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	Engineering and Design MILITARY MUNITIONS RESPONSE PROCESS	
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US Army Corps of Engineers®

ENGINEERING AND DESIGN

MILITARY MUNITIONS RESPONSE PROCESS

ENGINEER PAMPHLET

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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

EP 1110-1-18

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Engineer Pamphlet
No. 1110-1-18

3 April 2006

Engineering and Design
MILITARY MUNITIONS RESPONSE PROCESS

1. Purpose. This pamphlet provides the U.S. Army Corps of Engineers (USACE) personnel with detailed procedures on the process to be used to manage and execute all aspects of military munitions response actions, including munitions constituents.

2. Applicability. This pamphlet applies to all Headquarters, U.S. Army Corps of Engineers (HQUSACE) elements and all USACE commands having responsibility for military munitions response activities.

3. Distribution Statement. Approved for public release; distribution is unlimited.

4. References. References are in Appendix A.

5. Explanations of abbreviations and terms. Abbreviations/acronyms and special terms used in this pamphlet are explained in the Glossary.

FOR THE COMMANDER:

10 Appendices
(see Table of Contents)

JOHN R. McMAHON
Colonel, Corps of Engineers
Chief of Staff

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PROCESS

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CHAPTER 1

General

1-1. Introduction.

a. Response actions at U.S. Army Corps of Engineers (USACE) military munitions (MM) projects can include all forms of responses (i.e., identification; detection; investigation; and removal actions, remedial actions, or a combination of removal and remedial actions) to address munitions and explosives of concern (MEC) or munitions constituents (MC). This document addresses MM response actions conducted under the USACE Formerly Used Defense Sites (FUDS) Program. This chapter provides the context for and describes the scope, goals, objectives, governing policies, procedures, and processes of the USACE military munitions response program (MMRP).

b. USACE organizations requiring additional information beyond that discussed in this document will contact the USACE Military Munitions Mandatory Center of Expertise (MM CX) at the U.S. Army Engineering and Support Center, Huntsville (USAESCH), Alabama.

1-2. Military Munitions Response Program Goals.

a. The primary goal of the USACE MMRP is to take such actions as are necessary to ensure protection of human health, welfare, and the environment from the hazards associated with MEC and MC.

b. This goal reflects the statutory mandate of the Defense Environmental Restoration Program (DERP) (Title 10 United States Code [USC] §2701) and the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC §9601) to protect human health, welfare, and the environment.

c. To aid in the complete understanding of this document, numerous external documents are either required or related. These documents are generally available in electronic format from the proponent's website. However, some documents are not available electronically and must be ordered in printed version from the proponent.

1-3. Scope of the USACE Munitions Response Process.

a. The Department of Defense (DOD) is the lead agency for all munitions response actions. Specific responsibility for executing a response action depends on whether the project is located at a FUDS, a Base Realignment and Closure (BRAC) installation, or an active facility.

b. Authority for conducting a MMRP response action at FUDS has been delegated to the USACE by DOD through Headquarters, Department of the Army (HQDA). Although this guidance is intended to address FUDS, it may also be applied to:

(1) Active military installations;

(2) Installations subject to realignment or closure under the BRAC process; and

(3) Other locations, as determined by any of the following: the Office of the Deputy Under Secretary of Defense (Installations and Environment) (ODUSD [I&E]), the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) (DASA [ESOH]), the U.S. Army Assistant Chief of Staff for Installation Management (ACSIM), or the U.S. Army Chief of Engineers.

1-4. Policy. It is the policy of the USACE that:

a. Munitions response actions be conducted in accordance with CERCLA; Executive Order (EO) 12580, Superfund Implementation (January 23, 1986); EO 13016, Superfund Amendments [August 28, 1996]); and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] Part 300).

b. Personnel conducting munitions response actions identify and attain or formally waive applicable or relevant and appropriate requirements (ARARs) of federal and/or state laws. For munitions response actions conducted as removal actions, compliance with ARARs will be to the extent practicable given the exigencies of the situation, considering the urgency and the scope of the removal action being undertaken.

c. All munitions response actions comply with applicable DOD, Department of the Army (DA), and Occupational Safety and Health Administration (OSHA) safety and health regulations and procedures.

d. All USACE organizations conducting munitions response projects take action to provide for meaningful stakeholder involvement pursuant to all applicable laws, regulations, and policies.

e. All USACE organizations conducting munitions response projects coordinate the actions with appropriate federal, state, tribal, and local governmental agencies and officials, as required pursuant to all applicable laws, regulations, EOs, and policies.

f. There will be no compromise of USACE standards, business practices, or functional requirements in the planning and execution of munitions response projects. Adherence to the quality management principles outlined in Engineer Regulation (ER) 5-1-11, U.S. Army Corps of Engineers Business Process, and ER 1110-1-12, Quality Management, will contribute to achieving this goal.

g. USACE munitions response activities will be consistent with the USACE Strategic Vision and will be executed in concert with activities presented in other USACE guidance.

h. The planning and execution of munitions response projects fully meet customers' expectations for quality, timeliness, and cost-effectiveness, within the bounds of legal responsibility.

i. All munitions response actions undertaken by USACE achieve or exceed the minimum standards defined by this document.

1-5. USACE Organizational Responsibilities. In addition to the roles and responsibilities identified in ER 200-3-1 and ER 1110-1-8153, it is the responsibility of all USACE personnel and organizations involved in the munitions response process to:

a. Execute munitions response projects in accordance with applicable laws, regulations, and policies;

b. Be familiar with, and have access to, copies of the approved Safety Plans prepared for the project-specific activities in which personnel engage;

c. Ensure that personnel conducting project activities have received appropriate training; are under a medical surveillance program; and are issued and use all personal protective equipment (PPE) required by the safety plans, contract specifications (contractor personnel only), or DOD, DA, and OSHA safety and health regulations and procedures;

d. Coordinate the actions with appropriate federal, state, tribal, and local governmental agencies and officials as required pursuant to all applicable laws, regulations, and policies; and

e. Implement the USACE business management practices detailed in ER 5-1-11, Program and Project Management.

1-6. Functional Roles. Organizational functional responsibilities for key functional roles in the munitions response process are shown in Table 1-1.

1-7. Definitions and Acronyms.

a. Definitions of the terms used in this document are provided in the Glossary.

b. A complete list of the acronyms and abbreviations used in this document is also provided in the Glossary.

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Table 1-1 Functional Responsibility for USACE Organizational Elements[1,2]

Activity	Geographic Military Division	PM District	MM Design Center	MM Remedial Action District	MM Center of Expertise[3]	HQ USACE
Project Planning and Budgeting	P	P	S	S	S	P
Preliminary Assessment	A	P	S		R	
Site Inspection		S	P		R	
Time-Critical Removal Action	R	S	P	P	R	
Non-Time-Critical Removal Action[4]		S	P	P	R	
Remedial Investigation		S	P		R	
Feasibility Study		S	P		R	
Decision Documents[5]	R	S	P		R	
Remedial Design		S	P	R	R	
Remedial Action		S	S	P	R	
Long-Term Monitoring		P	S	S	R	
Completion Report	A	P			R	
Project Closeout	A	P			R	
Explosives Safety Submissions		S	P	P	R	R

NOTES:

1. These are general process requirements. Project document reviews and approvals and external agency involvement vary. Refer to ER 200-3-1 and 1110-1-8153 for details.
2. Per ER 200-3-1, the Geographic District will furnish the Project Manager for FUDS.
3. HTRW CX reviews or monitors submittals for MC specific issues as agreed to in the current Memorandum of Agreement between the MM CX and the HTRW CX.
4. The Engineering Evaluation/Cost Analysis (EE/CA) portion of the Non-Time-Critical Removal Action (NTCRA) process must be performed by an MM Design Center. Either an MM DC or MM Remedial Action District may perform the removal action.
5. The approvals for decision documents and action memoranda vary depending on the present worth cost estimate. See ER 200-3-1 Appendix C, paragraph C-6.2 for signature authority and C-6.4 for staffing procedures.

LEGEND:

P = Performs Function
S = Supports in Performing Function
R = Reviews Submittals
A = Approve Submittals

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CHAPTER 2

Project Management and Execution

2-1. Introduction and Overview.

a. This chapter discusses project and financial management, reporting, and contracting practices for munitions response projects conducted by USACE organizations.

b. The information summarizes more detailed guidance found in a variety of references.

2-2. Technical Project Planning.

a. Technical Project Planning (TPP) is a systematic process that involves four phases of planning activities. The TPP process systematically identifies the objectives of the project and designs data collection efforts for investigations. The TPP process is discussed in detail in Engineer Manual (EM) 200-1-2, TPP Process, and is used in each phase of the munitions response process. The four phases of TPP are:

(1) Phase I brings together the munitions response TPP team to identify the current project and to document both short- and long-term project objectives through completion of all work at a project.

(2) Phase II efforts involve an evaluation to determine if additional data are needed to satisfy project objectives. The specific data needs requirements are then identified during the balance of Phase II efforts.

(3) Phase III activities involve identifying the appropriate sampling and analysis methods for the data needed.

(4) Phase IV involves the TPP Team's finalizing the data collection program that best meets the customer's short- and long-term needs within all project and site constraints.

b. For munitions response projects, USACE elements will initiate the TPP process no later than the Site Inspection (SI) phase of the response process.

2-3. Project Management Plans.

a. The Project Manager (PM) will develop a Project Management Plan (PMP), in accordance with ER 5-1-11 for each approved munitions response project. The PMP will incorporate the property-specific Management Action Plan (MAP) that is required pursuant to ER 200-3-1.

b. The PMP is a living, working-level document that records the project history and project requirements and depicts the future direction of the project.

2-4. Funds Control and Financial Reporting.

a. General. Funding may be received through a direct funding allotment (i.e., Funding Authorization Document) or on a reimbursable basis by DD Form 448, Military Interdepartmental Purchase Request (MIPR).

(1) At FUDS properties, the PM will plan, program, and budget for the necessary funding for the FUDS program to implement and maintain post-removal-action land use controls (LUCs), including institutional controls (ICs), where feasible.

(2) District Funding. The PM is responsible for programming all MM project funding needs regardless of the executing command. Districts will request and receive funding from Headquarters, U.S. Army Corps of Engineers (HQUSACE) through the annual work plan.

(3) MM CX Funding. The MM CX will receive program-related funds for MMRP tasks from HQUSACE. The MM CX may also receive MM project funding from the MM Design Center or the MM Remedial Action District for project-related tasks.

(4) MM Design Center and MM Remedial Action District Funding. MM Design Centers and MM Remedial Action Districts will submit funding requirements to the PM for inclusion in the annual MMRP work plan. Work will be initiated upon receipt of funds.

(5) Funding by an Outside Agency. Project funding may also be provided by an outside agency for which work is being performed.

b. At locations other than FUDS properties, the PM will, upon request, provide information on these costs to the responsible DOD Component.

c. Financial Reports. The PM is responsible for project financial reporting. Reports will be prepared and submitted as required by ER 5-1-11. The MM Design Center will provide funding information to the PM, as requested.

2-5. Project Reporting Requirements.

a. The PM will either prepare or, for reports prepared by others (e.g., a contractor), review and approve all project-related reports.

b. The PM will ensure that the USACE Project Management System(s) databases are up-to-date. The MM Design Center and MM Remedial Action Districts will provide project information to the PM, as requested.

c. The PM is responsible for ensuring that the FUDS Management Information System (FUDSMIS) is updated as new information becomes available about the project and the progress of work, in accordance with ER 200-3-1. These updates will occur upon completion of each project phase.

d. If requested by the National Response Team (NRT) or the Regional Response Team (RRT), in accordance with the NCP, the PM will develop a complete report on the response action taken and submit this report through command channels, to the NRT or the RRT. This report will record the situation as it developed, the actions taken, the resources committed, and the problems encountered.

2-6. Project File/Permanent Record.

a. The PM is responsible for creating and maintaining a project file. The project file contains all documents related to the response action (i.e., documents related to the project, plus those documents included in the Administrative Record).

b. Project files will be compiled and maintained in accordance with AR 25-400-2, the Army Records Information Management System (ARIMS) and ER 200-3-1.

2-7. Programming Prioritization.

a. The PM is responsible for ensuring that all munitions response projects are prioritized using the current DOD-specified procedure/model. On October 5, 2005, the Department of Defense promulgated the Munitions Response Site Prioritization Protocol (MRSPP) (32 CFR Part 179). The MRSPP is the DOD standard model for prioritizing munition response sites, and USACE commands will use the MRSPP in all phases of the MMRP.

b. The District will rank munitions response FUDS projects for purposes of assigning funding (see ER 200-3-1), based on the results of the scoring process and other priority setting factors.

2-8. Government-Furnished Property and Materials Management.

a. As a general policy, contractors are usually required to furnish all equipment and materials necessary to perform their contract tasks. However, when deemed in the best interest of the government, equipment and materials (e.g., vehicles, engineering controls, explosives, and magnetometers) may be provided to the contractor by the government. If government-furnished property (GFP) is not provided, but the contract requires specialized equipment or materials that are not included in the contractor's overhead rate, procurement or lease may be authorized. In all cases, property management will comply with the Federal Acquisition Regulation (FAR), other applicable DOD and DA policies, and the internal USACE policies, as appropriate.

b. If GFP is provided to the contractor, the Project Delivery Team (PDT) must be familiar with the FAR requirements concerning management of government property under the control of contractors. The District or MM Design Center or MM Remedial Action District property management personnel will be contacted prior to and during the response action to clarify and help resolve issues concerning management of GFP.

c. The decision to provide GFP to the contractor is normally made when the acquisition is being planned. A recommendation concerning GFP will be made to the Contracting Officer (CO)/Contracting Officer's Representative (COR) by the PDT.

(1) If the government provides GFP, the contract will include appropriate clauses and the GFP will be identified in the contract's scope of work (SOW).

(2) For all projects that exceed 3 months in field duration, the PDT will either arrange to provide General Services Administration vehicles for the contractor's use or document and explain the decision to have the contractor use commercial vehicles.

(3) Even in those cases in which GFP is provided, it is likely that additional or other types of equipment will be required to complete the contract. Additional equipment may be purchased or leased by the contractor if agreed upon at the time of contract award or if subsequently requested in writing and approved by the CO/COR.

d. Acquisitions. Acquisitions must be carefully managed. The PM, with assistance from the team members, will ensure that the contractor submits the required number of quotes and the appropriate analyses for new acquisitions. This means three quotes for each item and a comparison of rental versus purchase cost for each item.

(1) The team's cost engineer will review the contractor's Property Management Plan and each acquisition request from the contractor to determine whether the proposed costs are in line with the costs estimated in the Independent Government Estimate (IGE). The cost engineer and the property management specialist will advise the PM and the CO/COR on whether the acquisition will be approved.

(2) It is important that the property management specialist be consulted and provided with all correspondence when acquisitions are approved, since the procured items become GFP as specified by the contract. The PM and the PDT will become familiar with the specific contract language, which will specify the requirements for disposition of GFP not consumed during the contract.

e. Property Management Plan.

(1) The contractor is required to submit a Property Management Plan as part of the Work Plan for a specific project. This plan will be carefully reviewed primarily by the District or the MM Design Center property management specialist as well as by the PDT.

(2) The Property Management Plan will, at a minimum, include the following:

(a) A description and quantity of materials to be used,

(b) The source and rental and purchase costs of all materials,

(c) Adequate quotes for materials to be acquired,

(d) A list of the consumable supplies and personal property included in the contractor's overhead rate,

(e) A proposed storage plan, and

(f) An ultimate disposal plan.

f. Quality Assurance.

(1) The PM will ensure that the contractor has the proper controls in place to manage and account for property and materials in accordance with the Property Management Plan. To achieve this, the PM, contract specialist, and/or property management specialist will visit the project during execution of the contract/task order. For contracts other than fixed-price contracts, project personnel will carefully check the contractor's invoices to ensure that the procured items were approved as necessary prior to purchase and that all required documentation is included or maintained on file.

(2) The Quality Assurance Surveillance Plan (QASP) should ensure that a member of the PDT is completely familiar with the approved Property Management Plan and the Work Plan, and monitors government-furnished equipment (GFE) per approved plans and the QASP.

2-9. Contracting for Military Munitions Response Support.

a. General. When developing a contract for munitions response services, several factors must be considered: organizational functions, services desired, and the appropriate contract type. MM Design Centers must consult with their COs prior to beginning a contract acquisition.

b. USACE Organizational Functions for Munitions Response Contracting.

(1) MM Design Center.

(a) The MM Design Center will evaluate its contract requirements and solicit and award munitions response contracts as needed for munitions response project actions. Items to consider include customer needs, project workload, reasonable contingencies for unknown requirements, resources available within the government, and private sector capabilities.

(b) When awarding new contracts, the Design Center is encouraged to include the MM CX in the review process to ensure incorporation of current guidance or developments concerning explosives safety considerations, technology, worker qualifications, etc. All contracts for anomaly avoidance or construction support activities must coordinate MMRP-specific contract requirements with the MM CX.

(c) When the MM Design Center awards a stand-alone contract, full contracting authority may be transferred to the District. When awarding a task order to an established MM Design Center Indefinite Delivery Order (IDO) contract, the District must agree to the management controls and reporting mechanisms established by the MM Design Center CO/COR.

(2) The Recovered Chemical Warfare Materiel (RCWM) Design Center will perform all contracting actions for RCWM projects.

(3) MM CX.

(a) The MM CX will maintain the current munitions response data item descriptions (DIDs) for inclusion in munitions response contracts (as appropriate). The MM Design Center and/or MM Remedial Action District may consult the MM CX Website for these items (http://www.hnd.usace.army.mil/oew/).

(b) MM CX personnel are available to participate in the Contract Review Board process for award of munitions response contracts and/or review of contract packages, as requested.

c. Acquisition Planning. Acquisition planning will be completed prior to the munitions response contract solicitation process. The acquisition plan, a coordinated and integrated plan for fulfilling an agency's need in a timely manner and at a reasonable cost, contains the overall strategy for managing the acquisition. If new or stand-alone contracts are developed for munitions response services, the acquisition plan will document the types of contracts considered. All PDT members will participate in the acquisition planning stage to select the appropriate contract type in terms of job accomplishment and cost efficiency. FAR, Part 7, contains general procedures for acquisition planning.

d. Contract Contents.

(1) The FAR, along with its supplements, details the standard structure for a contract. Refer to FAR Part 14 for the Uniform Contract Format. The Uniform Contract Format for Sealed Bidding is shown in Table 2-1. Several portions of the contract contain relatively standard clauses/information, while others are developed specifically for the contract. Care must be taken when developing the contract to ensure it is consistent and includes the services desired. The contract will be administered as a whole, not just by the requirements of a single section.

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Table 2-1 Uniform Contract Format

PART	SECTION	TITLE
I		The Schedule
	A	Solicitation/Contract Form
	B	Supplies or Services and Prices
	C	Descriptions/Specifications
	D	Packaging and Marking
	E	Inspection and Acceptance
	F	Deliveries or Performance
	G	Contract Administration Data
	H	Special Contract Requirements
II		Contract Clauses
	I	Contract Clauses
III		List of Documents, Exhibits and Other Attachments
	J	List of Documents, Exhibits and Other Attachments
IV		Representations and Instructions
	K	Representations, Certifications and Other Statements of Bidders
	L	Instructions, Conditions and Notifications to Bidders
	M	Evaluation Factors for Award

(2) Section B – Supplies or Services and Prices. The MM Design Center will develop a schedule for pricing the contract. It may range from lump sum prices for a service to unit prices or hourly rates for labor categories. The MM Design Center will take care to ensure that Section B contains adequate detail to provide best value to the Government while preventing unnecessary administrative burden that might be caused by excessive contract line items.

(3) Section C – Descriptions/Specifications. This section controls what work will or may be performed by the successful bidder. The MM Design Center must ensure that the descriptions of services desired are clear, and inclusive of all services desired. If a service (e.g., Chemical Warfare Response) is desired but not included in Section C, the contract would require modification to allow that service to be performed. Section C also contains construction specifications that detail the standards for facilities related to MC response work.

(4) Section J – List of Documents, Exhibits, and Other Attachments. Section J will contain a wide variety of contract-related documents. The MM Design Center will develop the list of documents required for the section based on contract services required, acquisition guidance, and MM CX guidance for current attachments. Section J may include such items as:

(a) Contract Data Items List,

(b) Munitions Response Data Item Descriptions (available from the MM CX),

(c) Wage Determinations,

(d) Past Performance Questionnaires, and

(e) Contract Security Requirements.

e. Contract Types.

(1) Contract types generally include fixed-price contracts or task orders, and cost-reimbursable (e.g., cost-plus-fixed-fee [CPFF], time and materials [T&M]) contracts or task orders. These contracts are entered into with various types of contractors, depending on the services required.

(2) The nature of munitions response projects requires maximum contract flexibility. This flexibility is normally achieved by using contracts with provisions for issuing both fixed-price and cost-reimbursable task orders. The CO will make the final determination on contract type and will serve as the principal advisor to the PM on all contract matters.

(a) Fixed-Price Contracts and Task Orders. Whenever possible, fixed-priced contracting will be used for munitions response activities. For example, if there are data that identify or define the quantities of MEC to be removed (e.g., if geophysical mapping and analysis have been completed), fixed-price contracts are preferred over cost-reimbursable contracts. In many cases, however, it is not possible to estimate munitions response project costs with sufficient confidence to negotiate and award a fixed-price contract.

(b) Cost-Reimbursable Contracts and Task Orders. CPFF or T&M contracts are the most commonly used cost-reimbursable contracts for munitions response activities. These contracts afford flexibility when precise requirements cannot be determined prior to issuance of the RFP. The disadvantage of using CPFF contracts is that they place an additional administrative burden on the government. Similarly, T&M contracts have the disadvantage of requiring oversight of the contractor to ensure that efficient methods and effective cost controls are being used. The PM, project engineers, Ordnance and Explosives Safety Specialists (OESSs), and other members of the PDT may be assigned contract surveillance duties and, if assigned these responsibilities, must be familiar with the provisions and terms of the cost-reimbursable contract.

(c) Other cost-reimbursable contracts (e.g., cost-plus-incentive-fee and cost-plus-award-fee) may also be used for munitions response contracts.

(d) An alternative to traditional cost reimbursable or fixed price contracts are performance-based acquisitions (PBAs). PBAs change the focus of the contract execution from “how to” to “what”. PBAs are discussed in detail in the following section. See the MM CX Website for updates.

f. Performance-Based Acquisitions.

(1) PBAs clearly spell out the end result expected of the contractor while leaving the manner of performance (within legal and contractual restraints) up to the contractor. Contractors are given as much freedom as possible in figuring out how to best meet the Government’s performance objective. Traditionally, government munitions response service contracts have

placed a heavy emphasis on the inputs and techniques, rather than ensuring the outcome or project goal. For example, a traditional contract might specify the exact procedures and techniques to quantify MC contamination at a project (install 10 monitoring wells and sample the soils at 5, 10, and 20 feet); amount and type of equipment; and/or time and labor to be used, while a PBA contract's performance work statement would require the contractor to fully characterize the MC contamination at the site, without specifying the exact procedures and processes. Some of the characteristics of a PBA are:

(a) Clearly defined performance expectations and measures,

(b) Clearly defined due dates and milestones,

(c) Use of incentives and disincentives for performance, and

(d) Increased contractor flexibility in exchange for accountability for results.

(2) PBAs offer significant benefits. Primarily they encourage contractors to be innovative and to find cost-effective ways of delivering services. By shifting the focus from specifying the process to specifying the product or project objective(s), they also promise better outcomes. Additional benefits of PBAs are a decrease in government effort in reviewing and approving the inputs and equipment, and moving the focus to reviewing the achievement of the desired results.

(3) The FAR requires PBAs to:

(a) Describe the requirements in terms of results required rather than the methods of performance of the work (e.g., prepare Work and Safety Plans that comply with USACE and OSHA guidance, versus prepare Work and Safety Plans in strict accordance with multiple munitions response DIDs which specify required format, order, and structure);

(b) Use measurable performance standards (i.e., terms of quality, timeliness, quantity) and QASPs. See EM-1110-1-4009;

(c) Specify procedures for reductions of fee or for reductions to the price of a fixed price contract when services are not performed or do not meet contract requirements; and

(d) Include performance incentives where appropriate.

(4) Performance Work Statements of Work/Objectives. The FAR specifies that in preparing performance statements, agencies will, to the maximum extent practicable:

(a) Describe the work in terms of "what" is to be the required output rather than either the "how" the work is to be accomplished, or the number of hours to be provided,

(b) Enable assessment of work performance against measurable performance standards,

(c) Rely on the use of measurable performance standards and financial incentives to encourage competitors to develop and institute innovative and cost-effective methods of performing the work, and

(d) Avoid combining requirements into a single acquisition that is too broad for the agency or a prospective contractor to manage effectively.

(5) PBA Type. The FAR states that the contract type to be chosen will be the one most likely to motivate contractors to perform at optimum level. To the maximum extent practicable, performance incentives (positive, negative, or both) will be incorporated into the contract to encourage contractors to increase efficiency and maximize performance. The incentives are required to correspond to the specific performance standards in the QASP and will be capable of being measured objectively.

g. Quality Assurance Surveillance Plans.

(1) MM Design Centers and MM Remedial Action Districts must prepare a QASP for their MMRP contracts and task orders. The QASP must recognize the responsibility of the contractor to carry out its quality control (QC) obligations and contain measurable inspection and acceptance criteria corresponding to the performance standards in the performance work statement.

(2) The FAR states that the QASP will focus on the level of performance rather than the methodology used by the contractor to achieve the performance. Details on the development of the QASP for munitions response projects is contained in EM 1110-1-4009.

(3) During the Government's quality assurance (QA) reviews of contractor project documents and work, the reviews will focus on:

- The sufficiency of the processes proposed.
- The contractor's quality plan and procedures—are they sufficient to ensure the proper outcomes?
- Are work processes in the field following the approved processes and are they yielding the desired results?

(4) By focusing on the process, the Government resources and efforts are spent ensuring it obtains the munitions response project goal (as stated in the performance work statement) instead of being involved in technical details of every step of the project execution.

h. Cost Estimating.

(1) This section presents an overview of the resources available and the requirements for estimating the cost of a munitions response project. Refer to EM 1110-1-4009 for further discussion on cost estimating.

(2) Cost Estimating Tools. In preparing cost estimates for a munitions response project, the government cost estimator or project engineer must first consider the intent of the cost estimate in order to select the correct cost estimation tool.

(a) Parametric Estimating. Parametric models are used to estimate the magnitude of cost for budget and funding requests. The recommended USACE software program is the Remedial Action Cost Engineering and Requirements System (RACER). RACER calculates quantities of equipment, materials, and labor needed for a project by associating user inputs with the required and secondary parameters presented by the models. A detailed cost estimate can be produced through use of the required and secondary parameters.

(b) Detailed Estimates.

- Models that provide detailed estimates are used to develop detailed contract procurement cost estimates. The recommended USACE software programs for detailed estimates are Micro Computer-Aided Cost Engineering System (MCACES) Gold, MCACES for Windows, Lotus 123™ spreadsheets, or Excel™ spreadsheets.
- A detailed cost estimate is required as part of the contracting process. This detailed estimate is the IGE used for negotiation on individual task orders under an IDO contract. The structure of the cost estimate will vary depending on the contract type, which for munitions response actions may include T&M, PBA, CPFF, cost-plus-incentive fee, or fixed-price.
- The cost estimator or project engineer may develop crew and productivity sheets for the various field activities or tasks in the SOW to determine the duration or number of hours for the various labor categories needed to support each task. The labor rates are burdened rates and reflect all contractor markups.
- Materials, travel, and per diem are duration driven and are totaled separately from the labor. The materials estimated can be purchased, rented, or allocated to overhead.

i. Contract Solicitations. USACE follows normal contracting procedures in munitions response contracting. These procedures are established in the FAR, the Defense FAR Supplement, the Army FAR Supplement, and the Engineer FAR Supplement.

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CHAPTER 3

Military Munitions Response Overview

3-1. Introduction. The purposes of this chapter are:

a. To provide an overview of the munitions response process (further detail on each of the major phases described in this chapter is provided in subsequent chapters of this document), and

b. To provide guidance on topics that affect the munitions response process as a whole.

3-2. Overview.

a. Figure 3-1 summarizes the process used by USACE in conducting an MM response on a FUDS property under CERCLA. Note that the figure is summary level only and does not include every possible action or option (e.g., a project may proceed to closeout from a phase if the data gathered supports that course of action).

b. The first step is to determine if the property is eligible for inclusion in the FUDS program. This is accomplished by following the processes specified in ER 200-3-1. For properties determined eligible, they enter the CERCLA response process as specified in the NCP.

c. Detailed discussions of each phase are contained in the subsequent chapters of this document.

d. Two processes are available for projects where a response action is deemed necessary for MEC and/or MC. These two processes are removal action and remedial action. In general, removal actions are short-term actions, and remedial actions are longer term/permanent remedies.

(1) A removal action is a short-term or immediate action taken to address the presence and/or releases of MEC or MC that may require expedited response due to threats to human health and/or the environment. Removal actions are considered interim actions. However, in accordance with ER 200-3-1, project closeout can be obtained only through the remedial process.

(2) A remedial action consists of actions consistent with a permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release of MEC or MC into the environment, to prevent or minimize the release so that they do not migrate to cause substantial danger to present or future public health, welfare, or the environment.

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Figure 3-1 Munitions Response Process Under CERCLA

3-3. Applicable Laws.

a. This section provides a summary of the various laws, regulations, and Executive Orders (EOs) under which the USACE munitions response process is executed. For additional information or advice on the application of these laws, regulations, and EOs at munitions response projects, consult with the Office of Counsel. A complete listing of the applicable munitions response publications is included in Appendix A.

b. Comprehensive Environmental Response, Compensation, and Liability Act, 42 USC §9601 et seq.

(1) CERCLA was enacted by Congress in 1980 and subsequently amended by the Superfund Amendments and Reauthorization Act (SARA). CERCLA §104(a) authorizes the President to undertake response actions when there is a release or threat of a release of a hazardous substance into the environment, or a release or threat of release of a pollutant or contaminant into the environment, that presents an actual or potential threat to human health or welfare or the environment. All references to CERCLA in this document refer to CERCLA as amended by SARA.

(2) One provision of CERCLA merits special attention—the permit exemption for on-site activities. In accordance with CERCLA §121(e), USACE is exempt from the requirement to obtain federal, state, or local permits for on-site response actions selected in accordance with CERCLA §121. If the response action involves off-site shipment of used or fired military munitions, manifesting requirements for transporting those shipments must be met. Further, the off-site disposal or storage of used or fired military munitions must be sent to, or take place at, a facility that is licensed or permitted for those items.

(3) The NCP is the principal federal regulation for implementing the response authorities of CERCLA. The NCP describes the organizational responsibilities and processes for responding to releases into the environment. It sets specific requirements for the actions of a “lead agency” in conducting such responses. Most of the substantive requirements that apply to the munitions response activities can be found in Subpart E of the NCP (40 CFR Part 300), specifically Sections 300.400 through 300.415, 300.525, 300.800, 300.805, 300.810, and 300.820. This guidance primarily addresses the requirements in 40 CFR §§300.410 and 300.415.

(4) In September 1993, the U.S. Environmental Protection Agency (EPA) promulgated the Off-Site Rule (OSR) in 40 CFR 300.440 to address any remedial or removal action involving the off-site transfer of any hazardous substance, pollutant, or contaminant. The OSR establishes the criteria and procedures for determining whether facilities are acceptable for the receipt of wastes from response actions conducted pursuant to CERCLA. It also establishes compliance criteria and release criteria, and establishes a process for determining whether facilities are acceptable based on those criteria. The OSR also establishes procedures for notification of unacceptability, reconsideration of unacceptability determinations, and reevaluation of unacceptability determinations.

c. Defense Environmental Restoration Program, 10 USC §2701 et seq.

(1) The DERP was established by Section 211 of SARA of 1986. SARA §211 was codified as 10 USC §2701, which states that the "Secretary of Defense will carry out a program of environmental restoration at facilities under the jurisdiction of the Secretary." Related sections in 10 USC §§2702-2706 and §§2810-2811 further define the program.

(2) Other relevant statements in 10 USC §2701(a) are as follows:

(a) The scope of the DERP is defined in 10 USC §2701(b), which states "Goals of the program will include the following: (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 human health or welfare or to the environment; (3) demolition and removal of unsafe buildings and structures, including buildings and structures of the Department of Defense at sites formerly used by or under the jurisdiction of the Secretary."

(b) The phrase "under the jurisdiction of the Secretary" is further described by 10 USC §2701(c), which states "The Secretary will carry out (in accordance with the provisions of this chapter and CERCLA §120) all response actions with respect to releases of hazardous substances from each of the following: (1) each facility or site owned by, leased to, or otherwise possessed by the United States and under the jurisdiction of the Secretary; (2) each facility or site which was under the jurisdiction of the Secretary and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances; and (3) each vessel owned or operated by the Department of Defense."

(3) Under 10 USC §2701(a)(2), response actions (i.e., site identification, detection, investigation, removal actions, remedial actions, or a combination of removal and remedial actions) taken under the DERP to address releases of hazardous substances and pollutants and contaminants (as defined under CERCLA, as amended) must be conducted in accordance with the provisions of CERCLA §120 (42 USC §9620). Therefore, these actions are conducted in accordance with the delegation of certain presidential authorities under CERCLA (delegated via EO 12580, Superfund Implementation (January 23, 1986) and EO 13016, Superfund Amendments (August 28, 1996)), and the NCP (40 CFR Part 300). Response actions (i.e., site identification; detection; investigation; and removal actions, remedial actions, or a combination of removal and remedial actions) to correct other environmental damage (such as the detection and recovery of unexploded ordnance [UXO]) that poses an imminent and substantial endangerment to human health or welfare or to the environment are also conducted in accordance with the provisions of CERCLA, EOs 12580 and 13016, and the NCP. Therefore, the applicable provisions of CERCLA are to be followed for detection and recovery of MEC as well as identification, removal, and disposal of munitions constituents (MC).

(4) In implementing the DERP, DOD uses three program categories: the Installation Restoration program category, the MMRP category, and the Building Demolition/Debris Removal program category. The MMRP category includes all actions taken to address MEC and MC at a FUDS.

(5) Detailed information on requirements for implementing responses under the DERP authority is found in the publication Management Guidance for the Defense Environmental Restoration Program (September 2001). This guidance was issued by the ODUSD (I&E) and applies to all actions undertaken by the USACE munitions response process.

d. The Resource Conservation and Recovery Act (RCRA).

(1) RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984, established a nationwide program addressing the management of solid and hazardous wastes (codified as 42 USC §6901 et seq.). The RCRA program established a comprehensive set of controls over the management of solid and hazardous wastes. The hazardous waste program, established under Subtitle C of RCRA, is based on the concept of a "cradle-to-grave" system, wherein wastes are tracked and controlled from the point of generation to the point of ultimate disposal. In general, the requirements of RCRA constitute ARARs when conducting a munitions response under CERCLA and the NCP. PMs must consult with the District Office of Counsel and the counsel supporting the MM CX to determine the specific RCRA compliance requirements for the projects.

(2) Within the RCRA program, there are specific regulatory standards applicable to the management of military munitions. These regulations, called the Munitions Rule, became effective on August 12, 1997. Most of these requirements are codified at 40 CFR Part 266, Subpart M. Other relevant sections, such as the definitions of, and the regulations addressing, explosives or munitions emergency responses, were placed in other sections of 40 CFR Parts 260-270. The Munitions Rule focuses on defining when a military munition becomes a solid waste rather than on defining when a military munition becomes a hazardous waste. The specific aspects of the Munitions Rule that apply to military munitions encountered in the course of a munitions response include provisions stating that:

(a) Unused military munitions that were abandoned by being disposed of, burned, incinerated, or treated prior to disposal are solid waste.

(b) "Used or fired" military munitions are solid waste under any of the following three circumstances:

- When transported off the range where use occurred for purposes of reclamation, treatment, disposal, or storage prior to reclamation, treatment, or disposal;
- If recovered, collected, and disposed of by burial, landfilling, or land treatment either on or off a range (i.e., at any location); or
- For the purposes of RCRA §1004(27), if the munition lands off range and is not promptly rendered safe and/or retrieved.

(c) The storage and transportation of conventional munitions that are wastes are exempted from most hazardous waste requirements, provided that there was full compliance with the Department of Defense Explosives Safety Board (DDESB) regulations and other requirements. These exemption provisions do not apply to RCWM, which must always be stored and transported as hazardous waste.

(d) A munition or explosive that was the object of an explosives or munitions emergency response is, by definition, a hazardous waste. The Munitions Rule exempts response personnel from the majority of RCRA requirements during the response to alleviate the emergency (this relief does not extend to time-critical removal actions [TCRAs] or non time-critical removal actions [NTCRAs] conducted by USACE, because these actions are not explosives or munitions emergency responses).

3-4. Applicable or Relevant and Appropriate Requirements and Other Criteria To Be Considered.

a. Agencies conducting munitions response actions are required to attain or to formally waive all ARARs under federal or state laws. For munition response actions, compliance with ARARs will be to the extent practicable given the exigencies of the situation, considering the urgency and the scope of the response action being undertaken. Any ARARs that are not met during a response action will be waived in accordance with NCP §300.430(e)(9)(iii)(B). USACE will coordinate with the lead regulator to request a list of potential ARARs.

b. ARARs require an analysis for applicability, relevance, and appropriateness. First, the requirement's applicability is determined. If the requirement is not applicable, an analysis is performed to determine whether it is both relevant and appropriate. When this analysis determines that a requirement is both relevant and appropriate, the requirement must be complied with to the same extent as if it were an applicable requirement.

(1) "Applicable" requirements are those standards, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a site. In general, this includes laws and regulations that affect the use, detection, recovery, or disposal of MEC and MC. Only standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable if they are consistently enforced.

(2) The term "relevant and appropriate requirements" refers to standards, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, such as a munitions response project, address problems or situations sufficiently similar to those encountered that their use is well suited to the particular site. Only standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be relevant and appropriate.

(3) To be considered (TBC) criteria are advisories, or guidance issued by federal or state governments that are not legally binding and do not have the status of potential ARARs. However, in many circumstances TBCs may be considered along with ARARs as part of the site risk assessment and may be used in determining the necessary level of cleanup for protection of human safety, human health, or the environment.

3-5. USACE Requirements.

a. In addition to the federal laws and regulations, there are USACE directives, regulations, and pamphlets that apply to munitions responses.

b. Most of the significant directives and pamphlets that apply to the munition response process are identified within this document and can be found at the MM CX Website.

3-6. Public and Stakeholder Involvement.

a. Goals for Stakeholder Involvement. The goals for stakeholder involvement activities are to:

(1) Serve the local community by keeping local residents, officials, and other stakeholders informed about munitions response activities;

(2) Provide local citizens, officials, and regulators with an opportunity to review and comment on the specific actions being conducted and on proposed response alternatives and decisions; and

(3) Foster and maintain a climate of understanding and trust between all stakeholders and USACE.

b. Relationship to Other Guidance. This section addresses public involvement activities for munitions response projects. The user will refer to Engineer Pamphlet (EP) 1110-3-8 for detailed guidance on how to conduct or apply specific stakeholder involvement techniques and methods. In addition, ER 5-1-11 and EM 200-1-2, TPP Process, contain further information on the involvement of landowners and governmental stakeholders through the PDT. EPA guidance on public involvement is provided in the Superfund Community Involvement Toolkit, Community Involvement Plans (replaced Community Relations in Superfund, A Handbook). http://www.epa.gov/superfund/tools/pdfs/7clplans.pdf.

c. Applicability.

(1) At a FUDS property, execution of the required stakeholder and public involvement activities is the responsibility of the PM and the District Public Affairs Officers (PAO), with the support of the MM Design Center and the MM CX, as needed.

(2) At non-FUDS sites where a munitions response is being executed by USACE, the PM is to provide consultation on and support of the stakeholder involvement actions under the leadership of the installation or military command.

d. Designation of Point of Contact (POC) for Community Inquiries.

(1) Each munitions response project will have a single POC designated for inquiries from the public or media. This POC may be either the PM or the representative of the District PAO.

(a) The District PAO designates the POC. A formal public notice of the name, address, and contact information for the designated POC is required. This person will serve as the primary contact for inquiries or comments about the munitions response project.

(b) At locations other than FUDS properties, the POC is designated by the installation or the responsible command.

(2) At a minimum, the spokesperson will immediately notify all affected citizens, state and local officials, and when appropriate, civil defense or emergency management agencies of current site conditions and actions being taken.

(3) All news releases or statements made by participating agencies will be coordinated with the PM.

e. Public Involvement.

(1) For the purposes of this document, the "public" includes persons living in the general vicinity of the munitions response project site, but may also include others outside the immediate area. Stakeholders include persons with a legal or other direct interest in the munitions response action, including landowners, regulators, Native Americans (including Alaskan Native corporations), Federal Land Managers, and Trustees. Mandatory and recommended public involvement activities are listed below. Details about the processes and methods for implementing these activities are presented in EP 1110-3-8.

(2) There are a number of public involvement requirements. Examples of these requirements include:

(a) Community interviews (e.g., with local officials, community residents, and public interest groups to solicit concerns and information and to learn how citizens would like to be involved).

(b) Preparation of Public Involvement Plans (PIPs) (formerly referred to as community relations plans). The purpose of the PIP is to:

- Ensure the public appropriate opportunities for involvement in a wide variety of site-related decisions, including site analysis and characterization, alternatives analysis, and selection of remedy;
- Determine, based on community interviews, appropriate activities to ensure such public involvement; and
- Provide appropriate opportunities for the community to learn about the site.

(c) Establishment and notification of the establishment of an Administrative Record and Information Repository(ies). Each Information Repository will contain a copy of items made available to the public, such as reports and plans, including information that describes the technical assistance grants application process. The lead agency will inform interested parties of the establishment of the information repository.

(d) Public comment on reports, plans, and Decision Documents (DDs),

(e) Responses to comments (Responsiveness Summary),

(f) Public and informational/technical discussions and/or meetings,

(g) Preparation of fact sheets or other informational material,

(h) News releases, and

(i) Workshops.

(3) Restoration Advisory Boards (RABs).

(a) A RAB is a DOD forum for discussing and exchanging information and receiving individual advice from affected persons and members of the community. RABs are an important vehicle for meaningful public involvement.

(b) The PM, in consultation with the District PAO and the designated spokesperson, will establish a RAB where there is sufficient, sustained community interest. A RAB fulfills the requirements of 10 USC 2705(c) to establish a Technical Review Committee.

(c) The procedures for establishing, operating, maintaining, and terminating a RAB are discussed in EP 1110-3-8.

(4) Inviting the public to participate in the response action process promotes active two-way communication between the USACE and communities affected by response actions. USACE's objectives are to foster and maintain a climate of understanding and trust by:

(a) Collecting information about the concerns of the community and affected or interested parties,

(b) Supplying accurate and timely information about planned actions and progress,

(c) Providing affected parties and the communities with the opportunity to participate in the environmental restoration process, and

(d) Responding to issues and concerns in a timely manner.

f. Technical Assistance for Public Participation (TAPP). Opportunities for the public or the RAB to obtain technical assistance from independent sources to interpret scientific information and engineering information will be provided through the TAPP program. Detailed information on the TAPP process is contained in EP 1110-3-8.

g. Coordination with Landowners, Other Government Agencies, and Other Stakeholders.

(1) Landowners. Landowners can be one or more private residents, local governments, a state, a tribe, or a federal agency.

(a) Because they are significant stakeholders in the munitions response process, landowners are invited to participate on the PDT.

(b) In addition, because of the landowner's direct and legal interest in the performance and outcome of the munitions response activities, the District must notify the owner of anticipated activities and request a right of access to the property to conduct activities. This notification and request for right of access can occur at numerous times throughout the munitions response process. Sample landowner notification access documents are provided in Appendix B.

(2) Other Government Agencies.

(a) The PM will coordinate the planning and execution of all munitions response activities with appropriate federal, state, tribal, and local government agencies and officials, in accordance with ER 5-1-11 and EM 200-1-2. This includes providing opportunities for review and comment on report, plans, and DDs. Coordination with regulatory agencies at the early stages of any response action is essential for preventing costly delays.

(b) For National Priorities List (NPL) projects, USACE must obtain EPA concurrence on the selected remedies. For NPL projects, written concurrence and approval of the remedial design by the state is not required. For non-NPL projects, written concurrence and approval of the DDs by the EPA and/or state is not required. However, in all cases, concurrence will be actively sought and efforts made to identify and resolve outstanding regulatory issues and comments provided by the state and EPA.

(c) The PM will ensure that Trustees, as defined in the NCP, are notified about the presence or likely presence on lands under their trusteeship of MEC and MC that has the potential to cause a natural resource injury. This notification includes coordinating necessary assessments, investigations, and planning with Trustees.

(d) Where necessary to protect human health or welfare, the PM may recommend to the District Commander that they involve other agencies, such as the Federal Emergency Management Agency (FEMA), to conduct a relocation or that state or local officials conduct an evacuation.

(3) Stakeholder and Regulator Involvement for 5-Year Reviews (also called Recurring Reviews). The PM is responsible for notifying all appropriate stakeholders and regulators when a review is being initiated to seek their involvement. Notification of appropriate regulators and stakeholders also will be issued when a review is completed. Refer to EP 75-1-4 for additional information regarding regulator and stakeholder involvement in the 5-year review process.

h. Administrative Record and Information Repository.

(1) Administrative Record. To facilitate meaningful public involvement, the PM must establish, compile, and carefully maintain an Administrative Record. The Administrative Record contains the documents that form the basis for the selection of a response action for a munitions response project. The NCP 40 CFR 300.805(a) requires that the Administrative Record file be initiated at the start of the Remedial Investigation (RI) phase for a remedial action, upon

signature of the Engineering Evaluation and Cost Analysis (EE/CA) Approval Memorandum for a NTCRA, or within 60 days of beginning on-site activities for a TCRA. The Administrative Record must be established and maintained for all munitions response projects whether FUDS, BRAC, or Installation Restoration. Proper establishment and maintenance of the Administrative Record is important to the government's ability to defend the selected response if the action is challenged.

(2) The Information Repository. The Information Repository provides the public with a single reference source for information about environmental restoration activities, including munitions response projects. The Information Repository will be initiated at the same time as the Administrative Record. It must be easily accessible, available at convenient times, and located near the project location. The Information Repository will, at a minimum, include a copy of the Administrative Record (the documents that form the basis for the selection of a response action). Other relevant documents also will be included in the Information Repository.

(3) The specific documents that must be included in the Administrative Record and Information Repository, as well as the procedures associated with the Administrative Record and Information Repository, are described in more detail in EP 1110-3-8.

3-7. Real Estate.

a. Because the USACE does not have ownership of the property at FUDS properties, the PM is responsible for obtaining access agreements from the controlling government agencies, property owner, or lessee. Properly executed access agreements protect the government and contractor personnel from civil and/or criminal penalties for trespassing. The District Chief of Real Estate and/or the HQUSACE Deputy Chief of Staff for Real Estate will be consulted for additional information and project-specific issues. The initial step in obtaining property access is the preparation of the landowner notification letter. A sample letter can be found in Appendix B. Two types of access agreements are discussed below. See ER 200-3-1 for more details on securing right-of-entry (ROE) and easements.

(1) Right-of-Entry. A legally executed ROE is required whenever USACE or parties acting on behalf of USACE (i.e., contractors) conduct any activity on property that is owned by anyone other than USACE. Access agreements are required regardless of whether the property is owned by a government entity.

(a) A standard form ROE agreement is provided in Appendix B. The form must be tailored where indicated to reflect specific site conditions. Office of Counsel can provide assistance to the PM concerning ROE agreement revisions. Once tailored appropriately, the rest of the language of this form may be used without approval from the HQUSACE Office of the Deputy Chief of Staff for Real Estate (ODCSRE) only if there is no variance to the language.

(b) If a variance in the language of the ROE agreement is necessary, proposed changes and authorities will be provided to HQUSACE ODCSRE to request the variance.

(c) If the ownership of the property changes after an ROE has been secured, the PM will be required to request an ROE from the new property owner.

(2) Easement. A legally executed easement may be preferable to an ROE when the PM expects the munitions response to extend over a long period. Such instances include cases in which extensive site mobilization, on-site response activities, and long-term monitoring are expected or in which extensive excavation is expected to be a component of the response.

(a) An easement differs from an ROE in the following respects. First, an easement remains in effect even when the property is conveyed to another party. In addition, more authority, formality, and in some cases, a financial interest, are required to obtain an easement.

(b) An easement also provides greater protection to the government than does an ROE. Requests for authority to acquire such other interests will be submitted to HQUSACE ODCSRE.

b. Access Denied.

(1) If the owner refuses ROE, the USACE District Commander will notify appropriate authorities, such as EPA, state environmental regulatory agencies, and local government agencies involved in public safety of the facts and circumstances and seek their assistance in securing the ROE.

(2) If the owner continues to refuse entry, the USACE District Commander will notify the DASA (ESOH) through the chain of command. The DASA (ESOH) will in turn notify ODUSD (I&E) of the circumstances surrounding the denial of ROE. The DASA (ESOH), in consultation with the Secretary of the Army, Office of General Counsel, will then make appropriate referral to the Attorney General of the United States per CERCLA §104(e)(5)(B) to seek judicial authority to enter the property.

3-8. Munitions Response Explosives Safety Management.

a. Safety. The most important consideration throughout all aspects of the munition response activities performed by USACE and its contractors is the safety and health of on-site personnel. All actions taken in a munitions response will be planned to protect the safety and health of on-site workers and the public. Personnel considerations are discussed in Chapter 15.

b. Explosives Safety. Prior to commencing field operations, the contractor may be required to design and implement a site-specific Explosives Management Plan. This requirement will be identified in the task order for the project. For all matters and operations involving MEC, the contractor is required to comply with:

(1) DOD 6055.9 – DOD Ammunition and Explosives Safety Standard,

(2) AR 385-64,

(3) U.S. Army Technical Manual (TM) 60 series publications on Explosives Ordnance Disposal (EOD) procedures,

(4) ER 385-1-95,

(5) Alcohol, Tobacco, and Firearms P 5400.7, and

(6) Appropriate and relevant state and local explosives regulations/requirements.

c. Safety Documentation. In preparation for a munitions response, there are numerous health and safety submissions that must be prepared and approved. Each submission varies in content and purpose. The required health and safety documents will be submitted in accordance with USACE 385 series documents (e.g., Engineering Regulations, Pamphlets, and Manuals) and/or MM CX interim guidance documents.

d. Chemical or Explosives Safety Submissions. The Explosives Safety Submission (ESS) provides the safety specifications for the execution of the selected conventional munition response alternatives(s). A Chemical Safety Submission (CSS) is required for munition responses that contain RCWM. Details on when an ESS or CSS is required and its preparation, routing, and approvals are found in EP 385-1-95b and EP 75-1-3, respectively.

e. Exclusion Zone Safety. In general, to provide maximum safety to personnel, only the personnel essential for the operation will be allowed in the exclusion zone. Detailed requirements for exclusion zone planning are presented in EP 385-1-95a.

f. Training. Munitions response projects and activities require extensive training before field activities may begin. Detailed requirements on training are contained in ER 385-1-95 and EM 385-1-1. Certain positions may also require enrollment in medical surveillance programs. If required, they will be conducted in accordance with the requirements of 29 CFR 1910.120 (f) and EM 385-1-1.

g. Safety Violations. If a contractor violates any safety provision required by the munitions response contract, a notice of violation will be issued. A sample format for a notice of violation is available from the MM CX (HND Form 948). Districts may modify this form as appropriate. Districts will ensure appropriate distribution of the notice of violation, including to the CO, the Resident Engineer, the district Occupational Health and Safety Officer, and the ordnance and explosives (OE) Safety Manager located at the MM Design Center. The nature and severity of the violations will be reviewed during the contractor selection process for new contracts.

h. Accident and Incident Reporting. All accidents will be reported and investigated to determine their cause and to develop controls to prevent recurrence. Notification and reporting will be in accordance with AR 385-40, Accident Reporting and Records, and USACE Supplement 1 to AR 385-40 and ER 385-1-95. The contractor's UXO Safety Officer (SO) is responsible for accident reporting. For contracts under the supervision of the District, accidents will be reported to the District Safety Office with an informational copy forwarded to the MM CX. USACE District personnel will report through the MM CX and Command channels to the Corps of Engineers Safety Officer (CESO).

i. Small Arms Ammunition (SAA) Classification. For the purposes of explosives safety and munition responses, SAA (items of size .50 caliber or less) are considered a minimal explosives safety hazard. However, there may be issues arising from MC contamination from

small arms ammunition that must be addressed by the munitions response program. One exception to the above is the recent manufacturing and use of .50-caliber ammunition containing an explosive projectile. This item should be found only on limited active ranges and not on a FUDS.

3-9. Munitions Response Quality Management.

a. Introduction. This section defines quality management, QA, and QC, and discusses the general responsibilities of USACE organizations and the PDT pertaining to quality management of FUDS munitions response projects.

b. Quality management principles and general procedures are discussed in ER 5-1-11, U.S. Army Corps of Engineers Business Process and ER 1110-1-12, Quality Management. Details pertaining to QA/QC from munitions response projects are provided in EM 1110-1-4009. Another reference with QA/QC aspects related to sampling and analysis plans is EM 200-1-3.

c. Quality management is defined as the processes required to ensure that a project will satisfy the needs and objectives for which it was undertaken. Quality management consists of quality planning, QA, QC, and quality improvement.

d. ER 5-1-11 requires each activity (i.e., HQUSACE, Major Subordinate Commands (MSCs), Centers, Districts, and laboratories) to document its quality policies, procedures, and responsibilities in a Quality Management Plan (QMP). The QMP aligns the policies and operational procedures of the entire organization to meet the quality requirements of ER 5-1-11. The QMP details the structures and framework of procedures and activities necessary to satisfy the mission, establishes roles and responsibilities, and assigns accountability for quality.

e. Quality Planning.

(1) ER 5-1-11 requires that each project utilize a QMP as the roadmap for quality project delivery. The QMP will include customer expectations and consensus objectives, including project-specific QC procedures appropriate to the size, complexity, acquisition strategy, project delivery, and nature of each product.

(2) The QMP will be developed by the PM with the customer, the MM Design Center, and other appropriate PDT members. It will define specific responsibilities of PDT members with regard to quality (e.g., who reviews and approves project documents, who performs oversight of various contractor activities).

f. Quality Assurance.

(1) QA is defined as the integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement used to ensure that a process, item, or service is of the type and quality needed to meet the project requirements defined in the QMP. Contractually, QA is the means by which the government fulfills its responsibility to

ascertain that the contractor's efforts, including contractor QC procedures, are functioning and all contract requirements have been met.

(2) Programmatic QA. The general quality management responsibilities of various organizations related to the FUDS program are contained in ER 200-3-1.

g. Project QA.

(1) QA at the project level is more than just the traditional verification and acceptance of individual grids completed by the contractor. It is the sum of all PDT efforts in conducting the project and includes surveillance activities performed by competent personnel from appropriate disciplines (e.g., engineers, PAOs, OESSs, chemists, geophysicists), review of project documents, review of project status, and observation of field operations.

(2) The PDT will document all QA procedures to be used to ensure contractor compliance with work plans, review and approval of contractor submittals and technical data, and acceptance of fieldwork. Procedures may be written separately and referenced in the QMP or, for service contracts, in a project-specific QASP.

(3) The PM is responsible for ensuring the overall quality of the project. The PDT will determine the types of QA activities and assign responsibilities. Only essential personnel and authorized visitors will be allowed inside the exclusion zone during operations to perform QA functions.

(4) The PM is responsible for ensuring that a project QA report is written at the conclusion of each phase of the munitions` response project. The report will summarize QA methods used, provide a general assessment of the quality of the project, and identify lessons learned.

h. Quality Control.

(1) QC is the overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established in the QMP. Internally, these are the procedures used by the PDT to ensure that internal products, such as the process for developing, reviewing, and approving a SOW are of high quality. Contractually, QC is the contractor's system for managing, controlling, and documenting its activities to comply with the contract requirements.

(2) The contractor is solely responsible for the control of the process and product quality and for offering to the government only products and services determined to conform to contractual requirements. Each contract will require the contractor to document a project-specific QC Plan. This plan includes procedures, processes, and specified end products and describes QC audits for each process or procedure affecting quality. The specifications for the QC Plan will be identified in the basic contractual document and will include such elements as:

(a) Audit procedures for all processes;

(b) Corrective and preventive action procedures;

(c) Data management procedures;

(d) Geophysical operations;

(e) MC sampling procedures;

(e) Anomaly acquisition and reacquisition procedures;

(f) Equipment calibration procedures;

(g) Pass/fail criteria for all quality audits;

(h) Description of records generated (daily logs, meeting minutes, inspection forms); and

(i) Personnel training requirements.

(3) QC Considerations. Examples of other QC items anticipated during the remedial response project, to ensure that the project objectives and requirements are met, include identifying data needs, developing DQOs, conducting peer/technical reviews of the various project plans, reports, and specifications, identifying QC checks for field and laboratory activities, conducting field activities in accordance with applicable project plans, conducting audits, and performing data reviews/validation.

i. Quality Improvement. Each organization will take specific corrective actions to remove systemic causes of any nonconformance, deficiency, or other unwanted effect. Quality will be improved through the systematic analysis and refinement of work processes. The process of continual quality improvement leads to the refinement of the overall quality system. Improvements may be in the form of revisions to QMPs, changes to specific procedures, and adjustments to resource allocations.

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CHAPTER 4

Project Planning

4-1. General.

a. In the execution of an MM response project, there are numerous government-generated and contractor-generated documents that are critical to the successful execution of the response. This chapter details some of the key documents that are common across the response.

b. Table 4-1 contains a matrix of some of the key documents prepared during the life cycle of a munition response. Brief explanations of these common documents are contained in the following sections. Where a document type is common but its requirements differ greatly by phase, those documents are discussed in their respective chapters of this document.

4-2. Safety Plans.

a. Abbreviated Site Safety and Health Plan (ASSHP).

(1) An ASSHP is required for preliminary project phase activities. An ASSHP will be prepared and used to ensure personnel safety during any project phase where an accident prevention plan is not yet in place. This may include such tasks as:

(a) Project site visits associated with Preliminary Assessment (PA) activities,

(b) Project site visits to gather information for scope of work or Work Plan development,

(c) Public affairs visits, and

(d) Other activities as authorized by the USACE command designated approving official.

(2) Refer to USACE 385 series documents and/or MM CX interim guidance documents for detailed information on the ASSHP, its contents and approval process.

b. Accident Prevention Plan (APP).

(1) A comprehensive APP is required when the purpose of being on-site is to conduct any munitions response work that would require an approved Work Plan, e.g., soil sampling, construction of a geophysical test plot, geophysical mapping, and anomaly investigation.

(2) The APP must be prepared and accepted by the cognizant authority before any site work is begun.

(3) Refer to EM 385-1-1 for detailed information on the APP.

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Table 4-1 Project Planning Documents

Document	Preliminary Assessment	Site Inspection	Remedial Investigation/ Feasibility Study	Remedial Design	Remedial Action	Long-Term Management	Time-Critical Removal Action	USACE Reference
Abbreviated Site Safety Health Plan	P	P	P		P	P	P	IGD 04-03
Accident Prevention Plan		P	P		P	P	P	EM 385-1-1
Chemical Safety Submission			P	U	U	P	P	DA Guidance (Contact MM CX)
Conceptual Site Model		P	U					EM 1110-1-1200
Explosives Safety Submission				P	U			EP 385-1-95b
Five-Year Review Plan			P	U	U	U		EP 75-1-4
Long Term Monitoring Plan				P	U	U		EP 75-1-4
Public Involvement Plan			P	U	U		P	EP 1110-3-8
Project Management Plan		P	U	U	U			ER 5-1-11
Quality Assurance Surveillance Plan		P	P	P	P		P	EM 1110-1-4009
Quality Control Plan		P	P		P		P	ER 1180-1-6
Quality Management Plan		P	U	U	U			ER 5-1-11
Sampling and Analysis Plan		P	P		P			EM 200-1-3
Technical Project Planning		P	U	U	U	U		EM-200-1-2
Work Plan		P	P		P	P	P	Contract Requirements

LEGEND:

P – Prepare Document
U – Update Document

NOTE: The Government may have a contractor prepare/update a document, depending on specific needs.

4-3. Conceptual Site Model.

a. The conceptual site model (CSM) serves as the basis for developing a comprehensive approach for addressing response actions at eligible FUDS properties. A CSM will be initiated under the Site Inspection (SI) phase and refined throughout subsequent phases to provide a description of the property and projects based on existing knowledge of potential sources, pathways, and receptors.

b. Refer to EM 1110-1-1200 for guidance on preparing a CSM for MMRP projects.

4-4. Project Management Plan.

a. The Project Management Plan (PMP) is a living document that is used to define the expected outcomes and guide the project's execution and control. The PDT prepares the PMP in the SI phase and updates it as necessary throughout the life of the munitions response project.

b. The PMP facilitates communication among project participants, assigns responsibilities, defines assumptions, and documents decisions. It also establishes the baseline for project scope, cost, schedule, safety and quality objectives against which performance can be measured.

c. Refer to ER 5-1-11 for further information regarding the PMP.

4-5. Work Plans.

a. A work plan is required for all munitions response projects. Typically, the contractor will prepare the work plan after the site visit. The approved work plan will be the basis for all activities during the execution of the munitions response.

b. The work plan should include a discussion of the project details, including objectives, organization, personnel, safety, quality, communication and reporting, deliverables, schedule, financial management, public relations, management procedures, and field operations procedures.

c. Refer to EM 1110-1-4009 for further information and details regarding the work plan.

4-6. Explosives or Chemical Safety Submission.

a. An Explosives or Chemical Safety Submission (ESS/CSS) serves as the specifications for conducting work activities at the project location. The ESS/CSS details the scope of the project, the planned work activities, and the potential hazards (including the maximum credible event) and the methods for their control.

b. The purpose of the ESS/CSS is to ensure that all applicable DOD and Army Regulations regarding safe and secure handling of MEC and RCWM are followed. The PDT will ensure that

the ESS/CSS, the Work Plan, and the approved decision document or Action Memorandum (AM) are consistent.

c. Intrusive activities cannot commence until the DDESB approves the ESS/CSS. A copy of the approved ESS/CSS will be maintained at the project site. All operations will be executed in accordance with the approved ESS or CSS.

d. PMs will plan on a 3-month time frame for an ESS to be approved by the DDESB from initial submission to the MM CX. Timeframes for CSS submission and approval will be planned in accordance with EP 75-1-3.

e. Detailed guidance on the preparation and process associated with the ESS or CSS may be found in USACE 385 series documents and EP 75-1-3, respectively.

4-7. Public Involvement Plans.

a. The NCP requires that a PIP be prepared for all remedial response actions and for all removal response actions that will exceed 120 days in duration.

b. The initial PIP will be prepared at the conclusion of the SI and then updated through the life of the munitions response. If a TCRA is undertaken before the SI, the PIP will be prepared then.

c. The PIP will convey a working knowledge of the community and its concerns, while providing a framework for addressing community concerns during the remedial or removal process. The PM, in coordination with the PAO, will revise and update the document as changes occur at the munitions response project. A current, accurate PIP will promote opportunities for interaction with the public, enhance the project's success, and strengthen the relationship between the District and the local community.

d. Detailed information on the preparation of the PIP is found in EP 1110-3-8.

4-8. Sampling and Analysis Plan.

a. The Sampling and Analysis Plan (SAP) has replaced the document formerly known as the Chemical Data Acquisition Plan. A SAP is required any time environmental samples will be collected and analyzed to determine the presence or absence of MC. It is prepared specifically for the sampling task.

b. The SAP consists of two parts: a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP). The FSP provides specific detail for all field activities, including all aspects of sampling and any field data gathering activities. The QAPP addresses the project's DQOs, including the QA and QC activities that will be used to achieve the data quality goals of the project.

c. Detailed guidance on the preparation of the SAP is contained in EM 200-1-3.

4-9. Quality Plans.

a. Quality Management Plan.

(1) The QMP is a formal document that is initially prepared in conjunction with the Project Management Plan during the SI and updated as required through the life of the munitions response project. The QMP is the overall quality plan for the munitions response project.

(2) The QMP is a formal document describing in comprehensive detail the necessary QA, QC, and other technical activities that must be implemented to ensure that the results of the work satisfy the stated performance criteria.

b. Quality Assurance Surveillance Plan.

(1) The QASP is a Government developed and applied document that is used to make sure that systematic QA methods are used in the management of a services contract. The purpose of the QASP is to assure that the contractor's performance is in accordance with the requirements set forth in the performance work statement (PWS).

(2) A QASP is developed for each specific PWS and is not generic in nature. It must tie directly to the performance measures set forth in the Statement of Objectives. The QASP serves as the basis for contractor evaluation. Some of the key elements of a QASP are:

(a) Statement of purpose,

(b) Roles and responsibilities of participating government offices,

(c) Performance metrics for contractor's performance assessment record,

(d) The methodologies for monitoring contractor performance (surveillance activities),

(e) QA checklists, and

(f) Corrective action and milestone reporting forms.

(3) Refer to EM 1110-1-4009 for detailed information on the QASP.

c. Quality Control Plans

(1) A Quality Control Plan (QCP) is a task-specific plan, generally prepared by a contractor to detail the techniques and methods by which the contractor will ensure quality work. The QCP is developed for a specific phase of work and is furnished to the government and other stakeholders for review and approval before implementation.

(2) The QCP must detail the breadth of technical disciplines and processes that the contractor will employ to ensure quality of all procedures and processes used to execute the munitions response project.

(3) QCP requirements are contained in the contract. ER 1180-1-6 also contains processes and procedures that may be applicable to a munitions response.

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CHAPTER 5

Preliminary Assessment

5-1. Introduction.

a. This chapter discusses the preliminary assessment (PA) at FUDS properties and the PA phase of the MM response projects. The PA is the first step in the remedial process described in the NCP. It is also the first component of the Remedial Site Evaluation (RSE) Process. The second component, the SI, is discussed in Chapter 6.

b. When an eligible FUDS property has been identified, a CERCLA- and NCP-compliant PA will be performed. Regardless of the number of categories of hazards present (hazardous, toxic, and radioactive waste [HTRW], MEC, building demolition/debris removal [BD/DR], etc.), only one PA will be prepared for the property. The PA will comply with the requirements in ER 200-3-1.

c. EPA guidance on conducting a PA can be found in:

(1) Guidance for Performing Preliminary Assessments Under CERCLA (EPA/540/G-91/013),

(2) Improving Site Assessment: Combined PA/SI Assessments (EPA 540-F-98-038), and

(3) Improving Site Assessment: Abbreviated Preliminary Assessments (EPA 540-F-98-037).

d. Additional information on conducting an archives search can also be found in the Technical/Regulatory Guidelines for Munitions Response, Historical Records Review, prepared by the Interstate Technology and Regulatory Council's Unexploded Ordnance Team.

5-2. General.

a. The initial phase of work for FUDS property(ies) includes three distinct actions:

(1) Determining the property's eligibility for inclusion in the FUDS program;

(2) Conducting a PA of the property for any and all DOD-generated hazards that may or may not be present, and

(3) Preparing an Inventory Project Report (INPR) for the property that recommends future projects for the property (if any).

b. The first step, determining property and project eligibility, and the process for documenting eligibility are discussed in detail in ER 200-3-1 and will not be repeated in this document.

c. The second step, preparing a PA, is discussed in detail in this chapter.

d. The final step, preparing the INPR, is discussed briefly in this chapter, and is fully detailed in ER 200-3-1.

5-3. Purpose.

a. The PA forms the foundation for the FUDS INPR and provides the basis for project authorization and/or No DOD Action Indicated (NDAI) determinations for all FUDS hazard categories. The objectives of performing a PA are to:

(1) Eliminate from further consideration those eligible properties, or areas of an eligible property, that pose little or no threat;

(2) Determine if there is any potential need for removal action;

(3) Set priorities for site inspections at eligible FUDS projects;

(4) Gather useable data for any future EPA Hazard Ranking System (HRS) evaluation; and

(5) Gather data and prepare the Explosives Hazard Evaluation (EHE) and Chemical Warfare Materiel Hazard Evaluation (CHE) modules of the MRSPP.

b. PAs are a component of the FUDS property screening process and are conducted for all new eligible FUDS properties and for eligible FUDS properties re-examined at the request of stakeholders.

c. If a FUDS project is in response action phases (i.e., past the PA phase) and has not had historical information researched regarding the property use, the PDT may choose to collect such data as necessary to support its response action decisions. This documentation will be included in the project files and administrative record (when established).

5-4. Overview.

a. Figure 5-1 illustrates an overview of the PA process. The USACE District is responsible for executing the PA. If the District utilizes contractor support to execute the PA, the District is responsible for all aspects of the contracting process.

b. The PA is done on a propertywide basis and evaluates all potential projects and hazards. Separate PAs are not performed for each potential type of project (e.g., HTRW, BD/DR, containerized HTRW [CON/HTRW], MMRP, and/or potentially responsible party [PRP]). Both the HTRW and MM CXs will review the PA Report prior to finalization (per ER 200-3-1).

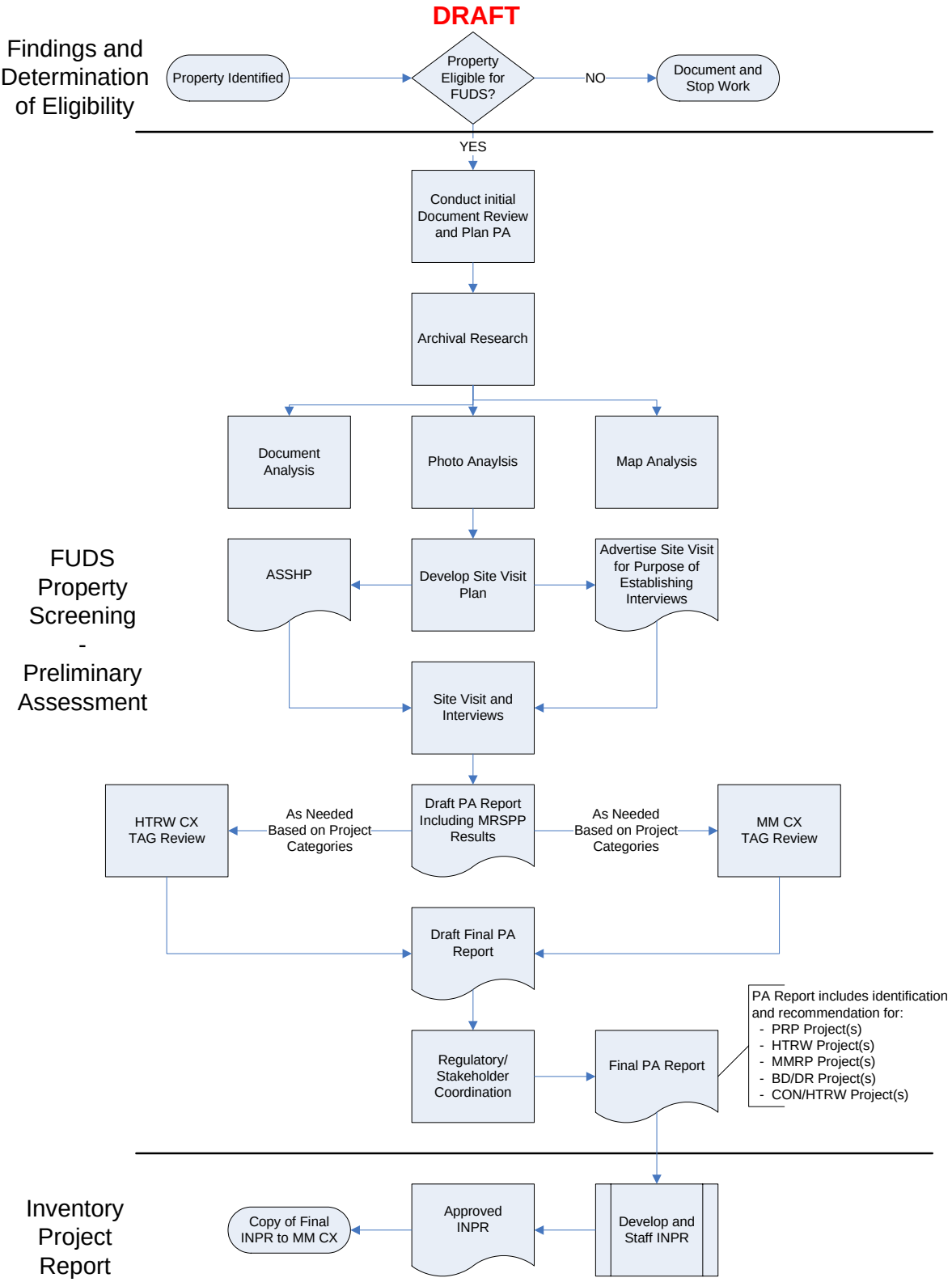

Figure 5-1 Preliminary Assessment Process

5-5. Comprehensive Environmental Response, Compensation, and Liability Act Preliminary Assessment.

a. If a property is determined to be FUDS eligible and potential project(s) are identified, the District will perform a FUDS property screening by completing a CERCLA PA. The PA is the first step in the remedial process discussed in the NCP.

b. The PA involves collecting readily available information (archives search) and conducting a project site visit. Conducting archival research is discussed in Section 5-6, and conducting a project site visit is discussed in Section 5-7.

c. The intent of the PA is to differentiate between properties with little or no threat to human health and the environment and those that require additional investigation or action. The PA is also intended to identify those properties requiring emergency response and removal actions. A supplemental site visit may be necessary during the conduct of the PA to better define possible exposure pathways and the targets of exposure to military munitions to refine the emergency response or necessary removal actions.

d. The results of the PA will be included in the INPR report in the form of an executive summary and will include a description of release(s), a description of the probable nature of the release, and a recommendation as to whether further action is warranted. The full PA report will be included as an appendix to the INPR.

5-6. Archives Search and Information Collection.

a. Before FY06, an Archives Search Report (ASR) was centrally prepared by the MM CX as a stand-alone document after the INPR was approved. This will no longer be done. The PM is now responsible for conducting the archival research (on all potential types of releases) and integrating all information gathered during the archival research into the PA report.

b. The Rock Island and St. Louis Districts have extensive experience in conducting archival research for the MMRP program. They are available to support the PM in archival research for eligible properties.

c. Description of Archives Search. The first step in the archives search process is to locate, retrieve, and review all available and appropriate documents related to the site. Sources of information for the archives search include historical documents, maps, drawings, and aerial photographs; interviews; and a visual inspection of the site. Information gathered will include information on the period during which MEC/MC was used, manufactured, or disposed of at the site; information on the types and quantities of ordnance used, manufactured, or disposed of at the site; documentation of any incidents involving MEC/MC; documentation of the environmental setting of the site; and, if available, information on any response or removal actions already taken.

d. Archival Research Team. The research team must include a team leader, an archivist or historian, and an OESS. The team leader is responsible for all actions of the team, including the preparation and submittal of all reports.

e. Management of Information.

(1) The team will make copies of all documents applicable to the site. The copies will be marked using standard archival techniques to document the location of the original document.

(2) A master record and index will be maintained that shows the location of the file, POC name, address and telephone number, record group, and file and box number.

(3) All interviews will be documented in writing or on audiotape and maintained as part of the PA project file.

f. Sources of Information. Possible sources of historical information include the following:

(1) Local Officials. The local fire department or law enforcement agencies may have information about past encounters with MEC/MC at the site, as well as some historical knowledge of activities at the site.

(2) Land Owners and Former Employees. Interviewing current site owners, as well as former employees of the activity, may provide invaluable historical information on the site.

(3) Real Estate Records. Real estate records pertaining to a site can often be found at the District office. The team leader will consult with the District Division of Real Estate on the collection and review of property ownership records and other real property documents, such as leases or easements. Records may or may not describe prior removal actions.

(a) If the government leased the property from another party, the lease agreement will indicate the use the government planned for the property at the time the lease was signed.

(b) If the government leased the property to another party, the lease agreement may specify the activities the government authorized the lessee to perform on the property.

(4) If the property was sold or transferred to the public, current and historical property records, usually found in the Clerk's Office of the county courthouse, may also provide information regarding activities that took place on the property. These records also document all ownership by private parties and may also document any land use restrictions placed on the property at the time of transfer.

(5) National Archives. Official historical Army records are stored at the National Archives in Suitland, Maryland. These records can provide information concerning the site mission and use.

(6) Local Military Museums. Local military museums may have information about prior activities at the site and potential MM hazards associated with those activities.

(7) Local EOD Unit. Records concerning possible ordnance hazards may be located at the local EOD unit responsible for the particular geographic area. Records are maintained by the company for a maximum of 3 years and by EOD centralized records for a maximum of 5 years.

(8) The Operational Support Command (OSC). OSC is responsible for the Army's firearms and munitions and is an excellent source of information on past munitions and chemical warfare production, testing, and storage sites. Headquarters OSC is located in Rock Island, Illinois, and can be reached at 309-782-1272. OSC also maintains an archive at Aberdeen Proving Ground, Maryland.

(9) The Army Materiel Command (AMC). AMC Technical Escort Units (TEUs) are responsible for responding to, rendering safe, and escorting chemical agents and munitions. The TEUs are a good source of information on sites potentially contaminated with RCWM and can be reached at 410-436-8524. The main POC is located at Aberdeen Proving Ground, Maryland.

(10) National Cartography Records. National cartographic records are located in Washington, DC, and may provide additional historical information, including maps, drawings, and aerial photographs.

5-7. Project Site Visit.

a. A project site visit is required to visually confirm the results of the record search; to determine whether there is evidence of the presence of MEC or MC, and whether DOD caused the observed conditions prior to 17 October 1986; to provide supplemental information for decisions regarding property and project eligibility; and to obtain physical data to complete the MRSPP.

b. Property Access. At FUDS properties, because DOD is no longer the property owner, the PM will secure a written ROE prior to entering the property.

c. Safety Considerations.

(1) Safety is a primary consideration when conducting a site visit at a property that potentially contains military munitions. An ASSHP is required for the site visit. The PM at the District is responsible for preparing and securing approval of the ASSHP prior to the PA site visit.

(2) The site visit will be conducted using practices intended to prevent encounters with military munitions (often referred to as "MEC avoidance techniques"). Personnel conducting the PA will not enter into close proximity to suspect items, nor will they touch, move, or otherwise disturb any suspect item in any way. Markings such as "practice bomb," "dummy," or "inert" will be noted in the written record of the site visit, but personnel will not assume the marked item is not hazardous.

(3) If MEC are found at a site and the site visit team's UXO Safety Officer or OE Safety Specialist believes the MEC present an imminent danger to the public, the team leader must

contact the POC shown on the ROE, and notify this individual of the imminent hazard and advise calling the local emergency response authority, i.e., police department, sheriff, or fire department. The team leader should then notify the MM CX of the find and the actions taken.

(4) If munitions with unknown fillers are found at a site (as determined by the site visit team's UXO Safety Officer or OE Safety Specialist), the team will secure the site until the emergency response authority arrives. The team leader must contact the POC shown on the ROE, notify this individual of the imminent hazard, and advise calling the local emergency response authority, i.e., police department, sheriff, or fire department. The team leader should then notify the MM CX of the find and the actions taken.

(a) Munitions with unknown fillers may have color coding or markings, such as a green band, typical of chemical munitions.

(b) See EP 75-1-3 for a description of requirements when RCWM are encountered.

5-8. Munitions Response Site Prioritization Protocol.

a. The MRSPP implements the requirement established in Section 311(b) of the National Defense Authorization Act for Fiscal Year 2002 (codified at 10 U.S. Code § 2710(b)). DOD uses the MRSPP to assign a relative priority for munitions responses to each location in the DOD's inventory of munitions response sites. In this system the EHE is used to evaluate MEC, the CHE is used for RCWM, and a Health Hazard Evaluation (HHE) process similar to the Relative Risk Site Evaluation (RRSE) (used for prioritizing HTRW projects) is used to prioritize MC. The MRSPP replaces the RAC worksheet in the PA process.

b. The MRSPP, a process unique to the MMRP, is used to evaluate the degree of hazard associated with the confirmed or suspected presence of MEC or MC. Based on the property inspection and knowledge of operations, an MRSPP score will be assigned to properties with confirmed or suspected presence of MEC or MC. The MRSPP will be completed as part of the PA if there is any potential for MEC or MC at, or emanating from, the FUDS property. The MRSPP worksheets and outcome are attached to the PA report as an appendix. MRSPPs are not performed for properties that have no potential for MEC or MC. When the MRSPP results in a score of 1 through 8 for the property, individual MRSPPs will be prepared for each proposed munitions response site.

c. An MRSPP assessment will be performed for all munitions response sites under investigation for the potential presence of MEC or MC. The risk assessment will be performed using the MRSPP worksheets. The worksheets and the resulting MRSPP score use available information about the potential MEC or MC hazards identified at a site to prioritize response actions at FUDS munitions response sites.

d. The MRSPP is executed by the District, reviewed by the MM CX, and approved by the MSC. The MRSPP is found at 32 CFR Part 179, Munitions Response Site Prioritization Protocol, dated October 5, 2005. The MRSPP has several unique requirements that USACE must consider when performing the PA.

(1) Prior to beginning prioritization, the Component organization responsible for implementing a munitions response at the munitions response site (MRS) will publish an announcement in local community publications requesting information pertinent to prioritization or sequencing decisions to ensure the local community is aware of the opportunity to participate in the application of the rule. USACE organizations conducting MRSPPs must ensure they provide this opportunity.

(2) The Component organization will review each MRS priority (as assigned by the MRSPP) at least annually and update the priority as necessary to reflect new information. Reapplication of the MRSPP rule is required under any of the following circumstances:

(a) Upon completion of a response action that changes site conditions in a manner that could affect the evaluation under this rule.

(b) To update or validate a previous evaluation at an MRS when new information is available.

(c) To update or validate the priority assigned where that priority has been previously assigned based on evaluation of only one or two of the three hazard evaluation modules.

(d) Upon further delineation and characterization of a munitions response area (MRA) into MRSs.

(e) To categorize any MRS previously classified as “evaluation pending.”

e. The MRSPP consists of three hazard evaluation modules that are completed and then combined to come up with a priority ranking. They are:

(1) Explosives Hazards Evaluation Module. The EHE module provides the DOD a single, department-wide approach for the evaluation of explosive hazards.

(a) The EHE module is composed of three factors, each of which has two to four data elements. The factors are: Explosive Hazard, Accessibility, and Receptors.

(b) The EHE module score results in the MRS being assigned a rating from A (highest hazard) to G (lowest hazard).

(2) Chemical Warfare Materiel Hazard Evaluation Module. The CHE module provides an evaluation of the chemical hazards associated with the physiological effects of CWM. The CHE module is used only when CWM are known or suspected to be present at an MRS.

(a) Like the EHE, the CHE has three factors (CWM Hazard, Accessibility, and Receptors), each of which has two to four data elements that are intended to assess the condition at the MRS.

(b) Similar to the EHE, each data element is assigned a numeric score, and the sum of these scores is used to determine the CHE rating. The CHE rating assigns the MRS a rating of A (highest hazard) to G (lowest hazard).

(3) Health Hazard Evaluation. The HHE, which is the final module of the MRSPP, provides a consistent approach to evaluating the relative risk posed by MC to human health and the environment. The HHE builds on the RRSE framework that is used in the installation restoration program and has been modified to address the unique requirements of an MRS.

(a) The HHE module will be used for evaluating the potential hazards posed by MC and other chemical contaminants. The HHE has three factors: the Contamination Hazard Factor (CHF), the Receptor Factor (RF), and the Migration Pathway Factor (MPF). Each factor is assigned a high, medium, or low rating (upon completion of the worksheets).

(b) The HHE factor ratings are combined, and the combination is used to assign an overall HHE rating, ranging from A (highest hazard) to G (lowest hazard).

(4) The MRSPP module outcomes are then combined to assign the MRS a rating of 1 (highest priority) through 8. The outcomes of all modules are entered into the MRSPP Priority Table, and the MRSPP Priority is based on the highest hazard evaluation module rating.

(a) If insufficient information is available to complete all modules, the MRSPP is based on the modules completed.

(b) Only sites with CWM may receive a MRSPP Priority of 1.

f. When the MRSPP Priority Ranking is 1 through 8, the CERCLA PA will include information relevant to the identified MMRP at the property for both MEC and MC. This MMRP information, previously contained in the ASR, will be included in the CERCLA PA Report to identify MMRP projects. The MRSPP worksheets will be included in the PA Report.

5-9. Review of the PA Report.

a. The PM will submit the draft PA Report to the MM and HTRW CXs for review (the report will be submitted to the appropriate CX based on findings; e.g., properties with only HTRW concerns will be submitted to the HTRW CX only, and so forth).

b. For PA Reports submitted to the MM CX, the MM CX will convene a Technical Advisory Group (TAG) to review the PA Report. The TAG consists of representatives of the MM CX, an MM Design Center, an OE Safety Specialist, and technical discipline personnel, as required.

c. The TAG will review the PA Report and its project recommendations and provide a consensus strategy for subsequent response actions that will be recommended to the PM for inclusion in the INPR. District personnel will be invited to participate in the TAG review. Project actions recommended by the TAG may include conducting an SI, TCRA, or NTCRA; a combination of removal and remedial actions; or an NDAI.

d. Upon completion of this review, the TAG will revise the MRSPP worksheets, if required. Additionally, the TAG will develop the TAG Review Fact Sheet (Appendix O of the PA Report). The Fact Sheet will provide/discuss:

(1) A brief summary of the property and any munitions projects;

(2) The response approach selected;

(3) The rationale for selecting such an approach, including a discussion of the potential for, and significance of, any threat to human health, safety, and the environment posed by military munitions at the site;

(4) The timeframe for initiating the recommended subsequent action; and

(5) The recommendation from the TAG, which must be thoroughly justified in writing with reference to the potential for and significance of any imminent threat to human health, safety, and the environment.

e. At the end of the PA process, a project declaration document will be prepared (see ER 200-3-1) for either an NDAI recommendation or a decision to move forward with the project (either implement a removal action or continue the remedial process with an SI).

f. The outline of the PA report for FUDS properties is included in Appendix C.

g. The PA report will be included in the permanent Project File and will be used during preparation of the property and project summary sheets.

5-10. PA Report Approval Process.

a. The PA review and approval process is illustrated in Figure 5-1.

b. The District will approve the final PA and ensure it was coordinated with the appropriate federal, state, and local regulators; American Indian Tribal Nations; and local agencies. Comments received and District responses will be placed in the project file.

c. If an NDAI is recommended, the MM CX will submit an NDAI recommendation memorandum to the District, who will assemble the complete INPR package and send it to the Division for approval.

d. The District will fully coordinate proposed NDAI decisions to ensure that the concerns and interests of the stakeholders are known and considered in the decision-making process. Coordination will be accomplished with the property owners; the appropriate federal, state, and local agencies; American Indian Tribal Nations; and local community members.

e. The Division will create an NDAI Decision Memorandum and send it to the District, the MM CX, and HQUSACE.

5-11. The Inventory Project Report.

a. The INPR is prepared to document the findings of the property, project eligibility determinations, the findings of the PA, and other information. It serves as the basis for decisions on the need for further action at the site.

b. The PM prepares the INPR for approval by both the District and the MSC Commanders.

c. The MSC Commander uses the information in the INPR to make project and property eligibility determinations. An INPR can conclude either that further munitions response action is appropriate or that NDAI) is appropriate. A Category-I NDAI determination is appropriate when the property is determined to be ineligible, categorically excluded, there is no hazard, or DOD is not responsible. Additional descriptions of the decision logic and criteria for making such determinations are presented in ER 200-3-1.

d. Contents of the INPR. The contents of an INPR will vary, depending on property eligibility, project eligibility, and project category. The INPR has several sections, in addition to any required appendices. If, for some reason, a section is not completed, the PM will provide a narrative statement explaining the rationale for not completing the section. When more than one project is included in the INPR, only one Findings and Determination of Eligibility (FDE), one Property Survey Summary Sheet, one District Engineer's Memorandum, and one MSC Memorandum are needed. The sections required in an INPR are listed and all sections are prepared in accordance with the guidance contained in ER 200-3-1.

(1) District Commander's Transmittal Memorandum.

(2) Property Survey Summary Sheet.

(3) Findings and Determination of Eligibility (FDE).

(4) Project Summary Sheet.

(5) The Completed MRSPP Worksheets and Priority Ranking.

(6) Executive Summary of the CERCLA Preliminary Assessment.

(7) Cost Estimate.

(a) The geographic military district FUDS PM is ultimately responsible for the costs that are developed and reported in the FUDMIS database. The PM must ensure that the FUDS cost to complete (CTC) estimates are complete and that they include all present and future project costs in current year dollars.

(b) The District PM with the PDT, in conjunction with the MM Design Center, will determine the type of response needed. Because of the uncertainty of the response at the PA phase, the MM CX can be tasked to develop a parametric CTC estimate.

5-12. Inventory Project Report Review and Approval Process.

a. Once the INPR is complete, it is submitted to the District Office of Counsel and Office of Real Estate (Geographic District) for review prior to submission to the MSC for review.

b. Figure 5-2 illustrates the complete INPR review process.

c. The District will provide the draft INPR to the appropriate federal, state, and local regulators, as well as the landowner, for notification and for requesting additional information regarding the property, in accordance with ER 200-3-1 and ER 5-1-11.

d. The MM CX is responsible for reviewing and returning the draft INPR with:

(1) Project recommendations,

(2) A revised MRSPP Priority Ranking; and

(3) The programmatic CTC estimate that will be entered into the programmatic work plan to secure funding for the project in the appropriate fiscal year work plan.

e. If it is determined that there is no eligible project, then a Category-I NDAI decision is made and the MM CX will send the Category-I NDAI memorandum to the MSC. The MSC will prepare an approved NDAI determination memorandum and forward a copy to HQUSACE, the MM CX, and the District. The District will provide written notification to the landowner(s) and appropriate federal, state, and local regulators of all Category-I NDAI decisions within 30 days of receipt of the approved NDAI determination from the MSC.

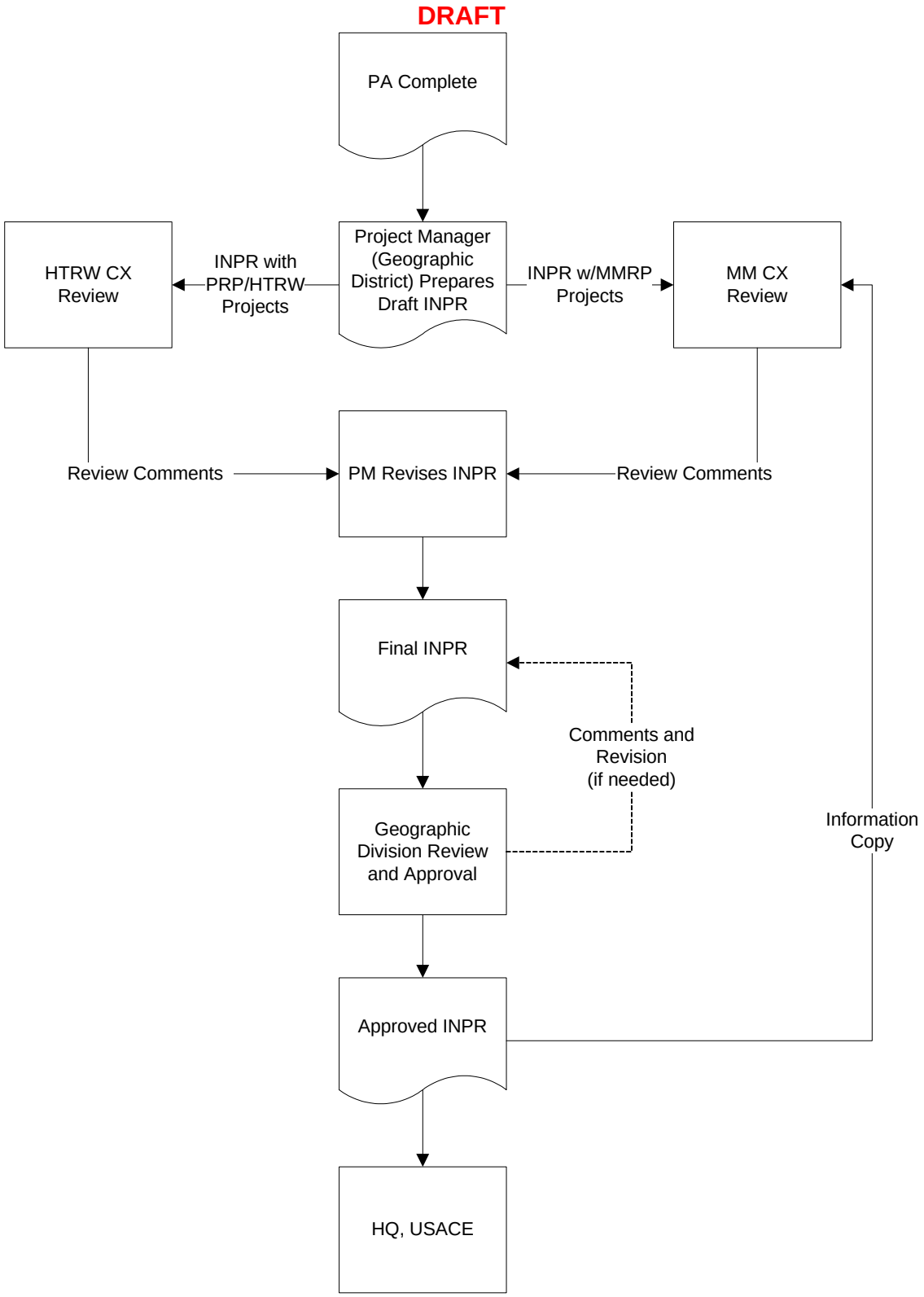

Figure 5-2 Inventory Project Report Review Process

f. If a project is approved, the MSC will prepare an INPR Approval Memorandum. The INPR Approval Memorandum authorizes the project eligibility and initiation of ROE, easement, or other access agreement negotiations. Additional information regarding landowner notification and access agreements is provided in Chapter 3.

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CHAPTER 6

Site Inspection

6-1. Introduction and Purpose.

a. This chapter discusses the SI phase of the CERCLA process. The SI is the second component of the Site Evaluation following the PA. This SI is not intended as a full-scale study of the nature and extent of contamination or explosives hazards.

b. When information in the PA indicates the presence of significant MC contamination, it is not necessary to perform an SI, and the response process can proceed directly to the RI phase. Information collected during the SI will also be used to update/complete the Health Hazard Evaluation Module of the MRSPP, and update the MRSPP priority score as appropriate, which will be entered into FUDSMIS. More detailed information pertaining to the SI can be found in EPA/540-R-92-021.

c. EPA guidance on SIs can be found in Guidance for Performing Site Inspections Under CERCLA Interim Final (EPA/540-R-92-021), and Improving Site Assessment: Combined PA/SI Assessments (EPA/540-F-98-038).

d. The purposes of the SI are to:

(1) Eliminate from further consideration those releases that pose no significant threat to public health or the environment;

(2) Determine the potential need for removal action;

(3) Collect or develop additional data, appropriate for HRS scoring by EPA;

(4) Collect or develop additional data, appropriate for use in the MRSPP;

(5) Collect or develop additional data appropriate for use in the identification of the Munitions Response Area (MRA) and Munition Response Sites (MRS); and

(6) Collect data, as appropriate, to characterize the release for effective and rapid initiation of the RI/Feasibility Study (FS).

e. The archives search and information collected during the PA and included in the ASR will be used in the SI.

f. Figure 6-1 illustrates the sequence of activities in the SI. The following sections describe each activity in more detail.

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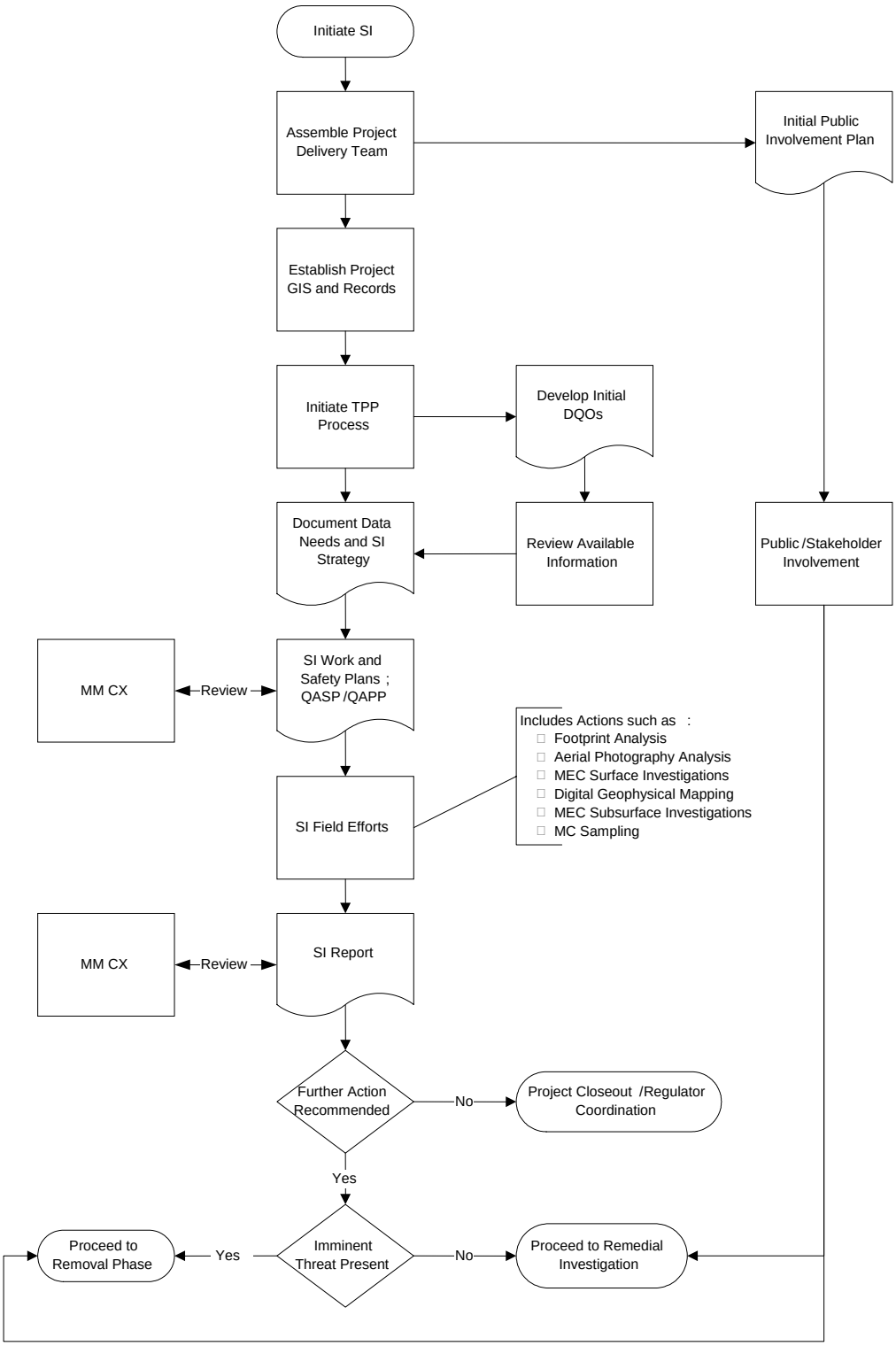

Figure 6-1 Site Inspection Process

6-2. Site Inspection Process.

a. In this subsection, the SI process requirements for munitions response projects are presented.

b. Initiating the TPP Process. Initiating TPP process to determine the project objectives and associated data needs to reach project closeout, developing DQOs, and developing the initial CSM. Refer to EM 200-1-2 and EM 1110-1-1200.

c. Project Site Visit. Visiting the property, either before or during TPP, to gather additional historical and site-specific data to confirm data needs and the nature and scope of the SI. This includes looking for hazardous substances or pollutants and contaminants (as defined in CERCLA) (i.e., MC) and MEC. Changes in vegetation, soil characteristics, potential exposure pathways, and ground scars will be identified. Refer to EM 1110-1-1200. An ASSHP will be prepared before the site visit (see Chapter 4).

d. Document Collection. Document collection involves locating, retrieving, and reviewing all available and appropriate documents; conducting an on-site survey to augment the data collected during the PA (included in the PA report); generating additional data; confirming the presence of CERCLA hazardous substances, contaminants, and MEC; reevaluating risk; and identifying areas of known or suspected releases.

e. Data Gathering. Gathering sufficient data to determine the appropriate response action.

f. For an MMRP SI, the following types of activities are also anticipated as determined by project data needs and objectives developed from the TPP process.

(1) Limited surface investigations;

(2) Limited subsurface investigations;

(3) Limited geophysical investigations;

(4) Limited MC sampling;

(5) Footprint analysis, including limited geophysical mapping, to determine the study areas for subsequent investigations; and

(6) Spatial analysis and, if necessary, an aerial survey defining the aerial extent of the military munitions.

g. Planning

(1) SI Work Plans will be developed, detailing the SI activities listed above to ensure data obtained are of sufficient quality and quantity to satisfy data needs. When MC sampling is necessary, SAPs will also be prepared (see Chapter 4).

(2) When planning sampling activities, the HRS scoring information needs will be considered to ensure that adequate data are collected to enable EPA to score the property; however, the expenditure of ER-FUDS funds is limited to addressing only DOD contamination. It is DOD policy that HRS scoring will be conducted by EPA, not by USACE.

6-3. Project Site Visit.

a. Purpose. The purpose of the project site visit is to gather additional information and to conduct an on-site survey to determine whether MEC/MC is potentially or actually present at the site. A multidisciplinary team is required to conduct a site visit; this team must include an OESS or a UXO-qualified person.

b. Safety is a primary consideration when conducting a site visit at a property that is potentially contaminated with MEC/MC. Per ER 385-1-95, an ASSHP is required. The ASR team leader is responsible for preparing and securing approval of the ASSHP prior to the on-site survey.

c. The site assessment team will also conduct the following actions prior to going on-site:

(1) Prepare and obtain approval of the ASSHP;

(2) Secure an ROE;

(3) Review information in the ASR prepared during the PA and conduct additional research by researching local archives and conducting interviews, if necessary;

(4) Interview former employees of the site activity or others who may have valuable information on site history; and

(5) Conduct a perimeter visual survey for site conditions and evidence of MEC/MC.

d. On-Site Activities.

(1) Site Assessment Process. During the on-site survey, the site assessment team examines the site for direct evidence of the presence of MEC and for indirect evidence that suggests the potential for MEC/MC presence (e.g., changes in vegetation, soil characteristics, ground scars, munitions debris, and range-related debris). A Global Positioning System locator may be used to identify the coordinates of areas examined by the on-site survey team.

(2) The site survey need not determine the full extent of MEC/MC presence, only that there is known MEC/MC present or a potential for MEC/MC to be present. The site assessment team may perform geophysical mapping to detect anomalies and limited intrusive investigations to determine whether MEC may be located below the surface. Limited soil and water sampling may also be conducted to determine the presence or absence of MC.

(3) Safety Considerations. Non-UXO-qualified personnel conducting the site visit will not touch, move, or otherwise disturb any suspect MEC. Markings such as “practice bomb,” “dummy,” or “inert” will be noted in the written record of the site visit.

6-4. Site Inspection Report.

a. Once field data collection activities have been completed and the data reviewed as necessary, an SI Report is generated for the project. Information in the SI report will frequently incorporate information from the PA. In addition to presenting the analytical data, the SI report will contain recommendations for further actions at the project. The SI Report is typically the basis for submittal of information to EPA to allow EPA to make an HRS evaluation addressing DOD contamination. If an MMRP project was identified during the PA, the SI report will include MC sampling, spatial analysis, data gathered during the field work, and results from the technology evaluation. Refer to Appendix D for SI Report Contents.

b. The narrative portion of the SI Report will, at a minimum:

(1) Describe the history and nature of waste handling and military munitions used;

(2) Describe known hazardous substances and military munitions that are (or have been) at the property;

(3) Describe pathways of concern for these hazardous substances and potential receptors for MEC and MC;

(4) Identify and describe human population and environmental targets;

(5) Present SI analytical results:

(6) Identify the MRA and MRSs; and

(7) Make a recommendation for further action, if any.

c. The information from the SI will be used for a project declaration document (see ER 200-3-1). The project declaration will be for either an NDAI recommendation, or a decision to move forward with the project (either implement a removal action or proceed with an RI).

d. Generally, the SI Report recommendations are:

(1) That no further action is appropriate,

(2) To perform a removal action,

(3) To collect additional data to fill data gaps, or

(4) To proceed with an RI.

6-5. Site Inspection Report Review/Approval Process.

a. SI report review and approval will be in accordance with ER 200-3-1.

b. This process includes an independent technical review by the MM CX.

6-6. Remedial Site Evaluation.

a. Upon completion and review of the SI, the NCP provides that a determination, using the factors discussed below, may be made as to whether "a removal action is appropriate" [40 CFR 300.415(a)(1)] "to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release" [40 CFR 300.415(b)(1)]. A removal response is appropriate only when site-specific conditions indicate an imminent threat to human health, safety or the environment. If an evaluation of the NCP factors and site-specific conditions does not indicate a removal response is appropriate, the response will proceed as a remedial response.

b. If a TCRA/NTCRA is deemed appropriate based on site-specific conditions and any of the following factors, the rationale to conduct a removal action must be documented. The factors contained in 40 CFR 300.415(b) are:

(1) Actual or potential exposures to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants;

(2) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(3) Hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other storage containers that may pose a threat of release;

(4) High levels of hazardous substances, pollutants, or contaminants in soils largely at or near the surface that may migrate;

(5) Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released;

(6) Threat of fire or explosion;

(7) The availability of other appropriate federal or state response mechanisms to respond to the release; or

(8) Other situations or factors that may pose threats to public health or welfare of the United States or the environment.

c. Procedures and documentation to conduct a removal action (TCRA or NTCRA) are discussed in Chapter 9.

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CHAPTER 7

Remedial Investigation

7-1. Introduction, Purpose, and Overview.

a. This chapter describes the procedures for conducting an RI under CERCLA.

b. EPA guidance for the RI can be found in EPA 540/G-89/004, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final.

c. The RI is intended "to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives" (NCP, 40 CFR 300.430(d)). In addition, the RI provides information to assess the risks to human health, safety, and the environment that were identified during risk screening in the SI. The RI will focus on collecting information to support the FS (see Chapter 8), so a decision on the remedy can be made. Objective-oriented studies (rather than procedure- and process-driven studies) can lead to timely and appropriate decisions for protecting human health, safety, and the environment. The RI and FS will be conducted in an integrated manner. The RI/FS process is shown in Figure 7-1.

d. Data collected in the RI influence the development of remedial alternatives in the FS, which in turn affect the data needs and scope of treatability studies and additional field investigations. This phased approach encourages the continual scoping of the site characterization effort, which minimizes the collection of unnecessary data and maximizes data quality. The FS is discussed in more detail in Chapter 8.

e. The RI/FS process includes these phases:

(1) TPP Process,

(2) Scoping,

(3) Site Characterization,

(4) Development and Screening of Alternatives,

(5) Treatability Investigations, and

(6) Detailed Analysis of Alternatives.

f. Detailed information of the above phases and more information on the RI process can be found at the EPA Superfund Website http://www.epa.gov/superfund/whatissf/sfproces/rifs.htm. Some important topics are discussed in the subsequent sections of this chapter.

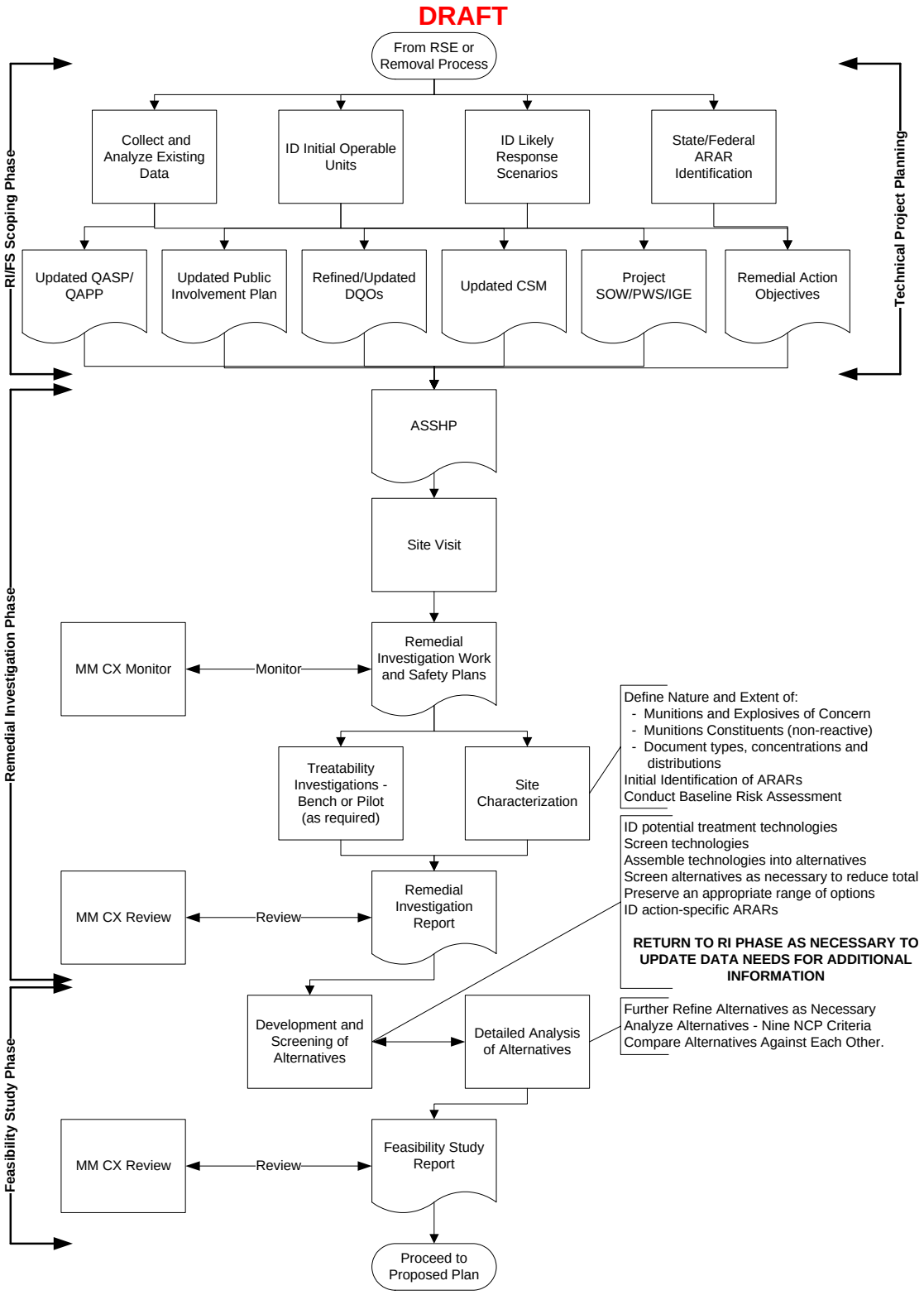

Figure 7-1 RI/FS Process

g. The PM/PDT will continue the TPP process to guide the data collection process. This process ensures the development of appropriate data needs and appropriate DQOs for those data needs.

7-2. Site Characterization and Data Collection.

a. USACE will characterize the nature and threat posed by MEC and/or MC, and gather data necessary to assess the threat to human health, safety, or the environment.

b. In addition, data will be gathered to support the analysis and design of potential response actions by assessing the following factors (40 CFR 300.430(d)(2)):

(1) Physical characteristics of the property;

(2) Characteristics/classification of air, surface water, and groundwater;

(3) Characteristics of the MEC and/or MC (e.g., quantities, concentration, toxicity, persistence, mobility, depth, nature and extent);

(4) The extent to which the source can be characterized;

(5) Actual and potential exposure pathways through environmental media;

(6) Actual and potential exposure routes (e.g., inhalation and ingestion); and

(7) Other factors such as sensitive populations that pertain to the characterization of the site or support the analysis of potential remedial action alternatives.

7-3. Risk/Hazard Assessment.

a. A baseline risk assessment/MEC hazard assessment is developed to identify the existing or potential risks that may be posed to human health and the environment by conditions and/or contamination at the site. This assessment also serves to support the evaluation of the no-action alternative by documenting the threats posed by the site based on expected exposure scenarios. Because this assessment identifies the primary health and environmental threats at the site, it also provides valuable input to the development and evaluation of alternatives during the FS.

b. MC Risk Assessment.

(1) A risk assessment for hazardous, toxic, and radioactive waste (HTRW) and MC will be conducted as part of the RI. The risk assessment will be conducted in accordance with the following documents:

(a) EM 200-1-4. Environmental Quality - Risk Assessment Handbook - Volume I: Human Health Evaluation, and Volume 2: Environmental Evaluation;

(b) EM 1110-1-4009. Military Munitions Response Actions;

(c) EPA/540/1-89/002. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final;

(d) EPA 540/G-89/004. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final; and

(e) EPA 540-R-97-006. Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments.

(2) MEC Hazard Assessment. Contact the MM CX for guidance regarding MEC hazard assessments for projects involving MEC.

7-4. Other Components of the Remedial Investigation.

a. The RI will include a preliminary identification of ARARs and TBC information material (non-promulgated advisories or guidance issued by federal or state governments that are not legally binding and do not have the status of potential ARARs) that may be applicable to the project.

b. The CSM for the site will be revised and updated, as appropriate, based on information collected from the RI.

c. The Institutional Analysis Report that is developed as part of the characterization effort (EP 1110-1-24) will be reported in the RI. This will aid in early identification of LUC coordination issues. Also see Chapter 8.

d. The risk/hazard assessments and other findings from the RI, as well as ARARs, will be used to develop preliminary remediation goals (PRGs) and overall project Remedial Action Objectives (RAOs). RAOs are developed further in the FS (Chapter 8). PRGs are criteria by which aspects of a cleanup under CERCLA are measured. They include potential statutory and regulatory requirements (ARARs), guidance and advisories TBCs, and risk-based concentrations of chemicals in environmental media that have been brought forward from the human health and ecological risk assessments conducted for the project.

e. Contaminant fate and transport will be evaluated as part of the RI.

7-5. Remedial Investigation Report.

a. The RI report will be produced for review by the support agency and submitted to the Agency for Toxic Substances and Disease Registry (ATSDR) for its use in preparing a health assessment and also will serve as documentation of data collection and analysis in support of the FS. The draft RI report can be prepared any time between the completion of the baseline risk assessment and the completion of the draft FS. Therefore, the draft RI report will not delay the initiation or execution of the FS.

b. Consult Appendix E for detailed guidance and the standard format for the RI report for munitions response projects.

7-6. Remedial Investigation Review Process.

a. Following USACE internal reviews, the final RI will be submitted to EPA or the Lead Regulatory Agency for review and comment.

b. EPA may request a closeout meeting upon completion of the RI/FS. This meeting will focus on the review and finalization of the final RI/FS report, and any final on-site activities which the PRPs may be required to perform. These activities may include maintaining the site and ensuring that fences and warning signs are properly installed. The transition to RD and RA may also be discussed during this meeting.

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CHAPTER 8

Feasibility Study

8-1. Introduction, Overview, and Purpose.

a. This chapter describes the procedures for conducting the FS under CERCLA.

b. EPA guidance for the FS process can be found in EPA 540/G-89/004: Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final.

c. "The primary objective of the FS is to ensure appropriate remedial alternatives are developed and evaluated ... and an appropriate remedy selected" (NCP, 40 CFR 300.430[e]). The RI and FS will be conducted in an integrated manner. See Chapter 7 for the RI process.

d. The components of the FS process are illustrated with the RI process in Chapter 7 in Figure 7-1. The FS process includes development and screening of alternatives, treatability investigations, and detailed analysis of alternatives.

e. Detailed information of the above phases and more information of the FS process can be found in ER 200-3-1. See Appendix E for detailed guidance on the FS process, including integrating the nine CERCLA criteria used for detailed alternatives analysis into MMRP projects, and the FS report. In addition, information can be found on the EPA Superfund Website.

8-2. Identification of Applicable or Relevant and Appropriate Requirements.

a. ARARs, in conjunction with risk-based levels developed in the risk assessment, are employed in directing response actions and establishing cleanup goals. ARARs are used as a "starting point" for determining the protectiveness of a site remedy.

b. Guidance on ARARs can be obtained by contacting the MM CX. Additional information is in EPA/540/G-89/006.

8-3. Identification of Preliminary Remediation Goals and Remedial Action Objectives.

a. Determination of the feasibility of RA requires the identification of PRGs. Candidate PRGs will be developed during the RI and presented in the FS and Record of Decision (ROD). Many EPA regions have developed tables of PRGs that can be used as a starting point in PRG development. In addition, the NCP specifies development of RAOs that address:

(1) Contaminants of concern,

(2) Media of concern,

(3) Potential exposure pathways, and

(4) Remediation goals (40 CFR 300.430(e)(2)(i)).

b. Development of RAOs requires consideration of ARARs and the results of the baseline human and ecological risk assessment and will be presented in the FS. Remedial alternatives considered for selection will be able to attain RAOs.

8-4. General Remedial Actions and Technology Screening.

a. Identification of general remedial actions, along with technology screening, is the initial step of the development of remedial alternatives.

b. Technology screening process for MEC. The initial identification of general remedial actions and response actions for the technology screening process for MEC is illustrated in Table 8-1. Guidance for further identification and screening of specific technologies for the various response actions is provided in Appendix E and on the MM CX Website. Technologies are screened based on effectiveness, implementability, and cost.

c. Technology screening process for MCs. The following steps are followed for the MC technology screening process:

(1) Develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, that may be taken to satisfy the RAOs for the site.

(2) Identify volumes or areas of media to which general response actions might be applied, taking into account the requirements for protectiveness as identified in the RAOs and the chemical and physical characterization of the site.

(3) Identify and screen the technologies applicable to each general response action to eliminate those that cannot be implemented technically at the site. The general response actions are further defined to specify remedial technology types (e.g., the general response action of treatment can be further defined to include chemical or biological technology types).

(4) Identify and evaluate technology process options to select a representative process for each technology type retained for consideration. Although specific processes are selected for alternative development and evaluation, these processes are intended to represent the broader range of process options within a general technology type.

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Table 8-1 Initial Identification of Response Actions and Process Options for MEC

Potential MEC Response Actions	Remedial Action	Detection System (includes site prep, effectiveness, site access, geophysical DQOs, false dig factor)	Excavation Method	Process Options	Munitions Debris	Alternative Number
No DOD Action	None	N/A	N/A	N/A	N/A	1
Land Use Controls	Access Restrictions	N/A	N/A	Fencing/Signage	N/A	2
	Education	N/A	N/A	Brochures/Pamphlets	N/A	3
Surface Clearance/Removal	Excavation and Disposal	Site prep "X"	N/A	Blow In Place (BIP)	Debris Removal	4
				Consolidated Shot	Debris Removal	5
				Contained Detonation	Debris Removal	6
Removal/Clearance to Specific Depth	Excavation and Disposal	System X	Excavation System "Y"	BIP	Debris Removal	7
				Consolidated Shot	Debris Removal	8
				Contained Detonation	Debris Removal	9
Removal/Clearance to Detectable Depth	Excavation and Disposal	System X	Excavation System "Y"	BIP	Debris Removal	7
				Consolidated Shot	Debris Removal	8
				Contained Detonation	Debris Removal	9
Construction Support	UXO Support	N/A	Excavation System "Y"	BIP	Debris Removal	10
				Consolidated Shot	Debris Removal	11
				Contained Detonation	Debris Removal	12

(5) Assemble the selected representative technologies into alternatives representing a range of treatment and containment combinations, as appropriate (see Development of Remedial Alternatives).

(6) Refer to the Federal Remedial Technology Roundtable at http://www.frtr.gov for technologies and technology screening tools.

8-5. Treatability Investigations.

a. Bench and/or pilot studies may be conducted, as necessary, to determine the suitability of remedial technologies to site conditions and problems. Technologies that may be suitable to the site will be identified as early as possible to determine whether there is a need to conduct treatability studies to better estimate costs and performance capabilities. If treatability studies are deemed necessary, a testing plan identifying the types and goals of the studies, the level of effort needed, a schedule for completion, and the data management guidelines will be submitted to EPA for review. Upon review completion, a test facility and any necessary equipment, vendors, and analytical services will be procured by the contractor.

b. More information on conducting treatability studies can be found in the EPA Directive 9355.3-01FS2, The Remedial Investigation, Site Characterization and Treatability Studies.

8-6. Innovative Technologies.

a. Technologies are classified as innovative if they are developed fully but lack sufficient cost or performance data for routine use at CERCLA sites. In many cases, it will not be possible to evaluate alternatives incorporating innovative technologies on the same basis as available technologies, because insufficient data exist on innovative technologies. If treatability testing is being considered to better evaluate an innovative technology, the decision to conduct a test will be made as early in the process as possible to avoid delays in the RI/FS schedule.

b. Innovative technologies would normally be carried through the screening phase if there were reason to believe that the innovative technology would offer significant advantages. These advantages may be in the form of better treatment performance or implementability, fewer adverse impacts than other available approaches, or lower costs for similar levels of performance. A "reasonable belief" exists if indications from other full-scale applications under similar circumstances or from bench-scale or pilot-scale treatability testing supports the expected advantages.

8-7. Institutional Analysis for Land Use Control Initial Coordination.

a. At all FUDS projects where a use restriction is part of environmental restoration activities, the LUC must be clearly defined, established in coordination with current landowner and affected parties, and enforceable. The District Office of Counsel must be consulted in the establishment of LUCs. DOD policy regarding LUCs is evolving and PMs will ensure they are using the most recent guidance.

b. The term “land use controls” includes engineering controls in addition to institutional controls discussed in the NCP. LUCs include any type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health, safety, and the environment. LUCs are considered response actions under CERCLA, and, as such, must be coordinated with the current landowner, regulatory agencies, and appropriate local authorities. The objective of LUCs is to ensure that future land use remains compatible with the land use that was the basis for the evaluation, selection, and implementation of the response action. Refer to EP 1110-1-24 for LUC procedures applicable to MMRP projects.

c. LUCs will be managed and maintained at the local level whenever possible. For FUDS properties, state or local government agencies with appropriate authorities (i.e., zoning boards) or the property owner are often the best candidates for LUC management and enforcement and for conducting 5-year reviews.

d. Refer to Chapter 11 of this pamphlet and ER 200-3-1 for more information on implementation of LUCs.

8-8. Development of Remedial Alternatives.

a. During the FS, remedial technologies, and their associated containment or disposal requirements, are identified, pre-screened, and then combined into alternatives. Information obtained during the RI is considered in developing the list of alternatives for evaluation. Some technologies or property use restrictions may become apparent from this step or may become necessary regardless of which remedy is selected.

b. Evaluation of alternatives will consider, at a minimum, the following:

(1) A no-action alternative.

(2) An alternative that reduces or eliminates the toxicity, mobility, or volume of waste.

(3) An alternative that considers LUCs, which are discussed in more detail in Chapter 11. For any evaluation of response alternatives where a use restriction will be imposed, either as a standalone response alternative or as one component of a more complex action, USACE Districts will ensure that the evaluation of response alternatives includes an analysis of an alternative with a use restriction, as well as an analysis at the level of detail appropriate to the size and scope of a response not requiring a use restriction (e.g., implementation of a response that allows unrestricted use). This will allow consideration of restricted and unrestricted use alternatives in selecting the response action.

(4) Unrestricted use.

(5) Consideration of innovative technologies.

(6) Consideration of monitored natural attenuation. Army policy (Department of the Army for Installation Management Directorate of Environmental Programs [DAIM-ED-R], 12

September 1995, Subject: Interim Army Policy on Natural Attenuation for Environmental Restoration) requires the consideration of monitored natural attenuation for projects involving MC. Also, refer to EPA's Office of Solid Waste and Emergency Response (OSWER) Directive 9200.4-17P.

(7) Alternatives that provide various levels of protection from explosives safety hazards for projects involving MEC.

(8) Consideration of presumptive remedies.

8-9. Initial Screening of Remedial Alternatives.

a. Alternatives identified in the FS are initially screened for effectiveness, cost, and implementability. This initial screening is preliminary and is not equivalent to the detailed analysis of alternatives discussed below.

(1) The demonstrated ability of component technologies to achieve design goals will be addressed in evaluating effectiveness. Adverse environmental impacts predictable at this stage will also be considered in evaluating effectiveness.

(2) At this stage, costs will be order-of-magnitude, but will include Remedial Action-Operations (RA-O) and long-term management (LTM) costs, as appropriate.

(3) Factors such as safety; constructability; regulatory and public support; 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.

b. Calculations, assumptions, and references supporting these evaluations will be documented in the FS. The results of the initial screening will be provided to the state so they can identify state ARARs.

8-10. Detailed Analysis of Alternatives.

a. The purpose of this step is to evaluate and compare the alternatives remaining after the initial screening, and present a proposed plan (PP) for regulatory agencies and public review. Section 300.430 (e)(9)(iii) of the NCP describes the nine criteria for evaluating and comparing alternatives during the detailed analysis. They are listed in Table 8-2. Detailed information on the nine evaluation criteria can be found in Appendix E. Based upon the criteria, the alternatives are compared and the results are placed in a table (preferred) within the draft FS report. Threshold criteria are requirements that each alternative must meet or have specifically waived to be eligible for selection. Primary balancing criteria are those that form the basis for comparison among alternatives that meet the threshold criteria. Modifying criteria are criteria considered in remedy selection. Although Section 120(b) of CERCLA indicates a preference for permanent solutions and requires assessment of permanent solutions and alternative treatment technologies or resource recovery technologies, it does not mandate selection.

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Table 8-2 Nine Criteria in the NCP for Detailed Analysis of Alternatives

Threshold Criteria	1. Overall protection of human health and the environment 2. Compliance with ARARs
Primary Balancing Criteria	3. Implementability 4. Cost 5. Long-term effectiveness and permanence 6. Reduction of toxicity, mobility, or volume 7. Short-term effectiveness
Modifying Criteria	8. State acceptance 9. Community acceptance

b. The detailed analysis provides the means by which facts are assembled and evaluated to develop the rationale for a remedy selection. Therefore, it is necessary to understand the requirements of the remedy selection process to ensure that the FS analysis provides the sufficient quantity and quality of information to simplify the transition between the FS report and the actual selection of a remedy.

8-11. Five-Year Review Activities.

a. The PDT, in coordination with the stakeholders and regulators, must determine the scope for 5-year reviews at the time of the FS.

b. These activities may be necessary prior to the ROD/DD stage if a removal action was performed for the site.

8-12. Feasibility Study Report.

a. See Appendix E for the current version of the Feasibility Study Report format.

b. Upon completion of the detailed analysis, the PP is submitted for public review and comment (the RI and FS Reports are contained in the Administrative Record as supporting documentation). The results of the detailed analysis supports the final selection of a remedial action and the foundation for the ROD/DD.

8-13. Feasibility Study Review Process.

a. Following USACE internal reviews, the final FS will be submitted to EPA or the Lead Regulatory Agency for review and comment.

b. EPA may request a closeout meeting upon completion of the FS. This meeting will focus on the review and finalization of the final RI/FS report, and any final on-site activities that may be necessary. These activities may include maintaining the site and ensuring that fences and

warning signs are properly installed. The transition to RD and RA will also be discussed during this meeting.

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CHAPTER 9

CERCLA Removal Phases

9-1. Introduction, Purpose, and Overview.

a. Removal actions are an integral part of the overall CERCLA process for an MMRP project, and the project can enter the removal action phase from any point in the overall PA/SI/RI process, if deemed necessary based on various factors such as property conditions, potential receptors, migration pathways, and risk/hazard assessments.

b. Removal actions generally have limited objectives, and are typically short-term to mitigate the threat posed by a release or threatened release of hazardous substances or pollutants or contaminants, and MEC.

c. The removal action process cannot attain the Remedy In Place (RIP) or Response Complete (RC) milestones and cannot be used to make closeout decisions. All closeout decisions must occur in the remedial process. The decision to perform a removal response to address MEC and MC will be based on project-specific conditions and consideration of the NCP factors listed in Table 8-2.

d. Long-range planning and programming for removal responses is inconsistent with the application of project-specific conditions and consideration of the NCP factors. Therefore, the planning and programming within FUDSMIS to initiate removal responses for MMRP projects can be performed only during the current and budget years.

e. The purpose of this section is to identify different phases of removal actions under CERCLA.

f. Categories of Removal Actions. EPA categorizes removal actions in three ways — emergency, time-critical, and non-time-critical-based upon the situation, the urgency and threat of release or potential release, and the subsequent time frame in which the action must be initiated. Each type of removal action is discussed in detail below. When appropriate, removal actions can be conducted as part of the MMRP project and will lower risks and may reduce total project cost. Removals are normally expedited response actions, as opposed to final remedial actions that are usually intended to provide permanent remedies. However, some removal actions may result in the cleanup of all hazardous substances, pollutants, or contaminants at a FUDS. Following any removal action (emergency, time-critical, or non-time critical), the effort will transition to the remedial process to determine what additional response action is necessary to achieve the RIP or RC milestones, or project or property closeout.

(1) Emergency Removal Actions. Emergency removal actions address immediate, unacceptable hazards or risks and must commence within hours of discovery. Due to the exigency of an emergency removal, an AM is not required prior to performing the emergency removal. The USACE is not authorized to execute emergency responses. Emergency removal actions are described in ER 200-3-1.

(2) TCRAs. The general difference between a TCRA and an NTCRA is the amount of planning time that exists before on-site activities must be initiated. A TCRA is a removal action for which less than 6 months of planning time is available before on-site activities must begin. TCRAs may be initiated at any phase of the munitions response. TCRAs may be conducted for both MEC and MC.

(3) NTCRAs. Whenever a planning period of at least 6 months exists before on-site activities must be initiated, and it has been determined that a removal action is appropriate, an EE/CA will be conducted. Additional guidance for NTCRAs is available in EPA 540-R-93-057.

9-2. Time-Critical Removal Actions.

a. The purpose of the TCRA is to address situations in which the degree of hazard posed by the MEC/MC present at the site demands that on-site activities begin within 6 months. An EE/CA is not required for a TCRA; however, an AM is required to implement a TCRA (see Chapter 10).

b. Scoping. If a PDT assesses the risk and determines that a site might meet the criteria for a TCRA, the PDT will develop and submit the following information to the TCRA Steering Group:

(1) Background information on the MEC/MC site(s), which may include information gathered during the PA or SI phase of the project when available; and

(2) The TCRA scoping results (objectives of the TCRA response action, including ARARs, removal alternatives, and recommended action for the TCRA).

(3) The recommended action for the TCRA, which can include some or all of the following.

(a) MEC/MC recovery/removal, primarily surface removal/clearance, which may be recommended in conjunction with subsurface removals.

(b) LUCs, including engineering controls, legal mechanisms, or administrative controls. See Chapter 11 of this pamphlet and also EP 1110-1-24, Establishing and Maintaining Institutional Controls for Ordnance and Explosives Projects, and ER 200-3-1 for details on LUCs.

(c) Where MEC/MC recovery/removal is recommended, the provided documentation must:

- Conceptually define recovery/removal activities;
- Establish a rationale for the removal/clearance depth, if other than surface removal/clearance is requested;
- Identify any other required evaluations; and

- Document the assessment and cost.

c. Consider ARARs. TCRAs need not be compatible with future NTCRAs, need not be shown to be cost-effective, and need not achieve ARARs if the urgency of the situation precludes achieving these goals. However, to the extent practicable considering the exigencies of the situation, the TCRA will attain ARARs.

d. TCRA Steering Group. The TCRA Steering Group is a committee established to consider requests for TCRAs and make recommendations for appropriate action. The TCRA Steering Group is headed by the MM DC, with membership from the various functional offices involved in the removal action to include the MM CX. The PDT briefs the TCRA Steering Group on a request for a TCRA. The Steering Group reviews the request, background, scope, and recommendations to determine whether the request meets the criteria for TCRAs, and whether the Group agrees with the recommended action. Based on the information provided by the requester and the PDT, the TCRA Steering Group may recommend a TCRA or an NTCRA. The Group will then document the decision in an Approval Memorandum. If additional data is required, the TCRA Steering Group may request a site visit prior to making a determination on the recommended action.

e. Project Site Visit. The purpose of the project site visit, if recommended, is to determine whether the MEC/MC that are or may be on the site present a hazard to human health and the environment. The site visit is generally conducted by in-house personnel and will include an OESS. An approved ASSHP is required prior to visiting the site. Upon completion of the site visit, the site assessment team will prepare a trip report, which will be provided to the TCRA Steering Group.

9-3. Non-Time-Critical Removal Actions.

a. For NTCRAs, CERCLA requires an EE/CA to be conducted whenever there is a 6-month period available for planning before on-site activities must begin. EPA guidance for EE/CA preparation can be found in EPA/540-R-93-057. Guidance for preparation of EE/CAs for projects involving MEC can be found in Appendix F and in ER 200-3-1.

b. In preparing an EE/CA, the following requirements must be met:

(1) Characterize the site sufficiently to substantiate removal action;

(2) Satisfy Administrative Record requirements (documentation of removal action selection, public comments, and responsiveness summary); and

(3) Removal actions will, to the extent practicable, contribute to the efficient performance of any anticipated long-term RA with respect to the release concerned.

c. Responsiveness Summary. After the EE/CA Report is prepared, the District will publish a notice of its availability in a major local newspaper of general circulation and make the report available in the Administrative Record file and the Information Repository for a mandatory 30-day public review and comment period. A public meeting will be held to explain the contents of

the EE/CA Report. Comments received during the public review period will be addressed in a Responsiveness Summary that will be included in the final EE/CA Report. The final EE/CA Report will be revised to reflect any changes resulting from the public review and included as part of the Administrative Record file for the site. Refer to ER 200-3-1 for additional information on public involvement requirements.

d. A report content outline for the EE/CA report is included in Appendix F.

e. EE/CA Approval Memorandum.

(1) While not required by the NCP for FUDS projects, an EE/CA Approval Memorandum is required by FUDS policy to document the rationale to conduct a removal action and is prepared once the need for an NTCRA has been determined. The EE/CA Approval Memorandum is not a part of the EE/CA, but is part of the Administrative Record file for the project.

(2) The EE/CA Approval Memorandum serves three functions:

(a) Secures management approval to conduct the EE/CA;

(b) Documents that an NTCRA is appropriate given the conditions at the site and the hazard posed to human health, safety, and the environment and that a planning period of at least 6 months is available before on-site activities must begin; and

(c) Provides detailed information pertaining to the site background; threats to public health, safety, or the environment posed by the site; and projected costs.

(3) EE/CA Approval Memorandum Format. The EE/CA Approval Memorandum will be prepared in accordance with the format included in Appendix H to provide the rationale and justification to perform a removal action. Section 3 of the memorandum will include an analysis of the removal factors to determine if a removal action is appropriate.

(4) EE/CA Approval Memorandum Development and Signature Authority. The PM District will prepare the EE/CA Approval Memorandum in coordination with the HTRW Design District or the MM Design Center, as appropriate. The preliminary identification of exposures or explosives safety hazards will be based on information obtained from the PA or SI, other investigations that may have been conducted, and the CSM. Upon approval of the EE/CA Approval Memorandum by the District Commander, the EE/CA phase can start.

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CHAPTER 10

Proposed Plans, Decision Documents, and Action Memoranda

10-1. Introduction, Purpose, and Overview.

a. This chapter describes the requirements for preparation of removal action and remedial action documents.

b. EPA guidance can be found in Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (EPA/540-P-90/004) and in Superfund Removal Procedures – Action Memorandum Guidance, December 1990 (EPA/540/P-90/004).

c. Proposed Plan. The purpose of the PP is to supplement the RI/FS and provide the public with a reasonable opportunity to comment on the preferred alternative for remedial action, as well as alternative plans under consideration, and to participate in the selection of an RA at a site. The PP will be maintained in the project Administrative Record file and permanent Project File.

(1) The PP is the document used to facilitate public involvement in the remedy selection process. The document presents the lead agency's preliminary recommendation concerning how best to address contamination at the site, presents alternatives that were evaluated, and explains the reasons the lead agency recommends the preferred alternative.

(2) The lead agency solicits public comment on the PP, including all of the alternatives considered in the detailed analysis phase of the RI/FS, because the lead and support agencies may select a remedy other than the preferred alternative based on public comment. The final decision regarding the selected remedy is documented in the DD (or in the ROD for an NPL site) after the lead agency has considered all comments from both the support agency and the public.

d. The DD for Non-NPL projects and ROD for NPL projects.

(1) The DD is the document used to record the remedial response decisions at non-NPL FUDS properties. The DD will be maintained in the project Administrative Record file and permanent Project File. The responsiveness summary from the public comment period is included as an attachment to the DD or ROD.

(2) The ROD is the document used to record the RA decision made at an NPL property. The ROD will be maintained in the project Administrative Record file and permanent Project File.

(3) The ROD/DD document identifies the selected remedy. Before the ROD/DD is signed, the geographic military District will notify key officials and community members. After the ROD/DD is signed, the Administrative Record file must be updated to include materials that support issuance of the ROD/DD. The geographic military District will announce the final

decision in a major local newspaper of general circulation in the community where the project is located.

e. Action Memorandum. An AM serves as the primary DD substantiating the need for a removal response, identifying the proposed action, and explaining the rationale for the removal. An AM also reserves funds for a removal response, which are then activated by a signed delivery order. The AM will be maintained in the project Administrative Record file and permanent Project File.

(1) An AM is required before conducting a removal response action under TCRA or an NTCRA.

(2) AM for TCRA. While lead regulator signature is not required on a TCRA AM, concurrence will be actively sought and efforts made to identify and resolve outstanding regulator issues and comments. The TCRA AM will describe the state regulatory agency's position, including whether or not that agency supports the action. For MEC TCRAs, MM CX review is required.

(3) AM for NTCRA. The AM for an NTCRA provides a concise written record of the decision to select an appropriate removal action. Additional guidance for preparing AMs can be found in EPA's Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA, EPA 540-R-93-057, and Superfund Removal Procedures – Action Memorandum Guidance, EPA 540-P-90-004. For MEC NTCRAs, MM CX review is required. An outline for an AM is provided in Appendix H.

10-2. Remedial Action Decision Documents.

a. Typical documentation associated with remedial action includes PP, Responsiveness Summary, and ROD/DD.

b. Each of these documents is discussed in the following sections.

(1) Proposed Plan.

(a) The PP will be written in non-technical language and will be understandable by the general community. In addition, the PP must, at a minimum:

- Provide a brief summary description of the remedial alternatives evaluated in the detailed analysis done in the FS;
- Identify and provide a discussion of the rationale that supports the preferred alternative;
- Provide a summary of formal comments received from the regulators; and
- Provide a summary explanation of any proposed ARAR waiver.

(b) Five-Year Review Activities. The PP must include a brief description of the five-year review activities. The PDT, in coordination with the stakeholders and regulators, will determine

the frequency at which five-year reviews will be conducted at a site and the period for continuing the five-year reviews. At a minimum, five-year reviews will occur for MRA and MRSs. Refer to EP 75-1-4 and Chapter 12 for additional guidance.

(c) A recommended outline for a PP is included in Appendix G.

(d) The MM CX is required to review the proposed plan.

(e) The NCP requires that the availability and a brief summary of the PP be announced by way of a notice published in a major local newspaper of general circulation. The PP and supporting analysis (including the RI/FS) must be available in the Administrative Record file. USACE must provide a reasonable opportunity of not less than 30 calendar days for the submission of written or oral comments on the PP. The 30-day period will be extended by a minimum of 30 additional days upon timely request from the public.

(f) The opportunity for a public meeting at or near the project will be provided during the public comment period and a transcript of the public meeting will be kept and made available to the public in the Administrative Record file. The PM, in conjunction with the PAO, is responsible for organizing the public meeting, keeping a transcript of the meeting, collecting written or oral comments received during the comment period, and conducting any additional public involvement activities, such as workshops, preparing exhibits, news releases, or fact sheets.

(g) After the comment period, Office of Counsel will assist in preparing a Responsiveness Summary that addresses significant comments received from the public. If any significant changes are made to the remedy with respect to scope, performance, or cost that could not have been reasonably anticipated by the public based upon the information in the PP, the PP must be revised and reissued and a second 30-day public comment period is necessary.

(2) DD/ROD.

(a) DOD has adopted the term DD for the documentation of remedial action decisions at non-NPL properties and projects. A ROD in accordance with the provisions of the NCP will be prepared for projects on a FUDS property listed by EPA on the NPL. The ROD or DD will be prepared following completion of the PP to identify the remedial alternative chosen for implementation and will be based on information from the RI/FS and consideration of public comments and community concerns. The remedy selected must be protective of human health and the environment, attain all state and federal ARARs for that project or justify any waivers of ARARs, be cost-effective, and use permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable.

(b) A DD will contain the same information about the selected alternative as a ROD for NPL sites, but will not need specific sections regarding the role of EPA in oversight of the remedial design/remedial action (RD/RA) phases. The ROD/DD must also include a description of and rationale for the reasonably anticipated future land use or other exposure scenario used to select the remedy for all remedial responses that include LUCs. Removal actions cannot be used

to impose LUCs. All RODs and DDs will be maintained in the Administrative Record file and the permanent Project File.

(c) An outline of the ROD/DD is included in Appendix H. Detailed information on preparation of the ROD/DD can be found in EPA/540-R-98-031.

(d) The ROD/DD must include a brief description and note the frequency of five-year reviews to be done following implementation of the RA.

(e) The MM CX reviews all decision documents.

10-3. Removal Action Memorandum.

a. An Action Memorandum (AM) serves as the primary DD substantiating the need for a removal response, identifying the proposed action and explaining the rationale for the removal.

b. An AM also reserves funds for a removal response.

(1) NTCRA Action Memorandum

(a) After the EE/CA has been reviewed by the public, comments incorporated, and the Responsiveness Summary prepared, the MM Design Center will prepare an AM documenting the selection of the removal alternatives. The AM for an NTCRA provides a concise written ROD to select an appropriate removal action.

(b) The purpose of the AM is to:

- Substantiate the need for the removal action alternatives,
- Identify and explain the cleanup objectives,
- Describe the proposed action(s),
- Present the rationale for the proposed removal action(s) selected, and
- Authorize funding of the NTCRA.

(c) The AM must be coordinated with USATCES for MMRP projects and U.S. Army Center for Health Promotion and Prevention Medicine (USACHPPM) for HTRW projects prior to final approval by the approving authority.

(d) In general, instead of repeating information in the EE/CA Report, the AM will incorporate details by reference, as appropriate. An outline for the AM is located in Appendix H.

(e) Additional guidance for preparing the AM can be found in EPA's Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA, EPA 540-R-93-057 and Superfund Removal Procedures – Action Memorandum Guidance, EPA 540-P-90-004.

(f) Responsiveness Summary. After the public meeting concludes, any additional concerns will be incorporated into the Responsiveness Summary and the final ROD/DD will be completed.

(2) TCRA Action Memorandum.

(a) An AM is required before conducting a TCRA. Upon completion of the TCRA scoping step, the District approved to execute removal action(s) or the MM Design Center will prepare a TCRA AM.

(b) The AM will describe the state regulatory agency's position, including whether or not that agency supports the action. For the MEC removal AM, coordination with the MM CX is required prior to signature.

(c) The purpose of the TCRA AM is to:

- Substantiate the need for the TCRA,
- Identify and explain the cleanup objectives,
- Describe the proposed action(s),
- Explain the rationale for the proposed response action(s) selected, and
- Authorize funding of the TCRA.

(d) The TCRA AM will differ from an EE/CA AM in the following ways:

- A TCRA AM is shorter and more concise.
- Community participation is likely to be less extensive for a TCRA AM because of the exigencies of the situation.
- Although it is USACE policy to attain ARARs, ARARs may not be met due to the exigencies of the situation.
- The selection criteria and trade off analysis may be substantially simplified due to the exigencies of the situation and the lack of specific requirements for evaluating options and making tradeoffs for TCRAs.

(e) AM Review and Approval. The District will conduct the initial review of the AM prior to sending it to the MM CX for review. Upon completion of MM CX review, the PM will obtain approval in accordance with ER 200-3-1 (see Appendix C-6 and Figure C-1 for staffing procedures and approval authorities).

DRAFT

CHAPTER 11

Removal and Remedial Design

11-1. Introduction.

a. This chapter covers both the removal and remedial design phases for MMRP projects. The purpose of the design phase is to prescribe the technical details associated with the detection, recovery, and disposal of MEC and the identification and treatment of MC. The phase also includes the design of LUCs, as identified in the DDs.

b. All response activities undertaken by USACE as part of the FUDS program that address MMRP will be conducted in accordance with the provisions of CERCLA, Executive Orders 12580 and 13016, and the NCP. In achieving project and property closeout, the full range of response actions under CERCLA and the NCP will be used to develop the comprehensive response strategy for the entire FUDS.

c. When the potential exists that activities under the Installation Restoration and MMRP categories are required at a FUDS property or project, an integrated approach will be developed that leads to response actions conducted in accordance with the provisions of CERCLA, Executive Orders 12580 and 13016, and the NCP. Consistent with Army policy, if a given area contains both MEC and MC, imminent human safety threats must be addressed first.

d. MEC and MC will be addressed by a remedial response, which may include a removal based upon evaluation of the NCP factors discussed in Chapter 6. Projects cannot reach the RIP or RC milestones from the removal process. If a removal response is conducted, a continuation of the remedial response will be necessary to make a determination as to the need for further action or the achievement of the RIP, RC, or project/property closeout. When a removal response is conducted in conjunction with the remedial response, the removal action will, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedial action with respect to the release concerned. All decisions regarding the need for further action will be based on the result of action under the remedial process.

e. EPA guidance can be found in OSWER Directive 9355.0-04B, Remedial Design/Remedial Action Handbook.

11-2. Removal Design.

a. Removal actions generally have limited objectives and typically are short-term actions to mitigate the threat posed by MEC or MC. The purpose of the removal design phase is to prescribe the technical details associated with the detection, recovery, and disposal of MEC and/or identification and treatment of MC. This phase also includes the planning of interim LUCs to mitigate hazards until a final remedy has been selected and implemented, as identified in the AM. USACE, in conjunction with its contractors, develops a Work Plan and an ESS/CSS for the removal action. The level of detail is dependent on the complexity of the work and contract type.

b. As stated earlier, the removal action cannot attain the RIP or RC milestones and cannot be used to make closeout decisions. All closeout decisions must occur in the remedial process. The decision to perform a removal response to address MEC and MC will be based on project-specific conditions and consideration of the NCP factors discussed in Chapter 6.

(1) Removal Design Overview. Figure 11-1 illustrates the removal design process.

(2) Project Site Visit. The USACE PDT may need a project site visit to enable the development of the SOW/PWS and IGE. The site visit will be used to gather pertinent information for use in preparing the cost estimate and project planning documents, to verify the locations of the proposed areas of interest, and to better define the nature and location of the MEC and hazardous substances for the removal action. Examples of site-specific information that may need to be gathered include:

(a) Site topography and vegetation,

(b) Available environmental resource data,

(c) Geologic conditions,

(d) Identify logistical constraints/issues,

(e) Clear distances to inhabited buildings,

(f) Locations and types of utilities, and

(g) Man-made features potentially affected by removal actions.

(3) Site Access. The PM will ensure that ROEs have been secured in accordance with the guidance in Chapter 3 prior to the commencement of any on-site activities. If access was secured during earlier phases, the PM will ensure that the landowner(s) have received notification of the timing and nature of impending activities. The project site visit may be awarded as a task in the removal action task order or as a stand-alone task order or purchase order. The site visit requirements for an EE/CA also apply to the removal design phase.

(a) The Removal Action SOW/PWS and IGE and work plans will be prepared in accordance with the requirements of EM 1110-1-4009, and with the contract being used.

(b) The final phase of the Removal Design is the development and finalization of the Removal Work Plan and ESS/CSS. These documents will be prepared to comply with the SOW/PWS, the contract requirements, and the provisions of EM 1110-1-4009 and EM 385-1-95b, respectively.

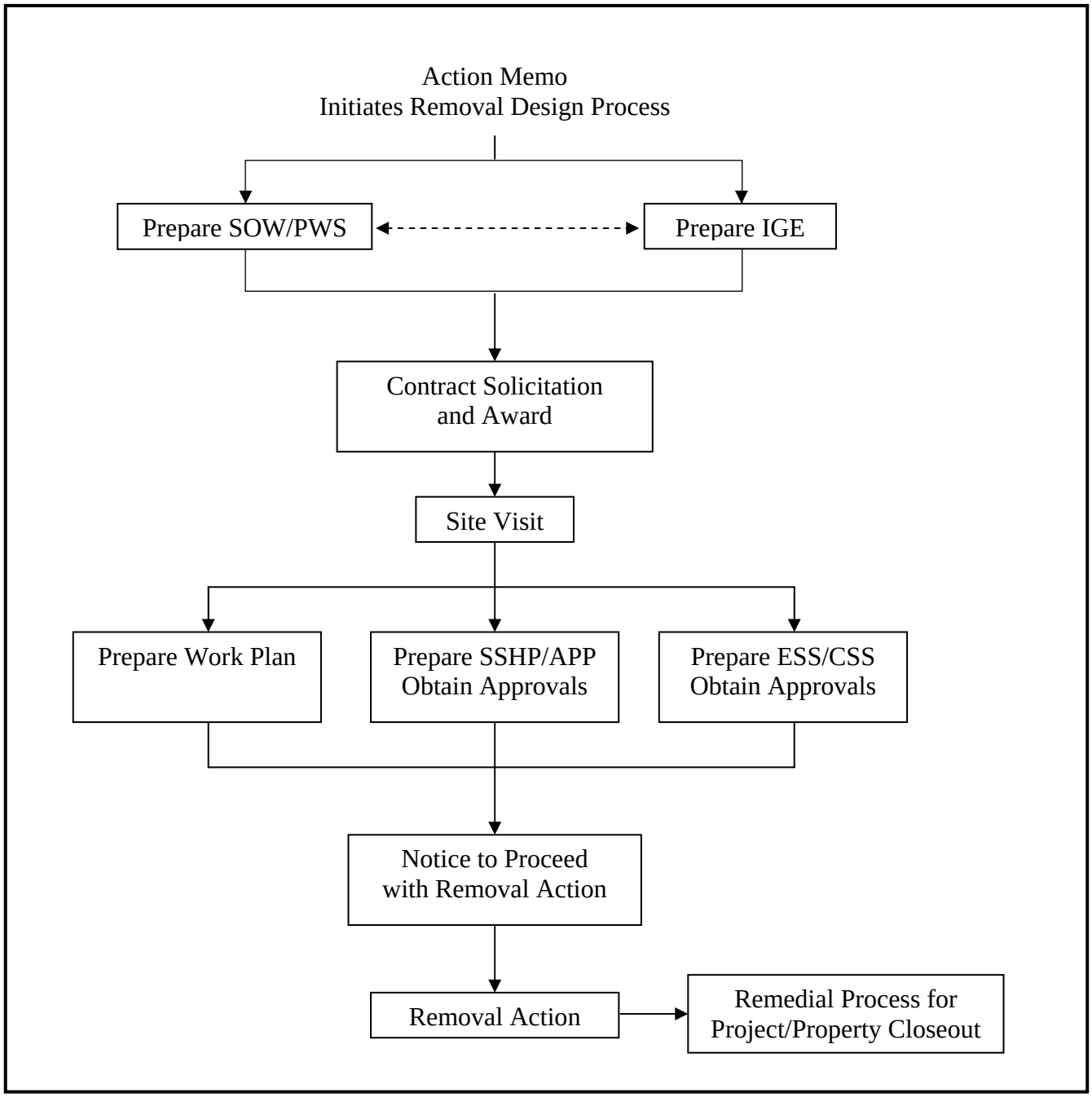

Figure 11-1 Removal Design Process

(4) Public Notice for Removal Design. Within 60 days of the start of on-site removal activities, the geographic military District will publish a public notice in a major newspaper of general circulation to announce the availability of an Administrative Record file and the start of a 30-day public comment period. Written responses will be prepared for significant public comments received during the comment period. The comments and responses will be maintained in the Administrative Record file.

11-3. Removal Design Implementation.

a. Overview. The general difference between a TCRA and an NTCRA is the amount of planning time that exists before on-site activities must be initiated. A TCRA is a removal action for which less than 6 months of planning time is available before on-site activities must begin. Figure 11-2 illustrates the sequence of activities for a TCRA. TCRAs or NTCRAs may be conducted for MMRP projects. ARARs must be attained in executing the removal action only to the extent practicable based upon the exigency of the situation and the scope of the removal action to be taken. However, once work at the project transitions back to the remedial process, ARARs must be either met or formally waived (i.e., non-compliance with an ARAR that extends past the completion of the removal action must be addressed in the remedial decision). Removal actions can be performed at any stage of the CERCLA response process. A removal action is programmed as an Interim Removal Action (IRA) in FUDSMIS.

b. Scope. Removal actions generally have limited objectives, and typically are short-term actions to mitigate the threat posed by a release or threatened release of hazardous substances or pollutants or contaminants, and MEC. The removal action process cannot attain the RIP or RC milestones and cannot be used to make closeout decisions. All closeout decisions must occur in the remedial process. The decision to perform a removal response to address MEC and MC will be based on project-specific conditions and consideration of the NCP. Long-range planning and programming for removal responses is inconsistent with the application of project-specific conditions and consideration of the NCP factors. Therefore, the planning and programming within FUDSMIS to initiate removal responses for MMRP projects can be performed only during the current and budget years. Examples of the types of actions that may be taken under removal authority include:

(1) Installing fences, warning signs, or other security or site control precautions where humans or animals have access to the release;

(2) Installing drainage controls (for example, runoff or runon diversion) where needed to reduce migration of hazardous substances or pollutants or contaminants off-site or to prevent precipitation or runoff from other sources (for example, flooding) from entering the release area from other areas;

(3) Stabilization of berms, dikes, or impoundments, or drainage or closing of lagoons, where needed to maintain the integrity of the structures;

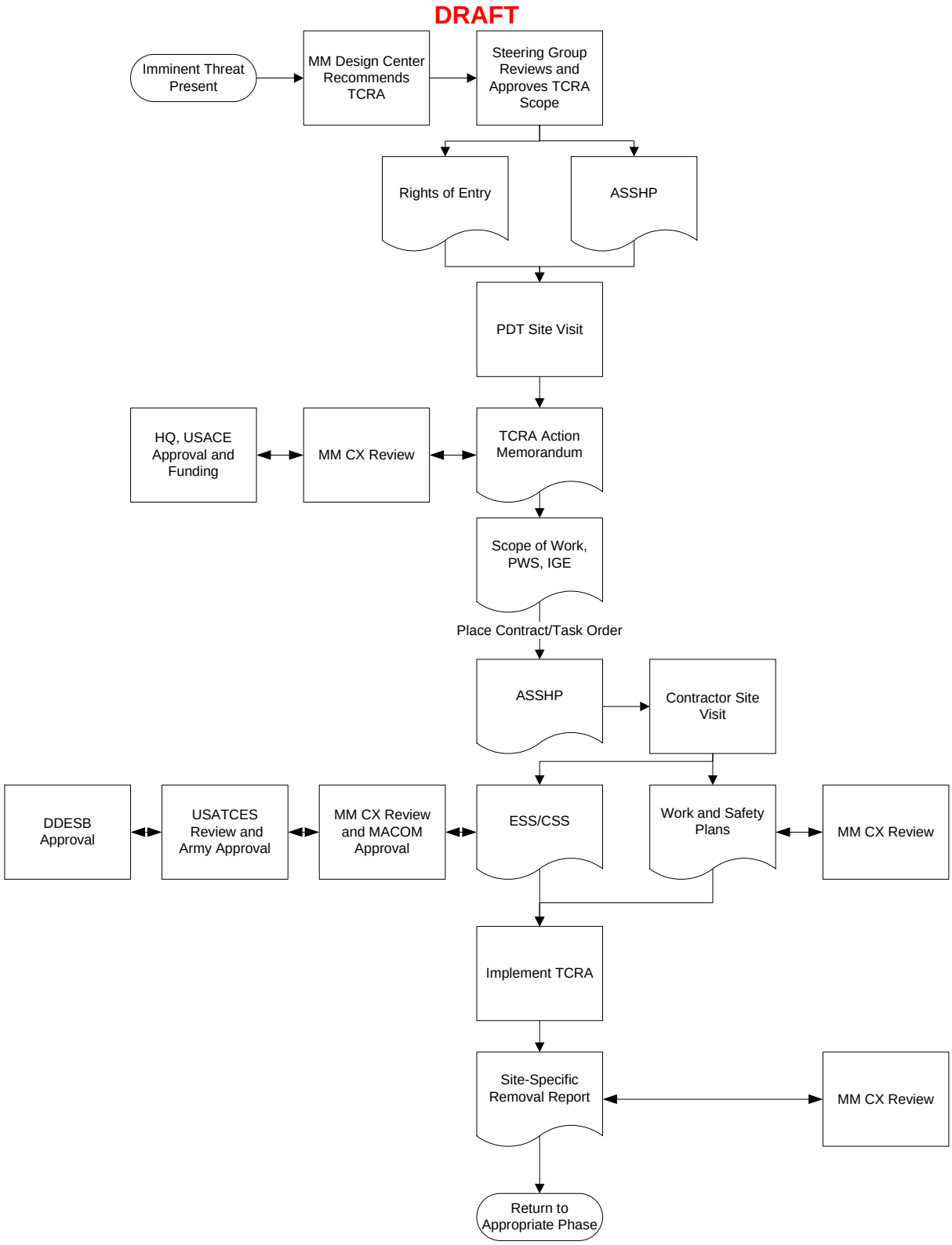

Figure 11-2 Time-Critical Removal Action Process

(4) Capping of contaminated soils or sludges, where needed to reduce migration of hazardous substances or pollutants or contaminants into soil, ground or surface water, or air;

(5) Using chemicals and other materials to retard the spread of the release or to mitigate its effects, where the use of such chemicals will reduce the spread of the release;

(6) Excavation, consolidation, or removal of highly contaminated soils from drainage or other areas, where such actions will reduce the spread of, or direct contact with, the contamination;

(7) Removal/recovery of MEC, or drums, barrels, tanks, or other bulk containers that contain or may contain hazardous substances or pollutants or contaminants, where doing so will reduce the likelihood of spillage; leakage; exposure to humans, animals, or food chain; or fire or explosion;

(8) Containment, treatment, recovery (of MEC), disposal, or incineration of hazardous materials (MEC or MC), where needed to reduce the likelihood of human, animal, or food chain exposure; and

(9) Provision of alternative water supply, where necessary immediately to reduce exposure to contaminated household water and continuing until such time as local authorities can satisfy the need for a permanent remedy.

c. Procurement of Removal Action Services. Upon approval of the TCRA AM, the PM, with the support of the PDT as required, will prepare a project-specific SOW/PWS and an IGE based on the AM.

(1) SOW/PWS. The SOW/PWS will be prepared in accordance with the guidance provided in EM 1110-1-4009. Project safety is a primary concern in the preparation of the SOW/PWS.

(2) IGE. The IGE will be prepared in accordance with the guidance in Chapter 2.

(3) Upon approval of the SOW/PWS and the IGE, the MM Design Center or the District approved to execute removal actions will solicit and award a contract for the performance of the removal action.

d. Contractor Project Site Visit. Once the contract is awarded, the contractor may conduct a project site visit.

(1) Purpose. The purpose of the project site visit is to gather information for the preparation of the removal action work plan, ESS, and/or CSS.

(2) Property Access. Permission to access the property and to conduct all removal response activities, if not already secured, must be obtained before the contractor arrives on-site. If access has already been secured, the contractor will notify the landowner(s) of planned activities. Refer to Chapter 3 for details on gaining access to conduct the removal action.

(3) Safety Considerations. Because the project site visit will be non-intrusive and anomaly avoidance techniques will be implemented, an ASSHP will be prepared prior to the site visit. The ASSHP will be reviewed by the PDT, including the District/MM Design Center Safety Office, and approved by the USACE Command-designated approval authority.

(4) If an ammunition item with an unknown filler is encountered during site activities, all work will cease, the site will be secured, and local law enforcement authorities will be notified immediately. This is typically how the DOD emergency response personnel (EOD and Technical Escort Unit [TEU] personnel) are energized for response to USACE project sites. Once they have determined the item to be suspect chemical warfare materiel, the event will be reported in accordance with HQUSACE instruction in CEMP-CE Memorandum, SUBJECT: Interim Guidance – Notification Procedures for Discovery of Recovered Chemical Warfare Materiel (RCWM) During USACE Projects, http://www.hnd.usace.army.mil/oew/policy/IntGuidRegs/RCWM%20Notification%20memo_w_encl23%20April%2004.pdf. USAESCH is the only USACE command authorized to execute RCWM projects. EP 75-1-3 provides detailed guidance on RCWM response actions.

e. Planning Documents.

(1) Preparation, Review, and Approval of Contractor Planning Documents. The removal action contractor's initial planning tasks include preparation of the Work Plan and ESS/CSS. Once these documents have been finalized (i.e., approved or accepted), the Notice-to-Proceed for the field components of the removal action will be issued.

(2) Work Plan Contents. A site-specific Work Plan is required for all MMRP projects. Following the site visit, the MEC/MC contractor will prepare a Work Plan that both describes the proposed methodology for accomplishing the removal action and meets contract requirements. The format for the Work Plan is provided in EM 1110-1-4009 and/or identified in contract requirements.

(3) Review and Approval/Acceptance. The MM Design Center or the District approved to execute the removal action is responsible for executing the Work Plan. The PDT will review the Work Plan and provide comments to the USACE executing element. The MM CX will monitor the Work Plan.

(a) When review of the draft document has been completed, the MM Design Center will ensure the comments are incorporated into the final document. The USACE executing element will either approve or accept the Work Plan.

(b) Changes to the Work Plan. Changes to the Work Plan are often required during execution of removal projects. The MM Design Center and the CO will approve/accept any changes to the Work Plan in coordination with the PM.

(c) A Work Plan change that affects any operational and/or safety procedures may also require a revision to, and a resubmittal of, the ESS/CSS. The MM CX must approve any changes to the ESS/CSS.

(d) Current Copy of Work Plan. The PM and other members of the PDT will maintain a current copy of the Work Plan. A copy of the final approved/accepted Work Plan will be maintained at the project site.

(4) Accident Prevention Plan (APP) and Site Safety and Health Plan (SSHP). The APP/SSHP will be prepared in accordance with USACE 385 document series requirements.

(5) ESS/CSS. The purpose of the ESS/CSS is to ensure that all applicable DOD and Army regulations regarding safe and secure handling of ordnance are followed. The PDT will ensure that the ESS/CSS, the Work Plan, and the approved AM are consistent.

(a) Intrusive activities cannot commence until the U.S. Army Technical Center for Explosives Safety (USATCES) and the DDESB approve the ESS/CSS and the contractor has been directed to incorporate the approved ESS/CSS changes into the Work Plan. A copy of the approved ESS/CSS will be maintained at the project site. All operations will be executed in accordance with the approved ESS/CSS.

(b) Detailed guidance on the preparation and process associated with the ESS may be found in EP 385-1-95b and the DDESB's Memorandum, Guidance for Clearance Plans, dated January 1998. Detailed guidance on the preparation of the CSS is found in EP 75-1-3.

(c) Notice-to-Proceed. Once the ESS/CSS and all other prerequisite planning documents have been approved or accepted, a Notice-to-Proceed with the removal action will be issued.

f. Implementing Removal Actions.

(1) The removal action will be conducted in accordance with the approved/accepted Work Plan and ESS/CSS.

(2) Upon completion of the removal action, the District will implement any legal or administrative controls identified in the AM.

11-4. Remedial Design.

a. Remedial design is a phase of remedial actions that follows the RI/FS and is governed by 40 CFR 300.420-440 and must be in accordance with CERCLA, Executive Orders 12580 and 13016, and the NCP. RD includes development of engineering drawings and specifications for a site cleanup.

b. Detailed designs, plans, and contract documents for conducting remedial actions are developed during the RD phase. For projects involving MEC, the RD requires preparation of an ESS or CSS approved by the DDESB after review by USATCES and the MM CX. Value engineering will be applied whenever possible in accordance with existing regulations. The MM CX can assist the PM in coordination with District Value Engineer officers and can participate in studies. Several references provide value engineering information. These references include:

(1) ER 11-1-321, Value Engineering; and

(2) EP 11-1-4, Value Engineering: A Profitable Partnership.

c. The RD must ensure that applicable federal and state requirements have been identified and incorporated, including meeting any conditions or waivers to ARARs. An Environmental Protection Plan to address erosion and sedimentation (E&S) caused during earthmoving activities (subsurface investigations) should be developed consistent with the applicable ARARs. Coordinating the RD with the lead regulatory agency at an early stage is essential for project success. The Office of Counsel will be consulted in instances where a lead regulator makes demands that are inconsistent with the USACE RD plan and on all issues related to the extent of federal or state authority for site-specific analysis, including ARARs. Technical reviews will be coordinated to ensure that the designs include all of the elements necessary to comply with the environmental and safety standards identified in the applicable DD. The RD project must include the design of LTM components.

d. LUCs. At all FUDS projects where a use restriction is part of restoration activities, the LUC must be clearly defined, designed and planned, and enforceable. LUCs will be designed in coordination with current landowner(s) and affected parties. An institutional analysis of LUCs (done during the FS) must be conducted to determine what types of LUC opportunities are appropriate at a specific property, either alone or in conjunction with other response alternatives. To meet this objective, the local, state, federal, or private agencies and authorities responsible for implementing and maintaining LUCs must be identified. Each type of LUC will be designed for each particular property. EP 1110-1-24 contains detailed guidance on institutional controls (also known as LUCs).

(1) The term “land use controls” includes engineering controls in addition to institutional controls discussed in the NCP. LUCs are considered response actions under CERCLA, and, as such, must be coordinated with the current landowner, regulatory agencies, and appropriate local authorities. LUCs include any type of physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property to prevent or reduce risk to human health, safety, and the environment. The objective of LUCs is to ensure that future land use remains compatible with the land use that was the basis for the evaluation, selection, and implementation of the response action. The primary goal of a LUC is to provide a form of notice or barrier at a property to prevent exposure to a hazard.

(2) Principles for Developing a LUC Plan.

(a) A LUC Plan is always considered to be appropriate for any site impacted by MEC. This is due to the fact that all MEC cannot be detected/recovered from a site, even using the best available technology.

(b) To maximize the strengths of individual controls, multiple levels of control, layering/redundancy of LUCs, and LUCs in series are advantageous for any LUC Plan.

(c) Development of LUCs will be a team effort and every group with an interest in the property will be involved in the process.

(d) Announcements in various forms (for example, periodic notices to the affected entities) are useful in protecting communities from the harmful effects of misuse of lands containing MEC.

(e) Because of safety issues associated with MEC present at a property, every LUC Plan will have an assurance strategy that is developed along with the basic plan. This strategy is documented in the Land Use Control Assurance Plan (LUCAP).

(f) Maintaining pertinent records is necessary so that the continued effectiveness of the LUC Plan can be evaluated during the 5-year review. Recordkeeping requirements can be found in EP 75-1-4 and EP 1110-3-8.

(3) LUC Documents.

(a) A LUC Implementation Plan (LUCIP) is a brief summary of the major issues and objectives that the LUCs have been designed to address. The LUCIP will include a LUCAP, which will be a separate section within the LUCIP. Items to be addressed in the LUCIP include descriptions of site boundaries and LUCs to be implemented, parties involved, funding, schedules, and other items as specified in EP 1110-1-24. The LUCIP will be reviewed by every group involved in maintaining or implementing the LUCs.

(b) A LUC Assurance Plan (LUCAP) is a document that includes the quality assurance strategy for the LUC. This strategy will detail the process to ensure the viability of the LUC and how it will be monitored over the life of the LUC.

(4) In designing LUCs, USACE Districts will:

(a) Develop a LUC strategy, consistent with applicable laws, that defines the responsibilities of all parties involved in implementing the LUCs.

(b) Plan, program, and budget for the necessary funding to implement and maintain LUCs.

(c) Update FUDSMIS with the appropriate Restoration Management Information System (RMIS) data requirements for LUCs. This information will be made available, where feasible, for inclusion in any existing state or local government LUC database or registry.

(d) For any evaluation of response alternatives where a use restriction will be imposed, either as a stand-alone response alternative or as one component of a more complex action, USACE Districts will ensure that the evaluation of response alternatives includes an analysis of an alternative with a use restriction, as well as an analysis at the level of detail appropriate to the size and scope of a response not requiring a use restriction (e.g., implementation of a response that allows unrestricted use). This will allow consideration of restricted and unrestricted use alternatives in selecting the response action.

(e) Provide timely notice to the lead regulatory agency of the intent to use LUCs. Regulatory comments received during the development of draft documents will be considered in the final LUCs, as appropriate.

(f) Include a description and rationale for the reasonably anticipated future land use or other exposure scenario used to select the remedy in the DDs for all responses that include LUCs. A LUC Plan will be recorded as a response action in the ROD for NPL projects and in the DD for non-NPL projects.

(g) Institute a process to review and evaluate the effect on human health, safety, and the environment of any proposed land use changes for areas covered by LUCs.

(5) Exceptions. Because the government does not own FUDS properties, deed notices or deed restrictions may be difficult to implement at a FUDS MMRP property. However, the appropriate local agencies or landowner(s) may wish to exercise deed notices or deed restrictions.

e. Five-Year Review Plan. In accordance with CERCLA, response actions that do not allow unlimited use and unrestricted exposure must be reviewed no less than every 5 years after the start of the response action, or more frequently if required by the ROD/DD. The reviews are conducted to ensure that the response actions remain protective of human health, safety, and the environment. Scoping and developing five-year review requirements will be part of the RD phase. EP 75-1-4 provides procedures for developing five-year review requirements on MM response actions.

11-5. Remedial Design Implementation.

a. Overview. Remedial actions are long-term, permanent cleanups that reduce risk to human health and/or the environment. Remedial response actions are governed by 40 CFR 300.420-440. These actions must be in accordance with CERCLA, EOs 12580 and 13016, and the NCP. The geographic military District at all FUDS will consult with the lead regulatory agency and local authorities to provide the notice and opportunity for comment as contained in 10 USC 2705(a) and (b). Response actions under FUDS must identify and attain or formally waive ARARs under federal and state laws. The Office of Counsel will be consulted in all instances where a lead regulator makes demands that are inconsistent with the USACE response plan and on all issues related to the extent of federal or state authority for site-specific analysis, including ARARs.

b. Scope. During the RD phase, detailed designs, plans, specifications, and bid documents for conducting the RA are developed. For projects involving MEC, the RD requires preparation of an ESS or CSS approved by the DDESB after review by USATCES and the MM CX. Refer to EP 385-1-95a for safety concepts and considerations for MMRP projects. Value engineering methodology will be applied whenever possible in accordance with existing regulations. Value engineering studies will focus on individual components of the remedy without altering the ROD/DD. The MM CX can assist the PM in coordination with District Value Engineer officers and can participate in studies. The RD must ensure that applicable federal and state requirements have been identified and incorporated, including meeting any conditions or waivers to ARARs. An Environmental Protection Plan to address erosion and sedimentation (E&S) occurring during earthmoving activities (subsurface investigations) will be developed consistent with the applicable ARARs. Coordinating the RD with the lead regulatory agency at an early stage is

essential for eliminating costly delays. Technical reviews will be coordinated to ensure that the specifications include all of the elements necessary.

c. Real Estate. Because USACE does not have ownership of the property at FUDS properties, the PM is responsible for obtaining access agreements from the controlling government agencies, property owners, or lessee. Properly executed access agreements protect the government and contractor personnel from civil and/or criminal penalties for trespassing. The District Chief of Real Estate and/or the HQUSACE Deputy Chief of Staff for Real Estate will be consulted for additional information and project-specific issues. A sample letter can be found in Appendix B. Two types of access agreements are discussed below. See ER 200-3-1 for more detail on securing ROEs and easements.

(1) Right-of-Entry. A legally executed ROE is required whenever USACE or parties acting on behalf of USACE (i.e., contractors) conduct any activity on property that is owned by anyone other than USACE. Access agreements are required regardless of whether the property is owned by a government entity.

(a) A standard form ROE agreement is provided in Appendix B. The form must be tailored where indicated to reflect specific site conditions. Once tailored appropriately, the rest of the language of this form may be used without approval from the HQUSACE ODCSRD only if a variance in the language is not requested.

(b) If a variance in the language of the ROE agreement is necessary, proposed changes and authorities will be provided to HQUSACE ODCSRE to request a variance.

(c) If ownership of the property changes after an ROE has been secured, the PM will be required to request an ROE from the new property owner.

(2) Easement. A legally executed easement may be preferable to an ROE when the PM expects the response action to extend over a long period. Such instances include cases in which extensive site mobilization, on-site response activities, and long-term monitoring are expected or in which extensive excavation is expected to be a component of the response.

(a) An easement differs from an ROE in the following respects. First, an easement remains in effect even when the property is conveyed to another party. In addition, more authority, formality, and in some cases, a financial interest, are required to obtain an easement.

(b) An easement also provides greater protection to the government than does an ROE. Requests for authority to acquire such interests will be submitted to HQUSACE ODCSRE.

(3) Access Denied.

(a) If the current owner refuses ROE, the USACE District Commander will notify appropriate authorities, such as EPA, state environmental regulatory agencies, and local government agencies involved in public safety of the facts and circumstances and seek their assistance in securing the ROE.

(b) If the owner continues to refuse entry, the USACE District Commander will notify the DASA (ESOH) through the chain of command. The DASA (ESOH) will in turn notify ODUSD (I&E) of the circumstances surrounding the denial of ROE. The DASA (ESOH), in consultation with the Secretary of the Army, Office of General Counsel, will then make appropriate referral to the Attorney General of the United States per CERCLA § 104(e)(5)(B) to seek judicial authority to enter the property.

d. Mobilization. During the mobilization phase, a command post will be established. All personnel involved in the response activities will mobilize to the property. If necessary, temporary command post structures and support services will be set up. All facilities, personnel, and services, including emergency services, will be in place to support response activities.

e. Positioning and Surveys. Location surveys and mapping will be performed by the MEC contractor to establish the boundaries of the areas under investigation. A UXO Technician II must escort the surveying crew on all MEC properties. EM 1110-1-4009 details the procedures to be followed for location surveys and mapping of the site.

f. MEC Surface Removals. A surface removal is the removal of all MEC items that can be visually located on-the-surface (see glossary for definition) and/or a portion of the MEC item that can be visually located; however, the majority of the item is subsurface. Various instruments may be used to assist in visually locating MEC on the surface as some MEC blend in with the surrounding surface area. During MEC surface removals, qualified and trained personnel will mark, identify, and record the approximate location of all discovered MEC for subsequent destruction. In addition, all munitions debris and other materials that may interfere with the geophysical investigation will be collected and stored for later disposal. See Appendix I for material reporting requirements.

g. Geophysical Investigations. Geophysical investigations are performed to acquire data and identify all anomalies that resemble MEC items located beneath the surface. Geophysical investigations are detailed in EM 1110-1-4009. Geophysical investigations are typically performed in three phases.

(1) The first phase is the geophysical prove-out (GPO), which demonstrates and documents the site-specific capabilities that the proposed survey methodologies are capable of meeting DQO performance goals.

(2) The second phase is the geophysical survey where geophysical instrumentation is used to survey the area. Geophysical data are analyzed and interpreted to identify potential MEC for intrusive investigation.

(3) The third phase is the reacquiring of target anomalies for intrusive investigation, except in the case of mag and dig, or mag and flag methodologies. All anomalies selected for excavation will be physically reestablished by precise survey methods, mapped, documented on dig sheets, and intrusively investigated.

h. MEC Subsurface Removals. Intrusive investigations are conducted to identify the source of selected anomalies. Anomalies may be excavated using mechanical or manual methods. However, the use of mechanical excavation techniques will cease when the excavation is within 12 inches of the anomaly.

(1) After the source of an anomaly has been removed or identified, the area will be backfilled and restored in accordance with the contract requirements. Processes must be in place to verify that no additional items are present in the excavation (e.g., a “masked” or hidden anomaly).

(2) Evacuations may be necessary to minimize risk when conducting intrusive investigations. An exclusion zone will be established to ensure that all nonessential personnel are kept at a safe distance during investigation. Engineering controls can be used to decrease the size of the exclusion zone. These controls are detailed in EM 1110-1-4009. Evacuations that involve residents or nearby workers will be coordinated with state or local relocation officials, as required by NCP Section 300.415(f).

(3) Other aspects to consider during the intrusive investigation include explosives storage and disposal and transport of MEC. Storage and transport are discussed in EP 385-1-95a, EP 75-1-3 (RCWM), and EM 1110-1-4009.

i. MEC Disposal/Destruction. Recovered MEC may be destroyed in place, on-site, or off-site. The decision regarding MEC destruction is based on the risk associated with the disposal operation, as determined by site-specific characteristics and the nature of the MEC recovered. Additional information on MEC disposal operations can be found in TM 60A-1-1-31, Explosive Ordnance Disposal.

(1) On-Site Disposal.

(a) It may not be possible to safely destroy an MEC item in-place. If the item is found to be acceptable to move, it may be moved to a place where destruction and disposal can safely take place on-site. Engineering controls are often used to minimize the blast effect; these are detailed in EM 1110-1-4009.

(b) Guidance for the on-site destruction of MEC is published in EP 1110-1-17, Establishing a Temporary Open Burn/Open Detonation Site for Conventional MM.

(c) In-Place Detonation. In-place detonation, or blow-in-place (BIP), is a technique used when a MEC item is deemed unacceptable for moving to an alternate location for destruction. In-place destructions will be conducted in a manner that ensures maximum control of the site. Engineering controls are often used to minimize the blast effects; these are further detailed in EM 1110-1-4009.

(2) Off-Site Destruction.

(a) If transported off-site for destruction, the MEC will be transported either by military vehicles or by a qualified MEC contractor to an approved facility/location for safe disposal.

(b) The transportation of MEC will be performed in accordance with the provisions of Technical Bulletin 700-2, 49 CFR Part 172, and applicable state and local laws.

(3) Temporary Storage. In some cases it may be necessary to temporarily store MEC before on- and off-site disposal. Refer to EP 385-1-95a for guidance on temporary storage.

j. MC Treatment and Disposal. Munitions constituents is defined as any material originating from UXO, discarded military munitions (DMM), or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. If a response action requires transfer of any MC-contaminated media or other CERCLA waste to an off-site facility for treatment or disposal, the provisions of 40 CFR 300.440 must be adhered to. During the design phase, it is important that an appropriate treatment/disposal facility is identified and selected to receive project waste.

(1) Material Potentially Presenting an Explosive Hazard (MPPEH) Inspection and Certification. The MEC contractor will comply with the provisions of DOD Instruction 4140.62 and EM 1110-1-4009 for the inspection and certification of MPPEH.

k. Site Restoration and Demobilization. Upon concluding all field activities, the site will be returned to the original condition or better. Excavations will be backfilled and graded, debris and trash will be removed, and the landowner(s) will inspect the property to ensure their satisfaction. All field equipment, office trailers, sanitary facilities, and trash receptacles will be returned to their respective vendors and site personnel will demobilize from the site.

11-6. Land Use Control Implementation.

a. Upon completion of the on-site fieldwork, engineering controls (such as fences, signs, and monuments) and the legal and administrative LUCs identified in the decision document or action memorandum will be implemented. The District is responsible for coordinating with the state and/or the local authorities to ensure that all appropriate LUCs are established. LUCs will be negotiated with the private landowner. In establishing LUCs, all ARARs will be attained or waived. The contractor that performed the response actions may implement some of the engineering controls as part of the removal action.

b. DOD policy regarding LUCs is evolving, and PMs will ensure they are using the most recent guidance.

(1) The objective of LUCs is to ensure that future land use remains compatible with the land use that was the basis for the evaluation, selection, and implementation of the response actions.

(2) In implementing LUCs, USACE Districts will follow the LUCIP and LUCAP.

11-7. Five-Year Reviews.

a. Five-year reviews are conducted to ensure that the response actions remain protective of human health, safety, and the environment. Some remedies involve the construction of engineering controls that must be periodically evaluated for integrity, erosion conditions, and lack of containment. Five-year reviews also provide an opportunity to assess the applicability of new technology to address technical impracticability determinations made prior to implementation of the selected response action.

b. Chapter 12 of this pamphlet and also EP 75-1-4 provide procedures for implementing five-year review requirements on MM response actions.

(1) Implementation of 5-Year Review Plan. At a minimum, reviews will occur every 5 years for MEC sites. Refer to Chapter 12 of this pamphlet and EP 75-1-4 for additional guidance on the frequency of the reviews.

(2) It is the responsibility of the USACE District to execute five-year reviews.

11-8. Removal/Remedial Phase Final Documentation.

a. USACE Final QA Report. At the completion of the removal or remedial phase of a project, USACE will prepare a Final QA Report to document USACE oversight and QA/QC activities for the project, as specified in EM 1110-1-4009.

b. Data generated by USACE or the contractor during the removal/remedial actions will be provided in an electronic format, as specified in the project plans.

c. Site-Specific Final Reports (SSFR).

(1) At the completion or termination of an MMRP response action, the contractor will prepare and submit a SSFR. If an Emergency Action has been taken, the EOD unit conducting the removal action will prepare an EOD Incident Report. This incident report will be included in the SSFR Report.

(2) Content. The SSFR documents all activities and operations that occurred and lists the MEC found during the removal/remedial action and the MEC locations and the actions taken to address MC contamination. The SSFR will, at a minimum, identify and include the following:

(a) Maps showing search areas established and locations of reportable material (see Appendix I) found. All anomalies associated with known or suspected cultural features (e.g., utility assets, roads, sidewalks, septic systems, etc.) must be identified.

(b) Description and results of MC sampling and laboratory analyses, and maps indicating sample locations.

(c) A list identifying all reportable material (see Appendix I). For UXO and DMM, the depth to the top of each item recovered will be included on the list as well as x and y coordinates

and the soil type (either sand, clay, or loam) from which the item was recovered. The presence of bedrock at the location of the item will be noted.

(d) The results of QC and QA processes. The contractor will report dates and results of QC and QA inspections/reviews of project activities including MC sampling and analysis. The SSFR will include all QA documentation issued to the contractor by the Government (e.g., DA Form 5479-R, Contract Discrepancy Report; CEHNC Form 948, CEHNC Ordnance and Explosives Group Memo; locally produced Corrective Action Request forms; etc.). The contractor will report all corrective actions taken as a result of QC/QA failures.

(e) A description of the method(s) used to remediate, remove, or otherwise address MEC including lessons learned.

(f) Actions taken to remediate, remove, or otherwise address MC contamination including lessons learned.

(g) All documentation/receipts for final disposition of munitions debris/range related debris.

(h) All Explosives Accountability Records, to include initial receipt documentation, issue and destruct documentation, and inventories.

(i) Digital color photographs of major activities, and MEC discoveries.

(j) Breakout of costs as follows: a) area of the site, b) task number in the scope of work, c) cost to accomplish the task order, and d) labor hours and labor categories used to perform the task order (for T&M and CP tasks only).

(k) Daily Project Reports.

(l) Dig sheet data for all excavations.

(m) Boundaries of actual response activities and any areas that were avoided.

(n) Description and maps of any archaeology sites and environmentally sensitive areas that were encountered and corrective or protective procedures that were taken.

(o) Description of any damages to trees, utilities, or facilities, and corrective actions that were taken to repair these damages.

(p) Number of acres on which revegetation or reseeding was done.

(3) SSFR Review and Approval Process.

(a) The PDT will review the SSFR to ensure its completeness, accuracy, and compliance with the contract and task order terms. The MM CX will also review the Final Report. The

contractor will make all necessary corrections, as directed by the CO, prior to publishing the report as a final document.

(b) The executing USACE element will approve the SSFR.

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CHAPTER 12

Long-Term Management / Five-Year Review

12-1. Introduction and Purpose.

a. LTM activities may be required for MMRP projects. Five-year reviews are conducted under the LTM phase once a project achieves RC and satisfies the CERCLA 5-year review requirement.

b. LTM consists of ongoing activities at a project location. LTM can consist of LUC and sampling of treatment systems. MC treatment systems may require LTM. This may consist of sampling based upon the remedial design frequency. This LTM serves to monitor and document cleanup activities for projects.

c. The purpose of five-year reviews for MM response actions is to determine if a response action continues to minimize explosives safety risks and continues to be protective of human health, safety, and the environment. Five-year reviews also provide an opportunity to assess the applicability of new technology for addressing previous technical impracticability determinations.

d. The scope of the review will be site-specific and will depend upon the response objectives and the specific responses implemented. The review will evaluate appropriate site-specific factors that may impact the continued effectiveness of the response. These factors may include changes in physical conditions at the project location, changes in public accessibility and land use, and the applicability of new technology for addressing a previous technical impracticability determination. The review will also evaluate the maintenance and enforcement of LUCs.

e. The purpose of this chapter is to describe the procedures, criteria, and requirements involved in updating the Five-Year Review (also called Recurring Review) Plan (if necessary), finalizing the plan, implementing the review, review reporting, approval, and identification of additional responses required.

f. Refer to EP 75-1-4, Recurring Review on Ordnance and Explosives Response Actions, for more details on this process and execution of recurring reviews.

g. Refer to EPA 540-R-01-007, Comprehensive Five-Year Review Guidance, for more details on the CERCLA process and execution of five-year reviews.

12-2. Updating/Finalizing Five-Year Review Plans.

a. Upon determination that a project is complete, the District, in cooperation with the MM Response Team, will update/finalize the Five-Year Review Plan as necessary. Any updates to the Five-Year Review Plan will be coordinated with regulators and stakeholders through appropriate channels.

b. Modifications to the Five-Year Review Plan are the responsibility of the District PM. The MM CX will review the changes; the District Commander is the designated approval authority for approving the modified Five-Year Review Plan.

12-3. Implementing the Five-Year Review Plan.

a. It is the responsibility of the USACE District to execute five-year reviews.

b. Five-year reviews answer three general questions:

(1) Is the response functioning as intended?

(2) Are any assumptions used at the time of the response selection still valid?

(3) Does new information indicate that the previously selected response no longer minimizes explosives safety risks or is no longer protective of human health, safety, and the environment considering the best available technology?

c. Schedule for Conducting Five-Year Review Activities. The PDT, in coordination with stakeholders and regulators, will determine the frequency for which reviews will be conducted at a site and the period for continuing the reviews. At a minimum, reviews will occur every 5 years for MM sites. Refer to EP 75-1-4 for additional guidance on the frequency and execution of five-year reviews.

12-4. Five-Year Review Reporting.

a. Executing the five-year review requires establishing the PDT, review of existing documentation, notifying stakeholders, identifying and reviewing new information and current project conditions, preparing a preliminary project site analysis and work plan, conducting a project site visit, and preparing a Five-Year Review Report.

(1) Establish PDT to Conduct Five-Year Review. Successful performance of a five-year review requires establishment of an interdisciplinary PDT. The district will form a team that includes staff with necessary MEC and environmental expertise, the district Division of Real Estate, and the district PAO. When possible, personnel familiar with the project and the response action will be considered for the PDT conducting the five-year review.

(2) Review of Existing Documentation. The PDT will review existing documentation for the project. At a minimum, the team will review the documents listed in the Five-Year Review Plan, and the Five-Year Review Report from the previous review, if applicable.

(3) Community Involvement. The PM will review and update the PIP as appropriate. The PM will determine the level of stakeholder information required and ensure appropriate involvement from stakeholder groups.

(a) The PM will update the information repository.

(b) The PM will schedule an open meeting in the local community for coordination with stakeholders and regulators.

(c) The PDT will disseminate questionnaires or surveys to identify community-wide interest and concerns.

(4) Identify/Review New Information and Current Project Site Conditions. The PDT will identify readily available information regarding the project that has become available since implementation of the response action or since the last five-year review. New information will also be gathered through interviews with persons knowledgeable about the project, including stakeholders such as property owners, local agencies, local community members, and regulators. EP 75-1-4 identifies the specific project site information needed to be acquired during these interviews.

(5) Prepare Preliminary Project Site Analysis and Work Plan. The PDT will prepare a preliminary project site analysis based upon a review of existing and new information. The preliminary project site analysis will include a preliminary evaluation of the continued protectiveness of the response action. This analysis will identify any additional information that is required to prepare the final project site analysis (i.e., additional information required to make a final determination regarding the continued protectiveness of the response action). The PDT will prepare a work plan to identify the procedures to be used in collecting the additional information identified during the preliminary project site analysis. EP 75-1-4 identifies the specific information needed.

(6) Conduct Project Site Visit. The PDT will conduct a project site visit to visually confirm and document the current physical condition of the site and surrounding area, and the current condition or status of any LUCs included in the MM response action. The PDT may also conduct stakeholder outreach programs and interviews, as applicable, in conjunction with the project site visit.

(7) Prepare Five-Year Review Report. The PDT will prepare a Five-Year Review Report to document the information collected and evaluated, and to present the findings of the evaluation of the continued protectiveness of the MM response action. The report will document whether the response action that was implemented continues to minimize explosives safety risks and is still protective of human health, safety, and the environment and/or whether follow-up actions may be warranted.

(a) Contents of the Report. The Five-Year Review Report is a flexible document tailored to the scope of the five-year review for the project. The report will be written with the assumption that the reader is not familiar with the project. Historical project information can be taken directly from existing documents. The report will include a description of the five-year review process and the evaluation considerations used to assess the protectiveness of the response. The report will be brief, with supporting information provided as appendices.

(b) EP 75-1-4 identifies the content and a report checklist along with environmental records management.

12-5. Approval and Termination of the Five-Year Review.

a. Approval of Five-Year Reviews. The District will prepare a draft and final Five-Year Review Report.

(1) Draft Five-Year Review Report. The District will prepare a draft Five-Year Review Report. The district will provide a copy to the MM CX for review. The Office of Counsel for the District conducting the five-year review will review and provide comments on the draft Five-Year Review Report generated by the PDT before it is released outside of the USACE. Following the approval of the District Office of Counsel, the district will provide a copy to regulators and stakeholders for review and comment. A copy of the report will also be placed in the information repository established for the recurring review for public review and comment. EP 75-1-4 identifies the specific public meeting and public comment requirements.

(2) Final Five-Year Review Report.

(a) The District will incorporate the comments received during the public comment period into the final Five-Year Review Report.

(b) The final report must contain a signed determination by the District Commander (FUDS)/Installation Commander or MACOM Commander (active and transferring sites) stating that the response continues/does not continue to minimize explosives safety risks and is/is not protective of human health, safety, and the environment. The district will seek concurrence from the appropriate regulator(s) for the determination.

(c) The District will provide copies of the final report to appropriate stakeholders, regulators, and the MM CX. The final Five-Year Review Report, along with the Responsiveness Summary, will be included in the Project File for the site, including the information repository that was established during the five-year reviews.

b. Termination of Five-Year Reviews. Further five-year reviews may be terminated for a project when the PDT, stakeholders, and regulators reach agreement that the project site is stable based on the results of previous reviews and the response actions that have been conducted for the project. Evaluation of the stability of the project site will depend on site-specific characteristics. A project site may be considered stable if:

(1) There are no issues at the project site that result in a change in the effectiveness of the response actions.

(2) There has been no erosion at the site that significantly impacts the response action.

(3) There have been no MEC incidents at the project site location.

(4) There have been no significant changes in land use for the project site.

c. USACE recognizes that there may be projects requiring five-year reviews over an indefinite period of time due to unique site conditions.

d. The final Five-Year Review Report generated for the last five-year review for a project will state that no further reviews will be conducted for the project. The report will also provide a discussion regarding the justification for termination of the five-year reviews and documenting agreement among the PDT, regulators and stakeholders.

12-6. Identification of Additional Responses Required.

a. The Five-Year Review Report will identify changes that have occurred since the last review. The conclusions/recommendations section of the Five-Year Review Report will present response deficiencies, conclusions, recommendations/follow-up actions, and a responsibility matrix. Response deficiencies and recommendations/follow-up actions will be coordinated with the District PM.

b. In addition, new MM response projects may be identified during the five-year review process. These projects will also be referred to the District PM for further follow-up actions.

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CHAPTER 13

Remedy In Place and Response Complete

13-1. Introduction. The RIP and RC milestones define transition points for the RA phase of an MMRP project.

13-2. Overview.

a. For DERP administration and funding purposes, the RIP and RC milestones are associated with the end of response action phases (see Figure 13-1). The USACE District is responsible for preparing memorandum or other paperwork necessary to document the RIP/RC milestones.

b. Remedial Action-Construction (RA-C) is the period during which the final remedy is being implemented. At the completion of the RA-C phase, the project is considered to have attained the RIP milestone after a project RA report is prepared and approved. RIP signifies that the construction is complete, all testing has been accomplished (i.e., post-remediation confirmation sampling/testing is complete or treatment systems operations testing is done) and that the remedy (i.e., treatment system) will function properly. At this point the RA enters the Remedial Action–Operations (RA-O) phase.

c. During the RA-O phase, the treatment process is in operation to meet the cleanup objective for MC as identified in the ROD/DD. After the cleanup objective is attained, the RC milestone is attained and the RA transitions to the LTM phase. The RC milestone is at the end date of the RA-O.

d. The source for these post-remediation milestone terms is the Management Guidance for the Defense Environmental Restoration Program.

13-3. Remedy in Place.

a. The RIP designation is made when a final remedial action has been constructed and implemented and is operating in accordance with the plans and specifications in the remedial design. An example of a RIP is a pump-and-treat system that is installed, is operating as designed, and will continue to operate until cleanup levels have been attained. Because operation of the remedy is ongoing, the site cannot be considered as being complete (i.e., “Response Complete”).

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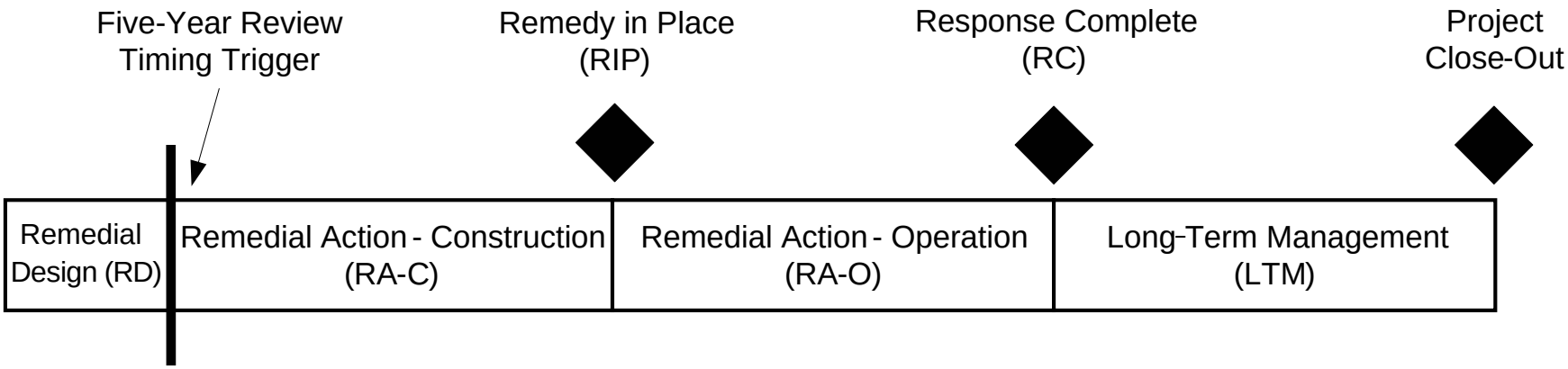

NOTES:

1. ◆ Denotes milestone accomplishment

2. The RIP and RC milestones are achieved at the end of the RA-C, for response actions where long-term corrective action is not required.

3. The trigger date for the recurring reviews/5-year reviews is the start of the RA-C (i.e., mobilization date).

4. For projects involving property transfers, “operating properly and successfully” determination are required.

Figure 13-1 Project Phase Milestone Diagram for RA-C, RA-O, and LTM

b. A RIP designation includes confirming the following:

(1) On-site detection, recovery, treatment or in-place detonation of MEC and/or identification, removal treatment of MC has been completed (removal/recovery of MEC/MC hazards, and/or construction of MC remediation treatment system).

(2) Physical (or engineering) controls, such as fences, monuments, or signs have been properly installed.

(3) Legal and administrative LUCs have been implemented.

13-4. Response Complete.

a. RC signifies that the remedy is in place and the required RA-Os have been completed. Consistent with CERCLA, DERP, and applicable EOs and regulations, environmental response activities under the Installation Restoration or MMR program categories are considered "response complete" when all the response objectives identified in an appropriately signed ROD or other formal DD have been achieved and documented. For example, if there were groundwater and/or surface water treatment system in place, the RC milestone is reached after the cleanup goals are obtained (i.e., conditions are protective of human health and the environment).

b. RAs that involve LTM components, i.e., deed restrictions, fencing, cap or other maintenance of the RA, environmental monitoring, or review of site conditions, will enter the LTM phase following the RC milestone. "Long-Term Management" is reserved for monitoring once a site is RC, and will not be used to refer to monitoring after RIP (this includes sites for which the selected remedy is natural attenuation).

c. If there is no RA-O phase, the RA-C end date will also be the RC date.

d. If environmental restoration activities do not allow for unrestricted use of the property, RC occurs when:

(1) There is verification of the achievement of the response objectives detailed in the ROD/DD or other formal DD.

(2) At least one subsequent review to ensure that the response action has remained effective and continues to be protective of human health and the environment as defined by the response objectives detailed in the ROD/DD or other formal DD has occurred.

(3) At least 5 years have elapsed.

e. If environmental restoration activities allow for unrestricted use of the property, RC is when there is verification of the achievement of the response objectives detailed in the ROD/DD or other formal DD.

13-5. Remedy in Place and Remedy Control Review/Approval Process.

a. RIP/RC determination and approval are in accordance with the DERP guidance and the specific program requirements (e.g., FUDS). The PM will coordinate with the installation level environmental personnel where appropriate.

b. For projects that are on a NPL site, RA completion is achieved for a Munitions Response Area/Munitions Response Site (MRA/MRS) when the designated EPA regional official has approved, in writing, the final RA report.

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CHAPTER 14

Project and Property Closeout

14-1. Introduction, Purpose, and Overview.

a. The purpose of this chapter is to describe when and how to make a project and property closeout determination. The chapter provides guidance on the requirements for determining that a munitions response action project is complete and the project and property can be closed out.

b. Upon completion of the munitions response activity, the District, in cooperation with the PDT, will determine whether all response actions that are necessary have been taken. When it has been determined that a property no longer poses a threat to public health, safety, and/or the environment, the project and property will be closed out.

c. Project closeout occurs when all removal and/or remedial response actions are complete and no subsequent removal or remedial response actions are required, or when the property has been classified as NDAI. The primary criterion for closing out a property is a joint decision by the USACE, the lead regulator, and the community, as appropriate, that the property no longer poses a threat to the human health, safety, or the environment. USACE will actively seek lead regulator concurrence of the closeout decision for MMRP projects where USACE performs the munitions response actions for the closeout of properties containing MEC.

14-2. Project Closeout.

a. Assessment. Once munitions response actions for a particular project have been completed and the SSFR has been approved, the MM Design Center or District will assess whether all response actions specified in the DD have been successfully completed. This includes confirming that:

(1) Required detection, recovery, and disposal of MEC have been accomplished in accordance with the DD.

(2) Required identification and treatment of MC have been accomplished in accordance with the DD.

(3) Physical (or engineering) controls such as fences, monuments, or signs have been properly installed and are functioning effectively.

(4) Legal and administrative LUCs have been implemented and are functioning effectively.

b. Documentation. If the MM Design Center or District has confirmed that all munitions response actions specified in the DD or AM have been satisfactorily completed, a Project Completion Memorandum will be prepared by the MM Design Center or District in accordance with the guidance in Appendix J. The Project Completion Memorandum will summarize how each of the selected remedies in the DD/AM has been accomplished and will contain a

declaration that all response action requirements identified in the DD/AM have been satisfactorily met and the munitions response action is complete. If the MM Design Center or District, in consultation with the PDT, determines that additional response actions are required, this decision will be documented in an AM for remedial or additional removal action. The AM will be reviewed and approved in accordance with the guidance in Chapter 10, depending on whether a TCRA or an NTCRA is recommended.

c. Project Closeout Reports. The geographic military District will prepare a project closeout report with input from MM Design Center and/or Remedial Action District. The closeout report for MMRP projects will clearly identify the property and project; reference the data, studies, and other evidence upon which the closeout decision is based; and describe the rationale for the decision and regulatory concurrence. The commander of the geographic military District will sign the closeout report. A copy of the report will be included in the permanent Project File and furnished to the geographic military Division. The report will be forwarded by a cover letter to the lead regulatory agency. A public notice of availability of the closeout report will be made in a newspaper of general circulation and the report made available in a local information repository.

d. Review. The project completion memorandum will be reviewed by the PDT and the District Commander and approved by the executing USACE element. The memorandum will be forwarded to the PM for subsequent closeout of the entire property. A copy of the memorandum will be forwarded by the District, with a cover letter, to all affected property owners.

14-3. Property Closeout.

a. A Property Closeout determination is made when all authorized FUDS projects have been completed. The conditions required to justify closeout decisions are specific to the property. In general, the decision can be justified on any of the following findings:

(1) When information collected during the preliminary assessments indicates that no MEC, MC, or other hazardous substances or pollutants and contaminants are present at the property.

(2) When a site inspection or site characterization shows no significant threat to public health, safety, and the environment exist on the property.

(3) When the conclusion of a baseline risk assessment states that there is not significant threat to public health, safety, or the environment.

(4) When a no-action alternative is selected for the property.

(5) When all remedial objectives outlined in the decision document are achieved and LTM requirements are completed. A Property Closeout determination would be appropriate when all FUDS projects for the property have been completed.

b. Property Closeout Reports. The geographic military District will prepare a Property Closeout Report upon the completion of the response actions at all projects. The report will list

the projects with completed response actions; reference the data, studies, and other basis for which the closeout decision were based; and describe the rationale for the decisions. The report will indicate if regulatory concurrence was received on projects requiring such. If the property is listed on the NPL, the report will indicate the status of deleting the property from the NPL. See Appendix K for additional information about Property Closeout Reports.

c. Project and Property Closeout Review and Approval Process.

d. Regulator Concurrence. Closeout at an MMRP property occurs when all removal and remedial responses are complete and no subsequent MMRP responses are required. USACE will consult with the local community and will provide notice and opportunity for comment to the lead regulatory agency on determinations that lead to closeout decisions. USACE must seek concurrence in writing from the lead regulatory agency for MMRP project. If regulatory concurrence cannot be achieved, this will be explained in the closeout report, and elevated to HQUSACE for final review and a final decision. A closeout property is one for which all projects requiring regulatory concurrence of closeout decisions have been achieved. The geographic military District will notify the lead regulatory agency when regulatory concurrence has been received for all projects requiring such, and when USACE considers the property to be closed out.

e. Ongoing Responsibility. Following the closeout steps, no future DOD response actions are anticipated. However, the property may be reactivated if future conditions or new information suggests this is necessary. The District is cautioned to establish, maintain, and safeguard all information collected during response actions. Actions regarding the property may occur years after the data have been gathered. It is crucial that records be sufficiently detailed and protected to provide a complete and accurate history of the response action in support of any future legal action. Well-organized information will aid USACE in answering inquiries from Congress or requests from the public under the Freedom of Information Act.

CHAPTER 15

Safety Considerations

15-1. Introduction.

a. This chapter describes the safety considerations for personnel executing or supporting munitions response projects.

b. Detailed safety and health practices and procedures must be developed and implemented at each site to provide proper control of and protection against the unique safety hazards associated with specific on-site activities. All munitions response activities will be planned and conducted in accordance with the requirements of this section, thoroughly coordinated with the MM CX, and include participation of explosives safety personnel.

c. To modify the work, personnel, and/or organizational standards described in this chapter, the Activity Hazard Analysis (AHA) in the Site Safety and Health Plan (SSHP) must be revised and accepted by the Contracting Officer. The AHA must also clearly identify those areas impacted by the change and describe the procedures that will be implemented to minimize the associated safety hazards.

15-2. Policy.

a. All USACE and contractor elements will conduct munitions response projects in compliance with the regulations and guidance publications referenced below.

b. In addition, safety and occupational health documentation will comply with all other applicable federal, state, and local safety and occupational health requirements.

15-3. Work Standards.

a. The contractor will propose a workweek schedule for each project. The proposed schedule will be submitted to the CO for approval. The CO will seek the concurrence of the PDT and resolve any other comments before making the decision to accept or reject the schedule. If the schedule is rejected, the contractor will propose a new schedule and the same process will be repeated until an acceptable schedule is approved.

b. There are many factors that need to be considered when developing a project schedule. A few of these factors are weather/climatic conditions, terrain, amount and type of munitions expected, available daylight, public impacts or concerns, and customer requirements. The contractor and PDT need to analyze their project dynamics to determine the appropriate schedule for their project.

15-4. Personnel Standards.

a. The DDESB has set forth personnel standards that are applicable to contractor UXO personnel working for the DOD. The USACE will comply with the standards as contained in DDESB Technical Paper (TP) 18.

b. Government Personnel. Any person filling the position of OESS will be classified in the General Schedule 0018 series and be a graduate of the DOD's EOD schools. OESS functions will not be performed by contractor personnel. OESSs will have:

(1) The ability to identify fuzing, precautions that must be taken, fuze condition (e.g., armed, functioning, or armed and functioning), and how this condition can or will affect the munition payload if other external forces are applied.

(2) The ability to recognize munition and ordnance types and to determine hazards and make risk assessments. This includes identifying potential fillers, including those in extremely deteriorated condition (e.g., high explosives, fragmentation, white phosphorus, and chemical warfare materiel).

(3) The ability to determine whether munitions can be moved before being destroyed or must be blown in place, as well as the fragmentation radius or, in the case of RCWM, the potential downwind hazard, along with the engineering controls required to mitigate both.

(4) Contractor UXO Personnel Qualifications. All contractor UXO personnel will be trained and skilled in their assigned positions, in accordance with the requirements provided in TP 18, published by the DDESB.

c. UXO Experience. UXO personnel may receive credit for experience under the two following conditions. Years of experience will be granted for assignments to a military active duty EOD position and/or for time served as a UXO Technician I, II, III, or UXOSO or UXOQCS while working for a munitions response contractor.

(1) The contractor will be required to provide a certification that each worker to be hired has received the necessary training and possesses the requisite experience, as specified in Table 4-1, TP 18, for the position hired, and be in compliance with the requirements of 29 CFR 1910.120.

(2) The contractor's certification will be provided to the CO for acceptance or rejection.

d. Citizenship Requirements. See TP 18. To employ non-U.S. citizens, the following conditions must be met:

(1) The contractor will be required to provide a certification that each non-U.S. worker to be hired has received the necessary training and possesses the requisite experience, as specified in Table 4-1, TP 18, for the position hired, and be in compliance with the requirements of 29 CFR 1910.120.

(2) The contractor's certification will be provided to the CO for a determination of acceptance or rejection.

(3) Additionally, the contractor will certify that non-U.S. workers:

(a) Meet the requirements of 18 USC 842, as amended by the Bureau of Alcohol, Tobacco and Firearms (BATF) on 20 March 2003 in 27CFR Part 555, Section 26.

(b) Are in the United States in a legal status before they are permitted to work on a military munitions response (MMR) project.

(c) Possess a valid work visa and compliance with other legal requirements for working within the United States.

(4) The contractor will ensure that personnel without a valid DOD security clearance do not have access to the classified portions of the TM-60 publications.

(5) For existing MMR contracts that specify U.S. personnel for UXO positions, this language will be changed to read "qualified UXO personnel."

15-5. Unexploded Ordnance Team Organizational Standards. The following team organizational standards will be followed for USACE munitions response projects. Requests for clarification or exceptions will be coordinated with the MM CX and the OESS and must be approved by the CO. In addition to the general standards identified in USACE 385 series publications, the following organizational standards apply:

a. Site Management.

(1) Each munitions response project will have a Senior UXO Supervisor (SUXOS).

(2) The SUXOS will supervise no more than 10 UXO teams.

b. Field Safety and Quality Management.

(1) UXO Safety Officers.

(a) A full-time UXOSO will be on site for each munitions response project. This position may be combined with the UXOQCS when there are 15 or fewer people on site. The UXOSO will not be involved in any MEC removal or investigation tasks. The UXOSO will report directly within the corporate safety chain, not to site operations personnel.

(b) A full-time UXOSO will be present during all field operations on a RCWM project site because of the complex hazards posed by RCWM. UXO qualifications for the safety officer are not required for sites where RCWM is in chemical agent identification sets, shipping containers, or other non-munition type containers.

(2) QC Specialists.

(a) A UXOQCS may not be required full time on site. However, QC functions will be performed for all field activities within the exclusion zone and those involving explosives handling and management. The UXOQCS will ensure high quality in the field without compromising safety and will not perform any removal or investigation tasks. All project Quality Control Specialists (QCS) will report directly within the corporate quality chains, not to site operations personnel.

(b) A full-time UXOQCS will be used for all RCWM field operations. This requirement may be relaxed if a written request, citing actual site conditions, is submitted to the CO for approval.

(c) Other project teams (e.g., geophysical data collection) may require a QC specialist as well. For those QC personnel not UXO-qualified, that require entry into the EZ, see paragraph 15-5c(2)(a) of this publication.

(3) When authorized, and the UXO safety and UXO QC functions are combined in a single person, the individual filling this position will remain on site at all times during field operations.

c. UXO Team Standards. While working in a project exclusion zone, all teams must adhere to the minimum separations standards as approved in the work plans.

(1) Each UXO Team must:

(a) Be supervised by a UXO Technician III;

(b) Have a minimum of two UXO qualified personnel, one of whom is the supervising UXO Technician III, and up to six additional personnel (for a total of 7 personnel); and

(c) If the MEC operations are limited to surface removals, the basic UXO team may be modified to consist of one UXO Technician III, one UXO Technician II, and up to six additional personnel (for a total of 8 personnel). If the area to be cleared is large, two additional UXO Technician IIs and up to 12 additional personnel may be added to the team (for a total of 22 personnel).

(2) All other project teams and personnel (e.g., geophysical data collection, survey, and brush clearing) must:

(a) Have at least one UXO Technician II or above assigned to the team who will provide MEC avoidance support if the team requires entry into an exclusion zone. Alternative approaches may be acceptable in some circumstances.

(b) Skills and compositions of the other project team(s) (beyond the UXO Technician) will be appropriate to the task being performed.

(c) A UXO Technician III may supervise other project teams (as appropriate).

(3) Other project teams do not require qualified UXO personnel on the team as long as the operations occur outside the exclusion zone.

APPENDIX A
References

A-1. Section I Required Publications

29 CFR 1910.120/1926.65 OSHA Hazardous Waste Operations and Emergency Response.

32 CFR Part 179 Munitions Response Site Prioritization Protocol (MRSPP).

32 CFR Part 203 Technical Assistance for Public Participation (TAPP) in Defense Environmental Restoration Activities.

49 CFR Part 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information and Training Requirements.

40 CFR Part 260 through 270 U.S. Environmental Protection Agency (EPA) Military Munitions Rule.

40 CFR Part 300 EPA National Oil and Hazardous Substance Pollution Contingency Plan.

AR 200-1, Environmental Protection and Enhancement.

AR 385-61, Army Toxic Chemical Agent Safety Program.

AR 385-64, Ammunition and Explosives Safety Standards.

AR 405-90, Disposal of Real Estate.

AR 50-6, Chemical Surety.

Army Federal Acquisition Regulation Supplement.

Base Realignment and Closure Act of 1988, Public Law (PL) 100-526, 102 Stat. 2632.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, PL 96-510, 94 Stat 2767, 42 USC 9601.

DA Pam 385-61, Toxic Chemical Agent Safety Standards.

DA Pam 385-64, Ammunition and Explosives Safety Standards.

Defense Environmental Restoration Program Management Guidance.

Defense Environmental Restoration Program, PL 99-499, Section 211, 100 Stat 1719, 10 USC 2701 et seq.

Defense Federal Acquisition Regulation Supplement.

Directive 9355.3-01FS2, The Remedial Investigation Site Characterization and Treatability Studies.

DOD 6055.9-STD, Ammunition and Explosives Safety Standards.

EM 1110-1-1200, Conceptual Site Models for Ordnance and Explosives and Hazardous, Toxic and Radioactive Waste.

EM 1110-1-4009, Engineering and Design - Ordnance and Explosives Response.

EM 200-1-2, Technical Project Planning (TPP) Process.

EM 200-1-4, Environmental Quality - Risk Assessment Handbook - Volume I: Human Health Evaluation, and Volume 2: Environmental Evaluation.

EM 385-1-1, U.S. Army Corps of Engineers Safety and Health Requirements Manual.

Engineer Federal Acquisition Regulation Supplement.

EO 12580, Superfund Implementation.

EP 11-1-4, Value Engineering: A Profitable Partnership.

EP 1110-1-17, Establishing a Temporary Open Burn/Open Detonation Site for Conventional Ordnance and Explosives.

EP 1110-1-24, Engineering and Design - Establishing and Maintaining Institutional Controls for Ordnance and Explosives (OE) Projects.

EP 1110-3-8, Engineering and Design - Public Participation in the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS).

EP 385-1-95a, Basic Safety Concepts and Considerations for Ordnance and Explosives Operations.

EP 395-1-95b, Explosives Safety Submission.

EP 75-1-3, Explosives - Recovered Chemical Warfare Materiel Response.

EP 75-1-4, Recurring Reviews on Ordnance and Explosive Response Actions.

ER 11-1-321, Value Engineering.

ER 1110-1-12, Quality Management.

ER 1110-1-263, Engineering and Design – Chemical Data Quality Management for Hazardous, Toxic, Radioactive Waste Remedial Activities.

ER 1110-1-8153, OE Response.

ER 200-3-1, Environmental Quality - Formerly Used Defense Sites (FUDS) Program Policy Proponent: CEMP-D.

ER 385-1-92, Safety and Occupational Health Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities.

ER 385-1-95, Safety and Occupational Health Requirements for Ordnance and Explosives Response.

ER 5-1-11, Program and Project Management.

Federal Acquisition Regulation as of January 1, 1999.

Resource Conservation and Recovery Act (RCRA) of 1976, PL 94-580, 90 Stat 2796, 42 USC 6901, et seq., as amended.

Superfund Amendment and Reauthorization Act (SARA) of 1986, PL 99-499, 100 Stat 1613, amending CERCLA, 42 USC 9601 et seq., and miscellaneous other sections.

TP 18, Minimum Qualifications for Unexploded Ordnance (UXO) Technicians and Personnel. Department of Defense Explosives Safety Board (DDESB).

A-2. Section II Related Publications

A related publication is merely a source of additional information. The user does not have to read it to understand this pamphlet.

AR 385-10, The Army Safety Program.

AR 385-40, Accident Reporting and Records.

AR 75-15, Responsibilities and Procedures for Explosive Ordnance Disposal.

ATFP 5400.7, Explosives Laws and Regulations.

DAIM-ED-R. Department of the Army for Installation Management Directorate of Environmental Program s, 12 September 1995, Subject: Interim Army Policy on Natural Attenuation for Environmental Restoration.

DA Pam 385-64, Ammunition and Explosives Safety Standards.

DA Pam 40-173, Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Mustard Agents H, HD, and HT.

DA Pam 40-8, Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Nerve Agents GA, GB, GD, and VX.

DA Pam 50-6, Chemical Accident or Incident Response and Assistance (CAIRA) Operations.

Defense Base Realignment and Closure Act of 1990, PL 101-510, 104 Stat. 1808.

DDESB's Memorandum, Guidance for Clearance Plans (January 1998).

DOD Instruction 4140.62, Management and Disposition of Material Potentially Presenting an Explosive Hazard (MPPEH)

EM 200-1-3, Engineering and Design - Requirements for the Preparation of Sampling and Analysis Plans.

EO 13016, Superfund Amendments.

EP 75-1-2, Unexploded Ordnance (UXO) Support During Hazardous, Toxic, and Radioactive (HTRW) and Construction Activities.

ER 1180-1-6, Contracts-Construction Quality Management.

ER 1110-1-8158, Corps-Wide Centers of Expertise Program.

HNC-ED-CS-S-97-3, Safety Submission for On-Site Demolition Container for Unexploded Ordnance.

HNC-ED-CS-S-97-7-Revision 1, Buried Explosion Module (BEM): A Method for Determining the Effects of Detonation of a Buried Munition.

HNC-ED-CS-S-98-7, Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions.

HQUSACE, CEMP-RF, Delegation of Presidential Authorities under the CERCLA and DERP for Execution of FUDS.

HQUSACE, CEMP-RF, DERP-FUDS INPR Review Procedures.

HQUSACE, CEMP-RF, Program Manual for DERP-FUDS.

HQUSACE, CEMP-RF, USACE Policy on Determination of Project Eligibility for Properties.

OSWER Directive 9200.4-17P, Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites.

OSWER Directive 9355.0-04B, Remedial Design/Remedial Action Handbook.

TB 700-2, DOD Ammunition and Explosives Hazard Classification Procedures.

TM 5-855-1, Fundamentals of Design for Conventional Weapons.

TM 9-1300-214, Military Explosives.

TM 60A-1-1-31, Explosive Ordnance Disposal Procedures.

USACE Supplement 1 to AR 385-40, U.S. Army Engineering and Support Center, Huntsville, Accident Reporting and Records.

USAESCH-ED-CS-S-96-8-Revision 1, Guide for Selection and Siting of Barricades for Selected Unexploded Ordnance, September 1997.

A-3. Section III EPA Guidance

EPA 540/G-89/004, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final.

EPA 540-K-01-004, Superfund Community Involvement Toolkit.

EPA 540-R-97-006, Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments.

EPA 540-R-98-031, Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents.

EPA/540/1-89/002, Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final.

EPA/540/G-91/013, Guidance for Performing Preliminary Assessments Under CERCLA.

EPA/540/P-90/004, Superfund Removal Procedures – Action Memorandum Guidance.

EPA/540-R-92-021, Guidance for Performing Site Inspections Under CERCLA, Interim Final.

EPA/540-R-93-057, Guidance on Conducting Non-Time Critical Removal Actions under CERCLA.

EPA/625/R-93/013, Approaches for the Remediation of Federal Facility Sites Contaminated with Explosive or Radioactive Wastes.

EPA-540-F-98-037, Improving Site Assessment: Abbreviated Preliminary Assessments.

EPA-540-F-98-038, Improving Site Assessment: Combined PA/SI Assessments.

EPA 540-R-01-007, Comprehensive Five-Year Review Guidance.

APPENDIX B
Real Estate Documentation

Sample Landowner Notification Letter
For
Confirmed Munitions and Explosives of Concern (MEC) Project Site
(Conventional)

A confirmed MEC project site means MEC is clearly present or there are reliable reports of MEC being found.

1. The U.S. Army Corps of Engineers, under the Defense Environmental Restoration Program, has been assigned responsibility by the Department of Defense (DOD) to identify, investigate, and respond to environmental hazards that are a direct result of DOD activities at former installations.
2. As part of this program, a preliminary assessment of eligibility has been performed for the former (Former Project Site Name) located in (City), (County), (State), Project Site No. (FUDS INPR Project Site No.). This preliminary review of historical information and real estate records indicates that the site was used to (land use that initiated the INPR). The results of this investigation have confirmed the potential presence of MEC. Dangers therefore exist to anyone coming in contact with MEC. Because we are not able to determine the full extent of this MEC contamination, additional investigation has been recommended. This will include a search of historical archives, interviews of local residents and former workers at the project site, and a project site visit.
3. Since a potential hazard exists, (MSC or District) strongly recommends that no excavation work be performed at this time. The possibility of encountering MEC is highly likely.
4. A (CERCLA Removal Action such as PAE/SI, EE/CA, TCRA, or NTCRA) has been planned and is scheduled to begin as funds become available (Date or Fiscal Year).
5. If you have any questions regarding the investigation of this project site, please contact (Name, Office Symbol, Phone Number).

DRAFT

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY FOR MEC REMOVAL

(Project, Installation or Activity)
Tract No., Address or Property I.D.

The undersigned, herein called the "Owner", in consideration for the mutual benefit of the work described below, hereby grants the UNITED STATES OF AMERICA, hereinafter called the "Government", a right-of-entry upon the following terms and conditions.

1. The Owner hereby grants to the Government an irrevocable and assignable right to enter in, on, over, and across the land described in Schedule A, for a period not to exceed _____ months, beginning with the date of the signing of this instrument, and terminating with the earlier of the completion of the remediation or the filing of a notice of termination in the local land records by the representative of the United States in charge of the (Project Name), for use by the United States, its representatives, agents, and contractors, and assigns, as a work area for environmental investigation and removal; including the right to store, move, and remove equipment and supplies; erect and remove temporary structures on the land; investigate and collect samples; (excavate and remove Munitions and Explosives of Concern (MEC), pollutants, hazardous substances, contaminated soils, containerized waste, and replace with uncontaminated soil)*; (and perform any other such work which may be necessary and incident to the Government's use for the investigation and removal on said lands, subject to existing easements for public roads and highways, public utilities, railroads and pipelines; reserving, however, to the landowner(s), their heirs, executors, administrators, successors and assigns, all such right, title, interest, and privilege as may be used and enjoyed without interfering with or abridging the rights and right-of-entry hereby acquired.

   * Add or substitute the following, as appropriate:
     a. Demolish and dispose of former military structures and debris, or
     b. Dispose of MEC (ordnance and explosives) by detonation.

Sample Right-of-Entry for MEC Removal Actions

DRAFT

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY FOR MEC REMOVAL
(Continued)

(Project, Installation or Activity)
Tract No., Address or Property I.D.

2. The Owner also grants the right to enter and exit over and across any other lands of the Owner as necessary to use the described lands for the purpose listed above.
3. All tools, equipment, and other property taken upon or placed upon the land by the Government will remain the property of the Government and may be removed by the Government at any time within a reasonable period after the expiration of this permit of right-of-entry.
4. Upon expiration or termination of this right-of-entry, the Government will ensure restoration of the ground contour, replace any pavement or other cover which was removed or damaged for this work, establish a groundcover of grass on areas not otherwise covered, and reconnect any operating utility lines that were required to be disconnected or otherwise disrupted.
5. The land affected by this permit of right-of-entry is located in _____, State of _____ and is described as follows:

(INSERT SCHEDULE A - DESCRIPTION OF PROPERTY)

WITNESS MY HAND AND SEAL this _____ of _____, 20___.

_____(SEAL)
Owner

_____(SEAL)
Owner

UNITED STATES OF AMERICA

By_____

Sample Right-of-Entry for MEC Removal Actions (Continued)

APPENDIX C

Preliminary Assessment Report
Expanded Narrative Outline

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Appendix O TAG Review Fact Sheet (Include for properties with potential MMRP projects only)
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Preliminary Assessment Outline

Executive Summary

Present a summary of the findings of the research and property inspection conducted during the preparation of the PA. Include a brief history of the property, the locations and types of HTRW, MMRP, CON/HTRW and BD/DR hazards that may remain on the property.

Acknowledgements

Identify the individuals responsible for the preparation of the PA. Include the persons' names, office symbol (if with USACE), company name and address (if with a contractor), areas of responsibility, phone number and e-mail address. Identify the geographic USACE Military District.

1.0 Introduction

Include the following opening sentence: Under the authority of the Defense Environmental Restoration Program (10 USC §§ 2701 et seq.), and its policies and procedures relating to Formerly Used Defense Sites (DERP-FUDS), including DoD Management Guidance for the DERP dated September 28, 2001, and Engineering Regulation 200-3-1, Environmental Quality, Formerly Used Defense Sites (FUDS) Program Policy, [contractor's name or District's name] conducted a Preliminary Assessment at the [property name] in [location].

Briefly summarize the scope of the PA that was conducted (e.g., only non-MMRP issues were assessed, because an ASR had already been published, access to a portion of the property was denied by the owner).

2.0 Previous Investigations

Prior investigations that may have been conducted on the subject property are summarized in this section. For all FUDS[1] properties, at a minimum there will be a Findings of Determination of Eligibility (FDE). In addition to USACE investigations, some properties may have had previous studies conducted by others (e.g. USAF, USEPA, etc.).

[1] FUDS are defined as real property that was under the jurisdiction of the Secretary, and owned by, leased by or otherwise possessed by the United States and those real properties where accountability rested with Department of Defense (DoD), but where the activities at the property were conducted by contractors that were transferred from DoD control prior to 17 October 1986. The Secretary means the Secretary of Defense and the Secretaries of each of the Military Departments, as well as the Secretaries of any predecessor departments or agencies of DoD. For purposes of this document, an abbreviated definition will be used for FUDS as "formerly under the jurisdiction of the DoD".

3.0 Property Description, Acreage, and Land Use

3.1 Location

Describe the geographic location of the property. Include Lat/Long and/or UTM coordinates and/or township and range information, EPA Region and Congressional district. Provide directions to nearest town or major road.

3.2 FUDS Eligible Property

Describe the FUDS property boundaries and note any discrepancies among prior investigations and historical documents retrieved from the archival locations researched. Describe confirmed FUDS acreage. Present information on any adjacent acreage contiguous with the eligible property that research shows as impacted. Describe any areas that lie beyond the eligible FUDS property. This includes any acreage that was suspected or known to be part of safety fans or buffer zones for historical ranges identified during the archival research. If research identified non-contiguous properties once associated with the subject FUDS property, present these findings and whether or not this potentially eligible property has already been identified in FUDSMIS.

3.3 Land Use and Ownership History

Briefly describe land use and ownership of the property prior to and following it being under jurisdiction of the DoD (Section 4 provides detailed information and should be referenced appropriately). Describe the current land use and ownership of the property. Describe the current condition of buildings, structures and appurtenances. Describe condition of same when property was released from jurisdiction of the DoD. Negligence, lack of maintenance or non-use of buildings, structures and appurtenances by the post-DoD owners and operators may have caused releases or hazards that are not attributable to DoD, nor eligible as projects (see Section 3.2 or ER 200-3-1).

Discuss adjacent land use and include a statement at the end of the discussion concerning future land use changes and stability. Include a general discussion of population demographics in vicinity of the property to include any potentially sensitive populations.

3.4 Physical Property Characteristics

In this section discuss information regarding general property topography, terrain features, slope and climatic data. Present a discussion of regional geology and hydrogeology. Identify threatened and endangered species and sensitive environments (defined in 40 CFR 300, Appendix A, Table 4-23). Identify places of historical significance (e.g., archeological sites, cemeteries, national historical landmarks).

4.0 Historical Property Summary

Discuss as a narrative, but also include a timeline with dates, the history of property ownership and operations.

4.1 Chronological Property Summary

Provide a general history of the property. Include history over entire life of property regardless of ownership. State the date when the property came under the ownership, lease or control of the United Stated and under the jurisdiction of the DoD. Likewise, state when the property ceased to be under DoD jurisdiction and when disposed of by the United States. List DoD commands and missions that used the property. State if, when and where government-owned, contractor-operated (GOCO) operations were conducted on the property. Discuss ownership and leasing before and after the time the property was under DoD jurisdiction and general use of the property during these periods, as applicable. List any indemnification, hold harmless, releases or similar clauses, as well as any deed restrictions, covenants, warranties or other legal documentation that may address parties' responsibility for environmental damage existent on the property or for its cleanup. This documentation must be reviewed and evaluated by Counsel to determine its implications for parties' CERCLA liability as well as for establishment of a legally binding arrangement among the parties denoting their respective responsibility for contamination existent on the property or for its cleanup. Project or NDAI recommendations must be consistent with Counsel's determinations on such documentation.

4.2 Military Operations

Provide a description of DoD operations that were conducted by area on the property (as applicable) in subsections. Discuss types of operations performed by the Military on the property, designate government operations (performed by military or civilian personnel) and designate operations performed by contractors. Operations are to be grouped by Cantonment Area, Maneuver Area, Range Area, etc. In each area, describe operations related to MMRP, HTRW and CON/HTRW. State whether an operation was mission specific, support service, or range and maneuver training. Note operational changes by time period (e.g., AFB closed and later converted to Ground Forces Training Center). In addition to property specific information gathered from archives and other repositories, applicable technical manuals, Range and Common Operation Reports[2] are to be utilized and referenced. Reference to the supporting document should be included after the stated information.

[2] The reports are available on the Corps Internal Intranet as they are finalized. https://hqi.environmental.usace.army.mil/programs/fuds/fuds.html

4.2.1 Operations Involving Military Munitions

Summarize MEC and RCWM activities including storage areas, range and ordnance use areas, munitions types, clearance efforts, incidents, etc. Specify MEC and CWM used and their chemical constituents, i.e. MC. Section 5 of the PA, "Evaluation of Presence of Military Munitions and Technical Data may be referenced as appropriate for this discussion. Describe treatment, storage, and disposal management practices applicable to property. Summarize any removal or de-dudding activities conducted on the property. Describe the presence of residual explosive and toxic materials on a property, and any encumbrances or use restrictions (or without restrictions) included in the deed and/or sales agreement of the property. In addition to property specific information gathered from archives and other repositories, applicable technical manuals are to be utilized and referenced.

4.2.2 Operations Involving HTRW

Discuss DoD and/or contractor operations and activities during DoD jurisdiction of the property that may have caused releases of hazardous substances to the environment. If contractor operations were the source of the potential releases of hazardous substances, the INPRs should recommend a PRP project. Also, describe operations and activities that occurred on the property prior to it being under the jurisdiction of DoD, and afterward. For each operation, describe the types and quantities of chemicals used, handling and storage procedures, and specific uses. Discuss disposal of wastes and by-products from each operation. Provide information on any waste recycling programs and how they were conducted. Document the presence of underground and aboveground storage tanks, condition, size, history of contents, and current use. Discuss the details of chemical records obtained during records research or interviews, and identify missing information or data gaps. Describe prior known or confirmed spills and how they were addressed, the type of response action, and the type of oversight and documentation. Do not speculate on releases. Avoid statements such as "common practice was to dispose of chemicals to the sewer or ground" unless such a practice has been established and documented. Present any existing sample data collected during routine monitoring or as a result of a release (i.e., sample data for soil, groundwater, surface water, tank/drum contents). Discuss how operations were regulated and by what agencies. Identify areas that may have been beneficially used by subsequent owners of the property, or areas where PRP issues may arise. When evaluating past operations and associated storage, handling, and disposal practices, include factual information only and avoid speculation. Include documentation from

archival records to back up information obtained from other sources. Reference to the supporting document should be included after the stated information. Develop tables that show all buildings with present building numbers, DoD listed building numbers, past and present uses of buildings and operations. Tables could be as simple or complex as necessary to document uses of structures, tanks etc. before, during and after the property was under DoD jurisdiction.

4.3 Map Analysis

Present discussion of plans and drawings acquired during archival research. Include ranges, storage areas, disposal areas, training areas, HTRW features, and any other potential features of interest.

4.4 Aerial Photographic Interpretation

A representative selection of photographs at an appropriate scale to illustrate the operations of the property will be acquired, geo-referenced, analyzed, and incorporated into the report plates section of the report. Legends should be included with each photograph that note any areas of interest found. The analysis is summarized and narrative presented in a logical manner (e.g., by year, by area of interest, etc.). Aerial interpretation must be reported carefully based on what can actually be identified on the photograph. For example, a dark area of soil may be noted but should not be called a stain unless corroborated by other evidence that can rule out that the area is not change in soil type, a naturally wet area, or other non-hazardous condition.

5.0 Evaluation of Presence of Military Munitions and Technical Data

In the following three paragraphs, describe the process of evaluation and general summary evaluation/interpretation of MEC/MC/RCWM use based on archival records, property inspection, aerial photographs, and interviews. Based on the operations and activities that occurred on the subject FUDS property and the time frame of when the property was under DoD jurisdiction, a list of ordnance items and chemical warfare items historically existing on the property should be created. In addition to the list of specific munitions items (e.g., Grenade, Hand, Fragmentation, Mk II; Grenade, Hand, Fragmentation Grenade, Mk IIAI; Chemical ID, Toxic Gas Set, M1) that historically existed on the property, the chemical constituents of those particular munitions will be included where known. Munitions constituents consist of the chemical constituents of the fillers, any breakdown products, and their physical and chemical characteristics. If there is no evidence or indication of MMRP presence, so state.

5.1 General Evaluation of Conventional MEC Presence

5.2 General Evaluation of MC Presence

5.3 General Evaluation of RCWM Presence

5.4 Property-Specific Locations

Identify locations and describe the extent where MEC/MC/RCWM has been confirmed, where there is a potential for MEC/MC/RCWM presence, and where MEC/MC/RCWM is not suspected. In addition to the locations and description of the aerial extent, insure that data required for MMRP cost to complete estimates and FUDSMIS is included.

6.0 Evaluation of HTRW Presence and Areas

In the following paragraphs discuss the evaluation/interpretation of HTRW findings and associated locations based upon research performed to support the PA.

6.1 General Evaluation of HTRW Presence

Provide a summary evaluation of chemical use, storage, disposal, or where potential HTRW releases may exist based on records research, property visit, aerial photograph interpretation and interviews. Identify areas that require additional research/investigation due to data gaps. If there is no evidence or indication of HTRW presence, so state.

Provide a discussion of surrounding land use and operations outside the property boundary relative to potential for contaminant migration onto the FUDS property.

6.2 Property-Specific Locations

Identify specific locations, describe the areas where a HTRW release is suspected, and identify any potential PRP areas. Present the facts leading to these conclusions. Areas of potential concern can be identified based on an evaluation of past DoD operations and activities that occurred on the property, the time frame of DoD use, taking into consideration land use prior to and post DoD occupancy. Existing sample data can be used to evaluate the potential for a release (i.e., soil, groundwater, surface water, tank/drum contents, magnetometer survey). Documentation from a previous spill and knowledge of the fate and transport of the constituents of potential concern (COPC), and geology underlying the property, can be used to evaluate the extent of environmental impact of a release and the continued threat of release.

7.0 Evaluation of CON/HTRW and BD/DR Presence

CON/HTRW containing petroleum, oil or lubricants and BD/DR are non-CERLCA

projects and it is recommended that information relative to these hazards be addressed in sections separate from HTRW and MMRP.

7.1 Evaluation of CON/HTRW Presence and Areas

Provide a summary evaluation of the presence of elements relative to CON/HTRW and their contents; see Section 3-2.4.2 of ER 200-3-1. Evaluation should include tanks that have been removed and staged onsite by non-DoD parties, or partially removed. Include information relative to the timeframe of use(s) and whether they are associated with DoD activities, provide tank registration information if available. Discuss whether there was beneficial use by another party. Provide maps to show locations. Discuss observations made during the property visit and condition of the containers (if known).

7.2 Evaluation of BD/DR

Provide an evaluation of buildings, structures or debris that pose safety hazards. Describe the hazard(s) presented. Since lack of maintenance or repair of buildings by owners subsequent to DoD may affect BD/DR project eligibility, discuss if known, the condition of buildings at the time of sale or transfer from DoD. Provide a narrative discussion of the information relative to Table 3-1 and Worksheet B-2 in ER 200-3-1. Provide maps to show locations.

8.0 Pathway and Environmental Hazard Assessment

In the previous sections waste characteristics and the likelihood for release were presented. If there is evidence of a release or potential release, an analysis of whether there are potential impacts from HTRW and MEC/MC/RCWM is presented on a media (pathway) specific basis as described in the following sections. Physical characteristics of the property and surrounding areas, potential waste characteristics and proximity/characteristics of potential targets (i.e. people and resources that might be threatened by a release from the property, (OSWER Dir. 9345.0-01A)) are combined to draw conclusions regarding impacts, or lack thereof. If there no evidence to suggest a likelihood of release of HTRW or MEC/MC/RCWM, this Section is addressed at “Not Applicable”. Chemicals or items that are not CERCLA hazardous substances nor listed in Section 3-2.4.1 of ER 200-3-1, such as petroleum, oil and lubricants; or hazards related to BD/DR are not evaluated in this section.

8.1 Ground Water Pathway

8.1.1 Hydrogeologic Setting

Describe the local geologic and hydrogeologic characteristics (stratigraphy, formations, aquifers, flow, depth and permeability). For groundwater, identify depths to the various aquifers on the property and within 4 miles of the property if this can be readily ascertained using available data.

8.1.2 Ground Water Targets

Identify human, environmental (e.g., livestock, fish farms), and physical (e.g., springs) targets that use groundwater on the property and within a 4-mile radius. Discuss drinking water supply systems and the number of people they serve. Information relative to registered wells may be obtained from state, county or local government. Information relative to persons and relative numbers served by the public water supply may be obtained through the local utility. Provide a map of water supply wells within a four-mile radius; identify number of people served by wells onsite, within 0.25 miles, between 0.25 and 0.5 miles, between 0.5 and 1 mile, between 1 and 2 miles, between 2 and 3 miles and between 3 and 4 miles.

8.1.3 Ground Water Conclusions

Present conclusions regarding whether a release of HTRW constituents and/or MC from the property to groundwater is suspected and justify the conclusions. Discuss in terms of probable nature of the release, waste characteristics, as well as in geologic/hydrogeologic characteristics that contribute to the conclusions.

8.2 Surface Water Pathway

Surface waters include streams and rivers, lakes, coastal tidal waters, and oceans. Ditches qualify as surface water if they perennially flow into other surface water, or if they occur in arid or semi-arid areas (less than 20 inches of mean annual precipitation). It is not necessary to evaluate the surface water pathway if there are no surface water bodies identified within 2 miles of the property. Sufficient justification for not evaluating the pathway must be presented in the PA.

8.2.1 Hydrologic Setting

Describe drainage patterns on and off the property. If the property has been reworked, include past drainage patterns. Describe surface water features on the property, and downstream migration patterns; include flow rates when known. Identify surface water bodies within 15 miles downstream of the property and describe the distance of each segment. Note if there are no surface water bodies within 2 miles of the property.

8.2.2 Surface Water Targets

Obtain surface water use and drinking water target population information. Determine if the community is served by a centralized water system (public or private water distribution company), private wells or surface water intakes, or a combination. Identify locations of surface water intakes

and target populations. Identify human (including food chain), environmental (e.g. wetlands, sensitive aquatic environments), and physical (e.g., surface water intakes) surface water targets on the property and within 15 miles downstream.

8.2.3 Surface Water Conclusions

Present conclusions regarding whether a release of HTRW constituents and/or MEC/MC from the property to surface water is suspected and justify the conclusions. Discuss probable nature of the release, waste characteristics, and any hydrologic characteristics that contribute to the conclusions.

8.3 Soil Exposure and Air Pathways

This section evaluates potential exposure to contaminated soil, but it is not limited to soils context alone, other potentially contaminated or hazardous surface materials are evaluated as well. Direct contact with MEC is evaluated in this section.

8.3.1 Physical Conditions

Present information regarding soil types, location of soil types on property, and depth of soil types. Provide information regarding soil infiltration rates, this information are used to determine the possible depth of ordnance contamination.

Describe those factors that would enable or prohibit direct exposure to MEC/MC and HTRW constituents in soil and migration of soil via wind such as relative amount of soil covered by buildings or pavement, degree and type of vegetation, and erodability of soil.

8.3.2 Soil and Air Targets

Identify the resident population, workers, and other people that reside or work on or within 200 feet of the property. Identify resident populations that reside between 200 feet and one mile of the property. Identify any terrestrial sensitive environments that exist on or within 200 feet of the property. Identify schools and daycares on or within 200 feet of the property. Identify transient populations that may contact the property. Identify those persons (e.g., recreators) and/or animals that could come into direct contact with ordnance items, soil or other potentially contaminated material on the property or be exposed to windblown soil.

8.3.3 Soil Exposure and Air Pathway Conclusions

Present conclusions regarding whether direct contact and/or ingestion of MEC/MC and/or HTRW constituents in soil and/or the air pathway is suspected and justify the conclusions.

9.0 Summary and Conclusions

This section is to summarize the findings of the PA, including the identification of areas of potential concern, contaminants of potential concern, and any absence of a particular type of concern (e.g., no MMRP activities). These findings will provide an initial focus for USACE in making its NDAI and project recommendations in the INPR.

9.1 Areas That May Warrant No Further Action By DoD

Discuss and describe areas (both geographical and categorical) that may warrant no further action by DoD. Provide a narrative justification with references to appropriate findings of the PA

9.2 Potential Hazards That May Warrant FUDS Projects

In the subparts of this section, identify and describe areas and potential hazards resulting from past DoD activities that may warrant HTRW, MMRP, PRP/HTRW, PRP/MMRP, CON/HTRW and/or BD/DR projects, and explain the rationale for their identification here.

9.2.1 HTRW

9.2.2 MMRP

9.2.3 PRP/HTRW Considerations

9.2.4 PRP/MMRP Considerations

9.2.5 CON/HTRW

9.2.6 BD/DR

PA Appendices

All of the appendices below will be included in each PA report. However, not all are necessary or will be used for each PA. Therefore, place the words “NOT USED” after those appendices not used for the subject PA report.

Appendix A. Reference Sources and Records Reviewed

List all persons and organizations contacted and the details of the scope of research

completed at each repository. This allows for assessment of research completed and for later verification if additional research is required prior to the start of an SI or if a property is being re-opened. The records reviewed must include the research locations and specific information about where the material reviewed was located. This information is to include the Archive location, explicit Record Group/Accession Number, Entries/Series, Box, and Folder description for items at the National Archives.

Appendix B. References

Provide endnote citations or bibliography of references.

Appendix C. Abbreviations, Acronyms, and Brevity Codes

Provide a listing and explanation of Abbreviations, Acronyms, and Brevity Codes used in the PA.

Appendix D. Glossary

Present definitions of terms unique to the PA.

Appendix E. Preliminary Assessment Form

Include completed PA Form. See OSWER Dir. 9345.0-01A, Guidance for Performing Preliminary Assessments Under CERCLA, September 1991, EPA/540/G-91/013, Appendix D.

Appendix F. Ordnance Technical Data Sheets (MMRP properties only)

List all ordnance items identified as historically existing on the property. Also included Technical Data Sheets for each ordnance item listed. These data sheets are to include a picture, description (size, color, markings, etc.), components and parts, and the chemical constituents.

Appendix G. Textual References of Source Documents

Provide a bibliography of those source documents in which information was retrieved for the preparation of the PA. In addition to the bibliography listing, include the actual source document (or excerpt).

Appendix H. Still Photography References

Provide a bibliography of still photographs from which information was retrieved for the preparation of the PA. In addition to the bibliography listing, include the actual photograph

Appendix I. Maps/Drawings References

Provide a bibliography of historical maps/drawings from which information was retrieved for

the preparation of the PA and those that were analyzed and summarized in the report. In addition to the bibliography listing, include the actual map/drawing.

Appendix J. Interviews

Provide a summary of the information obtained from interviews.

Appendix K. Abbreviated Site Safety and Health Plan (ASSHP)

For properties with a history of munitions use, an Abbreviated Site Safety and Health Plan (ASSHP) is prepared by a USACE, Huntsville Military Munitions Center of Expertise (MM CX) approved Safety Officer prior to the inspection and is followed by everyone in attendance. For HTRW projects, the District PM may choose whether to make the APP/AHA a required appended item.

Appendix L. Property Visit Report

Provide a summary of the information recorded during the property inspection. Include information outlined in Section A.1.2.

Appendix M. Property Visit Photographs

Photographs of the areas visited during the property inspection are included with a description of what the photo is, direction facing, and location. It may be useful to include a map/plate with photo numbers and an arrow originating in the location where the photo was taken and pointing in the direction in which the photo was taken.

Appendix N. Munitions Response Site Prioritization Protocol (MRSPP) Worksheets (Include for properties with potential MMRP projects only)

The Munitions Response Site Prioritization Protocol (MRSPP) worksheets should be filled out in accordance with 32 CFR Part 179.

Appendix O. TAG Review Fact Sheet (Include for properties with potential MMRP projects only)

Obtain the Technical Advisory Group (TAG) Review Fact Sheet and include here. These fact sheets provide a brief summary of the property and any munitions projects.

Appendix P. Response to Comments (Final Report Only)

Comments received on the draft report and the responses to those comments are included in the final report.

Appendix Q. Report Distribution

Provide a listing of offices/individuals/addresses that have or will receive a copy of the draft report as well as the final report. Include the number of copies provided.

Appendix R. Report Plates

Provide the following plates: (1) A property vicinity map and boundaries abstracted from historical drawings/documents; (2) Drawings of features of interest as required; (3) Present current land usage/ownership; (4) Selected aerial photographs; and (5) Range/MMR drawings defining firing fan.

APPENDIX D

Site Inspection Report Outline
18 March 2005

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G Analytical Data QA/QC Report
H Geographic Information Systems Data
I Geophysical Data
J Conceptual Site Model
K Munitions Response Site Prioritization Protocol results
L Reference Copies

1.0 Executive Summary

Brief (1-2 page summary of results and conclusions)

2.0 Introduction

State that an SI was performed, the name of the agency performing it, and the authority under which it was conducted (authority language provided below).

While not all MEC/MC constitute CERCLA hazardous substances, pollutants or contaminants, the DERP Statute (10 USC 2701) provides DOD the authority to respond to releases of MEC/MC and DOD policy states that such responses shall be conducted in accordance with CERCLA and the NCP.

State the site name, FUDS identification number, and location (street address, city, county, state, latitude/longitude coordinates). If necessary, provide brief directions to the site.

State the purpose, scope, and objectives of the SI (objectives language provided below).

The primary objective of the MMRP SI is to determine whether a FUDS project warrants further response action under CERCLA or not. The SI collects the minimum amount of information necessary to make this determination, as well as it (i) determines the potential need for a time critical removal action (ii) collects or develops additional data, as appropriate, for Hazard Ranking System (HRS) scoring by Environmental Protection Agency (EPA); and (iii) collects data, as appropriate, to characterize the release for effective and rapid initiation of the Remedial Investigation and Feasibility Study (RI/FS). Additional objectives of the MMRP SI are to collect the additional data necessary to (i) complete the Munitions Response Site Prioritization Protocol (MRSPP); and (ii) develop a more refined cost-to-complete (CTC) estimate.

3.0 Site Description and Regulatory History

Identify the type of historic military installation /operation (e.g., munitions manufacturing plant, Air Force or Navy base, Army WWII training camp, etc.) comprising the FUDS property, as well as the individual project area (e.g., mortar range, artillery range, open burning/open detonation area, burial pit, etc.) and years of operation. Describe the project area's physical setting (e.g., topography, vegetation, current land uses, surrounding land uses, nearby populations).

Include the appropriate portion of a USGS 7.5-minute topographic map locating the project and showing the area within a l-mile radius. On the map, identify the surface water drainage route; nearest well, drinking water intake, and residence; and wetlands and other sensitive environments.

If applicable, briefly summarize dates and scope of previous investigations for munitions constituents (MC) and munitions and explosives of concern (MEC).

If applicable, describe other land use that may have contributed to contamination, as well as past regulatory activities, if conducted, including RCRA status, permits, permit violations, and inspections by local, state, or federal authorities. Discuss any occurrences of MEC found by citizens and any accidents, injuries, chemical exposures, or complaints.

4.0 Operational History and MEC/MC Characteristics

Provide an operational history of the site. Identify current and former owners and operators, and describe historic military activities. Identify and describe the types of MEC or MC used, as well as any MEC/MC treatment or disposal practices, MEC/MC source areas, source containment features, and quantities of MEC, if known. Delineate project boundary, if further clarified during the SI, in the conceptual site model.

Discuss the results of any previous MEC/MC investigations, including HTRW investigations related to MC.

Summarize previous MC analytical results in a table. Include a map of sampling locations, add locations to the CSM, or refer to a sampling location map in a previous report.

Identify Munition Response Area (MRA) and Munition Response Sites (MRS) on the property.

Summarize previous MEC finds in a table. Include a map of MEC finds, add locations to the CSM, or refer to a map in a previous report.

Describe accessibility by receptors to MEC/MC and current land use controls (e.g., fencing, signage, etc.).

5.0 Ground Water

Describe the local geologic and hydrogeologic setting (e.g., stratigraphy, formations, aquifers, karst features, confining layers, depth and permeability to each aquifer).

Discuss ground water use within a 4-mile radius of the project. Identify the nearest private and municipal drinking water wells and state the distance from the project. Quantify drinking water populations served by wells within 4 miles, differentiating between private and municipal wells and specifying aquifers. Identify any municipal wells that are part of a blended system; state number of wells, locations, pumping rates, and aquifer from which water is drawn. Identify wells in karst aquifers.

Identify designated wellhead protection areas (WHPA) and specify location.

Previous requirements may already have been addressed in a Preliminary Assessment and, if so, may be summarized. If not, the contractor may choose to utilize companies that specialize in providing/compiling environmental site assessment information to parties involved in real estate transactions.

Discuss any previous ground water sampling results (analyzed for MC); provide dates of sampling events and the depths and names of sampled aquifers.

List in a table each well or spring sampled during the SI, provide the depth from which it draws water and the screened interval, quantify the population served by the well, if applicable, and identify its distance from the project. Discuss SI ground water sampling results. List in a table each sample and summarize analytical results. Include a map of sampling locations or add to the CSM. Identify drinking water wells exposed to hazardous substances and quantify the populations served by each. If no groundwater samples are collected, Section 5.0 will consist of the information from the previous bullets.

6.0 Surface Water

Describe the local hydrologic setting, including project location with respect to floodplains, and the overland and in-water segments of the surface water migration path. State the distance from the project to the probable point of entry into surface water. Identify the water bodies within the in-water segment, and state the length of reach and flow or depth characteristics of each; describe tidal influence.

Add the surface water migration path to the conceptual site model (CSM). Describe upgradient drainage areas, onsite drainage (including storm drains, ditches, culverts, etc.), discharges into surface water, permits, and historical events, including floods, fish kills, and fishery closures.

Indicate whether surface water within the target distance limit supplies drinking water. Identify the location and state the distance from the probable point of entry to each drinking water intake. Quantify the drinking water population served by surface water and identify blended systems.

Indicate whether surface water within the target distance limit contains fisheries. Identify and state the distance from the probable point of entry to each fishery; briefly characterize each fishery.

Indicate whether sensitive environments are present within or adjacent to the in-water segment. Identify and state the distance from the probable point of entry to each sensitive environment. Describe each sensitive environment and state the frontage length of wetlands on surface water.

Previous requirements may already have been addressed in a Preliminary Assessment and, if so, may be summarized. If not, the contractor may choose to utilize companies that specialize in providing/compiling environmental site assessment information to parties involved in real estate transactions.

Discuss any previous surface water sampling results (analyzed for MC), dates, locations, and types of samples. If no surface water samples are collected, Section 6.0 will consist of the information listed in the items above.

Discuss SI surface water sampling results. List in a table each sample and summarize analytical results.

Identify surface water intakes exposed to hazardous substances and quantify the drinking water populations served by each. Identify fisheries exposed to hazardous substances and quantify the food chain population associated with each. Identify sensitive environments and wetlands exposed to hazardous substances; quantify the frontage of exposed wetlands.

7.0 Terrestrial Exposure

State the number of workers present in the project area.

State the number of people who live in the project area and within 200 feet of an area of observed contamination. State the hazardous substance concentration and compare to health based benchmarks.

Identify schools and day care facilities on and within 200 feet of an area of observed contamination. State the number of attendees.

Identify terrestrial sensitive environments and resources in an area of observed contamination.

State the number of people who live within 1 mile travel distance of the project.

Previous requirements may already have been addressed in a Preliminary Assessment and, if so, may be summarized. If not, the contractor may choose to utilize companies that specialize in providing/compiling environmental site assessment information to parties involved in real estate transactions.

Discuss any previous sampling results of surficial MC, including dates and locations.

Discuss SI surficial soil samples. List each sample in a table and summarize analytical results.

Discuss the results of the SI's MEC investigation, identifying specific MEC items, wherever possible. List in a table each specific area inspected for MEC and individual items found. Describe the results of site reconnaissance,

geophysical studies, spatial analysis, aerial surveys, and footprint analysis (if any are performed). Include a map of results, or include in the CSM. Include results from any technology evaluations.

Discuss the results of the SI's MC investigation, identifying specific hazardous substances detected in areas of suspect or confirmed MEC. List in a table each sample collected in MEC areas and summarize analytical results. Include a map of all sampling locations or add locations to the CSM.

8.0 Air

Identify the location of, and state the distance to, the nearest individual. State the population within 4 miles of the site, including students and workers. Identify sensitive environments on sources and within 4 miles. This requirement may already have been addressed in a Preliminary Assessment and, if so, may be summarized. If not, the contractor may choose to utilize companies that specialize in providing/compiling environmental site assessment information to parties involved in real estate transactions.

If no air samples are collected, Section 8.0 will consist of the information listed in the item above.

Discuss any previous air sampling results, including dates, locations, sampling procedures, and meteorological conditions.

Discuss SI air sampling procedures and results. Identify sample locations on a map. List in a table each sample and summarize analytical results.

9.0 Risk Analysis

One section of the SI report should be entitled *Screening-Level Risk Assessment.* It should be sub-divided into *Human Health Risk Assessment* (HHRA) and *Ecological Risk Assessment* (ERA) subsections. The screening-level risk assessment shall conservatively evaluate the potential for adverse effects to human health and the environment due to site contamination. This information is used to determine areas that do not pose a significant threat to public health or the environment, areas that require further investigation or possibly areas for removal action. The HHRA will compare exposure point concentrations (highest detection or 95% UCL if sufficient data exists) to health-based screening levels and will be consistent with *USACE Risk Assessment Handbook Vol. I: Human Health Evaluation* (EM 200-1-4). The ERA shall be consistent with Steps 1 and 2 of the USEPA guidance, *Ecological Risk Assessment Guidance for Superfund (ERAGS): Process for Designing and Conducting Ecological Risk Assessments.*

Provide discussion of risk from MEC.

10.0 Summary and Conclusion

Briefly summarize the major aspects of the project and its history that relate to the release or threatened release of MEC/MC and the exposure of receptors. Briefly summarize principal migration pathways and receptors of concern.

Summarize sampling results, including MEC and MC found and detected in the project area as well as within the migration pathways.

Provide tabular results with the appropriate data qualifiers for each media of analytes detected above method detection limit.

Provide recommendation for further action (e.g., RI, removal action) or NDAI

11.0 References

List, in bibliographic citation format, all references cited in the SI report.

Appendices

M Scope of Work

N TPP Minutes

O Interview Documentation

P Field Notes and Field Forms

Q Photodocumentation Log

As an attachment, provide photographs of the site taken during the SI depicting pertinent observations such as MEC/MC source areas, containment conditions, stained soil, stressed vegetation, drainage routes, sample locations, and any MEC or munitions debris findings. Describe each photograph in captions or accompanying text. Key each photo to its location on the site sketch or CSM.

R Analytical Data

S Analytical Data QA/QC Report, to include all requirements from DID MR005-10 for Chemical Data Final Report that are not addressed elsewhere and the USACE-prepared Chemical Quality Assurance Report (CQAR).

T Geographic Information Systems Data

U Geophysical Data (All raw and processed geophysical data and geophysical maps in their native format (Surfer®, Geosoft Oasis montaj™, Intergraph, or ESRI ArcView format) and/or as raster bit-map images such as BMP, JPEG, TIFF or GIF)

V Conceptual Site Model (if generated under PA, this version should incorporate information gathered during the SI)

W Munitions Response Site Prioritization Protocol results

X Reference Copies

Attach copies of references cited in the SI report. Include complete copies of site-specific references (e.g., USGS topographic maps, records of communication, drinking water population apportionment and calculation worksheets, American Society for Testing and Materials (ASTM) property transfer-type documents, GEMS and other database printouts, waste handling records or shipping manifests). Include only the title page and pertinent excerpts of publicly available references (e.g., geologic reports).

APPENDIX E

Remedial Investigation/Feasibility Study Report Content

Military Munitions Center of Expertise
Technical Update
March 2005

This technical update provides a tool for your reference and use when developing a Military Munitions Remedial Investigation Report under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Acknowledgments

This tool has been developed as a joint effort between the U. S. Environmental Protection Agency (EPA) and the U. S. Army Corps of Engineers (USACE), Huntsville Engineering and Support Center, Military Munitions Center of Expertise (MM CX).

Existing USACE technical guidance is currently under revision to incorporate the standard format with explanatory notes contained in this document for developing an RI Report. While this document is focused on the Formerly Used Defense Sites Program, it may be useful when working on other programs such as Installation Restoration and Base Realignment and Closure.

Useful EPA and USACE References when conducting a Remedial Investigation:

- ER 200-3-1, Formerly Used Defense Sites (FUDS) Program Policy, 10 May 2004.
- EPA/540/G-89/004, OSWER Directive 9355.3-01, Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, October 1988.
- EPA Directive 9355.3-01FS2, The Remedial Investigation Site Characterization and Treatability Studies, November 1989.
- EPA Directive 9355.3-01FS1, Getting Ready: Scoping the RI/FS, November 1989.

Helpful Web Sites:

- HQ, U.S. Army Corps of Engineers: http://www.usace.army.mil/inet/usace-docs
- MM CX: http://www.hnd.usace.army.mil/oew/techguid.asp
- Environmental Protection Agency: http://www.epa.gov/superfund/index.htm)

For additional information: Email the MM CX through our web site response specialist at: OEResponseSpecialist@HND01.usace.army.mil

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C. Institutional Analysis and Institutional Analysis Report

D. Demolition Activity Summation Tables

Remedial Investigation Report Outline

1.0 Executive Summary

The executive summary of the Remedial Investigation (RI) report should provide a brief overview of the findings of the RI. This information will inform decision-makers upfront of the nature and extent of the munitions issues, to include the explosives safety hazards and munitions constituents (MC) of concern. This could include recommendations for removal actions under the Non-Time Critical Removal Process or interim remedial actions when a response action will not address the entire property. The RI report will describe the methodologies used during the investigative or characterization process and identify what surface and subsurface hazards exist on the property. The characterization effort conducted under the RI should sufficiently characterize the property to support the development of the baseline risk assessment and follow-on feasibility study. The format of the RI report presented in this document is based on EPA's 1988 Guidance for Conducting an RI/FS. It is streamlined to address the specific characteristics associated with Military Munitions Response Program projects.

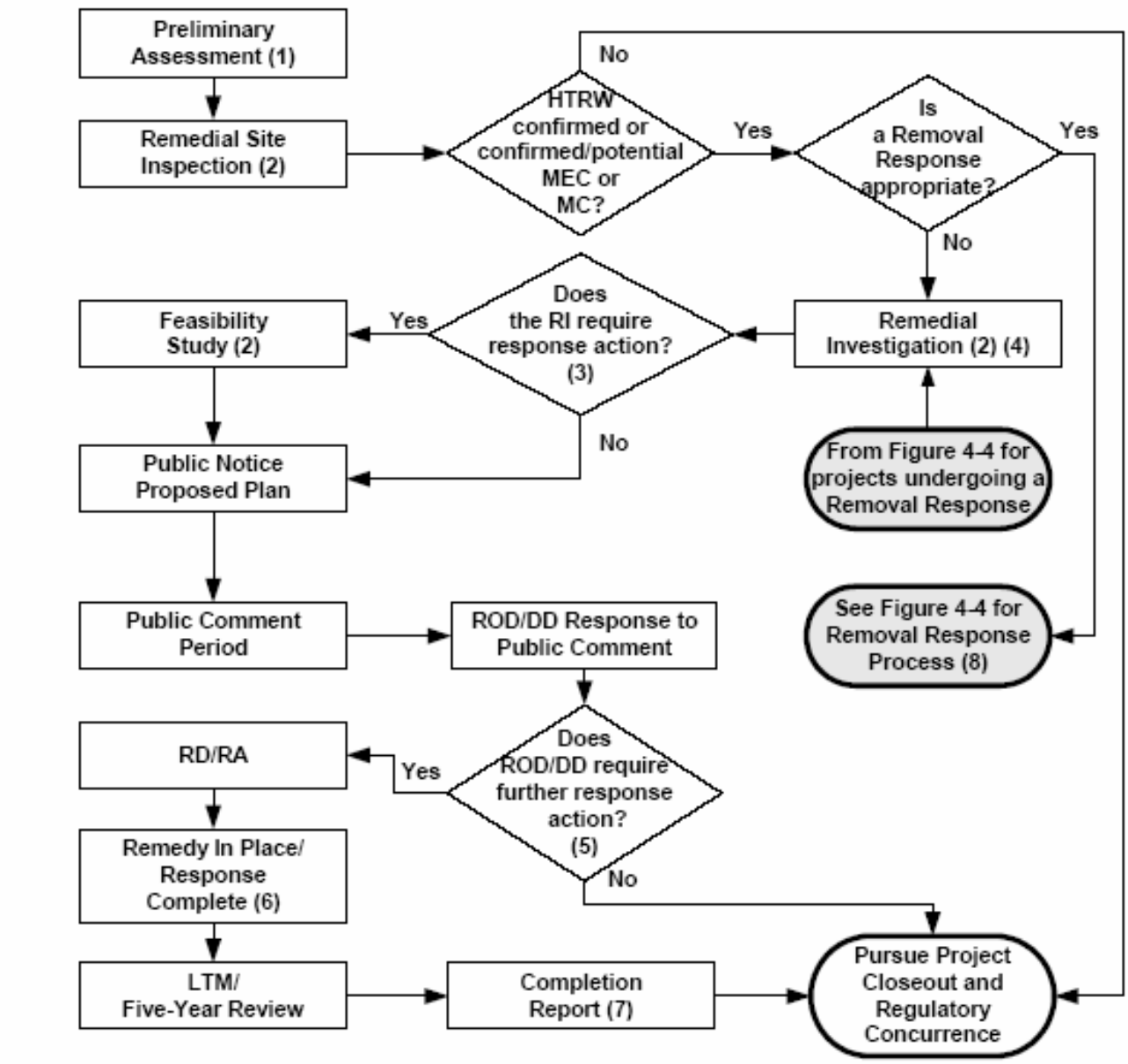
This section should also note whether the RI report was developed as a stand-alone document or as a combined RI/FS report. Refer to Figure 1-1 that shows where the FS phase occurs in the CERCLA process.

2.0 Introduction

The introduction to the RI report describes the purpose of the report, provides a description of the property and the project being addressed when the property has been divided into more than one project, and provides some historical information on the property, including previous investigations. The process flow chart provided below reflects the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and National Oil and Hazardous Waste Pollution Contingency Plan (NCP) remedial action process. This chart highlights where the RI report fits into the process. Refer to ER 200-3-1 to review the figures referenced in Figure 1-1 and the footnotes.

2.1 Purpose

The RI is intended to adequately characterize the property (i.e., determine the nature and extent of contamination) for the purpose of developing and evaluating effective remedial alternatives. The primary purpose of the RI report is to present the results from the RI and provide information to assess the potential risks to human health, safety, and the environment. The RI should focus on collecting information to support the Feasibility Study (FS) so a decision on the remedy can be made. In addition to presenting the data from the RI, this report should indicate whether the characterization was "successful" -- Were the objectives of the study met? Were the data gaps filled? Can the questions developed in the work plan be answered?



Notes:
1. For new INPRs, a Preliminary Assessment will be performed for eligible FUDS properties. If no hazards are identified during the PA, pursue property closeout and regulatory concurrence.
2. A removal response may be performed at any time during the process up until the ROD/DD signature.
3. Response action may include land use controls.
4. If the removal response taken adequately addresses the risk or safety concerns at the project, the RI may be abbreviated. If LUC/5-Year Review/LTM are required, evaluate them in the FS.
5. LUC/5-Year Reviews/LTM are required to be documented in the RD.
6. See definitions in paragraph 4-4.7.2 and Figure 4-3.
7. Required by USACE FUDS policy.
8. Regardless of whether additional investigation/response is required following the removal action, the projects will transition back to the remedial response process.

Figure 1-1 CERCLA Response Process (ER 200-3-1)

2.2 Property Description and Problem Identification

This subsection should contain a brief description of the property, describe project-specific information on the location of buildings and other man-made features as well as known explosives safety hazards, physical characteristics of the property (geology, soil, surface features, meteorology, hydrology, and hydrogeology, etc.), land use, and potential human and ecological receptors in the area.

2.3 Historical Information

This subsection should provide a description of the history of the property including the types of activities that have taken place such as the manufacture of munitions, use, storage, and disposal of military munitions. This section should also contain maps, as appropriate, to highlight the location of the project within the total property and a map showing the project boundaries and surroundings as well as important features.

2.4 Previous Investigations

This subsection summarizes previous efforts to characterize the property (e.g., preliminary assessments, review of historical records, aerial photography, etc.). Previous MEC and MC investigations and the data that are available to supplement this RI should be reviewed. In some cases, existing data are simply used qualitatively to scope the RI. For example, if previous investigations were limited in scope (e.g., a time-critical or non-time critical removal response was conducted), the RI may have been designed to supplement the existing data by filling in data gaps. In other cases, data may be of sufficient quality to be used quantitatively in the baseline risk assessment that is compliant with EPA Risk Assessment Guidance (RAGS) and EM 200-1-4, Volumes I and II. The data quality and utility of existing data should be explained in the context of their use as part of this investigation. If the review of the existing data quality revealed that it was suitable for use in the baseline risk assessment, discuss how this was incorporated into the planning process in identifying data needs/gaps for the RI workplan.

3.0 Project Remedial Response Objectives

This section should discuss the results of the Technical Project Planning (TPP) process covering both MEC and MC. It should include the overall project remedial response objectives that were developed based on the planned or reasonably anticipated future land use. Refer to EM 200-1-2 and Interim Guidance Document 01-02 for implementation guidance on the TPP process. This section should also provide a discussion of the revised preliminary conceptual site model for the project as discussed in EM 1110-1-1200, the project objectives, regulator and stakeholder concerns and input, data needed to make appropriate and supportable decisions, and identify the potential decisions to be made.

3.1 Conceptual Site Model (CSM) and Project Approach (EM 1110-1-1200)

This subsection should discuss the revised CSM (preliminary CSM developed during the Site Investigation phase) that provides a description of the project site and its environment based on existing knowledge. The CSM discussion should provide a summary of what is known about the site, show the relationship between the former military use of the site, current and proposed future land use, ways in which people may encounter MEC or MC, and geological and environmental features that may have an impact on proposed activities and decisions.

3.2 Preliminary Remediation Goals (NCP and EPA /540/G-89/004 OSWER Directive 9355.3-01)

This subsection should discuss the types of decisions to be made and identify the data and other information collected to support decisions. This should include an assessment of land use and institutional analysis aspects. Preliminary Remediation Goals (PRGs) are concentrations of contaminants for each exposure pathway that are believed to be protective based upon preliminary site information. A PRG for MC would be a concentration value believed to be protective based upon preliminary site information. A PRG for MEC would be a description of a method likely to be protective of the particular exposure pathway(s) identified at the site; e.g., levels of cleanup such as surface removal, removal to depth or the implementation of land use controls (LUCs). PRGs are refined throughout the process as new information becomes available.

3.3 Preliminary Identification of ARARs and TBC Information (ER 200-3-1 and EP 1110-1-18)

This subsection should discuss the preliminary identification of chemical-, action-, and location-specific ARARs and To Be Considered (TBCs) information. This includes federal, state, and tribal promulgated laws and regulations that may be applicable, or relevant and appropriate (ARAR) to the circumstances at the project site. TBC information includes non-promulgated policies, guidance, and advisories. It is not necessary to spend a great deal of time on the location or action specific ARARs because they will be more completely analyzed in the Feasibility Study (FS). In particular, the chemical-specific ARARs identified in the RI are preliminary in nature. ARARs are selected or become final when the ROD or Decision Document is signed. This subsection should also describe how ARARs and TBCs relate to the information collected and should specify that further refinement of them will be accomplished in the FS phase.

3.4 Summary of Institutional Analysis

This subsection should summarize the Institutional Analysis Report that is developed as part of the characterization effort based on the requirements of EP 1110-1-24. This summary should identify the government agencies (federal, State, Tribal, and local level) having jurisdiction over properties that have a MEC presence and identify the

basis of their authority including any limitations, how much control they can exercise, and any enforcement authority. The mission of the agencies should also be reflected, e.g., a public safety function, zoning, construction permits, etc., as well as their capabilities and willingness to participate in LUC implementation and maintenance. Any land use restrictions that may have been placed on the property in the past as a result of some other activity should be specified. LUC alternatives selected for further detailed analysis in the Feasibility Study should be described and should be based on their ability to satisfy the project's objectives. The cost and effectiveness of existing and proposed LUCs should also be documented. For projects being executed on National Priority Listing (NPL) sites, refer to the Principles and Procedures Agreement Concerning LUCs between EPA, Department of the Army and the Department of Navy. This document can be located on EPAs web site at: http://www.epa.gov/fedfac.

3.5 Data Needs and Data Quality Objectives (DQOs) (EM 1110-1-4009 and EPA/540/G-89/004, OSWER Directive 9355.3-01)

This subsection should discuss the evaluation of existing data, document determinations regarding what additional data was obtained to make appropriate and supportable decisions, identify data that was obtained to design the Geophysical Prove-Out (GPO) that was conducted during the RI, (EM 1110-1-4009) including resulting DQOs that were developed through the TPP process, and identification of new methods used for collecting that data. This section should also include an evaluation of MC methodology to ensure that any chemical specific DQOs were met. This discussion should include an evaluation of the usability of existing data, define the additional data needs that were identified, and specify how much additional data was needed to satisfy the DQOs.

Data collection options should be discussed including the evaluation, selection, and documentation of the field methods used. Methods that were used to collect existing data should also be discussed. This will involve finalizing and documenting the data collection alternatives and decisions, including documentation of the DQOs as defined in Interim Guidance Document 01-02 on implementing the TPP process. Additional EPA information on the establishment of DQOs can be found in Data Quality Objectives for Remedial Response Activities, OSWER Directive No. 9355.0-7B.

4.0 Characterization of MEC and MC Including RCWM[1]

This section should summarize the approaches used for the RI (e.g., geophysical investigations and mapping, footprint analysis, historical photo analysis, etc.) with emphasis on any deviations from approaches described in the work plan, including the

[1] MEC characterization includes all categories as defined under the term MEC, i.e., UXO, DMM, and MC in high enough concentrations to be explosive.

sampling and analysis plans, field sampling plan (FSP), and quality assurance project plan (QAPP). (Note: The joint guidance on QAPPs being developed by DOD, EPA, and the Department of Energy is still in draft form at this writing.) Information does not need to be described in detail when the work plans previously described the overall approaches to be used and the characterization is conducted according to plan. For example, it may be adequate to state that the sampling strategy and the rationale for the type, location, number of samples to be collected and analytes to be sampled for were carried out in accordance with the work plan.

This section should address the nature and threats posed by the Military Munitions or MC based on the data gathered as a result of the established DQOs discussed in Section 3.5. In addition, this section should reflect that sufficient data was gathered to assess the extent to which the hazard or risks poses a threat to human health, safety, or the environment. It should discuss how the data gathered supports the analysis and design of potential response actions by assessing the following factors. Refer to EM 1110-1-1200, Table 2-1, Profile Types and Information Needs for additional information.

- Physical characteristics of the property and MEC items,
- Characteristics/classification of soil, air, surface water, and groundwater for MC,
- Characteristics of the military munitions,
- Site characterization approach necessary to meet DQOs,
- Actual and potential exposure pathways through environmental media,
- Actual and potential exposure routes (e.g., inhalation and ingestion); [note – cross check with CSM guidance for consistency], and
- Other factors such as sensitive populations that pertain to the characterization of the site or support the analysis of potential remedial action alternatives.

4.1 MEC Characterization

This subsection should summarize the characterization activities that are undertaken to meet DQOs, and the types of data gathered such as:

- Type(s) of MEC, to include fill data (specify whether it is UXO, DMM, or MC and then specify the nomenclature for UXO, DMM, or MC in type and concentration required to be explosive),
- Condition of MEC (fuzed/unfuzed, etc.),
- Sensitivity of MEC (i.e. potential for functioning based on different interactions by receptors),
- Areal extent, depth, and distribution of MEC,

- The potential for the MEC to migrate to the ground surface (frost-heave, erosion, etc.).

4.2 MC Characterization

This subsection should summarize the characterization activities associated with determining the nature and extent of MC. These may include, but are not limited to the following:

- Soil and vadose zone investigations,
- Groundwater investigations,
- Surface water and sediment investigations.

RCWM requires concurrent characterization for both MEC and MC, including requirements such as headspace sampling and 3X material handling. In addition to the traditional MEC and MC characterization elements discussed above, air monitoring should also be discussed since it is used extensively during RCWM characterization efforts as a measure of potential contamination.

5.0 Revised Conceptual Site Model and RI Results

This section is the primary focus of the RI report. It presents information on the nature and extent of MEC at the project site, MC contamination of environmental media, and physical characteristics of the project site determined from the field studies conducted as part of the RI. Maps should be included, as appropriate, that portray important project site features, geophysical mapping data, etc., that would assist the reader. This section should also provide the results of the field sampling and laboratory analyses to characterize the level of MC in environmental media.

5.1 Munitions and Explosives of Concern (MEC)

The RI report will describe the nature and extent of MEC identified at the project site. This subsection should present the results of the field investigation that was conducted to characterize the MEC. Additional subsections may be appropriate for the presentation of results covering various types of MEC that may be present, the extent of the MEC, and benefits associated with removals and/or interim remedial actions. The report should also contain a discussion comparing the nature and extent of MEC detected with the information from any previous studies that may indicate the “success” of the RI in characterizing the extent of the explosives safety hazard. This subsection should also provide specific references to any maps, figures, or tables that have been included in the RI report showing the project site features, geophysical mapping data results and any other data captured concerning the identification and location of the MEC.

5.2 MC

The RI report will describe the nature and extent of contamination detected at the project site. This subsection should present the results of the field sampling and laboratory analyses that was conducted to characterize the nature and extent of MC in environmental media. Subsections may be appropriate for the presentation of results on contaminants detected in each medium (e.g., soil, ground water, surface water) and include results from any background sampling for metals that was conducted. The analytical data should be presented in summary data tables to include analytical results for all samples collected and the analytical results greater than the Method Detection Limit for all samples collected (see sample Tables in Appendix B). Typically the RI Report main text will contain summary tables showing results for contaminants of concern. The summary will include data fields like number of times sampled/number of times detected; concentration ranges; number of times detected above PRGs or preliminary ARARs, etc. The full data results typically will be in a technical appendix along with the QA/QC findings. The report should also contain a discussion comparing the types of contaminants detected with the information from previous studies (and knowledge of sources at the site) that may indicate the "success" of the RI in characterizing the extent of the contamination as well as locating hot spots or unknown sources.

When a project characterization for RCWM is conducted, this subsection should present the results of the RCWM characterization, such as chemical agent and agent breakdown product analysis, headspace sampling for 3X material handling, air monitoring data, and investigation derived wastes.

6.0 Contaminant Fate and Transport for MEC/MC

This section provides a discussion of fate and transport of contaminants detected at the project site. The discussion should include potential routes of migration, contaminant persistence, and contaminant migration. The fate and transport characteristics of the detected contaminants should be described in the context of the site's physical characteristics and include any naturally occurring phenomena such as erosion or frost heave, or other human activities such as beach replenishment that could cause MEC to relocate.

As appropriate, historical contaminant migration as well as the expected movement and fate of contaminants may be described. Depending on the complexity of the project, media, and contaminants detected, the discussion can range from a qualitative discussion to a detailed quantitative assessment using fate and transport modeling.

7.0 Baseline Risk Assessment for MC and Hazard Assessment for MEC

This section should discuss the site-specific evaluations conducted for the hazards assessment for MEC. The level of detail and extent to which qualitative and quantitative inputs are used may vary. Several methods exist for performing MEC hazards characterization depending on the complexity and particular circumstances of the property. The MEC hazards assessment discussion should address the explosive hazards associated

with MEC, i.e., the likelihood that MEC might detonate and potentially cause harm as a result of human activities. Refer to EM 1110-1-4009 for additional information on conducting the MEC hazards assessment.

The baseline risk assessment for MC that is conducted in accordance with EM 200-1-4 and EPA Risk Assessment Guidance (RAGS) should be discussed in this section. It should include both the Human Health Evaluation and the Environmental Evaluation.

8.0 Summary of Results

This should be a short section that summarizes the results of the RI. The summary of results will reiterate the knowledge of: (1) nature and extent of MEC and MCs at the project site; (2) whether the findings are consistent with known sources; and (3) the magnitude, direction, and if applicable, the rate of contaminant migration. Similar to the discussion presented in the executive summary, this concluding section should synthesize the information from the RI in a manner that supports risk assessment, risk management decision-making, and feasibility study activities. The purpose is to summarize the data collected, in terms of "success" of the study. It may be appropriate, prior to initiating the next steps, to have discussions with the regulators on the efficacy of the investigation with respect to meeting the objectives and answering the questions posed in the work plan as well as in providing data for the feasibility study.

9.0 References

This section presents the references used in the study. The references should be presented in the following format consistent with applicable portions of OM 25-1-51. This manual is available at: http://www.hnd.usace.army.mil/techinfo/engpubs.htm

- ER 200-3-1, Formerly Used Defense Sites (FUDS) Program Policy,
- EM 1110-1-4009, Ordnance and Explosives Response,
- EPA 540-G-89-004, OSWER Directive 9355.3-01, October 1988, Interim Final,
- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA.

Feasibility Study Report Content

Military Munitions Center of Expertise
Technical Update
March 2005

This technical update provides a tool for your reference and use when developing a Military Munitions Feasibility Study Report under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Acknowledgments:

This tool has been developed as a joint effort between the U. S. Environmental Protection Agency (EPA) and the U. S. Army Corps of Engineers, Huntsville Engineering and Support Center, Military Munitions Center of Expertise (MM CX).

Existing USACE technical guidance is currently under revision to incorporate the standard format with explanatory notes contained in this document for developing a FS Report. While this document is focused on the Formerly Used Defense Sites Program, it may be useful when working on other programs such as Installation Restoration and Base Realignment and Closure.

Useful EPA and USACE References:

- ER 200-3-1, Formerly Used Defense Sites (FUDS) Program Policy, 10 May 2004.
- EPA/540/G-89/004, OSWER Directive 9355.3-01, Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, October 1988.
- EPA Directive 9355.3-01FS3, The Feasibility Study, Development and Screening of Remedial Action Alternatives, November 1989.
- EPA Directive 9355.3-01FS4, The Feasibility Study: Detailed Analysis of Remedial Action Alternatives, March 1990.

Helpful Web Sites:

HQ, U.S. Army Corps of Engineers: http://www.usace.army.mil/inet/usace-docs

MM CX: http://www.hnd.usace.army.mil/oew/techguid.asp

Environmental Protection Agency: http://www.epa.gov/superfund/index.htm)

For additional information: Email the MM CX thru our web site response specialist at: OEResponseSpecialist@HND01.usace.army.mil. Telephone the MM CX at 256-895-1540.

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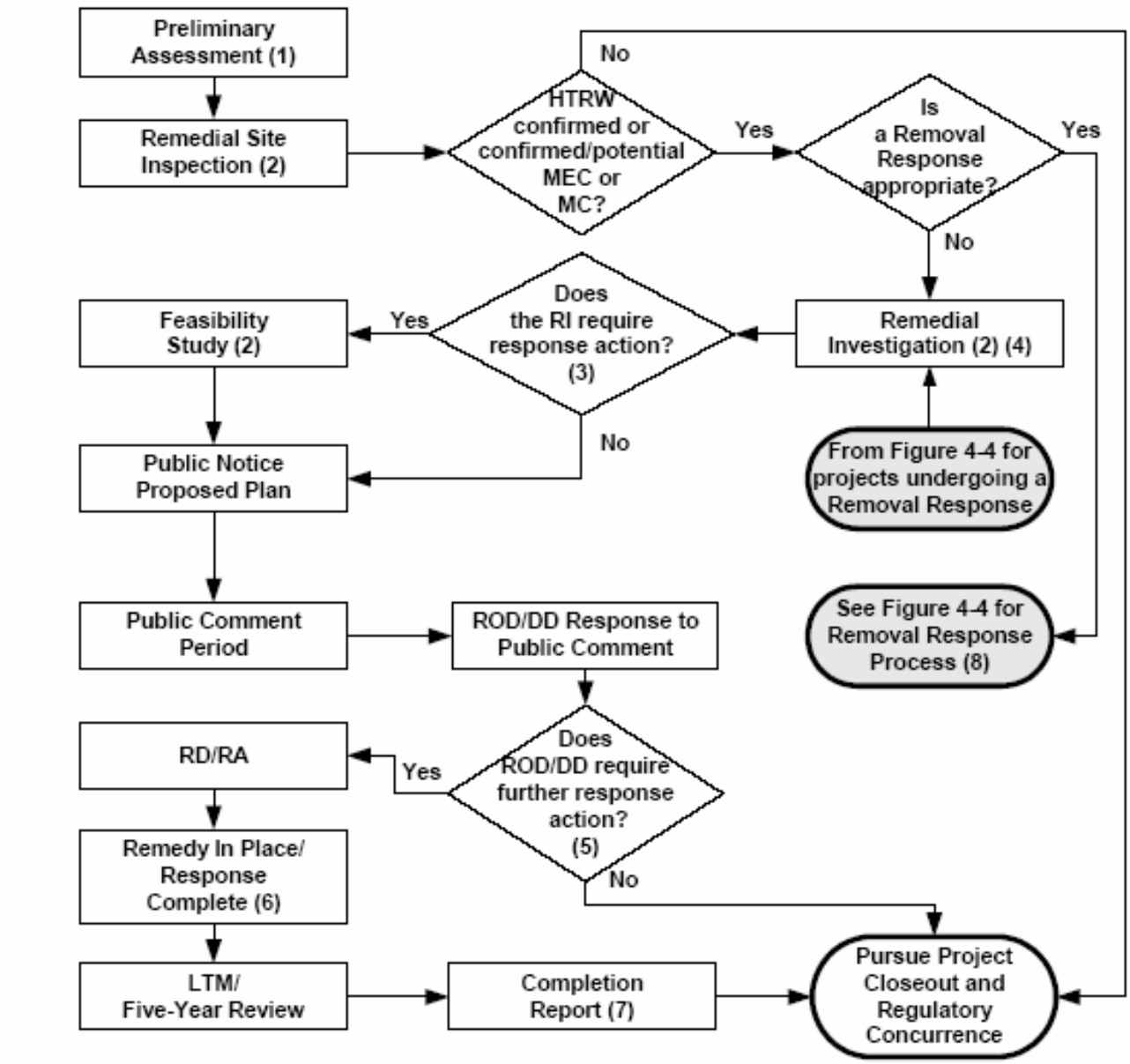
1.0 Executive Summary

The executive summary of the Feasibility Study (FS) report provides an overview of the results of the development and analysis of alternatives. This section should provide a brief summary of the findings of the Remedial Investigation (RI), including nature and extent of Munitions and Explosives of Concern (MEC) that includes Recovered Chemical Warfare Material (RCWM) configured as a munition, and Munitions Constituents (MC), media to be addressed, and pathways of concern. The section should also identify the remedial action objectives (e.g., the Preliminary Remedial Goals (PRGs), depth of removals, exposure pathways of concern, land use controls that may be implemented, etc.) Finally, this section should summarize the results of the detailed analysis of alternatives, concentrating on the comparative analysis of alternatives. The purpose of the FS is not to select a remedy, but instead is to develop remedial alternatives and then to provide decision makers the information needed to select from among the developed alternatives. This last sentence is very critical. This is an area where DOD and other federal agencies that undertake a lot of National Environmental Policy Act (NEPA) activities bring their NEPA experience into CERCLA. This is one of the key differences between how the two statutes are implemented in terms of alternative analysis and decisions.

This section should also note whether the FS report has been developed as a separate document or as a combined RI/FS report. Refer to Figure 1-1 that shows where the FS phase occurs in the CERCLA process. Refer to ER 200-3-1 to review the Figures referenced in Figure 1-1 and the footnotes.

DRAFT



Notes:
1. For new INPRs, a Preliminary Assessment will be performed for eligible FUDS properties. If no hazards are identified during the PA, pursue property closeout and regulatory concurrence.
2. A removal response may be performed at any time during the process up until the ROD/DD signature.
3. Response action may include land use controls.
4. If the removal response taken adequately addresses the risk or safety concerns at the project, the RI may be abbreviated. If LUC/5-Year Review/LTM are required, evaluate them in the FS.
5. LUC/5-Year Reviews/LTM are required to be documented in the RD.
6. See definitions in paragraph 4-4.7.2 and Figure 4-3.
7. Required by USACE FUDS policy.
8. Regardless of whether additional investigation/response is required following the removal action, the projects will transition back to the remedial response process.

Figure 1-1 CERCLA Response Process (ER 200-3-1)

2.0 Introduction

2.1 Purpose

This section should define the purpose of the FS. As stated, the purpose of the FS is not to select the remedy. Rather, its purpose is to provide decision makers with the data necessary to select an alternative. As such, the FS process should be designed to develop an appropriate range of potential alternatives to manage the hazards and risks, analyze those alternatives against the NCP nine criteria,[1] and then compare the alternatives against each other.

2.2 Summary of Remedial Investigation Findings

This section of the report should briefly summarize those key findings of the RI that were relevant in the development of the remedial action objectives and to the development and analysis of alternatives. These findings may include:

- Conceptual Site Model (EM 1110-1-1200) including:
  - Property description and historical data;
  - Physical characteristics of the property that may be relative to remedy design (e.g., depth to bedrock, type and thickness of existing soil cover, physical features);
  - MEC source characteristics (e.g., quantities, type, condition (fired, armed, fuzed, low orders, etc.), aerial extent, depth and distribution of UXO and DMM);
  - MEC exposure pathways (potential) (receptors, activities, potential interaction with source MEC)
  - MC pathways of concern
    - MC contaminants of concern;
    - Type of media contaminated;

[1] The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) contains several statutory provisions with which all remedies must comply. These include protection of human health and the environment, compliance with applicable or relevant and appropriate requirements (ARARs), cost effectiveness, and a preference for permanence, and treatment that reduces toxicity, mobility, or volume. In order to satisfy these CERCLA requirements, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP 300.430) identifies nine criteria against which potential remedies are judged. These are: protection of human health and the environment, compliance with ARARs; long-term effectiveness and permanence; reduction of toxicity, mobility or volume through short-term treatment; short-term effectiveness; implementability; cost; State acceptance; and community acceptance.

- Volume of media contaminated.

- Baseline MEC Hazard Characterization Summary (EM 1110-1-4009).

- Baseline MC Risk Assessment Summary (EPA Risk Assessment Guidance).

[Note: for sites where the RI and FS reports are developed as one document, Section 2.2 would not be required since the information would be addressed in the sections described in the Standard Format for Remedial Investigation Report.]

3.0 Identification And Screening Of Technologies For MEC And MC

This section should discuss the process that was used in developing and screening technologies. Figure 1-2 presents a flow diagram of the steps (with the exception of the last two steps in the diagram) involved in the development of alternatives from various technologies.

3.1 Remedial Action Objectives

This section should present the remedial action objectives resulting from the remediation action goals that were developed during the Remedial Investigation (RI). Remedial action objectives should address the goals for reducing the explosives safety hazards or contaminants of concern to ensure protection of human health, safety and the environment.

The remedial action objectives should be as specific as possible without unnecessarily limiting the range of alternatives and include the following:

- Explosives safety hazards or contaminants of concern;

- Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBC) information;

- Exposure pathways;

- Receptors and potential receptors; and

- A preliminary remediation goal (PRG) for each exposure pathway that was identified during the RI.

CERCLA Process for the Development of Remedial Action Alternatives

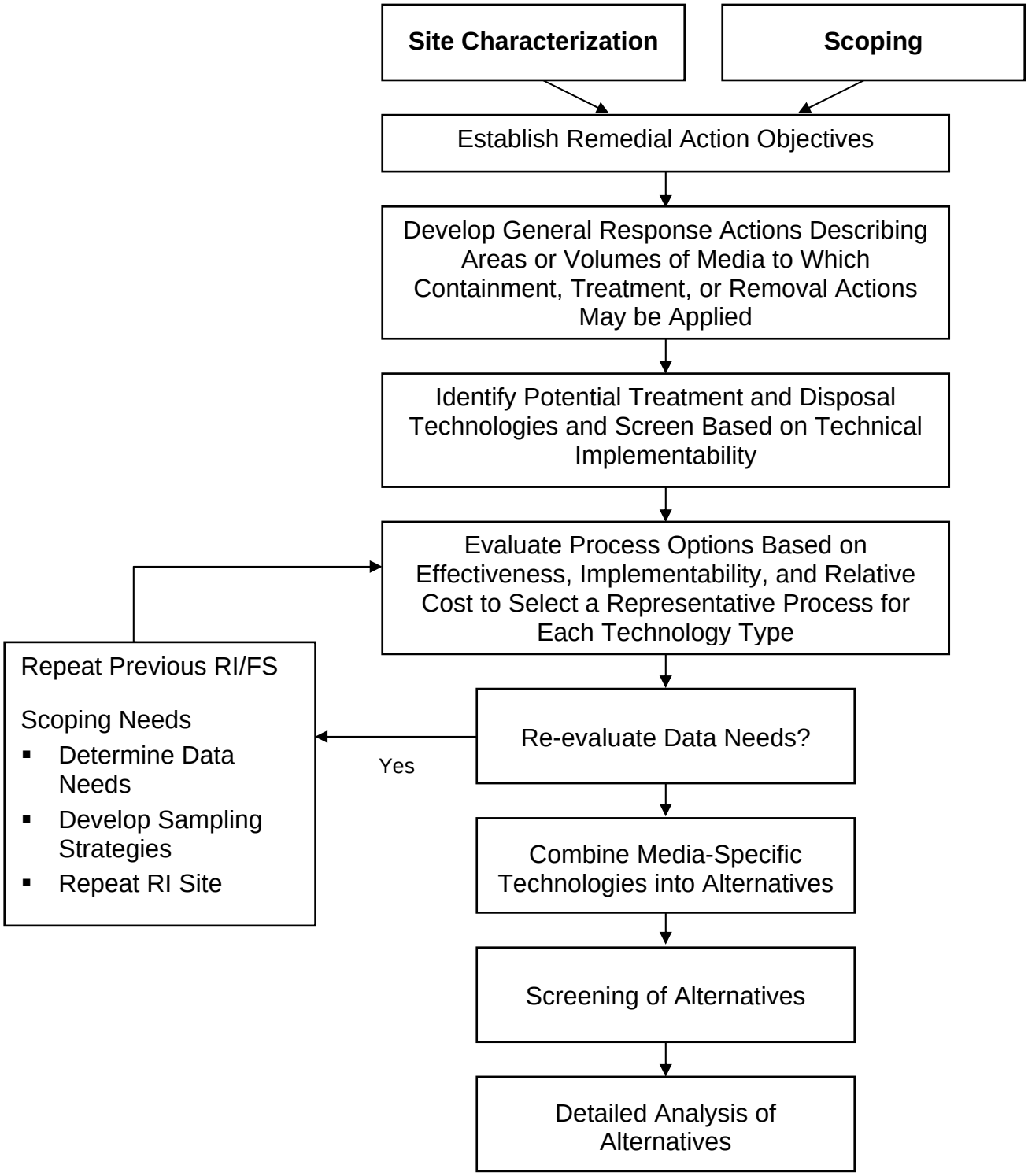


Figure 1-2 Development of Remedial Action Alternatives

Both the PRG and the exposure pathways should be identified because alternatives for MEC typically involve reducing the extent of MEC and/or minimizing exposure. For MC the alternatives may involve reducing or eliminating exposure as well as reducing contaminant levels.

3.2 General Response Actions (ER 200-3-1)

This section should identify the general response actions for both MEC and MC. General response actions are those actions that will achieve the remedial action objectives and may include treatment, containment, excavation, extraction, disposal, land use controls, or combinations of these. This section should also discuss the relationship of MEC response actions with MC response actions, as well as issues related to sequencing actions.

3.3 Identification and Screening of Remedial Technologies

The identification and screening of technologies must comply with the requirements specified in paragraphs 3.3.1 and 3.3.2 below. This section should contain a summary of the information previously reviewed by the Technical Project Planning (TPP) (EM 200-1-2) group and provide a sufficient level of detail and documentation for the public to understand and compare alternatives. The level of detail must also be sufficient to support the decision-making process. Two separate Technology Assessment Reports for MEC and MC concerns are currently under development. These reports will be made available on the MM CX website when finalized. As an interim measure, the enclosed tables on identifying and screening of technologies have also been provided to assist in these determinations. For more detailed information on the identification, screening, and evaluation of technologies, contact the Military Munitions Center of Expertise (MM CX).

The discussions in this section and subsections should be organized and presented in the following three categories for MEC:

- Detection technologies
- Recovery technologies
- Disposal technologies

The discussions in this section for MC technologies should follow existing EPA guidance for developing the RI/FS (EPA/540/G-89/004, OSER Directive 9355.3-01) and EPA Directive 9355.3-01FS3 and 9355.3-01FS4). These documents can be located on EPA's website at http://www.epa.gov/superfund/index.htm).

3.3.1 Identification and Screening of Technologies

While site-specific conditions will determine the range of technology options available at a given project site, there could be cases where there

may be so few realistic options that a screening process is not needed and only a detailed analysis is conducted.

If screening is conducted, this section should address all potentially applicable technologies that were considered, as well as the criteria used to identify them. It should also identify those apparently reasonable technologies that were eliminated from further consideration. Decisions on eliminating technologies should only be based on technical implementability (i.e., only those technologies that are clearly ineffective or unworkable should be eliminated). This section should also provide the rationale for each technology eliminated. This section will typically include a summary figure identifying the universe of technologies considered and indicating those that were "screened out", and provide a reference to: http://www.hnd.usace.army.mil/oew/techguid.asp for the MM CX Technology Assessment Report for MEC and MC discussed in section 3.3.

3.3.2 Evaluation of Technologies

Once the universe of technically implementable technologies has been identified, the next step is to perform a more detailed evaluation of each technology based on effectiveness, implementability,[2] and cost. This section should discuss the results of the evaluation for each technology considered and identify those technologies that have been retained for the development of alternatives. A rationale should be included for those technologies that were excluded from further analysis based on this evaluation. This section should also include a figure summarizing the results of the evaluation and indicating those that were eliminated from further consideration.

Tables 1 through 6 are provided for illustrative purposes to demonstrate how to approach this screening step and how to document the results. The number of technologies screened should make sense based on the needs of the project site and should have already been discussed by the Project Delivery Team (PDT) during the TPP process initiated during the RI phase.

4.0 DEVELOPMENT AND SCREENING OF ALTERNATIVES

4.1 Development of Alternatives

This section should discuss how the technologies and general response actions were combined to form remedial alternatives for the project site. This section should

[2] Because the technical implementability of the technologies is judged in the initial screening step, this evaluation focuses on the administrative and institutional implementability of the technology (e.g., likelihood of community and or regulator acceptance or resistance based on concerns about the safety of the proposed technology, availability of treatment, storage, or disposal options, etc.).

include a general description of each alternative, and the rationale for creating each alternative should be clearly stated. The section should also include a summary table identifying the alternatives.

4.2 Screening of Individual Alternatives

4.2.1 Introduction

As with the technology screening process, depending on the number of alternatives, preliminary screening may not be necessary. If preliminary screening is conducted however, this section should discuss the screening process and the criteria used. The criteria are effectiveness, implementability, and cost as discussed in ER 200-3-1 and the NCP. This section should summarize the results of the screening, present the State's response to the preliminary screening results provided to them for review and identification of State ARARs, and identify those alternatives retained for detailed analysis as discussed in Section 5.0. The section should also include a summary table that presents the results of the screening.

4.2.2 Alternative #1[3]

4.2.2.1 Description of Alternative

This section should contain a general description of the alternative.

4.2.2.2 Evaluation of Alternative

Discussion in this section should focus on the results of the screening process. Specifically, it should discuss the effectiveness of the alternative in terms of achieving the remedial action objectives, the implementability of the alternative, and the relative cost of the alternative. It should also indicate whether the alternative was retained for detailed analysis and, if the alternative was not retained, the rationale for exclusion should be clearly and thoroughly stated.

5.0 Detailed Analysis of Alternatives

The National Contingency Plan (NCP), at 40 CFR Part 300, states that the primary objective of the FS is to "ensure that appropriate remedial alternatives are developed and evaluated." It also states that the FS "shall include an alternative screening step, when needed, to select a reasonable number of alternatives for detailed analysis," and that "the number and type of alternatives to be analyzed

[3] The results of the screening for each alternative should be presented in a separate subsection.

shall be determined at each site, taking into account the scope, characteristics, and complexity of the site problem that is being addressed." [emphasis added]

5.1 Introduction

This section should describe the detailed analysis of alternatives against seven of the nine criteria from the NCP, Section 300.430. The criteria for State acceptance and community acceptance cannot be fully evaluated and assessed until comments on the RI/FS and the proposed plan are received. Refer to the discussion on Modifying Factors in Section 5.2.1.2 for more information on what should be documented in the FS on these factors. This section should also summarize the results for each alternative as well as the comparative analysis. A summary table of the results should be included. Table 3 is included as a sample format for use for this purpose.

5.2 Individual Analysis of Alternatives

5.2.1 Alternative #1[4]

5.2.1.1 Description

This section should contain a detailed description of the alternative. The description should be sufficiently detailed to allow a citizen to understand and compare alternatives and should include, as appropriate, data on the technology components (including use of innovative technologies), types and quantities of MEC or MC the alternative is designed for, how long it will take to implement the alternative, what will be required in order to implement the alternative, e.g., reaching agreement on who will be responsible for managing and enforcing any LUCs that form a part of the alternative, and any assumptions made about the alternative. The discussion should also identify the significant ARARs for the alternative.

5.2.1.2 Assessment

The detailed results of the analysis of each alternative against the nine criteria should be presented in this section. The discussion should focus on how, and to what extent, the various factors within each criterion are addressed. Uncertainties should also be discussed, especially when changes in assumptions made about the project site or the alternative could affect the results of the analysis.

[4] The results of the detailed analysis of each alternative should be presented in a separate subsection.

There is no fixed number of alternatives that must be considered in the detailed analysis process. The assessment of each alternative is completed to the degree appropriate to the alternative and as required to complete a comparative analysis. All alternatives must be evaluated to the same degree and level of detail. The No DoD Action Indicated alternative may not be discussed to any great extent if it is clear that there is a risk and that some kind of cleanup action will be considered. However, the "no action" alternative must be evaluated against the threshold criteria and balancing factors as must all alternatives at this phase of the process. Finally, in the case of presumptive remedies, a determination has already been made that absent other factors, certain remedies are the ones to be considered for specific project sites.

In general, specific issues described below (in relation to the nine criteria) should be addressed for each alternative for which a detailed analysis is appropriate. Because this discussion will form the basis for the proposed plan and the Decision Document (or Record of Decision for a National Priorities List (NPL) site), it is important that the discussion provide an understanding to support the rationale for the final remedy selection. Some issues to be addressed for each alternative include:

- **Threshold Factors:**
  The NCP calls the two factors below "threshold factors." The NCP requires that all project sites have protective remedies and meet ARARs, or that an ARAR waiver be utilized. Determinations as to what is protective for a Military Munitions project site must be made on a case-by-case basis. Because protectiveness is associated with particular use scenarios, it is necessary for the protectiveness discussion to focus on the reasonably anticipated future land use, and the exposure pathways addressed by the candidate remedies forwarded from Section 4.

- **Protectiveness:**
  - Any selected alternative must adequately protect human health and the environment, in both the short and long term, from unacceptable risks posed by MEC or MC.
  - Remedial Action Objectives (RAOs) to be achieved by the remedy.
  - Point of compliance (e.g. removal depths to support land use) associated with the RAOs.
  - Land use assumption used to establish the RAOs.

- Exposure pathways addressed by the remedy. The exposure pathways should be consistent with the CSM for the project site.
- Ecological risk posed by MC
- Other pertinent information

- **Compliance with ARARs** (specific requirements to be cited, including whether they are State or Federal ARARs):
  - Reference ARARs or To Be Considered (TBC) information documented in Section 3.1.
  - Chemical Specific ARARs to be met by the remedy,
  - Action specific ARARs to be met by the remedy
  - Any location-specific ARARs that affect remedy selection.
  - TBCs – (e.g. federal or state laws or regulations and DOD policy and guidance for MEC/MC)

- **Balancing Factors:**
  CERCLA requires that alternatives be developed for treating principal threats at the project site through reductions in toxicity, mobility, or volume. In addition, remedies are required to be permanent, e.g., removal of MEC, to the maximum extent practicable, and to be cost effective. The five balancing factors described below are weighed against each other to determine which remedies are cost effective and are "permanent" to the maximum extent practicable. The NCP explains that in general preferential weight is given to alternatives that offer advantages in terms of the reduction of toxicity, mobility, or volume through treatment, and achieve long-term effectiveness and permanence. However, the NCP also recognizes that some contamination problems will not be suitable for treatment and permanent remedies. The balancing process takes that preference into account, and weighs the proportionality of costs to effectiveness to select one or more remedies that are cost effective. The final risk management decision in the Decision Document is one that determines which cost-effective remedy offers the best balance of all factors to achieve permanence to the maximum extent practicable.[5]

  Refer to ER 200-3-1 on the Headquarters, U. S. Army Corps of

[5]A detailed description of items that may be addressed in analyzing each criterion is laid out in the NCP, 40 CFR 300.430(e)(9)(iii) . The decision-making process (and criteria and standards) for selection of remedies is located at 40 CFR 300.430(f)(4). The discussion above is meant to provide a platform for understanding the appropriate type and level of analysis required by each criterion.

Engineers web site at http://www.usace.army.mil/inet/usace-docs for more information on the application of these requirements to Formerly Used Defense Sites. Various EPA guidance documents are also available to assist in the detailed analysis required during the FS phase. EPA's documents may be viewed on their web site at http://www.epa.gov/superfund/index.htm).

- **Reduction of Toxicity, Mobility, and Volume Through Treatment:**
  - What volume of MEC or MC contaminated media may be removed or reduced?
  - How will the management of the hazards and/or risks reduce the toxicity or mobility of the MEC and/or MC?
  - The degree to which the treatment is irreversible.
- **Short-Term Effectiveness:**
  - Risk due to cleanup activity (e.g., worker protection required, short-term impact to local residential populations and the environment) and activities that can be taken to mitigate potential adverse effects.
  - Removal of the MEC is short term when interim actions such as Time Critical Removal Actions have been conducted or when a removal action was conducted to remove all MEC reasonably possible to detect but due to certain natural phenomena such as erosion or frost heave, or other human activities, such as beach replenishment causing MEC to relocate, that would require additional response actions to be conducted.
- **Long-Term Effectiveness and Permanence:**
  - Does the remedy rely on exposure control or a more permanent cleanup (e.g., treatment or removal)?
  - If the remedy relies upon some sort of exposure control how long will that be in place? What kind of maintenance is required?
  - Will the chemical characteristics of any of the munitions constituents be changed due to treatment or stabilization?
  - Is the project site suitable for unrestricted use? (i.e., for what land uses is the remedy protective?)
- **Implementability:**
  - Are there any factors that are likely to affect the implementability of the remedy? By this step in the process, there should only be candidate alternatives that can

be implemented. At this step, implementability should be a discussion of the ease or difficulty of implementation of the alternatives in terms of technical and administrative aspects, and the availability of necessary services, materials, specialists, and equipment.

- **Cost:**
  The present worth costs of the remedy, including capital costs and LTM costs. LTM will be conducted consistent with DERP Management Guidance, ER 200-3-1 and EP 75-1-4. The activities to be conducted during LTM, their duration and frequency will be documented by the PDT.

- **Modifying Factors:**
  Community and State acceptance of the remedy can play a role in weighing the balance between remedies that are cost effective and meeting other criteria of the law. Use of the TPP process and other public involvement techniques will help the PDT to have a better understanding of these factors even though the Proposed Plan has not yet been issued. These factors should only be addressed in the FS to the degree appropriate based on the degree of knowledge and the stage of the process. Final evaluation of modifying factors should be completed after the proposed plan and public comment period on that Plan in the Decision Document or Record of Decision.

  The TPP process includes the substantive involvement of regulators, local community members, and other stakeholder participation. In addition, there are various other communications techniques that may be utilized to ensure sustained participation of all interested parties throughout the process. These communications techniques are identified in the Public Involvement Plan for a given project, (e.g., Restoration Advisory Boards, public meetings, news releases, fact sheets, information repositories, etc.). Therefore, meaningful state and community input is expected to be part of the entire response process. However, as previously stated, final evaluation of the community and state acceptance will occur after the Proposed Plan and public comment period have been completed. This process is in accordance with the requirements of CERCLA and the NCP and will guard against any perceived pre-selection of the remedy by DOD.

5.3 Comparative Analysis of Alternatives

The results of the comparative analysis of the alternatives are discussed in this section. Specifically, the section should describe the strengths and weaknesses of the

alternatives relative to one another with respect to each of the nine criteria, and how changes to key assumptions and uncertainties could alter the expectations of their relative performance. The presentation of differences can be measured either qualitatively or quantitatively, as appropriate, and should identify substantive differences (e.g., higher cost, better long-term effectiveness). Any quantitative information used to assess the alternatives should also be included (e.g., cost estimates, levels of residual hazards or contamination, etc**.).** Refer to the enclosed Table 7 that provides a comparison of alternatives against the nine NCP criteria when applied to MEC and MC**.** This table has been provided as an example for reference when documenting the FS Report.

Ideally, this section should focus the risk management considerations for the decision-maker. For example, it should discuss the results of the comparative analysis for the reasonably anticipated land use, or under the various future land use scenarios considered; when applicable, the cost implications associated with incremental risk reductions within the risk range, etc.

6.0 References

This section presents the references used in the development of the feasibility study.

APPENDIX F

"Streamlined" Munitions and Explosives of Concern (MEC) Engineering Evaluation and Cost Analysis (EE/CA) Report Content

Military Munitions Center of Expertise
Technical Update
July 2005

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EE/CA Report Outline

If there is a decision that a removal action is appropriate and the decision and rationale are documented in the Approval Memorandum per ER 200-3-1, "Formerly Used Defense Sites (FUDS) Program Policy," the first step in the removal process is to conduct an EE/CA. Removal actions generally have limited objectives, and typically are short-term actions to mitigate the threat posed by MEC. The removal action process cannot attain response complete and cannot be used to make closeout decisions. All closeout decisions must occur in the remedial process. This technical update assists the reader in the development of an EE/CA in accordance with the National Oil and Hazardous Substance Pollution Contingency Plan (NCP) and EPA 540-R-93-057, "Guidance on Conducting Non-time-critical Removal Actions Under CERCLA," August 1993. This update is for EE/CAs related to MEC response and does not address EE/CAs focused on munitions constituents (MC). It is focusing on the structure and content of the MEC EE/CA. It is called "streamlined" only to differentiate from EE/CAs performed previously that had a much greater extent and purpose. **The length of the main EE/CA document (less the appendices) should not exceed 30 pages.**

1.0 Executive Summary

The intent of the executive summary is not to reiterate all that is in the EE/CA but to concisely summarize the past and present characteristics of the site, what we did to characterize it, what response is recommended, and why that response was recommended based upon the evaluation of effectiveness, implementability, and cost.

2.0 Site Characterization

This chapter is used to document the conceptual site model (CSM). The development of the CSM should follow the guidance in EM 200-1-2, "Technical Project Planning (TPP) Process" and EM 1110-1-1200, "Conceptual Site Models for Ordnance and Explosives (OE) and Hazardous, Toxic, and Radioactive Waste (HTRW) Projects." The site characterization should include a discussion of the historical use of the site, to include areas where munitions were used. Do not include raw data here since this is just supposed to be a summary. Place supporting material in the appendices. The issues to be addressed include:

- Are there any properties of the site that may alter the MEC pathway potential such as erosion potential, etc.?
- Are there any environmental issues such as endangered species or habitat?
- What is the current land use?
- Is the land use expected to change and what is it?

- What are the activities associated with the use that may result in interaction with the MEC?

- What are the current site characteristics of source, nature, and extent of MEC and how did you determine this?

Based upon the activities noted above, and the source nature and extent of the MEC, what is the potential for there to be a completed pathway and why? Ordnance and Explosives Risk Impact Assessment (OERIA) or similar can be an aid in communicating the potential for a completed pathway and the potential hazards.

3.0 Identification of Removal Action Objectives

What is the desired end-state (s) (e.g., stabilize site to minimize the potential for a completed pathway until a final action can be taken)? What is/are the area(s) of interest (AOI)? Keep in mind that per ER 200-3-1 the project must go back into the remedial process following the removal action. In most cases a feasibility study (and likely a remedial investigation), proposed plan, decision document, remedial design, and a remedial action are required to proceed to project and property close-out.

4.0 Identification of Removal Action Alternatives

What are the available alternatives? Alternatives are generally composed of a detection component, a recovery component, a disposal component, and a risk management component. Risk management is commonly facilitated by the interim land use controls (LUCs). Any LUCS implemented in a removal action are interim in nature and must be reevaluated in a feasibility study and proceed in the remedial process to finalize the selection. Some components may not be required in an alternative. Potential (examples only) alternatives:

- No DoD action indicated (NDAI). This alternative is always assessed.

- Using magnetometer aided visual survey of the site, locate MEC on the surface, blow found items in place, remove all found munitions debris, notify residents and local authorities of potential residual MEC, and establish a MEC safety education program.

- Using geophysics (most appropriate system), locate all detectable surface and subsurface MEC, blow items in place, remove all found munitions debris, notify residents and local authorities of potential residual MEC, and establish a MEC safety education program.

- Notify residents and local authorities of potential MEC presence, and establish a MEC safety education program.

5.0 Comparative Analysis of Removal Action Alternatives (see Section 2.6, EPA "Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA")

5.1 MEC Hazard Assessment of Removal Alternatives

How will each alternative impact the potential for a completed MEC pathway? What are their relative impacts? OERIA or similar MEC hazards assessment tools can be useful in communicating the impacts.

5.2 Assess Alternatives Against Effectiveness Criterion

- Impacts on MEC hazard potential. Use the results of the MEC hazard assessment, above.
- Impacts on the environment. How will implementing the alternative impact the environment? Will the alternative impact habitats or protected species?
- Impacts on workers. Will this alternative put the workers implementing it at unacceptable risk? What is the risk in relation to the other alternatives?
- Whether or not it meets the removal objectives. Will the alternative satisfy the removal action objective? How does it compare to the other alternatives in this matter?
- ARAR compliance. Will the ARARs be met?
- Impacts on the public. What impacts result during implementation of the alternative?

5.3 Assess Alternatives Against Implementability Criterion

- Technical feasibility. Can this alternative be implemented? Is the alternative reliably implemented? Will site conditions hinder implementation? Is the alternative consistent with long-term permanent (remedial action) goals?
- Administrative feasibility. Are there any permits or waivers required for off-site activities? Are rights of entry required and will they be obtainable?
- Availability of services and materials. Are the personnel and equipment available to implement the action? Are required off-site resources, such as debris recycling facilities, available? Are non-project team agencies available and amenable to support the required actions (especially for interim LUCs)?
- State acceptance. Does the State concur with the alternative?

- Community acceptance. Does the community concur with the alternative?

5.4 Assess Alternatives Against Cost

- Direct capital costs. These are costs directly associated with conducting the action. Benefits are not considered here.

- Indirect capital costs. These are costs such as design costs and permit fees that are required in order to get the action in place but not directly associated with executing the action.

- Annual post-removal site control costs. These are costs such as maintenance costs for interim controls and LUCs and interim monitoring costs.

6.0 Recommend Removal Action Alternative

Recommend one of the analyzed alternatives and say why this was selected based upon the analysis in chapter 5.

7.0 Interim Monitoring

Describe how the site will be monitored before a permanent remedy can be established. This should include maintaining and monitoring any interim land use controls (such as education programs, access controls, signs, notices, etc.) and monitoring site conditions stability (e.g., is the public still protected?).

Appendices

Geophysical data, other raw data, etc.

APPENDIX G

Proposed Plan Content

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DRAFT

Proposed Plan Sample Outline

1.0 Introduction

- Project name and location.
- Lead and support agencies (e.g. EPA, state, or federal facility).
- Purpose of document (i.e., satisfy statutory and regulatory requirements for public participation). At a minimum, the Proposed Plan must:
  - Provide a brief summary description of the remedial alternatives evaluated in the detailed analysis.
  - Identify and provide a discussion of the rationale that supports the Preferred Alternative.
  - Provide a summary of any formal comments received from the support agency.
  - Provide a summary explanation of any proposed ARAR waiver.
- Refer the public to the RI/FS Report and Administrative Record file for more information.

2.0 Project Site Background

- Contaminated media at the site (e.g., soil, groundwater, and surface water).
- History of waste generation or disposal that led to current problems.
- History of federal, state, and local site investigations.
- Description of removal or previous remedial actions conducted under CERCLA or other authorities.
- History of CERCLA enforcement activities at the site (e.g., brief description of PRP searches or special notices issued, and whether PRPs have conducted any of the studies upon which the Proposed Plan is based).
- Description of major public participation activities initiated prior to the issuance of the Proposed Plan.

3.0 Project Site Characteristics

- Geographical or topographical factors that had a major impact on remedy selection (e.g., resources affected or threatened by site contamination such as current or potential drinking water sources or wetlands).

- Nature and extent of contamination (i.e., vertical and lateral extent of contaminated areas).

- A site map that shows location of roads, buildings, drinking water wells, and other characteristics that are important to understanding why the remedial objectives and Preferred Alternative are appropriate for the site.

- Materials constituting principal threats (e.g., location, volume, and nature of mobile/high-toxicity/high-concentration source material).

4.0 Scope and Role of Operable Unit (OU) or Response Action

- Overall cleanup strategy for the site.

- Scope of problems addressed by the operable unit.

- Relationship of proposed action to removal or other operable units at the site (include purpose of each operable unit and sequence of the action in relation to other operable units or removals).

- How action addresses source materials constituting principal threats (e.g., treatment technology will be used to permanently reduce the toxicity, mobility, and volume of these source materials).

  [Note: Remedies which involve treatment of source materials constituting principal threat wastes will likely satisfy the statutory preference for treatment as a principal element, although this will not necessarily be true in all cases.]

5.0 Summary of Project Site Risks

- Key findings of the baseline risk assessment by describing the:

  - Major chemicals of concern (COCs) in each medium.

  - Land and groundwater use assumptions.

  - Potentially exposed populations in current and future risk scenarios (e.g., workers currently on-site, adults or children living on-site in future).

- Exposure pathways (routes of exposure) and how they relate to current or reasonably anticipated future land and groundwater use.

- Estimated cancer and non-cancer risks associated with exposure pathways for chemicals of concern that are driving the need for action.

- Conclusions of the ecological risk assessment (e.g., the basis of environmental risks associated with specific media and how these risks were determined).

- Standard concluding statement that supports the need for taking action (unless it is a "no action" situation):

  "It is the lead agency's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment."

6.0 Remedial/Removal Action Objectives

- Proposed Remedial Action Objectives (RAOs) and how they address site risks (e.g., prevent contamination from reaching the groundwater by treating the contaminated soils).

- Present and describe the basis for preliminary cleanup levels (which will become final remediation goals in the ROD) for major contaminants of concern (e.g., preliminary remediation goal of 5 ppm for trichloroethylene [TCE] is based on the federal maximum contaminant level [MCL] for drinking water).

7.0 Summary of Remedial Alternatives

- Narrative description of alternatives evaluated including remedy components and distinguishing features unique to each alternative.

- Remedy components should include:

  - Treatment technologies employed and how they will reduce the intrinsic threat posed by the contamination.

  - Engineering controls including temporary storage and permanent on-site containment.

  - Institutional controls that will restrict future activities that might result in exposure to contamination (e.g., easements and covenants).

  - Monitoring requirements.

- Distinguished features could include:
  - Remedial action objectives (RAOs) to be achieved by the alternative (e.g., return surface water to recreational use).
  - Estimated quantities of material to be addressed by major components.
  - Implementation requirements (e.g., the need for an off-site disposal facility).
  - Key ARARs, proposed ARAR waivers, and RCRA treatability and no migration variances.
  - Reasonably anticipated future land use and whether or not it will be achieved by the alternative.
  - Expected outcomes (e.g., in terms of compatibility with reasonably anticipated future land uses).
  - Use of presumptive remedies or innovative technologies.
  - Estimated time to construct and implement the remedy until RAOs are met.
  - Estimated costs, separated into capital (construction), annual operations and maintenance (O&M), and total present worth costs.

8.0 Evaluation of Alternatives

- Explanation of the nine evaluation criteria and how they are used to analyze the alternatives. A glossary that defines the criteria may be used.

9.0 Preferred Alternative

- Identification of the Preferred Alternative, the RAOs that it would achieve, and how it will address source materials constituting principal threats at the site.
- Statement that the Preferred Alternative can change in response to public comment or new information.
- A brief statement that describes the most decisive considerations from the nine criteria analysis that affected the selection of the Preferred Alternative (e.g., completion of remedy sooner and at less cost than other alternatives).
- Any uncertainties or contingency measures.
- Expected outcomes of the Preferred Alternative, including risk reduction (how risk identified in baseline risk assessment will be addressed).

- The support agency's concurrence or non-concurrence with the Preferred Alternative, if known.

- Concluding summary statement by the lead agency at the end of this section similar to:

  "Based on information currently available, the lead agency believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The (name of lead agency) expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) be protective of human health and the environment; 2) comply with ARARs (or justify a waiver); 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element (or justify not meeting the preference)."

10.0 Community Participation

- Dates of public comment period for the Proposed Plan (written to encourage public comments).

- Time and place for a public meeting(s) (already scheduled) or offer opportunity for meeting if one has not been scheduled.

- Locations of the Administrative Record file.

- Names, phone numbers, and addresses of lead and support agency personnel who will receive comments or can supply additional information.

- Name and contact number of local Community Advisory Group (CAG), if applicable.

APPENDIX H

Sample Outlines for Decision Documents and Action/Approval Memoranda
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PART I: THE DECLARATION

The Declaration functions as the abstract and formal authorizing signature page for the DD/ROD.

1.0 Project Name and Location

2.0 Statement of Basis and Purpose

Certify the factual and legal basis for the Selected Remedy.

3.0 Assessment of Project Site

Certify that the site poses a threat to public health, welfare, or the environment.

4.0 Description of Selected Remedy

- Describe the major components of the Selected Remedy in a bullet fashion.
- Describe the scope and role of this operable unit.
- Describe how this operable unit addresses principal threats and other contamination at the site (i.e., what is being treated, what is being contained, and what is the rationale for each).

5.0 Statutory Determinations

- Describe how the Selected Remedy satisfies the statutory requirements of CERCLA §121 and discuss the applicability of the 5-year review requirements.

6.0 Data Certification Checklist

The Declaration should certify that the following information is included in the ROD (or provide a brief explanation for why this information is not included):

- Chemicals of concern (COCs) and their respective concentrations.
- Baseline risk represented by the COCs.
- Cleanup levels established for COCs and the basis for these levels.
- How source materials constituting principal threats will be addressed.

- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD.

- Potential land and groundwater use that will be available at the site as a result of the Selected Remedy.

- Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected.

- Key factor(s) that led to selecting the remedy (i.e., describe how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision).

7.0 Authorizing Signatures

ROD authorizing signatures.

PART 2: THE DECISION SUMMARY

The Decision Summary identifies the Selected Remedy, explains how the remedy fulfills statutory and regulatory requirements, and provides a substantive summary of the Administrative Record file that supports the remedy selection decision.

1.0 Project Name, Location, and Brief Description

- Name and location.
- National Superfund database identification number (e.g., CERCLIS).
- Lead and support agencies (e.g., federal facility).
- Source of cleanup monies (e.g., Fund-financed, PRP-financed).
- Site type (e.g., landfill, industrial facility).
- Brief site description.

2.0 Project Site History and Enforcement Activities

- History of site activities that led to the current problems.
- History of federal, state, and local site investigations and removal and remedial actions conducted under CERCLA or other authorities.
- History of CERCLA enforcement activities at the site (e.g., results of PRP searches, issuances of special notices to PRPs).

3.0 Community Participation

- Describe how the public participation requirements in CERCLA and the NCP were met in the remedy selection process (e.g., community relations plans, fact sheets, public notices, public meetings, public Community Advisory Group).
- Describe other community outreach and involvement efforts.
- Describe efforts to solicit views on the reasonably anticipated future land uses and potential future land uses.

4.0 Scope and Role of Operable Unit or Response Action

- The planned sequence of actions.
- The scope of problems those actions will address.

- The authorities under which each action will be/has been implemented (e.g., removal, remedial, state).

5.0 Project Site Characteristics

(Include maps, a site plan, or other graphical presentations, as appropriate.)

- Describe the conceptual site model (CSM) on which the risk assessment and response action are based.
- Provide an overview of the site, including the following:
  - Size of site (e.g., acres).
  - Geographical and topographical information (e.g., surface waters, flood plains, wetlands).
  - Surface and subsurface features (e.g., number and volume of tanks, lagoons, structures, and drums on-site).
  - Areas of archaeological or historical importance.
- Describe the sampling strategy (e.g., which media were investigated, what sampling approach was used, over what area, when was the sampling performed).
- Describe known or suspected sources of contamination.
- Describe types of contamination and the affected media, including the following:
  - Types and characteristics of COCs (e.g., toxic, mobile, carcinogenic, non-carcinogenic).
  - Quantity/volume of waste that needs to be addressed.
  - Concentrations of COCs in each medium.
  - RCRA hazardous wastes and affected media.
- Describe location of contamination and known or potential routes of migration, including the following:
  - Lateral and vertical extent of contamination.
  - Current and potential future surface and subsurface routes of human or environmental exposure.

- Likelihood for migration of COCs from current location or to other media.
- Human and ecological populations that could be affected.

- For sites with groundwater contamination, describe the following:
  - Aquifer(s) affected or threatened by site contamination, types of geologic materials, approximate depths, whether aquifer is confined or unconfined.
  - Groundwater flow directions within each aquifer and between aquifers and groundwater discharge locations (e.g., surface waters, wetlands, other aquifers).
  - Interconnection between surface contamination (e.g., soils, sediments/surface water) and groundwater contamination.
  - Confirmed or suspected presence and location of non-aqueous phase liquids.
  - If groundwater models were used to define the fate and transport of COCs, identify the model used and major model assumptions.
- Note other site-specific factors that may affect response actions at the site.

6.0 Current and Potential Future Land and Water Uses

6.1 Land Uses

- Current on-site land uses.
- Current adjacent/surrounding land uses.
- Reasonably Anticipated Future Land Uses and Basis for Future Use Assumptions (e.g., zoning maps, nearby development, 20-year development plans, dialogue with local land use planning officials and citizens, reuse assessment).

6.2 Groundwater and Surface Water Uses

- Current groundwater and surface water uses.
- Potential beneficial groundwater and surface water uses (e.g. potential drinking water, irrigation) and basis for future use assumptions (e.g., Comprehensive State Groundwater Protection Plan, promulgated state classification guidelines).
- If beneficial use is potential drinking water source, identify the approximate time frame of projected future drinking water use (e.g., groundwater aquifer not currently used as a drinking water source but expected to be utilized in 30 to 50 years).

- Location of anticipated use in relation to location and anticipated migration of contamination.

7.0 Summary of Project Site Risks

7.1 Human Health Risks

- Identify the concentrations of COCs in each medium.
- Summarize the results of the exposure assessment.
- Summarize the results of the toxicity assessment for the COCs.
- Summarize the risk characterization for both current and potential future land use scenarios and identify major assumptions and sources of uncertainty.

7.2 Ecological Risks

- Identify the concentrations of COCs in each medium.
- Summarize the results of the exposure assessment.
- Summarize the results of the ecological effects assessment.
- Summarize the results of the ecological risk characterization and identify major assumptions and sources of uncertainty.

7.3 Basis for Response Action

- Clearly Present the Basis for Taking the Response Action at the Conclusion of this Section.

8.0 Remedial Action Objectives

- Present a clear statement of the specific RAOs for the operable unit or site (e.g., treatment of contaminated soils above health-based action levels, restoration of groundwater plume to drinking water levels, and containment of DNAPL source areas) and reference a list or table of the individual performance standards.
- Discuss the basis and rationale for RAOs (e.g., current and reasonably anticipated future land use and potential beneficial groundwater use).
- Explain how the RAOs address risks identified in the risk assessment (e.g., how will the risks driving the need for action be addressed by the response action?).

9.0 Description of Alternatives

The objective of this section is to provide a brief understanding of the remedial alternatives developed for the site.

9.1 Remedy Components

Provide a bulleted list of the major components of each alternative, including but not limited to:

- Treatment technologies and the materials they will be used to address (e.g., principal threats).
- Containment components of remedy (e.g., engineering controls, cap, hydraulic barriers) and the materials they will be used to address (e.g., low concentration source materials, treatment residuals).
- Institutional controls (and entity responsible for implementing and maintaining them).
- Operations and maintenance (O&M) activities required to maintain the integrity of the remedy (e.g., cap maintenance).
- Monitoring requirements.

9.2 Common Elements and Distinguishing Features of Each Alternative

Describe common elements and distinguishing features unique to each response option. Examples of these elements include:

- Key ARARs (or ARAR waivers) associated with each alternative (e.g., action- and/or location-specific groundwater treatment units, manifesting of hazardous waste, and regulating solid waste landfills).
- Long-term reliability of remedy (potential for remedy failure/replacement costs).
- Quantity of untreated waste and treatment residuals to be disposed off-site or managed on-site in a containment system and degree of residual contamination remaining in such waste.
- Estimated time required for design and construction (i.e., implementation time frame).
- Estimated time to reach cleanup levels (i.e., time of operation, period of performance).

- Estimated capital, annual O&M, and total present worth costs, discount rate, and the number of years over which the remedy cost estimate is projected.

- Describe uses of presumptive remedies and/or innovative technologies.

9.3 Expected Outcomes of Each Alternative

- Available land uses upon achieving performance standards. Note time frame to achieve performance standards (e.g., commercial or light industrial use available in 3 years when cleanup levels are achieved).

- Available groundwater uses upon achieving performance standards. Note time frame to achieve performance standards (e.g., restricted use for industrial purposes in technical impracticability [TI] waiver zone, drinking water use in non-TI zone upon achieving cleanup levels in 50 to 70 years).

- Other impacts or benefits associated with each alternative.

10.0 Comparative Analysis of Alternatives

- Compare the relative performance of each alternative against the others with respect to the nine evaluation criteria (summarize in a table if appropriate).

11.0 Principal Threat Wastes

- Identify the source materials constituting principal threats at the site and discuss how the alternatives will address them.

Note: The *Statutory Determinations* section of the ROD should explain whether or not the Selected Remedy satisfies the statutory preference for remedies employing treatment that reduces toxicity, mobility, or volume as a principal element. By indicating whether the principal threats will be addressed by the alternatives, this section of the *Decision Summary* should provide the basis for that statutory determination.

12.0 Selected Remedy

12.1 Summary of the Rationale for the Selected Remedy

- Provide a concise discussion of the key factors for remedy selection.

12.2 Detailed Description of the Selected Remedy

- Expand on the Description of the Selected Remedy from that which was provided in the Description of Alternatives section and provide a brief overview of the RAOs and performance standards.

12.3 Cost Estimate for the Selected Remedy

- Present a detailed, activity-based breakdown of the estimated costs associated with implementing and maintaining the remedy (include estimated capital, annual O&M, and total present worth costs discount rate and the number of years over which the remedy cost estimate is projected).

12.4 Estimated Outcomes of Selected Remedy

- Available land use(s) upon achieving cleanup levels. Note time frame to achieve available use (e.g., commercial or light industrial use available in 3 years when cleanup levels are achieved).

- Available groundwater use(s) upon achieving cleanup levels. Note time frame to achieve available use (e.g., restricted use for industrial purposes in TI waiver zone, drinking water use in non-TI zone upon achieving cleanup levels in 50 to 70 years).

- Final cleanup levels for each medium (i.e., contaminant-specific cleanup levels), basis for cleanup levels, and risk at cleanup levels (if appropriate).

- Anticipated socioeconomic and community revitalization impacts (e.g., increased property values, reduced water supply costs, jobs created, increased tax revenues due to redevelopment, environmental justice concerns addressed, enhanced human uses of ecological resources).

- Anticipated environmental and ecological benefits (e.g., restoration of sensitive ecosystems, protection of endangered species, protection of wildlife populations, wetlands restoration).

13.0 <u>Statutory Determinations</u>

- Explain how the remedy satisfies the requirements of §121 of CERCLA to:

  - Protect human health and the environment.

  - Comply with ARARs, or justify a waiver.

  - Be cost-effective.

  - Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable (i.e., explain why the Selected Remedy represents the best option).

  - Satisfy the preference for treatment as a principal element, or justify not meeting this preference.

- Explain 5-year review requirements for the Selected Remedy.

14.0 Documentation of Significant Changes from Preferred Alternative of Proposed Plan

If there are significant changes in the Selected Remedy from the Preferred Alternative:

- Discuss the Preferred Alternative originally presented in the Proposed Plan.
- Describe the significant changes in the Selected Remedy.
- Explain the rationale for the changes and how they could have been reasonably anticipated based on information presented in the Proposed Plan or the Administrative Record file.

PART 3: THE RESPONSIVENESS SUMMARY

The Responsiveness Summary serves the dual purposes of: (1) presenting stakeholder concerns about the site and preferences regarding the remedial alternatives; and (2) explaining how those concerns were addressed and the preferences were factored into the remedy selection process. This discussion should cross-reference sections of the Decision Summary that demonstrate how issues raised by the community have been addressed.

1.0 Stakeholder Issues and Lead Agency Responses

Summarize and respond concisely to issues raised by stakeholders.

2.0 Technical and Legal Issues

Expand on technical and legal issues, if necessary.

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Outline for the NTCRA Action Memorandum

1.0 Executive Summary

This section provides a concise summation of the information included in the NTCRA Action Memorandum.

2.0 Introduction

This section identifies the project and provides a short declaration of intent. For example, "A project including the physical removal of explosives to reduce explosive ordnance hazards and to manage residual risk is approved for (project site name and location)."

3.0 Statement of Basis and Purpose

This section provides a brief background of the site, including the basis and purpose for the removal action. Include the statements, "This decision document presents the selected action for (Site Name) in (Location), which was chosen in accordance with (CERCLA, DERP, or BRAC, as appropriate). The Ordnance Removal Program addresses other environmental damage (such as the detection and disposal of unexploded ordnance), which poses a threat to human health, welfare, or the environment. The decision process is in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan. The basis for this decision is documented in the Administrative Record for the site. This record is available at (location). The State/Commonwealth of [Insert name of state/commonwealth] concurs/does not concur with the selected alternative."

4.0 Project Justification

This section briefly justifies the project, including a statement that the results of the investigation at the site reveal the presence of MEC/MC and that the public has access to the site, which would pose a threat to human health, welfare, or the environment. A brief summary of the findings of the investigations will be provided.

5.0 Alternatives Considered

This section summarizes the alternatives that were considered for the site.

6.0 Community Participation

This section includes a statement that all public involvement requirements have been satisfied. A summary of all public coordination efforts (e.g., dates of public meetings, fact sheets, notices) will be attached.

7.0 Coordination Summary

This section summarizes the efforts to coordinate with regulators, trustees, and landowners. Part of the coordination process may include negotiating land use restrictions with landowners. These negotiations must also be summarized in this section. The text will include where valid, "This project has been coordinated with (state agencies, etc.). All phases from Work Plans, through fieldwork to the draft and final EE/CA, were reviewed by (EPA, state agencies, etc.). (All, both) were active participants in the project and support the findings of the EE/CA."

8.0 Selection Criteria

This section provides a summary of the criteria used to evaluate the alternatives. The following statement will be included: "The selection criteria used to evaluate the alternatives include…"

9.0 Description of Selected Remedies

This section presents the removal action(s) selected for the site, by sector, and the rationale. This section will summarize the MEC/MC risk factors, including land use, land development, access, and any other activities that could increase the risk of an MEC/MC accident. The section will address LUC implementation and recurring reviews, including inspection of fences, signs, and compliance with land use restrictions. When an NDAI determination is recommended, the Action Memorandum must be substantiated by the EE/CA Report. NDAI determinations will be made in accordance with ER 200-3-1. When an NDAI is planned based on low risk, technical impracticability, or other factors, an ESS will be required. The ESS must be consistent with the selected alternative documents in the Action Memorandum.

10.0 Cost

The costs of the various options will be provided. The discussion will differentiate between the capital costs and the long-term implementation costs of each option. This information may be provided in table form. Cost for projected recurring reviews will also be incorporated into the EE/CA Report.

11.0 ARARs

A brief explanation of any ARARs that were waived will be provided.

12.0 Tradeoff Analysis

This section describes how the various options and selection criteria were balanced in the selection of the final removal option. The discussion will be capped with the following

statement, as applicable: "The alternative recommended for each sector is the best alternative for that sector, as determined by the EE/CA."

13.0 Outstanding Policy Issues

This section will address any outstanding policy issues regarding the removal action. If there are no outstanding issues, a statement to that effect will be provided.

14.0 Regulator Comments

A summary of any formal comments received from the state or EPA at an NPL site will be provided.

15.0 Contribution to Remedial Performance

A brief discussion will be provided describing the extent to which the final removal action accomplishes all the CERCLA response actions that may be necessary at the site.

16.0 Potentially Responsible Party Site Considerations

This section will discuss the status of, and any issues related to, PRPs that may have caused or contributed to the presence of MEC/MC at the site.

17.0 Documentation of Significant Changes

This section will describe any significant changes in the final removal action from the proposed removal action. It will also include the following statement: "If the actions outlined in this Action Memorandum are delayed or not taken, the potential exists for continued and substantial endangerment to human health, welfare, or the environment."

Outline for the EE/CA Approval Memorandum

1.0 <u>Subject</u>

2.0 <u>Background</u>

3.0 <u>Description of the Threat to Public Health, Safety, or the Environment Posed by the Release or Threat of Release at the Project Location and the Expected Consequences of not Implementing a Removal Action</u>. Include justification for removal response based on the NCP removal factors and site-specific conditions.

4.0 <u>Imminent and Substantial Endangerment, if present</u>

5.0 <u>Enforcement Actions (if any)</u>

6.0 <u>Proposed Project and Estimated Cost</u>

7.0 <u>Approval</u> [1]

Note:

1. The District Commander signs the EE/CA Approval Memorandum.

Outline for a TCRA Action Memorandum

1.0 Location and Description of the Site, Including FUDS Project Number, if Applicable

2.0 Description of the Hazards Existing at the Project Location

3.0 Description of the Current Land Use Activities and Risk of Exposure

4.0 Previous Actions that have taken Place to Address the Hazard

5.0 For MMRP Projects:

An endangerment determination with the following statement: "There is a significant possibility that military munitions exist at this FUDS property that pose a safety hazard to individuals if not addressed through the response action described in this Action Memorandum."`

Rationale for surface removal or removal depth selection.

6.0 An Explanation of the Proposed Action and how the Action Addresses the Actual Threat

APPENDIX I
Material Reporting Requirements

1. This appendix defines the categories of material to be reported in project documents and reports.

2. Definitions are provided in the glossary. While munitions and explosives of concern, or MEC, is a valid term, it is not used to categorize individual items or material. All material from a project site will be classified as one of the following for reporting purposes:

- Unexploded Ordnance (UXO),
- Discarded Military Munition (DMM),
- MC (explosive hazard),
- MC (non-explosive hazard),
- Munitions Debris,
- Range-Related Debris, or
- Cultural Debris.

3. All reports will include a list identifying all reportable material discovered. The list, arranged by search area, will identify:

- UXO and DMM by its proper and complete nomenclature when possible (e.g., Projectile, 155MM HE, M101).

- MC (explosive hazard) as percent by weight, areal extent of affected media and total volume of affected media.

- MC (non-explosive hazard) as percent by weight, areal extent of affected media and total volume of affected media.

- Munitions debris in pounds. Reports should indicate the type of munition indicated by fragmentation found if it is of a type other than expected. For instance, we expected to find only 105MM UXO and associated fragmentation; however, fragments from 57MM rounds were found.

- Range-related debris in pounds.

- Cultural debris in pounds.

APPENDIX J
Sample Project Completion Memorandum

Office Symbol (200-1c) *Date*

MEMORANDUM THRU

Commander, U.S. Army Engineering and Support Center, Huntsville, ATTN: CEHNC-OE-CX, 4820 University Square, Huntsville, Alabama 35816

FOR:
Commander, U.S. Army Engineer District, _____,
ATTN: Office Symbol (Project Manager)
Address

SUBJECT: Project Completion of Military Munitions Response Action at the Former _____, *City, State*, FUDS Project Number _____

1. References:
   a. *Decision Document…*
   b. Explosives Safety Submission…
   c. Site-Specific Final Removal Report…
   d. Quality Assurance Report…
   e. Other relevant documents and reports (to be specified)

2. The purpose of this memorandum is to inform the geographic District Project Manager of the completion the Military Munitions Response Program project number _____ and request he/she initiate the project closeout report in accordance with ER 200-3-1. The MM CX has reviewed the referenced documents and concurs that response actions are completed for the subject project.

3. The undersigned states that to the best of his/her knowledge, all military munitions response actions associated with the subject military munitions response project at the Former _____ have been completed in accordance with the referenced documents.

4. The point of contact for this action is *(name), (telephone), email*.

Appropriate Signature Block
MMR Executing District

APPENDIX K
Property Closeout Report

The following report format should be used in developing a Military Munitions Property Closeout Report once all projects associated with the property have been completed and a determination has been made to close out the property in a Decision Document.

The following references may be useful in completing the report:

- ER 200-3-1, Formerly Used Defense Sites (FUDS) Program Policy, 10 May 2004.
- ER 405-1-12, Real Estate Handbook.
- EP 75-1-4, Recurring Reviews on Ordnance and Explosive Response Actions.
- EP 1110-1-24, Establishing and Maintaining Institutional Controls for Ordnance and Explosive (OE) Projects.
- EPA Directive 9200.1-23P, Guide to Preparing Superfund Proposed Plans, Records of Decisions, and Other Remedy Selection Decision Documents.

Helpful Websites:

- HQ, U.S. Army Corps of Engineers: http://www.usace.army.mil/inet/usace-docs
- MM CX: http://www.hnd.usace.army.mil/oew/techguid.asp
- Environmental Protection Agency: http://www.epa.gov/superfund/index.htm
- For additional information : Email the MM CX through our web site response specialist at: OERResponseSpecialist@HND01.usace.army.mil. Telephone the MM CX at (256) 895-1540.

Standard Format for Property Closeout Report

1.0 EXECUTIVE SUMMARY

2.0 INTRODUCTION

- 2.1 Purpose
- 2.2 Property Description
- 2.3 Historical Information
- 2.4 Previous Investigations

3.0 MMRP PROJECTS CONDUCTED ON PROPERTY

- 3.1 Project Description(s)
- 3.2 Response Actions Conducted at Each Project
- 3.3 Reference Data at Each Project
- 3.4 Studies
- 3.5 Other Basis for Closeout Decision

4.0 RATIONALE FOR CLOSEOUT DECISION

5.0 REGULATORY CONCURRENCE AND APPROVAL

6.0 NATIONAL PRIORITY LIST STATUS

7.0 FINAL STATUS OF PROPERTY

- 7.1 Monitoring Wells
- 7.2 Investigative Derived Wastes (IDW)
- 7.3 Release of Liability

8.0 FUTURE RESPONSIBILITY

- 8.1 Property Records
- 8.2 Site Files

9.0 REFERENCES