Confined Spaces:
A Training Program For Employees

Employee Handbook
Rescue & Emergency

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Employee Handbook: Rescue and Emergency Services

Part A. Overview Session

1. Overview of Permit-Required Confined Spaces Standard

Permit-Required Confined Spaces is a new standard requiring specific practices and procedures that will protect general industry employees from the potential hazards of entering permit-required confined spaces.

All of general industry, including manufacturing, chemical plants, refineries, agricultural services, transportation, utilities, wholesale and retail trade are covered by the standard.

Requirements if the standard include: identification of confined spaces and informing employees of their existence, entry permits, a written permit space program, and training for individuals with active roles in confined space work. This includes the following employees:

- authorized entrants
- attendants
- entry supervisors
- rescue and emergency services personnel.

The standard covers approximately 1.6 million workers who actually enter confined spaces each year, as well as another 10.6 million people who work at sites where confined spaces exist.

Some kind of confined space can be found in over 240,000 workplaces. The work that is done inside of these spaces varies from inspection and testing of equipment, to welding, painting, and general maintenance.

Each year about 63 people die as a result of working in a confined space. OSHA feels that the new standard will prevent 85% (54) of those tragedies, and about 5,000 serious confined space injuries.

Permit-Required Confined Spaces for General Industry is effective as of April 15, 1993.

☞ ***Learning Activities***: *List 3 confined spaces at your facility:*

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-
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List your job duties in or around permit spaces.

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2. Definitions and Abbreviations

The four main definitions of this new regulation are as follows:

Confined space—a space large enough and so configured than an employee can bodily enter and perform assigned work. In addition, a confined space has limited or restricted means for entry or exit, and is not designed for continuous employee occupancy.

This could mean:

a. small, narrow or cramped passageways
b. entry or exit is by means of a ladder
c. other equipment in the space may make evacuation and rescue difficult.

Examples of confined spaces include:

- bins
- boilers
- crawl spaces
- degreasers
- ducts
- furnaces
- hoppers
- incinerators
- pipelines
- pits
- reactor vessels
- scrubbers
- sewers
- silos
- tanks
- tunnels
- utility manholes
- vats
- vaults
- vessels
- and, other areas with limited means of entry.

Permit-required confined space or **permit space**—a confined space that has, or may have, one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere. This could mean that the oxygen content of the space is inadequate, or that toxic or explosive gases, fumes, or vapors are present.
- Contains a material that has the potential for engulfing an entrant. For example, a bin filled with sawdust is an engulfment hazard.
- 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.
- Contains any other recognized serious safety or health hazard, such as turning, exposed blades on equipment, or a hole where a worker could drop through to another level.

Note: *A permit space has one or more features that require the worker to take special precautions. These spaces are considered an immediate health and safety risk.*

Entry—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–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 by this section.

Other Confined Space Definitions

Acceptable Entry Conditions—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—an individual stationed outside of one or more permit spaces who monitors the authorized entrants and who performs all the attendant's duties assigned in the employer's permit space program.

Authorized Entrant—an employee who is authorized by the employer to enter a permit space.

Blanking or Blinding—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.

Double Block and Bleed—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—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—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 Supervisor—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—an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL)
- airborne combustible dust at a concentration that meets or exceed its LFL

Note: *This concentration can be approximated to a condition where dust obscures vision at a distance of 5 feet or less.*

- atmospheric oxygen concentration below 19.5% or above 23.5%
- atmospheric concentration of any substance for which a permissible exposure limit (PEL) 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 PEL

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.*

- any other atmospheric condition immediately dangerous to life or health.

Note: *For air contaminants where OSHA has not determined doses or permissible exposure limits, other sources of information, such as MSDS's, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.*

Hot Work Permit—an 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)—any condition that :

- poses an immediate or delayed threat to life
- would cause irreversible adverse health effects
- would interfere with an individual's ability to escape unaided from a permit space.

Note: *Some materials, such as hydrogen fluoride gas and cadmium vapor, may produce immediate effects that, even if severe, can pass without medical attention; however, sudden, possibly fatal collapse can occur up to 12 to 72 hours after exposure. In fact, the victim may feel normal after they recover from the temporary effects until they collapse. Such material, in hazardous quantities, are immediately dangerous to life or health.*

Inerting—the displacement of the atmosphere in a permit space by a non-combustible gas (such as nitrogen) to such an extent that the resulting atmosphere is non-combustible.

Note: *This procedure produces an IDLH oxygen-deficient atmosphere.*

Isolation—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
- blocking or disconnecting all mechanical linkages.

Line Breaking—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—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—an atmosphere containing less than 19.5% oxygen by volume.

Oxygen-enriched Atmosphere—an atmosphere containing more than 23.5% oxygen by volume.

Permit-Required Confined Space Program or **Permit Space Program**—the employer's written overall program for controlling and, where appropriate, for protecting employees from permit space hazards, and for regulating employee entry into permit spaces.

Permit System—the employer's written procedure for preparing and issuing permits and for returning the permit space to service following termination of entry.

Prohibited Condition—any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

Rescue Service—the personnel designated to rescue employees from permit spaces.

Retrieval System—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—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 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.*

Abbreviations (Listed alphabetically, not in order of importance)

ANPR Advance Notice of Proposed Rulemaking
ANSI American National Standards Institute
APR Air Purifying Respirator
CSP Certified Safety Professional
DHHS Department of Health and Human Services
DOL Department of Labor
EPA Environmental Protection Agency

FACE Fatal Accidents Circumstances and Epidemiology
IDLH Immediately Dangerous to Life or Health
LEL Lower Explosive Limit
LFL Lower Flammable Limit
NFPA National Fire Protection Association
NIOSH National Institute for Occupational Safety & Health
NPRM Notice of Proposed Rule Making
OSHA Occupational Safety and Health Administration
OSHRC Occupational Safety and Health Review Commission
PE Registered Professional Safety Engineer
PEL Permissible Exposure Limit
PPE Personal Protective Equipment
SAR Supplied Air Respirator
SCBA Self-Contained Breathing Apparatus
TLV Threshold Limit Values
UEL Upper Explosive Limit

3. Hazards of Permit-Required Confined Spaces

The main goal of the standard is to protect workers from the hazards associated with confined spaces. Confined space hazards can be:

A. atmospheric
B. engulfment
C. physical.

A. Atmospheric Hazards

According to accident reports, hazardous atmospheres account for most of the deaths and injuries in confined spaces. These atmospheres can be either asphyxiating, toxic, or flammable/explosive.

- **Asphyxiating Atmospheres**

Asphyxiation, or suffocation, accounts for 47% of all confined space deaths. Normally, the air we breathe contains 20.9% oxygen.

Note: *When an oxygen level falls below 19.5% there is an asphyxiation danger.*

Here are some work situations that may reduce the oxygen level:

- Certain chemical reactions, such as metal oxidation—rust. Metal oxidation is common in tank cleaning operations because the chemicals in the cleanser can react with the wall of the tank.

- Oxygen is replaced by other gases. Nitrogen is an example of a gas that may replace oxygen. If a vessel has been used to transport nitrogen, the oxygen level may be inadequate.
- Oxygen is consumed by burning processes such as, welding or flame cutting operations.
- Simple repair or clean-up jobs may also reduce the oxygen level, such as exposure to fumes from open containers of solvent within the confined space.

Note: *Oxygen levels should be monitored continuously.*

- **Toxic Atmospheres**

Regardless of the oxygen level, the toxic effect of certain gases, vapors or fumes can occur. The most common toxic materials found in permit spaces are: carbon monoxide and hydrogen sulfide.

Hydrogen sulfide (H_2S) has the odor of a rotten egg. Be aware however, that the fumes dull the sense of smell, which could cause you to believe the danger has passed.

Carbon monoxide (CO) on the other hand has no odor and must be detected with a monitor.

Due to decaying organic material, both carbon monoxide and hydrogen sulfide can be present in sewer systems and septic tanks.

Toxic atmospheres may also result from the activities within the confined space. Vapors from cleaning solvents or fumes from welding can present a danger to confined space workers.

- **Flammable/Explosive Atmospheres**

Within a confined space, the combination of a flammable gas, vapor, or dust, with oxygen and an ignition source can produce a very dangerous atmosphere.

A flammable/explosive atmosphere might contain:

- methane or acetylene gases
- solvent or fuel vapors
- coal or grain dust.

Note: *In these atmospheres a spark from a tool or a discharge of static electricity may be all that is needed to create an explosion.*

Material Safety Data Sheet information should be available at all times on any substances found in confined spaces. The MSDS will help identify the hazards of these substances.

B. Engulfment Hazards

Engulfment or entrapment occurs when a worker becomes trapped by a dry, loose, bulk material. This can happen in vats, bins or vessels that contain such materials as sand, sawdust, or grain. The most immediate danger with this situation is asphyxiation or suffocation.

C. Physical Hazards

Confined space accidents and deaths can also occur if energy sources are not properly secured and isolated from the space. Because of this potential:

- all valves and electrical equipment must be properly locked out according to the OSHA Lockout/Tagout Standard
- connecting pipes should be blanked off, separated, or sealed
- pipelines must be flushed, drained and isolated to prevent unexpected exposure to contaminants.

Other physical hazards of confined spaces include:

- heat stress
- falls from ladders or railings
- falling objects
- wet surfaces
- noise
- becoming wedged in a narrow part of the structure.

4. General Requirements of the Standard

(1) All permit-required confined spaces in the workplace must be identified.

(2) Unauthorized entry into permit spaces must be prevented.

(3) Permit space hazards must be identified and evaluated before employees are permitted to enter.

(4) Development and implementation of procedures and practices needed for safe permit space entry. These include, but are not limited to:

a. **Specifying acceptable entry conditions**. This ensures that the hazards have been identified, and that acceptable limits have been set. These conditions must be met before entry is permitted.

b. **Isolating the permit space**. This includes the use of proper lockout/tagout procedures to control electrical and mechanical hazards.

c. **Purging, flushing, and/or ventilating the space** to eliminate or control hazards.

d. **Using barriers** to protect unauthorized entrants from external hazards.

e. **Verifying that conditions are acceptable for entry**.

(5) All workers with active roles in and around permit spaces must be provided with the proper training and equipment. These workers include authorized entrants, attendants, entry supervisors, and rescue and emergency services personnel.

Equipment, to be provided and maintained by the employer, should include any or all of the following:

- testing and monitoring devices
- ventilating equipment
- communication devices
- personal protective equipment
- proper lighting
- barriers and shields
- ladders
- rescue equipment (unless supplied by off-site rescue services).

(6) Test and monitor permit space conditions. Atmosphere must be checked for oxygen first, followed by combustible gases and vapors, then toxic gases and vapors.

(7) An attendant must be stationed outside the permit space as long as an authorized entrant remains inside. Attendants control and monitor all entry operations, and maintain on-going contact with entrants.

***Note**: If the only risk to entrants is a hazardous atmosphere that can be eliminated by purging or ventilating, attendants may not be not required. Purging/ventilating cleans the air within the permit space so that the atmosphere is no longer hazardous to life and health, and therefore is safe for employees to breathe. Your supervisor will indicate whether this situation applies to any confined space within your workplace.*

(8) If one attendant must monitor multiple spaces, a procedure must exist to allow that attendant to respond to an emergency while another employee takes over the attendant's duties for the other spaces.

(9) Persons with active permit space roles must be identified, their duties clearly spelled out, and proper training provided.

(10) Since rescue attempts account for over 60% of all confined space fatalities, a procedure must be in place for an emergency service (on-site or off-site) to rescue entrants from permit spaces and provide care to those who are rescued. This plan must also prevent unauthorized workers from attempting a rescue.

(11) A process for the use of entry permits must be developed.

(12) Contractors must be informed by the host employer about the permit permit spaces and related hazards, as well as the entry procedures and precautions that are used at that facility.

(13) A procedure must be in place for concluding entry operations.

(14) All elements of the permit space program must be reviewed at least annually and revised as needed.

5. Permit System and Entry Permits

A **permit system** defines how permits are prepared, issued, and canceled.

Entry permits document and verify that entries are conducted properly.

The entry permit must contain the following information:

- confined space site
- reason for entry
- date and time period of permit
- names or other means of identifying entrants
- names of attendants and entry supervisor
- permit space hazards
- measures used to isolate, remove or reduce confined space hazards such as: lockout/tagout procedures, purging, ventilating, inerting, flushing
- acceptable entry conditions
- all test results with name or initials of tester(s)
- name of rescue service and how to contact it
- communication system to be used between attendant and entrant
- all equipment needed for entry
- other information needed to ensure worker safety
- any additional permits issued for work in the permit space (i.e., a hot work permit).

A permit system requires that:

1. The entry permit be signed by the entry supervisor before anyone can enter. This signature confirms that all safety procedures have been reviewed and that entry is permitted.

2. The permit be posted or made available to the authorized entrants. This notifies the entrant:

- that all pre-entry safety checks have been completed
- of the hazards associated with the permit space.

3. Permits be issued only for the length of time needed to complete the job listed.

4. When the assigned task is completed, the permit be canceled by the entry supervisor.

5. Canceled permits be kept for at least one year. They are used to assist with the annual permit space program review.

6. Training Requirements

One of the major factors contributing to confined space fatalities and injuries is a lack of awareness on the part of the entrant that the atmosphere in a confined space can be hazardous, even lethal. In addition, many untrained, but well meaning individuals try to rescue a fallen co-worker without fully understanding the hazards involved or the procedures required for safe entry and rescue. Because of this, training is required. The standard requires that training be completed:

a. Before a worker can be assigned a permit space job

b. Before any changes in work assignment are made, or whenever a new hazard changes permit space operations.

***Note**: Additional training may not be needed if a worker has already been trained in the new duties or procedures and if the employer believes the employee understands and can perform the appropriate permit space procedures.*

c. If an employer feels that entry procedures are not being followed, or if a worker does not appear to have the skills needed to safely do the job.

d. As 'performance oriented.' In other words, training must zero in on the skills needed to safely perform specific job duties.

Part B: Rescue and Emergency Services

In spite of the many precautions taken to ensure the safety of permit space entry operations, hazards may arise so quickly or unexpectedly that authorized entrants cannot escape unaided from the permit space. Because of these circumstances, OSHA requires employers to include the means to rescue authorized entrants in their permit program.

Rescue personnel may enter a permit space to remove authorized entrants or remain outside the space and pull out authorized entrants with a retrieval line and chest or full-body harnesses. The decision to use entry or non-entry rescue is up to the employer. Since most of those killed in permit space entries are would-be rescuers, OSHA believes the final rule should stress non-entry rescue methods.

Employers may also choose between an on-site rescue team or an off-site rescue service. OSHA believes that the need for a quick response to a permit space emergency indicates a preference for an on-site rescue team, whenever it is practical for the employer.

Whether rescue services are on-site or off-site and utilize entry or non-entry rescue methods, employers who provide rescue services must equip and train the rescue personnel properly.

It is important to protect all employees who enter permit spaces for rescue purposes, regardless of who employs them. Therefore, this provision applies to employers who provide rescue services for their own entrants **and** to employers who provide rescue services for other employers' authorized entrants.

Goal and Objectives of Rescue and Emergency Training

Goal: To ensure that each member of an on-site rescue team or an off-site rescue service understands his/her duties and has the skills needed to perform them.

Objectives:

1. Review permit space hazards.
2. Review personal protective equipment and other equipment needed for permit space rescue.
3. Review non-entry rescue systems.
4. Review training and required rescue practice sessions.

I. Review of Permit Spaces and their Hazards

Your instructor will provide you with a list of the identified permit spaces in your facility, or at the facility where you will provide rescue services, including the hazards that may be associated with these spaces.

Notes:

II. Rescue and Emergency Services Requirements

a. The employer shall ensure that you are provided with, and trained to properly use, the personal protective equipment and rescue equipment needed for permit space rescues.

☞ ***Learning Activity***

Practice using the personal protective equipment and rescue equipment used at your facility. Off-site rescue services should review equipment furnished by their department(s).

b. You shall be trained to perform the assigned rescue duties. <u>You shall also receive the training required of authorized entrants.</u>

☞ ***Learning Activity***

Review of rescue procedures.

Notes:

c. Your rescue service shall practice making permit space rescues at least once every 12 months. These practices can be simulated by removing manikins or actual people from actual permit spaces or representative permit spaces.

A representative permit space must have an opening size, configuration, and accessibility that simulates the types of permit spaces from which rescue may be required. It is very important that these practice openings resemble those of the actual spaces. The 'host' employer must provide access to these permit spaces for planning and practice purposes.

By using the words 'actual persons' and 'actual permit spaces,' this provision allows the satisfactory performance of an actual rescue during the 12 month period to substitute for a practice rescue from a given space. However, practices in other types of spaces would still be required.

d. You must be trained in basic first-aid and in cardiopulmonary resuscitation (CPR). At least one of the members on-site during rescue operations must hold <u>current</u> certification in both first-aid and CPR.

e. If a company chooses to use an off-site rescue service, it is the 'host' employer's responsibility to ensure that the designated rescuers are aware of the hazards they may face during a rescue effort. This must be done so that the outside service can equip, train, and conduct itself appropriately.

OSHA acknowledges that an employer is not required to train or equip off-site rescuers. This does not mean, however, that the employer who retains an off-site rescue service has no responsibility for the adequacy of the rescue service provided.

If you are a member of an outside rescue service, you must know the location, configuration and other circumstances of a permit space in order to develop and practice effective rescue procedures. This does not mean that your service must actually use the permit spaces for practice. Rather, it requires the host employer to provide your service access to the space. Your service can then conduct practice sessions in any representative permit spaces that simulate those from which rescue may be needed.

Therefore, when off-site rescue is utilized it is the host employer's duty to:

- inform the rescue service of the permit space hazards they may face at the rescue scene
- provide the rescue service with access to all permit spaces from which rescue may be needed .

Notes:

III. **Non-Entry Rescue Systems**

OSHA believes that retrieval lines can be very effective in helping to remove an unconscious authorized entrant from a confined space. In addition, using a retrieval line eliminates the need for a rescuer to be placed at risk by entering the permit space to help remove an injured authorized entrant. OSHA also realizes that many spaces do not readily or safely accommodate the use of retrieval lines.

The final rule requires the use of retrieval systems or methods whenever an authorized entrant enters a permit space, except where the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue.

In enforcing this provision, OSHA will inspect permit spaces to determine if a retrieval system would contribute to a rescue without increasing the entry risk.

The following situations may not require the use of a retrieval system:

- A permit space where obstructions or turns may prevent a pull on the retrieval line from being transmitted to the authorized entrant

- A permit space from which an authorized entrant being rescued with the retrieval system would be injured because of forceful contact with projections in the space
- Permit space entry by an authorized entrant using a supplied air respirator (SAR), if the retrieval line could not be controlled to prevent entanglement with the air line.

A retrieval system must meet these requirements:

a. Authorized entrants must use a chest or full-body harness with a retrieval line attached at the center of the entrant's back (near shoulder level) or above the entrant's head. Wristlets may be used in place of the chest or full-body harness **if** the employer can show that their use creates a greater hazard and that wristlets are the safest and most effective alternative.

b. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space so that rescue efforts can begin as soon as possible.

> ***Note**: A mechanical device must be available to retrieve personnel from vertical-type permit spaces more than 5 feet deep. Any permit space whose opening is above the authorized entrant is considered a 'vertical-type permit space.'*

☞ ***Learning Activity*** Practice using the retrieval systems utilized at your facility or service.

Identify any vertical-type permit spaces in your facility:
1.
2.
3.

IV. The Use of MSDSs in the Rescue Effort

If an injured authorized entrant is exposed to a substance for which an MSDS (or other similar written information) must be kept at the worksite, that information must be made available to the medical facility treating the exposed entrant. This information should be sent with the injured person to the medical facility or be provided to the facility as soon as possible after the employee's arrival there.

☞ ***Learning Activity***

Review of MSDS's for the hazards that could be present at your facility.

Notes:

*Employee:*_____ *Instructor:*_____

*Company/Division:*_____ *Date:*_____

Rescue and Emergency Services Test

***Directions**: Read each statement carefully and circle the response that most fully answers the question.*

1. Permit space emergency personnel must receive the following training:

   A. Authorized entrant training
   B. Rescue and emergency services training
   C. Basic first-aid and CPR
   D. All of the above

2. As a rescue service member you should know the following about the hazards of a given permit space:

   A. What they are and the signs and symptoms of exposure
   B. What they are, how exposure occurs, signs and symptoms of exposure
   C. What they are, how exposure occurs, signs, symptoms, and consequences of exposure
   D. What they are and the behavioral effects of exposure

3. There is danger of asphyxiation or suffocation if the oxygen level falls below:

   A. 20.9%
   B. 17.5%
   C. 19.5%
   D. 22%

4. A vertical-type permit space:

   A. Is any permit space over five feet deep
   B. Requires that a mechanical retrieval device be available for rescue efforts
   C. Is any permit space whose opening is above the authorized entrant
   D. Both B and C

5. The acceptable oxygen level range for confined spaces set by OSHA is:

   A. 19.5% to 23.5%
   B. 19.5% to 22%
   C. 17.5% to 23.5%
   D. None of the above

6. A permit-required confined space is:

   A. A confined space that has or may contain one of the following hazards: atmospheric, engulfment, design, or other serious safety or health hazards
   B. A space large enough to enter and work in, has a restricted entry or exit, and is not meant for continuous occupancy
   C. A space large enough to enter and work in and has a restricted entry or exit
   D. A confined space that has or may contain a hazardous atmospheric or an engulfment hazard

7. Authorized entrants may use wristlets if the employer can prove that:

   A. A chest or full-body harness is infeasible
   B. A chest or full-body harness is infeasible or creates a greater hazard
   C. A chest or full-body harness creates a greater hazard
   D. Wristlets should not be used by authorized entrants

8. Basic first-aid and CPR are required:

   A. Of one member of the rescue service at the rescue scene
   B. Of each member of the rescue service
   C. Of each member of the rescue service, with one member at the rescue scene holding current certification
   D. Of one member of the on-site or off-site rescue service

9. The following permit space situations do not require use of a retrieval system:

   A. Obstructions may prevent a pull on a retrieval line from being transmitted to the authorized entrant, or if an employee being rescued via a retrieval system may be injured by forceful contact with projections in the space

   B. The employer can prove a retrieval system is not necessary

   C. Entry with a SAR, if the retrieval line could not be controlled to prevent entanglement with the air line.

   D. Both A and C

10. Each member of the rescue service must practice permit space rescues:

   A. At least once a year, in simulated situations or by the satisfactory performance of an actual rescue

   B. At least once a year in simulated situations

   C At least once a year in simulated situations using representative spaces

   D. At least once every six months

Company-specific questions:

1.

A.
B.
C.
D.

2.

A.
B.
C.
D.

3.

A.
B.
C.
D.

4.

A.
B.
C.
D.

5.

A.
B.
C.
D.

6.

A.
B.
C.
D.