

- 14.1.2 Permit required confined space entries include a full body harness in addition to the requirements of Section 14.1.1.
- 14.2 Additional levels of PPE may be prescribed based during the pre-entry hazard identification and evaluation. This could include, but is not limited to, hand protection, protective clothing, respiratory protection and hearing protection.
- 14.3 All PPE must be worn and maintained according to manufacturer specifications and the Personal Protective Equipment Policy.

15.0 Rescue

- 15.1 The Entry Supervisor is responsible for ensuring that non-entry and/or entry-type rescue options are available whenever hazards cannot be eliminated.
- 15.2 Non-Entry Rescue
 - 15.2.1 Non-entry rescue must be utilized whenever feasible.
 - 15.2.2 Entrants must be continuously tethered to man-rated retrieval device for non-entry rescue to be deemed in place.
 - 15.2.3 Attendants are responsible for performing emergency notification and non-entry rescue operations (See Attachment D).
- 15.3 Entry-Type Rescue
 - 15.3.1 Entry-type rescue must be utilized during all permit required entry activities where Entrants must disconnect from the retrieval device.
 - 15.3.2 When existing or potential hazards are atmospheric in nature and Entrants are not connected to a retrieval device, an Emergency Escape Breathing Device (EEBD) or Self-Contained Breathing Apparatus (SCBA) must be carried by each Entrant. Use of any respiratory protection devices must be in accordance with the District Respiratory Protection Program.
 - 15.3.3 NEORS D employees are not trained or qualified to perform entry-type rescue activities; therefore, such activities are prohibited by NEORS D employees.
 - 15.3.4 Health and Safety will contract a confined space rescue service that can provide a confined space rescue team capable of providing entry-type rescue services when necessary.
 - 15.3.5 During pre-entry planning, the need for entry rescue services must be determined. If entry rescue services are needed, then they are to be scheduled through Health and Safety.
 - 15.3.6 Confined spaces that currently require the scheduling and use of a confined space rescue service are the following:

Location	Confined Space Description
Easterly	Capped sections of mixed liquor channels – east and west ends
	Primary settling tanks #1 - #8
Westerly	CSOTF center channel and quad channels
	Solid contacts tanks
Southerly	Grit tanks #1 - #7
	Junction chamber conduit #1 - #7
Collections System	Off-line entries into sewers with travel greater than 150 feet
	Off-line entries into sewers with visual obstructions or conditions interfering with top-side communications
	Non-routine inspection or storage tunnel inspections as required by Health and Safety

NOTE: Any exemption to the above requirements must be approved in advance by Health and Safety.

15.4 Communication

15.4.1 An effective means of communication between the Attendant(s) and the Entrant(s) must be strictly maintained at all times.

15.4.2 Approved methods of communication include:

- Verbal – Primary option;
- Radio – Secondary option; however, should only be used when verbal communication is inappropriate or infeasible; and
- Any other method approved by Health and Safety – Only should be used as a redundant method of communication or when the primary and secondary options are inappropriate or infeasible. Examples include, but are not limited to, air horns and flashlight signaling.

16.0 Entry Evaluation and Permit

16.1 A pre-entry evaluation must be conducted prior to all confined space entry work.

16.1.1 All hazards (existing and potential) associated with the confined space entry activities must be identified and documented on the Entry Evaluation and Permit.

16.1.2 The Entry Supervisor is responsible for ensuring that the pre-entry evaluation is completed and documented on the Entry Evaluation and Permit.

16.2 General requirements of the Entry Evaluation and Permit:

16.2.1 Each actual or potential hazard and the method for eliminating, mitigating or controlling each hazard must be documented.

16.2.2 Must be reviewed and discussed by the Entry Supervisor during the pre-entry meeting.

- Pre-entry meeting must involve all employees involved in the confined space entry.

16.2.3 Must be signed by all employees involved in the confined space entry at the conclusion of the pre-entry meeting. Signing signifies that the employee understands the tasks to be performed; their assigned role(s); hazard(s) associated with the entry, how the hazard(s) are being eliminated, mitigated or controlled; means of communication and rescue procedures.

16.2.4 Must be signed by the Entry Supervisor at the conclusion of the pre-entry meeting. Signing signifies that the Entry Supervisor is approving and authorizing the confined space entry.

16.2.5 Must remain at the confined space for the duration of work.

16.2.6 Cannot exceed the duration of a single shift (e.g., 8 hours). If work activities exceed a single shift, then the Confined Space Entry Evaluation and Permit must be cancelled, and a new permit generated for the oncoming shift.

16.2.7 Must be cancelled:

- After the permit has expired;
- Once the work is completed;
- When a prohibited condition exists;
- When a change in conditions requires a new permit; or
- When personnel are changed.

16.2.8 Cancelled permits must be signed by the Entry Supervisor and sent to Health and Safety.

- Health and Safety shall review cancelled permits annually to ensure the effectiveness of this Policy.

17.0 Multi-Employer Considerations – Construction Activities

17.1 In cases where a contractor will be providing a service on a NEORSD construction project and the contractor may be working within or in proximity to (at or near entry points) of a confined space, the Engineering and Construction Department will consult with the Health and Safety Department as needed for the appropriate confined space hazard and procedural information. Health and Safety must then provide the following information for inclusion in the bid documents:

17.1.1 A statement that the workplace contains confined spaces;

17.1.2 How to identify NEORSD confined spaces;

- 17.1.3 The location of each known confined space within the area where the contractor will be working;
- 17.1.4 The known or potential hazards associated with each confined space or the reason(s) it is a permit space;
- 17.1.5 That entry into confined spaces is prohibited unless prior approval is given by a District official;
- 17.1.6 The precautions or procedures that NEORS D has implemented for the protection of employees in or near permit spaces where the contractor will be working.
- 17.2 Whenever both NEORS D employees and contractor personnel are simultaneously working in or near confined spaces, the supervisor who is overseeing the NEORS D work must coordinate activities with contractor personnel. Contractor personnel will be required to adhere to the same NEORS D Confined Space safe work practices as NEORS D personnel when working jointly in an identified confined space.
- 17.2.1 The person overseeing the contractor must ensure that the contractor informs NEORS D about:
- Any hazard(s) encountered during the contractor entry activities that were not previously disclosed by NEORS D; and
 - Any accidents (including near misses) that occurred during the contractor's entry activities.
- 17.3 Contractor non-compliance with 29 CFR 1910.146 and 1026.1200 (Subpart AA) occurring during construction project work will be addressed via the following procedure:
- 17.3.1 Situations Immediately Dangerous to Life and Health (IDLH):
- In the event of activities deemed immediately dangerous to life and health, action must immediately be taken to suspend the confined space activity. Such situations include, but are not limited to:
 - Entry taking place while a hazardous atmosphere exists as evidenced by alarming air monitoring instruments;
 - Lack of fall protection;
 - Exposure to live electrical conductors;
 - Lack of appropriate tethering or rescue equipment.
 - Only competent persons are granted the authority intervene and suspend contractor work when observed taking place in an IDLH situation. The following people are deemed competent persons:
 - Health and Safety Manager, Coordinator and Specialists

- Construction Supervisors and Construction Coordinators
- Plant Superintendents and Assistant Superintendents
- Engineering and Construction Director or Deputy Director
- Operations and Maintenance Director or Deputy Director
- Competent person(s) will immediately contact the project's Construction Supervisor to report the violation. The Construction Supervisor (or designee) will immediately respond to the location and take the appropriate action to address the health and safety issue.

17.3.2 Situations Deemed Not Immediately Dangerous to Life and Health (Non-IDLH):

- Observing person(s) will immediately contact the project's Construction Supervisor to report the violation. The Construction Supervisor (or designee) will respond to the location to address the health and safety issue. No immediate work stoppage will occur; however, the observing person may remain at the work site to ensure no IDLH situation develops until the Construction Supervisor responds.

17.3.3 Contractors refusing to comply with the District's requests for compliance may be subject to the following actions:

- Dismissal from NEORS D worksites
- Termination of contracts
- Prohibition from future contracts

18.0 Multi-Employer Considerations – Non-Construction Activities

18.1 In cases where a contractor will be providing a service on a NEORS D project other than a construction project, and the contractor may be working within or in proximity to (at or near entry points) a confined space, the employee supervising the contractor(s) must provide notification, as early as possible, to the Health and Safety Department that the project will be taking place. The Health & Safety Department must then provide the following information for inclusion in the bid documents:

18.1.1 A statement that the workplace contains confined spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of 40 CFR 1910.146;

18.1.2 The elements, including hazards and the District's experience, that make the spaces permit-required spaces;

18.1.3 The precautions or procedures that NEORS D has implemented for the protection of employees in or near permit spaces where the contractor will be working;

- 18.1.4 That the NEORSD Health and Safety Specialist at the site where the work is taking place (and Security were applicable) must be contacted prior to and after all contractor confined space entries.
- 18.2 Whenever both NEORSD employees and contractor personnel are simultaneously working in or near confined spaces, the supervisor who is overseeing the NEORSD work must coordinate activities with contractor personnel. Contractor personnel will be required to adhere to the same NEORSD Confined Space safe work practices as NEORSD personnel when working jointly in an identified confined space.
- 18.3 At the conclusion of the entry operations, the Health and Safety Specialist for the NEORSD site where the work is taking place must debrief the contractor regarding the permit space program followed and any hazards confronted or created by the Contractor in permit spaces during entry operations.
- 18.4 Contractors failing to adhere to the provisions of this section, or the minimum requirements found 29 CFR 1910.146 will be required to stop work until any deficiencies have been corrected.
- 18.5 Contractors found to be violating 29 CFR 1910.146 may be subject to the following actions:
- Dismissal from NEORSD worksites
 - Termination of contract
 - Prohibition from future contracts

19.0 Culverts

- 19.1 Prior to conducting work in a culvert, all hazards of the culvert and associated work activities must be identified and eliminated, mitigated or controlled.
- 19.2 Culverts that meet one or more of the following conditions must be entered as a permit required confined space in accordance with this Policy:
- 19.2.1 Part of a sanitary sewer system, including combined sewers;
- 19.2.2 Entry or exit points requiring an Entrant to crawl or have a diameter of eighteen inches (18") or less;
- 19.2.3 Having length or configured in a manner such that a co-worker is unable to see the Entrant or maintain unassisted voice contact;
- 19.2.4 Contains, or has the potential to contain, hazardous materials or substantial quantities of decaying organic material;
- 19.2.5 Require the performance of work that could create an atmospheric hazard (e.g., welding, painting, relining with resins or other curing material, operation of equipment capable of producing carbon monoxide);

- 19.2.6 Plugged by debris, snares or other obstructions which could release substantial water into the structure if the obstruction is removed or loosened;
- 19.2.7 Contains water where a combination of depth, current and incline hinders or prevents stable footing; or
- 19.2.8 Any culvert that Health and Safety has deemed necessary to enter as a confined space.
- 19.3 The following work practices must be followed prior to and during all culvert entries regardless of whether the entry meets the criteria for a confined space entry:
- 19.3.1 Follow the PPE requirements of Section 14.0.
- An EEED must be worn when culvert entry involves greater than one-hundred and fifty feet (150') in travel distance.
- 19.3.2 Entry shall not be made without the on-site presence of another co-worker located outside the culvert. Continuous communication must be maintained in accordance with Section 15.4.
- 19.3.3 The atmosphere shall be continuously monitored within five (5) feet of each entrant's breathing zone via personal gas monitors.
- 19.3.4 All terminal ends shall be checked for obstruction and to determine if passable for safe entry/exit. Culverts may terminate at a known "drop-off" or otherwise present fall hazards and must be evaluated prior to entry.
- 19.3.5 Portable lighting systems, helmet lamps and/or flashlights shall be provided and used when necessary. Intrinsically safe equipment must be used where deemed necessary.
- 19.3.6 Where a structure has never been entered by current District employees, no blueprints or drawings exist or there is concern for the physical integrity of the structure, consideration must be given on whether to enter the structure or to use remote cameras prior to employee entry.

20.0 Management of Change

- 20.1 All alterations or modifications (temporary or permanent) to a confined space that result in a change to the confined space's configuration, equipment, materials, content, operating procedures and processes must be documented on the Health and Safety Management of Change Form (see Attachment B).
- 20.2 Completed Health and Safety Management of Change Forms must be submitted to Health and Safety.
- 20.3 Health and Safety will ensure that any change(s) impacting the District Confined Space Inventory, evaluation procedures, entry procedures and training needs are communicated to affected employees.

21.0 Training

- 21.1 Prior to engaging in confined space entry activities, employees must be trained and qualified for the specific entry role(s) that will be assigned to them.
- 21.2 Each entry role (i.e., Entrant, Attendant, Entry Supervisor) will have separate and distinct qualification requirements.
- 21.3 Training will include, but is not limited to:
 - 21.3.1 The location of the Confined Space Policy;
 - 21.3.2 Summary of OSHA's confined space entry regulations;
 - 21.3.3 General and specific duties and responsibilities for each entry role;
 - 21.3.4 Identification, use and care of equipment, tools, personal protective equipment and monitoring instruments to be used for assigned work;
 - 21.3.5 Types of confined spaces to be entered, configuration, structure, obstruction, means of entry and exit, and materials or substances within, around or introduced into the spaces;
 - 21.3.6 Atmospheric, physical, and chemical (toxic) hazard awareness, including, but not limited to, the identification, elimination, protection, signs/symptoms of exposure and control measures applicable to entry work;
 - 21.3.7 The physiological and psychological stresses associated with confined space entry;
 - 21.3.8 Rescue planning and operations; and
 - 21.3.9 The qualification process for each entry role.
- 21.4 Types and frequency:
 - 21.4.1 Initial training - Employees must attend an initial training(s) for the specific role(s) that will be assigned to them.
 - 21.4.2 Qualification evaluation – Employees must complete the qualification process for the specific role(s) that will be assigned to them.
 - 21.4.3 Refresher training – Employees must complete a periodic, competency-based refresher training for the specific roles that will be assigned to them.
 - 21.4.4 Competency Re-training – Employees must complete the initial training and qualification evaluation. Retraining and requalification will be required if an individual fails to pass periodic refresher training or anytime management has reason to believe that an employee's knowledge and/or performance is inadequate.

22.0 Recordkeeping Requirements

- 22.1 The District Confined Space Inventory shall be maintained by Health and Safety for the life of each confined space.
- 22.2 Cancelled Entry Evaluation and Permits shall be retained on record for a period of one (1) year by Health and Safety.
- 22.3 Health and Safety Management of Change Forms shall be retained on record for a period of one (1) year by Health and Safety.
- 22.4 Training and qualification records will be maintained within the Human Resources Organization Learning and Performance system. All training session attendance rosters will be entered into the OLP system by the class instructor or designee.
- 22.5 Copies of the training materials and class rosters will be maintained by Health and Safety.
- 22.6 Program review information will be maintained by Health and Safety.
- 22.7 Upon request, employee records will be made available to employees, former employees and representatives designated by the individual employee.

23.0 Attachments

- Attachment A – Pre-Entry Evaluation and Entry Permit – Plants and Collections
- Attachment B – Management of Change Form
- Attachment C – Confined Space Inventory Resource
- Attachment D – Confined Space Rescue Flow Diagrams – Plants and Collections

Attachment A – Confined Space Entry Evaluation and Permit - Plants and Collections

The most current version the NEORSD Confined Space Entry Evaluation and Permit for the Plants and Collections System may be obtained from any member of the Health & Safety Department

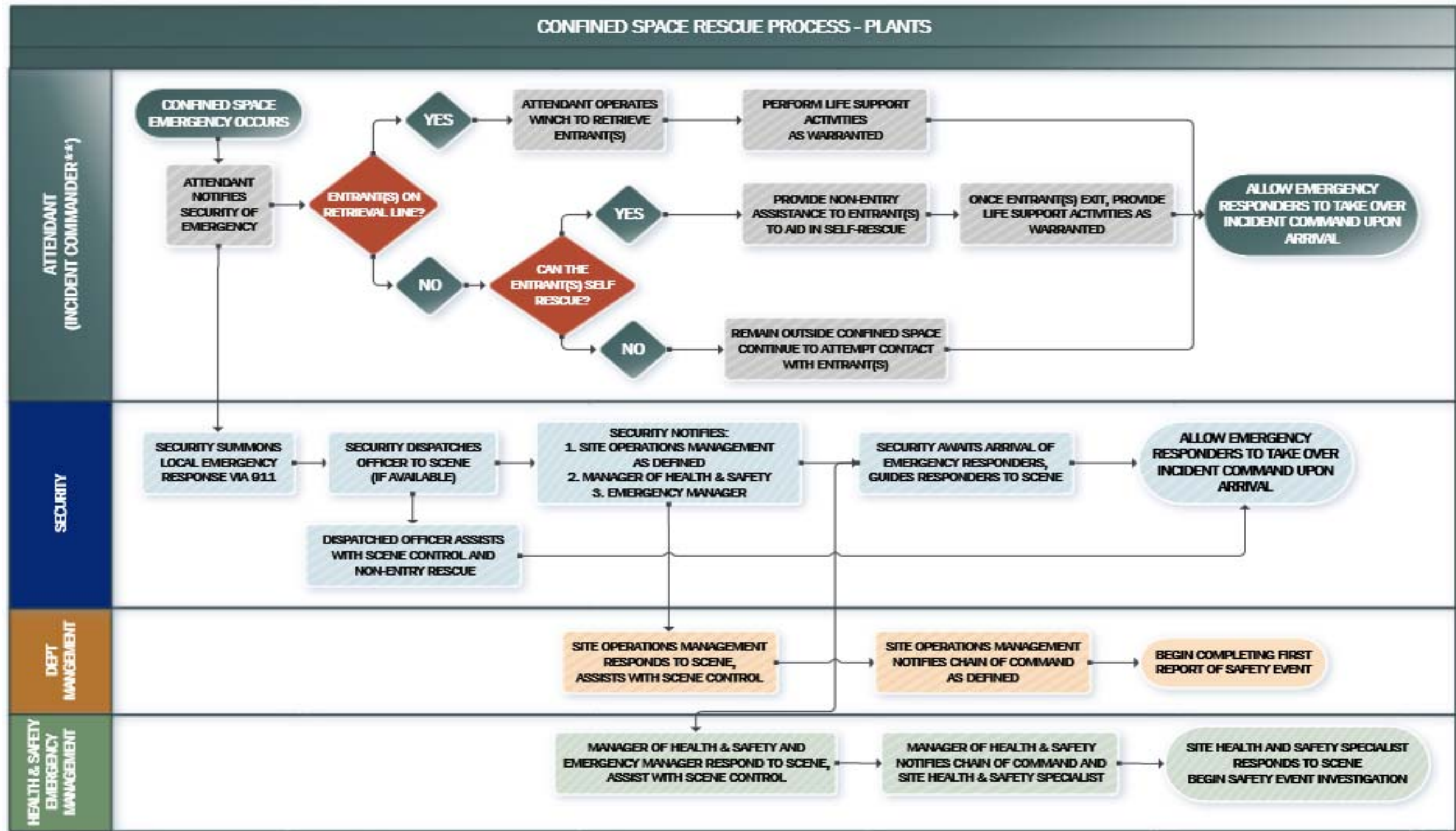
Attachment B – Management of Change Form

The most current version the NEORSD Management of Change Form may be obtained from any member of the Health & Safety Department

Attachment C – Facility Confined Space Inventory Resource

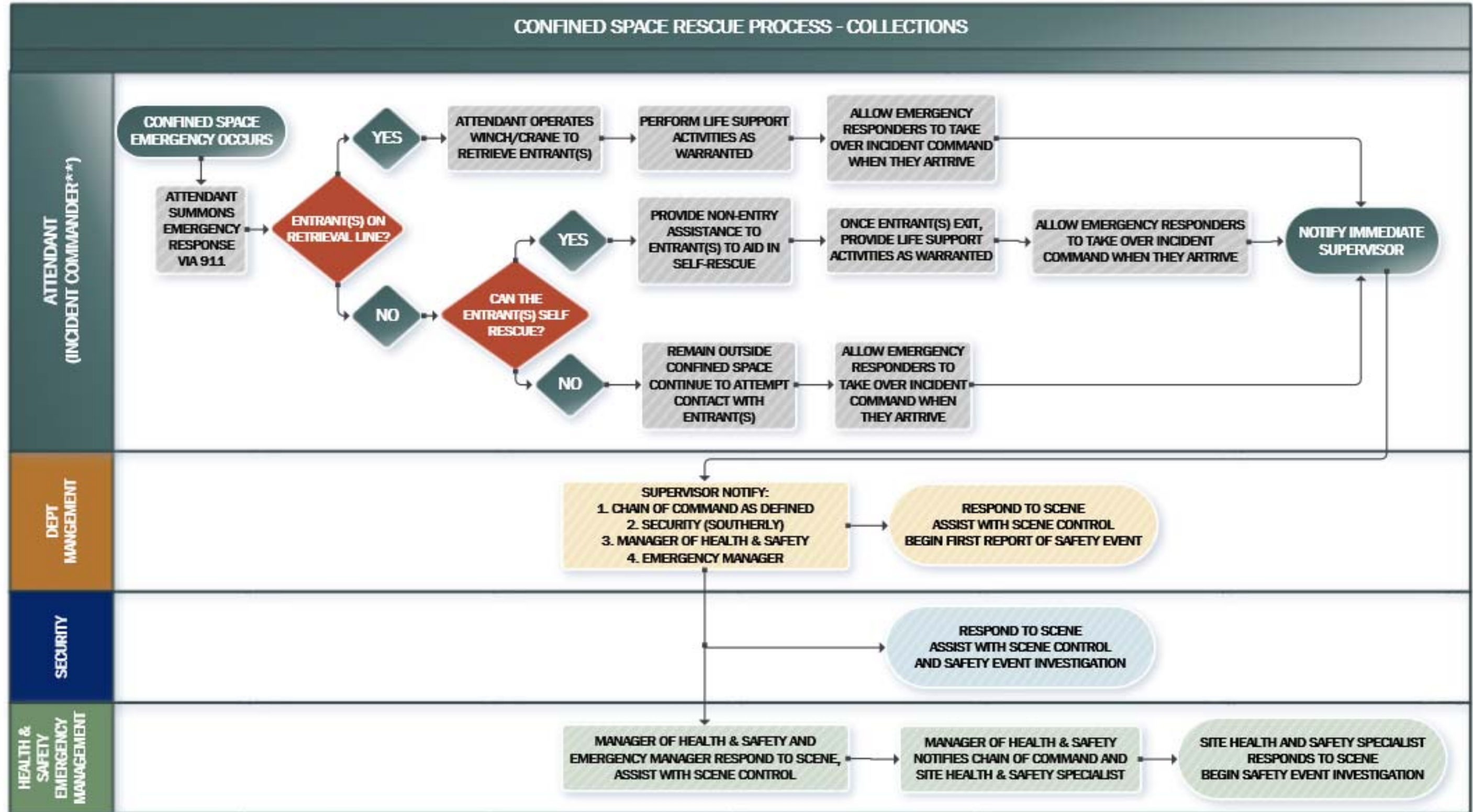
The most current version the NEORSD Confined Space Inventory may be obtained from any member of the Health & Safety Department

Attachment D – Confined Space Rescue Flow Diagrams – Plants and Collections



****NOTE: THE CONFINED SPACE ATTENDANT IS THE SCENE INCIDENT COMMANDER UNTIL EMERGENCY RESPONDERS ARRIVE. ONCE ON SCENE, EMERGENCY RESPONDER WILL TAKE OVER INCIDENT COMMAND**

Attachment D – Confined Space Rescue Flow Diagrams – Plants and Collections



****NOTE: THE CONFINED SPACE ATTENDANT IS THE SCENE INCIDENT COMMANDER UNTIL EMERGENCY RESPONDERS ARRIVE. ONCE ON SCENE, EMERGENCY RESPONDER WILL TAKE OVER INCIDENT COMMAND**

3745-27-01 Definitions.

For the purposes of this chapter, the terms are defined as follows:

(A)

(1) "Airport" means any airport certified by the federal aviation administration and open to the public without prior permission and without restrictions within the physical capabilities of the available facilities.

(2) "Alteration" means a change from the requirements specified in the facility's authorizing document that is at least equivalent to rule requirements and requires written concurrence by Ohio EPA. An alteration is not a "modification."

[Comment: If the change is not equivalent to rule requirements, approval through a variance or exemption would be necessary.]

(3) "Applicant" means any person who has applied for a registration certificate, permit to install, an alternative infectious waste treatment technology approval, or an operating license in accordance with Chapter 3745-27, 3745-29, 3745-30, or 3745-37 of the Administrative Code.

(4) "Aquifer" means consolidated or unconsolidated geological units, formations, or series of units or formations that are hydraulically interconnected and that have the ability to receive, store, transmit, and yield water to wells or springs.

(5) "Aquifer system" means one or more geological units or formations that are wholly or partially saturated with water and are able to receive, store, transmit, and yield significant amounts of water to wells or springs.

(6) "Assets" means all existing and all probable future economic benefits obtained or controlled by a particular entity.

(7) "Authorized maximum daily waste receipt" means the maximum amount of solid waste a solid waste disposal facility may receive at the gate in any calendar day. The waste receipt limit shall be expressed in tons per day . The conversion factor between tons and cubic yards shall be one ton to three cubic yards unless the solid waste is baled, in which case a one-ton to one-cubic-yard conversion factor shall be used.

(B)

(1) "Beneficial use" for the purposes of scrap tires means to use a scrap tire in a manner that results in a commodity for sale or exchange or in any other manner authorized as a beneficial use in accordance with rule [3745-27-78](#) of the Administrative Code. The use of a scrap tire at a scrap tire recovery facility is not a beneficial use of scrap tires. Beneficial use does not apply to products manufactured from scrap tires and sold to a customer, including tire derived fuel .

(2) "Biomass fuels" means fuels from any plant derived organic matter available on a renewable basis including the following:

(a) Agricultural crop wastes and residues.

- (b) Agricultural food and feed crops.
- (c) Aquatic plants.
- (d) Dedicated energy crops and trees.
- (e) Forestry residues and sawdust.
- (f) Refuse derived fuel consisting of waste paper, cardboard, wood waste, yard waste, or animal waste.

(3) "Bird hazard" means an increase in the likelihood of bird and aircraft collisions that may cause damage to the aircraft or injury to the occupants of the aircraft.

(4) "Board of directors of a joint district" means a collective body of the boards of county commissioners of the counties establishing a joint solid waste management district as specified in section [343.01](#) of the Revised Code.

(5) "Board of health" means the board of health of a city or general health district, or the authority having the duties of a board of health in any city as authorized by section [3709.05](#) of the Revised Code.

(C)

(1) "Commingled yard waste" means yard waste that has been commingled with other solid wastes. Commingled yard waste does include containerized source-separated yard waste including, but not limited to, yard waste in paper or plastic bags where such bags are commingled with other solid wastes.

(2) "Composting" means the process of biological decomposition of solid wastes under controlled conditions resulting in compost. Controlled conditions include but are not limited to the following:

- (a) Adding moisture.
- (b) Aerating.
- (c) Chipping.
- (d) Grinding.
- (e) Mixing feedstocks, bulking agents, and additives.
- (f) Performing procedures to achieve human pathogen reduction.
- (g) Physical turning.
- (h) Piling.
- (i) Shredding.
- (j) Other processing of solid wastes.

(3) "Composting facility" means a site, location, tract of land, installation, or building used for composting of solid waste in accordance with Chapter 3734. of the Revised Code and rules adopted thereunder. The composting facility includes the area of materials placement and any leachate management system structures.

(4) "Current assets" means cash or other assets or resources commonly identified as those that are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.

(5) "Current corrective measures cost estimate" means the most recent of the estimates prepared in accordance with rule [3745-27-18](#) of the Administrative Code.

(6) "Current closure cost estimate" means the most recent of the estimates prepared in accordance with rule [3745-27-15](#), [3745-27-53](#), [3745-27-61](#), [3745-27-63](#), [3745-27-66](#), or [3745-27-73](#) of the Administrative Code.

(7) "Current liabilities" means obligations whose liquidation is reasonably expected to require either the use of existing resources properly classifiable as current assets or the creation of other current liabilities.

(8) "Current post-closure care cost estimate" means the most recent of the estimates prepared in accordance with rule [3745-27-16](#) or [3745-27-73](#) of the Administrative Code.

(D)

(1) "Daily design input capacity" or "DDIC" means the weight of scrap tires that can be processed at a scrap tire recovery facility per day. The DDIC is expressed in tons and shall be calculated as an averaged daily processing amount for all operating days in a calendar month.

(2) "Developed spring" means any spring that has been permanently modified by the addition of pipes or a collection basin to facilitate the collection and use of the spring water.

(3) "Director" means the director of environmental protection or the director's authorized representative.

(E)

(1) "Establish" or "establishment" of a sanitary landfill facility, infectious waste treatment facility, or scrap tire facility means to construct or install any of the proposed facility components, including the excavation that is related to the construction of a facility or any components thereof. "Establish" or "establishment" does not include clearing and grubbing.

(2) "Execute" means to complete and sign a document acceptable to the director for the purpose of establishing a financial assurance instrument.

(3) "Exemption" means a discretionary action of the director that relieves an applicant from a requirement of Chapter 3734. of the Revised Code or any rule adopted thereunder.

(4) "Existing unit" means any unit of a sanitary landfill facility that is receiving solid waste on or before June 1, 1994, and is a geographically contiguous area within the limits of waste placement of the sanitary landfill facility, as the limits of waste placement existed on June 1, 1994.

(5) "Explosive gas monitoring probe," "monitoring probe," or "probe" means a permanent device where the presence of landfill gas can be repeatedly measured with a direct reading instrument.

(F)

(1) "Face amount" means the total amount the insurer is obligated to pay under the policy.

(2) "Fault" means a fracture along which strata on one side of the fracture have been displaced with respect to strata on the other side of the fracture.

(3) "Final slope" means the slope of a landfill when it has reached final grade and includes but is not limited to the composite cap system, the waste, the composite liner system, and the subsurface.

(4) "Fire break" means the area around individual scrap tire storage piles that is maintained free of combustible and vegetative material. The width of the fire break shall be as specified in the applicable rule of Chapter 3745-27 of the Administrative Code. The fire break may include well-mowed grass if the fire break also includes a gravel or paved fire lane not less than twenty feet wide.

(5) "Foundry sand" has the same meaning as in rule [3745-30-01](#) of the Administrative Code.

(G) "Ground water" means any water below the surface of the earth in a zone of saturation.

(H)

(1) "Hazardous waste" means hazardous waste as defined in Chapter 3734. of the Revised Code and includes waste that is listed specifically as hazardous waste or exhibits one or more characteristics of hazardous waste as defined in Chapter 3745-51 of the Administrative Code.

(2) "Health commissioner" means the individual occupying the office created by sections [3709.11](#) and [3709.14](#) of the Revised Code, or the health commissioner's authorized representative.

(3) "Health district" means a city or general health district as created by or under the authority of Chapter 3709. of the Revised Code.

(4) "Holocene" means the most recent epoch of the Quaternary period extending from the end of the Pleistocene to the present.

(5) "Household hazardous waste" means solid waste originally generated by individual households that is listed specifically as hazardous waste or exhibits one or more characteristics of hazardous waste as defined in rule [3745-51-03](#) of the Administrative Code. Household hazardous waste is excluded from regulation as a hazardous waste pursuant to paragraph (B)(1) of rule [3745-51-04](#) of the Administrative Code.

(I)

(1) "Incinerator" means any equipment, machine, device, article, contrivance, structure, or part of a structure used to burn solid or infectious wastes to ash.

(2) "Independently audited" refers to an audit performed by an independent certified public accountant in accordance with generally accepted accounting standards, or for a publicly-owned facility, an equivalent comprehensive audit performed by the auditor of the state of Ohio pursuant to Chapter 117. of the Revised Code.

(3) "Industrial solid waste" has the same meaning as in rule [3745-29-01](#) of the Administrative Code.

(4) "Industrial solid waste landfill facility" has the same meaning as in rule [3745-29-01](#) of the Administrative Code.

(5) "Infectious agent" means a type of microorganism, pathogen, virus, or proteinaceous infectious particle that can cause or significantly contribute to disease in or death of human beings.

(6) "Infectious wastes" means any wastes or combination of wastes that include the following:

(a) Cultures and stocks of infectious agents and associated biologicals.

(b) Human blood and blood products.

(c) Substances that were or are likely to have been exposed to or contaminated with or are likely to transmit an infectious agent or zoonotic agent, including the following:

(i) Laboratory wastes.

(ii) Pathological wastes.

(iii) Animal blood and blood products.

(iv) Animal carcasses and parts.

(v) Waste materials from the rooms of humans or the enclosures of animals that have been isolated because of a diagnosed communicable disease that are likely to transmit infectious or zoonotic agents. Waste materials from the rooms of humans do not include any wastes of patients who have been placed on blood and body fluid precautions under the "Universal Precaution System" established by the centers for disease control in the public health service of the United States department of health and human services, unless specific wastes generated under the universal precautions system have been identified as infectious wastes under paragraph (I)(6)(c)(vii) of this rule.

(vi) Sharp wastes used in the treatment, diagnosis, or inoculation of human beings or animals.

(vii) Any other waste materials generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, that the director of health , by rules adopted in accordance with Chapter 119. of the Revised Code, identifies as infectious wastes after determining that the wastes present a substantial threat to human health when improperly managed because they are contaminated with, or are likely to be contaminated with, infectious agents.

(d) Any other waste materials the generator designates as infectious waste.

Patient care waste such as bandages, disposable gowns, or permeable materials that are lightly soiled with blood or other body fluids are not considered an infectious waste unless those wastes are soiled to the extent that the generator of the wastes determines that the materials should be managed as infectious wastes.

(7) "Infectious waste handling area" means any area where infectious wastes are stored, loaded, unloaded, prepared for treatment, or treated. Infectious waste handling areas also include areas where vehicles or containers are decontaminated, areas where transportation of infectious wastes within the facility premises occurs, and areas where treated infectious wastes are unloaded, stored, and loaded.

(8) "Infectious waste treatment unit" or "treatment unit" means the apparatus responsible for the attainment of the performance standard for treatment and for the reduction in microorganisms that is part of the treatment process. A free standing shredder or grinder is not considered a treatment unit.

[Comment: If the treatment process is contained within a single enclosed piece of equipment, then the treatment unit and treatment process are considered one and the same.]

(9) "Interim slope" means the slope of a landfill as a result of daily filling or when a phase, cell, or unit has reached its limits and includes but is not limited to daily cover, intermediate cover, transitional cover, waste, the composite liner system, and the subsurface.

(10) "Internal slope" means the slope as excavated or constructed and includes but is not limited to the leachate collection layer, protective material, select waste, composite liner system, and the subsurface.

(J) [Reserved.]

(K) [Reserved.]

(L)

(1) "Leachate" means liquid that has come in contact with or been released from solid waste.

(2) "Legitimate recycling facility" means an engineered facility or site where recycling of material other than scrap tires is the primary objective of the facility.

For the purposes of Chapters 3745-27 and 3745-37 of the Administrative Code, legitimate recycling facilities are either of the following:

(a) Facilities that accept only source separated recyclables, except scrap tires, or commingled recyclables that are currently recoverable utilizing existing technology.

(b) Facilities that meet all of the following:

(i) Accept mixed or source separated solid waste streams.

(ii) Recovers for recycling or beneficial use not less than sixty per cent of the weight of solid wastes brought to the facility each month (as averaged monthly) for not fewer than eight months in each calendar year.

(iii) Dispose of not more than forty per cent of the total weight of solid wastes brought to the facility each month (as averaged monthly) for not fewer than eight months in each calendar year.

For purposes of Chapters 3745-27 and 3745-37 of the Administrative Code, legitimate recycling facility does not include any facility identified as a solid waste disposal facility as "solid waste" is defined in this rule, nor does it include any facility identified as a scrap tire collection, storage, monofill, monocell, or recovery facility or any premises at which the beneficial use of scrap tires occurs.

(3) "Liabilities" means probable future sacrifices of economic benefits arising from present obligations to transfer assets or provide services to other entities in the future as a result of past transactions or events.

(4) "Limestone quarry" means an excavation resulting from a mining operation where limestone is the principal material excavated for commercial sale or use in another location. This term does not include excavations of limestone resulting from the construction of the sanitary landfill facility.

(5) "Limits of waste placement" means the horizontal and vertical boundaries of a sanitary landfill facility within which the owner or operator has been authorized to dispose of solid waste.

(6) "Lower explosive limit" means the lowest per cent by volume of a mixture of explosive gases in air that will propagate a flame at twenty-five degrees Celsius and atmospheric pressure.

(M)

(1) "Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a ninety per cent or greater probability that the acceleration will not be exceeded in two hundred fifty years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

(2) "Modification" has the same meaning as in rule [3745-27-02](#) of the Administrative Code.

(3) "Monocell" means a discrete volume of solid waste, which is provided isolation from other solid wastes, where a segregated waste stream is exclusively disposed within the limits of waste placement of a sanitary landfill facility.

(4) "Monofill" means a specialized sanitary landfill facility where a single segregated waste stream is exclusively disposed.

(5) "Municipal solid waste" means a type of solid waste generated from community, commercial, and agricultural operations, including but not limited to the following:

(a) Solid waste generated by community operations including wastes derived from single and multiple household residences, hotels, motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas .

(b) Solid waste generated by commercial operations including stores, offices, restaurants, warehouses, and other non-manufacturing activities .

(c) Solid waste generated from agricultural operations including single-family and commercial farms, greenhouses, and nurseries .

(d) Sludge from municipal, commercial, or industrial waste water treatment plants, water treatment plants, and air pollution control facilities that is co-disposed with wastes specified in paragraph (M)(5)(a), (M)(5)(b), (M)(5)(c), or (M)(5)(e) of this rule in a sanitary landfill facility.

(e) Fly ash and bottom ash generated from the incineration of municipal solid waste, provided the fly ash and bottom ash are not regulated as hazardous wastes.

(N)

(1) "Net working capital" means current assets minus current liabilities.

(2) "Net worth" means total assets minus total liabilities and is equivalent to owner's equity.

(3) "New unit" means any unit of a sanitary landfill facility that did not receive solid waste prior to June 1, 1994, and that has not been designated an existing unit by the owner or operator. A new unit may be contiguous or noncontiguous.

(4) "Nonputrescible solid wastes" means solid wastes that do not generate explosive gases during decomposition, do not readily biodegrade, and do not cause odors.

(5) "Nuisance" means anything that is injurious to human health or offensive to the senses; interferes with the comfortable enjoyment of life or property; and affects a community, neighborhood, or any considerable number of persons, although the extent of annoyance or damage inflicted upon individual persons may be unequal .

(O)

(1) "Occupied structure" means an enclosed structure where one or more human beings may be present, except those structures that are open to natural free air circulation such that an explosive gas hazard is minimized.

(2) "Open burning" means the burning of solid wastes in an open area or burning of solid wastes in a type of chamber or vessel that is not approved or authorized in rules adopted by the director under section [3734.02](#) of the Revised Code or, if the solid wastes consist of scrap tires, in rules adopted by the director under section [3734.73](#) of the Revised Code, or the burning of treated or untreated infectious wastes in an open area or vessel that is not approved in rules adopted by the director under section [3734.021](#) of the Revised Code.

(3) "Open dump" means a site where solid wastes or untreated infectious wastes have been disposed without a license.

(4) "Open dumping" means the following:

(a) The deposition of solid wastes, other than scrap tires, into waters of the state, or the final deposition of solid wastes on or into the ground at any place other than a solid waste facility operated in accordance with Chapter 3734. of the Revised Code, and Chapters 3745-27, 3745-29, 3745-30, and 3745-37 of the Administrative Code.

(b) The deposition of solid wastes that consist of scrap tires on or into the following:

(i) Waters of the state.

(ii) The ground at any place other than a scrap tire collection, storage, monofill, monocell, recovery facility licensed under section [3734.81](#) of the Revised Code, at a site or in a manner not specified in division (C)(2), (C)(3), (C)(4), (C)(5), (C)(7), (C)(9), or (C)(10) of section [3734.85](#) of the Revised Code, at any licensed solid waste facility if the deposition is not in accordance Chapters 3745-27 and 3745-37 of the Administrative Code, or at a site or in a manner not in compliance with rule [3745-27-60](#) of the Administrative Code.

(iii) At any licensed solid waste facility if the deposition is not in accordance with Chapters 3745-27 and 3745-37 of the Administrative Code.

(iv) Buildings, trailers, or other vehicles at locations other than a scrap tire transporter's registered business location, a licensed scrap tire facility, or an unregistered scrap tire facility operating in accordance with rules [3745-27-60](#) and 3745-27-61 of the Administrative Code for longer than fourteen days. Scrap tires in trailers or vehicles shall be considered open dumped unless written prior authorization is granted by Ohio EPA that allows the vehicle or trailer to have mechanical repairs that will take longer than fourteen days to complete .

[Comment: An unregistered scrap tire facility operating in accordance with rule 3745-27-61 of the Administrative Code includes trailers pre-positioned in accordance with paragraph (C) (8) of rule [3745-27-56](#) of the Administrative Code.]

(c) The deposition of untreated or treated infectious wastes into waters of the state, or the final deposition of untreated infectious wastes on or into the ground at any place other than a licensed solid waste facility operated in accordance with Chapter 3734. of the Revised Code, and Chapters 3745-27 and 3745-37 of the Administrative Code.

(5) "Operator" or "facility operator" means the person responsible for the on-site supervision of technical operations and maintenance of a solid or infectious waste facility, or any parts thereof, which may affect the performance of the facility and its potential environmental impact, or any person who has authority to make discretionary decisions concerning the daily operations of the solid or infectious waste facility. "Operator" also means the person responsible for the supervision of technical operations of a scrap tire transportation business.

(6) "Original owner" means the person or business who purchased a new, retread, or used tire for use on a wheel or rim. Original owner does not include anyone who has accepted a tire other than a new or retreaded tire, for the purposes of transportation, collection, storage, processing, or disposal.

(7) "Owner" or "property owner" means the person who holds title to the property on which the solid waste facility, infectious waste treatment facility, or scrap tire transportation business is located.

(P)

(1) "Parent corporation" means a corporation, or the ultimate corporation, that directly owns at least fifty per cent of the voting stock of the corporation which holds a permit or license issued in accordance with section [3734.05](#) of the Revised Code and Chapter 3745-27, 3745-29, or 3745-30 of the Administrative Code; the latter corporation is deemed a "subsidiary" of the parent corporation.

(2) "Permittee" means a person to whom a permit to install has been issued.

(3) "Person" includes the state, any political subdivision of the state or other state or local body, the United States and any agency or instrumentality thereof, and any legal entity or organization defined as a person under section [1.59](#) of the Revised Code, or other entity.

(4) "Phase" means a discrete area of a sanitary landfill facility, that has been designated to facilitate the systematic construction, operation, and closure of the sanitary landfill facility. For a sanitary landfill facility, other than an industrial solid waste landfill facility or residual solid waste landfill facility, a phase is a discrete area that is part of a unit.

(5) "Premises" means one of the following:

(a) Geographically contiguous property owned by the same person.

(b) Noncontiguous property that is owned by the same person and connected by a right-of-way that the person controls and to which the public does not have access. Two or more pieces of property that are geographically contiguous and divided by one or more public or private right-of-way or rights-of-way are a single premises.

(6) "Processed tire" or "processed scrap tire" means a scrap tire that has been altered through a mechanical, chemical, thermal, or controlled combustion process so that the resulting material is a marketable product or is suitable for storage or disposal in a scrap tire monocell or monofill facility. Processed tire includes but is not limited to cut, split, and shredded tires. Baled tires are only considered processed tires for the purpose of disposal at a scrap tire monocell or monofill facility. For the purposes of disposal, processed tires are classified in accordance with the following:

(a) Processed tires that are readily identifiable as scrap tires or pieces of scrap tires by visual inspection are considered scrap tires.

(b) Processed tires that are not readily identifiable as scrap tires or pieces of scrap tires by visual inspection when disposed are considered solid waste rather than scrap tires.

(c) Items manufactured from processed tires and scrap tire material that is a by-product of a manufacturing process when disposed are considered solid waste.

(7) "Public water supply well" means any well connected to a public water system as defined by division (A) of section [6109.01](#) of the Revised Code.

(Q)

(1) "Qualified ground water scientist" means a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has at least five years relevant experience in ground water hydrology or hydrogeology and related fields to enable that individual to make sound professional judgments regarding ground water monitoring, contaminant fate and transport, and corrective measures.

(R)

(1) "Recycling" means converting solid waste that would otherwise be disposed and returning the converted material to commerce as a commodity for use or exchange in an established and legitimate market. Recycling is not reuse, storage, disposal, or transfer.

(2) "Regional aquifer" means the aquifer used as a primary source of water to wells within one mile of the solid waste disposal facility.

(3) "Registrant" means any person to whom a registration has been issued.

(4) "Regulatory floodplain" means an area covered by a one hundred year flood as depicted on a flood insurance rate map published by the federal emergency management agency.

(5) "Residual solid waste" or "residual waste" has the same meaning as in rule [3745-30-01](#) of the Administrative Code.

(6) "Residual waste landfill facility" or "residual waste landfill" has the same meaning as in rule [3745-30-01](#) of the Administrative Code.

(7) "Responsible party" has the same meaning as in section [3734.041](#) of the Revised Code.

(8) "Rough tire shreds" or "rough shredded scrap tires" means tire shreds or cut tire pieces that have any dimension greater than four inches.

(S)

(1) "Salvaging" means the extracting or removing of materials from the solid waste stream at the working face of a solid waste disposal facility for the intended purpose of recycling or for removal to a salvage facility regulated by Chapter 4737. of the Revised Code and rules promulgated thereunder.

(2) "Sand or gravel pit" means an excavation resulting from a mining operation where the removal of sand or gravel is undertaken for commercial sale or use in another location. This term does not include excavations of sand or gravel resulting from the construction of the sanitary landfill facility.

(3) "Sandstone quarry" means an excavation resulting from a mining operation where sandstone is the principal material excavated for commercial sale or use in another location. This term does not include excavations of sandstone resulting from the construction of a sanitary landfill facility.

(4) "Sanitary landfill facility" or "solid waste landfill" means an engineered facility where the final deposition of solid waste on or into the ground is practiced in accordance with Chapter 3745-27, 3745-29 or 3745-30 as appropriate and 3745-37 of the Administrative Code and includes the units within the limits of waste placement, all ground water monitoring and control system structures, buildings, explosive gas monitoring, control, and extraction system structures, surface water run-on and runoff control structures, sedimentation ponds, liner systems, and leachate management system structures. The sanitary landfill facility includes all portions of the facility described above and those areas within three hundred feet of the limits of waste placement unless an alternate setback is deemed acceptable by the director. If the owner or operator has not obtained approval of a permit to install, which delineates the setback from the limits of waste placement, submitted in accordance with section [3734.05](#) of the Revised Code, the sanitary landfill facility includes all portions of the facility described above and those areas within three hundred feet of the limits of waste placement unless the property line of the facility is less than three hundred feet from the limits of waste placement, in which case the sanitary landfill facility includes those areas within the property line.

(5) "Scavenging" means the removal by unauthorized personnel of materials from the solid waste stream at waste handling areas of a solid waste disposal facility or solid waste transfer facility.

(6) "Scrap tire" is a type of solid waste and means any unwanted or discarded tire, regardless of size, that has been removed from its original use. "Scrap tire" includes all whole scrap tires and pieces of scrap tires that are readily identifiable as parts of scrap tires by visual inspection.

For purposes of this definition, "unwanted" means the original scrap tire generator, original owner, or manufacturer of the tire no longer wants to use, or is unable to use, the tire for its original purpose, and the tire is discarded. "Discarded" means the original scrap tire generator, original owner, or manufacturer of the tire has otherwise managed the tire in such a manner that disposal has occurred.

"Scrap tire" does not include the following:

(a) A tire after it has been retreaded or regrooved for resale or reuse, unless it has been declared defective or has been returned to the seller or manufacturer for warranty adjustment.

(b) A tire that is mounted and installed on a vehicle or trailer, or carried on the vehicle or trailer as the spare tire. Trucks with more than four wheels or with different size wheels or tires may carry more than one spare tire.

For purposes of this definition, "installed" means placing the mounted wheel and tire assembly at any of the positions on a vehicle or trailer where a wheel and tire assembly was initially placed on the vehicle or trailer during manufacture, and includes the position normally used for a spare tire or tires.

For purposes of this definition, "mounted" means placing a tire on a wheel rim so that it can be installed on a vehicle. A mounted tire may be a scrap tire unless it is also installed.

(c) Tires from non-motorized vehicles such as bicycles, or tires from small equipment such as lawn mowers, wheelbarrows, etc.

[Comment: Tires from non-motorized vehicles may be recycled, disposed of as scrap tires, or may be disposed of as solid waste.]

(d) At a retreading business, a retreadable casing that has been inspected and individually labeled or marked as suitable for retreading and is stored in an enclosed building or in a manner otherwise authorized by the director.

(e) Tire derived fuel (TDF) or tire derived chips (TDC) as defined in this rule after the TDF or TDC has been transported from the scrap tire recovery facility for use as a fuel or for beneficial use.

(f) Non-pneumatic, hard, pressed tires, such as forklift tires.

(7) "Scrap tire collection facility" means a type of facility for scrap tire storage that meets the following:

(a) Is used for the receipt and storage of whole scrap tires from the public prior to the transportation of the scrap tires to one of the destinations listed in rule [3745-27-65](#) of the Administrative Code.

(b) Exclusively stores scrap tires in portable containers.

(c) Consists of portable containers where the scrap tires are stored and the aggregate volume of the portable containers does not exceed five thousand cubic feet.

[Comment: If the facility does not meet the above definition for a scrap tire collection facility, then the facility may be a scrap tire storage facility. If the facility includes any equipment for processing

(e.g. cutting or shredding equipment) the scrap tires to produce a usable product, then the facility is a scrap tire recovery facility.]

(8) "Scrap tire facility" includes but is not limited to the following:

(a) A scrap tire collection facility .

(b) A scrap tire storage facility.

(c) A scrap tire recovery facility.

(d) A scrap tire monofill facility.

(e) A scrap tire monocell facility.

(9) "Scrap tire generator" means any person or business that generates scrap tires.

Scrap tire generator includes the original scrap tire generator and any business that removes tires from vehicles and accepts scrap tires in the normal course of business, including but not limited to tire retail dealers and tire retreaders.

[Comment: A scrap tire generator or original scrap tire generator who stores more than one hundred scrap tires and who does not qualify for one of the exclusions from registration in rule [3745-27-61](#) or permitting in rule [3745-27-63](#) of the Administrative Code may also be a scrap tire collection, storage, or recovery facility.]

(10) "Scrap tire handling area" means any area of a scrap tire collection, storage, monocell, monofill, or recovery facility where scrap tires are stored, loaded, unloaded, sorted, baled, shredded, prepared for processing, or otherwise processed. A scrap tire handling area includes the scrap tire storage area but does not include vehicle staging areas, vehicle storage areas, or buildings not used for the processing or storage of scrap tires. Scrap tire handling area also includes that portion of a scrap tire transporter's business location where scrap tires are unloaded, sorted, and loaded.

(11) "Scrap tire monocell facility" means a type of monocell that is used or intended to be used exclusively for the environmentally sound storage or disposal of scrap tires that have been shredded, chipped, or otherwise mechanically processed.

(12) "Scrap tire monofill facility" means a type of monofill that is used or intended to be used exclusively for the environmentally sound storage or disposal of scrap tires that have been shredded, chipped, or otherwise mechanically processed.

(13) "Scrap tire recovery facility" means any site, location, tract of land, installation, or building that is used or intended to be used for the processing of scrap tires for the purpose of extracting or producing usable products, materials, or energy from the scrap tires. Processing includes but is not limited to a controlled combustion process, mechanical process, thermal process, or chemical process that uses whole, split, or shredded scrap tires as a raw material. Scrap tire recovery facility includes any facility that uses the controlled combustion of scrap tires in a manufacturing process to produce process heat or steam or any facility that produces usable heat or electric power through the controlled combustion of scrap tires in combination with another fuel.

(a) " Mobile scrap tire recovery facility" means a type of scrap tire recovery facility owned or operated by a person not otherwise licensed as a class I or class II scrap tire recovery facility in

Ohio and any unit for processing tires that is designed by the manufacturer for regular movement from one operating site to another and which the owner or operator has used at more than one location during the prior year. "Mobile scrap tire recovery facility" specifically includes any tire cutting, baling, or shredding equipment that is moved from site to site for the purpose of processing scrap tires into a useable product at the site or before the scrap tires are removed from the site.

(b) A "class I scrap tire recovery facility" means a scrap tire recovery facility with a permitted daily design input capacity of two hundred tons of scrap tires or greater.

(c) A "class II scrap tire recovery facility" means a scrap tire recovery facility with a registered daily design input capacity of less than two hundred tons of scrap tires .

(14) "Scrap tire storage area" means the part of a premises including but not limited to the scrap tire collection, storage, or recovery facility where whole scrap tires are stored. At a scrap tire recovery facility, the scrap tire storage area also includes the portion of the premises where processed scrap tires are stored.

(15) "Scrap tire storage facility" means any facility where whole scrap tires are stored prior to the scrap tires being transported to one of the destinations listed in paragraph (D)(8) of rule [3745-27-65](#) of the Administrative Code.

(a) A "class I scrap tire storage facility" means a scrap tire storage facility that has a permitted capacity of greater than ten thousand square feet and limited to three acres of effective scrap tire storage.

(b) A "class II scrap tire storage facility" means a scrap tire storage facility that has a registered capacity of not greater than ten thousand square feet of effective scrap tire storage.

[Comment: Division (C) of section [3734.71](#) of the Revised Code specifies that the owner or operator of a class I scrap tire storage facility must also be the owner or operator of a licensed scrap tire monocell, monofill, or recovery facility in Ohio, or a solid waste or scrap tire monocell, monofill, or recovery facility located in another state and operating in compliance with the laws of that state.]

(16) "Scrap tire storage pile" means an area where scrap tires are stored either indoors or outdoors on the floor, on the ground, or in racks. The dimensions of a scrap tire storage pile are determined by the location of fire breaks of at least the width specified in Chapter 3745-27 of the Administrative Code around the storage pile. A scrap tire storage pile may consist of one or more separate racks. A scrap tire storage pile may consist of a combination of racks, on the floor, or on the ground storage of scrap tires.

(17) "Scrap tire submergence facility" means a type of scrap tire monofill facility where only whole scrap tires are submerged in water in an engineered structure.

(18) "Scrap tire transporter" or "transporter" means the registrant for a scrap tire transportation business or anyone in the registrant's employ who signs the scrap tire shipping papers or operates the registrant's scrap tire transportation vehicles.

(19) "Seismic impact zone" means an area where the maximum horizontal acceleration in lithified earth material exceeds one-tenth of the acceleration of gravity.

(20) "Sewage sludge" includes but is not limited to scum and solids removed in primary, secondary, or advanced wastewater treatment processes. Sewage sludge does not include the following:

- (a) Ash generated during the firing of sewage sludge in a sewage sludge incinerator.
- (b) Grit and screenings generated during preliminary treatment of sewage in a treatment works.
- (c) Animal manure.
- (d) Residue generated during the treatment of animal manure.
- (e) Domestic septage.

(21) "Significant zone of saturation" means a zone of saturation that may act as a preferential pathway of migration away from the limits of solid waste placement.

(22) "Solid waste" has the same meaning as in section [3734.01](#) of the Revised Code.

(23) "Solid waste disposal facility" means any site, location, tract of land, installation, or building used for incineration, composting, sanitary landfilling, or other approved methods of disposal of solid wastes.

(24) "Solid waste energy recovery facility" means any site, location, tract of land, installation, or building where mixed solid waste or select solid waste streams including scrap tires are used as or intended to be used as fuel to produce energy, heat, or steam.

[Comment: A "solid waste energy recovery facility" that exclusively uses scrap tires and other approved rubber waste as fuel may be regulated as a "scrap tire recovery facility."]

(25) "Solid waste management district" means a county that has established a resolution, or joint counties which have entered into an agreement, for the purposes of preparing, adopting, submitting, and implementing a solid waste management plan for the county or joint counties and for the purposes of providing for, or causing to be provided for, the safe and sanitary management of solid wastes within all of the incorporated and unincorporated territory of the county or joint counties and in compliance with Chapters 343. and 3734. of the Revised Code.

(26) "Solid waste management policy committee" means a committee established and convened by the board of county commissioners of a county solid waste management district or the board of directors of a joint solid waste management district to prepare the solid waste management plan of the solid waste management district and in compliance with division (B) of section [3734.54](#) of the Revised Code.

(27) "Solid waste transfer facility" or "transfer facility" means any site, location, tract of land, installation, or building that is used or intended to be used primarily for the purpose of transferring solid wastes that are generated off the premises of the facility from vehicles or containers into other vehicles or containers for transportation to a solid waste disposal facility. The term does not include any facility that consists solely of portable containers that have an aggregate volume of fifty cubic yards or less nor any facility where legitimate recycling activities are conducted. The term does not include any facility that accepts scrap tires other than scrap tires that are accepted incidental to a mixed solid waste shipment.

(28) "Source-separated yard waste" means yard waste that has been separated at the point of generation or at the point of collection from other solid wastes. Source separation includes but is

not limited to such measures as placing yard waste in portable containers and compartments of portable containers dedicated to yard waste collection, and in vehicles dedicated to yard waste collection.

(29) "Surface water" means any water on the surface of the earth.

(T)

(1) "Tangible net worth" means the tangible assets that remain after deducting liabilities; such assets would not include such intangibles as goodwill and rights to patents or royalties.

(2) "Tire," for purposes of fee collection only, has the same meaning as in section [3734.90](#) of the Revised Code. "Tire" and "scrap tire" as used in this chapter are not restricted to motor vehicle tires but include all pneumatic tires.

[Comment: The definition of "tire" found in section [3734.90](#) of the Revised Code applies only to the collection of the state fee on the sale of new tires by a wholesaler.]

(3) "Tire adjustment center" means a premises to which defective new tires and tires returned for warranty adjustment are shipped for analysis of failure and final disposition.

(4) "Tire derived fuel" (TDF) or "tire derived chips" (TDC) means a uniformly shredded product obtained from whole tires where the maximum size of ninety-five per cent of the shreds is less than four inches in any dimension. TDC may be used as a civil engineering material or as feedstock for the manufacturing of crumb rubber or other tire derived material.

[Comment: TDC is defined using the ASTM "Standard Practice for Use of Scrap Tires in Civil Engineering Applications," (D6270-17) (www.astm.org), section 3.1.29, for x-minus classified, size reduced scrap tires.]

(5) "Tire manufacturing finishing center" means premises where tires are manufactured, inspected, and processed to either finished stock or scrap.

(6) "Tire retreading business" means premises where scrap tires are recycled by processing the scrap tires and attaching a new tread to the used tire casing.

(7) "Tire sidewall" means the flat circular part of a tire left after the tread has been cut away. Tire sidewall does not include a bagel cut tire or any cut tire where a portion of the tread remains attached to the sidewall.

(8) "Treat" or "treatment" for the purposes of infectious wastes means any method, technique, or process that renders the wastes noninfectious including but not limited to steam sterilization and incineration . Treat or treatment of wastes identified in division (R)(7) of section [3734.01](#) of the Revised Code, to substantially reduce or eliminate the potential for the wastes to cause lacerations or puncture wounds.

(U)

(1) "Unit" means a discrete area within the limits of waste placement of a sanitary landfill facility, for which the owner or operator is authorized to dispose of solid waste, that is delineated by the owner or operator for the purpose of complying with the siting, construction, operational, closure or post-closure care ground water monitoring, and financial assurance requirements of Chapter 3745-27 of the Administrative Code.

(2) "Unstable area" means a location that is susceptible to natural or human -induced events or forces capable of impairing the integrity of some or all of the structural components of a landfill that are responsible for preventing releases from the landfill . Unstable areas can include areas where on-site or local soil conditions result in significant differential settling, areas where the downslope movement of soil or rock due to gravitational influence occurs, or areas where the lowering or collapse of the land surface occurs either locally or over broad regional areas.

(3) "Used tire" means a whole scrap tire. A used tire remains a scrap tire until it has been reused by being installed on a vehicle or trailer.

(V)

(1) "Variance" means an action of the director that alters or changes a requirement of a rule adopted under Chapter 3734. of the Revised Code.

(2) "Vertical expansion" means the extension of the vertical boundary of waste placement that occurs prior to beginning, or being required to begin, closure activities in accordance with rule [3745-27-11](#) of the Administrative Code. A vertical expansion is a modification. A vertical expansion is not a unit.

(W)

(1) "Waste handling area" means any area of a solid waste facility where solid wastes are stored, loaded, unloaded, baled, shredded, crushed, compacted, or otherwise processed or subjected to salvaging activities. Waste handling areas do not include vehicle staging or vehicle storage areas.

[Comment: For definitions of other types of waste handling areas please see "infectious waste handling area" and "scrap tire handling area."]

(2) "Water pollution" means the unpermitted release of sediment from disturbed areas, solid waste or waste-derived constituents, or leachate to the waters of the state.

(3) "Waters of the state" means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and other bodies or accumulations of water, surface and underground, natural or artificial, regardless of the depth of the strata in which underground water is located, that are situated wholly or partly within, or border upon, this state, or are within its jurisdiction, except those private waters that do not combine or effect a junction with natural surface or underground waters.

(4) "Wetland" has the same meaning as in rule [3745-1-02](#) of the Administrative Code.

(5) "Working face" means that portion of a sanitary landfill facility where solid wastes are unloaded for final deposition.

(X) [Reserved.]

(Y)

(1) "Yard waste" means solid waste that includes the following:

(a) Any plant materials from residential trees and edible gardens.

(b) Brush.

(c) Decorative plant materials that do not contain plastic, metal, polystyrene or other non-compostable material, including but not limited to any of the following:

(i) Pumpkins or gourds.

(ii) Hay or straw bales.

(iii) Holiday trees.

(iv) Discarded or potted flowers.

(v) Wreaths.

(vi) Grave blankets.

(d) Grass clippings.

(e) Leaves.

(f) Prunings from trees or shrubs.

(g) Tree trunks and stumps.

Yard waste does not include materials from industrial processing, agricultural processing, or food processing.

(Z)

(1) "Zone of saturation" means that part of the earth's crust, excluding the capillary zone, in which all voids are filled with water.

(2) "Zoonotic agent" means a type of microorganism, pathogen, virus, or proteinaceous infectious particle that causes disease in vertebrate animals, is transmissible to human beings, and can cause or significantly contribute to disease in or death of human beings.

(AA) Incorporation by reference. The text of the incorporated materials is not included in this rule but is hereby made a part of this rule. Only the specific version referenced in this rule is incorporated. Any amendment or revision to a referenced document is not incorporated until this rule has been amended to specify the new version. The materials incorporated by reference are available as follows:

(1) Federal statutes. The full text is available in electronic format at <http://www.gpo.gov/fdsys>. These laws are also available for inspection and copying at most public libraries and "The State Library of Ohio." Appropriate federal statutes listed in this rule are those amended through January 2017 and include the following:

(a) Investment Company Act of 1940, 15 U.S.C. 80a-1 to 80a-64.

(b) U.S.C. Title 11, Bankruptcy.

(2) "Standard Practice for Use of Scrap Tires in Civil Engineering Applications," (D6270-17), approved in 1998, re-approved in 2004 and 2012; amended in 2008 and 2017. Information and copies may be obtained by writing to: "ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania 19428-2959." These documents are available for purchase at <http://www.astm.org>.

(3) Centers for disease control, "Universal Precaution System," 2017. The full text is available in electronic format at: <https://www.cdc.gov/infectioncontrol/basics/standard-precautions.html>.

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Environmental Protection Agency

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§§ 261.2(a)(2)(ii), 261.4(a)(23), and 261.4(a)(24) smelting, melting and refining furnaces are considered to be solely engaged in metals reclamation if the metal recovery from the hazardous secondary materials meets the same requirements as those specified for metals recovery from hazardous waste found in § 266.100(d)(1)–(3) of this chapter, and if the residuals meet the requirements specified in § 266.112 of this chapter.

(5) A material is “used or reused” if it is either:

(i) Employed as an ingredient (including use as an intermediate) in an industrial process to make a product (for example, distillation bottoms from one process used as feedstock in another process). However, a material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal-containing secondary materials); or

(ii) Employed in a particular function or application as an effective substitute for a commercial product (for example, spent pickle liquor used as phosphorous precipitant and sludge conditioner in wastewater treatment).

(6) “Scrap metal” is bits and pieces of metal parts (e.g.,) bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled.

(7) A material is “recycled” if it is used, reused, or reclaimed.

(8) A material is “accumulated speculatively” if it is accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; and that—during the calendar year (commencing on January 1)—the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period. In calculating the percentage of turnover, the 75 percent requirement is to be applied to each material of the same type (e.g., slags from a single smelting process) that is recy-

clered in the same way (*i.e.*, from which the same material is recovered or that is used in the same way). Materials accumulating in units that would be exempt from regulation under § 261.4(c) are not to be included in making the calculation. (Materials that are already defined as solid wastes also are not to be included in making the calculation.) Materials are no longer in this category once they are removed from accumulation for recycling, however.

(9) “Excluded scrap metal” is processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal.

(10) “Processed scrap metal” is scrap metal which has been manually or physically altered to either separate it into distinct materials to enhance economic value or to improve the handling of materials. Processed scrap metal includes, but is not limited to scrap metal which has been baled, shredded, sheared, chopped, crushed, flattened, cut, melted, or separated by metal type (*i.e.*, sorted), and, fines, drosses and related materials which have been agglomerated. (Note: shredded circuit boards being sent for recycling are not considered processed scrap metal. They are covered under the exclusion from the definition of solid waste for shredded circuit boards being recycled (§ 261.4(a)(14)).

(11) “Home scrap metal” is scrap metal as generated by steel mills, foundries, and refineries such as turnings, cuttings, punchings, and borings.

(12) “Prompt scrap metal” is scrap metal as generated by the metal working/fabrication industries and includes such scrap metal as turnings, cuttings, punchings, and borings. Prompt scrap is also known as industrial or new scrap metal.

[45 FR 33119, May 19, 1980, as amended at 48 FR 14293, Apr. 1, 1983; 50 FR 663, Jan. 4, 1985; 51 FR 10174, Mar. 24, 1986; 51 FR 40636, Nov. 7, 1986; 62 FR 26018, May 12, 1997; 73 FR 64760, Oct. 30, 2008; 75 FR 13001, Mar. 18, 2010]

§ 261.2 Definition of solid waste.

(a)(1) A *solid waste* is any discarded material that is not excluded under § 261.4(a) or that is not excluded by a variance granted under §§ 260.30 and

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260.31 or that is not excluded by a non-waste determination under §§ 260.30 and 260.34.

(2)(i) A *discarded material* is any material which is:

(A) Abandoned, as explained in paragraph (b) of this section; or

(B) Recycled, as explained in paragraph (c) of this section; or

(C) Considered inherently waste-like, as explained in paragraph (d) of this section; or

(D) A military munition identified as a solid waste in § 266.202.

(ii) A hazardous secondary material is not discarded if it is generated and reclaimed under the control of the generator as defined in § 260.10, it is not speculatively accumulated as defined in § 261.1(c)(8), it is handled only in non-land-based units and is contained in such units, it is generated and reclaimed within the United States and its territories, it is not otherwise subject to material-specific management conditions under § 261.4(a) when reclaimed, it is not a spent lead acid battery (see § 266.80 and § 273.2), it does not meet the listing description for K171 or K172 in § 261.32, and the reclamation of the material is legitimate, as specified under § 260.43. (See also the notification requirements of § 260.42). (For hazardous secondary materials managed in land-based units, see § 261.4(a)(23)).

(b) Materials are solid waste if they are *abandoned* by being:

(1) Disposed of; or

(2) Burned or incinerated; or

(3) Accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.

(c) Materials are solid wastes if they are *recycled*—or accumulated, stored, or

treated before recycling—as specified in paragraphs (c)(1) through (4) of this section.

(1) *Used in a manner constituting disposal.* (i) Materials noted with a “*” in Column 1 of Table 1 are solid wastes when they are:

(A) Applied to or placed on the land in a manner that constitutes disposal; or

(B) Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which cases the product itself remains a solid waste).

(ii) However, commercial chemical products listed in § 261.33 are not solid wastes if they are applied to the land and that is their ordinary manner of use.

(2) *Burning for energy recovery.* (i) Materials noted with a “*” in column 2 of Table 1 are solid wastes when they are:

(A) Burned to recover energy;

(B) Used to produce a fuel or are otherwise contained in fuels (in which cases the fuel itself remains a solid waste).

(ii) However, commercial chemical products listed in § 261.33 are not solid wastes if they are themselves fuels.

(3) *Reclaimed.* Materials noted with a “—” in column 3 of Table 1 are not solid wastes when reclaimed. Materials noted with an “*” in column 3 of Table 1 are solid wastes when reclaimed unless they meet the requirements of §§ 261.2(a)(2)(ii), or 261.4(a)(17), or 261.4(a)(23), or 261.4(a)(24) or 261.4(a)(25).

(4) *Accumulated speculatively.* Materials noted with a “*” in column 4 of Table 1 are solid wastes when accumulated speculatively.

TABLE 1

	Use constituting disposal (§ 261.2(c)(1))	Energy recovery/fuel (§ 261.2(c)(2))	Reclamation (261.2(c)(3)), except as provided in §§ 261.2(a)(2)(ii), 261.4(a)(17), 261.4(a)(23), 261.4(a)(24), or 261.4(a)(25)	Speculative accumulation (§ 261.2(c)(4))
	1	2	3	4
Spent Materials	(*)	(*)	(*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	—	(*)

TABLE 1—Continued

	Use constituting disposal (§ 261.2(c)(1))	Energy recovery/fuel (§ 261.2(c)(2))	Reclamation (261.2(c)(3)), except as provided in §§ 261.2(a)(2)(ii), 261.4(a)(17), 261.4(a)(23), 261.4(a)(24), or 261.4(a)(25)	Speculative accumulation (§ 261.2(c)(4))
	1	2	3	4
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	—	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	—	—
Scrap metal that is not excluded under § 261.4(a)(13)	(*)	(*)	(*)	(*)

Note: The terms “spent materials,” “sludges,” “by-products,” and “scrap metal” and “processed scrap metal” are defined in § 261.1.

(d) *Inherently waste-like materials.* The following materials are solid wastes when they are recycled in any manner:

(1) Hazardous Waste Nos. F020, F021 (unless used as an ingredient to make a product at the site of generation), F022, F023, F026, and F028.

(2) Secondary materials fed to a halogen acid furnace that exhibit a characteristic of a hazardous waste or are listed as a hazardous waste as defined in subparts C or D of this part, except for brominated material that meets the following criteria:

- (i) The material must contain a bromine concentration of at least 45%; and
- (ii) The material must contain less than a total of 1% of toxic organic compounds listed in appendix VIII; and
- (iii) The material is processed continually on-site in the halogen acid furnace via direct conveyance (hard piping).

(3) The Administrator will use the following criteria to add wastes to that list:

(i)(A) The materials are ordinarily disposed of, burned, or incinerated; or

(B) The materials contain toxic constituents listed in appendix VIII of part 261 and these constituents are not ordinarily found in raw materials or products for which the materials substitute (or are found in raw materials or products in smaller concentrations) and are not used or reused during the recycling process; and

(ii) The material may pose a substantial hazard to human health and the environment when recycled.

(e) *Materials that are not solid waste when recycled.* (1) Materials are not solid wastes when they can be shown to be recycled by being:

(i) Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed; or

(ii) Used or reused as effective substitutes for commercial products; or

(iii) Returned to the original process from which they are generated, without first being reclaimed or land disposed. The material must be returned as a substitute for feedstock materials. In cases where the original process to which the material is returned is a secondary process, the materials must be managed such that there is no placement on the land. In cases where the materials are generated and reclaimed within the primary mineral processing industry, the conditions of the exclusion found at § 261.4(a)(17) apply rather than this paragraph.

(2) The following materials are solid wastes, even if the recycling involves use, reuse, or return to the original process (described in paragraphs (e)(1)(i) through (iii) of this section):

(i) Materials used in a manner constituting disposal, or used to produce products that are applied to the land; or

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(ii) Materials burned for energy recovery, used to produce a fuel, or contained in fuels; or

(iii) Materials accumulated speculatively; or

(iv) Materials listed in paragraphs (d)(1) and (d)(2) of this section.

(f) *Documentation of claims that materials are not solid wastes or are conditionally exempt from regulation.* Respondents in actions to enforce regulations implementing subtitle C of RCRA who raise a claim that a certain material is not a solid waste, or is conditionally exempt from regulation, must demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. In doing so, they must provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a waste, or is exempt from regulation. In addition, owners or operators of facilities claiming that they actually are recycling materials must show that they have the necessary equipment to do so.

[50 FR 664, Jan. 4, 1985, as amended at 50 FR 33542, Aug. 20, 1985; 56 FR 7206, Feb. 21, 1991; 56 FR 32688, July 17, 1991; 56 FR 42512, Aug. 27, 1991; 57 FR 38564, Aug. 25, 1992; 59 FR 48042, Sept. 19, 1994; 62 FR 6651, Feb. 12, 1997; 62 FR 26019, May 12, 1997; 63 FR 28636, May 26, 1998; 64 FR 24513, May 11, 1999; 67 FR 11253, Mar. 13, 2002; 71 FR 40258, July 14, 2006; 73 FR 64760, Oct. 30, 2008; 75 FR 13001, Mar. 18, 2010]

§261.3 Definition of hazardous waste.

(a) A solid waste, as defined in §261.2, is a hazardous waste if:

(1) It is not excluded from regulation as a hazardous waste under §261.4(b); and

(2) It meets any of the following criteria:

(i) It exhibits any of the characteristics of hazardous waste identified in subpart C of this part. However, any mixture of a waste from the extraction, beneficiation, and processing of ores and minerals excluded under §261.4(b)(7) and any other solid waste exhibiting a characteristic of hazardous waste under subpart C is a hazardous waste only if it exhibits a characteristic that would not have been exhibited by the excluded waste alone if such mixture had not occurred, or if it

continues to exhibit any of the characteristics exhibited by the non-excluded wastes prior to mixture. Further, for the purposes of applying the Toxicity Characteristic to such mixtures, the mixture is also a hazardous waste if it exceeds the maximum concentration for any contaminant listed in table 1 to §261.24 that would not have been exceeded by the excluded waste alone if the mixture had not occurred or if it continues to exceed the maximum concentration for any contaminant exceeded by the nonexempt waste prior to mixture.

(ii) It is listed in subpart D of this part and has not been excluded from the lists in subpart D of this part under §§260.20 and 260.22 of this chapter.

(iii) [Reserved]

(iv) It is a mixture of solid waste and one or more hazardous wastes listed in subpart D of this part and has not been excluded from paragraph (a)(2) of this section under §§260.20 and 260.22, paragraph (g) of this section, or paragraph (h) of this section; however, the following mixtures of solid wastes and hazardous wastes listed in subpart D of this part are not hazardous wastes (except by application of paragraph (a)(2)(i) or (ii) of this section) if the generator can demonstrate that the mixture consists of wastewater the discharge of which is subject to regulation under either section 402 or section 307(b) of the Clean Water Act (including wastewater at facilities which have eliminated the discharge of wastewater) and;

(A) One or more of the following spent solvents listed in §261.31—benzene, carbon tetrachloride, tetrachloroethylene, trichloroethylene or the scrubber waters derived from the combustion of these spent solvents—*Provided*, That the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 1 part per million, OR the total measured concentration of these solvents entering the headworks of the facility's wastewater treatment system (at facilities subject to regulation

By Standard Number / 1910.120 - Hazardous waste operations and emergency response.

-
- **Part Number:** 1910
 - **Part Number Title:** Occupational Safety and Health Standards
 - **Subpart:** 1910 Subpart H
 - **Subpart Title:** Hazardous Materials
 - **Standard Number:** 1910.120
 - **Title:** Hazardous waste operations and emergency response.
 - **GPO Source:** e-CFR
-

1910.120(a)

Scope, application, and definitions. --

1910.120(a)(1)

Scope. This section covers the following operations, unless the employer can demonstrate that the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards:

1910.120(a)(1)(i)

Clean-up operations required by a governmental body, whether Federal, state local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA's National Priority Site List (NPL), state priority site lists, sites recommended for the EPA NPL, and initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained);

1910.120(a)(1)(ii)

Corrective actions involving clean-up operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901 *et seq*);

1910.120(a)(1)(iii)

Voluntary clean-up operations at sites recognized by Federal, state, local or other governmental bodies as uncontrolled hazardous waste sites;

1910.120(a)(1)(iv)

Operations involving hazardous waste that are conducted at treatment, storage, disposal (TSD) facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA; or by agencies under agreement with U.S.E.P.A. to implement RCRA regulations; and

1910.120(a)(1)(v)

Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

1910.120(a)(2)

Application.

1910.120(a)(2)(i)

All requirements of Part 1910 and Part 1926 of Title 29 of the Code of Federal Regulations apply pursuant to their terms to hazardous waste and emergency response operations whether covered by this section or not. If there is a conflict or overlap, the provision more protective of employee safety and health shall apply without regard to 29 CFR 1910.5(c)(1).

1910.120(a)(2)(ii)

Hazardous substance clean-up operations within the scope of paragraphs (a)(1)(i) through (a)(1)(iii) of this section must comply with all paragraphs of this section except paragraphs (p) and (q).

1910.120(a)(2)(iii)

Operations within the scope of paragraph (a)(1)(iv) of this section must comply only with the requirements of paragraph (p) of this section.

Notes and Exceptions:

1910.120(a)(2)(iii)(A)

All provisions of paragraph (p) of this section cover any treatment, storage or disposal (TSD) operation regulated by 40 CFR parts 264 and 265 or by state law authorized under RCRA, and required to have a permit or interim status from EPA pursuant to 40 CFR 270.1 or from a state agency pursuant to RCRA.

1910.120(a)(2)(iii)(B)

Employers who are not required to have a permit or interim status because they are conditionally exempt small quantity generators under 40 CFR 261.5 or are generators who qualify under 40 CFR 262.34 for exemptions from regulation under 40 CFR parts 264, 265 and 270 ("excepted employers") are not covered by paragraphs (p)(1) through (p)(7) of this section. Excepted employers who are required by the EPA or state agency to have their employees engage in emergency response or who direct their employees to engage in emergency response are covered by paragraph (p)(8) of this section, and cannot be exempted by (p)(8)(i) of this section.

1910.120(a)(2)(iii)(C)

If an area is used primarily for treatment, storage or disposal, any emergency response operations in that area shall comply with paragraph (p) (8) of this section. In other areas not used primarily for treatment, storage, or disposal, any emergency response operations shall comply with paragraph (q) of this section. Compliance with the requirements of paragraph (q) of this section shall be deemed to be in compliance with the requirements of paragraph (p)(8) of this section.

1910.120(a)(2)(iv)

Emergency response operations for releases of, or substantial threats of releases of, hazardous substances which are not covered by paragraphs (a)(1)(i) through (a)(1)(iv) of this section must only comply with the requirements of paragraph (q) of this section.

1910.120(a)(3)

Definitions --

Buddy system means a system of organizing employees into work groups in such a manner that each employee of the work group is designated to be observed by at least one other employee in the work group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

Clean-up operation means an operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment.

Decontamination means the removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects.

Emergency response or responding to emergencies means a response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance. Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel are not considered to be emergency responses within the scope of this standard. Responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses.

Facility means (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any water-borne vessel.

Hazardous materials response (HAZMAT) team means an organized group of employees, designated by the employer, who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance. The team members perform responses to releases or potential releases of hazardous substances for the purpose of control or stabilization of the incident. A HAZMAT team is not a fire brigade nor is a typical fire brigade a HAZMAT team. A HAZMAT team, however, may be a separate component of a fire brigade or fire department.

Hazardous substance means any substance designated or listed under (A) through (D) of this definition, exposure to which results or may result in adverse effects on the health or safety of employees:

[A] Any substance defined under section 103(14) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (42 U.S.C. 9601).

[B] Any biologic agent and other disease causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such persons or their offspring.

[C] Any substance listed by the U.S. Department of Transportation as hazardous materials under 49 CFR 172.101 and appendices; and

[D] Hazardous waste as herein defined.

Hazardous waste means --

[A] A waste or combination of wastes as defined in 40 CFR 261.3, or

[B] Those substances defined as hazardous wastes in 49 CFR 171.8.

Hazardous waste operation means any operation conducted within the scope of this standard.

Hazardous waste site or *Site* means any facility or location within the scope of this standard at which hazardous waste operations take place.

Health hazard means a chemical or a pathogen where acute or chronic health effects may occur in exposed employees. It also includes stress due to temperature extremes. The term *health hazard* includes chemicals that are classified in accordance with the Hazard Communication Standard, 29 CFR 1910.1200, as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration toxicity or simple asphyxiant. (See Appendix A to § 1910.1200—Health Hazard Criteria (Mandatory) for the criteria for determining whether a chemical is classified as a health hazard.)

IDLH or *Immediately dangerous to life or health* means an atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would interfere with an individual's ability to escape from a dangerous atmosphere.

Oxygen deficiency means that concentration of oxygen by volume below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where the percentage of oxygen by volume is less than 19.5 percent oxygen.

Permissible exposure limit means the exposure, inhalation or dermal permissible exposure limit specified in 29 CFR Part 1910, Subparts G and Z.

Published exposure level means the exposure limits published in "NIOSH Recommendations for Occupational Health Standards" dated 1986, which is incorporated by reference as specified in § 1910.6, or if none is specified, the exposure limits published in the standards specified by the American Conference of Governmental Industrial Hygienists in their publication "Threshold Limit Values and Biological Exposure Indices for 1987-88" dated 1987, which is incorporated by reference as specified in § 1910.6.

Post emergency response means that portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and clean-up of the site has begun. If post emergency response is performed by an employer's own employees who were part of the initial emergency response, it is considered to be part of the initial response and not post emergency response. However, if a group of an employer's own employees, separate from the group providing initial response, performs the clean-up operation, then the separate group of employees would be considered to be performing post-emergency response and subject to paragraph (q)(11) of this section.

Qualified person means a person with specific training, knowledge and experience in the area for which the person has the responsibility and the authority to control.

Site safety and health supervisor (or official) means the individual located on a hazardous waste site who is responsible to the employer and has the authority and knowledge necessary to implement the site safety and health plan and verify compliance with applicable safety and health requirements.

Small quantity generator means a generator of hazardous wastes who in any calendar month generates no more than 1,000 kilograms (2,205) pounds of hazardous waste in that month.

Uncontrolled hazardous waste site means an area identified as an uncontrolled hazardous waste site by a governmental body, whether Federal, state, local or other where an accumulation of hazardous substances creates a threat to the health and safety of individuals or the environment or both. Some sites are found on public lands such as those created by former municipal, county or state landfills where illegal or poorly managed waste disposal has taken place. Other sites are found on private property, often belonging to generators or former generators of hazardous substance wastes. Examples of such sites include, but are not limited to, surface impoundments, landfills, dumps, and tank or drum farms. Normal operations at TSD sites are not covered by this definition.

1910.120(b)

Safety and health program.

NOTE TO (b): Safety and health programs developed and implemented to meet other federal, state, or local regulations are considered acceptable in meeting this requirement if they cover or are modified to cover the topics required in this paragraph. An additional or separate safety and health program is not required by this paragraph.

1910.120(b)(1)

General.

1910.120(b)(1)(i)

Employers shall develop and implement a written safety and health program for their employees involved in hazardous waste operations. The program shall be designed to identify, evaluate, and control safety and health hazards, and provide for emergency response for hazardous waste operations.

1910.120(b)(1)(ii)

The written safety and health program shall incorporate the following:

1910.120(b)(1)(ii)(A)

An organizational structure;

1910.120(b)(1)(ii)(B)

A comprehensive workplan;

1910.120(b)(1)(ii)(C)

A site-specific safety and health plan which need not repeat the employer's standard operating procedures required in paragraph (b)(1)(ii)(F) of this section;

1910.120(b)(1)(ii)(D)

The safety and health training program;

1910.120(b)(1)(ii)(E)

The medical surveillance program;

1910.120(b)(1)(ii)(F)

The employer's standard operating procedures for safety and health; and

1910.120(b)(1)(ii)(G)

Any necessary interface between general program and site specific activities.

1910.120(b)(1)(iii)

Site excavation. Site excavations created during initial site preparation or during hazardous waste operations shall be shored or sloped as appropriate to prevent accidental collapse in accordance with Subpart P of 29 CFR Part 1926.

1910.120(b)(1)(iv)

Contractors and sub-contractors. An employer who retains contractor or sub-contractor services for work in hazardous waste operations shall inform those contractors, sub-contractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation that have been identified by the employer's information program.

1910.120(b)(1)(v)

Program availability. The written safety and health program shall be made available to any contractor or subcontractor or their representative who will be involved with the hazardous waste operation; to employees; to employee designated representatives; to OSHA personnel, and to personnel of other Federal, state, or local agencies with regulatory authority over the site.

1910.120(b)(2)

Organizational structure part of the site program. --

1910.120(b)(2)(i)

The organizational structure part of the program shall establish the specific chain of command and specify the overall responsibilities of supervisors and employees. It shall include, at a minimum, the following elements:

1910.120(b)(2)(i)(A)

A general supervisor who has the responsibility and authority to direct all hazardous waste operations.

1910.120(b)(2)(i)(B)

A site safety and health supervisor who has the responsibility and authority to develop and implement the site safety and health plan and verify compliance.

1910.120(b)(2)(i)(C)

All other personnel needed for hazardous waste site operations and emergency response and their general functions and responsibilities.

1910.120(b)(2)(i)(D)

The lines of authority, responsibility, and communication.

1910.120(b)(2)(ii)

The organizational structure shall be reviewed and updated as necessary to reflect the current status of waste site operations.

1910.120(b)(3)

Comprehensive workplan part of the site program. The comprehensive workplan part of the program shall address the tasks and objectives of the site operations and the logistics and resources required to reach

those tasks and objectives.

1910.120(b)(3)(i)

The comprehensive workplan shall address anticipated clean-up activities as well as normal operating procedures which need not repeat the employer's procedures available elsewhere.

1910.120(b)(3)(ii)

The comprehensive workplan shall define work tasks and objectives and identify the methods for accomplishing those tasks and objectives.

1910.120(b)(3)(iii)

The comprehensive workplan shall establish personnel requirements for implementing the plan.

1910.120(b)(3)(iv)

The comprehensive workplan shall provide for the implementation of the training required in paragraph (e) of this section.

1910.120(b)(3)(v)

The comprehensive workplan shall provide for the implementation of the required informational programs required in paragraph (i) of this section.

1910.120(b)(3)(vi)

The comprehensive workplan shall provide for the implementation of the medical surveillance program described in paragraph (f) of this section.

1910.120(b)(4)

Site-specific safety and health plan part of the program. --

1910.120(b)(4)(i)

General. The site safety and health plan, which must be kept on site, shall address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection.

1910.120(b)(4)(ii)

Elements. The site safety and health plan, as a minimum, shall address the following:

1910.120(b)(4)(ii)(A)

A safety and health risk or hazard analysis for each site task and operation found in the workplan.

1910.120(b)(4)(ii)(B)

Employee training assignments to assure compliance with paragraph (e) of this section.

1910.120(b)(4)(ii)(C)

Personal protective equipment to be used by employees for each of the site tasks and operations being conducted as required by the personal protective equipment program in paragraph (g)(5) of this section.

1910.120(b)(4)(ii)(D)

Medical surveillance requirements in accordance with the program in paragraph (f) of this section.

1910.120(b)(4)(ii)(E)

Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used.

1910.120(b)(4)(ii)(F)

Site control measures in accordance with the site control program required in paragraph (d) of this section.

1910.120(b)(4)(ii)(G)

Decontamination procedures in accordance with paragraph (k) of this section.

1910.120(b)(4)(ii)(H)

An emergency response plan meeting the requirements of paragraph (l) of this section for safe and effective responses to emergencies, including the necessary PPE and other equipment.

1910.120(b)(4)(ii)(I)

Confined space entry procedures.

1910.120(b)(4)(ii)(J)

A spill containment program meeting the requirements of paragraph (j) of this section.

1910.120(b)(4)(iii)

Pre-entry briefing. The site specific safety and health plan shall provide for pre-entry briefings to be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of the site safety and health plan and that this plan is being followed. The information and data obtained from site characterization and analysis work required in paragraph (c) of this section shall be used to prepare and update the site safety and health plan.

1910.120(b)(4)(iv)

Effectiveness of site safety and health plan. Inspections shall be conducted by the site safety and health supervisor or, in the absence of that individual, another individual who is knowledgeable in occupational safety and health, acting on behalf of the employer as necessary to determine the effectiveness of the site safety and health plan. Any deficiencies in the effectiveness of the site safety and health plan shall be corrected by the employer.

1910.120(c)

Site characterization and analysis --

1910.120(c)(1)

General. Hazardous waste sites shall be evaluated in accordance with this paragraph to identify specific site hazards and to determine the appropriate safety and health control procedures needed to protect employees from the identified hazards.

1910.120(c)(2)

Preliminary evaluation. A preliminary evaluation of a site's characteristics shall be performed prior to site entry by a qualified person in order to aid in the selection of appropriate employee protection methods prior to site entry. Immediately after initial site entry, a more detailed evaluation of the site's specific characteristics shall be performed by a qualified person in order to further identify existing site hazards and to further aid in

the selection of the appropriate engineering controls and personal protective equipment for the tasks to be performed.

1910.120(c)(3)

Hazard identification. All suspected conditions that may pose inhalation or skin absorption hazards that are immediately dangerous to life or health (IDLH) or other conditions that may cause death or serious harm shall be identified during the preliminary survey and evaluated during the detailed survey. Examples of such hazards include, but are not limited to, confined space entry, potentially explosive or flammable situations, visible vapor clouds, or areas where biological indicators such as dead animals or vegetation are located.

1910.120(c)(4)

Required information. The following information to the extent available shall be obtained by the employer prior to allowing employees to enter a site:

1910.120(c)(4)(i)

Location and approximate size of the site.

1910.120(c)(4)(ii)

Description of the response activity and/or the job task to be performed.

1910.120(c)(4)(iii)

Duration of the planned employee activity.

1910.120(c)(4)(iv)

Site topography and accessibility by air and roads.

1910.120(c)(4)(v)

Safety and health hazards expected at the site.

1910.120(c)(4)(vi)

Pathways for hazardous substance dispersion.

1910.120(c)(4)(vii)

Present status and capabilities of emergency response teams that would provide assistance to on-site employees at the time of an emergency.

1910.120(c)(4)(viii)

Hazardous substances and health hazards involved or expected at the site and their chemical and physical properties.

1910.120(c)(5)

Personal protective equipment. Personal protective equipment (PPE) shall be provided and used during initial site entry in accordance with the following requirements:

1910.120(c)(5)(i)

Based upon the results of the preliminary site evaluation, an ensemble of PPE shall be selected and used during initial site entry which will provide protection to a level of exposure below permissible exposure limits and published exposure levels for known or suspected hazardous substances and health hazards and which

will provide protection against other known and suspected hazards identified during the preliminary site evaluation. If there is no permissible exposure limit or published exposure level, the employer may use other published studies and information as a guide to appropriate personal protective equipment.

1910.120(c)(5)(ii)

If positive-pressure self-contained breathing apparatus is not used as part of the entry ensemble, and if respiratory protection is warranted by the potential hazards identified during the preliminary site evaluation, an escape self-contained breathing apparatus of at least five minute's duration shall be carried by employees during initial site entry.

1910.120(c)(5)(iii)

If the preliminary site evaluation does not produce sufficient information to identify the hazards or suspected hazards of the site an ensemble providing equivalent to Level B PPE shall be provided as minimum protection, and direct reading instruments shall be used as appropriate for identifying IDLH conditions. (See Appendix B for guidelines on Level B protective equipment.)

1910.120(c)(5)(iv)

Once the hazards of the site have been identified, the appropriate PPE shall be selected and used in accordance with paragraph (g) of this section.

1910.120(c)(6)

Monitoring. The following monitoring shall be conducted during initial site entry when the site evaluation produces information which shows the potential for ionizing radiation or IDLH conditions, or when the site information is not sufficient reasonably to eliminate these possible conditions:

1910.120(c)(6)(i)

Monitoring with direct reading instruments for hazardous levels of ionizing radiation.

1910.120(c)(6)(ii)

Monitoring the air with appropriate direct reading test equipment for (i.e., combustible gas meters, detector tubes) for IDLH and other conditions that may cause death or serious harm (combustible or explosive atmospheres, oxygen deficiency, toxic substances.)

1910.120(c)(6)(iii)

Visually observing for signs of actual or potential IDLH or other dangerous conditions.

1910.120(c)(6)(iv)

An ongoing air monitoring program in accordance with paragraph (h) of this section shall be implemented after site characterization has determined the site is safe for the start-up of operations.

1910.120(c)(7)

Risk identification. Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances shall be identified. Employees who will be working on the site shall be informed of any risks that have been identified. In situations covered by the Hazard Communication Standard, 29 CFR 1910.1200, training required by that standard need not be duplicated.

NOTE TO PARAGRAPH (c)(7). - Risks to consider include, but are not limited to:

[a] Exposures exceeding the permissible exposure limits and published exposure levels.

[b] IDLH Concentrations.

[c] Potential Skin Absorption and Irritation Sources.

[d] Potential Eye Irritation Sources.

[e] Explosion Sensitivity and Flammability Ranges.

[f] Oxygen deficiency.

1910.120(c)(8)

Employee notification. Any information concerning the chemical, physical, and toxicologic properties of each substance known or expected to be present on site that is available to the employer and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. The employer may utilize information developed for the hazard communication standard for this purpose.

1910.120(d)

Site control. --

1910.120(d)(1)

General. Appropriate site control procedures shall be implemented to control employee exposure to hazardous substances before clean-up work begins.

1910.120(d)(2)

Site control program. A site control program for protecting employees which is part of the employer's site safety and health program required in paragraph (b) of this section shall be developed during the planning stages of a hazardous waste clean-up operation and modified as necessary as new information becomes available.

1910.120(d)(3)

Elements of the site control program. The site control program shall, as a minimum, include: A site map; site work zones; the use of a "buddy system"; site communications including alerting means for emergencies; the standard operating procedures or safe work practices; and, identification of the nearest medical assistance. Where these requirements are covered elsewhere they need not be repeated.

1910.120(e)

Training. --

1910.120(e)(1)

General.

1910.120(e)(1)(i)

All employees working on site (such as but not limited to equipment operators, general laborers and others) exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site shall receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards, and they shall receive review training as specified in this paragraph.

1910.120(e)(1)(ii)

Employees shall not be permitted to participate in or supervise field activities until they have been trained to

a level required by their job function and responsibility.

1910.120(e)(2)

Elements to be covered. The training shall thoroughly cover the following:

1910.120(e)(2)(i)

Names of personnel and alternates responsible for site safety and health;

1910.120(e)(2)(ii)

Safety, health and other hazards present on the site;

1910.120(e)(2)(iii)

Use of personal protective equipment;

1910.120(e)(2)(iv)

Work practices by which the employee can minimize risks from hazards;

1910.120(e)(2)(v)

Safe use of engineering controls and equipment on the site;

1910.120(e)(2)(vi)

Medical surveillance requirements including recognition of symptoms and signs which might indicate over exposure to hazards; and

1910.120(e)(2)(vii)

The contents of paragraphs (G) through (J) of the site safety and health plan set forth in paragraph (b)(4)(ii) of this section.

1910.120(e)(3)

Initial training.

1910.120(e)(3)(i)

General site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor.

1910.120(e)(3)(ii)

Workers on site only occasionally for a specific limited task (such as, but not limited to, ground water monitoring, land surveying, or geophysical surveying) and who are unlikely to be exposed over permissible exposure limits and published exposure limits shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

1910.120(e)(3)(iii)

Workers regularly on site who work in areas which have been monitored and fully characterized indicating that exposures are under permissible exposure limits and published exposure limits where respirators are

not necessary, and the characterization indicates that there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

1910.120(e)(3)(iv)

Workers with 24 hours of training who are covered by paragraphs (e)(3)(ii) and (e)(3)(iii) of this section, and who become general site workers or who are required to wear respirators, shall have the additional 16 hours and two days of training necessary to total the training specified in paragraph (e)(3)(i).

1910.120(e)(4)

Management and supervisor training. On-site management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations shall receive 40 hours initial training, and three days of supervised field experience (the training may be reduced to 24 hours and one day if the only area of their responsibility is employees covered by paragraphs (e)(3)(ii) and (e)(3)(iii)) and at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques.

1910.120(e)(5)

Qualifications for trainers. Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.

1910.120(e)(6)

Training certification. Employees and supervisors that have received and successfully completed the training and field experience specified in paragraphs (e)(1) through (e)(4) of this section shall be certified by their instructor or the head instructor and trained supervisor as having completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements of paragraph (e)(9) of this section shall be prohibited from engaging in hazardous waste operations.

1910.120(e)(7)

Emergency response. Employees who are engaged in responding to hazardous emergency situations at hazardous waste clean-up sites that may expose them to hazardous substances shall be trained in how to respond to such expected emergencies.

1910.120(e)(8)

Refresher training. Employees specified in paragraph (e)(1) of this section, and managers and supervisors specified in paragraph (e)(4) of this section, shall receive eight hours of refresher training annually on the items specified in paragraph (e)(2) and/or (e)(4) of this section, any critique of incidents that have occurred in the past year that can serve as training examples of related work, and other relevant topics.

1910.120(e)(9)

Equivalent training. Employers who can show by documentation or certification that an employee's work experience and/or training has resulted in training equivalent to that training required in paragraphs (e)(1) through (e)(4) of this section shall not be required to provide the initial training requirements of those paragraphs to such employees and shall provide a copy of the certification or documentation to the

employee upon request. However, certified employees or employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site experience.

1910.120(f)

Medical surveillance --

1910.120(f)(1)

General. Employees engaged in operations specified in paragraphs (a)(1)(i) through (a)(1)(iv) of this section and not covered by (a)(2)(iii) exceptions and employers of employees specified in paragraph (q)(9) shall institute a medical surveillance program in accordance with this paragraph.

1910.120(f)(2)

Employees covered. The medical surveillance program shall be instituted by the employer for the following employees:

1910.120(f)(2)(i)

All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year;

1910.120(f)(2)(ii)

All employees who wear a respirator for 30 days or more a year or as required by § 1910.134;

1910.120(f)(2)(iii)

All employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation; and

1910.120(f)(2)(iv)

Members of HAZMAT teams.

1910.120(f)(3)

Frequency of medical examinations and consultations. Medical examinations and consultations shall be made available by the employer to each employee covered under paragraph (f)(2) of this section on the following schedules:

1910.120(f)(3)(i)

For employees covered under paragraphs (f)(2)(i), (f)(2)(ii), and (f)(2)(iv);

1910.120(f)(3)(i)(A)

Prior to assignment;

1910.120(f)(3)(i)(B)

At least once every twelve months for each employee covered unless the attending physician believes a longer interval (not greater than biennially) is appropriate;

1910.120(f)(3)(i)(C)

At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months.

1910.120(f)(3)(i)(D)

As soon as possible upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limits or published exposure levels in an emergency situation;

1910.120(f)(3)(i)(E)

At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.

1910.120(f)(3)(ii)

For employees covered under paragraph (f)(2)(iii) and for all employees including of employers covered by paragraph (a)(1)(iv) who may have been injured, received a health impairment, developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or exposed during an emergency incident to hazardous substances at concentrations above the permissible exposure limits or the published exposure levels without the necessary personal protective equipment being used:

1910.120(f)(3)(ii)(A)

As soon as possible following the emergency incident or development of signs or symptoms;

1910.120(f)(3)(ii)(B)

At additional times, if the examining physician determines that follow-up examinations or consultations are medically necessary.

1910.120(f)(4)

Content of medical examinations and consultations.

1910.120(f)(4)(i)

Medical examinations required by paragraph (f)(3) of this section shall include a medical and work history (or updated history if one is in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site.

1910.120(f)(4)(ii)

The content of medical examinations or consultations made available to employees pursuant to paragraph (f) shall be determined by the attending physician. The guidelines in the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (See Appendix D, reference # 10) should be consulted.

1910.120(f)(5)

Examination by a physician and costs. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and shall be provided without cost to the employee, without loss of pay, and at a reasonable time and place.

1910.120(f)(6)

Information provided to the physician. The employer shall provide one copy of this standard and its

appendices to the attending physician and in addition the following for each employee:

1910.120(f)(6)(i)

A description of the employee's duties as they relate to the employee's exposures,

1910.120(f)(6)(ii)

The employee's exposure levels or anticipated exposure levels.

1910.120(f)(6)(iii)

A description of any personal protective equipment used or to be used.

1910.120(f)(6)(iv)

Information from previous medical examinations of the employee which is not readily available to the examining physician.

1910.120(f)(6)(v)

Information required by §1910.134.

1910.120(f)(7)

Physician's written opinion.

1910.120(f)(7)(i)

The employer shall obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:

1910.120(f)(7)(i)(A)

The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use.

1910.120(f)(7)(i)(B)

The physician's recommended limitations upon the employees assigned work.

1910.120(f)(7)(i)(C)

The results of the medical examination and tests if requested by the employee.

1910.120(f)(7)(i)(D)

A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.

1910.120(f)(7)(ii)

The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposure.

1910.120(f)(8)

Recordkeeping.

1910.120(f)(8)(i)

An accurate record of the medical surveillance required by paragraph (f) of this section shall be retained.

This record shall be retained for the period specified and meet the criteria of 29 CFR 1910.1020.

1910.120(f)(8)(ii)

The record required in paragraph (f)(8)(i) of this section shall include at least the following information:

1910.120(f)(8)(ii)(A)

The name and social security number of the employee;

1910.120(f)(8)(ii)(B)

Physicians' written opinions, recommended limitations and results of examinations and tests;

1910.120(f)(8)(ii)(C)

Any employee medical complaints related to exposure to hazardous substances;

1910.120(f)(8)(ii)(D)

A copy of the information provided to the examining physician by the employer, with the exception of the standard and its appendices.

1910.120(g)

Engineering controls, work practices, and personal protective equipment for employee protection.

Engineering controls, work practices and PPE for substances regulated in Subpart Z. (i) Engineering controls, work practices, personal protective equipment, or a combination of these shall be implemented in accordance with this paragraph to protect employees from exposure to hazardous substances and safety and health hazards.

1910.120(g)(1)

Engineering controls, work practices and PPE for substances regulated in Subparts G and Z.

1910.120(g)(1)(i)

Engineering controls and work practices shall be instituted to reduce and maintain employee exposure to or below the permissible exposure limits for substances regulated by 29 CFR Part 1910, to the extent required by Subpart Z, except to the extent that such controls and practices are not feasible.

NOTE TO PARAGRAPH (g)(1)(i): Engineering controls which may be feasible include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment. Work practices which may be feasible are removing all non-essential employees from potential exposure during opening of drums, wetting down dusty operations and locating employees upwind of possible hazards.

1910.120(g)(1)(ii)

Whenever engineering controls and work practices are not feasible, or not required, any reasonable combination of engineering controls, work practices and PPE shall be used to reduce and maintain to or below the permissible exposure limits or dose limits for substances regulated by 29 CFR Part 1910, Subpart Z.

1910.120(g)(1)(iii)

The employer shall not implement a schedule of employee rotation as a means of compliance with permissible exposure limits or dose limits except when there is no other feasible way of complying with the airborne or dermal dose limits for ionizing radiation.

1910.120(g)(1)(iv)

The provisions of 29 CFR, subpart G, shall be followed.

1910.120(g)(2)

Engineering controls, work practices, and PPE for substances not regulated in Subparts G and Z. An appropriate combination of engineering controls, work practices, and personal protective equipment shall be used to reduce and maintain employee exposure to or below published exposure levels for hazardous substances and health hazards not regulated by 29 CFR Part 1910, Subparts G and Z. The employer may use the published literature and SDS as a guide in making the employer's determination as to what level of protection the employer believes is appropriate for hazardous substances and health hazards for which there is no permissible exposure limit or published exposure limit.

1910.120(g)(3)

Personal protective equipment selection.

1910.120(g)(3)(i)

Personal protective equipment (PPE) shall be selected and used which will protect employees from the hazards and potential hazards they are likely to encounter as identified during the site characterization and analysis.

1910.120(g)(3)(ii)

Personal protective equipment selection shall be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, the task-specific conditions and duration, and the hazards and potential hazards identified at the site.

1910.120(g)(3)(iii)

Positive pressure self-contained breathing apparatus, or positive pressure air-line respirators equipped with an escape air supply shall be used when chemical exposure levels present will create a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.

1910.120(g)(3)(iv)

Totally-encapsulating chemical protective suits (protection equivalent to Level A protection as recommended in Appendix B) shall be used in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.

1910.120(g)(3)(v)

The level of protection provided by PPE selection shall be increased when additional information or site conditions show that increased protection is necessary to reduce employee exposures below permissible exposure limits and published exposure levels for hazardous substances and health hazards. (See Appendix B for guidance on selecting PPE ensembles.)

NOTE TO PARAGRAPH (g)(3): The level of employee protection provided may be decreased when additional information or site conditions show that decreased protection will not result in hazardous exposures to employees.

1910.120(g)(3)(vi)

Personal protective equipment shall be selected and used to meet the requirements of 29 CFR Part 1910, Subpart I, and additional requirements specified in this section.

1910.120(g)(4)

Totally-encapsulating chemical protective suits.

1910.120(g)(4)(i)

Totally-encapsulating suits shall protect employees from the particular hazards which are identified during site characterization and analysis.

1910.120(g)(4)(ii)

Totally-encapsulating suits shall be capable of maintaining positive air pressure. (See Appendix A for a test method which may be used to evaluate this requirement.)

1910.120(g)(4)(iii)

Totally-encapsulating suits shall be capable of preventing inward test gas leakage of more than 0.5 percent. (See Appendix A for a test method which may be used to evaluate this requirement.)

1910.120(g)(5)

Personal protective equipment (PPE) program. A personal protective equipment program, which is part of the employer's safety and health program required in paragraph (b) of this section or required in paragraph (p)(1) of this section and which is also a part of the site-specific safety and health plan shall be established. The PPE program shall address the elements listed below. When elements, such as donning and doffing procedures, are provided by the manufacturer of a piece of equipment and are attached to the plan, they need not be rewritten into the plan as long as they adequately address the procedure or element.

1910.120(g)(5)(i)

PPE selection based upon site hazards,

1910.120(g)(5)(ii)

PPE use and limitations of the equipment,

1910.120(g)(5)(iii)

Work mission duration,

1910.120(g)(5)(iv)

PPE maintenance and storage,

1910.120(g)(5)(v)

PPE decontamination and disposal,

1910.120(g)(5)(vi)

PPE training and proper fitting,

1910.120(g)(5)(vii)

PPE donning and doffing procedures,

1910.120(g)(5)(viii)

PPE inspection procedures prior to, during, and after use,

1910.120(g)(5)(ix)

Evaluation of the effectiveness of the PPE program, and

1910.120(g)(5)(x)

Limitations during temperature extremes, heat stress, and other appropriate medical considerations.

1910.120(h)

Monitoring. --

1910.120(h)(1)

General.

1910.120(h)(1)(i)

Monitoring shall be performed in accordance with this paragraph where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

1910.120(h)(1)(ii)

Air monitoring shall be used to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of employee protection needed on site.

1910.120(h)(2)

Initial entry. Upon initial entry, representative air monitoring shall be conducted to identify any IDLH condition, exposure over permissible exposure limits or published exposure levels, exposure over a radioactive material's dose limits or other dangerous condition such as the presence of flammable atmospheres, oxygen-deficient environments.

1910.120(h)(3)

Periodic monitoring. Periodic monitoring shall be conducted when the possibility of an IDLH condition or flammable atmosphere has developed or when there is indication that exposures may have risen over permissible exposure limits or published exposure levels since prior monitoring. Situations where it shall be considered whether the possibility that exposures have risen are as follows:

1910.120(h)(3)(i)

When work begins on a different portion of the site.

1910.120(h)(3)(ii)

When contaminants other than those previously identified are being handled.

1910.120(h)(3)(iii)

When a different type of operation is initiated (e.g., drum opening as opposed to exploratory well drilling.)

1910.120(h)(3)(iv)

When employees are handling leaking drums or containers or working in areas with obvious liquid contamination (e.g., a spill or lagoon.)

1910.120(h)(4)

Monitoring of high-risk employees. After the actual clean-up phase of any hazardous waste operation commences; for example, when soil, surface water or containers are moved or disturbed; the employer shall

monitor those employees likely to have the highest exposures to those hazardous substances and health hazards likely to be present above permissible exposure limits or published exposure levels by using personal sampling frequently enough to characterize employee exposures. The employer may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated in the first sentence of this paragraph. If the employees likely to have the highest exposure are over permissible exposure limits or published exposure limits, then monitoring shall continue to determine all employees likely to be above those limits. The employer may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated above.

NOTE TO PARAGRAPH (h): It is not required to monitor employees engaged in site characterization operations covered by paragraph (c) of this section.

1910.120(i)

Informational programs. Employers shall develop and implement a program which is part of the employer's safety and health program required in paragraph (b) of this section to inform employees, contractors, and subcontractors (or their representative) actually engaged in hazardous waste operations of the nature, level and degree of exposure likely as a result of participation in such hazardous waste operations. Employees, contractors and subcontractors working outside of the operations part of a site are not covered by this standard.

1910.120(j)

Handling drums and containers --

1910.120(j)(1)

General.

1910.120(j)(1)(i)

Hazardous substances and contaminated, liquids and other residues shall be handled, transported, labeled, and disposed of in accordance with this paragraph.

1910.120(j)(1)(ii)

Drums and containers used during the clean-up shall meet the appropriate DOT, OSHA, and EPA regulations for the wastes that they contain.

1910.120(j)(1)(iii)

When practical, drums and containers shall be inspected and their integrity shall be assured prior to being moved. Drums or containers that cannot be inspected before being moved because of storage conditions (i.e., buried beneath the earth, stacked behind other drums, stacked several tiers high in a pile, etc.) shall be moved to an accessible location and inspected prior to further handling.

1910.120(j)(1)(iv)

Unlabeled drums and containers shall be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled.

1910.120(j)(1)(v)

Site operations shall be organized to minimize the amount of drum or container movement.

1910.120(j)(1)(vi)

Prior to movement of drums or containers, all employees exposed to the transfer operation shall be warned of the potential hazards associated with the contents of the drums or containers.

1910.120(j)(1)(vii)

U.S. Department of Transportation specified salvage drums or containers and suitable quantities of proper absorbent shall be kept available and used in areas where spills, leaks, or ruptures may occur.

1910.120(j)(1)(viii)

Where major spills may occur, a spill containment program, which is part of the employer's safety and health program required in paragraph (b) of this section, shall be implemented to contain and isolate the entire volume of the hazardous substance being transferred.

1910.120(j)(1)(ix)

Drums and containers that cannot be moved without rupture, leakage, or spillage shall be emptied into a sound container using a device classified for the material being transferred.

1910.120(j)(1)(x)

A ground-penetrating system or other type of detection system or device shall be used to estimate the location and depth of buried drums or containers.

1910.120(j)(1)(xi)

Soil or covering material shall be removed with caution to prevent drum or container rupture.

1910.120(j)(1)(xii)

Fire extinguishing equipment meeting the requirements of 29 CFR Part 1910, Subpart L, shall be on hand and ready for use to control incipient fires.

1910.120(j)(2)

Opening drums and containers. The following procedures shall be followed in areas where drums or containers are being opened:

1910.120(j)(2)(i)

Where an airline respirator system is used, connections to the source of air supply shall be protected from contamination and the entire system shall be protected from physical damage.

1910.120(j)(2)(ii)

Employees not actually involved in opening drums or containers shall be kept a safe distance from the drums or containers being opened.

1910.120(j)(2)(iii)

If employees must work near or adjacent to drums or containers being opened, a suitable shield that does not interfere with the work operation shall be placed between the employee and the drums or containers being opened to protect the employee in case of accidental explosion.

1910.120(j)(2)(iv)

Controls for drum or container opening equipment, monitoring equipment, and fire suppression equipment shall be located behind the explosion-resistant barrier.

1910.120(j)(2)(v)

When there is a reasonable possibility of flammable atmospheres being present, material handling equipment and hand tools shall be of the type to prevent sources of ignition.

1910.120(j)(2)(vi)

Drums and containers shall be opened in such a manner that excess interior pressure will be safely relieved. If pressure cannot be relieved from a remote location, appropriate shielding shall be placed between the employee and the drums or containers to reduce the risk of employee injury.

1910.120(j)(2)(vii)

Employees shall not stand upon or work from drums or containers.

1910.120(j)(3)

Material handling equipment. Material handling equipment used to transfer drums and containers shall be selected, positioned and operated to minimize sources of ignition related to the equipment from igniting vapors released from ruptured drums or containers.

1910.120(j)(4)

Radioactive wastes. Drums and containers containing radioactive wastes shall not be handled until such time as their hazard to employees is properly assessed.

1910.120(j)(5)

Shock sensitive wastes. As a minimum, the following special precautions shall be taken when drums and containers containing or suspected of containing shock-sensitive wastes are handled:

1910.120(j)(5)(i)

All non-essential employees shall be evacuated from the area of transfer.

1910.120(j)(5)(ii)

Material handling equipment shall be provided with explosive containment devices or protective shields to protect equipment operators from exploding containers.

1910.120(j)(5)(iii)

An employee alarm system capable of being perceived above surrounding light and noise conditions shall be used to signal the commencement and completion of explosive waste handling activities.

1910.120(j)(5)(iv)

Continuous communications (i.e., portable radios, hand signals, telephones, as appropriate) shall be maintained between the employee-in-charge of the immediate handling area and both the site safety and health supervisor and the command post until such time as the handling operation is completed. Communication equipment or methods that could cause shock sensitive materials to explode shall not be used.

1910.120(j)(5)(v)

Drums and containers under pressure, as evidenced by bulging or swelling, shall not be moved until such time as the cause for excess pressure is determined and appropriate containment procedures have been implemented to protect employees from explosive relief of the drum.

1910.120(j)(5)(vi)

Drums and containers containing packaged laboratory wastes shall be considered to contain shock-sensitive

or explosive materials until they have been characterized.

Caution: Shipping of shock sensitive wastes may be prohibited under U.S. Department of Transportation regulations. Employers and their shippers should refer to 49 CFR 173.21 and 173.50.

1910.120(j)(6)

Laboratory waste packs. In addition to the requirements of paragraph (j)(5) of this section, the following precautions shall be taken, as a minimum, in handling laboratory waste packs (lab packs):

1910.120(j)(6)(i)

Lab packs shall be opened only when necessary and then only by an individual knowledgeable in the inspection, classification, and segregation of the containers within the pack according to the hazards of the wastes.

1910.120(j)(6)(ii)

If crystalline material is noted on any container, the contents shall be handled as a shock-sensitive waste until the contents are identified.

1910.120(j)(7)

Sampling of drum and container contents. Sampling of containers and drums shall be done in accordance with a sampling procedure which is part of the site safety and health plan developed for and available to employees and others at the specific worksite.

1910.120(j)(8)

Shipping and transport.

1910.120(j)(8)(i)

Drums and containers shall be identified and classified prior to packaging for shipment.

1910.120(j)(8)(ii)

Drum or container staging areas shall be kept to the minimum number necessary to safely identify and classify materials and prepare them for transport.

1910.120(j)(8)(iii)

Staging areas shall be provided with adequate access and egress routes.

1910.120(j)(8)(iv)

Bulking of hazardous wastes shall be permitted only after a thorough characterization of the materials has been completed.

1910.120(j)(9)

Tank and vault procedures.

1910.120(j)(9)(i)

Tanks and vaults containing hazardous substances shall be handled in a manner similar to that for drums and containers, taking into consideration the size of the tank or vault.

1910.120(j)(9)(ii)

Appropriate tank or vault entry procedures as described in the employer's safety and health plan shall be

followed whenever employees must enter a tank or vault.

1910.120(k)

Decontamination --

1910.120(k)(1)

General. Procedures for all phases of decontamination shall be developed and implemented in accordance with this paragraph.

1910.120(k)(2)

Decontamination procedures.

1910.120(k)(2)(i)

A decontamination procedure shall be developed, communicated to employees and implemented before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists.

1910.120(k)(2)(ii)

Standard operating procedures shall be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances.

1910.120(k)(2)(iii)

All employees leaving a contaminated area shall be appropriately decontaminated; all contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated.

1910.120(k)(2)(iv)

Decontamination procedures shall be monitored by the site safety and health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.

1910.120(k)(3)

Location. Decontamination shall be performed in geographical areas that will minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment.

1910.120(k)(4)

Equipment and solvents. All equipment and solvents used for decontamination shall be decontaminated or disposed of properly.

1910.120(k)(5)

Personal protective clothing and equipment.

1910.120(k)(5)(i)

Protective clothing and equipment shall be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness.

1910.120(k)(5)(ii)

Employees whose non-impermeable clothing becomes wetted with hazardous substances shall immediately remove that clothing and proceed to shower. The clothing shall be disposed of or decontaminated before it is

removed from the work zone.

1910.120(k)(6)

Unauthorized employees. Unauthorized employees shall not remove protective clothing or equipment from change rooms.

1910.120(k)(7)

Commercial laundries or cleaning establishments. Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment shall be informed of the potentially harmful effects of exposures to hazardous substances.

1910.120(k)(8)

Showers and change rooms. Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they shall be provided and meet the requirements of 29 CFR 1910.141. If temperature conditions prevent the effective use of water, then other effective means for cleansing shall be provided and used.

1910.120(l)

Emergency response by employees at uncontrolled hazardous waste sites --

1910.120(l)(1)

Emergency response plan.

1910.120(l)(1)(i)

An emergency response plan shall be developed and implemented by all employers within the scope of paragraphs (a)(1)(i) through (ii) of this section to handle anticipated emergencies prior to the commencement of hazardous waste operations. The plan shall be in writing and available for inspection and copying by employees, their representatives, OSHA personnel and other governmental agencies with relevant responsibilities.

1910.120(l)(1)(ii)

Employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an emergency action plan complying with 29 CFR 1910.38.

1910.120(l)(2)

Elements of an emergency response plan. The employer shall develop an emergency response plan for emergencies which shall address, as a minimum, the following:

1910.120(l)(2)(i)

Pre-emergency planning.

1910.120(l)(2)(ii)

Personnel roles, lines of authority, training, and communication.

1910.120(l)(2)(iii)

Emergency recognition and prevention.

1910.120(l)(2)(iv)

Safe distances and places of refuge.

1910.120(l)(2)(v)

Site security and control.

1910.120(l)(2)(vi)

Evacuation routes and procedures.

1910.120(l)(2)(vii)

Decontamination procedures which are not covered by the site safety and health plan.

1910.120(l)(2)(viii)

Emergency medical treatment and first aid.

1910.120(l)(2)(ix)

Emergency alerting and response procedures.

1910.120(l)(2)(x)

Critique of response and follow-up.

1910.120(l)(2)(xi)

PPE and emergency equipment.

1910.120(l)(3)

Procedures for handling emergency incidents.

1910.120(l)(3)(i)

In addition to the elements for the emergency response plan required in paragraph (l)(2) of this section, the following elements shall be included for emergency response plans:

1910.120(l)(3)(i)(A)

Site topography, layout, and prevailing weather conditions.

1910.120(l)(3)(i)(B)

Procedures for reporting incidents to local, state, and federal governmental agencies.

1910.120(l)(3)(ii)

The emergency response plan shall be a separate section of the Site Safety and Health Plan.

1910.120(l)(3)(iii)

The emergency response plan shall be compatible and integrated with the disaster, fire and/or emergency response plans of local, state, and federal agencies.

1910.120(l)(3)(iv)

The emergency response plan shall be rehearsed regularly as part of the overall training program for site operations.

1910.120(l)(3)(v)

The site emergency response plan shall be reviewed periodically and, as necessary, be amended to keep it

current with new or changing site conditions or information.

1910.120(l)(3)(vi)

An employee alarm system shall be installed in accordance with 29 CFR 1910.165 to notify employees of an emergency situation, to stop work activities if necessary, to lower background noise in order to speed communication, and to begin emergency procedures.

1910.120(l)(3)(vii)

Based upon the information available at time of the emergency, the employer shall evaluate the incident and the site response capabilities and proceed with the appropriate steps to implement the site emergency response plan.

1910.120(m)

Illumination. Areas accessible to employees shall be lighted to not less than the minimum illumination intensities listed in the following Table H-120.1 while any work is in progress:

TABLE H-120.1. -- MINIMUM ILLUMINATION INTENSITIES IN FOOT-CANDLES	
Foot-candles	Area or operations
5	General site areas.
3	Excavation and waste areas, accessways, active storage areas, loading platforms, refueling, and field maintenance areas.
5	Indoors: warehouses, corridors, hallways, and exitways.
5	Tunnels, shafts, and general underground work areas; (Exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Mine Safety and Health Administration approved cap lights shall be acceptable for use in the tunnel heading.
10	General shops (e.g., mechanical and electrical equipment rooms, active storerooms, barracks or living quarters, locker or dressing rooms, dining areas, and indoor toilets and workrooms.
30	First aid stations, infirmaries, and offices.

1910.120(n)

Sanitation at temporary workplaces --

1910.120(n)(1)

Potable water.

1910.120(n)(1)(i)

An adequate supply of potable water shall be provided on the site.

1910.120(n)(1)(ii)

Portable containers used to dispense drinking water shall be capable of being tightly closed, and equipped

with a tap. Water shall not be dipped from containers.

1910.120(n)(1)(iii)

Any container used to distribute drinking water shall be clearly marked as to the nature of its contents and not used for any other purpose.

1910.120(n)(1)(iv)

Where single service cups (to be used but once) are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided.

1910.120(n)(2)

Nonpotable water.

1910.120(n)(2)(i)

Outlets for nonpotable water, such as water for firefighting purposes shall be identified to indicate clearly that the water is unsafe and is not to be used for drinking, washing, or cooking purposes.

1910.120(n)(2)(ii)

There shall be no cross-connection, open or potential, between a system furnishing potable water and a system furnishing nonpotable water.

1910.120(n)(3)

Toilet facilities.

1910.120(n)(3)(i)

Toilets shall be provided for employees according to Table H-120.2.

TABLE H-120.2. -- TOILET FACILITIES	
Number of employees	Minimum number of facilities
20 or fewer	One.
More than 20, fewer than 200	One toilet seat and 1 urinal per 40 employees.
More than 200	One toilet seat and 1 urinal per 50 employees.

1910.120(n)(3)(ii)

Under temporary field conditions, provisions shall be made to assure not less than one toilet facility is available.

1910.120(n)(3)(iii)

Hazardous waste sites, not provided with a sanitary sewer, shall be provided with the following toilet facilities unless prohibited by local codes:

1910.120(n)(3)(iii)(A)

Chemical toilets;

1910.120(n)(3)(iii)(B)

Recirculating toilets;

1910.120(n)(3)(iii)(C)

Combustion toilets; or

1910.120(n)(3)(iii)(D)

Flush toilets.

1910.120(n)(3)(iv)

The requirements of this paragraph for sanitation facilities shall not apply to mobile crews having transportation readily available to nearby toilet facilities.

1910.120(n)(3)(v)

Doors entering toilet facilities shall be provided with entrance locks controlled from inside the facility.

1910.120(n)(4)

Food handling. All food service facilities and operations for employees shall meet the applicable laws, ordinances, and regulations of the jurisdictions in which they are located.

1910.120(n)(5)

Temporary sleeping quarters. When temporary sleeping quarters are provided, they shall be heated, ventilated, and lighted.

1910.120(n)(6)

Washing facilities. The employer shall provide adequate washing facilities for employees engaged in operations where hazardous substances may be harmful to employees. Such facilities shall be in near proximity to the worksite; in areas where exposures are below permissible exposure limits and which are under the controls of the employer; and shall be so equipped as to enable employees to remove hazardous substances from themselves.

1910.120(n)(7)

Showers and change rooms. When hazardous waste clean-up or removal operations commence on a site and the duration of the work will require six months or greater time to complete, the employer shall provide showers and change rooms for all employees exposed to hazardous substances and health hazards involved in hazardous waste clean-up or removal operations.

1910.120(n)(7)(i)

Showers shall be provided and shall meet the requirements of 29 CFR 1910.141(d)(3).

1910.120(n)(7)(ii)

Change rooms shall be provided and shall meet the requirements of 29 CFR 1910.141(e). Change rooms shall consist of two separate change areas separated by the shower area required in paragraph (n)(7)(i) of this section. One change area, with an exit leading off the worksite, shall provide employees with a clean area where they can remove, store, and put on street clothing. The second area, with an exit to the worksite, shall provide employees with an area where they can put on, remove and store work clothing and personal protective equipment.

1910.120(n)(7)(iii)

Showers and change rooms shall be located in areas where exposures are below the permissible exposure

limits and published exposure levels. If this cannot be accomplished, then a ventilation system shall be provided that will supply air that is below the permissible exposure limits and published exposure levels.

1910.120(n)(7)(iv)

Employers shall assure that employees shower at the end of their work shift and when leaving the hazardous waste site.

1910.120(o)

New technology programs.

1910.120(o)(1)

The employer shall develop and implement procedures for the introduction of effective new technologies and equipment developed for the improved protection of employees working with hazardous waste clean-up operations, and the same shall be implemented as part of the site safety and health program to assure that employee protection is being maintained.

1910.120(o)(2)

New technologies, equipment or control measures available to the industry, such as the use of foams, absorbents, absorbents, neutralizers, or other means to suppress the level of air contaminants while excavating the site or for spill control, shall be evaluated by employers or their representatives. Such an evaluation shall be done to determine the effectiveness of the new methods, materials, or equipment before implementing their use on a large scale for enhancing employee protection. Information and data from manufacturers or suppliers may be used as part of the employer's evaluation effort. Such evaluations shall be made available to OSHA upon request.

1910.120(p)

Certain Operations Conducted Under the Resource Conservation and Recovery Act of 1976 (RCRA).

Employers conducting operations at treatment, storage and disposal (TSD) facilities specified in paragraph (a)(1)(iv) of this section shall provide and implement the programs specified in this paragraph. See the "Notes and Exceptions" to paragraph (a)(2)(iii) of this section for employers not covered.

1910.120(p)(1)

Safety and health program. The employer shall develop and implement a written safety and health program for employees involved in hazardous waste operations that shall be available for inspection by employees, their representatives and OSHA personnel. The program shall be designed to identify, evaluate and control safety and health hazards in their facilities for the purpose of employee protection, to provide for emergency response meeting the requirements of paragraph (p)(8) of this section and to address as appropriate site analysis, engineering controls, maximum exposure limits, hazardous waste handling procedures and uses of new technologies.

1910.120(p)(2)

Hazard communication program. The employer shall implement a hazard communication program meeting the requirements of 29 CFR 1910.1200 as part of the employer's safety and program.

NOTE TO §1910.120 - The exemption for hazardous waste provided in 1910.1200 is applicable to this section.

1910.120(p)(3)

Medical surveillance program. The employer shall develop and implement a medical surveillance program

meeting the requirements of paragraph (f) of this section.

1910.120(p)(4)

Decontamination program. The employer shall develop and implement a decontamination procedure meeting the requirements of paragraph (k) of this section.

1910.120(p)(5)

New technology program. The employer shall develop and implement procedures meeting the requirements of paragraph (o) of this section for introducing new and innovative equipment into the workplace.

1910.120(p)(6)

Material handling program. Where employees will be handling drums or containers, the employer shall develop and implement procedures meeting the requirements of paragraphs (j)(1)(ii) through (viii) and (xi) of this section, as well as (j)(3) and (j)(8) of this section prior to starting such work.

1910.120(p)(7)

Training program --

1910.120(p)(7)(i)

New employees. The employer shall develop and implement a training program which is part of the employer's safety and health program, for employees exposed to health hazards or hazardous substances at TSD operations to enable the employees to perform their assigned duties and functions in a safe and healthful manner so as not to endanger themselves or other employees. The initial training shall be for 24 hours and refresher training shall be for eight hours annually. Employees who have received the initial training required by this paragraph shall be given a written certificate attesting that they have successfully completed the necessary training.

1910.120(p)(7)(ii)

Current employees. Employers who can show by an employee's previous work experience and/or training that the employee has had training equivalent to the initial training required by this paragraph, shall be considered as meeting the initial training requirements of this paragraph as to that employee. Equivalent training includes the training that existing employees might have already received from actual site work experience. Current employees shall receive eight hours of refresher training annually.

1910.120(p)(7)(iii)

Trainers. Trainers who teach initial training shall have satisfactorily completed a training course for teaching the subjects they are expected to teach or they shall have the academic credentials and instruction experience necessary to demonstrate a good command of the subject matter of the courses and competent instructional skills.

1910.120(p)(8)

Emergency response program --

1910.120(p)(8)(i)

Emergency response plan. An emergency response plan shall be developed and implemented by all employers. Such plans need not duplicate any of the subjects fully addressed in the employer's contingency planning required by permits, such as those issued by the U.S. Environmental Protection Agency, provided that the contingency plan is made part of the emergency response plan. The emergency response plan shall be a written portion of the employer's safety and health program required in paragraph (p)(1) of this section.

Employers who will evacuate their employees from the worksite location when an emergency occurs and who do not permit any of their employees to assist in handling the emergency are exempt from the requirements of paragraph (p)(8) if they provide an emergency action plan complying with 29 CFR 1910.38.

1910.120(p)(8)(ii)

Elements of an emergency response plan. The employer shall develop an emergency response plan for emergencies which shall address, as a minimum, the following areas to the extent that they are not addressed in any specific program required in this paragraph:

1910.120(p)(8)(ii)(A)

Pre-emergency planning and coordination with outside parties.

1910.120(p)(8)(ii)(B)

Personnel roles, lines of authority, training, and communication.

1910.120(p)(8)(ii)(C)

Emergency recognition and prevention.

1910.120(p)(8)(ii)(D)

Safe distances and places of refuge.

1910.120(p)(8)(ii)(E)

Site security and control.

1910.120(p)(8)(ii)(F)

Evacuation routes and procedures.

1910.120(p)(8)(ii)(G)

Decontamination procedures.

1910.120(p)(8)(ii)(H)

Emergency medical treatment and first aid.

1910.120(p)(8)(ii)(I)

Emergency alerting and response procedures.

1910.120(p)(8)(ii)(J)

Critique of response and follow-up.

1910.120(p)(8)(ii)(K)

PPE and emergency equipment.

1910.120(p)(8)(iii)

Training.

1910.120(p)(8)(iii)(A)

Training for emergency response employees shall be completed before they are called upon to perform in real emergencies. Such training shall include the elements of the emergency response plan, standard

operating procedures the employer has established for the job, the personal protective equipment to be worn and procedures for handling emergency incidents.

Exception #1: an employer need not train all employees to the degree specified if the employer divides the work force in a manner such that a sufficient number of employees who have responsibility to control emergencies have the training specified, and all other employees, who may first respond to an emergency incident, have sufficient awareness training to recognize that an emergency response situation exists and that they are instructed in that case to summon the fully trained employees and not attempt control activities for which they are not trained.

Exception #2: An employer need not train all employees to the degree specified if arrangements have been made in advance for an outside fully-trained emergency response team to respond in a reasonable period and all employees, who may come to the incident first, have sufficient awareness training to recognize that an emergency response situation exists and they have been instructed to call the designated outside fully-trained emergency response team for assistance.

1910.120(p)(8)(iii)(B)

Employee members of TSD facility emergency response organizations shall be trained to a level of competence in the recognition of health and safety hazards to protect themselves and other employees. This would include training in the methods used to minimize the risk from safety and health hazards; in the safe use of control equipment; in the selection and use of appropriate personal protective equipment; in the safe operating procedures to be used at the incident scene; in the techniques of coordination with other employees to minimize risks; in the appropriate response to over exposure from health hazards or injury to themselves and other employees; and in the recognition of subsequent symptoms which may result from over exposures.

1910.120(p)(8)(iii)(C)

The employer shall certify that each covered employee has attended and successfully completed the training required in paragraph (p)(8)(iii) of this section, or shall certify the employee's competency for certification of training shall be recorded and maintained by the employer.

1910.120(p)(8)(iv)

Procedures for handling emergency incidents.

1910.120(p)(8)(iv)(A)

In addition to the elements for the emergency response plan required in paragraph (p)(8)(ii) of this section, the following elements shall be included for emergency response plans to the extent that they do not repeat any information already contained in the emergency response plan:

1910.120(p)(8)(iv)(A)(1)

Site topography, layout, and prevailing weather conditions.

1910.120(p)(8)(iv)(A)(2)

Procedures for reporting incidents to local, state, and federal governmental agencies.

1910.120(p)(8)(iv)(B)

The emergency response plan shall be compatible and integrated with the disaster, fire and/or emergency response plans of local, state, and federal agencies.

1910.120(p)(8)(iv)(C)

The emergency response plan shall be rehearsed regularly as part of the overall training program for site operations.

1910.120(p)(8)(iv)(D)

The site emergency response plan shall be reviewed periodically and, as necessary, be amended to keep it current with new or changing site conditions or information.

1910.120(p)(8)(iv)(E)

An employee alarm system shall be installed in accordance with 29 CFR 1910.165 to notify employees of an emergency situation, to stop work activities if necessary, to lower background noise in order to speed communication; and to begin emergency procedures.

1910.120(p)(8)(iv)(F)

Based upon the information available at time of the emergency, the employer shall evaluate the incident and the site response capabilities and proceed with the appropriate steps to implement the site emergency response plan.

1910.120(q)

Emergency response program to hazardous substance releases. This paragraph covers employers whose employees are engaged in emergency response no matter where it occurs except that it does not cover employees engaged in operations specified in paragraphs (a)(1)(i) through (a)(1)(iv) of this section. Those emergency response organizations who have developed and implemented programs equivalent to this paragraph for handling releases of hazardous substances pursuant to section 303 of the Superfund Amendments and Reauthorization Act of 1986 (Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. 11003) shall be deemed to have met the requirements of this paragraph.

1910.120(q)(1)

Emergency response plan. An emergency response plan shall be developed and implemented to handle anticipated emergencies prior to the commencement of emergency response operations. The plan shall be in writing and available for inspection and copying by employees, their representatives and OSHA personnel. Employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an emergency action plan in accordance with 29 CFR 1910.38.

1910.120(q)(2)

Elements of an emergency response plan. The employer shall develop an emergency response plan for emergencies which shall address, as a minimum, the following areas to the extent that they are not addressed in any specific program required in this paragraph:

1910.120(q)(2)(i)

Pre-emergency planning and coordination with outside parties..

1910.120(q)(2)(ii)

Personnel roles, lines of authority, training, and communication.

1910.120(q)(2)(iii)

Emergency recognition and prevention.

1910.120(q)(2)(iv)

Safe distances and places of refuge.

1910.120(q)(2)(v)

Site security and control.

1910.120(q)(2)(vi)

Evacuation routes and procedures.

1910.120(q)(2)(vii)

Decontamination.

1910.120(q)(2)(viii)

Emergency medical treatment and first aid.

1910.120(q)(2)(ix)

Emergency alerting and response procedures.

1910.120(q)(2)(x)

Critique of response and follow-up.

1910.120(q)(2)(xi)

PPE and emergency equipment.

1910.120(q)(2)(xii)

Emergency response organizations may use the local emergency response plan or the state emergency response plan or both, as part of their emergency response plan to avoid duplication. Those items of the emergency response plan that are being properly addressed by the SARA Title III plans may be substituted into their emergency plan or otherwise kept together for the employer and employee's use.

1910.120(q)(3)

Procedures for handling emergency response.

1910.120(q)(3)(i)

The senior emergency response official responding to an emergency shall become the individual in charge of a site-specific Incident Command System (ICS). All emergency responders and their communications shall be coordinated and controlled through the individual in charge of the ICS assisted by the senior official present for each employer.

NOTE TO PARAGRAPH (q)(3)(i). - The "senior official" at an emergency response is the most senior official on the site who has the responsibility for controlling the operations at the site. Initially it is the senior officer on the first-due piece of responding emergency apparatus to arrive on the incident scene. As more senior officers arrive (i.e., battalion chief, fire chief, state law enforcement official, site coordinator, etc.) the position is passed up the line of authority which has been previously established.

1910.120(q)(3)(ii)

The individual in charge of the ICS shall identify, to the extent possible, all hazardous substances or conditions present and shall address as appropriate site analysis, use of engineering controls, maximum exposure limits, hazardous substance handling procedures, and use of any new technologies.

1910.120(q)(3)(iii)

Based on the hazardous substances and/or conditions present, the individual in charge of the ICS shall implement appropriate emergency operations, and assure that the personal protective equipment worn is appropriate for the hazards to be encountered. However, personal protective equipment shall meet, at a minimum, the criteria contained in 29 CFR 1910.156(e) when worn while performing fire fighting operations beyond the incipient stage for any incident.

1910.120(q)(3)(iv)

Employees engaged in emergency response and exposed to hazardous substances presenting an inhalation hazard or potential inhalation hazard shall wear positive pressure self-contained breathing apparatus while engaged in emergency response, until such time that the individual in charge of the ICS determines through the use of air monitoring that a decreased level of respiratory protection will not result in hazardous exposures to employees.

1910.120(q)(3)(v)

The individual in charge of the ICS shall limit the number of emergency response personnel at the emergency site, in those areas of potential or actual exposure to incident or site hazards, to those who are actively performing emergency operations. However, operations in hazardous areas shall be performed using the buddy system in groups of two or more.

1910.120(q)(3)(vi)

Back-up personnel shall be standing by with equipment ready to provide assistance or rescue. Qualified basic life support personnel, as a minimum, shall also be standing by with medical equipment and transportation capability.

1910.120(q)(3)(vii)

The individual in charge of the ICS shall designate a safety officer, who is knowledgeable in the operations being implemented at the emergency response site, with specific responsibility to identify and evaluate hazards and to provide direction with respect to the safety of operations for the emergency at hand.

1910.120(q)(3)(viii)

When activities are judged by the safety officer to be an IDLH and/or to involve an imminent danger condition, the safety officer shall have the authority to alter, suspend, or terminate those activities. The safety official shall immediately inform the individual in charge of the ICS of any actions needed to be taken to correct these hazards at the emergency scene.

1910.120(q)(3)(ix)

After emergency operations have terminated, the individual in charge of the ICS shall implement appropriate decontamination procedures.

1910.120(q)(3)(x)

When deemed necessary for meeting the tasks at hand, approved self-contained compressed air breathing apparatus may be used with approved cylinders from other approved self-contained compressed air breathing apparatus provided that such cylinders are of the same capacity and pressure rating. All compressed air cylinders used with self-contained breathing apparatus shall meet U.S. Department of Transportation and National Institute for Occupational Safety and Health criteria.

1910.120(q)(4)

Skilled support personnel. Personnel, not necessarily an employer's own employees, who are skilled in the

operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer's own employees, and who will be or may be exposed to the hazards at an emergency response scene, are not required to meet the training required in this paragraph for the employer's regular employees. However, these personnel shall be given an initial briefing at the site prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, what chemical hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions provided to the employer's own employees shall be used to assure the safety and health of these personnel.

1910.120(q)(5)

Specialist employees. Employees who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances, and who will be called upon to provide technical advice or assistance at a hazardous substance release incident to the individual in charge, shall receive training or demonstrate competency in the area of their specialization annually.

1910.120(q)(6)

Training. Training shall be based on the duties and function to be performed by each responder of an emergency response organization. The skill and knowledge levels required for all new responders, those hired after the effective date of this standard, shall be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident. Employees who participate, or are expected to participate, in emergency response, shall be given training in accordance with the following paragraphs:

1910.120(q)(6)(i)

First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

1910.120(q)(6)(i)(A)

An understanding of what hazardous substances are, and the risks associated with them in an incident.

1910.120(q)(6)(i)(B)

An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.

1910.120(q)(6)(i)(C)

The ability to recognize the presence of hazardous substances in an emergency.

1910.120(q)(6)(i)(D)

The ability to identify the hazardous substances, if possible.

1910.120(q)(6)(i)(E)

An understanding of the role of the first responder awareness individual in the employer's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.

1910.120(q)(6)(i)(F)

The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.

1910.120(q)(6)(ii)

First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:

1910.120(q)(6)(ii)(A)

Knowledge of the basic hazard and risk assessment techniques.

1910.120(q)(6)(ii)(B)

Know how to select and use proper personal protective equipment provided to the first responder operational level.

1910.120(q)(6)(ii)(C)

An understanding of basic hazardous materials terms.

1910.120(q)(6)(ii)(D)

Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.

1910.120(q)(6)(ii)(E)

Know how to implement basic decontamination procedures.

1910.120(q)(6)(ii)(F)

An understanding of the relevant standard operating procedures and termination procedures.

1910.120(q)(6)(iii)

Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

1910.120(q)(6)(iii)(A)

Know how to implement the employer's emergency response plan.

1910.120(q)(6)(iii)(B)

Know the classification, identification and verification of known and unknown materials by using field survey instruments and equipment.

1910.120(q)(6)(iii)(C)

Be able to function within an assigned role in the Incident Command System.

1910.120(q)(6)(iii)(D)

Know how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.

1910.120(q)(6)(iii)(E)

Understand hazard and risk assessment techniques.

1910.120(q)(6)(iii)(F)

Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.

1910.120(q)(6)(iii)(G)

Understand and implement decontamination procedures.

1910.120(q)(6)(iii)(H)

Understand termination procedures.

1910.120(q)(6)(iii)(I)

Understand basic chemical and toxicological terminology and behavior.

1910.120(q)(6)(iv)

Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the employer shall so certify:

1910.120(q)(6)(iv)(A)

Know how to implement the local emergency response plan.

1910.120(q)(6)(iv)(B)

Understand classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment.

1910.120(q)(6)(iv)(C)

Know the state emergency response plan.

1910.120(q)(6)(iv)(D)

Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.

1910.120(q)(6)(iv)(E)

Understand in-depth hazard and risk techniques.

1910.120(q)(6)(iv)(F)

Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.

1910.120(q)(6)(iv)(G)

Be able to determine and implement decontamination procedures.

1910.120(q)(6)(iv)(H)

Have the ability to develop a site safety and control plan.

1910.120(q)(6)(iv)(I)

Understand chemical, radiological and toxicological terminology and behavior.

1910.120(q)(6)(v)

On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

1910.120(q)(6)(v)(A)

Know and be able to implement the employer's incident command system.

1910.120(q)(6)(v)(B)

Know how to implement the employer's emergency response plan.

1910.120(q)(6)(v)(C)

Know and understand the hazards and risks associated with employees working in chemical protective clothing.

1910.120(q)(6)(v)(D)

Know how to implement the local emergency response plan.

1910.120(q)(6)(v)(E)

Know of the state emergency response plan and of the Federal Regional Response Team.

1910.120(q)(6)(v)(F)

Know and understand the importance of decontamination procedures.

1910.120(q)(7)

Trainers. Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. National Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.

1910.120(q)(8)

Refresher training.

1910.120(q)(8)(i)

Those employees who are trained in accordance with paragraph (q)(6) of this section shall receive annual

refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly.

1910.120(q)(8)(ii)

A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

1910.120(q)(9)

Medical surveillance and consultation.

1910.120(q)(9)(i)

Members of an organized and designated HAZMAT team and hazardous materials specialist shall receive a baseline physical examination and be provided with medical surveillance as required in paragraph (f) of this section.

1910.120(q)(9)(ii)

Any emergency response employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency incident either immediately or subsequently, shall be provided with medical consultation as required in paragraph (f)(3)(ii) of this section.

1910.120(q)(10)

Chemical protective clothing. Chemical protective clothing and equipment to be used by organized and designated HAZMAT team members, or to be used by hazardous materials specialists, shall meet the requirements of paragraphs (g)(3) through (5) of this section.

1910.120(q)(11)

Post-emergency response operations. Upon completion of the emergency response, if it is determined that it is necessary to remove hazardous substances, health hazards and materials contaminated with them (such as contaminated soil or other elements of the natural environment) from the site of the incident, the employer conducting the clean-up shall comply with one of the following:

1910.120(q)(11)(i)

Meet all the requirements of paragraphs (b) through (o) of this section; or

1910.120(q)(11)(ii)

Where the clean-up is done on plant property using plant or workplace employees, such employees shall have completed the training requirements of the following: 29 CFR 1910.38, 1910.134, 1910.1200, and other appropriate safety and health training made necessary by the tasks they are expected to perform such as personal protective equipment and decontamination procedures.

APPENDICES TO §1910.120 - HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE

NOTE: The following appendices serve as non-mandatory guidelines to assist employees and employers in complying with the appropriate requirements of this section. However paragraph 1910.120(g) makes mandatory in certain circumstances the use of Level A and Level B PPE protection.

[61 FR 9227, March 7, 1996; 67 FR 67964, Nov. 7, 2002; 71 FR 16672, April 3, 2006; 76 FR 80738, Dec. 27, 2011; 77 FR 17776, March 26, 2012; 78 FR 9313, Feb. 8, 2013]

UNITED STATES DEPARTMENT OF LABOR

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200 Constitution Ave NW
Washington, DC 20210
☎ 800-321-6742 (OSHA)
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Regulations (Standards - 29 CFR) - Table of Contents

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** I
- **Subpart Title:** Personal Protective Equipment
- **Standard Number:** 1910.134
- **Title:** Respiratory Protection.
- **Appendix:** A , B-1 , B-2 , C , D
- **GPO Source:** e-CFR

This section applies to General Industry (part 1910), Shipyards (part 1915), Marine Terminals (part 1917), Longshoring (part 1918), and Construction (part 1926).

1910.134(a)***Permissible practice.*****1910.134(a)(1)**

In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.

1910.134(a)(2)

A respirator shall be provided to each employee when such equipment is necessary to protect the health of such employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program, which shall include the requirements outlined in paragraph (c) of this section. The program shall cover each employee required by this section to use a respirator.

1910.134(b)

Definitions. The following definitions are important terms used in the respiratory protection standard in this section.

Air-purifying respirator means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Assigned protection factor (APF) means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section.

Atmosphere-supplying respirator means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

Canister or cartridge means a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Demand respirator means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee exposure means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-service-life indicator (ESLI) means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator means a respirator intended to be used only for emergency exit.

Filter or air purifying element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit factor means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

Helmet means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Interior structural firefighting means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)

Loose-fitting facepiece means a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC) means the maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment.

Negative pressure respirator (tight fitting) means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere means an atmosphere with an oxygen content below 19.5% by volume.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section.

Positive pressure respirator means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative fit test (QLFT) means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

This section means this respiratory protection standard.

Tight-fitting facepiece means a respiratory inlet covering that forms a complete seal with the face.

User seal check means an action conducted by the respirator user to determine if the respirator is properly seated to the face.

1910.134(c)

Respiratory protection program. This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator. The Small Entity Compliance Guide contains criteria for the selection of a program administrator and a sample program that meets the requirements of this paragraph. Copies of the Small Entity Compliance Guide will be available on or about April 8, 1998 from the Occupational Safety and Health Administration's Office of Publications, Room N 3101, 200 Constitution Avenue, NW, Washington, DC, 20210 (202-219-4667).

1910.134(c)(1)

In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The employer shall include in the program the following provisions of this section, as applicable:

1910.134(c)(1)(i)

Procedures for selecting respirators for use in the workplace;

1910.134(c)(1)(ii)

Medical evaluations of employees required to use respirators;

1910.134(c)(1)(iii)

Fit testing procedures for tight-fitting respirators;

1910.134(c)(1)(iv)

Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;

1910.134(c)(1)(v)

Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;

1910.134(c)(1)(vi)

Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;

1910.134(c)(1)(vii)

Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;

1910.134(c)(1)(viii)

Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and

1910.134(c)(1)(ix)

Procedures for regularly evaluating the effectiveness of the program.

1910.134(c)(2)

Where respirator use is not required:

1910.134(c)(2)(i)

An employer may provide respirators at the request of employees or permit employees to use their own respirators, if the employer determines that such respirator use will not in itself create a hazard. If the employer determines that any voluntary respirator use is permissible, the employer shall provide the respirator users with the information contained in Appendix D to this section ("Information for Employees Using Respirators When Not Required Under the Standard"); and

1910.134(c)(2)(ii)

In addition, the employer must establish and implement those elements of a written respiratory protection program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user. Exception: Employers are not required to include in a written respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering facepieces (dust masks).

1910.134(c)(3)

The employer shall designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

1910.134(c)(4)

The employer shall provide respirators, training, and medical evaluations at no cost to the employee.

1910.134(d)

Selection of respirators. This paragraph requires the employer to evaluate respiratory hazard(s) in the workplace, identify relevant workplace and user factors, and base respirator selection on these factors. The paragraph also specifies appropriately protective respirators for use in IDLH atmospheres, and limits the selection and use of air-purifying respirators.

1910.134(d)(1)

General requirements.

1910.134(d)(1)(i)

The employer shall select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.

1910.134(d)(1)(ii)

The employer shall select a NIOSH-certified respirator. The respirator shall be used in compliance with the conditions of its certification.

1910.134(d)(1)(iii)

The employer shall identify and evaluate the respiratory hazard(s) in the workplace; this evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where the employer cannot identify or reasonably estimate the employee exposure, the employer shall consider the atmosphere to be IDLH.

1910.134(d)(1)(iv)

The employer shall select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

1910.134(d)(2)

Respirators for IDLH atmospheres.

1910.134(d)(2)(i)

The employer shall provide the following respirators for employee use in IDLH atmospheres:

1910.134(d)(2)(i)(A)

A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or

1910.134(d)(2)(i)(B)

A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

1910.134(d)(2)(ii)

Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

1910.134(d)(2)(iii)

All oxygen-deficient atmospheres shall be considered IDLH. Exception: If the employer demonstrates that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of this section (i.e., for the altitudes set out in the table), then any atmosphere-supplying respirator may be used.

1910.134(d)(3)

Respirators for atmospheres that are not IDLH.

1910.134(d)(3)(i)

The employer shall provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

1910.134(d)(3)(i)(A)

Assigned Protection Factors (APFs) Employers must use the assigned protection factors listed in Table 1 to select a respirator that meets or exceeds the required level of employee protection. When using a combination respirator (e.g., airline respirators with an air-purifying filter), employers must ensure that the assigned protection factor is appropriate to the mode of operation in which the respirator is being used.

Table 1. -- Assigned Protection Factors⁵

Type of respirator ^{1, 2}	Quarter mask	Half mask	Full facepiece	Helmet/hood	Loose-fitting facepiece
1. Air-Purifying Respirator	5	³ 10	50	.....	.....
2. Powered Air-Purifying Respirator (PAPR)	.....	50	1,000	⁴ 25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode	.....	10	50	.....	.....
• Continuous flow mode	.....	50	1,000	⁴ 25/1,000	25
• Pressure-demand or other positive-pressure mode	.....	50	1,000	.....	.....
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode	.....	10	50	50	.....
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	.....	.....	10,000	10,000	.....

Notes:

¹Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

²The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

³This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

⁴The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

⁵These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

1910.134(d)(3)(i)(B)

Maximum Use Concentration (MUC)

1910.134(d)(3)(i)(B)(1)

The employer must select a respirator for employee use that maintains the employee's exposure to the hazardous substance, when measured outside the respirator, at or below the MUC.

1910.134(d)(3)(i)(B)(2)

Employers must not apply MUCs to conditions that are immediately dangerous to life or health (IDLH); instead, they must use respirators listed for IDLH conditions in paragraph (d)(2) of this standard.

1910.134(d)(3)(i)(B)(3)

When the calculated MUC exceeds the IDLH level for a hazardous substance, or the performance limits of the cartridge or canister, then employers must set the maximum MUC at that lower limit.

1910.134(d)(3)(ii)

The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.

1910.134(d)(3)(iii)

For protection against gases and vapors, the employer shall provide:

1910.134(d)(3)(ii)(A)

An atmosphere-supplying respirator, or

1910.134(d)(3)(ii)(B)

An air-purifying respirator, provided that:

1910.134(d)(3)(ii)(B)(1)

The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or

1910.134(d)(3)(ii)(B)(2)

If there is no ESLI appropriate for conditions in the employer's workplace, the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

1910.134(d)(3)(iv)

For protection against particulates, the employer shall provide:

1910.134(d)(3)(iv)(A)

An atmosphere-supplying respirator; or

1910.134(d)(3)(iv)(B)

An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

1910.134(d)(3)(iv)(C)

For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

TABLE I. -- ASSIGNED PROTECTION FACTORS
[RESERVED]

TABLE II

Altitude (ft.)	Oxygen deficient Atmospheres (% O ₂) for which the employer atmosphere may rely on supplying respirators
Less than 3,001	16.0-19.5
3,001-4,000	16.4-19.5
4,001-5,000	17.1-19.5
5,001-6,000	17.8-19.5
6,001-7,000	18.5-19.5
7,001-8,000 ¹	19.3-19.5

¹Above 8,000 feet the exception does not apply. Oxygen-enriched breathing air must be supplied above 14,000 feet.

1910.134(e)

Medical evaluation. Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Accordingly, this paragraph specifies the minimum requirements for medical evaluation that employers must implement to determine the employee's ability to use a respirator.

1910.134(e)(1)

General. The employer shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. The employer may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

1910.134(e)(2)

Medical evaluation procedures.

1910.134(e)(2)(i)

The employer shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.

1910.134(e)(2)(ii)

The medical evaluation shall obtain the information requested by the questionnaire in Sections 1 and 2, Part A of Appendix C of this section.

1910.134(e)(3)

Follow-up medical examination.

1910.134(e)(3)(i)

The employer shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination.

1910.134(e)(3)(ii)

The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

1910.134(e)(4)

Administration of the medical questionnaire and examinations.

1910.134(e)(4)(i)

The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content.

1910.134(e)(4)(ii)

The employer shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

1910.134(e)(5)

Supplemental information for the PLHCP.

1910.134(e)(5)(i)

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

1910.134(e)(5)(i)(A)

(A) The type and weight of the respirator to be used by the employee;

1910.134(e)(5)(i)(B)

The duration and frequency of respirator use (including use for rescue and escape);

1910.134(e)(5)(i)(C)

The expected physical work effort;

1910.134(e)(5)(i)(D)

Additional protective clothing and equipment to be worn; and

1910.134(e)(5)(i)(E)

Temperature and humidity extremes that may be encountered.

1910.134(e)(5)(ii)

Any supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.

1910.134(e)(5)(iii)

The employer shall provide the PLHCP with a copy of the written respiratory protection program and a copy of this section.

Note to Paragraph (e)(5)(iii): When the employer replaces a PLHCP, the employer must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically reevaluated solely because a new PLHCP has been selected.

1910.134(e)(6)

Medical determination. In determining the employee's ability to use a respirator, the employer shall:

1910.134(e)(6)(i)

Obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

1910.134(e)(6)(i)(A)

Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;

1910.134(e)(6)(i)(B)

The need, if any, for follow-up medical evaluations; and

1910.134(e)(6)(i)(C)

A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

1910.134(e)(6)(ii)

If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, the employer shall provide a PAPR if the PLHCP's medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then the employer is no longer required to provide a PAPR.

1910.134(e)(7)

Additional medical evaluations. At a minimum, the employer shall provide additional medical evaluations that comply with the requirements of this section if:

1910.134(e)(7)(i)

An employee reports medical signs or symptoms that are related to ability to use a respirator;

1910.134(e)(7)(ii)

A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;

1910.134(e)(7)(iii)

Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or

1910.134(e)(7)(iv)

A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

1910.134(f)

Fit testing. This paragraph requires that, before an employee may be required to use any respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This paragraph specifies the kinds of fit tests allowed, the procedures for conducting them, and how the results of the fit tests must be used.

1910.134(f)(1)

The employer shall ensure that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this paragraph.

1910.134(f)(2)

The employer shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.

1910.134(f)(3)

The employer shall conduct an additional fit test whenever the employee reports, or the employer, PLHCP, supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

1910.134(f)(4)

If after passing a QLFT or QNFT, the employee subsequently notifies the employer, program administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator facepiece and to be retested.

1910.134(f)(5)

The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in Appendix A of this section.

1910.134(f)(6)

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.

1910.134(f)(7)

If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator.

1910.134(f)(8)

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

1910.134(f)(8)(i)

Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator facepiece.

1910.134(f)(8)(ii)

Quantitative fit testing of these respirators shall be accomplished by modifying the facepiece to allow sampling inside the facepiece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.

1910.134(f)(8)(iii)

Any modifications to the respirator facepiece for fit testing shall be completely removed, and the facepiece restored to NIOSH-approved configuration, before that facepiece can be used in the workplace.

1910.134(g)

Use of respirators. This paragraph requires employers to establish and implement procedures for the proper use of respirators. These requirements include prohibiting conditions that may result in facepiece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres or in interior structural firefighting situations.

1910.134(g)(1)***Facepiece seal protection.*****1910.134(g)(1)(i)**

The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

1910.134(g)(1)(i)(A)

Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

1910.134(g)(1)(i)(B)

Any condition that interferes with the face-to-facepiece seal or valve function.

1910.134(g)(1)(ii)

If an employee wears corrective glasses or goggles or other personal protective equipment, the employer shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

1910.134(g)(1)(iii)

For all tight-fitting respirators, the employer shall ensure that employees perform a user seal check each time they put on the respirator using the procedures in Appendix B-1 or procedures recommended by the respirator manufacturer that the employer demonstrates are as effective as those in Appendix B-1 of this section.

1910.134(g)(2)***Continuing respirator effectiveness.*****1910.134(g)(2)(i)**

Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the employer shall reevaluate the continued effectiveness of the respirator.

1910.134(g)(2)(ii)

The employer shall ensure that employees leave the respirator use area:

1910.134(g)(2)(ii)(A)

To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use; or

1910.134(g)(2)(ii)(B)

If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; or

1910.134(g)(2)(ii)(C)

To replace the respirator or the filter, cartridge, or canister elements.

1910.134(g)(2)(iii)

If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, the employer must replace or repair the respirator before allowing the employee to return to the work area.

1910.134(g)(3)

Procedures for IDLH atmospheres. For all IDLH atmospheres, the employer shall ensure that:

1910.134(g)(3)(i)

One employee or, when needed, more than one employee is located outside the IDLH atmosphere;

1910.134(g)(3)(ii)

Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;

1910.134(g)(3)(iii)

The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;

1910.134(g)(3)(iv)

The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;

1910.134(g)(3)(v)

The employer or designee authorized to do so by the employer, once notified, provides necessary assistance appropriate to the situation;

1910.134(g)(3)(vi)

Employee(s) located outside the IDLH atmospheres are equipped with:

1910.134(g)(3)(vi)(A)

Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either

1910.134(g)(3)(vi)(B)

Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or

1910.134(g)(3)(vi)(C)

Equivalent means for rescue where retrieval equipment is not required under paragraph (g)(3)(vi)(B).

1910.134(g)(4)

Procedures for interior structural firefighting. In addition to the requirements set forth under paragraph (g)(3), in interior structural fires, the employer shall ensure that:

1910.134(g)(4)(i)

At least two employees enter the IDLH atmosphere and remain in visual or voice contact with one another at all times;

1910.134(g)(4)(ii)

At least two employees are located outside the IDLH atmosphere; and

1910.134(g)(4)(iii)

All employees engaged in interior structural firefighting use SCBAs.

Note 1 to paragraph (g): One of the two individuals located outside the IDLH atmosphere may be assigned to an additional role, such as incident commander in charge of the emergency or safety officer, so long as this individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident.

Note 2 to paragraph (g): Nothing in this section is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled.

1910.134(h)

Maintenance and care of respirators. This paragraph requires the employer to provide for the cleaning and disinfecting, storage, inspection, and repair of respirators used by employees.

1910.134(h)(1)

Cleaning and disinfecting. The employer shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. The employer shall ensure that respirators are cleaned and disinfected using the procedures in Appendix B-2 of this section, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators shall be cleaned and disinfected at the following intervals:

1910.134(h)(1)(i)

Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition;

1910.134(h)(1)(ii)

Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals;

1910.134(h)(1)(iii)

Respirators maintained for emergency use shall be cleaned and disinfected after each use; and

1910.134(h)(1)(iv)

Respirators used in fit testing and training shall be cleaned and disinfected after each use.

1910.134(h)(2)

Storage. The employer shall ensure that respirators are stored as follows:

1910.134(h)(2)(i)

All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.

1910.134(h)(2)(ii)

In addition to the requirements of paragraph (h)(2)(i) of this section, emergency respirators shall be:

1910.134(h)(2)(ii)(A)

Kept accessible to the work area;

1910.134(h)(2)(ii)(B)

Stored in compartments or in covers that are clearly marked as containing emergency respirators; and

1910.134(h)(2)(ii)(C)

Stored in accordance with any applicable manufacturer instructions.

1910.134(h)(3)

Inspection.

1910.134(h)(3)(i)

The employer shall ensure that respirators are inspected as follows:

1910.134(h)(3)(i)(A)

All respirators used in routine situations shall be inspected before each use and during cleaning;

1910.134(h)(3)(i)(B)

All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use; and

1910.134(h)(3)(i)(C)

Emergency escape-only respirators shall be inspected before being carried into the workplace for use.

1910.134(h)(3)(ii)

The employer shall ensure that respirator inspections include the following:

1910.134(h)(3)(ii)(A)

A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters; and

1910.134(h)(3)(ii)(B)

A check of elastomeric parts for pliability and signs of deterioration.

1910.134(h)(3)(iii)

In addition to the requirements of paragraphs (h)(3)(i) and (ii) of this section, self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The employer shall determine that the regulator and warning devices function properly.

1910.134(h)(3)(iv)

For respirators maintained for emergency use, the employer shall:

1910.134(h)(3)(iv)(A)

Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator; and

1910.134(h)(3)(iv)(B)

Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

1910.134(h)(4)

Repairs. The employer shall ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

1910.134(h)(4)(i)

Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;

1910.134(h)(4)(ii)

Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and

1910.134(h)(4)(iii)

Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

1910.134(i)

Breathing air quality and use. This paragraph requires the employer to provide employees using atmosphere-supplying respirators (supplied-air and SCBA) with breathing gases of high purity.

1910.134(i)(1)

The employer shall ensure that compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications:

1910.134(i)(1)(i)

Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen; and

1910.134(i)(1)(ii)

Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

1910.134(i)(1)(ii)(A)

Oxygen content (v/v) of 19.5-23.5%;

1910.134(i)(1)(ii)(B)

Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;

1910.134(i)(1)(ii)(C)

Carbon monoxide (CO) content of 10 ppm or less;

1910.134(i)(1)(ii)(D)

Carbon dioxide content of 1,000 ppm or less; and

1910.134(i)(1)(ii)(E)

Lack of noticeable odor.

1910.134(i)(2)

The employer shall ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.

1910.134(i)(3)

The employer shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

1910.134(i)(4)

The employer shall ensure that cylinders used to supply breathing air to respirators meet the following requirements:

1910.134(i)(4)(i)

Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 180);

1910.134(i)(4)(ii)

Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air; and

1910.134(i)(4)(iii)

The moisture content in the cylinder does not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure.

1910.134(i)(5)

The employer shall ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:

1910.134(i)(5)(i)

Prevent entry of contaminated air into the air-supply system;

1910.134(i)(5)(ii)

Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg.C) below the ambient temperature;

1910.134(i)(5)(iii)

Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.

1910.134(i)(5)(iv)

Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

1910.134(i)(6)

For compressors that are not oil-lubricated, the employer shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.

1910.134(i)(7)

For oil-lubricated compressors, the employer shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

1910.134(i)(8)

The employer shall ensure that breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.

1910.134(i)(9)

The employer shall use only the respirator manufacturer's NIOSH-approved breathing-gas containers, marked and maintained in accordance with the Quality Assurance provisions of the NIOSH approval for the SCBA as issued in accordance with the NIOSH respirator-certification standard at 42 CFR part 84.

1910.134(j)

Identification of filters, cartridges, and canisters. The employer shall ensure that all filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.

1910.134(k)

Training and information. This paragraph requires the employer to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually, and more often if necessary. This paragraph also requires the employer to provide the basic information on respirators in Appendix D of this section to employees who wear respirators when not required by this section or by the employer to do so.

1910.134(k)(1)

The employer shall ensure that each employee can demonstrate knowledge of at least the following:

1910.134(k)(1)(i)

Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;

1910.134(k)(1)(ii)

What the limitations and capabilities of the respirator are;

1910.134(k)(1)(iii)

How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;

1910.134(k)(1)(iv)

How to inspect, put on and remove, use, and check the seals of the respirator;

1910.134(k)(1)(v)

What the procedures are for maintenance and storage of the respirator;

1910.134(k)(1)(vi)

How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and

1910.134(k)(1)(vii)

The general requirements of this section.

1910.134(k)(2)

The training shall be conducted in a manner that is understandable to the employee.

1910.134(k)(3)

The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.

1910.134(k)(4)

An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified in paragraph (k)(1)(i) through (vii) is not required to repeat such training provided that, as required by paragraph (k)(1), the employee can demonstrate knowledge of those element(s). Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.

1910.134(k)(5)

Retraining shall be administered annually, and when the following situations occur:

1910.134(k)(5)(i)

Changes in the workplace or the type of respirator render previous training obsolete;

1910.134(k)(5)(ii)

Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or

1910.134(k)(5)(iii)

Any other situation arises in which retraining appears necessary to ensure safe respirator use.

1910.134(k)(6)

The basic advisory information on respirators, as presented in Appendix D of this section, shall be provided by the employer in any written or oral format, to employees who wear respirators when such use is not required by this section or by the employer.

1910.134(l)

Program evaluation. This section requires the employer to conduct evaluations of the workplace to ensure that the written respiratory protection program is being properly implemented, and to consult employees to ensure that they are using the respirators properly.

1910.134(l)(1)

The employer shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

1910.134(l)(2)

The employer shall regularly consult employees required to use respirators to assess the employees' views on program effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed include, but are not limited to:

1910.134(l)(2)(i)

Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);

1910.134(l)(2)(ii)

Appropriate respirator selection for the hazards to which the employee is exposed;

1910.134(l)(2)(iii)

Proper respirator use under the workplace conditions the employee encounters; and

1910.134(l)(2)(iv)

Proper respirator maintenance.

1910.134(m)

Recordkeeping. This section requires the employer to establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist the employer in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

1910.134(m)(1)

Medical evaluation. Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020.

1910.134(m)(2)

Fit testing.

1910.134(m)(2)(i)

The employer shall establish a record of the qualitative and quantitative fit tests administered to an employee including:

1910.134(m)(2)(i)(A)

The name or identification of the employee tested;

1910.134(m)(2)(i)(B)

Type of fit test performed;

1910.134(m)(2)(i)(C)

Specific make, model, style, and size of respirator tested;

1910.134(m)(2)(i)(D)

Date of test; and

1910.134(m)(2)(i)(E)

The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

1910.134(m)(2)(ii)

Fit test records shall be retained for respirator users until the next fit test is administered.

1910.134(m)(3)

A written copy of the current respirator program shall be retained by the employer.

1910.134(m)(4)

Written materials required to be retained under this paragraph shall be made available upon request to affected employees and to the Assistant Secretary or designee for examination and copying.

1910.134(n)

Effective date. Paragraphs (d)(3)(i)(A) and (d)(3)(i)(B) of this section become effective November 22, 2006.

1910.134(o)

Appendices. Compliance with Appendix A, Appendix B-1, Appendix B-2, Appendix C, and Appendix D to this section are mandatory.

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998; 71 FR 16672, April 3, 2006; 71 FR 50187, August 24, 2006; 73 FR 75584, Dec. 12, 2008; 76 FR 33606, June 8, 2011]

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- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** J
- **Subpart Title:** General Environmental Controls
- **Standard Number:** 1910.146
- **Title:** Permit-required confined spaces
- **Appendix:** A , B , C , D , E , F
- **GPO Source:** e-CFR

1910.146(a)

Scope and application. This section contains requirements for practices and procedures to protect employees in general industry from the hazards of entry into permit-required confined spaces. This section does not apply to agriculture, to construction, or to shipyard employment (Parts 1928, 1926, and 1915 of this chapter, respectively).

1910.146(b)

Definitions.

"Acceptable entry conditions" means the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

"Attendant" means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

"Authorized entrant" means an employee who is authorized by the employer to enter a permit space.

"Blanking or blinding" means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

"Confined space" means a space that:

- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- (3) Is not designed for continuous employee occupancy.

"Double block and bleed" means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

"Emergency" means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

"Engulfment" means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

"Entry" means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

"Entry permit (permit)" means the written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in paragraph (f) of this section.

"Entry supervisor" means the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

NOTE: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

"Hazardous atmosphere" means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- (1) Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
- (2) Airborne combustible dust at a concentration that meets or exceeds its LFL;

NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.

- (3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- (4) Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;

NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

- (5) Any other atmospheric condition that is immediately dangerous to life or health.

NOTE: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200 of this Part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

"Hot work permit" means the employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

"Immediately dangerous to life or health (IDLH)" means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

NOTE: Some materials -- hydrogen fluoride gas and cadmium vapor, for example -- may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

"Inerting" means the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

NOTE: This procedure produces an IDLH oxygen-deficient atmosphere.

"Isolation" means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

"Line breaking" means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

"Non-permit confined space" means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

"Oxygen deficient atmosphere" means an atmosphere containing less than 19.5 percent oxygen by volume.

"Oxygen enriched atmosphere" means an atmosphere containing more than 23.5 percent oxygen by volume.

"Permit-required confined space (permit space)" means a confined space that has one or more of the following characteristics:

- (1) Contains or has a potential to contain a hazardous atmosphere;
- (2) Contains a material that has the potential for engulfing an entrant;
- (3) Has an internal configuration such that an entrant (3) could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- (4) Contains any other recognized serious safety or health hazard.

"Permit-required confined space program (permit space program)" means the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

"Permit system" means the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

"Prohibited condition" means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

"Rescue service" means the personnel designated to rescue employees from permit spaces.

"Retrieval system" means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

"Testing" means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

NOTE: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

1910.146(c)

General requirements.

1910.146(c)(1)

The employer shall evaluate the workplace to determine if any spaces are permit-required confined spaces.

NOTE: Proper application of the decision flow chart in Appendix A to section 1910.146 would facilitate compliance with this requirement.

1910.146(c)(2)