

CESO

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Safety  
SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS  
FOR ENVIRONMENTAL CLEANUP PROJECTS

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Glossary

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\*This regulation supersedes ER 385-1-92, dated 1 May 2007.

1. Purpose. This regulation identifies the occupational health and safety protection requirements for U.S. Army Corps of Engineer (USACE) managed environmental cleanup projects.

2. Applicability.

a. This regulation applies to Headquarters USACE (HQUSACE), major subordinate commands (MSC), districts, laboratories, and field operating activities managing or performing environmental cleanup activities.

b. All environmental cleanup projects are covered by the requirements of this Engineer Regulation (ER). Highly specialized occupational health and safety requirements for response actions taken to address Munitions and Explosives of Concern (MEC), explosive media, chemical warfare materiel (CWM), recovered chemical warfare materiel (RCWM) or chemical agent contaminated media (CACM) are addressed in ER 385-1-95. The definitions for MEC, explosive media, CWM, RCWM and CACM are in ER 385-1-95. Highly specialized occupational health and safety requirements for response actions taken to address radioactive materials or radiation generating devices are addressed in ER 385-1-80.

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

4. References. See Appendix A.

5. Discussion. To assure USACE compliance with Occupational Safety and Health Administration's (OSHA) Hazardous Waste Operations Standard for environmental cleanup defined in 29 Code of Federal Regulations (CFR) 1910.120 (b) through (o), this ER must be applied to projects in the Defense Environmental Restoration Program (DERP) (Formerly Used Defense Sites (FUDS), and Army Environmental Restoration Program (ERP, Installation Restoration Program addresses hazardous wastes and is subject to this ER. The Military Munitions Response Program (MMRP) is addressed under ER 385-1-95), Base Realignment and Closure (BRAC) program, Formerly Utilized Sites Remedial Action Program (FUSRAP), Environmental Protection Agency (EPA) Superfund and Brownfields programs, environmental cleanup response actions under Civil Works, Environmental Support for Others (ESFO) and any other program involving cleanup of contamination released to the environment.

6. Policy. All USACE Commands must comply with and specify contractor compliance with OSHA standards, especially 29 CFR 1910.120/29 CFR 1926.65, as well as USACE EM 385-1-1, Safety and Health Requirements Manual and Department of the Army (DA) regulations throughout all site investigation, engineering design, pilot studies, remedial action, construction, and treatment process Operations and Maintenance (O&M) phases of projects. Title 29 CFR 1910.120 and 29 CFR 1926.65 standards are essentially the same; 29 CFR 1910.120 applies to assessment, investigation, engineering, and design phases, whereas 29 CFR 1926.65 applies to the actual construction phase of the project.

a. As a minimum, the safety and health documents and procedures required by this regulation must comply with the regulations and appropriate guidance publications referenced above, and other applicable Federal, state, and local government safety and health requirements.

If there is a conflict between these standards, regulations, or requirements, the more stringent of the documents must apply.

b. Project management districts must engage and utilize the technical resources and services of an authorized Military Munitions Design Center (MM DC) in the planning and execution of environmental cleanup work where MEC, explosive media, CWM, RCWM or CACM have been, will be, or are suspected to be encountered. See ER 1110-1-8153 Military Munitions Support Services Roles and Responsibilities.

7. Definitions. See Appendix B.

8. Responsibilities.

a. HQUSACE

(1) The U.S. Army Corps of Engineers Safety Office (CESO) has overall responsibility for the USACE Safety and Occupational Health Program, to include environmental cleanup safety and occupational health (SOH) policy, programs, procedures, and oversight. CESO will:

(a) Plan, develop, review and revise USACE-wide environmental cleanup SOH requirements and guidance, including Engineering Regulations, Engineering Manuals and Engineering Circulars in coordination with U.S. Army Corps of Engineers Military Programs Environmental Division (CEMP-CE) and Civil Works Construction and Engineering (CECW-EC).

(b) Provide CEMP-CE, CECW-EC and the Environmental and Munitions Center of Expertise (EM CX) SOH technical guidance to the USACE Commands to ensure that established SOH requirements are met during investigation, design, construction, O&M activities, and other related activities at environmental cleanup sites.

(c) Serve as USACE focal point for overall resolution of SOH regulatory and technical issue within and outside the USACE as related to environmental clean-up projects.

(d) The CEMP-CE has overall responsibility for the USACE environmental remediation programs managed in the CEMP, to include Program planning, budgeting, execution, policy, procedures, and oversight. These programs include, but are not limited to, the following:

• Environmental Quality (EQ) for Army, Air Force, Navy, USMC and other Department of Defense DoD agencies
• Deactivated Nuclear Power Plant (DNPPP)
• Installation Restoration Program/Military Munitions Restoration Program for Army and Air Force
• Formerly Used Defense Site (FUDS)
• Base Realignment and Closure Environmental Restoration (BRAC - ER)
• Regional Environmental and Energy Office (REEO)

<ul style="list-style-type: none"> <li>• Native American Lands Environmental Mitigation Program (NALEMP)</li> </ul>
<ul style="list-style-type: none"> <li>• Defense State Memorandum of Agreement Program (DSMOA)</li> </ul>
<ul style="list-style-type: none"> <li>• USEPA Superfund (SF)</li> </ul>
<ul style="list-style-type: none"> <li>• Interagency and International Support – Environmental (IIS-E)</li> </ul>
<ul style="list-style-type: none"> <li>• Formerly Utilized Sites Remedial Action Program (FUSRAP)</li> </ul>

CEMP-CE will:

(2) Plan, develop, review and revise USACE-wide environmental remediation requirements and guidance, including Engineering Regulations, Engineering Manuals and Engineering Circulars in coordination with the CESO and CECW-EC.

(a) Provide all relevant SOH technical guidance to the USACE Commands to ensure established SOH requirements are met during investigation, design, construction, O&M activities, and other related activities at environmental cleanup sites.

(b) Serve as USACE focal point for overall resolution of SOH regulatory and technical issue within and outside the USACE as related to environmental clean-up projects.

(3) CECW-EC manages all engineering design, construction, and O&M technical aspects of MP and CW projects and has responsibility to ensure that appropriate SOH criteria and procedures are properly planned for, included and implemented on environmental cleanup projects. CECW-EC:

(a) Distributes USACE technical criteria pertaining to safety and occupational health for the environmental cleanup program and takes actions necessary for the implementation of occupational health and safety requirements. These technical criteria include engineering and design as well as remedial action and construction. CECW-EC has delegated CESO to be the proponent for development of all environmental cleanup SOH technical documents.

(b) Serves as the USACE environmental cleanup construction manager and has responsibility to ensure that safety and health criteria and actions needed to execute remedial action construction on environmental cleanup projects sites are properly implemented. Engineer Pamphlet (EP) 415-1-266, Resident Engineer Management Guide (REMG) for Hazardous, Toxic, and Radioactive Waste (HTRW) Projects, provides further details concerning remedial action and construction requirements. CECW-EC will provide technical assistance to USACE Commands involved in environmental cleanup construction activities with technical support from the EM CX and in coordination with CESO. Assist in conducting environmental cleanup construction program oversight and management evaluations concerning SOH in coordination with CESO. Assure that USACE Commands involved in environmental cleanup construction activities review, comment, and accept SOH submittals by implementing the procedures described in this ER.

(4) U.S. Army Corps of Engineers Directorate of Contracting, Policy Division serves as the

USACE environmental cleanup program point of contact for contracting policy and procedures and has responsibility to:

- (a) Notify CESO, USACE commands and the EM CX when contracting policy, and procedures for the environmental cleanup program change.
- (b) Assists CESO and the EM CX with the development of SOH language to be incorporated into environmental cleanup contract documents.
- (c) Provide oversight of SOH requirements by USACE Commands into environmental cleanup contract documents with help from the MSC and CESO.

b. Environmental and Munitions Center of Expertise (EM CX). The EM CX, has responsibility for maintaining and providing SOH expertise concerning execution of the environmental cleanup program and environmental cleanup projects to USACE commands, MSCs and USACE headquarters entities. The EM CX:

(1) Reviews SOH aspects of environmental cleanup program and project documents submitted by USACE district commands, MSCs and Headquarters as requested. Documents may include but are not limited to:

- (a) Environmental Cleanup Contract Documents.
- (b) Accident Prevention Plans/Site Safety and Health Plan Appendix (APP/SSHP) for environmental cleanup projects.
- (c) Any other documents (work plans, O&M plans) selected by the district, MSCs, and Headquarters because of special SOH concerns, unusual hazards, or SOH complexity.

(2) As requested, provides technical assistance and support to MSC and district commands regarding SOH requirements and procedures for environmental cleanup site investigation, engineering design, remedial action construction, treatment process and, O&M activities. This may also include USACE technical assistance of state or potentially responsible party led projects performed under the EPA Superfund program.

(3) Identifies and recommends to CESO, technical SOH policy and guidance needs and develops SOH guidance for environmental cleanup site investigations, engineering design, remedial action construction, treatment process and, O&M activities.

(4) Provides SOH technical expertise concerning the chemical or radiological contamination aspects of environmental cleanup.

(5) Provides technical expertise concerning MEC, explosive media, CWM, RCWM, radiological materials, and CACM.

c. Major Subordinate Commands (MSCs). The MSC will perform the following tasks to assure SOH quality in environmental cleanup programs:

(1) Promote and coordinate sharing of health and safety staff resources located at the districts to assure that Project Delivery Teams (PDT) for environmental cleanup projects are appropriately staffed.

(2) Coordinate resolution of all disputed SOH related Independent Technical Review (ITR) comments provided by the EM CX to the district commands. Assure that all safety and health comments are resolved satisfactorily and retain final acceptance authority if there is a conflict.

(3) Conduct management evaluations of the MSC environmental cleanup program execution and implementation of SOH requirements.

d. Project Management Districts. Are responsible for site investigations and engineering design and construction of environmental cleanup projects.

Districts will:

(1) Ensure qualified USACE SOH professionals are included on environmental cleanup project delivery teams to do the following:

(a) Perform technical analysis of contract and project objectives to assure that SOH requirements are managed correctly during environmental cleanup site investigations, engineering design, field pilot studies, remedial action construction, treatment process and O&M activities. Radiation safety support can be obtained from the USACE Radiation Safety Support Team (RSST) if in-house health physics personnel are not available. Support from the RSST is available by contacting the EM CX.

(b) Develop SOH aspects of contract documents and aid in selecting contractors.

(c) Ensure contract documents require contractors to involve qualified SOH personnel on environmental cleanup projects, that appropriate SOH technical analysis is performed, and that appropriate SOH documents are developed.

(d) Ensure that contractors cost effectively account for SOH requirements when developing work plans.

(e) Incorporate SOH technical requirements into contract documents.

(2) Develop, through in-house or contracted resources, SOH documents for environmental cleanup projects that are appropriate to project phase and contract type. SOH documents include, but are not limited to, the following:

(a) APP/SSHP for investigations, predesign, pilot studies, remedial action construction, Treatment Process and O&M activities.

(b) When appropriate to contract type, properly edit, “UNIFIED FACILITIES GUIDE SPECIFICATION, DIVISION 01 - GENERAL REQUIREMENTS, SECTION 01 35 29.13, HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES” and incorporate into contract specifications.

(c) Health and Safety Design Analysis (HSDA) to support project specifications.

(3) Participate in the development of APP/SSHP documents developed for in-house investigations, predesign, and pilot study activities.

(4) Ensure that all environmental cleanup project designs, cost and technical proposals, work plans, specifications, and APP/SSHPs for remedial action construction treatment process and O&M activities are provided to the SOH Office at the local geographic command for review and input.

(5) Comprehensively review environmental cleanup project designs to assure the project can be safely constructed and operated.

(6) Provide technical review of construction APP/SSHP when requested by the geographic construction district.

e. Local Geographic District Command. The local Geographic District Command is responsible for assuring that SOH requirements are implemented during execution of environmental cleanup projects. The local geographic district safety office will:

(1) Participate on project delivery teams when requested by the project management district. If necessary, the local district command will ask the MSC to coordinate SOH staff support from other MSC districts or the EM CX to represent the local geographic district command safety office. Radiation safety support can be obtained from the USACE RSST if in-house health physics personnel are not available. Support from the RSST is available by contacting the EM CX.

(2) Identify local SOH issues to be incorporated into contract documents, project specifications and work plans developed by the project management district.

(3) Review APP/SSHPs for cleanup activities performed within local district boundaries and report SOH deficiencies to the project management district for correction.

(4) When requested by the project management district, oversee implementation of APP/SSHP requirements at cleanup activities.

(5) Actively participate in negotiations to modify APP/SSHPs or the SOH aspects of other contract documents when changes are proposed by contractors.

(6) Assist the project managements districts in preparing APP/SSHPs developed for in-house investigations, predesign activities, and pilot studies.

9. Documents. All contracted and in-house environmental cleanup activities must require development of the following documents, as appropriate to project phase (i.e., site investigation, engineering design, remedial action construction, treatment process and O&M activities) and contract type.

a. Site Safety and Health Plan Appendix to the Accident Prevention Plan (APP/SSHP).

(1) All contractors must develop and implement a Site Safety and Health Plan (SSHP) that must be attached to the APP as an appendix. The APP/SSHP must address all occupational safety and health hazards (traditional construction as well as contaminant related hazards) associated with environmental cleanup activities. The APP/SSHP must cover each SSHP element in section 33.B of EM 385-1-1 and each APP element in Appendix A of EM 385-1-1. SSHP appendix elements that overlap with APP elements need not be duplicated in the APP/SSHP, provided each SOH issue receives adequate attention and detail and is documented in the APP/SSHP. In-house activities (performed by government personnel) do not require development of an APP, but do require development and implementation of an SSHP covering each element in Section 33.B in EM 385-1-1 and must comply with local district policies for in-house work.

(2) The APP/SSHP must be developed under the direct supervision of a qualified Safety and Health Manager (SHM). (See the definitions section of this ER for SHM qualifications.)

(3) On-site implementation and enforcement of the APP/SSHP must be managed by a qualified Site Safety and Health Officer (SSHO). (See the definition section of this ER for SSSH qualifications.)

(4) Environmental cleanup projects that are anticipated to involve MEC, explosive media, CWM RCWM or CACM require support by a military munitions design center and must have an APP/SSHP developed per the requirements of this regulation and must incorporate the additional requirements specified by ER 385-1-95 and EM 385-1-97. Additionally, environmental cleanup projects that are anticipated to involve radiological materials must have an APP/SSHP developed per the requirements of this regulation and must incorporate additional requirements specified by ER 385-1-80.

b. Health and Safety Design Analysis.

(1) All designs for remedial action construction and treatment processes must include a HSDA as a chapter of the project design analysis. The HSDA must address each element in section 33.B in EM 385-1-1 and any other design aspect affecting the safe construction or operation of the project. The HSDA must justify the SOH requirements to be specified in the remedial action construction design or treatment process project specifications.

(2) The HSDA must be developed under the direct supervision of a qualified SHM (See the definitions section of this ER for SHM qualifications).

c. SOH Project Specifications.

(1) All plans and specifications for remedial action construction and HTRW treatment process and O&M activities must contain a section that delineates minimum safety, health, and emergency response requirements to which the remedial action construction or HTRW treatment process and O&M activities contractors must adhere. SOH requirements must be justified in the HSDA and incorporated into the project design package by UNIFIED FACILITIES GUIDE SPECIFICATION, DIVISION 01 - GENERAL REQUIREMENTS, SECTION 01 35 29.13, HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES and any other project specification sections as appropriate. The site-specific, task-specific, and hazard-specific procedures, precautions, and equipment necessary for the protection of SOH must be clearly biddable and enforceable.

(2) The SOH project specifications must be developed under the direct supervision of a qualified SHM (See the definitions section of this ER for SHM qualifications).

10. Unanticipated Discovery of Ordnance and Explosives. If, during the course of any environmental cleanup response action (site investigation, removal action, or remediation activity) or remedial action construction, an unanticipated or unplanned discovery of MEC, explosive media, CWM, RCWM or CACM occurs, all work must cease, personnel must withdraw from the affected area the appropriate military munitions design center must be contacted for further information and direction. See ER 385-1-95 and EM 385-1-97 for specific details.

FOR THE COMMANDER:

3 Appendices  
Appendix A References  
Appendix B Definitions and Acronyms  
Appendix C Exemption Criteria for  
Cleanup Activities  
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COL, EN  
Chief of Staff

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APPENDIX A  
References

- a. PL 96-510, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- b. PL 98-212, DOD Appropriation Act, Environmental Restoration.
- c. PL 99-190, DOD Appropriation Act, Environmental Restoration.
- d. PL 99-499, Superfund Amendments and Reauthorization Act (SARA).
- e. Federal Acquisition Regulations (FAR) 52.236-13, Accident Prevention.
- f. AR 200-1, Environmental Quality, Environmental Protection and Enhancement.
- g. AR 385 series.
- h. AR 40 series.
- i. ER 385 series.
- j. ER 385-1-95, Health and Safety Requirements for Ordnance and Explosive Response Actions.
- k. ER 1110-1-8153, Military Munitions Support Services
- l. ER 1110-1-8158, Corps-Wide Centers of Expertise Program
- m. ER 1165-2-132, Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects
- n. EP 415-1-266, Resident Engineer Management Guide (REMG) for Hazardous, Toxic, and Radioactive Waste (HTRW) Projects
- o. EM 385-1-1, USACE, Safety and Health Requirements Manual
- p. 10 CFR 19 - 171, Nuclear Regulatory Commission.
- q. 29 CFR 1910, Occupational Safety and Health Administration (OSHA), Occupational Safety and Health Standards.
- r. 29 CFR 1910.120, OSHA, Hazardous Waste Site Operations and Emergency Response.
- s. 29 CFR 1926, OSHA, Safety and Health Regulations for Construction.

- t. 29 CFR 1926.65, OSHA, Hazardous Waste Site Operations and Emergency Response.
- u. 29 CFR 1960, OSHA, Federal Employee Safety and Health Programs.
- v. 49 CFR Subpart C, Department of Transportation (DOT), Hazardous Materials Regulations.
- w. NIOSH/OSHA/USCG/EPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985.
- x. CESO-I Memorandum, subject: HTRW Medical Surveillance Program Inclusion and Frequency Criteria, dated 29 September 1999

## APPENDIX B

### Definitions

B. Definitions. The following definitions are provided to help users fully understand the various requirements of this regulation. In addition, considering the large number of acronyms used herein, a roster of acronyms has been provided.

a. **Environmental Cleanup Activities.** Environmental Cleanup activities include those activities undertaken for the DERP, including FUDS, active sites (Installation Restoration Program/Military Munitions Response Program and Compliance Cleanup (CC) at active DOD facilities, and ERP/CC on BRAC sites, (FUSRAP, EPA Superfund program, environmental cleanup actions associated with Civil Works projects, and any other mission or non-mission work done for others at Environmental cleanup sites. Such activities include, but are not limited to, Preliminary Assessments/Site Inspections, Remedial Investigations, Feasibility Studies, Engineering Evaluations/Cost Analyses (EE/CA), Resource Conservation and Recovery Act Facility Investigations/Corrective Measures Studies/Corrective Measures Implementations/Closure Plans/Part B Permits, or any other investigations, design activities, remedial construction or treatment process O&M at known, suspected, or potential sites. Environmental cleanup site activities must also include those conducted at “Containerized” sites, such as leaking Polychlorinated Biphenyls (PCB) transformers, leaking or suspected leaking Underground Storage Tanks, that contain hazardous substances, hazardous wastes, or hazardous materials as defined by 29 CFR 1910.120(a)(3)/29 CFR 1926.65(a)(3).

b. **Safety and Health Manager (SHM).** This is a safety and occupational health professional meeting one of the three definitions below, with 3 years SOH management experience in hazardous waste site cleanup activities, and with the knowledge and skills to assure that on-site work is safely conducted. SHM credentials must reflect an ability to control and manage the primary contaminant related hazards (Certified Industrial Hygienist for chemical hazards, Certified Safety Professional for safety hazards, and Certified Health Physicists for ionizing radiation hazards) on the project. Projects with multiple contaminant related hazards (chemical, ionizing radiation, and safety) require the SHM to seek assistance from SOH professionals with appropriate credentials, knowledge, and skills to address secondary hazards. In-house operations do not require the SHM to have or seek support from certified SOH professionals.

(1) **Industrial Hygienists.** These are personnel meeting the Office of Personnel Management Standards for the Industrial Hygiene Series GS-0690, personnel certified by the American Board of Industrial Hygiene, and military personnel identified as being a qualified Industrial Hygienist by the Surgeon General of the individual Uniformed Services. In addition, it is expected these personnel, by virtue of their education, special studies, and training, have acquired competence in the practice of Industrial Hygiene.

(2) **Health Physicists.** These are personnel meeting the Office of Personnel Management Standards for the Health Physicist Series GS-1306, personnel certified by the American Board of Health Physicists, and military personnel identified as being a qualified Health Physicist by DA or the other Uniformed Services. In addition, it is expected these personnel, by virtue of their

education, special studies, and training, have acquired competence in the practice of Health Physics.

(3) Safety Professionals. These are personnel meeting the Office of Personnel Management Standards for the Occupational Safety and Health Manager Series GS-0018 and personnel certified by the Board of Certified Safety Professionals. In addition, it is expected these personnel, by virtue of their education, special studies, and training, have acquired competence in the practice of safety and occupational health.

c. Site Safety and Health Officer. The SSHO, as a minimum, have completed: The 30-hour OSHA Construction Industry safety class (may be web-based training if the student is able to directly ask questions of the instructor by chat/phone) and five (5) years of continuous construction industry safety experience in supervising/ managing general construction (managing safety programs or processes or conducting hazard analyses and developing controls) and one year of experience implementing SSHP requirements at environmental cleanup activities.

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APPENDIX C  
29 CFR 1910.120/29 CFR 1926.65 (HAZWOPER)  
Exemption Criteria for Cleanup Activities

C-1. OSHA's HAZWOPER standard ONLY applies to cleanup tasks that will expose employees to contaminant-related hazards. For the purposes of this ER, OSHA's HAZWOPER standard does not need to be applied to:

a. Cleanup tasks where the task or operation creates a barrier eliminating employee exposure to contaminant-related hazards.

b. Cleanup tasks that can be managed, without the use of engineering controls or PPE, so that employees will not be exposed to contaminant-related hazards.

C-2. All decisions to exempt HAZWOPER training and medical surveillance requirements from cleanup tasks must be made by qualified SOH staff and must be justified in project work plan.

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Glossary  
Acronyms

APP/SSHP	Accident Prevention Plan/Site Safety and Health Plan
AR	Army Regulation
BRAC	Base Realignment and Closure
CACM	Chemical Agent Contaminated Media
CECW	Corps of Engineers Civil Works
CEMP	Corps of Engineers Military Programs
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESO	Corps of Engineers Safety and Occupational Health Office, HQUSACE
CFR	Code of Federal Regulations
CX	Center of Expertise
CW	Civil Works
CWM	Chemical Warfare Materiel
DA	Department of the Army
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
EM	Engineering Manual
EP	Engineering Pamphlet
EPA	Environmental Protection Agency
ER	Engineering Regulation
FAR	Federal Acquisition Regulation
FS	Feasibility Study
FUDS	Formerly Used Defense Site
FUSRAP	Formerly Utilized Sites Remedial Action Program
GS	General Schedule
HQUSACE	Headquarters U. S. Army Corps of Engineers
HSDA	Health and Safety Design Analysis
HTRW	Hazardous, Toxic and Radioactive Waste
MSC	Major Subordinate Commands
NIOSH	National Institute for Occupational Safety and Health
O&M	Operation and Maintenance
OSHA	Occupational Safety and Health Administration
PDT	Project Delivery Team
PL	Public Law
RCRA	Resource Conservation and Recovery Act
RCWM	Recovered Chemical Warfare Materiel
RI	Remedial Investigation
RSST	Radiation Safety Support Team
SI	Site Inspection
SOH	Safety and Occupational Health
SHM	Safety and Health Manager
SSHO	Site Safety and Health Officer
USACE	U. S. Army Corps of Engineers
UST	Underground Storage Tank