

CHAPTER 6

RCWM Detection, Remediation/Removal, and Completion

6-1. Introduction. This chapter provides information on the RCWM response process and project completion procedures.

6-2. Response Design.

a. The CW-DC is responsible for the removal design in coordination with the PM.

b. USACE performs necessary tasks associated with a response design process during the development of the site-specific SOW, Work Plans, and CSS for the response action. The level of detail for the response design phase is dependent on the complexity of the work to be performed and the type of contract to be utilized.

c. The purpose of the response design process is to describe the technical details of how the removal action will be performed. The response design process includes the following components, which are illustrated in Figure 6-1 and discussed below:

(1) Preparation of the removal action SOW and IGE. The USAESCH CW-DC is responsible for executing and approving the munitions response SOW and IGE. SOW and IGE quality excellence will be accomplished through the conscientious, cooperative efforts of each design team member. The District reviews the SOW and IGE and provides comments. Additional information on the SOW and IGE are provided in EP 1110-1-18.

(2) A site visit may be required to gather additional information on the nature and extent of the hazard at the site. The site visit is conducted to provide the contractor with the opportunity to gather pertinent information for use in preparing the cost estimate and planning documents. Detailed information on the site visit is provided in EP 1110-1-18.

(3) The preparation of planning documentation (e.g., CSS) and completion of all coordination tasks prior to the Notice-to-Proceed will be necessary for the response action. A CSS is required when anomaly avoidance is not used for response activities or the suspect item cannot be detected. The CSS will be prepared and approved IAW the requirements found in Chapter 7 of this pamphlet.

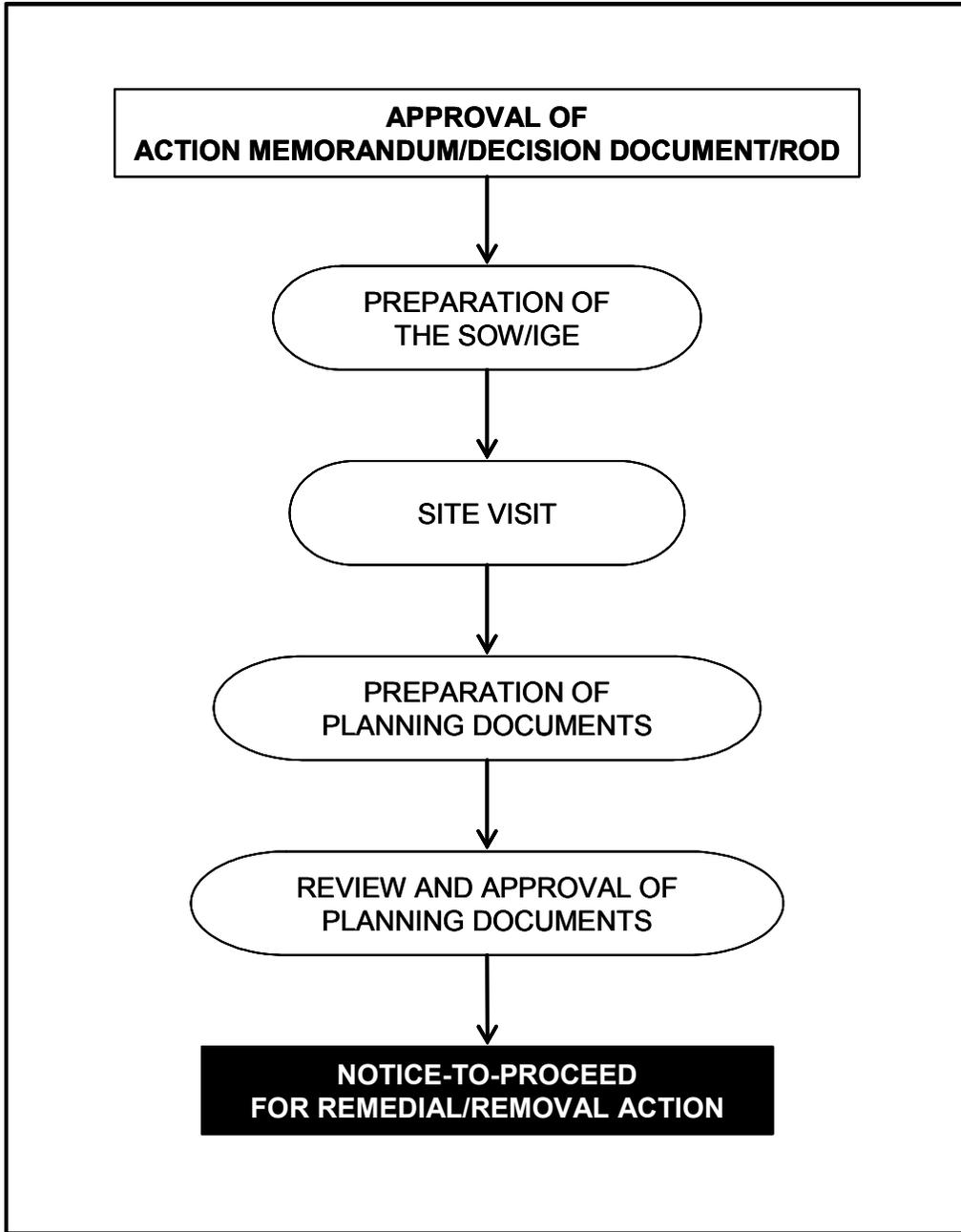


Figure 6-1. Response Design Process

6-3. RCWM Detection and Removal.

a. Introduction. The RCWM response phase begins following the receipt of the Notice-to-Proceed. The response action is intended to permanently and comprehensively address both short- and long-term health and safety hazards at RCWM impacted sites. The response action may be implemented using active duty military personnel, DOD civilian personnel, private contractors, or a combination of the three. The implementing agency will be responsible for full coordination for all activities, including procurement, funding, scheduling, and authorizations. The response action phase is composed of the following tasks, which are illustrated in Figure 6-2 and discussed in paragraphs 6-3b through 6-3i.

b. Location Surveying and Mapping. Location surveying and mapping will be performed by the contractor to establish boundaries of the areas under investigation. The procedures for the execution of location surveying and mapping are discussed in EM 1110-1-4009.

c. Area Preparation.

(1) Prior to the initiation of a RCWM response action, brush clearance may be required. The purpose of brush clearance is to reduce or remove the vegetative growth from the work areas in order to effectively locate, investigate, and remove surface and subsurface RCWM.

(2) The areas cleared and techniques used must be coordinated with the District environmental staff and documented in the Work Plan. A UXO Technician II must always escort the brush clearing crew in areas not previously cleared of MEC or RCWM. The safety requirements in EM 385-1-1 must be followed. PPE will be provided to the brush clearance crew and used as required for protection. All brush clearance personnel must be trained in the safe operation of the equipment and must have obtained site-specific safety training IAW Chapter 8 of this document.

(3) The duration of the response action will determine if the establishment of a staging area is required prior to intrusive work. The staging area may be used to store IDW and house office facilities and mobile laboratories. The IHF will also be located in the staging area. Location considerations should include:

(a) Electrical requirements.

(b) Telephone requirements.

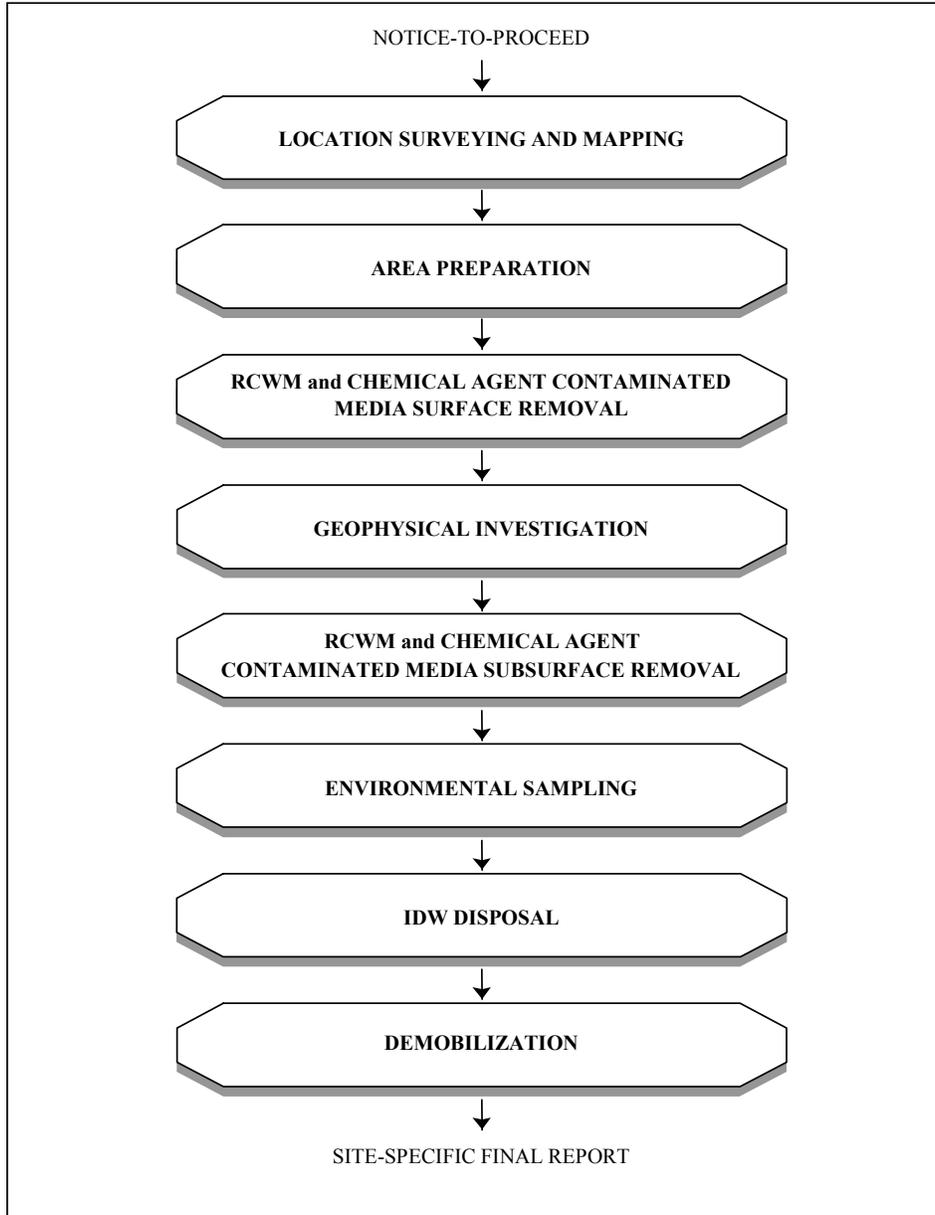


Figure 6-2. Removal Action Process.

(c) Water and sanitation support.

d. Surface Debris Removal. Surface debris removals are conducted to remove all MEC, RCWM, munitions debris, and other metallic debris from the surface of the work area. UXO-qualified personnel will flag, identify, and record the approximate location of all MEC or munitions with unknown fillers. TEU is responsible for assessing munitions with unknown fillers and then packaging and transporting those items to the IHF IAW the approved CSS. UXO-qualified personnel may assess, handle, and dispose of MEC items IAW the approved CSS. The contractor may handle and dispose of other items of surface debris, and will also assist the TEU as needed. In addition, the contractor will perform environmental sampling IAW Chapter 9 of this document to verify that no residual chemical agent remains after the surface removal of munitions with unknown fillers. The contractor will remove all chemical agent contaminated scrap and non-RCWM related materials that may interfere with the geophysical investigation. These items will be headspaced and decontaminated as necessary before being stored for later disposition.

e. Geophysical Investigation. The purpose of the geophysical investigation is to acquire geophysical data and identify all anomalies that resemble RCWM or locations where CWM was disposed. A GPO may be used by the PDT to select the most appropriate survey instrument and optimum navigational equipment. Geophysical investigations may be completed using detection equipment with real time or post-processing discrimination techniques. The latter requires the collection and recording of geophysical data that is subsequently processed by commercial software to identify electromagnetic signals representative of anomalies. All anomalies selected for excavation will be mapped, documented on dig-sheets, physically re-established by survey methods, geophysically reacquired, and marked for investigation. Information on the elements, which must be considered when planning and executing a geophysical investigation, is provided in EM 1110-1-4009.

f. RCWM and Chemical Agent Contaminated Media Subsurface Removal.

(1) Intrusive activities are conducted to investigate and identify the source of each subsurface anomaly. Anomalies determined to be less than 12 inches below the surface will be dug by hand. Anomalies deeper than 12 inches may be excavated to within 12 inches using mechanical or manual methods. Only approved UXO personnel will perform excavations involving RCWM. All excavations will be performed IAW the provisions of 29 CFR 1926, subpart P.

(2) After the probable source of the subsurface anomaly is removed, the excavation will be rechecked with a magnetometer or other geophysical instrument prior to backfilling. If the location does not produce another anomaly upon the recheck, then the excavated area will be backfilled and restored IAW contract requirements. If a munition with unknown filler is uncovered, the TEU will assess the item, then package and transport the item IAW the approved CSS. The contractor will assist the TEU as needed. In addition, after a munition with unknown filler has been removed from a location, the contractor will perform environmental sampling IAW Chapter 9 of this document to verify that no residual chemical agent remains at that location. Also, when possible, the contractor will remove all chemical agent-contaminated media from that location, then headspace and decontaminate as necessary before storing those media for later disposition.

(3) EZ.

(a) The EZ distance is the greater of the NOSE distance or the conventional fragmentation distance, taking into consideration reduction of either of these distances due to the use of engineering controls. Evacuations are sometimes necessary when conducting intrusive investigations in order to minimize the risk of the operation. The NOSE distance is based on the MCE and is calculated to ensure that the public and workers without adequate PPE are protected during the conduct of the excavation. Implementing engineering or operational controls can reduce the NOSE distance. The use of engineering controls is discussed in Chapter 5 of this document.

(b) Conventional fragmentation distance. The PDT shall use the following guidelines when determining which fragment range to use. If the identification of the MEC expected at the site is unknown, the default distances listed in DOD 6055.9-STD will be used. If it is not practical to use these default distances and the identification of the MEC expected at the site is known, then the maximum fragment throw range will be calculated IAW DDESB Technical Paper 16, Methodologies for Calculating Primary Fragment Characteristics (1 Dec 02). The item with the maximum fragment distance will become the MGFD for the site. For unintentional detonations, the PDT may request approval from the MM CX to use the range to no more than one hazardous fragment per 600 square feet (1/600 distance). The maximum fragment distances and the 1/600 distance will be calculated by the MM CX and provided to the PM.

(4) Other considerations. There are several other considerations, which must be accounted for during the intrusive investigation, including: air monitoring, personnel

decontamination station site, EZ management, and quality assurance. These topics are discussed in detail in later chapters of this document.

g. Unknown Fillers. Complete identification of recovered munitions is required before destruction or disposal. If positive identification of the filler cannot be determined, the following procedures will be followed on RCWM sites:

(1) TEU will normally be present at RCWM projects and will perform the assessment of the filler as part of their normal procedures.

(a) If the assessment has ruled out RCWM as the filler, the item will be disposed as specified in the approved Work Plan.

(b) If the assessment indicates RCWM as the filler, the item will be packaged and secured per the approved CSS.

h. IDW Disposal. IDW will be characterized and disposed of IAW the procedures described in Chapter 10.

i. Demobilization.

(1) Demobilization may occur for a variety of reasons, including:

(a) The response action may be completed with all work accomplished.

(b) The response action may be incomplete, but the contractor has expended most of the contract funds.

(c) Adverse weather conditions.

(d) Determination that continuing in the present course of action is not in the best interest of the government.

(2) The demobilization plan will be documented in the Mobilization/Demobilization Plan as part of the supporting plans included in the approved Work Plan. The demobilization plan will be developed by the contractor in close coordination with the PMNSCM, TEU, PM, CW-DC, OE Safety Specialists, and the customer. Authorization to demobilize from a site must be issued in writing to the contractor from the CO. The following areas will be addressed in the demobilization plan:

- (a) Arrangements for periodic maintenance and monitoring for the IHF.
- (b) Arrangements for closing out the IHF and shipping back to PMNSCM, if not in use at the end of the response action.
- (c) Disposal of RCWM scrap (if necessary).
- (d) Disposal of conventional scrap (if necessary).
- (e) Storage and transport of 3X contaminated equipment (if necessary).
- (f) Disposal or transfer of remaining explosives (if necessary).
- (g) Disposal of media (e.g., soil, water, etc.).
- (h) Disposition of commercial explosive storage containers (if necessary).
- (i) Close down of Command Post facilities.
- (j) Disposition of GFP (if necessary).
- (k) Disposition of portable sanitary facilities (if necessary).
- (l) Shutting down of public utilities at the project (i.e., water, electrical).
- (m) Restoration of site to previous condition.

j. Site Specific Final Report. At the completion or termination of a RCWM response action, the contractor will prepare and submit a Site Specific Final Report. The Site Specific Final Report documents all activities and operations that occurred and lists the RCWM found during the response action. This report is used as the basis for USACE's recommendations for future land use and for any proposed restrictions on the cleared area. EP 1110-1-18 discusses the required content and submittal procedures for the Site Specific Final Report.

6-4. Project Completion. The project completion requirements for a RCWM response action are discussed in ER 200-3-1 and additional information is found in EP 1110-1-18. Since the CW-DC executes the RCWM response action, the requirements for completion of a munitions response executed at a FUDS by the CW-DC, as described in ER 200-3-1 and EP 1110-1-18, are applicable to RCWM projects.

6-5. Operations and Maintenance (O&M). The purpose of O&M activities is to ensure that appropriate site safety and security measures remain in place and to maintain the integrity of any site controls, such as fences and signs. The determination of appropriate safety and security measures site controls must be made on a case-by-case basis. The District is responsible for ensuring that appropriate O&M activities are in place. Additional information on O&M related issues, such as recurring reviews, recordkeeping and access restrictions are discussed in EP 1110-1-18 and EP 1110-1-24.