



**US Army Corps
of Engineers®**

**SAFETY AND HEALTH REQUIREMENTS FOR MUNITIONS AND
EXPLOSIVES OF CONCERN (MEC) OPERATIONS**

DRAFT

ENGINEER REGULATION

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1 Apr 2006

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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D.C. 20314

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CESO

Regulation
No. 385-1-95

1 April 2006

Safety
**SAFETY AND HEALTH REQUIREMENTS FOR MUNITIONS AND EXPLOSIVES OF
CONCERN (MEC) OPERATIONS**

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Safety
SAFETY AND HEALTH REQUIREMENTS FOR MUNITIONS AND EXPLOSIVES OF CONCERN (MEC) OPERATIONS

1. Purpose. This regulation identifies safety and health requirements and responsibilities for MEC operations, military munitions response actions and any other ammunition and explosives activity. The safety and health requirements concerning Hazardous, Toxic, and Radioactive Waste (HTRW) activities are addressed in ER 385-1-92.

2. Applicability.

a. This regulation applies to Headquarters, United States Army Corps of Engineers (HQUSACE) elements, regional business centers (RBC), centers of expertise (CX), and laboratories performing or contracting for MEC operations.

b. This regulation applies to all programs and projects for which the United States Army Corps of Engineers (USACE) is involved and which may result in encountering MEC during actions at or below the ground surface, such as formerly used defense sites (FUDS), Base Realignment and Closure (BRAC) activities, installation restoration programs (IRP), construction projects, and support for others (SFO) projects.

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

4. References. Required and related publications are listed in Appendix A

5. Explanation of Abbreviations and Terms. Acronyms and definitions used in this regulation are explained in Appendix B.

6. Policy.

a. MEC safety is critical to the operation of project sites where MEC is known or suspected to be present.

b. All USACE MEC operations shall be planned and conducted in accordance with the requirements of this document, and coordinated with USACE Military Munitions (MM) Center

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of Expertise (CX) (per ER 200-3-1 and ER 1110-1-8153) located at U.S. Army Engineering and Support Center, Huntsville (USAESCH).

c. Response projects with potential for encountering HTRW, MEC, and Munitions Constituents (MC) require coordination with both the USACE MM CX and the Hazardous Toxic and Radioactive Waste Center of Expertise (HTRW CX). Normal hierarchy of cleanup is the removal of conventional MEC, then removal of chemical warfare materiel, then explosives MC, and then removal of HTRW.

d. Until USACE guidance is published, or if questions arise, specific guidance for biological warfare materiel (BWM) shall be obtained from the MM CX.

e. Only qualified personnel will be utilized in MEC operations. Unexploded Ordnance (UXO) personnel qualification requirements are found in Department of Defense Explosive Safety Board (DDESB) Technical Paper 18 and defined in Appendix B of this document.

f. Essential personnel for the project are determined using the procedures identified in EP 1110-1-18.

g. Recovered Chemical Warfare Materiel (RCWM) is a subset of MEC. All USACE RCWM projects will be executed by the RCWM Design Center, located at the Huntsville Engineering and Support Center.

7. Responsibilities.

a. HQUSACE.

(1) The Director, Environmental Division, HQUSACE (CEMP-R) shall be responsible for overall Defense Environmental Restoration Program (DERP) management, policy, and technical direction.

(2) The Chief, Safety and Occupational Health Office, Headquarters USACE (CESO) shall:

(a) Designate a Safety Program Manager to manage and support the USACE MEC safety program.

(b) Develop and approve USACE MEC safety and health policy and procedures.

(c) Provide guidance on MEC safety and health issues within the framework of the overall USACE safety and health policy.

(d) Coordinate with higher headquarters and elements within the Headquarters, USACE, on MEC safety and health issues.

(e) Take the lead on MEC safety issues requiring conflict resolution within USACE, and higher Headquarters and other customers. Conduct periodic safety reviews to ensure program compliance with established requirements.

(f) Act as the MACOM safety office responsible for conducting pre-operational surveys for RCWM projects. The lead for pre-operational surveys has been delegated to the MM CX.

(3) Chief, Engineering and Construction Division, HQUSACE will serve as the USACE MEC engineer and construction manager, with responsibility for ensuring that MEC safety and health criteria and procedures are incorporated into the design and carried-out during construction on projects where MEC is known or suspected to be present.

b. Regional Business Centers (RBC). RBCs will provide safety and health oversight, through the Safety and Occupational Health Office (SOHO), to ensure activities and responsibilities are in compliance with USACE and Army policy and procedures. Additionally, they will collaborate and share health and safety Staff resources located at the districts and/or request assistance from the CEHNC-OE-S to assure Project Delivery Teams (PDT) for the Military Munitions program are appropriately staffed. RBCs will conduct annual MM safety self-management evaluations of the district's MM program.

c. MM Remedial/Removal Action Districts. These districts are: Louisville, Baltimore, Omaha, Mobile, Savannah, Los Angeles, Fort Worth, Honolulu, and Huntsville (see Table 2-2, ER 200-3-1). Their responsibilities are:

(1) Coordinate with the MM CX for review and/or monitoring of project documents, as required and on all HTRW and construction activities in areas where MEC is known or suspected to be present (e.g., dredging operations, range construction activities).

(2) Provide properly trained personnel to conduct explosives safety and health functions and advise district personnel involved in MMRP projects.

(3) Ensure activities are conducted in compliance with USACE, Army, and Department of Defense (DoD) explosives safety and health policies and procedures.

(4) Ensure safety and occupational health and explosives safety criteria are incorporated into the basic contract solicitation.

(5) Ensure review of task orders, scopes of work, work plans (WPs), explosives site plans (ESP), Preliminary Assessments (PAs) for properties with potential munitions response projects, Engineering Evaluation/Cost Analysis (EE/CA), and Remedial Investigation/Feasibility Studies (RI/FS), and Explosives Safety Submissions (ESS)/Chemical Safety Submissions (CSS), Explosive Site Plans (ESP)/Chemical Site Plan (CSP) to identify and address safety and health

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concerns. Other historical data, such as Topographical Engineering Center (TEC) historical analysis may be used, if available.

(6) Ensure that submittals, including the WP, Accident Prevention Plan (APP)/Site Safety and Health Plan (SSHP)], ESP, and ESS/CSS are reviewed, accepted and approved, as applicable by designated authorities before work begins (reference ER 1110-1-8153, ER 200-3-1, EP 385-1-95b , EP 75-1-3, appropriate Army regulations, and appropriate DoD publications.

(7) Ensure, during field operations, contractor compliance with safety and health aspects of the approved WP, ESP, and approved ESS/CSS via on-site inspections. The project Quality Assurance Surveillance Plan will specify the frequency and technical disciplines required for these inspections. Authorized visitors will be escorted by a UXO qualified individual during all visits to the exclusion zone.

(8) Ensure that all safety and health related documentation is maintained in the appropriate file, i.e., administrative record file or permanent project file in accordance with EP 1110-3-8. NOTE: Only documents that support the remedy selection are filed in the Administrative Record.

(9) Understand the potential explosives safety impacts of selected geophysical techniques used at projects. If uncertain, consult with the MM CX.

(10) Coordinate with the MM CX on chemical agent contaminated materiel (CACM) projects and ensure the MM CX performs, reviews and provides concurrence on safety and health documents, and WPs.

(11) Coordinate with the MM-CX on all potential chemical warfare materiel project locations that require a Probability Assessment in accordance with CESO-E memorandum, Applicability of Biological Warfare Materiel and Non-Stockpile Chemical Warfare Response Activity Interim Guidance, dated 13 April 1998.

(12) Ensure that HTRW aspects of projects containing MEC, MC, and HTRW are performed in accordance with ER 385-1-92, EP 1110-1-18, EP 75-1-2, and this regulation.

(13) Ensure discoveries of RCWM on USACE projects are reported to the RCWM Design Center in accordance with CEMP-CE memorandum, Interim Guidance – Notification Procedures for Discovery of Recovered Chemical Warfare Materiel (RCWM) During USACE Projects, 23 April 2004.

d. MM Design Centers. These Design Centers are: Baltimore, Omaha, SPD Range Support Center, and Huntsville (see Table 2-2, ER 200-3-1). These centers will, in addition to the above requirements:

(1) Design and execute all MEC/MC projects in support of USACE and other agencies, in accordance with (IAW) ER 200-3-1, ER 1110-1-8153, and EP 75-1-2.

(2) Ensure full and proper integration of safety and health requirements into all activities and operations.

(3) Ensure timely submittal of ESPs and ESSs, through the MM CX, for Major Command (MACOM) approval, before sending them up the chain of command for review and approval, as appropriate.

(4) Ensure through periodic inspections, that contractor operations comply with explosives safety requirements.

(5) Determine that the geophysical investigation techniques selected for the project are safe.

e. RCWM Design Center. Located at USAESCH, this is the only USACE command authorized to design and execute RCWM projects. It will do the following:

(1) Design and execute all RCWM projects in support of USACE and other agencies, IAW ER 200-3-1, ER 1110-1-8153, and EP 75-1-3.

(2) Ensure timely submittals of the CSS through the MM CX, to the established review and approval chain IAW ER 1110-1-8153, ER 200-3-1, and EP 75-1-3.

(3) Ensure timely submittal of WPs to the MM CX for approval, IAW ER 1110-1-8153 and ER 200-3-1.

(4) Ensure full and proper integration of safety and health requirements throughout all RCWM activities and operations.

(5) Ensure, throughout any RCWM operation, contractor compliance with their quality control (QC) program and government quality assurance (QA) standards.

(6) Ensures discoveries of RCWM on USACE projects are reported in accordance with CEMP-CE memorandum, Interim Guidance – Notification Procedures for Discovery of Recovered Chemical Warfare Materiel (RCWM) During USACE Projects, 23 April 2004. Additional reporting requirements are identified in the Chemical and Biological Emergency Reporting System (CBERS) program. The RCWM Design Center will report those events for USACE.

f. The USACE Engineer Research and Development Center (ERDC) will comply with RBC's responsibilities and will meet training requirement in paragraph 11, develop Standard Operating Procedures (SOPs), WPs, ESP, APP/SSHP, and ESS for the required MEC research and

development work, as applicable, and submit the documents requiring approval from U.S. Army Technical Center for Explosives Safety (USATCES) through CEHNC-ED-CS-S located at Huntsville Engineering and Support Center for MACOM review and approval.

g. MM CX. This group will do the following:

(1) Adopt and maintain state-of-the-art MEC expertise and technology for MEC activities. Engineering controls (EC) that are proposed for use on MEC projects must have DDESB approval before use. It is preferable to submit the technical data package for those types of EC through the MM CX to USATCES for approval before the safety submission is submitted to ensure a programmatic approval rather than a site approval for the EC package.

(2) Provide mandatory review and comment as well as written concurrence or non-concurrence of MEC safety and health documents and work plans required by ER 1110-1-8153 and ER 200-3-1.

(3) Review, approve and transmit ESP and Chemical Site Plan (CSP), and ESS/CSS to USATCES for approval, as appropriate, or return to the district for projects where the ESS/CSS is returned to the customer for submission through their chain of command (e.g., Base Realignment and Closure (BRAC) and active installations). The MM CX has been delegated authority to provide the MACOM approval for all ESP, CSP, ESS, and CSS for HQUSACE.

(4) Provide technical safety and health support (e.g., guidance documents, incident investigation, committee participation) as requested by CESO.

(5) Develop explosives safety awareness training as needed to support USACE mission needs, and provide instructors as required.

(6) Provide specific guidance for operations where conventional MEC, MC, RCWM, Chemical Agent Contaminated Media (CACM), or BWM are encountered.

(7) Support on-site personnel in the proper Department of Transportation (DOT) classification of explosives and chemical materiel.

(8) Provide "Safety Alerts and Advisories," notifying Ordnance and Explosives (OE) safety specialists and UXO contractors of problems or potential problems concerning safety and health. These "Safety Alerts and Advisories" require immediate attention and will be distributed to all involved in operations. The alerts and advisories will be provided to the MM CX by the appropriate safety office for distribution within USACE.

(9) Prepare and conduct the MACOM Pre-Operational Survey required by Department of the Army Pamphlet (DA PAM) 385-61 for all USACE RCWM projects. This authority has been delegated to the MM CX by HQUSACE, CESO.

h. HTRW CX. This group will provide technical review and assistance on HTRW aspects in accordance with ER 385-1-92.

i. OE Safety Specialists (OESS). These personnel shall do the following.

(1) Provide government safety oversight (GSO) for the safety and health activities within the project location and ensure compliance with the approved WP, APP/SSHP, ESP/CSP, ESS/CSS (as applicable) and other applicable DoD or Army policies and regulations.

(2) Perform quality assurance inspections as identified in the Quality Assurance Surveillance Plan (QASP).

(3) Ensure only qualified personnel (see DDESB TP 18) perform UXO operations/activities/procedures. Appendix B in this document has a definition of UXO operations/activities/procedures.

(4) Advise the USACE Resident/Area Engineer or Site Project Manager and/or the Site Safety and Health Officer (SSHO) on explosive safety issues.

(5) Facilitate military Explosives Ordnance Disposal (EOD) and Technical Escort Unit (TEU) response when needed.

(6) Conduct government QA inspections of completed MEC specific tasks. A safety and health specialist may conduct QA inspections, reference Paragraph 7.b, this document.

(7) Identify MEC for DOT classification purposes.

(8) Act as a liaison with the MM CX.

(9) Meet the training and experience requirements established by EP 1110-1-18.

(10) Generally, will provide the reporting information for discoveries of RCWM on USACE projects to the RCWM Design Center.

(11) Report MEC mishaps as specified in paragraph 13 of this document.

8. General.

a. During surface or intrusive activities, access to the exclusion zone will be restricted to essential personnel and authorized visitors escorted by UXO personnel. Positive controls [e.g., signs (multilingual, as appropriate), fencing, guards], appropriate to the project, shall be used to prohibit entry of unauthorized personnel.

b. Anytime MEC will be handled, stored or disposed of at a USACE project, a work plan must be prepared and approved in accordance with ER 1110-1-8153 and ER 200-3-1. An AAP/SSHPP and an ESP/CSP are integral parts of the WP.

c. All personnel working at, or visiting, a munitions response project site shall comply with all applicable health and safety requirements.

d. Engineering controls, as defined in Appendix B, may be used to reduce minimum separation distance (MSD) for MEC activities and operations.

(1) Department of Defense Explosives Safety Board (DDESB), approved engineering controls may be used as needed at any USACE project. The MM CX will review any application of an approved engineering control to assure proper utilization at the specific project. This project-specific application will be described in the WP and ESS/CSS.

(2) In some cases, the MM CX, or Design Center will not have submitted an ESS or gained DDESB approval of an ESS for an engineering control. In these cases, the design, testing, and capabilities of the control will be submitted with the ESS/CSS, but will only be approved for that specific project and application described in the ESS/CSS.

(3) "DDESB Approved" as used herein means a separate (not project-specific) technical data report, describing the design, testing, and capabilities of an engineering control, was developed, sent through explosives safety channels for review and concurrence, and ultimately approved by DDESB for general application.

e. Requirements for determining when safety oversight by government personnel (OE Safety Specialists), is required, are identified in Appendix C of this document.

9. Operations/Activities.

a. Operations and activities include all work performed at MEC projects, i.e., response actions, construction activities, or others.

b. Operations will be planned and conducted in accordance with EP 1110-1-18, EP 385-1-95a/b, EP 75-1-2 and EP 75-1-3, and other applicable guidance.

c. Intrusive investigation is not authorized during anomaly avoidance operations. Anomaly avoidance procedures will be documented in the appropriate WP.

d. Improved Conventional Munitions (ICMs) must be identified as early in the project, as possible, due to the length of time required for obtaining approval of the waiver.

(1) For FUDS projects, the ICM waiver will be provided to the MM CX for forwarding to the approval authority (USATCES for Army). The MM CX will provide an information copy to HQUSACE (CESO); the required content of an ICM waiver is contained in DA PAM 385-63.

(2) An ICM waiver for projects under control of the Army Environmental Center (AEC) and Army BRAC, and other DoD MACOMs and agencies will be coordinated by that agency. USACE may assist that agency in the preparation of the waiver, however the waiver must be processed thru the MACOM approval channels for the specific MACOM.

e. For operations/activities involving chemical agents that can also be classified as industrial chemicals, project managers (PMs) will follow the more stringent of applicable Army or industry safety and health standards. If the industrial chemicals are weaponized (see Appendix B), the procedures applicable to RCWM must be observed.

f. Visitors requesting access to the contamination reduction zone (CRZ) or the exclusion zone (EZ) will be processed in accordance with the procedures in EP 385-1-95a and EP 1110-1-18.

g. All USACE RCWM project teams will be required to successfully complete a MACOM Pre-Operational Survey in accordance with DA PAM 385-61. HQUSACE has delegated this responsibility to the MM CX.

10. Explosives and Chemical Agent Contaminated Media.

a. General.

(1) Overall, the requirements of ER 1110-1-8153, apply. Additional specific guidance is provided below.

(2) All operations involving contaminated media will require an approved/accepted WP. An ESP/ESS may be required if the explosives contaminated media is of a high enough concentration to be explosive. No work involving handling or disposing of contaminated media will begin until the WP and ESP/ESS (if required) receive appropriate approval/acceptance.

(3) Before performing initial sampling of any location suspected of having contaminated media, a WP and sampling plan will be prepared and approved/accepted.

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(4) Support will be provided by UXO personnel, who meet the qualifications specified in DDESB TP 18, during sampling at any location where the potential for MEC exists. Refer to EP 75-1-2 for requirements for UXO support during HTRW and construction activities.

b. Primary Explosives. For media known or suspect to be contaminated with any primary explosives, the following will apply.

(1) Any media containing a concentration of primary explosives of 2% or greater by weight is considered explosive. For media containing less than 2% concentration of primary explosives, it will be considered non-explosive MC and the requirements of this ER do not apply. See ER 385-1-92 for HTRW safety concerns.

(2) Close coordination between the appropriate design centers and remedial/removal action districts is recommended during WP and ESS preparation to ensure effective coverage of safety and health issues and efficient processing.

c. Secondary Explosives, Nitroglycerine, Nitrocellulose, or Nitro-guanidine. For media known or suspected to be contaminated with these materials, the following will apply.

(1) Any media containing a concentration of secondary explosives, nitroglycerine, nitrocellulose, or nitro-guanidine of 10% or greater by weight is considered explosive. For media containing less than a 10% concentration of secondary explosives, nitroglycerine, nitrocellulose, and nitro-guanidine, it will be considered non-explosive MC and the provisions of this ER do not apply. See ER 385-1-92 for HTRW safety concerns. Care must be taken when applying this threshold rule to nitroglycerine in less permeable soils, such as clay, that may cause nitroglycerine to pond, rather than be absorbed.

(2) Close coordination between the appropriate design centers and remedial/removal action districts is recommended during WP and ESS preparation to ensure effective coverage of safety and health issues and efficient processing.

d. Other Energetic Materials (e.g. propellants). The potential explosive hazard of such mixtures in soil may be unknown and may require testing. If the hazard is unknown, manage soil mixtures containing only propellants as secondary explosives, and all other soil mixtures containing energetics as primary explosives.

e. Chemical Agent Contaminated Media (CACM). This is addressed in EP 75-1-3.

f. Explosives Contaminated Buildings and Structures. This will be addressed in future USACE guidance documents.

11. Training (Hazardous Waste Operations and Emergency Response (HAZWOPER)).

a. General.

(1) The minimum requirements for training applicable to RCWM operations are stated below and shall comply with 29 CFR 1910.120, 29 CFR 1910.134, 29 CFR 1926.65, 49 CFR 173.50, and 49 CFR 177.835(g). AR 385-61, DA PAM 385-61, DA PAM 40-173, and DA PAM 40-8 also apply for RCWM/CACM activities. Further guidance can be found in EP 385-1-95a, and EP 75-1-3.

(2) Workers are to be trained to competently execute the tasks required by their job functions and responsibilities. What is of importance here is not the training time but the clear intent of the training standards or what is covered on the training curriculum. The training must address the safety and health hazards present at the project and the related procedures and controls necessary for worker protection.

(3) All workers shall be able to read and understand the approved plans for the specific tasks in which they are involved. All persons working with explosives shall be in good physical condition and shall be able to understand and give written and verbal orders. Supervisors will provide initial training for, and periodically review requirements with employees.

b. MEC projects.

(1) Workers and visitors in the EZ shall receive on-site safety and health training provided by the UXO Safety Officer (UXOSO). The training shall be commensurate with the degree of hazard to which they may be exposed.

(2) Workers performing direct work in the EZ shall have a minimum of 40 hours of off-site instruction, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor.

(3) Managers and supervisors, directly responsible for, or who supervise employees engaged in hazardous operations, are responsible for their training and shall receive 40 hours initial training, 3 days of supervised field experience, and 8 additional hours of specialized supervisor's training. At the time of job assignment, training on such topics as the WP (APP/SSHP), ESP/CSP/ESS/CSS, and areas identified below will be required.

(a) The employer's safety and health program.

(b) Personal protective equipment program.

(c) Spill containment program.

(d) Health hazard monitoring procedures and techniques

(e) Hazardous Communications Program (29 CFR 1910.1200).

(4) All workers are required to complete:

(a) A 40-hour HAZWOPER training course IAW 29 CFR 1910.120.

(b) An 8-hour annual refresher course in accordance with 29 CFR 1910.120 and 29 CFR 1926.65.

(c) A daily safety briefing before beginning work.

(d) A safety briefing by team supervisory personnel for the task/activity being performed.

(5) In accordance with 29 CFR 1910.120, workers may be allowed on MEC projects with no known or suspected RCWM/CACM, HTRW, or MC contamination, for a specific limited task provided the employer can demonstrate that the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards. These workers will not exceed the project personnel exposure limits. These workers, (e.g., a part-time surveyor or biologist), shall receive training equal to the degree of exposure, as established by their managers and supervisors and will include, as applicable, the following:

(a) A thorough review of all sections of the WP and ESS/CSS.

(b) Safety, health, and other hazards present on the project.

(c) Identification of the potential hazards on the project.

(d) Emergency response procedures and names of personnel and alternates responsible for project safety and health.

(e) Safe use of engineering controls and equipment on the project.

(f) Work practices by which the employee can minimize risk from hazards.

(g) Use of personal protective equipment.

(h) Medical surveillance requirements.

12. Documents.

a. General.

(1) Abbreviated Accident Prevention Plan (AAPP). When USACE personnel conduct preliminary project activities of a non-intrusive nature (i.e., initial site visits, pre-work plan visits, and public affairs visits) on potential MEC project sites prior to a WP being approved/accepted, an AAPP shall be developed and approved in accordance with EM 385-1-1 and EP 385-1-95a.

(1) APP/SSHP. All munitions project activities require a WP (APP/SSHP). The APP/SSHP, prepared in accordance with EM 385-1-1 and EP 385-1-95a, shall be developed for all tasks on a munitions project. This plan must be approved/accepted by the appropriate authority prior to implementation. The plan shall address all safety and occupational health hazards associated with the MEC operation. There are overlapping elements in these plans; elements are not to be duplicated providing they are addressed fully. The SSHP is an Appendix to the APP.

(2) ESS/ESP. An ESS/ESP is required for MEC projects as described in EP 385-1-95b, Explosive Safety Submission. The ESS/ESP must be approved before actual surface or intrusive removal can be initiated on the project.

(3) CSS/CSP. A CSS/CSP is required for all RCWM response actions. The CSS shall be submitted and formatted in accordance with EP 75-1-3. Typically, the CSS is developed using information from the WP and Supplemental Plans (transportation, disposal, TEU operation orders, and others). As such, those plans should be completed prior to the preparation of the CSS. The CSS must be approved by the Department of Army Safety Office, and/or DDESB, as appropriate before the MACOM pre-operational survey can be initiated and actual field work with RCWM may begin.

(4) Changes to ESP/CSP/ESS/CSS. There are two basic types of changes that might be made to these existing, approved documents: an amendment or a correction.

(a) Amendments are changes regarding the assumed or known RCWM or explosive hazards, or any proposed changes in work activities or safety controls, that potentially affect workers or public safety. Examples include changes in future land use, land use restrictions, quantity-distance (Q-D) arcs (i.e., project EZ, or other safe separation distances), and type of RCWM or munitions suspected; CRZ, or 1% Lethality Distance; the scope of work or recovery techniques; and for a CSS the number or composition of the characterization teams, clearance teams, or EOD, TEU, or contractor support. Normally, amendments will not be implemented until fully approved. However, removal/remediation may continue provided:

(1) The amendment pertains to an MRS for which an ESS or CSS has already been approved.

(2) On-site project personnel institute protective measures (e.g., increased ESQD, use of DDESB-approved EC) to address any explosive or chemical agent (CA) hazard.

(3) The MACOM accepts the possibility that the DDESB approval process may impose different, or additional, explosives or CA safety requirements.

(b) Corrections are changes that do not have the potential for affecting worker or public safety. Corrections are, typically, administrative changes. Corrections will be initiated by the agency with overall responsibility for the project site. A copy of the approved correction will be provided for information to all support agencies, USATCES, and DDESB. Once the MM CX concurs with, or approves, a correction, routing to higher-level offices is for information only.

(4) If uncertain whether or not the change is an amendment or correction, contact the MM CX for clarification.

(5) Execution of the Selected MEC Response. The final ESS should be submitted to the MM CX at least 90 days prior to a planned response action. The MM CX is the USACE MACOM approval authority for an ESS. For projects under control of AEC and Army BRAC, and other DoD MACOMs and agencies, the ESS will be approved by that agency, and routed through their command approval structure, unless they request it to be done by the MM CX. All ESS must be given final approval by DDESB. Typically, removal actions and ESS/CSS/ESP/CSPs will be designed around the Decision Document. (See ER 200-3-1 for full description of the requirements for Decision Documents)

(6) Personal Protective Equipment (PPE). Generic approvals for some PPE ensembles are included in EP 75-1-2 and EP 75-1-3. For those ensembles for RCWM operations, not included in the generic approval, PMs must submit proposed PPE ensemble matrices for RCWM operations in accordance with EP 75-1-3 for approval.

(7) Proposed Engineering Controls. These are submitted in accordance with the guidance in EP 385-1-95b or EP 75-1-3. The approval of the use of these engineering controls is given with the approval of the ESS/CSS.

(8) Pre-operational Survey Requests. The PM will establish a pre-operational survey date as part of project scheduling, and submit to the MM CX a request for a pre-operational survey of the RCWM project 6 weeks prior to the scheduled date of the survey.

b. Chemical Agent Contaminated Media (CACM). Requires an APP/SSHP in accordance with paragraph 12(a) (1), this document. PMs will ensure that appropriate safety measures (i.e., air monitoring, PPE) are in place for the type of chemical agent that may be encountered at the project. PMs shall coordinate with the MM CX to determine the necessary safety and health precautions and controls for any project with CACM concerns. If unexpected chemical agents

are encountered, work will cease, and the project will be secured and evacuated until safety measures are taken, and procedures are updated and briefed to workers. Agent contaminated media is not RCWM.

13. Accident/Incident Reporting.

a. All explosives accidents/incidents shall be investigated to determine the cause and controls shall be developed to prevent recurrence.

b. Notification and reporting of explosives accidents/incidents shall be in accordance with AR 385-40, USACE Supplement to AR 385-40, EM 385-1-1, and current guidance for 29 CFR Part 1960, Recordkeeping and Reporting Requirements. Accident data will be collected in accordance with this guidance. Accidents, on MEC project locations, shall be reported immediately to Government Designated Authority (GDA) at the District Safety Office with an information copy to the MM CX.

c. Chemical event reports shall be submitted IAW CEMP-CE memorandum, Interim Guidance – Notification Procedures for Discovery of Recovered Chemical Warfare Materiel (RCWM) During USACE Projects, 23 April 2004. These reports will normally be submitted by the RCWM Design Center for HQUSACE. Additional reporting requirements are identified in the Chemical and Biological Emergency Reporting System (CBERS) program.

d. Accidents will be reported IAW current USACE guidance.

14. Requirements for Government Safety Oversight.

a. Not all MM response actions require on-site government safety oversight and those that do, do not always require that presence 100% of the time.

b. The process used to make that determination is outlined in Appendix C of this ER.

c. This determination is a “safety-based” determination, not a “project management” determination and will be made by the appropriate safety office.

15. Waivers. Waivers shall be processed in accordance with AR 385-64 and CESO-E, 25 March 2003 memorandum, subject: HQUSACE Delegation of Authority.

FOR THE COMMANDER:

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

Appendix A References

A-1. Required Publications

29 CFR 1910

Occupational Safety and Health Standards

29 CFR 1926

Construction Standards

29 CFR 1960

Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters; Subpart I for Recordkeeping and Reporting Requirements

AR 50-6

Chemical Surety

AR 385-40

Accident Reporting and Records.

AR 385-61

Army Toxic Chemical Agent Safety Program

AR 385-63

Range Safety

AR 385-64

U.S. Army Explosives Safety Program

DA PAM 385-61

Toxic Chemical Agent Safety Standards

DA PAM 385-63

Range Safety

DDESB TP 18

Minimum Qualifications for Unexploded Ordnance (UXO) Technicians and Personnel

USACE Supplement 1 to AR 385-40

Accident Reporting and Records

ER 200-3-1

Formerly Used Defense Sites (FUDS) Program Policy

ER 385-1-92

Safety and Occupational Health Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities

ER 1110-1-8153

Ordnance and Explosives Response

EM 385-1-1

Safety and Health Requirements

EP 75-1-2

Unexploded Ordnance (UXO) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities

EP 75-1-3

Recovered Chemical Warfare Materiel (RCWM) Response Process

EP 385-1-95a

Basic Safety Concepts and Considerations for Ordnance and Explosives Operations

EP 385-1-95b

Explosives Safety Submissions (ESS)

EP 1110-3-8

Public Participation in the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS)

CEMP-CE Memorandum 2004

Interim Guidance – Notification Procedures for Discovery of Recovered Chemical Warfare Materiel (RCWM) During USACE Projects

CESO-E Memorandum 2003

Headquarters, Corps of Engineers Delegation of Authority

CEHNC-OE-CX Memorandum 2004

Pre-Operational Surveys for U.S. Army Corps of Engineers (USACE) Recovered Chemical Warfare Materiel (RCWM) Projects (w/enclosures)

CEHNC-OE-CX Memorandum 2004

Abbreviated Site Safety and Health Plan(s) (ASSHP) for Sites with Suspected or Confirmed Munitions and Explosives of Concern (MEC), Ordnance and Explosives Center of Expertise (OE-CX)

A-2. Related Publications.

DA Memorandum 1997

OASA (I&E), Interim Guidance for Biological Warfare Materiel (BWM) and Non-Stockpile Chemical Warfare Materiel (CWM) Response Activities, 5 Sep 1997

DA Memorandum 2005

OASA (I&E), Munitions Response Terminology

DACS-SF Memorandum 1998

Applicability of Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activity Interim Guidance, 19 Mar 1998

DACS-SF Memorandum 2000

Approval of Safety Submissions for Non-Stockpile Chemical Warfare Materiel Response Activities, 29 Feb 2000

DACS-SF Memorandum 2000

Amendments and Corrections to Safety Submissions for Non-Stockpile Chemical Warfare Materiel Response Activities, 20 Sep 2000

DASA-ESOH Memorandum 2004

Implementation Guidance Policy for New Airborne Exposure Limits for GB, GA, GD, GF, VX, H, HD, and HT

CESO-E Memorandum 1998

Applicability of Biological Warfare Materiel and Non-Stockpile Chemical Warfare Response Activity Interim Guidance, 13 Apr 1998

AR 75-14

Interservice Responsibilities for Explosive Ordnance Disposal

AR 200-2

Environmental Effects of Army Actions.

AR 210-21

Army Ranges and Training Land Program.

DA PAM 40-8

Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Nerve Agent GA, GB, GD, and VX Operations

DA PAM 40-173

Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Mustard Agents H, HD, AND HT

DA PAM 50-6

Chemical Accident or Incident Response and Assistance (CAIRA)

DA PAM 385-64

Ammunition and Explosive Safety Standards

DoD 6055.9 STD

DoD Ammunition and Explosives Safety Standards

EM 1110-1-4009

Ordnance and Explosives Response

EP 1110-1-18,

Ordnance and Explosives Response

ER 5-1-10

Corps wide Areas of Responsibility.

ER 5-1-11

Program and Project Management.

ER 210-3-2

Army Range Programs.

TM 9-1300-214

Military Explosives.

HQUSACE, CEMP-R, Environmental Cleanup and Protection Management Plan for Military Programs.

AMXTH-TE-CR Report Number 86096, conducted by USAEC.

Appendix B Explanation of Abbreviations and Terms

B-1. Acronyms

AEC	Army Environmental Center
AAPP	Abbreviated Accident Prevention Plan
AC	Hydrogen Cyanide
APP	Accident Prevention Plan
ASR	Archive Search Report
ASSHP	Abbreviated Site Safety and Health Plan
BRAC	Base Realignment and Closure
BWM	Biological Warfare Materiel
CA	Chemical Agent
CACM	Chemical Agent Contaminated Media
CBERS	Chemical and Biological Emergency Reporting System
CDR	Commander
CESO	Chief, Safety and Occupational Health Office
CG	Phosgene
CEMP	Corps of Engineers Military Programs
CK	Cyanogen Chloride
CSP	Chemical Site Plan
CRZ	Contamination Reduction Zone
CSS	Chemical Safety Submission
CWM	Chemical Warfare Materiel
CX	Center of Expertise
DA PAM	Department of the Army Pamphlet
DASA(ESOH)	Deputy Assistant Secretary Of Army (Environmental Safety and Occupational Health)
DDESB	Department of Defense Explosives Safety Board
DMM	Discarded Military Munitions
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DOT	Department of Transportation
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosives Ordnance Disposal
ERDC	Engineer Research and Development Center
ESP	Explosives Site Plan
ESS	Explosive Safety Submission
EZ	Exclusion zone
FUDS	Formerly Used Defense Sites
HAZWOPER	Hazardous Waste Operations and Emergency Response
HQUSACE	Headquarters, United States Army Corps of Engineers
HTRW	Hazardous, Toxic, and Radioactive Waste
IAW	in accordance with
ICM	Improved Conventional Munitions
INPR	Inventory Project Report

IRP	Installation Restoration Program
LUC	Land Use Controls
MACOM	Major Command
MC	Munitions Constituents
MCE	Maximum Credible Event
MEC	Munitions and Explosives of Concern
MM	Military Munitions
MPPEH	Material Presenting a Potential Explosive Hazard
MRA	Munitions Response Area
MRS	Munitions Response Site
MSC	Major Subordinate Command
MSD	Minimum Separation Distance
NOSE	No Significant Effects
NTCRA	Non-Time-Critical Removal Action
OE	Ordnance and Explosives
OESS	Ordnance and Explosives Safety Specialist
OTM	Other Than Munition
PA	Preliminary Assessment
PM	Project Manager
PPE	Personnel Protective Equipment
QA	Quality Assurance
QASP	Quality Assurance Surveillance Plan
QC	Quality Control
Q-D	Quantity-Distance
RBC	Regional Business Center
RCWM	Recovered Chemical Warfare Materiel
RDTE	Research, Development, Test, and Evaluation
RI/FS	Remedial Investigation/Feasibility Study
SFO	Support for Others
SOHO	Safety and Occupational Health Office
SOP	Standing Operating Procedures
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
TCRA	Time-Critical Removal Action
TEC	Topographic Engineering Center
TEU	Technical Escort Unit
USACE	U. S. Army Corps of Engineers
USAESCH	U.S Army Engineering and Support Center, Huntsville
USATCES	U.S. Army Technical Center for Explosives Safety
UXO	Unexploded Ordnance
UXOSO	UXO Safety Officer
WP	Work Plan

B-2. Definitions

a. Accident Prevention Plan/Site Safety and Health Plan (APP/SSHP). Reference EM 385-1-1 and ER 385-1-92.

b. Administrative Record. The body of documents that “forms the basis” for the selection of a particular response at the project. These are relevant documents that were relied upon in selecting the response action as well as relevant documents that were considered but ultimately rejected.

c. Anomaly Avoidance. Techniques employed on property known or suspected to contain UXO, other munitions that may have experienced abnormal environments (e.g., Discarded Military Munitions (DMM)), Munitions Constituents (MC) in high enough concentrations to pose an explosive hazard, or chemical agent (CA), regardless of configuration, to avoid contact with potential surface or subsurface explosives or CA hazards, to allow entry into the area for the performance of the required operations.

d. Archives Search Report. A detailed investigation to report on past MEC activities conducted on an installation; includes an MEC-specific project inspection and historical records searches.

e. Authorized Visitors. DoD, DA, USACE, or other personnel (MM CX, Department of Defense Explosives Safety Board , HQ Safety, etc.) conducting project or mission related functions, e.g., Quality Assurance Representatives (QAR's), safety and quality inspectors (including geophysicists performing quality assurance functions), and project management. Authorized visitors must be escorted while in the EZ and be approved for entry into the EZ in accordance with this guidance. No more than 2 authorized visitors will be permitted in the EZ at any given time.

f. Biological Warfare Materiel (BWM). An item configured as a munition containing an etiologic agent that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. BWM can also include etiologic agents that are designed to damage or destroy crops that are intended for human consumption.

g. Chemical Agent. A chemical compound (to include experimental compounds) that, through its chemical properties, produces lethal or other damaging effects on human beings, is intended for use in military operations to kill, seriously injure, or incapacitate persons through its physiological effects. Excluded are research, development, testing, and evaluation (RDTE) solutions; riot control agents; chemical defoliants and herbicides; smoke and other obscuration materials; flame and incendiary materials; and industrial chemicals.

h. Chemical Agent Contaminated Media (CACM). Any mixture of detectable concentrations of chemical agents with soil, water, debris, or other solid or liquid media.

i. Chemical Event Report. A report that documents chemical accidents, incidents, and other circumstances where there is a confirmed or likely release to the environment, exposure of

personnel, threat to the security of chemical agent materiel, or any incident of concern to the local commander (AR 50-6). Additional notification procedures for USACE RCWM projects are identified in CEMP-CE Memorandum Interim Guidance – Notification Procedures for Discovery of Recovered Chemical Warfare Materiel (RCWM) During USACE Projects.

j. Chemical Safety Submission (CSS). A document that serves as the instrument to describe planned chemical and explosives safety actions to the appropriate approval authority.

k. Chemical Warfare Materiel (CWM). Items generally configured as a munition containing a chemical compound that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. CWM includes V- and G-series nerve agents or H-series (mustard) and L-series (lewisite) blister agents in other-than-munition configurations; and certain industrial chemicals (e.g., hydrogen cyanide (AC), cyanogen chloride (CK), or carbonyl dichloride (called phosgene or CG)) configured as a military munition. Due to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered CWM. CWM does not include: riot control devices; chemical herbicides; industrial chemicals (e.g., AC, CK, or CG) not configured as a munition; smoke and flame producing items; or soil, water, debris or other media contaminated with low concentrations of chemical warfare agents where no CA hazards exist.

l. Construction Support. Assistance provided by DoD EOD or UXO-qualified personnel and/or by personnel trained and qualified for operations involving CA, regardless of configuration, during intrusive construction activities on property known or suspected to contain UXO, other munitions that may have experienced abnormal environments (e.g., DMM), munitions constituents in high enough concentrations to pose an explosive hazard, or CA, regardless of configuration, to ensure the safety of personnel or resources from any potential explosive or CA hazards.

m. Discarded Military Munitions (DMM). Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance (UXO), military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of, consistent with applicable environmental laws and regulations. (10 U.S.C. 2710(e)(2))

n. Engineering Controls. Any process or device designed to mitigate explosion effects (e.g., blast overpressure, fragmentation, fire) or to contain vapor releases from RCWM.

o. Essential Personnel. USACE and contractor project personnel necessary for the safe and efficient completion of field operations conducted in an EZ. This is limited to: contractor work team members including the Unexploded Ordnance (UXO) Safety Officer (UXOSO), UXO Quality Control Specialist, Senior UXO Supervisor, and a USACE Ordnance and Explosives (OE) Safety Specialist.

p. Exclusion Zone (EZ). A safety zone established around a MEC-related operation work area. Only essential project personnel and authorized, escorted visitors are allowed within the exclusion zone. Examples of EZs are safety zones around MEC intrusive activities and safety

zones where MEC is intentionally contacted or detonated. For RCWM project sites, it is the area within the No Significant Effects (NOSE) zone.

q. Explosives Site Plan. An explosives site plan is required for munitions response site (MRS) investigations or characterizations of an MRS that involve intentional physical contact with MEC (e.g., surface and intrusive sampling during an EE/CA or RI/FS). The explosives site plan will be used to provide explosives safety criteria for planning the siting of explosives operations for Munitions Response or other MEC-related projects (e.g., on-site construction support involving a MEC removal). Such site plans will address areas (e.g., magazines) used for the storage of commercial and/or military demolition explosives or MEC, planned or established demolition or disposal areas for MEC found during the investigation; and the boundary of the munitions response area to be investigated. The explosives site plan will address the explosives safety quantity-distances for each of the potential explosion sites (e.g., magazines, demolition areas, munitions response areas, collection points), the location of exposed sites (e.g., inhabited buildings, public traffic routes), and engineering controls to be used.

r. Explosives Safety Submission (ESS). The Explosives Safety Submission (ESS) will be used to provide munitions response action explosives safety criteria for approval by DDESB. The ESS for TCRA will provide the information required in the explosives site plan plus a short introduction concerning site history and any other pertinent details, the reason why MEC exists on the MRS, the amount and type of MEC expected, the selected munitions response action (e.g., surface removal, removal to depth of detection), the start date for the munitions response action. The ESS for NTCRA will include all of the above plus the following: possible MEC migration mechanisms, the techniques to be used to detect, recover, and destroy MEC, alternate MEC disposal techniques (if any) to be used either on-site or off-site, technical support (e.g., contractor, USACE, EOD, TEU), land use restrictions, public involvement, recurring reviews, MEC education, and any contingencies.

s. Explosive Media. Mixtures of explosives in soil, sand, clay, or other solid media at concentrations such that the mixture itself is explosive.

t. Formerly Used Defense Sites (FUDS). A facility or project (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those properties that were transferred from DoD control prior to 17 Oct 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths and possessions of the US.

u. Geophysical Techniques. Techniques for the detection and measurement of buried anomalies (e.g., ferromagnetic indicators and ground penetrating radar) to investigate the presence of munitions.

v. Hazardous, Toxic, and Radioactive Waste (HTRW) Activities. See definition in ER 385-1-92.

w. Improved Conventional Munitions (ICM). Munitions characterized by the delivery of two or more anti-personnel, anti-material, or anti-armor submunitions by a parent munition.

x. Industrial Chemical. A chemical developed or manufactured for use in industrial operations or research, by industry, government, or academia. Previously identified as chemical warfare agents: hydrogen cyanide (AC), cyanogen chloride (CK), phosgene (CG), methylphosphonic difluoride (DF), O-ethyl (2-isopropyl aminoethyl) methylphosphonite (QL), and chloropicrin (PS) are now considered industrial chemicals. If these chemicals are weaponized, consider them to be RCWM. Weaponized means these chemicals were placed into ammunition containers; e.g., projectiles, mines, bombs, etc..

y. Intrusive Activity. An activity, which involves, or results in, the penetration of the ground surface at an area known or suspected to contain MEC or RCWM in other than munitions (OTM) configurations. Intrusive activities can be of an investigative or removal action nature.

z. Material Potentially Presenting an Explosive Hazard (MPPEH). Material potentially containing explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use; demilitarization, or disposal; and range-related debris); or material potentially containing a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization or disposal operations). Excluded from MPPEH are munitions within DoD's established munitions management system and other hazardous items that may present explosion hazards (e.g., gasoline cans, compressed gas cylinders) that are not munitions and are not intended for use as munitions.

aa. Minimum Separation Distance (MSD). MSD is the distance at which personnel in the open must be from an intentional or unintentional detonation.

bb. Munitions Constituents (MC). Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (10 U.S.C. 2710(e)(3)).

cc. Munitions Debris. Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal.

dd. Munition with the Greatest Fragmentation Distance (MGFD). The munition with the greatest fragmentation distance that is reasonably expected (based on research or characterization) to be encountered in any particular area.

ee. Maximum Credible Event (MCE). In hazards evaluations, the MCE, from a hypothesized accidental explosion, fire, or toxic chemical agent release (with explosives contribution) is the worst single event that is likely to occur from a given quantity and disposition of ammunition and explosives (AE). The event must be realistic with a reasonable probability of occurrence considering the explosion propagation, burning rate characteristics, and

physical protection given to the items involved. The MCE evaluated on this basis may then be used as a basis for effects calculations and casualty predictions.

ff. MEC-Related Operations. Any operations conducted by UXO Technicians/Qualified personnel with the purpose of intentional physical contact with MEC.

gg. Munitions and Explosives of Concern (MEC). This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks means: (A) Unexploded ordnance (UXO), as defined in 10 U.S.C. 101(e)(5)(A) through (C); (B) Discarded military munitions (DMM), as defined in 10 U.S.C. 2710(e)(2); or (C) Munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. 2710(e)(3), present in high enough concentrations to pose an explosive hazard.

hh. Military Munitions. Military munitions means all ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed. (10 U.S.C. 101(e)(4)(A) through (C)).

ii. Munitions Response Area. Any area on a formerly used defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. A munitions response area is comprised of one or more munitions response sites.

jj. Munitions Response Site. A discrete location within an MRA that is known to require a munitions response.

kk. No Significant Effects (NOSE) Distance. The distance at which the general population (to include more susceptible subpopulations) would not experience any significant effects from exposure of chemical agents.

ll. OE Safety Specialist. A USACE employee who is qualified through experience and completion of the U.S. Army Bomb Disposal School, Aberdeen Proving Ground, Maryland, or U.S. Naval EOD School, Indian Head, Maryland, or Eglin AFB, Florida, and is classified in the GS-0018 job series (CP-12 career series). Performs safety and occupational health support and oversight of projects involving MEC/RCWM.

mm. Primary Explosives. Primary explosives are highly sensitive compounds that are typically used in detonators and primers. A reaction is easily triggered by heat, spark, impact or friction. Examples of primary explosives are lead azide and mercury fulminate.

nn. Recovered Chemical Warfare Materiel (RCWM). CWM used for its intended purpose or previously disposed of as waste, which has been discovered during a CWM response or by chance (e.g., accidental discovery by a member of the public), that DoD has either secured in place or placed under DoD control, normally in a DDESB-approved storage location or interim holding facility, pending final disposition.

oo. RCWM Pre-operational Survey. An exercise by the MACOM or designee performed at the beginning of chemical cleanup operations to determine the readiness of personnel to start those operations, and ensure compliance with all provisions of the site plan and safety submission and Army regulations.

pp. Real Property. Land, buildings, and bodies of water. Examples of such property include pads, pits, basins, ponds, streams, impact areas, maneuver areas, training areas, burial sites, and buildings used for ammunition or explosives operations.

qq. Removal Action. The cleanup or removal of released hazardous substances from the environment. Such actions may be taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 9604(b), and any emergency assistance which may be provided under the *Disaster Relief and Emergency Assistance Act* [42 USC 5121 et seq.] The requirements for removal actions are addressed in 40 CFR §§300.410 and 300.415. The three types of removals are emergency, time-critical, and non-time-critical removals. (*DoD Management Guidance for the DERP*)

rr. Response Action. A CERCLA-authorized action involving either a short-term removal action or a long-term removal response. This may include, but is not limited to, removing hazardous materials, containing or treating the waste on-site, and identifying and removing the sources of ground water contamination and halting further migration of contaminants.

ss. Secondary Explosives. Secondary explosives are generally less sensitive to initiation than primary explosives and are typically used in booster and main charge applications. A severe shock is usually required to trigger a reaction. Examples are TNT, cyclo-1,3,5-trimethylene-2-4-6-trinitramine (RDX or cyclonite), HMX, and tetryl.

tt. Site Investigation. Activities undertaken to determine the presence, type, distribution, density, and location of MEC. Includes physical detection and identification of MEC as well as chemical sampling and monitoring.

uu. Site Visit. Any visit to an MEC, or suspected MEC contaminated, site prior to any MEC operation.

vv. Small arms ammunition. Ammunition without projectiles that contain explosives (other than tracers), that is .50 caliber or smaller, or for shotguns.

ww. Stakeholder. Federal, state and local officials; community organizations; property owners and others having a personal interest or involvement, or having a monetary or commercial involvement in the property, which is to undergo MEC operations/activities.

xx. Time-Critical Removal Action. Removal actions where, based on the project evaluation, a determination is made that a removal is appropriate, and that less than 6 months exists before on-site removal activity must begin (40 CFR 300.5).

yy. Unexploded Ordnance (UXO). Military munitions that have been primed, fuzed, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installation, properties (FUDS sites), personnel, or material and remain unexploded either by malfunction, design, or any other cause (10 U.S.C. 101(e)(5)(A) through (C)).

zz. UXO and UXO-Related Operations/Activities/Procedures. See MEC-Related Operations.

aaa. UXO Qualified Personnel. Personnel who meet the training requirements for UXO personnel and have performed successfully in military EOD positions or are qualified to perform in the following service contract act contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, and Senior UXO Supervisor. Refer to DDESB TP 18 for detailed information for approved contract titles and qualifications.

bbb. UXO Sweep Personnel (UXOSP). UXO sweep personnel assist UXO Technicians and UXO Qualified personnel in the performance of UXO-related activities. UXOSP do not have to be a UXO Technician, however they shall be provided job and site specific training. This training is identified in TP 18. UXOSP are not involved in the execution of explosives operations and shall not have intentional physical contact with MEC.

ccc. UXO Technicians. Personnel who are qualified for (as defined by DoD) and filling Department of Labor, Service Contract Act, Directory of Occupations contractor positions of UXO Technician I, UXO Technician II and UXO Technician III. Refer to DDESB TP 18 for detailed information for approved contract titles and qualifications.

ddd. Venting. Exposing any internal cavities of MPPEH, to include training or practice munitions (e.g., concrete bombs), using DDESB- or DoD component-approved procedures, to confirm that an explosive hazard is not present.

eee. Weaponized. This term is used to denote the type of carrier used for chemical agent. If the carrier is a munition shell with a burster and fuze, the agent is said to be weaponized. If this is the case, and the filler is an industrial chemical (e.g., CG, AC, CK) the munition is to be treated and handled as RCWM.

fff. Waiver. A written authority that permits a temporary, short term (5 years or less) deviation from a mandatory requirement of U.S. Army ammunitions and explosives safety standards.

ggg. Work Plan. Describes procedures, goals, methods, and personnel used for MEC field activities, see EM 1110-1-4009.

DRAFT

Appendix C
 Requirement for Government Safety Oversight (GSO)
 (When it is Needed on a Munitions Response Project)

The table below lists those types of remedial/response actions/activities that require GSO for munitions response projects
 These are the **minimum** requirements.

Type of Munitions Response Action	Yes/No	Footnotes
Involving Improved Conventional Munitions (ICMs) or submunitions.	Yes	1
Involving Recovered Chemical Warfare Materiel (RCWM)	Yes	1
That have the potential for UXO	No	2,3
That will include any demolition operations	No	2,3
Quality Assurance inspections	No	4
Contract Surveillance	No	5

Footnotes:

1. 100% GSO is meant to be continuous oversight from the beginning of field operations thru completion of field operations.
2. GSO will be required during initial project startup. Typically during the first 2 weeks of project operations, not counting mobilization.
3. Duration of GSO will be dependent upon contractor's ability to demonstrate their proficiency with Safety protocols to the GSO personnel.
4. GSO will perform Quality Assurance inspections per the QASP.
5. If contract surveillance duties are imposed on the GSO.