


Course Title:	Waste Site Worker Health and Safety	Length:	40 hrs
Curricula Area:	Waste Site Worker Health and Safety		
Description of Curricula:	The course provides participants an opportunity to learn basic skills and knowledge about protecting the health and safety of personnel working with hazardous wastes and hazardous waste site work. Recognition and control of hazards at the site are presented through illustrated lectures and small group activities.		
Format of Delivery:	50% hands-on field exercises, 30% classroom lecture/ demonstration, 18% classroom participatory, 2% final examination (This is also available as computer-aided instruction.)		
Evaluation:	PASS/FAIL, 70% quizzes, exercises, final exam, 100% hands-on		
Regulatory Reference:	29 CFR 1910.120		
Curricula Provider:	The Alliance for Business: A partnership between Crowder College and Missouri Southern State University 800.783.8053		
Date of Development:	1992	Date of Last Revision:	2006
Intended Audience:	Hazardous waste site workers, supervisors, consultants, engineers, regulators, municipal and corporate officials, environmental technology students, and other personnel required to have 40-hour initial training		
Entry Restrictions:			
Topics:	Lesson 1 - Regulations Overview Lesson 2 - Site Characterization and Control Lesson 3 - Hazard Recognition Lesson 4 - Toxicology Lesson 5 - Chemical Awareness Lesson 6 - Respiratory Protection Lesson 7 - Personal Protection Equipment Lesson 8 - Decontamination Lesson 9 - Medical Surveillance Lesson 10 - Air Monitoring & Personal Samplers Lesson 11 - Radiological Hazards Lesson 12 - Material Sampling Lesson 13 - Emergency Procedures Lesson 14 - Safe Work Practices Lesson 15 - Confined Space Lesson 16 - Excavations		
Components of Curricula:			
Student Manual	Waste Site Worker Safety, ©2006, 385 pages		
Instructor Manual	Waste Site Worker Safety Instructor Manual, 447 pages		
Other Instructor Resources	Powerpoint presentations to accompany each unit		
Supplemental Materials	Standard Operating Guides, U.S. EPA 9285.1-03HASP manual for the simulated waste site used in the course		
AV Media	The instructor manual lists videos, CD-ROMs, and web-based media to supplement course materials.		

Reference Materials	DOT-ERG, NIOSH Pocket Guide and multiple chemical/toxicological reference materials will be needed to complete this course.
Equipment and Supplies	Significant equipment, apparatus and supplies are required to complete this program. They include levels A, B, C, and D personal protective apparel respiratory protection equipment, monitoring equipment, decontamination supplies, and spill response materials.
Caveats:	<p>This material has been copyrighted by HMTRI. A recipient of the material other than the federal government may not reproduce it without permission or license from HMTRI, the copyright owner.</p> <p>The material was prepared for use by experienced instructors who are educated in adult education and training methods and who have completed HMTRI's 99-hour Great Environmental Safety Trainer (GreatEST) program.</p> <p>The text for this program was prepared for English-speaking students with a minimum 9th grade reading level.</p> <p>To complete the respiratory protection and PPE activities, the participant must be physically capable of wearing a respirator.</p>
Instructor Qualifications:	For classroom components, one instructor is required who has completed HMTRI's GreatEST Train-the-Trainer or equivalent and who possesses knowledge and experience in the areas of hazardous waste site operations, health and safety, toxicology, industrial hygiene, OSHA and EPA regulations. For hands-on training, a ratio of one instructor for every five students using PPE and respiratory protection must be maintained. One instructor should be certified in first aid and CPR.
Special Instructions:	This program may be formatted for delivery in an Environmental Technology three semester-hours college course consisting of 32 hours of lecture/demonstration and 16 hours of laboratory.
Examples of Training:	 <p>The left photograph shows an outdoor training exercise where several workers in full-body protective suits (orange and yellow) are handling a large drum. A date stamp '09/09/2005' is visible in the bottom right corner of the photo. The right photograph shows two workers in white protective suits and respirators working with a drum, likely demonstrating decontamination or handling procedures.</p>
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<p>Course Objectives: Upon completion of the course, the participant should be able to:</p> <ul style="list-style-type: none"> • Accept the need for OSHA regulations and understand related HAZWOPER requirements. • Describe work site characterization. • Plan a site safety and control program. • Recognize work site hazards. • Categorize the characteristics and hazards associated with chemicals. • Grasp and better understand the principles of toxicology. • Recognize the purpose, importance, and limitations of respiratory protection programs. • Recognize the purpose, importance, and limitations of personal protective equipment. • Identify various types of protective equipment for face, head, foot, and hand protection. • Explain the importance and provisions of a medical surveillance program. 	

- Recognize the value of direct reading instruments and the potential hazards from air monitoring.
- Describe various personal sample collection methods.
- Know how to monitor waste site radiological hazards.
- Explain the need and value of a detailed plan for material sampling.
- Itemize the various considerations in an emergency situation.
- Describe concerns and need for proper training on safe work practices.
- Recognize the hazards and procedures involved in entering a confined space.
- Recognize the issues and hazards related to trenching and site excavations.
- Display dependability, teamwork, and safe work practices during hands-on training.
- Demonstrate decontamination purposes and principles.
- Demonstrate capability in the proper procedures for the use of PPE during hands-on training.

Performance Measures:

All students must pass the Final Examination. The Final Examination is designed to confirm an awareness level of understanding and will be made up of True/False, Multiple Choice, Matching and Fill in the Blank questions, all taken from the same data base and thus very similar to the lesson quizzes and exercises.

If the student fails the exam, he/she will have the opportunity to repeat the examination to improve their score. The instructor will consult with the student about what material to review. When the student has reviewed the remedial material, the student may retake the final exam.

All students will be required to participate in the hands-on training and will be evaluated by the Lead Trainer based on course objectives. Those students who are not given a "pass" will be given an explanation in writing and will be issued a "qualified" or "restricted" Certificate of Completion.

Course Schedule:

Self-paced, open entry, open exit. Student may begin at anytime on a Monday with completion within 16 weeks of the start date. Students may be permitted to extend beyond the 16-week time period by providing a written request to the course instructor prior to their end date. Extensions are NOT automatically granted.

Hands-on Exercises:

Upon completion of the "hands-on" component of this program, the participant should be able to demonstrate proper use of:

- SELF-CONTAINED BREATHING APPARATUS (SCBA) through pre-use inspection, donning, use, doffing and post-use cleaning and storage of the unit.
- A BASIC SIX-STEP DECONTAMINATION LINE through set-up, use, and post-use cleaning and storage of the equipment.
- AIR-PURIFYING RESPIRATORS (APR) through pre-use inspection, cartridge selection, donning, use, doffing and post-use cleaning and storage of the unit.
- PERSONAL PROTECTIVE EQUIPMENT LEVEL C through pre-use inspection, donning, use, doffing and post-use cleaning and storage of the equipment.
- PERSONAL PROTECTIVE EQUIPMENT LEVEL B through pre-use inspection, donning, use, doffing and post-use cleaning and storage of the equipment.
- BARREL COLIWASA to take a liquid sample from a drum.
- pH PAPER to indicate the pH of a liquid sample.
- A COMBUSTIBLE GAS INDICATOR and an OXYGEN MONITOR through set-up, calibration, use, and post-use cleaning and storage of the monitor.
- A DETECTOR TUBE PUMP and DETECTOR TUBE to determine the concentration of a hazardous gas.
- An OVERPACK DRUM to contain a damaged 55-gallon drum.
- PERSONAL PROTECTIVE EQUIPMENT LEVEL A through pre-use inspection, donning, use, doffing and post-use cleaning and storage of the equipment.

Use of Advanced Technology in Curricula:

Advanced technology is used throughout this course. A virtual waste site has been developed providing a 360-degree view with close-ups of drums and tanks found in the waste site. A Health and Safety Plan (HASP) for the virtual site has been developed along with historical documents supporting the site's HASP and the Record of Decision (ROD). Students use the virtual site, the HASP and a task list for the site to make decisions on use of PPE, selection of decontamination methods and selection of procedures to safely complete tasks.

All presentations for the course are illustrated with PowerPoint®-driven computer slides and animations projected with a video projector. A mix of 35 mm slides and videotapes adds variety to presentations. Digital cameras and video cameras are used to record and critique hands-on exercises. Students learn to access the Internet to retrieve chemical data, find health and safety information, and to look for lessons learned from activities similar to those presented in the classroom.

Course Schedule:

	Day1	Day 2	Day 3	Day 4	Day 5
8	Regulations Overview	Respiratory Protection	Review	Air Monitoring & Personal Samplers	Emergency Procedures
9	Hazard Recognition	"	Decontamination	"	Safe Work Practices
10	Toxicology	Chemical Awareness		Safe Work Practices	Confined Space
11	Chemical Awareness	Personal Protection Equipment	Personal Protection Equipment	Material Sampling	Excavations
12					
1	Site Characterization and Control	AIR-PURIFYING RESPIRATORS (APR)	SELF-CONTAINED BREATHING APPARATUS (SCBA)	PERSONAL PROTECTIVE EQUIPMENT LEVEL A	Terminal Activities
2	"	AIR-PURIFYING RESPIRATORS (APR)	"	Site Simulation	Review
3	Radiological Hazards	PERSONAL PROTECTIVE EQUIPMENT LEVEL C	PERSONAL PROTECTIVE EQUIPMENT LEVEL B	"	Final Exam
4	Medical Surveillance	"	"	"	Exam discussion and remediation