

APPENDIX I
HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

1. Purpose. This appendix prescribes responsibilities and procedures for implementing the U.S. Army Corps of Engineers (USACE) safety and occupational health requirements for hazardous, toxic and radioactive waste (HTRW).
2. Applicability. This appendix applies to all USACE employees engaged in all investigative and corrective actions at hazardous, toxic, and radioactive waste (HTRW) or suspected HTRW sites including DERP-FUDS. The specific requirements vary in proportion to the risks posed at a specific site and are determined by an assessment of site hazards and site activities. Limited portions apply to data collection activities for environmental assessments conducted for real estate transactions.
3. References.
 - a. 29 CFR 1910.120, OSHA, Hazardous Waste Operations and Emergency Response
 - b. 29 CFR 1926.65, OSHA, Hazardous Waste Operations and Emergency Response
 - c. ER 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities
 - d. ER 385-1-90, Respiratory Protection
 - e. EM 385-1-1, Safety and Health Requirements Manual
4. Definitions. The following definitions are provided to assist in interpretation and implementation of this appendix.
 - a. HTRW Site. A site that has been investigated and is known to contain HTRW.
 - b. Suspected HTRW Site. A site that has not been thoroughly investigated, but for which there is documented rationale for suspecting the presence of HTRW. Rationale may include photographs, historical data, or knowledge of previous use of the site.
 - c. Intrusive site activities. Site procedures that put the employee at risk of direct exposure to site hazards. Examples of

intrusive activities include but are not limited to: drilling or turning of soil for inspection, sample collection, opening containers, opening wells for sample collection, entering abandon structures; and similar activities.

d. Non-intrusive site activities. Site activities that are limited in scope and are restricted from intrusive data collection procedures as listed above or other activities that put an employee at risk of exposure to or direct contact with site activities. Examples of non-intrusive activities include visual inspection and walk through or drive through site visits.

e. Exclusion Zone. Zone where contamination does or could occur.

f. Contamination - Reduction Zones. Transition areas between exclusion zone and clean areas and where decontamination takes place.

g. Support Zone. Uncontaminated areas where administrative and support functions are located.

5. Responsibilities.

a. Chief, District Safety and Occupational Health Office (SOHO) will:

(1) Provide oversight of the safety and health of USACE employees engaged in hazardous materials/hazardous waste activities.

(2) Ensure that the district's written safety and occupational health program adequately addresses employees and activities at HTRW sites and supplements Site Safety and Health Plans (SSHPs) developed for USACE activities.

(3) Assist in the preparations of emergency response plans for emergencies involving the release of hazardous materials/waste at USACE managed facilities.

(4) Assist in the development of SSHPs for in-house HTRW activities.

(5) Provide safety review and acceptance of all SSHPs for all in-house or contractor conducted preliminary assessments and investigations.

(6) Review all health and safety design criteria and specifications provided by HTRW design districts for projects within the local district geographical boundaries prior to advertisement.

(7) Review for concurrence any requested changes to accepted SSHP's during investigative and remediation activities.

(8) Review and provide comments and/or recommendations for all required contractor HTRW construction assignment submittals, including the contractor's Safety and Health Plan (SHP) and Site Safety and Health Plan (SSHP), prior to commencement of on-site activities.

(9) Provide safety support for all HTRW activities within the geographic district.

(10) Establish and maintain a tracking system to identify USACE employees who meet the training and medical surveillance requirements (ref 3a and 3b) for entry into HTRW sites.

(11) Monitor or provide for monitoring of USACE employees' exposure to hazardous agents at HTRW sites. If the contractor is providing monitoring for the site, the contractor's sampling data may be used to determine USACE employee exposure in lieu of sampling.

(12) Furnish physicians providing medical surveillance with a written description of the USACE employee's duties as they relate to HTRW activities and his/her exposure assessment.

(13) Maintain copies of the physician's written opinion for all USACE employees medically certified to perform HTRW activities as required by para (f) (7) of reference 3a and para (f) (7) of reference 3b.

(14) Certify that USACE employees have met medical and training requirements for activities at sites covered by these regulations.

(15) Ensure that USACE employees required to use respiratory protection are enrolled in the local district respiratory protection program as stated in reference 3c.

(16) Verify that medical protocol and exam results are reviewed by a licensed physician who is certified in Occupational

Medicine or who, by training and experience is considered Board-eligible by the American Board of Preventive Medicine, Incorporated.

b. Chiefs, Local District Divisions executing work at HTRW or Suspected HTRW sites will:

(1) Develop and provide formal sign off of site specific safety and health plans (SSHP's) for each HTRW site activity performed by his/her personnel.

(2) Coordinate with Chief, district SOHO, for review and acceptance of SSHP's for HTRW site activities involving his/her personnel.

(3) Identify all USACE employees who meet the criteria in paragraphs 8 and 9 for training and medical surveillance. Coordinate with district SOHO to ensure certification is maintained.

(4) Develop activity hazard analyses that reflect all HTRW activities performed by his/her personnel.

(5) Maintain documentation of district SOHO review and acceptance of SSHP's for his/her HTRW site activities.

(6) Provide personal protective equipment and clothing required by HTRW operations under his/her control.

c. Chief, District Construction-Operations Division will:

(1) Provide on-site evaluations of contractor adherence to the SSHP at HTRW construction and remediation sites.

(2) Ensure that procedures are established to confirm that all personnel entering the exclusion zone meet the requirements of training and medical surveillance.

(3) Ensure HTRW project contractor's submitted SSHP is forwarded to the district SOHO for review.

(4) Stop HTRW project work upon notice of any imminent danger to health, safety, or the environment and/or take necessary action to resolve the situation.

(5) Ensure HTRW project manifesting and disposal meet Federal, state, and local requirements.

(6) Ensure HTRW hazardous pay requirements are met.

d. Chief, District Project Management will:

(1) Provide overall coordination for development and implementation of all HTRW safety and health requirements.

(2) Provide coordination of all approval and review requirements both within the district and external to the local district.

(3) Forward copies of SSHPs developed for HTRW site activities designed or performed by the local district to Divisional Headquarters Safety and Occupational Health Office for review and comment.

e. Chief, District Real Estate Office will restrict his/her activities to ensure that they do not perform any on-site activities at either HTRW or suspected HTRW sites.

f. Chief, District Human Resources will assist District Staff Chiefs in obtaining required training specified in paragraph 8.

6. Policy.

a. For the purpose of this appendix HTRW projects are defined as all investigative or corrective actions at HTRW and suspected HTRW sites including DERP-FUDS. Investigation and removal of underground storage tanks (UST) are also considered HTRW sites and are covered by this appendix.

b. Environmental assessments for real estate transactions have the potential for exposing personnel to hazards posed by HTRW. Administrative controls by qualified HTRW trained personnel will be established to limit site activities and to minimize the potential hazards associated with the site visit.

c. Construction of facilities not related to site investigation or remediation will not be permitted at uncontrolled HTRW sites.

d. Site conditions will be realistically assessed, to the degree possible, prior to sending personnel on HTRW or suspected HTRW sites to perform activities.

e. Whenever feasible engineering and administrative controls will be used to minimize the hazards associated with HTRW.

f. Entry into the exclusion zone at an HTRW site shall be limited to necessary personnel. Personnel not certified through training and medical surveillance will not be permitted in the exclusion zone.

g. District Staff Chiefs will limit the number of personnel who are assigned duties requiring training and medical surveillance noted in this appendix. Examples of personnel requiring training and medical surveillance include but are not limited to; construction inspectors, preliminary assessment personnel, geotechnical personnel performing intrusive work. Prior to updating training and medical surveillance, the district Staff Chief will review the need for the employee's participation in the program. Employees who have received training and medical surveillance, but who have not performed HTRW activities should be removed from the program unless the district Staff Chief anticipates an actual need for their certification within the upcoming year. If the local district Staff Chief removes his/her employee from the HTRW program the district Staff Chief will notify the local district SOHO in writing so the employee can be scheduled for a termination physical examination per reference 3a and 3b.

7. Procedures. The following is a description of the procedures that will define an employee being assigned to HTRW activities and the Medical Surveillance necessary to comply with references a. - e.

a. The Staff Chief will assign his/her personnel to HTRW activities.

b. Personnel performing on-site activities at HTRW or suspected HTRW sites must complete the 40-Hour Site Safety and Health Course for HTRW sites. **Prior** to attendance to the 40-Hour course the employee must be medically screened to ensure that there are no medical reasons the employee can not perform the assigned duties.

c. An annual physical examination will be conducted to ensure the continued physical qualifications of the employee.

Based upon no exposure to any hazardous substances, the employee will receive an abbreviated physical for 5 years. On the sixth year the employee will receive a complete physical examination.

d. If there is an exposure to the employee at or above the action limit established by the Permissible Exposure Limit (PEL) or the Threshold Limit Value (TLV), the employee will receive a complete physical examination to ensure no occupational conditions exist from the exposure.

e. Personnel assigned to HTRW but who do not perform **any** on-site activities, do not require Medical Surveillance nor do they require the 40-Hour Safety and Health Course.

f. Should the district Staff Chief elect to send his/her employee to the 40-Hour Site Safety and Health Course, that employee must be physically qualified to attend the course. A physical examination **prior** to attending the class is required.

g. All SF 1556's requesting the 40 Hour Site Safety and Health Course or the 8 Hour Annual Refresher Course shall be routed through the district Safety and Occupational Health Office **prior** to scheduling of class by the his or her Training Officer.

8. Training. All USACE and contractor personnel who are required to perform on-site HTRW activities covered by this appendix must be trained. The content and duration of training will be dependent upon the employee's potential for exposure to hazardous agents.

a. Employees whose job assignments require them to conduct environmental assessments for real estate transactions must have sufficient hazard awareness training to enable them to recognize and avoid hazards that they may encounter. The district SOHO will determine sufficiency of training. Intrusive activities will not be performed by real estate personnel.

b. Employees whose job descriptions require them to enter known or suspected HTRW sites to perform, oversee or supervise investigative or corrective actions will receive 40 hours training off site. If the employee has a job on-site that involves the operation of equipment he/she must receive an additional 3 days of actual field experience under the direct supervision of a trained, experienced supervisor.

Equipment is defined as any piece of heavy equipment, powered hand tools, monitoring equipment, or welding/cutting torches.

c. All employees who visit an HTRW site will receive a briefing from the Site Safety and Health Officer describing the specific hazards and precautions associated with that site. The briefing will be based upon information contained in the SSHP and other applicable sources of data. The briefing will be updated as necessary.

d. On-site managers or supervisors at HTRW sites must have the 40-hour course and an additional 8 hours of specialized training on managing such operations.

e. Employees requiring the 40-hour training course must receive 8 hours of refresher training annually. The refresher training may be performed in-house, or a commercial OSHA certified vendor.

f. Training must meet the requirements of reference 3a and 3b.

g. Personnel who visit HTRW sites under remediation, but who are not directly involved with work site activities and who are not required to enter the exclusion zone are not required to attend the 40 hour training course.

9. Medical Surveillance. All employees who participate in the 40-hour training, in on-site activities for HTRW investigation or remediation, or in response to a release of hazardous material must be medically screened. In addition to pre-placement and periodic examinations the following medical surveillance protocol will be established.

a. Termination examination. Whenever an employee is removed from the HTRW program, he/she must receive a termination examination. The termination examination may be deleted if the following conditions are met:

(1) The employee's last examination was within the last 6 months.

(2) The employee had no exposure since the last examination.

(3) The employee has no symptoms associated with HTRW exposures.

b. Special Tests. If a new work assignment involves the likelihood of USACE personnel being exposed to a unique hazard not anticipated prior to the original baseline medical examination, then employees will be screened for that hazard prior to assignment.

10. Personal Protective Equipment.

a. To the extent possible, engineering and administrative controls will be used to reduce and maintain employee exposure to hazardous substances below published exposure limits.

b. Whenever engineering and administrative controls do not adequately limit employee exposure then, personal protective equipment (PPE) shall be used.

c. Selection of PPE shall be based upon specific site conditions and activities and will be addressed in the SSHP. If the site has been characterized, then that information will be used to determine the correct level of PPE. If the site has not been characterized, then the level of PPE will be determined by the responsible industrial hygienist or safety professional based upon available information.

d. At a minimum, PPE for any site activity will be level D. Level D PPE includes the use of hard hats, safety boots, protective gloves and clothing as warranted by site procedures to be performed.

11. Monitoring and Sampling.

a. During investigative work preliminary to remediation of an HTRW or suspected HTRW site, site personnel will use direct reading instruments to assess site conditions to avoid incidents resulting in employee injury or exposure to hazardous environments. Employees using direct reading instruments will be trained in their operation.

b. During on-going projects at HTRW sites, the contractor will establish an ongoing air monitoring program whenever there is a question of employee exposure to hazardous substances. The purposes of the monitoring are to assure proper selection of PPE, establish medical surveillance requirements and to document site conditions.

c. Monitoring to determine employee exposure will be performed by qualified industrial hygienists or technicians working under the direct supervision of a qualified industrial hygienist. Monitoring will be performed using protocols endorsed by OSHA or the National Institute of Occupational Safety and Health (NIOSH).

d. The results of all sampling performed to assess employee exposure will be reviewed by the local district industrial hygienist in the SOHO.

e. All sampling performed to assess employee exposure shall be maintained in the contract file for that particular project.

12. Site Control Program. Whenever intrusive activities are conducted at an HTRW or suspected HTRW site a site control program which meets the requirements of section 28.B.02 of reference 3d will be prepared and included in the SSHP.

13. Documents. The district and contractor that have employees covered by this appendix will have a written safety and health program. Existing written programs may be modified or amended as necessary to meet the requirements for HTRW sites as outlined in reference 3a, 3b, and 3d. An acceptable SHP must contain the following:

a. Organizational structure

b. Comprehensive workplan

c. Site Safety and Health Plan (SSHP). The SSHP shall address the safety and health hazards of each phase of site activity and the procedures for their control. When a site is subject to progressive phased activities, an SSHP for one activity can be amended to cover subsequent activities. How extensive and detailed the SSHP is, is dependent upon the specific site hazards and activities. For non-intrusive procedures at suspected sites an abbreviated SSHP may be used. The abbreviated format may also be used for performing minor intrusive tasks during preliminary assessments of suspect HTRW sites, if amended to note the specific tasks to be performed and the control measures to be used.