's ongoing and planned pollution prevention and installation restoration remedial action technology R&D programs.

Another technology exchange effort is the preparation, publication, and dissemination of the Installation Restoration and Hazardous Waste Control Technologies notebook. It provides a comprehensive, current reference of emerging installation restoration and hazardous waste minimization technologies developed by the Army, Navy, Air Force, and EPA for use by managerial, production, and environmental personnel in DOD and other pertinent Federal agencies. The notebook, updated every other year, provides technology awareness, enhances coordination, and aids in preventing duplication of environmental R&D efforts.

13.2.2 Technology Development Areas

Accomplishments and current efforts which the services have coordinated via the IRTCC include:

- a. Air stripping to treat groundwater contaminated with volatile organics
- b. In situ volatilization of volatile organics in soil
- c. In situ microbial treatment of contaminated soil and groundwater
- d. Cone penetrometer
- e. Risk assessment
- f. Incineration of explosive-contaminated soil and sediment
- g. Aboveground bioremediation of a trichloroethylene contaminated site
- h. In situ decontamination of chemical agent explosives-contaminated equipment using burner exhaust gases
- i. Air stripping solvents from groundwater via large packed-bed towers
- j. Low temperature stripping system for removal of semi-volatile organic compounds
- k. Biodegrading diesel fuels in surface soils via heaped soil bioreactor
- l. Removal of fuel oil contamination from soil being excavated around leaking underground storage tanks (USTs)
- m. In situ stripping of volatile solvents from porous soil

- n. Chemical stabilization of soils contaminated with heavy metals
- o. In situ biodegradation of soils contaminated with jet fuel
- p. Recovery of energy from waste explosive materials.

13.2.3 Contacts

Key DOD contacts for the IRTCC include:

- a. **U.S. Army:**

Commander (IRTCC Chairman)
U.S. Army Corps of Engineers Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, MD 21010-5401

- b. **U.S. Navy:**

Commander
U.S. Naval Facilities Engineering Command
Environmental Restoration Division
200 Stovall Street
Alexandria, VA 22332-2300

- c. **U.S. Air Force:**

U.S. Air Force Engineering Services Center
Attn: Chief, Environics Division
Tyndall Air Force Base, FL 32403

- d. **Defense Logistics Agency:**

Commander
Defense Logistics Agency
Attn: DLA-WS
Cameron Station
Alexandria, VA 22304-6130

- e. **Department of Defense:**

Deputy Assistant Secretary of Defense (Environment)
The Pentagon
Washington, DC 20301-2600

13.3 EPA Superfund Innovative Technology Evaluation (SITE) Program

In 1986, EPA's Office of Solid Waste and Emergency Response and the Office of Research and Development established a formal program called the SITE Program to accelerate the development and

use of innovative technologies at HW sites across the country. Currently, the SITE Program is administered by the Office of Research and Development's Risk Reduction Engineering Laboratory, headquartered in Cincinnati, Ohio.

The goal of the SITE Program is to provide environmental decision-makers with new, viable treatment options that may have performance or cost advantages compared to traditional treatment technologies.

The SITE Program is composed of five related programs which include:

a. **Demonstration Program.** Conduct and monitor demonstrations of promising innovative technologies to provide reliable performance, cost, and applicability information for future site characterization and cleanup decision-making.

b. **Emerging Technologies Program.** Encourage the development of emerging alternative technologies.

c. **Monitoring and Measurement Technologies Program.** Develop technologies that detect, monitor, and measure hazardous and toxic substances to provide better, faster, and more cost-effective methods for producing real-time data during site characterization and remediation.

d. **Innovative Technologies Program.** Encourage private sector development of firms willing to commercialize EPA-developed technologies.

e. **Technology Transfer.** Identify and remove impediments to the use of alternative technologies.

Installations, EFDs and major claimants may obtain further information concerning DON participation in the SITE program by contacting NAVFACENCOM (Environmental Restoration Division).

13.3.1 Demonstration Program

The major focus has been on the Demonstration Program, which is designed to provide engineering and cost data on selected technologies. To date, EPA has completed 18 technology demonstrations in the following areas:

- a. **Biological aqueous treatment**
- b. **Chemical fixation/stabilization**
- c. **Circulating fluidized bed combustor**
- d. **Debris washing**
- e. **Excavation techniques and foam suppression**
- f. **In situ stabilization/solidification**
- g. **In situ steam/air stripping**

- h. In situ vacuum extraction
- i. Infrared thermal destruction
- j. Integrated vapor extraction and steam vacuum stripping
- k. Membrane microfiltration
- l. Pyretron thermal destruction
- m. Soil washing
- n. Solidification/stabilization
- o. Solvent extraction
- p. Ultraviolet radiation, hydrogen peroxide, and ozone.

The Demonstration Program has an additional 45 demonstration projects underway in the following categories: thermal (9), biological (8), physical and chemical (19), solidification/stabilization (8), and radioactive waste (1).

13.3.2 Emerging Technologies Program

EPA has initiated investigations on 31 technologies under the Emerging Technologies Program. Categories under investigation include: thermal (4), physical and chemical (19), solidification/stabilization (1), and biological (7).

13.3.3 SITE Success

The success of the SITE program can be measured by the increased interest in the technologies within the Demonstration and Emerging Technologies Programs. From 1988 through 1990, approximately 90 EPA Records of Decision (RODs) have specified innovative treatment technologies as part of the selected remedy. Several SITE demonstration technologies are currently being used at these Superfund sites and many more are being considered for other sites.

**APPENDIX A
LIST OF ACRONYMS**

A-E: Architect-Engineer

ACE: Army Assistant Chief of Engineers

ACGIH: American Conference of Governmental Industrial Hygienists

AL: Action level

AM: Action memorandum

AMAES: Activity and Management Automated Environmental System

ARAR: Applicable and relevant or appropriate requirement

ASN(I&E): Assistant Secretary of the Navy (Installations and Environment)

ATSDR: Agency for Toxic Substances and Disease Registry

BD/DR: Building demolition and debris removal

BRAC: Base Realignment and Closure

BUMED: Bureau of Medicine and Surgery

CA: Cost Analysis

CAA: Clean Air Act

CAAS: Contractor Advisory and Assistance Services

CBC: Construction Battalion Center

CEQ: Council on Environmental Quality

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CFR: Code of Federal Regulations

CHESDIV: Chesapeake Division

CMC: Commandant of the Marine Corps

CMI: Corrective Measures Implementation

CMS: Corrective Measures Study

CNO: Chief of Naval Operations

COMNAVFACENGCOM: Commander, Naval Facilities Engineering Command

CON/HTW: Containerized/hazardous and toxic waste

CRP: Community Relations Plan

CWA: Clean Water Act

DASD(E): Deputy Assistant Secretary of Defense (Environment)

DCNO: Deputy Chief of Naval Operations

DEMIS: Defense Environmental Management Information System

DEQPPM: Defense Environmental Quality Program Policy Memorandum

DERA: Defense Environmental Restoration Account

DERP: Defense Environmental Restoration Program

DERPMIS: Defense Environmental Restoration Program Management Information System

DOD: Department of Defense

DOE: Department of Energy

DON: Department of the Navy

DOT: Department of Transportation

DPM: Defense Priority Model

DQO: Data Quality Objective

DSMOA: Defense/State Memorandum of Agreement

DTRC: David Taylor Research Center

EE: Engineering Evaluation

EFA: Engineering Field Activity

EFD: Engineering Field Division

EIS: Environmental Impact Statement

EO: Explosive ordnance

E.O.: Executive Order

EPA: Environmental Protection Agency

EQIS: Environmental Quality Information Services

ER: Environmental Restoration

FACSO: Facilities Systems Office

FAR: Federal Acquisition Regulation

FFA: Federal Facility Agreement

FFCA: Federal Facilities Compliance Agreement

FIFRA: Federal Insecticide, Fungicide and Rodenticide Act

FIS: Facilities Information System

FS: Feasibility Study

FSP: Field Sampling Plan

FUDS: Formerly Used Defense Sites

GAO: General Accounting Office

GOCO: Government Owned Contractor Operated

GSA: General Services Administration

HHS: Housing and Human Services

HM: Hazardous Material

HM/HW C&M: Hazardous Material/Hazardous Waste Control and Management

HQ: Headquarters

HRS: Hazard Ranking System

HS: Hazardous Substance

HSP: Health and Safety Plan

HSWA: Hazardous and Solid Waste Amendments

HTW: Hazardous and Toxic Waste

HW: Hazardous Waste

IAG: Interagency Agreement

ICS: Incident Command System

IDLH: Immediately dangerous to life and health

IM: Interim Measures

IR: Installation Restoration

IRTCC: Installation Restoration Technology Coordinating Committee

JAG: Judge Advocate General

LANTDIV: Atlantic Division

LFL: Headquarters Marine Corps, Land Use and Military Construction Branch

LSI: Listing Site Inspection

MCETP: Marine Corps Environmental Training Program

MCO: Marine Corps Order

MESO: Marine Environmental Support Office

MILCON: Military Construction

MOA: Memorandum of Agreement

MSDS: Material Safety Data Sheet

NACIP: Navy Assessment and Control of Installation Pollutants

NAEC: Naval Aviation Engineering Center

NAS: Naval Air Station

NAVFACENCOM: Naval Facilities Engineering Command

NAVSEASYS COM: Naval Sea Systems Command

NCEL: Naval Civil Engineering Laboratory

NCP: National Contingency Plan

NEBBS: Naval Environmental Bulletin Board System

NECIS: Naval Environmental Compliance Information System

NEESA: Naval Energy and Environmental Support Activity

NEHC: Navy Environmental Health Center

NEPA: National Environmental Policy Act

NEPDB: Naval Environmental Protection Data Base

NEPSS: Naval Environmental Protection Support Service

NFRAP: "No Further Response Action Planned"

NIOSH: National Institute for Occupational Safety and Health

NORTHDIV: Northern Division

NOSC: Navy On-Scene Coordinator

NOSC: Naval Ocean Systems Center

NPL: National Priorities List

NRC: National Response Center

NRL: Naval Research Laboratory

NRT: National Response Team

NTP: Navy Training Plan

O&M: Operations and maintenance

O&M,MC: Operations and Maintenance, Marine Corps

O&M,N: Operations and Maintenance, Navy

OASN(I&E): Office of the Assistant Secretary of the Navy (Installations & Environment)

ODASD(E): Office of the Deputy Assistant Secretary of Defense (Environment)

OESO: Ordnance Environmental Support Office

OGC: Office of the General Counsel

OHW: Other Hazardous Waste

OMB: Office of Management and Budget

OPM: Office of Personnel Management

OPNAVINST: Chief of Naval Operations Instruction

OPNAVNOTE: Chief of Naval Operations Notice

OSC: On-Scene Coordinator

OSHA: Occupational Safety and Health Act

OSHA: Occupational Safety and Health Administration

PA: Preliminary Assessment

PA: Pollution Abatement

PACDIV: Pacific Division

PAO: Public Affairs Officer

PCB: Polychlorinated biphenyls

PCR: Pollution Control Report

PEL: Permissible Exposure Limit

POC: Point of contact

POL: Petroleum-oil-lubricant

PPE: Personal Protective Equipment

PR: Preliminary Review

PRP: Potentially responsible party

PWC: Public Works Center

QA/QC: Quality Assurance/Quality Control

QAPP: Quality Assurance Project Plan

R&D: Research and Development

RA: Remedial Action

RACMIS: Remedial Action Contracts Management Information System

RCRA: Resource Conservation and Recovery Act

RD: Remedial Design

RD&D: Research, Development and Demonstration

RDDT&E: Research, Development, Demonstration, Test and Evaluation

RDT&E: Research, Development, Test and Evaluation

RFA: RCRA Facility Assessment

RFI: RCRA Facility Investigation

RI: Remedial Investigation

ROD: Record of Decision

ROICC: Navy Resident Officer in Charge of Construction

RPM: Remedial Project Manager

SAP: Sampling and Analysis Plan

SARA: Superfund Amendments and Reauthorization Act of 1986

SDWA: Safe Drinking Water Act

SECNAV: Secretary of the Navy

SI: Site Inspection

SITE: Superfund Innovative Technology Evaluation

SOFA: Status of Forces Agreement

SOP: Standard Operating Procedure

SOUTHDIV: Southern Division

SOUTHWESTDIV: Southwestern Division

SPCC: Spill Prevention, Control and Countermeasures

SSI: Screening Site Inspection

SV: Sampling Visit

SWMU: Solid Waste Management Unit

TAG: Technical Assistance Grant

TBC: To-be-considered
TDP: Technology Development Plan
TLV: Threshold Limit Value
TRC: Technical Review Committee
TSCA: Toxic Substances Control Act
TSD: Treatment, Storage and Disposal
USC: United States Code
USGS: U.S. Geological Survey
UST: Underground Storage Tank
UXO: Unexploded Ordnance
VOC: Volatile Organic Compound
VSI: Visual Site Inspection
WESTDIV: Western Division

APPENDIX B
STATES WITH AN EPA APPROVED HAZARDOUS WASTE
MANAGEMENT PROGRAM

<u>STATE</u>	<u>DATE APPROVED</u>
ALABAMA	22 DEC 87
ALASKA	
ARIZONA	04 DEC 85
ARKANSAS	25 JAN 85
CALIFORNIA	
COLORADO	02 NOV 84
CONNECTICUT	31 DEC 90
DELAWARE	22 JUN 84
FLORIDA	12 FEB 85
GEORGIA	21 AUG 84
HAWAII	
IDAHO	09 APR 90
ILLINOIS	31 JAN 86
INDIANA	31 JAN 86
IOWA	
KANSAS	17 OCT 85
KENTUCKY	31 JAN 85
LOUISIANA	07 FEB 85
MAINE	20 MAY 88
MARYLAND	11 FEB 85
MASSACHUSETTS	07 FEB 85
MICHIGAN	30 OCT 86
MINNESOTA	11 FEB 85
MISSISSIPPI	27 JUN 84
MISSOURI	04 DEC 85
MONTANA	25 JUL 84
NEBRASKA	07 FEB 85
NEVADA	01 NOV 85
NEW HAMPSHIRE	03 JAN 85
NEW JERSEY	21 FEB 85
NEW MEXICO	25 JAN 85
NEW YORK	29 MAY 86
NORTH CAROLINA	31 DEC 84
NORTH DAKOTA	19 OCT 84
OHIO	30 JUN 89
OKLAHOMA	10 JAN 85
OREGON	31 JAN 86

PENNSYLVANIA	30	JAN	86
RHODE ISLAND	31	JAN	86
SOUTH CAROLINA	22	NOV	85
SOUTH DAKOTA	02	NOV	84
TENNESSEE	05	FEB	85
TEXAS	26	DEC	84
UTAH	24	OCT	84
VERMONT	21	JAN	85
VIRGINIA	18	DEC	84
WASHINGTON	31	JAN	86
WEST VIRGINIA	29	MAY	86
WISCONSIN	31	JAN	86
WYOMING			

DISTRICT OF COLUMBIA	22	MAR	85
PUERTO RICO			
GUAM	27	JAN	86
SAMOA			
U.S. VIRGIN ISLANDS			
NORTHERN MARIANAS			

extracted from BNA 1001:0061 LIST OF STATES WITH FINAL AUTHORITY FOR
HAZARDOUS WASTE MANAGEMENT PROGRAMS

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