Confined Space Program

Contact: Director of Risk Management

1. Rogue Community College is committed to the safety of all employees regarding permitted and non-permitted required confined spaces in the workplace. Rogue Community College is also committed to complying with all applicable federal, state and local health and safety codes and regulations. To ensure that all affected employees are provided with the necessary information and training, the following Confined Space Program has been established. All employees of Rogue Community College will participate in the development, implementation and review of the program and will comply with all sections of the Confined Space Program. The written Confined Space Program will be reviewed, updated and maintained by the Rogue Community College Risk Management Department. A printed copy of the program is available at the Risk Management office and online at https://web.roguecc.edu/risk-management/campus-occupational-safety.

2. Exceptions to this Program:

    a. Construction work regulated by Division 3/P Excavations, except for entry into sanitary sewer spaces that are large enough to bodily enter.

    b. Construction work regulated by Division 3/S Underground Construction, Caissons, Cofferdams and Compressed Air, except for sewers.

    c. Enclosed spaces regulated by Division 2/RR Electric Power Generation, Transmission and Distribution, except when that standard requires compliance with this standard.

    d. Manholes and vaults regulated by 1910.268(o) in Division 2/R Telecommunications, unless the space cannot be made safe to enter even after following the requirements of 1910.268(o).

    e. Welding in confined spaces regulated by Division 2/Q Welding, Cutting & Brazing, when the only hazards are related to the welding process.

    f. Grain bins, silos, tanks, and other grain storage structures regulated by 1910.272, Grain Handling Facilities.

    g. Diving operations regulated by Division 2/T, Commercial Diving Operations.

h. Except for (a) through (g) above, when any other applicable OSHA standards address work in confined spaces or additional hazards that may be present, RCC must comply with the provisions of those standards. Where the requirements of one standard are more restrictive than the other, follow the more stringent requirements.

3. Roles and Responsibilities

    a. Employer (Rogue Community College)
        a. Will develop and implement all requirements of a college-wide Confined Space Program.
        b. Will ensure compliance with each section of the Confined Space Program

    b. Employee
        a. Will comply with each section of the college Confined Space Program.

4. Entry by a Contractor

    a. RCC will complete the following steps if a contractor performs work on college property that involves entry into a permit-required confined space:
        a. Inform the contractor:
            1. That the workplace contains permit-required confined spaces and entry is allowed only if the applicable requirements of this program are met.
            2. Of the identified hazards and the Colleges experience with each permit-required confined space.
            3. Of any precautions or procedures, the College requires for the protection of employees in or near spaces where the contractor will be working.
        b. Coordinate entry operations with the contractor, when either employees of RCC or employees of a contractor will be working in or near permit-required confined spaces.
        c. Discuss entry operations with the contractor when they are complete. Include the following in your discussion:
            1. The program followed during confined space entry; and
            2. Any hazards confronted or created

5. Confined Space Specific Roles

    a. Entry Supervisor Responsibilities - RCC will ensure that an entry supervisor:

a. Authorizes the entry into a permit-required confined space by signing the entry permit.
b. Oversees entry operations.
c. Knows about the hazards that may be faced during entry, including the mode, signs or symptoms, and consequences of the exposure.
d. Verifies and checks all of the following:
    1. The appropriate entries have been made on the permit.
    2. All tests specified by the permit have been conducted.
    3. All procedures and equipment specified by the permit are in place before approving the permit and allowing entry to the space.
e. Terminates the entry and cancels the permit when:
    1. The assigned task or job has been completed.
    2. A condition in the space that is not covered by the entry permit is discovered.
f. Verifies that rescue services are available and that there is a way to contact them.
g. Removes unauthorized individuals who enter or attempt to enter the permit-required confined space during entry operations.
h. Determines that entry operations remain consistent with the terms of the entry permit and acceptable entry conditions are maintained:
    1. Whenever responsibility for a permit-required space entry operation is transferred; and
    2. At regular intervals dictated by the hazards and operations performed within the space.

b. Attendant Responsibilities - RCC will provide an attendant outside the permit-required confined space.
    a. The number of attendants assigned will be tailored to the requirements of the space and the work performed.
    b. RCC will need to assess if it is appropriate or possible to have multiple permit spaces monitored by a single attendant, or have an attendant stationed at a location outside each space.
    c. Attendants may be stationed at any location outside the permit-required confined space if the duties described in this section can be effectively performed for each space that is monitored.
    d. RCC will provide at least one attendant outside the permit-required confined space during entry operations.
    e. RCC will ensure that each permit-required confined space attendant:
        1. Understands the hazards that may be faced during entry, including the mode, signs or symptoms, and results of exposure to the hazards.

2. Is aware of the behavioral effects of exposure to the hazard.
3. Continuously maintains an accurate count of entrants in the space.
4. Maintains an accurate record of who is in the permit-required. confined space to include the exact entry and exit times of each entrant.
5. Communicates with entrants as necessary to monitor their status or alert them of the need to evacuate the space.
6. Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space.
7. Orders entrants to evacuate the space immediately if any of the following conditions occur:
    a. A prohibited condition.
    b. The behavioral effects of hazardous exposure in an entrant.
    c. A situation outside the space that could endanger entrants.
    d. The attendant cannot effectively and safely perform all the duties required in this chapter.
8. Takes the following actions when unauthorized persons approach or enter a space:
    a. Warns unauthorized persons to stay away from the space.
    b. Tells the unauthorized persons to exit immediately if they have entered the space.
    c. Informs entrants and the entry supervisor if unauthorized persons have entered the space.
9. Performs non-entry rescues as specified by our rescue procedure.
10. Has the means to respond to an emergency affecting one or more of the permit spaces being monitored without preventing performance of the attendant's duties to the other spaces being monitored.
11. Carries out no duties that might interfere with their primary duty to monitor and protect the entrants.
12. Calls for rescue and other emergency services as soon as entrants may need assistance to escape from the space.
13. Monitors entry operations until relieved by another attendant or all entrants are out of the space.

c. Entrants
    a. Know the hazards they may face during entry, including the mode, signs or symptoms, and results of exposure to the hazards.

b. Use equipment properly.
c. Communicate with the attendant as necessary so the attendant can:
    1. Monitor entrant status.
    2. Alert entrants of the need to evacuate.
d. Alert the attendant whenever either of these situations exist:
    1. A warning sign or symptom of exposure to a dangerous situation such as, behavioral changes, euphoria, giddiness potentially from lack of oxygen or exposure to solvents.
    2. A prohibited condition.
e. Exit from the permit-required confined space as quickly as possible when one of the following occurs:
    1. The attendant or entry supervisor gives an order to evacuate.
    2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
    3. The entrant detects a prohibited condition.
    4. An evacuation alarm is activated.

6. What is a Confined Space

    a. A confined space is defined as having three distinct characteristics. It must meet all three in order to be a confined space:
        a. It must be large enough to enter. First, it must be large enough and so configured that an employee can fully enter and perform work. A space that is just large enough that an employee could just barely squeeze into, but cannot perform any work does not meet this definition. Similarly, a space that is large enough that an employee can only get part of their body into, but can't fully enter, does not meet this definition. While there may be hazards associated with these types of spaces, they are not addressed with this particular rule.
        b. Second, it must have a limited means for entry and exit. Typically, if you must contort your body to enter a space it may be limited means of entry and exit.

           Examples of this include having to climb through a porthole, climb up a ladder, or crawling through a tunnel in order to exit. Another way of measuring limited means of entry and exit is to determine how difficult it would be to extract an injured person from the space. If there is a need for any type of technical rescue operation to remove an immobilized person from the space then you likely have limited entry and exit. It is important to recognize that each space should be evaluated on a case by case basis and a limitation in one set of circumstances may not be a limitation elsewhere.

c. Third, it is not designed for continuous human occupancy. This particular characteristic can cause a certain amount of confusion and discussion. A space that is designed for periodic occupancy is not the same thing as a space that is designed for continuous occupancy. The presence of a fixed ladder, lighting, or ventilation does not automatically mean that the space was designed for continuous occupancy. One must look at the primary function and purpose of the space. A space may have lighting to facilitate periodic occupancy. This lighting may be needed to safely enter and exit, read gauges or perform maintenance or repairs to equipment in the space. Similarly, ventilation may be necessary to keep equipment from overheating or provide fresh air for temporary job assignments or tasks. In both cases the work required to be performed in these spaces is intermittent or temporary in nature. Was the space designed for an employee to be permanently assigned to perform work there or was the space designed to house and protect operating equipment that needs to be monitored or occasionally maintained?

7. Evaluation

a. RCC will utilize a Hierarchy of Controls to evaluate and eliminate or control hazards in the permit required confined spaces to include the following:
    a. Elimination of the hazard
    b. Engineering Controls
    c. Administrative Controls
    d. Use of Personal Protective Equipment

b. If an individual must enter to remove hazards, the space must be treated as a permit-required confined space until hazards have been eliminated.

c. RCC will determine if any of the colleges confined spaces are permit-required confined spaces. This evaluation must include:
    a. Any known or anticipated hazard. Note: If the only hazard associated with a confined space is a fall hazard, it is not covered by the Confined Space rule. If the space contains other hazards that make it a permit space, the fall hazard must be addressed on the permit.
    b. The determination from any previous evaluation of that space.
    c. Any precautions and procedures previously implemented for entering the space.

d. When a space has hazards that make it a permit space:

a. RCC has developed and implemented a means so employees can identify that space. Signs, labels, or tags are methods that can be used to accomplish this.
b. RCC will allow employees or their representatives to observe the evaluation or re-evaluation of the space.
c. When conditions within a confined space or a permit space change, RCC will re-evaluate it.
d. RCC will take all necessary measures to prevent unauthorized employees from entering permit spaces.

e. RCC will prevent employees from entering any unevaluated confined space until it is fully evaluated.

f. RCC will continue to evaluate all permit and non-permit required confined spaces and will re-designate each space depending on change to design hazards, hazards introduced by work being performed in the space or any other hazard that is created in the space that was not present during the original classification of the space.

8. Evaluation of Permit-Required Confined Spaces

a. A permit space is a confined space with an actual or potential hazard that can inhibit an entrant's ability to safely exit the space. Once a confined space is identified, the next step is to determine if it is a permit-required confined space (permit space). There are 2 types of actual or potential hazards. Atmospheric hazards can include an oxygen-deficient or oxygen-rich atmosphere, a toxic atmosphere, or an explosive atmosphere. Physical hazards can include entrapment, engulfment, electrocution, heat stroke, moving machinery, or any other serious hazard.
    a. Atmospheric Hazards
        1. If a confined space is determined to contain an atmosphere that would be considered Immediately Dangerous to Life or Health, employees of RCC <u>will not enter the space under any conditions</u> without approval from the Director of Risk Management.
        2. In evaluating the atmospheric hazards, it is important to include conditions within the space, systems connected to the space, conditions outside of the space, and anything that is brought into the space in order to perform assigned tasks. For example, employees may need to enter one part of a tunnel where there are no obvious sources of atmospheric hazards, but employees in another part of the tunnel may be creating an atmospheric hazard

that has the potential to migrate to other parts of the system. These need to be identified by all affected parties. Another example of overlooked hazards can be with a space with a particularly small volume with several employees inside. In these situations, the simple act of breathing can create an oxygen-deficient atmosphere. Another consideration for evaluating atmospheric hazards is using air monitoring equipment to evaluate conditions within a permit space.

3. Any air monitoring equipment must be used according to the manufacturer's instructions, and employees using those meters must know how to use them. There have been several fatalities in permit required confined spaces where the air monitoring equipment alarms identified an unsafe condition but were ignored by the operator. If there is any indication of equipment failure all permit required confined space operations must stop until the equipment is repaired. Also, there can be a tendency to oversimplify the results of oxygen testing when evaluating an oxygen-deficient atmosphere. While the rule clearly identifies 19.5% as an oxygen deficient atmosphere that does not mean that nothing more needs to happen if the meter reads 19.6% oxygen. Typically, the normal atmospheric concentration of oxygen is around 20.8% to 21.5%. If your meter reads 20.9% outside of the space, and 19.9% inside the space that is telling you that something has displaced 1% of the oxygen inside the space, which equates to 10,000 parts-per-millions of another gas. To place this into perspective, an atmosphere containing 1200 parts-per-millions of carbon monoxide is considered to be immediately dangerous to life and health. It is vitally important to identify that other gas to truly identify all of the hazards of that space.

b. Physical Hazards

1. Physical hazards can come in many different forms. The hazard could be related to the configuration of a space, equipment inside the space or materials which can flow into a space and entrap an entrant. There are several ways of eliminating physical hazards through lockout/tagout, blanking and blinding or a physical separation on piping systems from the confined space. In evaluating physical hazards, it is important to understand that the confined space must be evaluated as it normally operates. There can be a tendency to evaluate a space after protective actions, such as lockout/tagout, are taken, and then not designate it as a permit space.

2. If any actions, such as lockout/tagout, are necessary to make the space safe for entry, then it is a permit space. While lockout/tagout is recognized as an elimination of hazards, it is only a temporary elimination that exists only as long as the lock is in place. Once the lock is removed, the hazard is no longer eliminated. Another consideration for using lockout/tagout is that all of the requirements for the control of hazardous energy in 1910.147, where applicable, still apply. Any hazards that still remain after applying lockout/tagout must still be addressed.

9. Permit-Required Confined Space Entry Program and Permits.

    a. When employees must enter a permit required confined space, RCC has developed and implemented a written program that describes the means, practices, and procedures to safely identify and enter permit spaces.

    b. Included in the program are following:
        a. Documentation of entry permit procedures.
        b. Measures taken to prohibit unauthorized persons from entering permit spaces.
        c. Designation of employee roles, such as entrants, attendants, entry supervisors, rescuers, or those who test or monitor the atmosphere in a permit space.
        d. Identification of designated employee duties.
        e. Training on the written program and entry permits.
        f. Training employees on their designated roles.
        g. Instructions to identify and evaluate hazards.
        h. Methods to eliminate and/or control hazards.
        i. Instructions on equipment use and maintenance.
        j. Instructions to coordinate entry with another employer.
        k. Procedures necessary for concluding the entry and canceling the permit after entry operations have been completed.
        l. The location of all permit spaces.
        m. The reason for the classification of each permit space or each type of permit space. Note: Where there are multiple permit spaces of the same type that have the same hazards, such as sewers, water vaults, or valve pits, the exact location of each space does not need to be identified so long as there is enough information so that employees can readily identify each type of space and its hazards at each location.

c. RCC will provide employees and their representatives access to the written program.

d. RCC will provide entrants or their authorized representatives access to the completed permit before entry so they can confirm that pre-entry preparations have been completed.

e. RCC will review the permit program when there is any reason to believe that employees are not adequately protected, and revise it as necessary.
    a. Situations that require this review include:
        1. Unauthorized entry of a permit space.
        2. Discovery of a previously unrecognized hazard.
        3. Existence of a condition prohibited by the permit or permit program.
        4. An injury or near-miss during entry.
        5. An employee reports of concerns about the effectiveness of the program.
        6. Any other condition that affects employee safety or health.
    b. When revising the permit program to correct hazard-related deficiencies, RCC will not allow entries into affected permit spaces to be made until the revisions are complete.
    c. RCC will provide employees and their representatives access to the revised permit program.

f. RCC will review permits within one year of their cancellation to evaluate:
    a. The permit program.
    b. The protection provided to employees entering permit spaces.

10. Permit Entry.

a. Develop and implement procedures for issuing permits. Procedures must include how to:
    a. Evaluate the hazards of the space.
    b. Evaluate hazards of the work to be performed.
    c. Identify safe entry conditions.

b. Entry permits must include the following information:
    a. The space to be entered.
    b. The purpose of the entry.
    c. The date, start, and stop times of the permit.
    d. The hazards of the space.

e. Acceptable entry conditions.
f. Results of initial tests and periodic monitoring performed to evaluate and identify the hazards and conditions of the space, or the period for continuous monitoring, accompanied by the names or initials of the testers and by an indication of when the tests were performed.
g. Appropriate measures used before entry to isolate the space and eliminate or control hazards. Examples of appropriate measures include the de-energizing and lockout or tagging of equipment, and procedures for purging, inerting, ventilating, and flushing permit spaces.
h. Names of entrants and current attendants.
i. The signature of the original supervisor authorizing entry.
j. The current entry supervisor.
k. Communication procedures for entrants and attendants to maintain contact during the entry.
l. Equipment provided for safe entry, such as:
    1. Personal protective equipment (PPE).
    2. Testing and monitoring equipment.
    3. Communications equipment.
    4. Alarm systems.
    5. Rescue equipment.
m. Rescue services available, and how to contact them.
n. Other information needed for safety in the particular permit space.
o. Additional permits issued for work in the space, such as for hot work.
p. Any problems, if any, encountered during the entry.

c. RCC will perform initial testing for atmospheric hazards, where necessary, before entry is made.

d. RCC will provide each entrant or their authorized representative with the results of any initial testing before they enter the space.

e. Maintain safe entry conditions for the duration of the entry.
    a. When the space is too large to isolate, or is part of a continuous system, such as a sewer, ensure continuous monitoring where entrants are working for the duration of the entry.
    b. When an entrant or their authorized representative has reason to believe that the testing or monitoring was inadequate, re-test the space.

f. RCC will follow all actions and precautions identified on the permit.

g. When conditions require the space to be evacuated, do not allow re-entry unless you:
    a. Re-assess the conditions of the space to ensure it is safe for re-entry and ensure the permit reflects the evacuation and subsequent re-assessment; or
    b. Issue a new permit.

h. RCC will allow entrants or their authorized representatives the opportunity to observe monitoring.

11. Equipment.

a. When employees enter permit spaces, provide the following equipment as necessary:
    a. Testing and monitoring equipment.
    b. Ventilating equipment, when needed, used to obtain and maintain acceptable entry conditions.
    c. Communication equipment, such as a two-way radio, for effective communication between the attendant and all entrants and to initiate rescue when necessary.
    d. Lighting equipment needed to ensure employees can see well enough to work safely and exit the space quickly in the event of an emergency.
    e. Barriers or shields to protect entrants from external hazards, such as pedestrians and vehicles.
    f. Ladders or other equipment to safely enter and exit the space.
    g. Rescue and emergency equipment necessary to safely and effectively rescue entrants.
    h. Any other equipment necessary to safely enter and exit the space.
    i. Personal protective equipment as mandated by any applicable Oregon OSHA standard or as otherwise required by the employer's assessment of the hazards.

b. RCC will provide all necessary equipment at no cost to employees.

c. RCC will ensure all equipment is maintained and used in accordance with the instructions from the manufacturer.

d. RCC will train all employees who use equipment in the use of that equipment.

12. Personnel.

a. Before employees enter permit spaces, designate entrants, attendants, and entry supervisors. Note: The entry supervisor can also be either the attendant or entrant.

b. Entrants must:
    a. Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards.
    b. Communicate with the attendant as necessary so the attendant can monitor the entrant's status and to enable the attendant to alert entrants of the need to evacuate the space.
    c. Alert the attendant whenever the entrant detects a dangerous or hazardous condition or warning sign or symptom of exposure to a dangerous situation.
    d. Exit from the permit space as quickly as possible whenever:
        1. An order to evacuate is given by the attendant or the entry supervisor, or
        2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
        3. The entrant detects a dangerous or hazardous condition, or
        4. An evacuation alarm is activated.

c. Attendants must:
    a. Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards.
    b. Be aware of possible behavioral effects of hazard exposure in authorized entrants.
    c. Continuously maintain an accurate count of authorized entrants in the permit space and ensure that the means used to identify authorized entrants accurately identifies who is in the permit space.
    d. Remain outside the permit space during entry operations until relieved by another attendant.
    e. Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
    f. Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order the authorized entrants to evacuate the permit space immediately under any of the following conditions:

1. If the attendant detects a dangerous or hazardous condition;
2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;
3. If the attendant detects a situation outside the space that could endanger the authorized entrants; or
4. If the attendant cannot effectively and safely perform all the duties required of the attendant.

g. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
h. Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
    1. Warn the unauthorized persons that they must stay away from the permit space;
    2. Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and
    3. Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space. Note: The employer can give the attendant the authority to remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations, so long as the attendant does not enter the space.
i. Perform non-entry rescues as specified by the employer's rescue procedure; and
j. Perform no duties that might interfere with the attendant's primary duty to monitor and protect any authorized entrant. NOTE: An attendant may monitor more than one space at a time, but the duties in relation to one space may not interfere with the duties for any other spaces. If an attendants' attention is focused on one space, such as to initiate the rescue procedures, all other spaces that the attendant is monitoring must be evacuated or another attendant must take over those duties first.

d. Entry supervisors must:
    a. Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards.
    b. Understand the means and methods to control and/or eliminate the hazards of the permit space.
    c. Verify, 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.

d. Inform entrants and attendants of the hazards and conditions associated with the space and the methods used to eliminate and/or control those hazards.
e. Terminate the entry and cancel the permit as required by the permit entry program.
f. Verify that rescue services are available and that the means for summoning them are operable.
g. Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
h. Reevaluate the conditions within the space whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space.

13. Rescue.

a. Before employees enter a permit space, develop and implement procedures to remove entrants in the event of an emergency or when they are unable to evacuate without outside assistance. These procedures must include:
    a. The process for summoning rescue services. Note: At a minimum, if an off-site rescue service is being considered, the employer must contact the service to plan and coordinate the evaluations required by the standard. Merely posting the service's number or planning to rely on the 911 emergency phone number to obtain these services at the time of a permit space emergency would not comply with the rescue requirements of the standard.
    b. The process for summoning emergency medical services or transporting injured entrants to a medical facility.
    c. If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant.

b. Ensure rescue personnel can respond to a rescue call in a timely manner. Timeliness is based on the identified hazards of the space. Rescuers must be able to reach potential victims within an appropriate time frame based on the identified hazards of the permit space. Note: When there are multiple entrants in a permit space, the rescue plan needs to address how all entrants will be removed in a timely manner.

c. RCC will ensure all rescuers, including non-entry, entry, and third-party, are knowledgeable in basic first aid and cardiopulmonary resuscitation (CPR). At least one member must be certified in first aid and CPR. Note: Additional medical training, such as oxygen administration, the use of automated external defibrillators (AEDs), and personnel decontamination should be considered.

d. Rescuers must practice performing permit space rescues prior to entry and no more than 12 months before an entry.
    a. The practice rescue must include every type of space in which the rescue team may perform rescues.
    b. The practice rescue must include removing persons, dummies, or manikins from the actual permit spaces, or representative spaces (simulated permit-required confined spaces) that have similar opening size, configuration, and accessibility issues as the actual permit spaces where rescue may be performed. Note: Reliance upon "self-rescue" does not constitute an acceptable rescue program.

e. Where feasible, RCC will use non-entry retrieval systems or methods whenever an authorized entrant enters a permit space, unless it would increase the overall risk to the entrant or would not contribute to the rescue of the entrant.
    a. Non-entry Rescue. Use a retrieval system that meets the following requirements.
        1. Each authorized entrant must 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 you can establish presents a profile small enough for the successful removal of the entrant. Wristlets or ankle straps or other equally effective means may be used in lieu of the chest or full body harness if you can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of other methods are the safest and most effective alternative.
        2. Attach the other end of the retrieval line to a mechanical device or fixed point outside the permit space so that rescue can begin as soon as the attendant becomes aware that rescue is necessary. Ensure a mechanical device is available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 m) deep.
    b. Entry Rescue.
        1. Where non-entry rescue is not feasible or would increase the overall risk to the entrant, RCC will designate a rescue team before employees enter any permit space.

2. Ensure the rescue team:
    a. Can efficiently rescue employees from permit spaces.
    b. Has the appropriate equipment to rescue employees from all permit spaces employees enter.
3. RCC will inform each rescue team or service about the hazards they may confront when called to perform rescue.
4. RCC will provide the rescue team or service with access to all permit spaces from which rescue may be necessary.
5. RCC will provide rescue team members with personal protective equipment (PPE) needed for safe entry and any other equipment required to safely conduct rescues.
6. Rescue team personnel must have the same training and proficiencies as a permit space entrant, attendant, and/or entry supervisor.
7. When a third-party rescue service is used, ensure that the service is:
    a. Aware that they are so designated and agree to it prior to entry.
    b. Capable of performing all required rescue operations.
    c. Knowledgeable in first aid and CPR, and at least one member is certified in first aid and CPR.

14. Alternate Entry.

a. Permit spaces may be entered without a permit when:
    a. All hazards have been eliminated; or
    b. All physical hazards, if any, have been eliminated and all atmospheric hazards are controlled with continuous ventilation.
    Note: For purposes of this rule, tagout alone does not eliminate a hazard.
    Note: Continuous ventilation does not eliminate atmospheric hazards. It only controls the hazards.

b. Exception: Alternate entry cannot be used to enter a continuous system unless you can isolate the area to be entered from the rest of the space, can demonstrate that the conditions that caused the hazard or potential hazard no longer exist within the system during the entry, or can demonstrate that engulfment cannot occur and continuous ventilation in the area to be entered is sufficient to control atmospheric hazards.

c. RCC will develop and implement procedures for each space that can be entered with alternate entry procedures. These procedures must address:

a. Who can authorize alternate entry procedure and is responsible for ensuring safe entry conditions.
b. The hazards of the space. Note: When fall hazards (if any) have been addressed and all other physical hazards, if any, have been eliminated and all atmospheric hazards have been eliminated, or are controlled with continuous ventilation, alternate entry is allowed.
c. The methods used to eliminate hazards.
d. The methods used to ensure that the hazards have been eliminated.
e. The methods used to test the atmosphere within the space, where applicable, for all atmospheric hazards.
f. The methods used to determine if unsafe conditions arise before or during entry.
g. The criteria and conditions for evacuating the space during entry.
h. The methods for training employees in these procedures.
i. The methods for ensuring employees follow these procedures.

d. When using ventilation to control atmospheric hazards:
    a. Use only properly calibrated direct-reading meters to test the atmosphere.
    b. Test the atmosphere for all identified atmospheric hazards before entering the space.
    c. Do not allow employees to enter until testing verifies that all identified atmospheric hazards are adequately controlled by the ventilation.
    d. Perform continuous monitoring for all atmospheric hazards during the entry.
    e. Immediately evacuate the space:
        1. When monitoring indicates the return of atmospheric hazards.
        2. Upon any failure with the direct-reading instrument.
        3. Upon any failure with the ventilation.
        4. When a new hazard is introduced or conditions within the space change.
    f. Provide all employees who will conduct the entry or their representatives the opportunity to observe all activities used to comply with this section.
    g. Provide all employees who conduct entry an effective means of communication, such as a two-way radio, cell phone, or voice if other employees are present, to summon help while within the space.
    h. When a space is evacuated, it cannot be re-entered as an alternate entry unless:
        1. The conditions that necessitated the evacuation are corrected; and
        2. The re-entry is treated and documented as a new entry.

i. Document each entry. This documentation must include:
    1. The location of the space.
    2. The hazards of the space.
    3. The measures taken to eliminate the hazards.
    4. When applicable, the measures used to control the atmospheric hazards.
    5. When applicable, the identity of the direct-reading instruments used to test the atmosphere.
    6. When applicable, the results of the atmospheric testing.
    7. The date of the entry.
    8. The duration of the entry.
    9. When applicable, any and all conditions that required the evacuation of the space.
    10. The name, title, and signature of the person responsible for ensuring the safe entry conditions.
    11. Maintain this documentation for the duration of the entry at the location of the entry. Note: Additional record retention requirements may apply under 1910.1020. “Access to Employee Medical and Exposure Records.”

15. Training.

a. Train each employee involved in permit space activities so they acquire the understanding, knowledge, and skills necessary to safely perform their duties, according to their assigned responsibilities.
    a. Provide training:
        1. For all new employees.
        2. Before an employee is assigned permit space duties.
        3. Before there is a change in an employee’s assigned duties.
        4. When there is a hazard for which the employee hasn’t already been trained, or when there is a change in the hazards of an existing confined space.
        5. When there are changes to the permit program.
        6. When the permit audit shows deficiencies.
        7. Whenever there is a deviation from the established procedures or employee knowledge of the procedures is inadequate.
    b. Document employee training. Ensure the documentation:
        1. Contains the employee’s name, the name and signature of the trainer, and the date of training.
        2. Contains the responsibilities for which they were trained.

3. Is available for inspection by employees and their authorized representative.

b. Ensure each employee is proficient in their assigned duties.

c. Awareness training:
    a. Provide all employees whose work operations are or may be in an area where permit spaces are present with a basic overview of:
        1. The permit space program.
        2. The entry permit system.
        3. The alternate entry procedures, if used.
        Note: Awareness training is not required for employees whose exposure is negligible, such as office workers who walk in a parking lot that has a sewer manhole or workers entering a building with a baghouse near it, as long as those employees have no other exposures to permit spaces. Similarly, when all permit spaces cannot be accessed or opened by employees, awareness training is not required. An example of this are spaces that are locked or require a specialized tool, access to the key or tool is controlled, and access without the key or tool would require extraordinary means (such as a chop saw or cutting torch).
    b. Provide this training:
        1. For all new affected employees.
        2. For all employees whose duties change to include work in areas with permit spaces.
        3. When inadequacies in an employee's knowledge indicate that the employee has not retained the requisite understanding.
        4. When there is a change in the permit program.
        5. When there are new or previously unidentified permit spaces.
    c. Ensure all employees understand how to recognize permit spaces in their work area.

16. Multi-employer worksites.

a. Before employees of another employer enter permit spaces under RCC control, RCC must:
    a. Inform the employer and their employees:
        1. That the workplace contains permit spaces and can be entered only when the applicable requirements of this rule are met.
        2. Of the identified hazards and your experience with each permit space they will enter.

3. Of any precautions or procedures, you require to protect employees in or near spaces where the work will be performed.

b. Coordinate entry operations with the employer, when employees of different employers will be working in or near the same permit spaces.

c. Discuss entry operations with the employer after they are complete. This discussion must include:
    1. The program followed during permit space entry, and
    2. Any hazards confronted or created.

b. When your employees enter a permit space under the control of another entity, at the conclusion of entry operations, inform the controlling contractor and host employer about the precautions and procedures you followed and any hazards that were present or that developed during entry operations.

17. Records.

a. Keep cancelled permits for at least one year from the date the permit expires for review.

b. RCC will keep entry permits or other atmospheric monitoring records that show the actual atmosphere an employee entered or worked in, as employee exposure records.

18. Potential Confined Space Hazards

a. What follows is a compilation of hazards and conditions which may compromise safe confined space entry and/or rescue procedures. The list is not exhaustive. Specific confined spaces may have hazards unique to that space. All hazards need to be evaluated and eliminated or controlled prior to entry. Consider hazards that may be present initially as well as those that may develop during the course of work.
    a. Atmospheric hazards:
        1. Oxygen deficiency
        2. Oxygen enrichment
        3. Inert gases used to exclude oxygen (for example, nitrogen, helium, steam, freons, argon, or carbon dioxide)
        4. Flammable or explosive gases, liquids, vapors, mists, fibers, or dusts
        5. Toxic dusts, mists, fumes, smoke, vapors, fibers, or gases
        6. Airborne biological contaminants, including molds, bacteria, viruses and other potential disease-inducing agents

b. Engulfment hazards – presence of materials that can capture or surround an entrant:
    1. Avalanche of materials
    2. Surrounding and suffocating
    3. Trenching cave-ins
    4. Drowning
    5. Bridged materials which collapse when stepped on
    6. Falls from heights
    7. Falling objects (tools, structural materials, debris)
    8. Harness or lifeline snag points (e.g., agitator blades, piping, screws, etc.)
    9. Configuration of space:
        a. Complexity of internal structure
        b. Inwardly sloping walls or floors
        c. Tight and/or narrow diameter spaces - entrapment
        d. Access restricting rescue
    10. Ignition sources – examples include:
        a. Grinding
        b. Welding, cutting, burning, brazing
        c. Space heaters
        d. Hand tools
        e. Power tools
        f. Exposed light bulbs
        g. Sources of static electric discharge (e.g., synthetic clothing, transfer of liquids or gases not bonded and grounded)
        h. Non-intrinsically safe equipment
    11. Illumination – insufficient in quality or quantity
    12. Moving mechanical equipment:
        a. Agitators
        b. Tumblers
        c. Crushers
        d. Mixing blades
        e. Screw conveyors
        f. Shakers
    13. Electrical power sources
        a. Transmission lines
        b. Junction boxes
        c. Transformers
        d. Electrically powered equipment taken into the space or installed in the space
    14. Hydraulically or pneumatically powered equipment

15. Pressurized lines
    a. Steam
    b. Hydraulic
    c. Pneumatic
    d. Fuel and other gas
    e. Water
16. Radiation
    a. Ionizing
    b. Non-ionizing (including lasers)
17. Process material lines, open or leaking lines which introduce:
    a. Toxic materials
    b. Flammable or combustible
    c. Oxidizing materials
    d. Corrosive materials
    e. Heated liquid or gaseous substances (such as steam) containing hydraulic oils, other fluids, or gases
    f. Other substances hazardous to health or that may displace oxygen
    g. Isolation is difficult or impossible -- Examples of environments in which significant isolation issues may arise:
        i. Wastewater sewer systems
        ii. Stormwater drain systems
        iii. Dams
        iv. Hydro-electric plants
        v. Nuclear plants
18. Hazards originating in adjacent areas:
    a. Exhaust or flue gases
    b. Chemical releases
19. Mobile confined spaces that are not adequately secured prior to entry:
    a. Moving (such as ships and barges; or rail cars or tank trucks that do not have chocks or wheel blocks)
    b. Rotating (cement or other trucks which may not be properly locked out)
    c. Shifting (tank trucks lacking a cab or jack stand)
    d. Crushing (garbage trucks which may not be properly locked out)
20. Noise (preventing the ability to communicate or hear warnings)
21. Slippery surfaces

22. Surface contaminants – liquids and solids on floors, walls, ceilings, or other interior surfaces that may cause eye or skin irritation, burns, or other adverse health effects upon contact
23. Thermal (heat and cold) extremes:
    a. Surfaces (radiant or conduction)
    b. Air temperature (convection)
24. Tripping hazards
25. Uncontrolled lateral movement or swing potential with suspended loads
26. Vibration – Vibrating equipment or vibration of the confined space
27. Work or equipment introducing additional hazards:
    a. Hot work (welding, cutting, burning, grinding)
    b. Inerting
    c. Abrasive blasting
    d. Surface coating and painting
    e. Use of solvents, degreasers, and other cleaning agents
    f. Demolition activities
    g. Use of internal combustion engines
    h. Use of space heaters
    i. Use of equipment which is not approved or fit for use in the type of confined space, such as non-intrinsically safe or no GFCI when needed.

19. Definitions

a. Acceptable entry conditions: The conditions that must exist in a permit-required confined space to allow safe entry and work.

b. Alternate entry – An alternative process for entering a permit space under very specific conditions. The space remains a permit space even when entered using alternate entry and even though no entry permit is required in those circumstances.

c. Atmospheric hazard (see the definition of hazardous atmosphere).

d. Atmospheric testing – see “Testing.”

e. Attendant - An individual stationed outside one or more permit spaces to monitor the authorized entrants and who performs all attendants duties assigned in the employer's permit space program.

f. Authorized – Approved by the employer or controlling contractor.

g. Authorized entrant - An employee who is authorized by the employer to enter a permit space.

h. Barrier - A physical obstruction that blocks or limits access.

i. 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.

j. Calibration – The checking of a direct-reading instrument against an accurate standard (such as a calibration gas) to determine any deviation and correct for errors.
   Note: A similar process may also be referred to as a "bump test" in which an instrument is tested with an accurate standard to ensure it is still reading correctly. For the purposes of this rule, a "bump test" performed in accordance with the manufacturer's instructions can be used to verify calibration.

k. Confined space – A space that meets all of the following: Large enough and so configured that an employee can fully enter the space and perform work. Has limited or restricted means for entry and/or exit. Is not designed for continuous human occupancy.

l. Continuous system – a confined space that meets all of the following: Part of, and contiguous with, a larger confined space (for example, storm sewers, sanitary sewers, or steam tunnels) Subject to a potential release from the larger confined space that can overwhelm control measures and/or personal protective equipment, resulting in a hazard that is immediately dangerous to life and health.

m. Control or controlling - Authority to regulate, direct or influence. Controlling contractor - The employer that has overall responsibility for construction at a worksite.
   Note: A controlling contractor who owns or manages a property is both a controlling contractor and a host employer.

n. 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.

o. 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.

p. Engulfment hazard - A physical hazard consisting of a liquid or flowable solid substance that can surround and capture an individual. Engulfment hazards may cause death or serious physical harm if: the individual inhales the engulfing substance into the respiratory system (drowning, for example); the substance exerts excessive force on the individual's body resulting in strangulation, constriction, or crushing; or the substance suffocates the individual.

q. Entrant (see the definition of authorized entrant).

r. Entry - The action by which any part of an employee's body breaks the plane of an opening into a confined space. Entry (or entry operations) also refers to the period during which an employee occupies a confined space.

s. Entry Permit – Written authorization from the employer, controlling contractor, or host employer to enter a permit-required confined space and perform work.

t. Entry supervisor - The person (such as the employer, foreman, or crew chief, or any other designated employee) responsible for: • Determining if acceptable entry conditions are present at a permit space where entry is planned; and • Authorizing entry and overseeing entry operations; and • Terminating entry as required.

u. Hazard – For the purpose of this rule, hazard means a physical hazard or hazardous atmosphere.

v. Hazard control – The action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by isolation or ventilation), and then using these methods to maintain the reduced hazard level. Hazard control also refers to the engineering methods used for this purpose. Personal protective equipment is not a hazard control.

w. Hazard elimination – The action taken to remove a hazard from the work environment. For confined spaces, this includes isolation. For a hazard to be

eliminated, the conditions that create or cause the hazard no longer exist within the confined space.

x. Hazardous atmosphere - An existing or potential atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to escape unaided from a permit space, injury, or acute illness from one or more of the following: • A flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit. • An airborne combustible dust at a concentration that meets or exceeds its lower explosive limit. Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 meters) or less. • An atmospheric oxygen concentration below 19.5 percent (oxygen deficient) or above 23.5 percent (oxygen enriched). • An airborne concentration of a substance that exceeds the dose or exposure limit specified by an Oregon OSHA requirement. Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to escape unaided, injury, or acute illness due to its health effects is not covered by this provision. You must still follow all other applicable Oregon OSHA requirements to protect employee health. • An atmosphere that presents an immediate danger to life or health (IDLH).

y. Host employer - An employer who owns or manages the property on which confined space work is taking place.

z. 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.

aa. Inerting - 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.

bb. Isolate or isolation - The elimination or removal of a physical or atmospheric hazard by preventing its release into a confined space. Isolation includes, but is not limited to, the following methods: • blanking or blinding. • misaligning or

removing sections of lines, pipes, or ducts. • a double block-and-bleed system. • Machine guarding; • Blocking or disconnecting all mechanical linkages; • lockout or tagout of all sources of energy. Note: When using lockout/tagout, you must follow all of the requirements of 1910.147, “The Control of Hazardous Energy”.

cc. Mobile worker – An employee who performs work in multiple locations such as customer sites, company offices, private homes, vendor offices, or construction sites.

dd. Monitor or monitoring – The process used to identify and evaluate the atmosphere in a permit space after an authorized entrant enters the space. This is a process of checking for changes in the atmospheric conditions within a permit space and is performed in a periodic or continuous manner after the completion of the initial testing of that space. (See also “testing.”)

ee. Non-entry rescue – Retrieval of entrants from a permit space without entering the permit space.

ff. Permit-required confined space (permit space) – A confined space that has one or more of the following characteristics: • Contains, or has a potential to contain, a hazardous atmosphere. • Contains a material that has the potential to engulf an entrant. • Has an internal configuration such that an entrant could become 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 that can inhibit an entrants ability to escape unaided.

gg. Physical hazard - An existing or potential hazard that can cause death or serious physical harm in or near a confined space, or a hazard that has a reasonable probability of occurring in or near a confined space, and includes, but is not limited to: • Explosives; mechanical, electrical, hydraulic, and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces; and • Chemicals that can cause death or serious physical harm through skin or eye contact (rather than through inhalation).

hh. Potential hazards - All reasonably anticipated conditions within the space and outside the space that can adversely affect conditions within the space.

ii. Rescue - Retrieving employees who are unable to remove themselves from a permit space. Rescue can be entry or non-entry, and can be conducted by the employer’s employees or a third-party.

jj. Rescue service - The onsite or offsite personnel who the employer designates to engage in non-entry and/or entry rescue of employees from a permit space.

kk. Retrieval system - The equipment, including mechanical retrieval devices, used for non-entry rescue of authorized entrants from a permit space.

ll. Serious physical harm – An impairment in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment may include loss of consciousness or disorientation, and may be permanent or temporary, or chronic or acute. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional while an illness resulting in serious physical harm could shorten life or substantially reduce physical or mental efficiency by impairing a normal bodily function or body part.

mm. Simulated Permit-Required Confined Space – Is a confined space or a mock-up of a confined space that has similar entrance openings, and is similar in size, configuration, and accessibility to the permit space the authorized entrants enter. A simulated space does not need to contain any physical or atmospheric hazards.

nn. Testing - The process of identifying and evaluating the atmospheric hazards that entrants may be exposed to in a permit-required confined space. Testing includes specifying the initial tests that are to be performed in the permit space. (See also “monitor or monitoring”) 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.

oo. Ventilate or ventilation - Controlling an actual or potentially hazardous atmosphere using either powered equipment, such as fans and blowers, or reliable natural air flow, or a combination of the two, to reduce an otherwise hazardous atmosphere below the level that makes it a hazardous atmosphere. Ventilation is a method of hazard control, not hazard elimination