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PERMIT-REQUIRED CONFINED SPACE ENTRY PROGRAM

FOR

Haddonfield

BOARD OF EDUCATION

Annual Review: 2015 by _____ Date: ____/____/17
Annual Review: 2016 by _____ Date: ____/____/18
Annual Review: 2017 by _____ Date: ____/____/19

Permit Required Confined Space Entry Program

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PERMIT-REQUIRED CONFINED SPACE ENTRY PROGRAM

1.0 SCOPE AND APPLICATION

The purpose of the program is to establish minimum requirements for district employees, outside employees and contractors that are required to work in permit-required confined spaces on the premises of the Haddonfield Board of ED. This program is designed to comply with the OSHA Permit-Required Confined Space Entry Regulations, Title 29 Code of Federal Regulations 1910.146.

1.1 Board of Education Procedures

The district has determined that this work place needs written procedures for the evaluation of confined spaces and where permit required spaces are identified, the district has developed and implemented a Permit-Required Confined Space Entry Program. This program applies to all work operations on the premises of any properties owned or occupied by the Haddonfield Board of Education. These rules and regulations will extend to district employees, outside employees or contractors that must enter a permit required confined space as part of their job duties.

1.1.2 Program Oversight

It shall be the overall responsibility of the Facility Director to coordinate and oversee all aspects of this program. Unless delegated to another component person, Timothy McFerren shall be the person having final responsibility for the Permit-Required Confined Space Entry Program. This program shall be reviewed annually at a minimum, or more often as necessary to ensure the success of this program.

1.1.3 Program Availability

Copies of this program are available for review by all district employees, affected contractors or other interested parties by contacting Timothy McFerren. Under this program, the Haddonfield Board of Education has identified permit-required confined space, developed a written program to ensure safe work practices and provided the necessary training and equipment to employees to properly operate within a confined space environment.

2.0 DEFINITIONS

2.1 "*Attendant*"- means a trained individual stationed outside one or more permit spaces who monitors the authorized entrance and who performs all attendant's duties assigned in the employers Permit Space Program.

2.2 "*Authorized entrant*" - means an employee who is authorized and trained by the employer to enter a permit space.

2.3 "*Confined space*" - means a space that;

is large enough and so configured that an employee can bodily enter and perform assigned work; and

has limited or restricted means for entry or exit (examples include tanks, vessels, silos, storage bins, hoppers, vaults and pits); and

is not designed for continuous employee occupancy.

2.4 "*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 any opening into the space.

2.5 "*Entry permit* (*permit*)" - means the written or printed document that is provided the employer to allow and control entry into a permit space and contains all of the necessary information as required by OSHA.

2.6 "*Entry supervisor*" - means the person (such as the employer, foreman on 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 operations as required by OSHA regulations.

2.7 "*Hot work permit*"- means the employer's written authorization to perform operations (such as riveting, welding, cutting, burning and heating) capable of providing a source of ignition.

2.8 "*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 would interfere with an individual's ability to escape unaided from a permit space.

2.9 "*Lower explosive limit (LEL)*" - the lower limit at flammability or explosibility of a gas or vapor at ordinary ambient temperatures expressed in percent of the gas or vapor in air by volume.

2.10 "Oxygen *deficiency*" - an atmosphere which contains less than 19.5% oxygen. Normal air at sea level contains approximately 21% oxygen.

2.11 "*Permit-required confined space*" - means a confined space that has one or more of the following characteristics:

contains or has the potential to contain a hazardous atmosphere;

contains a material that has the potential for engulfing an entrant;

has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section; or

contains any other recognized serious safety or health hazards.

2.12 *"Safe atmosphere levels"* - all confined spaces must be tested before entry and during occupancy. A safe atmosphere level is identified as:

oxygen content between 19.5% and 22%;
hydrogen sulfide less than 10 parts per million (.001%);
combustible gas content less than 10% of the lower explosive limit (LEL).

3.0 HEALTH AND SAFETY HAZARDS/STANDARD OPERATING PROCEDURES

3.1 The health and safety hazards that could be encountered while entering and working in confined spaces may include the following:

unknown contents	toxic atmospheres
flammable atmospheres	poor ventilation
corrosive materials	inadequate light
difficulty in exiting	oxygen deficiency
oxygen enrichment	hot and cold weather
falling objects	poor communications
chemical reactivity	sludges/residues
equipment start-up	electrical shock
poor visibility	chemical contact
hot and cold contact	pressure vacuum
sharp objects	migrating vapors and gases

Standard Operating Procedures

3.1.1 After obtaining a signed confined space entry permit, only a qualified person shall enter a confined space.

3.2.2 A trained attendant shall remain on duty outside of the permit space being entered and under no circumstances shall enter the space unless relieved by another qualified attendant.

3.2.3 Inform a supervisor of your location.

3.2.4 Control access to the work area by utilizing signs, warning devices and barricades, as needed.

3.2.5 Prior to entering the confined space, use a properly functioning and calibrated gas detector to monitor the atmosphere of the confined space at various levels. The testing should include checking oxygen levels, explosive gases, hydrogen sulfide levels and any other potentially harmful gas. All testing should be conducted in accordance with Appendix B in Title 29 CFR 1910.146-Procedures for Atmospheric Testing.

3.2.6 Do not smoke in or within 10 feet of a confined space.

3.2.7 Ensure all necessary equipment in on site to properly perform the entry. This should include:
a full body harness with metal D rings and a secured life line;
an approved tripod with a hoist equipped with fall arresting capabilities (if a vertical entry);
all necessary personal protective equipment including safety glasses, safety shoes, gloves, hardhats, respiratory protection, etc.;
and availability of a 30 minute self contained breathing apparatus (SCBA) and a 10 minute escape pack for each employee working in the confined space, if a potential IDLH atmosphere may exist.

3.2.8 Properly ventilate the confined space to obtain 0% of the lower flammable limit (LEL) and reduce concentrations of toxic materials below permissible exposure limits (PEL) and provide relief from heat. Ventilation should be for a minimum of 10 minutes. Continuous forced air ventilation shall be used for the duration of the permit, unless at the discretion of the entry supervisor, the forced air ventilation is not required to safely enter the space.

3.2.9 Follow all necessary lockout/tag out procedures in order to isolate hazardous energy sources while working in the confined space.

3.2.10 Obtain any necessary hot work permit for work being performed in or near the confined space location. This includes any work involving welding, cutting, brazing or heating.

3.2.11 Notify the proper supervisor when work in the confined space has been completed.

4.0 HAZARD EVALUATION FOR PERMIT SPACES

4.1 Workplace Survey

The district has performed a hazard evaluation of the workplace in order to evaluate the existence of permit-required confined spaces. This evaluation has provided the necessary information to identify the existence and location of known permit-required confined spaces in the workplace that must be covered by the Permit-Required Confined Space Entry Program.

While a good faith effort has been made to identify the existence of all permit-required confined spaces in the district, it is possible that there are some locations which have not been identified. Employees are encouraged to notify Timothy McFerren in the event a potential confined space is located which does not appear on the enclosed list.

Employees should also be aware that a non-permit space may become a permit-required confined space if conditions are altered which could create a hazardous environment within the space. Employees must then follow all requirements of this program.

4.2 Identified Permit-Required Confined Space Locations

The following is a list of known permit-required confined space locations within the district. No employee is to enter any of these spaces without proper training, proper equipment and authorization from an entry supervisor. All aspects of this program must be followed when entering these locations. The list of known permit-required confined space locations includes:

5.0 LABELING AND PROTECTION OF PERMIT CONFINED SPACES

5.1 Labeling of Permit-Required Confined Space.

5.1.1 All permit-required confined space areas shall be labeled with signage reading "**DANGER-PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER**", or similar language to warn employees of the existence, location and danger of permit-required confined spaces.

5.2 Protection of Permit-Required Confined Spaces

5.2.1 The district has taken means necessary to secure permit spaces that employees are not permitted to enter for any reason. This will help minimize the potential for injury by restricting access to these locations.

5.2.2 The district shall re-evaluate all non-permit confined spaces when the atmosphere changes or the use or configuration changes to increase the hazard to entrance. If necessary, the space will be reclassified as a permit-required confined space.

5.2.3 The district shall inform all contractors and outside employees performing work in or near a permit-required confined space of the entry requirements, precautions and procedures necessary for working in or around confined spaces located on district property. In addition, contractors shall be debriefed of entry operations and hazards confronted or created.

5.2.4 All contractors and outside employees shall be required to meet or exceed all requirements of the district's Confined Space Entry Program. Any contractor or outside employee unable to produce satisfactory training documentation or certification of training and provide all necessary equipment to safely perform a permit-required confined space entry, shall not be permitted to operate within any permit space on the premises of the Haddonfield Board of Education.

5.2.5 A written copy of this program is kept on file in the office of Timothy McFerren where it is available for review by all district employees, outside employees, contractors and other interested parties.

6.0 PREPARATIONS FOR PERMIT-REQUIRED CONFINED SPACE ENTRY

6.1 Preventing Unauthorized Entry

6.1.1 Authorized work crews shall provide acceptable means to restrict access by unauthorized persons including signage, barriers, warning devices and other accessible means.

6.2 Pre-Entry Evaluation

6.2.1 The conditions in the confined space shall be evaluated by a qualified individual prior to entry by authorized workers in order to identify any hazards present.

6.3 Equipment for Entry

6.2.2 The district shall provide all necessary equipment to ensure the safety of the employees while working in the confined space.

6.2.3 A tripod with a hoist and fall arresting capabilities shall be provided for entering any vertical confined space location where fall protection is necessary. The entrant shall wear an approved full body harness for arresting capabilities. Recognizing that retrieval lines can pose a serious entanglement hazard, such lines shall not be used when entering a horizontal confined space which is so configured as to pose an increased hazard to the entrant.

6.3.3 An atmospheric monitor which is in proper operating condition and properly calibrated shall be used to monitor the atmosphere prior to and during the entire entry.

6.3.4 The district shall provide employees with all necessary personal protective equipment in order to safely work within the space. This may include safety glasses, gloves, hardhats, respirators, etc.

6.3.5 All equipment shall be inspected and serviced on a regular basis to ensure it remains in proper working condition.

6.3.6 All employees authorized to work in permit-required confined spaces will receive the necessary training and the proper use of all necessary equipment.

6.4 An authorized person shall be informed of the location of the entry, time of the entry, expected duration of the work and names of the persons performing

the work. If a significant delay is expected, the contact person shall be informed and a new estimated completion time shall be provided. The authorized contact person shall also be informed when work has been completed.

7.0 TRAINING REQUIREMENTS

7.1 Duties of Authorized Entrants

7.1.1 It shall be the duty of Timothy McFerren, along with the entry supervisor to ensure that all authorized entrants have received the necessary training and that such training is up-to-date prior to entry by any employee. Documentation of such training shall be kept on file where it is readily available for review.

7.1.2 Prior to entry, the entry supervisor shall inform all authorized entrants as to the known hazards present within the confined space location. Authorized entrants will also know the signs, symptoms and consequences of exposure that may be faced during the entry.

7.1.3 Authorized entrants shall be trained in the proper use of all entry equipment, tools and personal protective equipment that may be necessary during the entry. The openings to the confined space shall be kept clear of hand tools and debris at all times.

7.1.4 The authorized entrant shall communicate with the attendant as necessary to enable the attendant to properly monitor the entrant(s) status and to enable the attendant to alert entrant(s) of the need to evacuate the space.

7.1.5 The authorized entrant shall alert the attendant whenever the entrant recognizes any warning signs, symptoms and other possible hazards.

7.1.6 Authorized entrant shall alert the attendant whenever a prohibited condition is detected.

7.1.7 Authorized entrants shall exit from the permit space as quickly as possible whenever;

-an order to evacuate is given by the attendant or supervisor;
-the entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
-the entrant detects a prohibited condition; or
-an evacuation alarm is activated.

7.2 Duties of Authorized Attendants

7.2.1 Authorized attendants shall know the hazards that may be faced during an entry, including information on mode of exposure, signs and symptoms and consequences of exposure.

7.2.2 Know the possible behavioral effects of hazardous exposure.

7.2.3 Maintain an accurate count of authorized entrants in the confined space.

7.2.4 Remain outside the permit space during entry operations until relieved by another authorized attendant.

7.2.5 Communicate with entrants to monitor their status and alert them of any hazards. Continuous communication shall be maintained with all entrants by voice, radio, telephone, visual observation or other equally effective means.

7.2.6 Monitor conditions, behavioral effects and hazards outside of the space.

7.2.7 Summon rescue and emergency personnel as soon as determined necessary.

7.2.8 Warn unauthorized persons to stay away from the permit space, make them exit if in the space, and inform authorized entrants and entry supervisor of an unauthorized entry.

7.2.9 Perform non-entry rescue of employees using specified procedures, including use of retrieval lines. Under no circumstances is an authorized attendant to enter a confined space to perform rescue until relieved by another authorized attendant and properly trained in rescue procedures.

7.2.10 Perform no duties that interfere with the primary duty of monitoring and protecting authorized entrants.

7.2.11 Ensure they are familiar with all safety equipment required for entry.

7.3 Duties of Entry Supervisors

7.3.1 All entry supervisors shall know the hazards, including signs, symptoms and consequences of exposure to the confined space.

7.3.2 Verify that the appropriate entries, tests, procedures and equipments specified by the permit and done before signing the permit and entry begins.

7.3.3 Terminate the entry and cancel the permit, if warranted.

7.3.4 Verify that the means to summon rescue services are available.

7.3.5 Remove unauthorized personnel who attempt to enter the permit space during operations.

7.3.6 Verify that acceptable conditions are maintained and operations remain consistent with the entry permit.

7.3.7 Determine when responsibility for a confined space entry operation is transferred.

7.4 Training For All Potentially Exposed Employees

7.4.1 The Haddonfield Board of Education shall train all employees that are potentially exposed to permit-required confined spaces on the potential hazards, procedures and skills necessary to perform their jobs safely.

7.4.2 All authorized employees shall be provided training before first assigned duties within permit-required confined spaces, when changes are made in procedure and when changes occur in the confined spaces.

7.4.3 The Haddonfield Board of Education shall certify that the training has established employee proficiency.

7.4.4 Training for authorized entrants shall include both classroom instruction and practical evolution, utilizing necessary confined space entry equipment and personal protective equipment.

7.4.5 All training shall be certified in writing with the employee’s name, trainer’s signature or initials and dates of training.

7.4.6 All employees performing atmospheric testing of the confined space shall be properly trained in the use and calibration of atmospheric testing equipment.

7.4.7 Authorized attendants shall be trained in the proper use of communications equipment that may be used by the district in order to maintain contact with the authorized entrants and to summon emergency or rescue services.

8.0 PERMIT PROCEDURES

8.1 Immediately Dangerous to Life or Health (IDLH) Atmospheres.

8.1.1 An IDLH atmosphere 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.

8.1.2 Under no circumstances shall employees be permitted to operate within an IDLH atmosphere. Such conditions may include oxygen deficiency, presence of toxic gases or vapors and presence of combustible or flammable gases or vapors.

8.1.3 Upon recognition of any potential IDLH conditions, employees shall immediately cease all entry activities and notify the entry supervisor. Entry procedures shall not be re-instated until the entry supervisor has determined that the hazards have been adequately eliminated.

8.2 Permit Information

8.2.1 A written permit shall be required for all confined space entries into spaces identified in this program.

8.2.2 No work shall commence within a permit space until the appropriate permit has been completed and all necessary precautions have been taken.

8.2.3 Only trained and authorized personnel shall complete the permit.

8.2.4 The entry permit will contain, at a minimum, the following information:

A. the permit space to be entered;

B. the purpose of the entry;
C. the date and the authorized duration of the entry (under no circumstances shall the duration of the permit exceed 8 hours);
D. the authorized entrants within the permit space, by name or other acceptable tracking methods, as will enable the attendant to determine quickly and accurately for the duration of the permit which authorized entrants are within the permit space;
E. the personnel, by names that are currently serving as attendants;
F. the individual, by name that is currently serving as entry supervisor with a space for the signature or initials of the entry supervisor who originally authorized the permit;
G. the hazards of the permit space to be entered;
H. the measures used to isolate the permit space and to eliminate or control permit space hazards before entry (i.e. lockout/ tagout, purging, flushing and ventilating the space);
I. the acceptable entry conditions;
J. the results of initial and periodic tests performed in compliance with OSHA requirements as specified in 29 CRF 1910.146, accompanied by the names or initials of the testers and by an indication of when the tests were performed;
K. the rescue and emergency services that can be summoned and the means (such as equipment to use and numbers to call) for summoning those services;
L. the communication procedures used by authorized entrants and attendants to maintain contact during the entry;
M. equipment, such as personal protective equipment (PPE), testing equipment, communications equipment, alarm systems and rescue equipment to be provided for compliance with this program;
N. any other information whose inclusion is necessary, given the circumstances of the particular confined space in order to ensure employee's safety;
O. Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

8.3 Permit Retention

8.3.1 The confined space entry permit shall be maintained on the entry site until the completion of the entry.

8.3.2 Once the entry has been completed, the permit shall be provided to the entry supervisor or other designated person in order to be filed and retained.

8.3.3 Completed permits shall be maintained on file for a minimum of 12 months in order to properly complete an annual review.

9.0 TRAFFIC PRECAUTIONS

9.1 Based on the location of the confined space, it may be necessary to guard against traffic exposures.

9.2 Where traffic may pose a hazard, the entry supervisor shall be the final authority in determining necessary precautions to properly protect the workers on the job site.

9.3 The following shall be used as general traffic precautions on the job site, but should be modified when situations dictate.

9.3.1 When approaching the job site:

9.3.1.1 Activate beacon and four way flashers upon approach to the confined space area to be entered;
9.3.1.2 Park the vehicle in such a way that traffic will flow in the most unobstructed manner and, where possible, the vehicle should be placed in order to provide protection for the entry crew;
9.3.1.3 Park the vehicle in such a manner that exhaust fumes are not drawn down into the confined space location.

9.3.2 Cone Placement

9.3.1.4 Prior to opening the entrance to the confined space, place traffic safety cones around the space and the vehicle. These cones are to be used to protect the crew and channel traffic. Places the cones at sufficient distances and intervals to adequately warn oncoming traffic.

9.3.2 Flagmen

9.3.2.1 If only one lane of traffic is open in a congested area, use a flagmen to direct traffic flow.
9.3.3.2 Use of safety vests and high visibility warning flags is required.
9.3.3.3 When a flagman is necessary, he cannot act as an attendant.
An employee must be present as an attendant to the entrants.

10.0 ISOLATION AND TAGOUT OF PHYSICAL HAZARDS

10.1 Definitions

10.1.1 Affected Employee - An employee whose job requires him or her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout/tagout or whose job requires him or her to work in an area in which such servicing or maintenance is being performed.

10.1.2 Authorized Employee - A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

10.1.3 Energy Isolating Device - A mechanical device that physically prevents the transmission or release of energy, which may include a manually operated electrical circuit breaker, disconnect switch, line valve or block.

10.1.4 Energy Source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.

10.1.5 Lockout - The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

10.1.6 Tagout - The placement of a tagout device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

10.1.7 Additional definitions and information may be found in the Haddonfield Board of Education Lockout/Tagout Program.

10.2 It shall be the duty of all authorized entrants to properly lockout and tagout all energy sources that could produce a hazardous environment within the confined space location. This shall include, but not be limited to, lockout and tagout of powered equipment and prevention of introduction of any hazardous material into the confined space location.

10.3 It shall be the duty of the entry supervisor to verify that proper lockout/tagout procedures have been followed prior to the beginning of any work within the confined space area. No one shall be permitted to enter the confined space to begin work until such time as the entry supervisor has approved the lockout/tagout methods.

10.4 It shall be the duty of all authorized entrants, attendants and entry supervisors to refer to and follow the procedures established in the Haddonfield Board of Education Lockout/Tagout Program. This program may be found in the office of Timothy McFerren.

10.5 Only trained and authorized employees shall be permitted to perform lockout/tagout operations. Only approved energy isolation devices shall be used to lockout equipment. Under no circumstances shall tagout alone be considered acceptable for isolation of physical hazards.

11.0 ATMOSPHERIC TESTING AND VENTILATION PROCEDURES

11.1 The Haddonfield Board of Education, in partnership with the Haddon Fire Department company #1, has the availability of multigas testing equipment for use before and during permit space entries. Only authorized and trained personnel shall be permitted to operate this equipment. The equipment shall be maintained and calibrated in accordance with manufacturer's guidelines. Detailed information regarding the specific equipment presently in use may be obtained by reviewing the equipment manual provided with the testing equipment.

11.2 All testing shall be performed in accordance with OSHA regulations and the details as set forth in this section.

11.3 Testing procedures shall include the testing for oxygen content. The oxygen level must be between 19.5% and 23.5%. An oxygen deficient atmosphere cannot be entered without self contained breathing apparatus or an airline respirator. Under no circumstances will an employee of the Haddonfield Board of Education be permitted to enter an oxygen deficient atmosphere.

11.3.1 The oxygen level within a confined space may be reduced by the type of work being performed. This may include welding, cutting, brazing, chemical reactions and bacterial actions. Oxygen may also be displaced by other gases such as carbon dioxide or nitrogen.

11.3.2 An oxygen enriched atmosphere (above 23.5%), will cause combustible materials such as clothing and hair, to burn violently when ignited. As a result, pure oxygen should **NEVER** be used to ventilate a confined space.

11.4 Atmospheric testing must include testing for flammable gases and vapors.
11.5 Atmospheric testing must including testing for potential toxic air contaminants, such as hydrogen sulfide.

11.6 Since gases or vapors may be heavier or lighter than air, it is important to test at various locations within the confined space. Test readings shall be taken around the edge of the opening to the confined space, prior to opening the confined space. Test readings shall also be taken at the top, middle and bottom of all vertical confined spaces, prior to entry.

11.7 The atmosphere within the space shall be continuously tested and monitored, as necessary, to ensure there is no accumulation of a hazardous atmosphere.

11.8 If a hazardous atmosphere is detected during an entry, each employee shall immediately leave the space. The space shall be evaluated to determine how the hazardous atmosphere developed. Measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

11.9 Ventilation Procedures

11.9.1 There may be no hazardous atmosphere within the space at any time there is an employee inside the space.
11.9.2 Continuous forced air ventilation shall be provided to eliminate any hazardous atmosphere in the space prior to entry.
11.9.3 The force air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees have left the space.
11.9.4 The air supply for the forced air shall be from a clean source and may not increase the hazards in the space.

12.0 POST OPERATION PROCEDURES

12.1 Upon completion of the work in the permit space, the following procedures shall be followed.

12.2 Retrieve all tools, equipment and materials taken into the confined space and remove them from the confined space.

12.3 Have all authorized entrants exit the permit space.

12.4 Have authorized attendant or entry supervisor verify all authorized entrants are accounted for.

12.5 Notify authorized entry supervisor that work in the permit space has been completed.

12.6 Close and secure the permit space to restrict unauthorized access.

12.7 Verify that the permit space is still properly labeled.

12.8 Remove all warning signage and restrictive barriers from around the permit space.

12.9 Inspect all entry equipment to ensure it is in good condition for the next entry and return equipment to the proper storage area. If equipment is in need of repair, notify the entry supervisor immediately and remove equipment from service. Any equipment taken out of service for maintenance or repair shall be properly tagged to restrict use until such time as the equipment is placed back into service.

12.10 Entry supervisor shall cancel the permit and ensure the permit is properly filed for future reference.

12.11 In the event of unusual occurrences or situations which developed during the entry, a debriefing with employees shall be conducted by the entry supervisor to discuss the problems encountered and how best to rectify future problems. Any debriefings shall be properly recorded and filed for future reference.

13.0 RESCUE AND EMERGENCY PROCEDURES

13.1 It is the policy of the Haddonfield Board of Education that any rescue or emergency procedures within a permit-required confined space be handled by the Haddon Fire Department. The Haddon Fire Department has communicated that they are capable and willing to handle confined space entry rescue procedures.

13.2 Under no circumstances is an authorized attendant or other employee permitted to enter a confined space location for the purposes of rescue. Rescue may only be attempted through use of retrieval systems which do not require the attendant to enter the confined space.

13.3 As soon as an authorized attendant or authorized entry supervisor recognizes that an emergency situation exists, they shall immediately authorize the contact of emergency services to handle the situation.

13.4 Emergency phone numbers for police, fire and emergency medical services shall be maintained at the entry site for the duration of the entry.

13.4.1 The Haddon Fire Department may be contacted by dialing 911.

13.4.2 The Haddonfield Police Department can be contacted by dialing 911.

13.4.3 The Haddonfield Ambulance Squad may be contacted by dialing 911.

13.4.4 The emergency contact for the Haddonfield Board of Education is Timothy McFerren and may be reached during the day at 609-828-7852,

13.5 Rescue Team Procedures

13.5.1 The Haddonfield Board of Education has no immediate plans to develop and maintain an in-house confined space entry rescue team. If it becomes necessary or prudent to develop an in-house rescue team, the following training requirements shall be met.

13.5.2 All rescue personnel shall be trained in the use of personal protective equipment and rescue equipment that is necessary for making rescues from permit spaces.

13.5.3 Rescue workers shall be trained every 12 months in simulated emergency situations.

13.5.4 Rescue workers shall be trained in CPR and basic first-aid. At least one member of the rescue service holding current certification in first-aid and CPR shall be available at all times that an entry is being performed.

13.5.5 Rescue workers shall know all listed permit spaces and hazards they contain.

13.5.6 Proper retrieval systems, body harnesses and life lines for non-entry rescues, unless it presents a hazard to authorized entrants, shall be provided.

13.5.7 Material Safety Data Sheets (MSDS), or other information shall be kept at the work site and made available to the medical facility treating the exposed entrants.

13.5.8 Additional requirements as set forth in 29 CFR 1910.146 (k) shall be followed.

14.0 OUTSIDE EMPLOYER/CONTRACTOR PROCEDURES

14.1 Any outside employer or contractor having employees performing work in permit-required confined spaces on the property of the Haddonfield Board of Education shall provide documentation or certification that their employees have received the necessary training or operate within the permit space.

14.2 Any outside employer or contractor who cannot provide documentation or certification that workers have been properly trained in confined space entry procedures, shall not be permitted to enter or perform work in the permit spaces until appropriate training has been provided.

14.3 A copy of this confined space entry program shall be made available to all outside employers and contractors when they will have employees exposed to working within permit-required confined spaces on the property of Haddonfield Board of Education.

14.4 Outside employers and contractors shall be required to follow all components of this program and sign a statement acknowledging that a copy of the program has been made available for their inspection and review and that they understand all aspects and requirements of the program.

14.5 Any outside employer or contractor refusing to sign such a statement shall not be permitted to perform work in permit-required confined spaces.

14.6 All entry operations by the contractor or outside employer shall be coordinated through the office of Timothy McFerren prior to starting work in the permit space.

15.0 PROGRAM REVIEW PROCEDURES

15.1 To help ensure that all employees participating in entry operations are protected from permit space hazards, the Haddonfield Board of Education reviews the permit-required confined space entry program on a periodic basis.

15.2 Canceled permits from the past 12 months are reviewed, and any necessary changes are implemented in order to maintain the most up-to-date Confined Space Entry Program.

15.3 The review shall also include a review of the listed permit-required confined spaces on the premises of the Haddonfield Board of Education. The list shall be adjusted accordingly in order to document all permit spaces.

15.4 The Haddonfield Board of Education will perform a single annual review covering all entries performed during the previous 12 month period. If no entry is performed during this 12 month period, no review will be conducted.

15.5 It shall be the duty of Tim McFerren to perform the annual review. This annual review shall be documented and kept on file and the written program shall be updated to encompass any changes as a result of this review. The

date of the review shall be noted on the from cover page of the written program and signed off by the authorized individual.

16.0 ENFORCEMENT

16.1 Constant awareness of and respect for all permit-required confined space entry hazards and compliance with all safety rules are considered conditions of employment. Failure to follow this program may result in disciplinary action.

16.2 Any outside employee or contractor not adhering to this program may face actions including termination of contracts and removal from Board of Education premises.

17.0 RECORD KEEPING REQUIREMENTS

17.1 All records pertaining to confined space exposures and training shall be maintained in the office of Timothy McFerren.

17.2 The following records must be kept on file:

A. identification and evaluation of hazards;
B. entrance permits;
C. training certification and materials used for training;
D. written Confined Space Program;
E. equipment repair and calibration records;
F. designation of rescue and emergency services;
G. annual review certification of the entry permits and Confined Space Program.

18.0 Confined space location

The Haddonfield Board of Education has identified the following building to have a confined space as outlined by this program.

A. Haddonfield Memorial High School
   1. A-wing Crawl space under main Corridors
   2. .

B. Central Middle School
   1. Crawl space under Middle school Kitchen

C. Haddon Elementary
   1. Crawl space in Custodial closet in main hallway

The above areas listed are not permit required areas however it will be the Haddonfield Board of Education's policy that anyone entering these areas must notify the Facilities director prior to entry and identify the reason for entry.

All maintenance and grounds staff of the Haddonfield Board of Education will be required to complete an approved Asbestos Awareness training course prior to entering any of the listed areas that contain asbestos containing materials.

19.0 APPENDICES

APPENDICES

SHORT-TERM WORKER NOTIFICATION FORM
PERMIT-REQUIRED CONFINED SPACE ENTRY PROGRAM

To all persons doing work in this facility:
Please read, acknowledge and sign the following:

The _____ Board of Education has identified the existence of permit-required confined spaces on the premises. This Board of Education maintains a written Permit-Required Confined Space Entry Program in compliance with OSHA Regulation Title 29 CFR 1910.146. Any outside employee or contractor must abide by all provisions of this program if they are to perform any work within a permit-required confined space on the premises of _____ Board of Education.

Known confined spaces have been labeled throughout this facility, but this may not be all encompassing. All outside employees and contractors must coordinate any work within a permit space with the appropriate safety person from _____ Board of Education. Work will not be permitted to commence until all aspects of the Confined Space Program have been met.

A copy of the Permit-Required Confined Space Entry Program is available for review in the office of _____. Outside employees and contractors must review and meet all aspects of this program, including documentation of training for employees. Outside contractors are also responsible for providing their employees with all necessary entry equipment, personal protective equipment and completion of the necessary permit prior to entry.

If there are any questions or concerns, they should be directed to _____.

Confined spaces have the potential to contain hazardous atmospheres, engulfing materials that may be toxic or displace oxygen, converging walls, restricted means of egress, hazardous equipment and other potentially hazardous conditions that could result in serious injury or death if proper safety precautions are not followed.

By signing this notice, you acknowledge that you have reviewed and understand the Permit-Required Confined Space Entry Program for _____ Board of Education, and agree to abide by all provisions of this program. Failure to follow these safety protocols may result in personnel being removed from the premises and termination of any contracts with the Board of Education.

Name (printed)/Title: _____
Company/Affiliation: _____
Signature: _____ Date: _____

_____

Board of Education

Confined Space Entry Permit

Date & time Issued _____ Date and Time Expires _____

Job site/ Space I.D.: _____ Job Supervisor _____

Equipment to be worked on: _____ Worked to be performed: _____

Stand-by personnel: _____ _____ _____

1. Atmospheric Checks**:**
   Time _____
   Oxygen _____%
   Explosive _____%L.F.L.

2. Tester's signature _____

3. Source isolation (No Entry): N/A Yes No
   Pumps or lines blinded, ( ) ( ) ( )
   disconnected or blocked ( ) ( ) ( )

4. Ventilation Modification
   Mechanical ( ) ( ) ( )
   Natural Ventilation only ( ) ( ) ( )

5. Atmosphere check after
   Isolation and ventilation:
   Oxygen _____% > 19.5%
   Explosive _____%L.F.L. < 10%
   Toxic _____PPM < 10PPM H2s
   Time _____
   Tester's signature _____

6. Communication procedures: _____

   _____

7. Rescue Procedures:

   _____

   _____

   _____

   _____

8. Entry, standby, and backup person: Yes No
   Successfully completed required
   training? ( ) ( )
   Is it current? ( ) ( )

9. Equipment: N/A Yes No
   Direct reading gas monitor-
   tested ( ) ( ) ( )

   Safety harness and lifelines
   for entry and standby persons ( ) ( ) ( )

   Hoisting equipment ( ) ( ) ( )
   Powered communications ( ) ( ) ( )

   SCBA's for entry and standby
   persons ( ) ( ) ( )
   protective clothing ( ) ( ) ( )

   All electric equipment listed
   Class I, Division I, Group D
   And non-sparking tools ( ) ( ) ( )

10. Periodic atmospheric tests:

    Oxygen ____% Time ____ Oxygen ____% Time ____

    Oxygen ____% Time ____ Oxygen ____% Time ____

    Explosive ____% Time ____ Explosive ____% Time ___

    Explosive ____% Time ____ Explosive ____% Time ___

    Toxic _____% Time ____ Toxic _____% Time ____

    Toxic _____% Time ____ Toxic _____% Time ____

We have reviewed the work authorized by this permit and the information contained herein. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "NO" column. This permit is not valid unless all appropriate items are completed.

Permit prepared by: _____ _____

Approved by (Entry Supervisor): _____ _____

Reviewed by (Cs Operations Personnel): _____ _____
(printed name) (signature)

This permit to be kept at job site. Return job site copy to Maintenance Office following completion.

Copies: Job site Department Supervisor

ENTRY PERMIT

PERMIT VALID FOR 8 HOURS ONLY. ALL COPIES OF PERMIT WILL REMAIN AT JOB SITE UNTIL JOB IS COMPLETED

DATE: - - SITE LOCATION and DESCRIPTION _____
PURPOSE OF ENTRY _____
SUPERVISOR(S) in charge of crews Type of Crew Phone #
_____
_____
COMMUNICATION PROCEDURES _____
RESCUE PROCEDURES (PHONE NUMBERS AT BOTTOM) _____
_____

* BOLD DENOTES MINIMUM REQUIREMENTS TO BE COMPLETED AND REVIEWED PRIOR TO ENTRY*

REQUIREMENTS COMPLETED	DATE	TIME
Lock Out/De-energize/Try-out	____	____
Line(s) Broken-Capped-Blanked	____	____
Purge-Flush and Vent	____	____
Ventilation	____	____
Secure Area (Post and Flag)	____	____
Breathing Apparatus	____	____
Resuscitator - Inhalator	____	____
Standby Safety Personnel	____	____
Full Body Harness w/"D" ring	____	____
Emergency Escape Retrieval Equip	____	____
Lifelines	____	____
Fire Extinguishers	____	____
Lighting (Explosive Proof)	____	____
Protective Clothing	____	____
Respirator(s) (Air Purifying)	____	____
Burning and Welding Permit	____	____

Note: Items that do not apply enter N/A in the blank.

**RECORD CONTINUOUS MONITORING RESULTS EVERY 2 HOURS

CONTINUOUS MONITORING** TEST(S) TO BE TAKEN	Permissible Entry Level	_____							
PERCENT OF OXYGEN	19.5% to 23.5%	___	___	___	___	___	___	___	___
LOWER FLAMMABLE LIMIT	Under 10%	___	___	___	___	___	___	___	___
CARBON MONOXIDE	+35 PPM	___	___	___	___	___	___	___	___
Aromatic Hydrocarbon	+ 1 PPM * 5PPM	___	___	___	___	___	___	___	___
Hydrogen Cyanide	(Skin) * 4PPM	___	___	___	___	___	___	___	___
Hydrogen Sulfide	+10 PPM *15PPM	___	___	___	___	___	___	___	___
Sulfur Dioxide	+ 2 PPM * 5PPM	___	___	___	___	___	___	___	___
Ammonia	*35PPM	___	___	___	___	___	___	___	___

* Short-term exposure limit: Employee can work in the area up to 15 minutes.
+ 8 hr. Time Weighted Avg.: Employee can work in area 8 hrs (longer with appropriate respiratory protection).

REMARKS:_____

GAS TESTER NAME & CHECK #	INSTRUMENT(S) USED	MODEL &/OR TYPE	SERIAL &/OR UNIT #

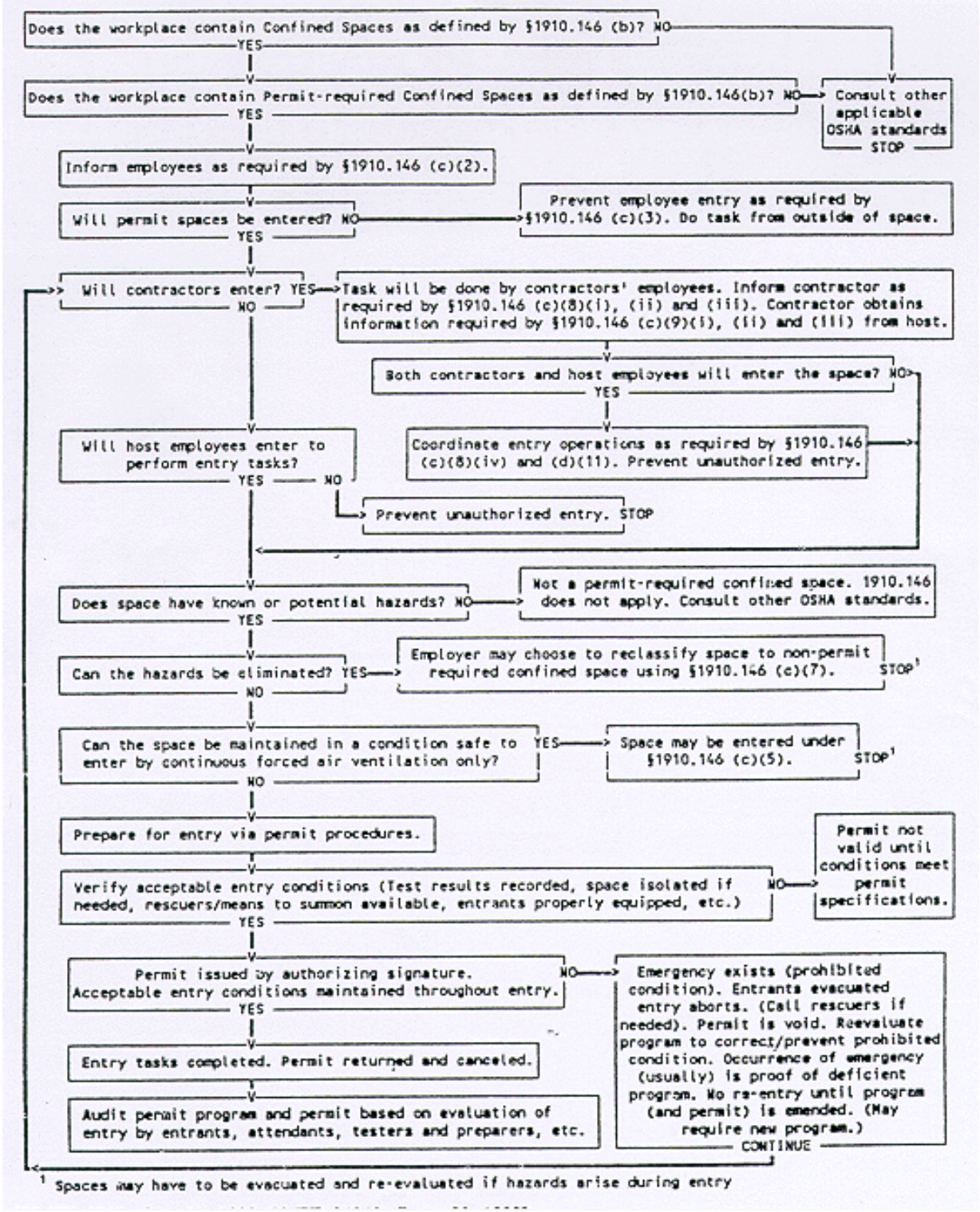
SAFETY STANDBY PERSON IS REQUIRED FOR ALL CONFINED SPACE WORK

SAFETY STANDBY PERSON(S)	CHECK #	CONFINED SPACE ENTRANT(S)	CHECK #	CONFINED SPACE ENTRANT(S)	CHECK #

SUPERVISOR AUTHORIZING - ALL CONDITIONS SATISFIED_____
DEPARTMENT/PHONE _____

Appendix A to §1910.146 -- Permit-Required Confined Space Decision Flow Chart

APPENDIX A TO §1910.146—PERMIT-REQUIRED CONFINED SPACE DECISION FLOW CHART



[1] Spaces may have to be evacuated and re-evaluated if hazards arise during entry

Permit-required confined spaces - 1910.146

Regulations (Standards - 29 CFR) - Table of Contents

• **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

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 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)

If the workplace contains permit spaces, the employer shall inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces.

NOTE: A sign reading DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER or using other similar language would satisfy the requirement for a sign.

..1910.146(c)(3)

1910.146(c)(3)

If the employer decides that its employees will not enter permit spaces, the employer shall take effective measures to prevent its employees from entering the permit spaces and shall comply with paragraphs (c)(1), (c)(2), (c)(6), and (c)(8) of this section.

1910.146(c)(4)

If the employer decides that its employees will enter permit spaces, the employer shall develop and implement a written permit space program that complies with this section. The written program shall be available for inspection by employees and their authorized representatives.

1910.146(c)(5)

An employer may use the alternate procedures specified in paragraph (c)(5)(ii) of this

section for entering a permit space under the conditions set forth in paragraph (c)(5)(i) of this section.

1910.146(c)(5)(i)

An employer whose employees enter a permit space need not comply with paragraphs (d) through (f) and (h) through (k) of this section, provided that:

1910.146(c)(5)(i)(A)

The employer can demonstrate that the only hazard posed by the permit space is an actual or potential hazardous atmosphere;

1910.146(c)(5)(i)(B)

The employer can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry;

1910.146(c)(5)(i)(C)

The employer develops monitoring and inspection data that supports the demonstrations required by paragraphs (c)(5)(i)(A) and (c)(5)(i)(B) of this section;

1910.146(c)(5)(i)(D)

If an initial entry of the permit space is necessary to obtain the data required by paragraph (c)(5)(i)(C) of this section, the entry is performed in compliance with paragraphs (d) through (k) of this section;

1910.146(c)(5)(i)(E)

The determinations and supporting data required by paragraphs (c)(5)(i)(A), (c)(5)(i)(B), and (c)(5)(i)(C) of this section are documented by the employer and are made available to each employee who enters the permit space under the terms of paragraph (c)(5) of this section or to that employee's authorized representative; and

1910.146(c)(5)(i)(F)

Entry into the permit space under the terms of paragraph (c)(5)(i) of this section is performed in accordance with the requirements of paragraph (c)(5)(ii) of this section.

NOTE: See paragraph (c)(7) of this section for reclassification of a permit space after all hazards within the space have been eliminated.

1910.146(c)(5)(ii)

The following requirements apply to entry into permit spaces that meet the conditions set forth in paragraph (c)(5)(i) of this section.

1910.146(c)(5)(ii)(A)

Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.

..1910.146(c)(5)(ii)(B)

1910.146(c)(5)(ii)(B)

When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

1910.146(c)(5)(ii)(C)

Before an employee enters the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by this paragraph.

1910.146(c)(5)(ii)(C)(1)

Oxygen content,

1910.146(c)(5)(ii)(C)(2)

Flammable gases and vapors, and

1910.146(c)(5)(ii)(C)(3)

Potential toxic air contaminants.

1910.146(c)(5)(ii)(D)

There may be no hazardous atmosphere within the space whenever any employee is inside the space.

1910.146(c)(5)(ii)(E)
Continuous forced air ventilation shall be used, as follows:
1910.146(c)(5)(ii)(E)(1)
An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;
1910.146(c)(5)(ii)(E)(2)
The forced air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees have left the space;
1910.146(c)(5)(ii)(E)(3)
The air supply for the forced air ventilation shall be from a clean source and may not increase the hazards in the space.
1910.146(c)(5)(ii)(F)
The atmosphere within the space shall be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee's authorized representative, shall be provided with an opportunity to observe the periodic testing required by this paragraph.
1910.146(c)(5)(ii)(G)
If a hazardous atmosphere is detected during entry:
1910.146(c)(5)(ii)(G)(1)
Each employee shall leave the space immediately;
1910.146(c)(5)(ii)(G)(2)
The space shall be evaluated to determine how the hazardous atmosphere developed; and
1910.146(c)(5)(ii)(G)(3)
Measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.
1910.146(c)(5)(ii)(H)
The employer shall verify that the space is safe for entry and that the pre-entry measures required by paragraph (c)(5)(ii) of this section have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space or to that employee's authorized representative.
1910.146(c)(6)
When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the employer shall reevaluate that space and, if necessary, reclassify it as a permit-required confined space.
..1910.146(c)(7)

1910.146(c)(7)
A space classified by the employer as a permit-required confined space may be reclassified as a non-permit confined space under the following procedures:
1910.146(c)(7)(i)
If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated.
1910.146(c)(7)(ii)
If it is necessary to enter the permit space to eliminate hazards, such entry shall be performed under paragraphs (d) through (k) of this section. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated.

NOTE: Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards. Paragraph (c)(5) covers permit space entry where the employer can demonstrate that forced air ventilation alone will control all hazards in the space.

1910.146(c)(7)(iii)
The employer shall document the basis for determining that all hazards in a permit space have been eliminated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification shall be made available to each employee entering the space or to that employee's authorized representative.
1910.146(c)(7)(iv)
If hazards arise within a permit space that has been declassified to a non-permit space under paragraph (c)(7) of this section, each employee in the space shall exit the space. The employer shall then reevaluate the space and determine whether it must be reclassified as a permit space, in accordance with other applicable provisions of this section.
1910.146(c)(8)
When an employer (host employer) arranges to have employees of another employer (contractor) perform work that involves permit space entry, the host employer shall:
1910.146(c)(8)(i)
Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section;
1910.146(c)(8)(ii)
Apprise the contractor of the elements, including the hazards identified and the host employer's experience with the space, that make the space in question a permit space;
1910.146(c)(8)(iii)
Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working;
1910.146(c)(8)(iv)
Coordinate entry operations with the contractor, when both host employer personnel and contractor personnel will be working in or near permit spaces, as required by paragraph (d)(11) of this section; and
..1910.146(c)(8)(v)

1910.146(c)(8)(v)
Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.
1910.146(c)(9)
In addition to complying with the permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations shall:
1910.146(c)(9)(i)
Obtain any available information regarding permit space hazards and entry operations from the host employer;
1910.146(c)(9)(ii)
Coordinate entry operations with the host employer, when both host employer personnel and contractor personnel will be working in or near permit spaces, as required by paragraph (d)(11) of this section; and
1910.146(c)(9)(iii)
Inform the host employer of the permit space program that the contractor will follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.
1910.146(d)
Permit-required confined space program (permit space program). Under the permit space program required by paragraph (c)(4) of this section, the employer shall:
1910.146(d)(1)
Implement the measures necessary to prevent unauthorized entry;
1910.146(d)(2)
Identify and evaluate the hazards of permit spaces before employees enter them;
1910.146(d)(3)

Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:
1910.146(d)(3)(i)
Specifying acceptable entry conditions;
1910.146(d)(3)(ii)
Providing each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces;
1910.146(d)(3)(iii)
Isolating the permit space;
1910.146(d)(3)(iv)
Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards;
1910.146(d)(3)(v)
Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards; and
1910.146(d)(3)(vi)
Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
1910.146(d)(4)
Provide the following equipment (specified in paragraphs (d)(4)(i) through (d)(4)(ix) of this section) at no cost to employees, maintain that equipment properly, and ensure that employees use that equipment properly:
..1910.146(d)(4)(i)

1910.146(d)(4)(i)
Testing and monitoring equipment needed to comply with paragraph (d)(5) of this section;
1910.146(d)(4)(ii)
Ventilating equipment needed to obtain acceptable entry conditions;
1910.146(d)(4)(iii)
Communications equipment necessary for compliance with paragraphs (h)(3) and (i)(5) of this section;
1910.146(d)(4)(iv)
Personal protective equipment insofar as feasible engineering and work practice controls do not adequately protect employees;
1910.146(d)(4)(v)
Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency;
1910.146(d)(4)(vi)
Barriers and shields as required by paragraph (d)(3)(iv) of this section;
1910.146(d)(4)(vii)
Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;
1910.146(d)(4)(viii)
Rescue and emergency equipment needed to comply with paragraph (d)(9) of this section, except to the extent that the equipment is provided by rescue services; and
1910.146(d)(4)(ix)
Any other equipment necessary for safe entry into and rescue from permit spaces.
1910.146(d)(5)
Evaluate permit space conditions as follows when entry operations are conducted:
1910.146(d)(5)(i)
Test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin, except that, if isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), pre-entry testing shall be performed to the extent feasible before entry is authorized and, if entry is authorized, entry conditions shall be continuously monitored in the areas where authorized entrants are working;
1910.146(d)(5)(ii)
Test or monitor the permit space as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations; and
1910.146(d)(5)(iii)

When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

1910.146(d)(5)(iv)

Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces;

1910.146(d)(5)(v)

Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate;

1910.146(d)(5)(vi)

Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted in accord with paragraph (d) of this section.

NOTE: Atmospheric testing conducted in accordance with Appendix B to section 1910.146 would be considered as satisfying the requirements of this paragraph. For permit space operations in sewers, atmospheric testing conducted in accordance with Appendix B, as supplemented by Appendix E to section 1910.146, would be considered as satisfying the requirements of this paragraph.

1910.146(d)(6)

Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations;

NOTE: Attendants may be assigned to monitor more than one permit space provided the duties described in paragraph (i) of this section can be effectively performed for each permit space that is monitored. Likewise, attendants may be stationed at any location outside the permit space to be monitored as long as the duties described in paragraph (i) of this section can be effectively performed for each permit space that is monitored.

..1910.146(d)(7)

1910.146(d)(7)

If multiple spaces are to be monitored by a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of the permit spaces being monitored without distraction from the attendant's responsibilities under paragraph (i) of this section;

1910.146(d)(8)

Designate the persons who are to have active roles (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by paragraph (g) of this section;

1910.146(d)(9)

Develop and implement procedures for summoning rescue and emergency services, for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue;

1910.146(d)(10)

Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this section;

1910.146(d)(11)

Develop and implement procedures to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space, so that employees of one employer do not endanger the employees of any other employer;

1910.146(d)(12)

Develop and implement procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed;

1910.146(d)(13)

Review entry operations when the employer has reason to believe that the measures taken

under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized; and

NOTE: Examples of circumstances requiring the review of the permit space program are: any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

1910.146(d)(14)

Review the permit space program, using the canceled permits retained under paragraph (e)(6) of this section within 1 year after each entry and revise the program as necessary, to ensure that employees participating in entry operations are protected from permit space hazards.

NOTE: Employers may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

Appendix C to section 1910.146 presents examples of permit space programs that are considered to comply with the requirements of paragraph (d) of this section.

1910.146(e)

Permit system.

1910.146(e)(1)

Before entry is authorized, the employer shall document the completion of measures required by paragraph (d)(3) of this section by preparing an entry permit.

NOTE: Appendix D to section 1910.146 presents examples of permits whose elements are considered to comply with the requirements of this section.

1910.146(e)(2)

Before entry begins, the entry supervisor identified on the permit shall sign the entry permit to authorize entry.

1910.146(e)(3)

The completed permit shall be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

..1910.146(e)(4)

1910.146(e)(4)

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit in accordance with paragraph (f)(2) of this section.

1910.146(e)(5)

The entry supervisor shall terminate entry and cancel the entry permit when:

1910.146(e)(5)(i)

The entry operations covered by the entry permit have been completed; or

1910.146(e)(5)(ii)

A condition that is not allowed under the entry permit arises in or near the permit space.

1910.146(e)(6)

The employer shall retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program required by paragraph (d)(14) of this section. Any problems encountered during an entry operation shall be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

1910.146(f)

Entry permit. The entry permit that documents compliance with this section and authorizes entry to a permit space shall identify:

1910.146(f)(1)

The permit space to be entered;

1910.146(f)(2)

The purpose of the entry;
1910.146(f)(3)
The date and the authorized duration of the entry permit;
1910.146(f)(4)
The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space;

NOTE: This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.
1910.146(f)(5)
The personnel, by name, currently serving as attendants;
1910.146(f)(6)
The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry;
1910.146(f)(7)
The hazards of the permit space to be entered;
1910.146(f)(8)
The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

NOTE: Those measures can include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.
1910.146(f)(9)
The acceptable entry conditions;
1910.146(f)(10)
The results of initial and periodic tests performed under paragraph (d)(5) of this section, accompanied by the names or initials of the testers and by an indication of when the tests were performed;
..1910.146(f)(11)

1910.146(f)(11)
The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services;
1910.146(f)(12)
The communication procedures used by authorized entrants and attendants to maintain contact during the entry;
1910.146(f)(13)
Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this section;
1910.146(f)(14)
Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety; and (15) Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.
1910.146(g)
Training.
1910.146(g)(1)
The employer shall provide training so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this section.
1910.146(g)(2)
Training shall be provided to each affected employee:
1910.146(g)(2)(i)
Before the employee is first assigned duties under this section;
1910.146(g)(2)(ii)

Before there is a change in assigned duties;
1910.146(g)(2)(iii)
Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;
1910.146(g)(2)(iv)
Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required by paragraph (d)(3) of this section or that there are inadequacies in the employee's knowledge or use of these procedures.
1910.146(g)(3)
The training shall establish employee proficiency in the duties required by this section and shall introduce new or revised procedures, as necessary, for compliance with this section.
1910.146(g)(4)
The employer shall certify that the training required by paragraphs (g)(1) through (g)(3) of this section has been accomplished. The certification shall contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification shall be available for inspection by employees and their authorized representatives.
1910.146(h)
Duties of authorized entrants. The employer shall ensure that all authorized entrants:
..1910.146(h)(1)

1910.146(h)(1)
Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
1910.146(h)(2)
Properly use equipment as required by paragraph (d)(4) of this section;
1910.146(h)(3)
Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required by paragraph (i)(6) of this section;
1910.146(h)(4)
Alert the attendant whenever:
1910.146(h)(4)(i)
The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
1910.146(h)(4)(ii)
The entrant detects a prohibited condition; and
1910.146(h)(5)
Exit from the permit space as quickly as possible whenever:
1910.146(h)(5)(i)
An order to evacuate is given by the attendant or the entry supervisor,
1910.146(h)(5)(ii)
The entrant recognizes any warning sign or symptom of exposure to a dangerous situation,
1910.146(h)(5)(iii)
The entrant detects a prohibited condition, or
1910.146(h)(5)(iv)
An evacuation alarm is activated.
1910.146(i)
Duties of attendants. The employer shall ensure that each attendant:
1910.146(i)(1)
Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
1910.146(i)(2)
Is aware of possible behavioral effects of hazard exposure in authorized entrants;
1910.146(i)(3)
Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under paragraph (f)(4) of this section accurately identifies who is in the permit space;
1910.146(i)(4)
Remains outside the permit space during entry operations until relieved by another

attendant;

NOTE: When the employer's permit entry program allows attendant entry for rescue, attendants may enter a permit space to attempt a rescue if they have been trained and equipped for rescue operations as required by paragraph (k)(1) of this section and if they have been relieved as required by paragraph (i)(4) of this section.

1910.146(i)(5)

Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space under paragraph (i)(6) of this section;

..1910.146(i)(6)

1910.146(i)(6)

Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions;

1910.146(i)(6)(i)

If the attendant detects a prohibited condition;

1910.146(i)(6)(ii)

If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;

1910.146(i)(6)(iii)

If the attendant detects a situation outside the space that could endanger the authorized entrants; or

1910.146(i)(6)(iv)

If the attendant cannot effectively and safely perform all the duties required under paragraph (i) of this section;

1910.146(i)(7)

Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;

1910.146(i)(8)

Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:

1910.146(i)(8)(i)

Warn the unauthorized persons that they must stay away from the permit space;

1910.146(i)(8)(ii)

Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and

1910.146(i)(8)(iii)

Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;

1910.146(i)(9)

Performs non-entry rescues as specified by the employer's rescue procedure; and

1910.146(i)(10)

Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

1910.146(j)

Duties of entry supervisors. The employer shall ensure that each entry supervisor:

1910.146(j)(1)

Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

1910.146(j)(2)

Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;

..1910.146(j)(3)

1910.146(j)(3)

Terminates the entry and cancels the permit as required by paragraph (e)(5) of this section;

1910.146(j)(4)

Verifies that rescue services are available and that the means for summoning them are operable;

1910.146(j)(5)

Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and

1910.146(j)(6)

Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

1910.146(k)

Rescue and emergency services.

1910.146(k)(1)

An employer who designates rescue and emergency services, pursuant to paragraph (d)(9) of this section, shall:

1910.146(k)(1)(i)

Evaluate a prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified;

Note to paragraph (k)(l)(i): What will be considered timely will vary according to the specific hazards involved in each entry. For example, §1910.134, Respiratory Protection, requires that employers provide a standby person or persons capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as IDLH atmospheres.

1910.146(k)(1)(ii)

Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified;

1910.146(k)(1)(iii)

Select a rescue team or service from those evaluated that:

1910.146(k)(1)(iii)(A)

Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;

1910.146(k)(1)(iii)(B)

Is equipped for and proficient in performing the needed rescue services;

1910.146(k)(1)(iv)

Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and

1910.146(k)(1)(v)

Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

Note to paragraph (k)(1): Non-mandatory Appendix F contains examples of criteria which employers can use in evaluating prospective rescuers as required by paragraph (k)(l) of this section.

1910.146(k)(2)

An employer whose employees have been designated to provide permit space rescue and emergency services shall take the following measures:

1910.146(k)(2)(i)

Provide affected employees with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train affected employees so they are proficient in the use of that PPE, at no cost to those employees;

1910.146(k)(2)(ii)

Train affected employees to perform assigned rescue duties. The employer must ensure that such employees successfully complete the training required to establish proficiency as an authorized entrant, as provided by paragraphs (g) and (h) of this section;

1910.146(k)(2)(iii)
Train affected employees in basic first-aid and cardiopulmonary resuscitation (CPR). The employer shall ensure that at least one member of the rescue team or service holding a current certification in first aid and CPR is available; and
1910.146(k)(2)(iv)
Ensure that affected employees practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces shall, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.
..1910.146(k)(3)

1910.146(k)(3)
To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems shall meet the following requirements.
1910.146(k)(3)(i)
Each authorized entrant shall use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which the employer can establish presents a profile small enough for the successful removal of the entrant. Wristlets may be used in lieu of the chest or full body harness if the employer can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.
1910.146(k)(3)(ii)
The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 m) deep
1910.146(k)(4)
If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.
1910.146(l)
Employee participation.
1910.146(l)(1)
Employers shall consult with affected employees and their authorized representatives on the development and implementation of all aspects of the permit space program required by paragraph (c) of this section.
1910.146(l)(2)
Employers shall make available to affected employees and their authorized representatives all information required to be developed by this section.