

## SECTION 28

# HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE (HAZWOPER)

### 28.A. GENERAL.

28.A.01 This Section applies to:

- a. Hazardous waste site cleanup operations performed under the Comprehensive Environmental Response, Compensation, Liability Act (CERCLA) or RCRA as specified by OSHA in 29 CFR 1910.120 and 29 CFR 1926.65 (a) (1) (i), (ii) and (iii) (e.g., site investigations, remedial action construction, treatment process operation, and maintenance at: Formerly Used Defense Sites (FUDS) projects, Installation Restoration Program (IRP) projects, Base Realignment and Closure (BRAC) projects, Formerly Used Sites Remedial Action Program (FUSRAP) projects, U.S. Environmental Protection Agency (EPA) Superfund projects, and hazardous waste site cleanup operations performed under the civil works program).
- b. Facilities or construction projects holding RCRA Treatment Storage and Disposal (TSD) permits as specified by OSHA in 29 CFR 1910.120 and 29 CFR 1926.65 (a) (1) (iv).
- c. Facilities or construction projects where emergency response as specified by OSHA in 29 CFR 1910.120 and 29 CFR 1926.65 (a) (1) (v) may be required.

### 28.B SITE SAFETY AND HEALTH PLAN (SSHP)

28.B.01 Hazardous waste site cleanup operations require development and implementation of a SSHP that shall be attached to the Accident Prevention Plan (APP) as an appendix.

- a. The APP/SSHP shall address all occupational safety and health hazards associated with site cleanup operations.

b. Contracted work on the cleanup projects shall be performed in compliance with the APP/SSHP.

c. Cleanup operations performed by in-house (Government) personnel do not require development of an APP, but shall be performed in compliance with section 01.A.09 and local safety and health policies for in-house activities and shall comply with the SSHP.

d. Changes and modifications to the SSHP are permitted and shall be made in writing with the knowledge and concurrence of the safety and health manager (SHM) and accepted by the GDA.

28.B.02 The SSHP shall cover the following in project-specific detail. General information adequately covered in the APP (introduction, site background, SOH organization and lines of authority, general site control and layout and general site safety procedures, logs, reports and inspections) need not be duplicated. Section 06.E IONIZING RADIATION shall be used to develop appropriate section of the SSHP for cleanup projects involving radioactive isotopes.

a. Site description and contamination characterization - a description of the contamination with the exposure potential to adversely affect safety and occupational health and likely to be encountered by the on-site work activities;

b. Activity Hazard Analysis (AHA)/Risk analysis. An AHA shall be developed for each task/operation to be performed per 01.A.13. The AHA shall account for all hazards (classic safety, chemical, physical, biological, ionizing radiation) likely to be encountered while performing the work.

c. Staff organization, qualifications, and responsibilities per 28.C;

d. Training, general and project-specific per 28.D;

e. Personal Protective Equipment (PPE). PPE used to protect workers from site-related hazards (construction safety and health and contaminant-related) shall comply with requirements specified in Section 5;

f. Medical surveillance. Certification of medical surveillance program participation shall be appended to the SSHP. The certification shall include: employee name, date of last examination, and name of examining physician(s) and shall be per Section 28.E. The required written physician's opinion shall be made available upon request to the GDA;

g. Exposure monitoring/Air sampling program. Exposure monitoring and air sampling shall be performed to evaluate effectiveness of prescribed PPE and to evaluate worker exposure to site-related contaminants and hazardous substances used in the cleanup process. Project-specific exposure monitoring/air sampling requirements shall comply with requirements specified Section 6;

h. Heat and cold stress. The procedures and practices for protecting workers from heat and cold stress shall comply with the requirements 06.I;

i. Standard operating safety procedures, engineering controls, and work practices. Safety and occupational health procedures, engineering controls and work practices shall be addressed for the following as appropriate:

(1) Site rules/prohibitions (buddy system, eating/drinking/smoking restrictions, etc.);

(2) Work permit requirements (radioactive work, excavation, hot work, confined space, etc.);

(3) Material handling procedures (soil, liquid, radioactive materials, spill contingency);

(4) Drum/container/tank handling (opening, sampling, overpacking, draining, pumping, purging, inerting, cleaning, excavation and removal, disassembly and disposal, spill contingency;

(5) Comprehensive AHA of treatment technologies employed at the site;

j. Site control measures. Work zones shall be established so that on-site activities do not spread contamination. The site shall be set up so that there is a clearly defined exclusion zone (EZ) and a clearly defined support zone (SZ) with a contamination reduction zone (CRZ) as a transition between the EZ and SZ;

k. Personal hygiene and decontamination. A personal hygiene and decontamination station shall be set up in the CRZ for personnel to remove contaminated PPE and to wash when exiting the EZ;

l. Equipment decontamination. An equipment decontamination station shall be set up in the CRZ for equipment to be decontaminated when exiting the EZ;

m. Emergency equipment and first aid. The equipment and personnel required for first aid and CPR shall comply with the requirements in Section 3. Emergency equipment required to be on-site shall have the capacity to respond to project-specific emergencies. Site emergencies may require (but should not be limited to) PPE and equipment to control fires, leaks and spills, or chemical (contaminant or treatment process) exposure;

n. Emergency response and contingency procedures (ERP). An ERP shall be developed that addresses the following emergency response and contingency procedures:

(1) Pre-emergency planning. An agreement shall be established between the Contractor (or the GDA for in-house work), local emergency responders, and the servicing

emergency medical facility that specifies the responsibilities of on-site personnel, emergency response personnel, and the emergency medical facility in the event of an on-site emergency;

(2) Personnel and lines of authority for emergency situations;

(3) Criteria and procedures for emergency recognition and site evacuation (e.g., emergency alarm systems, evacuation routes and reporting locations, site security);

(4) Decontamination and medical treatment of injured personnel;

(5) A route map to emergency medical facilities and phone numbers for emergency responders;

(6) Criteria for alerting the local community responders.

## **28.C RESPONSIBILITIES**

28.C.01 The Safety and Health Manager (SHM) must meet the qualifications and fulfill the responsibilities stated below for all hazardous waste cleanup operations. The SHM, dependent upon the contaminant-related hazards on the project, shall be a Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP) or Certified Health Physicist (CHP).

a. The SHM shall have 3 years of experience managing safety and occupational health at hazardous waste site cleanup operations.

b. The SHM shall enlist the support of safety and occupational health professionals with appropriate education and experience when working on sites with multiple (chemical, safety, ionizing radiation) hazards.

c. The SHM shall be responsible for the following actions:

EM 385-1-1  
XX Sep 13

- (1) Developing, maintaining, and overseeing implementation of the SSHP;
- (2) Visiting the project as needed to audit the effectiveness of the SSHP;
- (3) Remaining available for project emergencies;
- (4) Developing modifications to the SSHP as needed;
- (5) Evaluating occupational exposure monitoring/air sampling data and adjusting SSHP requirements as necessary;
- (6) Serving as a QC staff member;
- (7) Approving the SSHP by signature.

28.C.02 Site Safety and Health Officer (SSHO). The SSHO is required at cleanup operations.

a. The SSHO shall have a minimum 1 year experience implementing safety and occupational health procedures at cleanup operations and shall meet 29 CFR 1910.120/29 CFR 1926.65 requirements for 40 hour initial and 8 hour supervisor training and, maintain 8 hour refresher training requirements. In addition, for supervision of safety and health at projects involving intrusive activities, the SSHO shall meet the qualifications for SSHO specified in section 01.A.17 b. Intrusive activities include, but are not exclusive to, drilling, demolition, and excavation.

b. The SSHO shall have training and experience to conduct exposure monitoring/air sampling and select/adjust protective equipment use.

c. The SSHO shall have the authority and is responsible for the following actions:

- (1) Being present anytime cleanup operations are being performed to implement the SSHP;
- (2) Inspecting site activities to identify safety and occupational health deficiencies and correct them;
- (3) Coordinating changes/modifications to the SSHP with the SHM, site superintendent, and contracting officer; and
- (4) Conducting project specific training.

**28.D TRAINING.** Personnel shall comply with the following general and project-specific training requirements:

28.D.01 General training. General training requirements apply to project personnel exposed to contaminant-related health and safety hazards. General training must comply with the following requirements:

a. 40-hour off-site hazardous waste site instruction. Off-site instruction shall comply with the 40-hour training requirements in OSHA standards 29 CFR 1910.120 and 29 CFR 1926.65.

(1) Instructor qualifications: Personnel responsible for planning and teaching/facilitating the 40-hour training course shall be thoroughly knowledgeable of the 40-hour training topics specified by OSHA in 29 CFR 1910.120 and 29 CFR 1926.65 and shall possess the knowledge and experience to instruct on each of the topics. Instructors shall retain qualifications for teaching on organizationally relevant 40-hour training safety and occupational health topics by regularly attending and participating in formal industrial hygiene or safety related courses, seminars and conferences. Five (5) days of training over a five (5)-year period is required.

(2) 40-hour training course outline for cleanup operations. 40-hour training courses shall cover the following topics in a manner that is relevant to organizational operations:

EM 385-1-1  
XX Sep 13

- (a) Names of personnel and alternates responsible for site safety and health;
  - (b) Safety, health and other hazards;
  - (c) Use of personal protective equipment;
  - (d) Work practices by which employees can minimize risks from hazards;
  - (e) Safe use of engineering controls and equipment to minimize exposure to hazards;
  - (f) Medical surveillance implemented for the protection of employees;
  - (g) Decontamination procedures for personnel and equipment;
  - (h) Emergency response plan development and implementation for site work;
  - (i) Confined space hazards and awareness;
  - (j) Spill containment.
- (3) Computer-based interactive 40-hour training. Computer-based interactive training is acceptable as long as the following criteria are met:
- (a) The course shall cover each of the topics required by OSHA for cleanup operations 40-hour training. See paragraph 28.D.01.a(2);
  - (b) Students shall be able to ask questions and receive answers in a timely manner from a qualified instructor with hazardous waste site cleanup safety and health experience;
  - (c) Students shall participate in 16-hours of hands-on exercises to demonstrate equipment use and procedural proficiency.

b. 3-Days On-the-Job-Training (OJT). In addition to the classroom training, the training shall include 3 days of OJT (in field) experience under the direct supervision of a trained, experienced supervisor.

c. 8-hour annual refresher training. Refresher training shall comply with the requirements in OSHA standards 29 CFR 1910.120 and 29 CFR 1926.65. USACE employees shall comply with local district hazardous waste refresher training policies.

(1) The following is the minimum for the 8-hour refresher training course outline for cleanup operations. Refresher training courses shall cover the following topics in a manner that is relevant to organizational operations and shall reflect on hazards that were encountered in the previous year:

- (a) Names of personnel and alternates responsible for site safety and health;
- (b) Safety, health and other hazards;
- (c) Use of personal protective equipment;
- (d) Work practices by which employees can minimize risks from hazards;
- (e) Safe use of engineering controls and equipment to minimize exposure to hazards;
- (f) Medical surveillance implemented for the protection of employees;
- (g) Decontamination procedures for personnel and equipment;
- (h) Emergency response plan development and implementation for site work;

EM 385-1-1  
XX Sep 13

(i) Confined space hazards and awareness;

(j) Spill containment.

(2) Computer-based interactive 8-hour refresher training. Computer based interactive training is acceptable as long as the following criteria are met:

(a) The course shall cover each of the topics required by OSHA for cleanup operations refresher training. See paragraph 4 a (ii);

(b) Students shall be able to ask questions of and receive answers in a timely manner from a qualified instructor with hazardous waste site cleanup health and safety experience;

(c) Students shall have access to hands on exercises when necessary for thorough learning.

d. Supervisory training. On-site supervisors shall comply with the 8-hour supervisory training requirements in OSHA standards 29 CFR 1910.120 and 29 CFR 1926.65.

28.D.02 Project-specific training. Training specific to other sections of this manual, OSHA standards applicable to site work and operations, and site specific hazards relevant to on-site contamination shall be provided to workers before on-site work begins. When relevant, assure that workers are made aware of contaminant-related hazards by use of a site specific map.

28.D.03 DOT and DOD training is required for all persons who prepare DOT shipping papers (including hazardous waste manifests), label, package and/or mark containers for purposes of transportation. Training shall be documented and employees should be issued an appointment letter by their command.  
> **See EP 415-1-266 and DOD 4500.9-R**

**28.E. MEDICAL SURVEILLANCE.** All personnel performing on-site work that will result in exposure to contaminant-related health

and safety hazards shall be enrolled in a medical surveillance program that complies with OSHA standards 29 CFR 1910.120 (f) and 29 CFR 1926.65 (f).

28.E.01 Certification of medical surveillance program participation shall be appended to the SSHP. The certification shall include: employee name, date of last examination, and name of examining physician(s).

28.E.02 The required written physician's opinion shall be made available upon request to the GDA.

28.E.03 All medical records shall be maintained in accordance with 29 CFR 1910.1020.

28.E.04 USACE employees must comply with USACE medical surveillance policies.

28.E.05 Should any unforeseen hazard become evident during the performance of work, the SSHO shall bring such hazard information to the attention of the SHM and the GDA (both verbally and in writing) for resolution as soon as possible. In the interim, necessary action shall be taken to reestablish and maintain safe working conditions.

**28.F RCRA TSD FACILITIES.** Requirements specified in 29 CFR 1910.120 and 29 CFR 1926.65(p), and the terms of the facility RCRA permit shall be complied with for operations at TSD facilities.

**28.G FACILITY OR CONSTRUCTION PROJECT EMERGENCY RESPONSE.** Projects using, storing, or handling hazardous substances and whose employees will be engaged in emergency response operations shall comply with 29 CFR 1910.120 (q) and 29 CFR 1926.65 (q) (a) (1) (v) when a hazardous substance release may result in exposure causing adverse affects to the health or safety of employees.

- **EXCEPTION:** Projects that will evacuate their employees from the danger area when an emergency occurs, and do

EM 385-1-1  
XX Sep 13

not permit any of their employees to assist in handling the emergency, (if they provide an emergency action plan (EAP) in accordance with 29 CFR 1910.38(a) and 29 CFR 1926.35).

28.G.01 If applicable, the site manager shall develop and implement an ERP that addresses the following items:

- a. Operations. Identify operations requiring use of hazardous substances;
- b. Pre-emergency planning with local emergency responders. Describe emergency response agreements, including roles and responsibilities, made with local emergency responders for hazardous material response, fire, rescue, emergency medical care, and security and law enforcement;
- c. Personnel roles, lines of authority, training, and communication. Describe key personnel roles, command structure/lines of authority and communications requirements for responding to site-specific hazardous substance releases;
- d. Emergency recognition and prevention. Identify the likely emergency scenarios for the project and how employees can expect to identify and recognize emergency scenarios;
- e. Safe distances and places of refuge. Select safe places of refuge to be used in emergency situations, identify these locations in the ERP, and require employees to report to selected places of refuge during emergencies;
- f. Site security and control. Describe how the facility will be secured and describe access to the site controlled during emergencies;
- g. Evacuation routes and procedures. Describe and map out evacuation routes to safe places of refuge and any special safety and health procedures employees must follow while evacuating the facility;

h. Decontamination. Develop and describe plans and procedures for decontaminating personnel if/when they come in contact with leaking hazardous substances;

i. Emergency medical treatment and first aid. Explain how emergency medical treatment and first aid will be provided in the event of a hazardous substance spill;

j. Emergency alerting and response procedures. Describe how personnel will be alerted in the event of a hazardous substance spill, and how facility personnel must respond after emergency alerting procedures are initiated;

k. Critique of response and follow-up. Describe how lessons learned from emergency response will be documented and used to improve future emergency response actions;

l. PPE and emergency equipment. Describe the PPE and emergency response equipment that will be available for use by response personnel at the facility;

m. ERT. Designate a facility-specific ERT. Describe the team's emergency responsibilities for interacting with local emergency response providers (i.e., where the facility team's responsibilities end and the local response providers begin);

28.G.02 Personnel training requirements. At a minimum, ERT personnel at the project shall be trained to the "First Responder Operations Levels" specified in 29 CFR 1910.120 (q)(6)(ii). Response above and beyond defensive requires additional training and highly qualified supervision under 29 CFR 1910.120(q) and 29 CFR 1926.65(q) and must be specified on a project specific basis.

28.G.03 ERT responsibilities. The ERT shall, at a minimum, respond in a defensive manner to hazardous substance releases at the facility or construction project using the equipment and procedures specified in the ERP for defensive response. The ERT shall only provide response services beyond defensive if qualified

EM 385-1-1  
XX Sep 13

and only according the procedures specified in the facility or construction project-specific ERP.

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