CESO-I 30 September 2003

Errata Sheet

No. 1

Safety
SAFETY AND HEALTH REQUIREMENTS FOR ORDNANCE AND EXPLOSIVES (OE) OPERATIONS

ER 385-1-95

16 June 2003

a. Page 12, paragraph 11.c. (2), should read 11.c. (3). Add new sentence, at the end, to read: Procedures for nerve and mustard agent decontamination and medical treatment are contained in DASA(ESOH) interim guidance of 03 Sep 2003.

b. Page A-3, add a last entry to A-1, to read:

DASA(ESOH) Memorandum 2003
Interim Guidance on Nerve and Mustard Agent Decontamination and Medical Services in Industrial Activities, 03 Sep 2003.

c. Page B-1, add:

DASA(ESOH)	Deputy Assistant Secretary Of Army (Environment, Safety and Occupational Health)

DEPARTMENT OF THE ARMY ER 385-1-95
U.S. Army Corps of Engineers
CESO **Washington, D.C. 20314**

Regulation
No. 385-1-95 16 June 2003

Safety
SAFETY AND HEALTH REQUIREMENTS FOR ORDNANCE AND EXPLOSIVES (OE) OPERATIONS

TABLE OF CONTENTS

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

ER 385-1-95

CESO

Regulation
No. 385-1-95

16 June 2003

Safety
SAFETY AND HEALTH REQUIREMENTS FOR ORDNANCE AND EXPLOSIVES (OE) OPERATIONS

Issue of further supplements to this regulation by Commander (CDR), United States Army Corps of Engineers (USACE) is permitted but not required. If supplements are issued, Commanders of Major Subordinate Commands (MSC) and separate USACE Commands will furnish one copy of each to CESO-E, WASH DC 20314; District CDR will furnish required copies to appropriate MSC CDRs.

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

2. Applicability

a. This regulation applies to HQUSACE/OCE elements, major subordinate commands, districts, centers, laboratories, and field operating agencies performing or contracting for OE operations.

b. This regulation applies to all programs and projects in which USACE is involved and which may result in encountering OE items 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, support for others (SFO), or work for others (WFO).

c. Projects with potential for containing both HTRW and OE require coordination with both the USACE Ordnance and Explosives Center of Expertise (OE CX) and the Hazardous Toxic and Radioactive Waste Center of Expertise (HTRW CX).

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. Explosives and chemical safety is critical to the operation of sites containing OE or suspected to contain OE.

b. All USACE OE operations shall be planned and conducted in accordance with the requirements of this document, and coordinated with USACE OE Center of Expertise (CX) located at U.S. Army Engineering and Support Center, Huntsville (USAESCH).

c. Projects with the potential for containing a combination of OE and HTRW require coordination with both the OE CX and HTRW CX. Generally, OE hazards shall be removed before proceeding with HTRW and other activities.

d. OE projects that involve radioactive materials will be coordinated with both CXs.

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

f. Only qualified personnel will be utilized in OE operations. Personnel qualification requirements for OE operations are found in EP 1110-1-18.

7. Responsibilities

a. *HQUSACE*.

(1) The Director, Environmental Division, Headquarters USACE (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*) Develop and approve USACE OE safety and health policy and procedures.

(*b*) Provide guidance on OE-related safety and health issues within the framework of the overall USACE safety and health policy.

(*c*) Coordinate and liaise with higher headquarters and elements within the Headquarters, USACE, on OE safety and health issues.

(*d*) Take the lead on OE issues requiring conflict resolution with higher Headquarters.

(3) Chief, Engineering and Construction Division, Headquarters USACE (CECW-E) shall serve as the USACE OE engineer and construction manager. CECW-E is responsible for ensuring that OE safety and health criteria and procedures are incorporated into the design and carried-out during construction on projects with OE activities.

b. Major Subordinate Commands (MSC). Major Subordinate Commanders with OE responsibilities will provide safety and health oversight, through the Safety and Occupational Health Office, to ensure activities and responsibilities are in compliance with USACE and Army policy and procedures.

(1) The USACE Engineer Research and Development Center (ERDC) will comply with MSCs responsibilities and will meet training requirement in paragraph 11, develop standard operating procedures (SOPs), work plans WPs and Explosives Safety Submission/Chemical Safety Submission (ESS/CSS) for the required OE research and development work, as applicable, and submit the documents requiring approval to U.S. Army Technical Center for Explosives Safety (USATCES) through HNC Civil/Structural Branch (CEHNC-ED-CS-S).

(2) CEHNC-ED-CS-S will review, coordinate and approve ERDC documents prior to submittal to USATCES.

c. USACE District Commands.

(1) Coordinate with the OE CX on OE activities (ER 1110-1-8153) as well as ensure that the OE CX is notified and involved in the review of work and safety plans for OE safety and health concerns, as well as conducting other construction activities in a potential OE area (e.g., HTRW activities, dredging operations).

(2) Provide properly trained and qualified staffing to accommodate OE safety and health functions and oversee district personnel involved in OE operations. A safety and health professional trained in explosives and chemical safety shall be resourced in the district to perform programmatic oversight of OE design and construction safety and health activities.

(3) Ensure the oversight of all OE activities to monitor compliance with USACE and Army OE safety and health policy and procedures during all phases of an OE operation/activity.

(4) Ensure that all safety and health design criteria and specifications provided by the OE CX have been reviewed.

(5) Ensure safety and occupational health and OE safety design criteria are incorporated into contract solicitation.

(6) Ensure review of archive search reports (ASR), task orders, scopes of work, work plans (WPs), and safety submissions to identify and address safety and health concerns.

(7) Ensure that submittals, including the WP [accident prevention plan (APP)/site safety and health plan (SSHP)], explosives safety submission (ESS)/chemical safety submissions (CSS) are reviewed, accepted and approved, as applicable by designated authorities before work begins (reference ER 1110-1-8153).

(8) Ensure, throughout an OE operation, contractor compliance with the WP and approved safety submissions via on-site inspections. This will be accomplished by a qualified OE Safety Specialist who must be present during the execution of OE and other explosives operations.

(9) Ensure that on-site inspections or qualtiy assurance (QA) are performed by a Safety and Occupational Health Specialist for engineering and construction related work during safety briefings or non-operational hours; this individual must always be escorted by the OE Safety Specialist.

(10) Ensure that all safety and health related documentation is recorded in the Administrative Record.

(11) Coordinate properly with the OE CX on appropriate geophysical techniques for safe use at any given site.

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

(13) Ensure that HTRW aspects of sites containing both OE and HTRW are performed in accordance with ER 385-1-92, EP 1110-1-18 and EP 75-1-3.

d. Other Centers, or Removal Districts. These will follow the requirements of 7*b–c*, above.

e. OE Design Center. This center will do the following.

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

(2) Ensure timely submittal of ESS, through the OE CX, up the chain of command for review and approval.

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

(4) Determine and select of geophysical investigation techniques for safe use at a given site.

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

(1) Design and execute all RCWM projects in support of USACE and other agencies.

(2) Ensure timely submittals of CSS through the OE CX, to the established review and approval chain.

(3) Ensure timely submittal of WPs and CSS to the OE CX for approval.

(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.

g. OE CX. This group will do the following.

(1) Adopt and maintain state-of-the-art OE expertise and technology for OE activities.

(2) Provide mandatory review and comment as well as written concurrence or non-concurrence of OE safety and health documents and work plans required by this ER.

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

(4) Develop OE-specific USACE safety and health training and provide instructor support for this training.

(5) Provide specific guidance for OE operations where conventional OE, RCWM, and BWM are encountered.

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

(7) Provide “Safety Alerts,” notifying OE safety specialists and UXO contractors of problems or potential problems concerning OE operations. These “Safety Alerts” require immediate attention and will be distributed to all involved in OE operations.

(8) Verify contractor employee UXO qualifications.

(9) Review, approve and transmit ESS/CSS to U.S. Army Technical Center for Explosives Safety (USATCES) for approval.

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. These personnel shall do the following.

(1) Oversee the safety and health of OE activities within the exclusion zone (EZ), and ensure compliance with the work plan and the approved safety submissions.

(2) Remain on-site during any activities involving potential encounter with, handling, or destruction of OE.

(3) Ensure only qualified UXO personnel perform OE procedures, see EP 385-1-95a.

(4) Advise the contractor on OE procedures.

(5) Coordinate EZ activities with and advise the Resident/Area Engineer and the Site Safety and Health Officer (SSHO).

(6) Facilitate military explosives ordnance disposal (EOD) and Technical Escort Unit (TEU) response when needed.

(7) Conduct government QA inspections of completed OE specific tasks [a safety and health specialist may conduct QA inspections, reference Paragraph 7*c*(9)].

(8) Identify OE for DOT classification purposes.

(9) Act as a liaison with the OE CX.

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

8. General.

a. Access to areas suspected of containing OE will be restricted based on the type, amount, and depth of OE present and the activities for which entry personnel will be authorized. Positive controls [e.g., signs (multilingual, as appropriate), fencing, guards], appropriate to the site, shall be used to prohibit entry of unauthorized personnel.

b. Anytime OE 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. An Accident Prevention Plan/Site Safety and Health Plan (AAP/SSHP) is an integral part of the WP.

c. All personnel working at, or visiting, an OE project shall comply with the WP and ESS/CSS.

d. All OE activities and operations shall utilize an OE safety specialist, UXO safety officer, or EOD technician or a combination thereof.

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

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

(2) An engineering control, without prior approval by DDESB, will be submitted as part of the WP and ESS/CSS for DDESB approval, but will only be approved for that specific site and the specific applications described in the WP and ESS/CSS.

(3) "Prior approval" as used here means a separate (not site-specific) 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.

9. Operations/Activities

a. Operations and activities is all work performed at OE sites, 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, EP 75-1-2 and EP 75-1-3, and other guidance as it applies to OE operations.

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

d. Land Use Controls (LUC) will be included in the original ESS/CSS if known; otherwise, a change (amendment) will be submitted through channels for explosive safety approval by DDESB prior to finalizing any agreements with stakeholders.

e. Improved Conventional Munitions (ICMs) must be identified early during the OE operation/activity.

(1) An ICM waiver will be forwarded to the OE CX for approval. The OE CX will provide an information copy to HQUSACE (CESO); the recommended content of an ICM waiver is contained in DA PAM 385-63.

(2) An ICM waiver for sites under control of the Army Environmental Center (AEC) and Army BRAC, and other DOD MACOMs and agencies will be coordinated by that agency, unless the agency requested that it be done by the OE CX.

f. For operations 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.

g. Visitors requesting access to the contamination reduction zone (CRZ) or the EZ during OE activities will be processed in accordance with the procedures in EP 385-1-95a.

10. Explosive Media.

a. General.

(1) Overall, the requirements of paragraph 12, ER 1110-1-8153, apply. Additional specific guidance is provided below.

(2) All OE operation involving explosive media will require an approved WP and ESS. No work involving handling or disposing of explosive media will begin until the WP and ESS receive appropriate approval.

(3) Before performing initial sampling of any location suspected of having explosive media, a WP and ESS will be prepared and approved.

(4) UXO support will be provided by personnel who meet the qualifications specified in EP 1110-1-18 during sampling or at any location where the potential for explosives exist.

b. *Primary Explosives*. For media known or suspected 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, the requirements of ER 385-1-92 should be followed.

(2) Close coordination between the HTRW and OE CXs is recommended during WP and ESS preparation to ensure effective coverage of safety and health issues and efficient processing.

(3) The PM should identify POCs at the HTRW and OE CXs, who can be consulted concerning safety and health requirements throughout all phases of a project.

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

(1) Any media containing a concentration of secondary explosives, or nitroglycerine, nitrocellulose, and nitroguanidine of 10% or greater by weight is considered explosive. For media containing less than a 10% concentration of secondary explosives, nitroglycerine, nitrocellulose, and nitroguanidine, the requirements of ER 385-1-92 should be followed. (Care must be taken when applying this threshold rule to less permeable soils, such as clay, that may cause nitroglycerine to pond, rather than be absorbed. For such soils, close coordination with the OE-CX is essential.)

(2) Close coordination between the HTRW and OE CXs is recommended during WP and ESS preparation to ensure effective coverage of safety and health issues and efficient processing.

(3) The PM should identify POCs at the HTRW and OE CXs, who can be consulted concerning safety and health requirements throughout all phases of a project.

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

11. Training

a. General.

(1) The minimum requirements for training applicable to OE operations are stated below and shall comply with 29 CFR 1910.120 and 29 CFR 1926.65. 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 1110-1-18, EP 385-1-95a, and EP 75-1-3.

(2) Workers are to be trained to the level 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 hazard present at the site and the related procedures and controls necessary for worker protection.

(3) All workers will read and understand the standard operating procedures (SOPs) for the specific tasks in which they are involved. Supervisors will provide initial SOP training for, and periodically review SOP requirements, with employees.

b. Conventional OE sites.

(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 in the CRZ or a specific limited task in the EZ (e.g., a short-term activity escorted by an UXO Technician or OE Safety Specialist) shall receive instruction off-site related to the degree of exposure, and the minimum of 1 day of actual field experience under the direct supervision of a trained, experienced supervisor. The field training shall be commensurate with the degree of hazard to which they are exposed.

(3) Workers performing direct OE 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 experience supervisor.

(4) Managers and supervisors, directly responsible for, or who supervise employees engaged in OE operations, are responsible for their training and shall receive 40 hours initial, 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 employer's safety and health program, the ESS, the CSS, the WP (APP/SSHP) will be required.

(5) All workers are required to complete an 8-hour annual refresher course in accordance 29 CFR 1910.120 and 29 CFR 1926.65. All workers and visitors will attend a daily safety briefing at the beginning of a given shift.

(6) Workers may be allowed on OE sites with no known or suspected RCWM/CACM or HTRW contamination, only occasionally, for a specific limited task (non-intrusive). These workers, such as a part-time surveyor or biologist and who are unlikely to be exposed to any OE, shall receive training related to the degree of exposure, as established by their managers and supervisors.

(7) The training shall be commensurate with the degree of hazards to which the workers and visitors may be exposed and will always include the following.

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

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

(*c*) Identification of the potential ordnance hazards on the site.

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

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

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

(*g*) Use of personal protective equipment.

(*h*) Medical surveillance requirements.

(8) The training plan, a discussion of all site hazards, and the duties and duty duration of the occasional site workers shall be submitted for approval to the OE CX prior to site mobilization and training plan implementation.

c. Recovered Chemical Warfare Materiel (RCWM)/Chemical Agent Contaminated Media (CACM) sites.

(1) All personnel performing on-site work activities, wherein they may be exposed to hazards resulting from RCWM/CACM site operations, shall have completed applicable training in compliance with 29 CFR 1910, 29 CFR 1926, and EM 385-1-1, as well as DA PAM 385-61, DA PAM 40-173, or DA PAM 40-8. Although OSHA regulations at 29 CFR 1910.120 and 29 CFR 1926.65 permit varying levels of training based on employee responsibility and exposure potential (i.e., 40 hours and 3 days or 24 hours and 1 day), it is the policy of USACE to require the training listed below for these type of operations.

(2) Prior to performing on-site RCWM/CACM activities in contaminated areas (i.e., CRZ, EZ), USACE and contractor personnel shall successfully complete the following training.

(*a*) A minimum of 40 hours off-site health and safety instruction.

(*b*) Three days of actual field experience under the direct supervision of a trained and experienced supervisor.

(c) The requirements of DA PAM 385-61, DA PAM 40-173, and DA PAM 40-8 (see EP 75-1-3 for details).

(*d*) Eight hours of refresher training annually.

(*e*) On-site supervisors shall complete the above requirements and an additional 8-hour supervisor's course covering at least the following topics.

- The employer’s safety and health program.
- Personal protective equipment program.
- Spill containment program.
- Health hazard monitoring procedures and techniques.

(2) Additional, site-specific training covering site hazards, exposure, procedures, and all contents of the approved WP and CSS shall be conducted by the UXO Safety Officer (UXOSO) for all on-site employees, including those assigned only to the EZ, prior to the commencement of work and on a recurring basis, and for visitors prior to entering the site.

12. Documents

a. General.

(1) *Abbreviated Site Safety and Health Plan (ASSHP).* When USACE personnel conduct preliminary project activities of a non-intrusive nature (i.e., initial site visits, pre-work plan visits, public affairs visits) on potential OE project sites prior to a WP being approved, an ASSHP shall be developed by the PM and approved in accordance with ER 1110-1-8153. The ASSHP shall address those items delineated in EP 1110-1-18.

(2) *Changes to ESS/CSS.* There are two basic types of changes that might be made to an existing, approved ESS/CSS: 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., site EZ, or other safe separation distances), and type of RCWM or munition suspected; CRZ, or maximum no significant effects zone; the scope of work or recovery techniques; or the number or composition of the characterization teams, clearance teams, or EOD, TEU, or contractor support. Amendments will not be implemented until fully approved. Amendments will be routed for coordination, review, and approval in the same manner as the original ESS/CSS.

(*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 (for RCWM). A copy of the approved correction will be provided for information to all support agencies, USATCES, Office of the Deputy Assistant to the Secretary of the Air Force (ODASAF), and DDESB. Once the OE CX concurs with a correction, routing to higher-level offices is for information only.

(3) If not sure if the change is an amendment or correction, contact the OE CX for clarification.

b. Conventional OE and RCWM.

(1) *APP/SSHP*. All OE site activities require a WP (APP/SSHP inclusive), except as noted in paragraph 12*a*(1) above. The APP/SSHP, prepared in accordance with EM 385-1-1 and EP 1110-1-18, shall be developed for all other tasks on an OE site. This plan must be approved by the appropriate authority prior to any handling or disposal of OE. The plan shall address all safety and occupational health hazards associated with the OE 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) *Explosives Safety Submission (ESS).* An ESS is required for the following OE operations: Detailed ESS guidance is provided in EP 385-1-95b. The OE CX has been given MACOM approval authority for ESS for USACE projects.

(*a*) Site investigation or characterizations phases[Engineering Evaluation/Cost Analysis (EE/CA) or Remedial Investigation/Feasibility Study (RI/FS)] that requires intentional contact with OE.

(*b*) A determination of no DoD action indicated (NDAI) or no further action (NOFA).

(*c*) Time Critical Removal Actions (TCRA)

(*d*) Construction support involving OE removal in the construction footprint prior to any intrusive construction activities.

(3) *Chemical Safety Submission (CSS).* A CSS is required for all RCWM response actions. The CSS shall:

(*a*) Be 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 must be completed prior to the preparation of the CSS.

(*b*) Be submitted to the OE CX at least 112 days prior to the start of a planned response action. RCWM response actions require a CSS with OE CX (or the agency under control of the project), Department of the Army, or DDESB approval, as appropriate, and coordination (through proper channels) with the Department of Health and Human Services. The OE CX has been given MACOM approval authority for CSS for USACE projects.

(*c*) Be approved by the Department of Army Safety Office before the pre-operational survey can be completed and actual work with RCWM may begin.

(4) *Execution of the Selected OE Activity*.

(*a*) ESS shall be prepared, and signed, by the project manager and an OE safety specialist (for government activities) or a UXOSO (for contractor activities).

(*b*) The final ESS should be submitted to the OE CX at least 90 days prior to a planned response action. The OE CX is USACE MACOM approval authority for ESS. For sites under control of AEC and Army BRAC, and other DOD MACOMs and agencies, ESS will be approved by that agency, unless requested it be done by the OE CX. All ESS must be given final approval by DDESB.

(5) *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 not included in the generic approval, PMs must submit proposed PPE ensemble matrices for CWM operations in accordance with EP 75-1-3 for approval.

(6) *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.

(7) *Pre-operational Survey Requests*. The PM will establish a pre-operational survey date as part of project scheduling, and submit (through the OE CX) to DA Safety a request for a pre-operational survey of the RCWM project 6 weeks prior to the scheduled date of the survey. Normally, the DA Pre-operational survey will be conducted by the MACOM; however, USATCES has been given this tasking by ODASAF for USACE.

d. Chemical Agent Contaminated Media (CACM). Requires an APP/SSHP in accordance with paragraph 12*a*(1). 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 site. If unexpected chemical agents are encountered, work will cease, and the site will be secured and evacuated until safety measures are taken, and procedures are updated and briefed to workers.

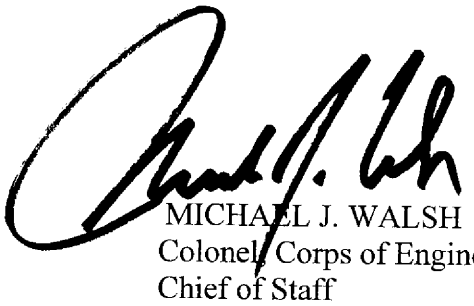
13. Accident and Incident Reporting

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

b. For explosives accidents, notification and reporting shall be in accordance with AR 385-40 and USACE Supplement 1 to AR 385-40. For contracts under supervision of a district, accidents shall be reported to the district safety office with an info copy to OE CX.

c. For incidents/accidents involving RCWM, that are defined in AR 50-6, a chemical event report will be prepared.

FOR THE COMMANDER:



MICHAEL J. WALSH
Colonel, Corps of Engineers
Chief of Staff

2 Appendices
APP A – References
APP B – Definitions and Acronyms

Appendix A
References

A-1. Required Publications

29 CFR 1910
Occupational Safety and Health Standards

29 CFR 1926
Construction Standards

AR 50-6
Chemical Surety

AR 385-40
Accident Reporting and Records.

AR 385-61
Army Toxic Chemical Agent Safety Program

AR 385-64
U.S. Army Explosives Safety 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 385-61
Toxic Chemical Agent Safety Standards

DA PAM 385-63
Range Safety

DA PAM 385-64
Ammunition and Explosive Safety Standards

DOD 6055.9 STD
DOD Ammunition and Explosives Safety Standards

USACE Supplement 1 to AR 385-40
Accident Reporting and Records

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

EM 1110-1-4009
Ordnance and Explosives Response

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

EP 385-1-95a
Basic Safety Concepts and Considerations for Ordnance and Explosives Operations

EP 385-1-95b
Explosives Safety Submissions (ESS)

EP 1110-1-18
Ordnance and Explosives Response

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

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

CESO-E Memorandum 1998
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Amendments and Corrections to Safety Submissions for Non-Stockpile Chemical Warfare Materiel Response Activities, 20 Sep 2000

A-2. Related Publications.

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.

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.

Program Manual, Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS).

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

Appendix B
Explanation of Abbreviations and Terms

B-1. Acronyms

AEC	Army Environmental Center
APP	Accident Prevention Plan
ASR	Archive Search Report
BRAC	Base Realignment and Closure
BWM	Biological Warfare Materiel
CACM	Chemical Agent Contaminated Media
CDR	Commander
CESO	Chief, Safety and Occupational Health Office
CRZ	Contamination Reduction Zone
CSS	Chemical Safety Submission
CWM	Chemical Warfare Materiel
CX	Center of Expertise
DDESB	Department of Defense Explosives Safety Board
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DOT	Department of Transportation
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosives Ordnance Disposal
EP	Engineering Pamphlet
ESS	Explosives Safety Submission
EZ	Exclusion zone
FUDS	Formerly Used Defense Sites
HQDA	Headquarters Department of Army
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
MCE	Maximum Credible Event (Chemical)
MSC	Major Subordinate Command
MSD	Minimum Separation Distance
NDAI	No DOD action indicated
NOFA	No further action
ODASAF	Office of the Deputy Assistant to the Secretary of the AirForce
OE	Ordnance and Explosives
PM	USACE Project Manager
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
RCWM	Recovered Chemical Warfare Materiel

RDTE	Research, Development, Test, and Evaluation
RI/FS	Remedial Investigation/Feasibility Study
SFO	Support for Others
SOP	Standing Standard Operating Procedures
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
TCRA	Time Critical Removal Actions
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
WFO	Work for Others
WP	Work Plan

B-2. Definitions

a. Accident Prevention Plan/Site Safety and Health Plan (APP/SSHP). Reference ER 385-1-92, paragraph 9*a*(1).

b. Administrative Record. The body of documents that "forms the basis" for the selection of a particular response at the site. 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 by qualified UXO personnel at sites with known or suspected OE to avoid any potential surface OE and subsurface anomalies. For example, creating safe travel lanes and work areas at a mixed site when HTRW investigations must occur prior to execution of an OE removal action.

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

e. 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.

f. Chemical Agent. A chemical substance that is intended for use in military operations to kill, seriously injure, or incapacitate a person through its physiological effects. Excluded are research, development, test, and evaluation (RDTE) solutions, industrial chemicals, riot control agents, chemical defoliants and herbicides, smoke flame, and incendiaries.

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

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

i. Chemical Warfare Materiel (CWM). An item configured as a munition containing a chemical substance to kill, seriously injure, or incapacitate a person through its physiological effects. Also includes V- and G- series nerve agent, H- series blister agent, and lewisite in other than munition configurations. Owing to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered CWM. CWM does not include: riot control agents; chemical herbicides; smoke and flame producing items; or soil, water, debris or other media contaminated with chemical agent (DA Memorandum 1997).

j. Conventional Ordnance and Explosives (Conventional OE). Ordnance and explosives (see definition below) excluding RCWM, BWM, and nuclear ordnance.

k. Engineering Controls. Any process or device designed to reduce blast fragmentation, or to contain vapor releases from RCWM and their effects.

l. Exclusion Zone (EZ). A safety zone established around an OE work area. Only project personnel and authorized, escorted visitors are allowed within the exclusion zone. Examples of EZs are safety zones around OE intrusive activities and safety zones where OE is intentionally detonated. For RCWM project sites, it is the area within the No Significant Effects (NOSE) zone.

m. Explosives Safety Submission (ESS). A document that serves as the instrument to describe planned explosives safety actions to the appropriate approval authority.

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

o. Formerly Used Defense Sites (FUDS). A Defense Environmental Restoration Program (DERP) at properties previously owned, leased, or otherwise possessed by the United States and under the jurisdiction of the Secretary of Defense; or manufacturing facilities for which real property accountability rested with DOD but were operated by contractors (government owned-contractor operated) and later legally disposed of.

p. 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.

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

r. 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.

s. 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.

t. Land Use Controls (LUC). LUC include any type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, contaminated property in order to prevent or reduce risks to human health, safety, and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination or physical barriers to limit access to property, such as fences or signs, or both.

u. Intrusive Activity. An activity, which involves, or results in, the penetration of the ground surface at an area known or suspected to contain OE. Intrusive activities can be of an investigative or removal action nature.

v. Maximum Credible Event (Chemical). An MCE is analogous to a worst-case analysis. The best credible information is applied to estimate the results. Assumptions are those that yield the potential for more severe consequences as opposed to assumptions that administrative or operational controls will always perform as intended. There should be a reasonable probability of occurrence.

w. 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. 2710).

x. Mixed Site. A project site that contains or is suspected to contain, both OE and HTRW contamination.

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

z. 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 Elgin 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 OE.

aa. Ordnance and Explosives (OE). Consists of (1) military munitions that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, or buried, (2) UXO, (3) soil presenting explosion hazards, and (4) buildings with explosives residues that present explosion hazards.

bb. OE Operations. All field work performed in support of response action, anomaly avoidance, RDTE, construction, and other activities at a site to address known or suspected OE hazards.

cc. 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 and ensure compliance with all provisions of the site plan and safety submission and Army regulations.

dd. 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.

cc. Recovered Chemical Warfare Materiel (RCWM). Non-stockpile CWM that was previously discarded, buried, or fired and discovered either unexpectedly or during planned environmental restoration operations.

dd. Removal Action. The cleanup or removal of OE from the environment, including the disposal of removed materiel, or the taking of other actions, such installing as security fencing, that may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment.

ee. Response Action. Action taken to prevent or minimize the release of OE so that it does not cause substantial danger to present or future public health and safety, welfare, or the environment (e.g., site investigation, intrusive sampling, removal action, ASR, inventory project report (INPR), EE/CA investigation, site visit)

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

gg. Site Visit. Any visit to an OE, or suspected OE contaminated, site prior to any OE operation.

hh. 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 OE operations/activities.

ii. Time Critical Removal Action. Removal actions where, based on the site evaluation, a determination is made that a removal is appropriate, and that less than 6 months exists before on-site removal activity must begin.

jj. 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. 2710).

kk. UXO Personnel. Personnel who have been trained to accomplish any or all of the following tasks involving military munitions: detection, identification, evaluation, rendering safe, recovery, and final disposition.

ll. UXO Technician. Personnel who are qualified for (as define 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 EP 1110-1-18 for detailed information for approved contract titles and qualifications.

mm. 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.

nn. Work Plan. Describes procedures, goals, methods, and personnel used for OE field activities, see EM 1110-1-4009, Chapter 4.