Section 14

Confined Spaces and Permit-Required Confined Spaces

14.1 Scope
This section establishes requirements for a permit-required confined space (PRCS) program for all Reclamation facilities. It specifically discusses roles and responsibilities, training requirements, identifying PRCS, the permit system, entry procedures, and rescue protocols. This section applies to all Reclamation employees that enter or work around confined spaces at Reclamation facilities.

14.2 General Requirements
PRCS programs must include a confined space inventory, a permitting system, entry requirements, alternate entry procedure, atmospheric testing requirements, rescue procedures, and training. Engineering and administrative controls shall be implemented to reduce confined space hazards whenever feasible.

14.3 Responsibilities

14.3.1 Reclamation Safety and Occupational Health Office
14.3.1.1 Shall provide technical support to assist regional safety managers and program coordinators with implementing the PRCS program.

14.3.2 Area Office Managers
14.3.2.1 Shall provide necessary resources to implement and maintain the procedures in the PRCS program.
14.3.2.2 Shall select an Area Office program coordinator and provide them with the authority to implement the PRCS program.

14.3.3 Program Coordinators
14.3.3.1 Shall, in coordination with the regional industrial hygienist, recommend/purchase equipment for atmospheric testing of confined spaces.
14.3.3.2 Shall conduct/coordinate surveys to identify, inventory/document, and assess all potential PRCSs. The written inventory must list confined spaces, specify whether they are PRCSs, and document associated and/or potential hazard(s) that must be eliminated or controlled before entry.
14.3.3.3 Shall coordinate with facility staff to ensure that a danger sign is placed at each entrance to each PRCS. Shall review and update the list of PRCS trained employees.
14.3.3.4 Shall provide and/or coordinate training for entry supervisors, attendants, and entrants.

14.3.3.5 Shall provide and/or coordinate training for air monitoring of PRCS.

14.3.3.6 Shall coordinate with facility staff to review the PRCS program as well as the cancelled permits on an annual basis to ensure the program is adequate and up to date.

14.3.3.7 Shall coordinate with first-line supervisors for review of job hazard analysis (JHA) involving PRCS.

14.3.3.8 Shall, in coordination with the entry supervisor/first-line supervisor, investigate any near miss or incident in a confined space, or which a condition outside the scope of the permit arises.

14.3.3.9 Shall assist in coordinating on-site rescue team training and practice.

14.3.4 First-Line Supervisors

14.3.4.1 Shall periodically observe employees entering PRCS to ensure that all affected employees comply with the elements of this program.

14.3.4.2 Shall provide/coordinate training for employees entering or working around PRCS, including on-site rescue team. Verify that any employee entering a PRCS has applicable training prior to entry.

14.3.4.3 Shall ensure individuals who have air monitoring responsibilities receive training on air monitoring equipment.

14.3.4.4 Shall verify PRCS engineering and administrative controls are provided, working properly, and in good repair.

14.3.4.5 Shall ensure hazard assessment and JHAs reflect potential PRCS hazards and document controls for hazards.

14.3.4.6 Shall ensure the program coordinator is included in the review for all JHAs involving PRCS.

14.3.4.7 Shall review rescue plans in coordination with the entry supervisor and rescue team.

14.3.4.8 Shall monitor all canceled PRCS entry permits, retain for records, and provide to the program coordinator.

14.3.5 Entry Supervisors

14.3.5.1 Shall conduct an assessment of the PRCS and understand and convey any hazards that may be faced to the entry team, including information on the mode, signs or symptoms, and consequences of the exposure.
14.3.5.2 Shall ensure all entry permits are correctly and thoroughly completed.

14.3.5.3 Shall, before signing the permit and allowing entry, verify that all tests specified by the permit have been completed and documented, that test results are within the acceptable entry conditions stated in the permit, and that all procedures and equipment outlined in the permit are in place.

14.3.5.4 Shall verify that information on chemical hazards, summarized in safety data sheets (SDS), is accessible to employees and the rescue team.

14.3.5.5 Shall ensure there is a rescue team/service that meets the requirements of paragraph 14.8.6 for any PRCS entry and allow work time for training and practice.

14.3.5.6 Shall, before authorizing entry into a PRCS, verify the capability and availability of rescue team/services and the means of summoning them.

14.3.5.7 Shall ensure that rescue team members have current certifications in first aid and cardiopulmonary resuscitation (CPR) (refer to RSHS Section 5, Medical Services and First Aid).

14.3.5.8 Shall authorize entry and oversee entry operations.

14.3.5.9 Shall ensure measures are in place to remove unauthorized personnel who enter or attempt to enter the PRCS during entry operations.

14.3.5.10 Shall terminate entry and cancel the permit when with the permitted entry operations have been completed or a prohibited condition arises in or near the PRCS.

14.3.5.11 Shall, in coordination with the program coordinator, investigate any near miss in a confined space or any incident, or which a condition outside the scope of the permit arises.

14.3.5.12 Shall ensure each rescue plan has provisions for conducting the rescue of individuals within a PRCS for each PRCS entry.

14.3.6 Attendants

14.3.6.1 Shall understand the hazards that are present or likely to become present during entry, including information on the mode, signs or symptoms, and consequences of the exposure, and possible behavioral effects of hazard exposure in authorized entrants.

14.3.6.2 Shall continuously maintain an accurate count of and establish means to identify the authorized entrants in the PRCS.
14.3.6.3 Shall maintain communication with the authorized entrants as necessary to monitor entrant status and alert entrants of the need to evacuate.

14.3.6.4 Shall continuously monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space.

14.3.6.5 Shall summon rescue and other emergency services immediately upon determining that authorized entrants may need assistance to escape from PRCS hazards.

14.3.6.6 Shall warn unauthorized persons to stay out of the PRCS or to exit immediately if they have entered the space.

14.3.6.7 Shall not perform any other duties that will interfere with the primary duty to monitor and protect the entrants.

14.3.6.8 Shall not enter the PRCS under any circumstances, including for rescues.

14.3.7 Entrants

14.3.7.1 Shall understand the hazards that are present or likely to become present during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

14.3.7.2 Shall use appropriate personal protective equipment (PPE) per JHA and entry permit.

14.3.7.3 Shall maintain communication with attendants to provide status updates and alert the attendant if evacuation is necessary.

14.3.7.4 Shall exit from the PRCS as quickly as possible whenever (1) an order to evacuate is given by the attendant or the entry supervisor, (2) the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, (3) the entrant detects a prohibited condition, (4) anytime communication is lost, or (5) an evacuation alarm is activated.

14.3.8 Project Managers/Contracting Officers Representative

14.3.8.1 Shall ensure that any contractors hired to enter a PRCS provide evidence of current training for all individuals that will be involved in the work.

14.3.8.2 Shall inform contractors performing work in PRCS of any potential health or other safety hazards of the space.

14.3.8.3 Shall confirm that the contractor provides equipment, PPE, and tools necessary to complete PRCS work.
14.3.8.4 Shall ensure that the contractor provides rescue services and that prior to starting work, the contractor practices PRCS rescues by means of simulated rescue operations from the actual PRCS or representative PRCS for developing a rescue plan.

14.3.8.5 Shall notify the program coordinator of all contractor PRCS entries before the contractor starts work.

14.3.8.6 Shall debrief with the contractor at the conclusion of entry operations, including a review of any hazards confronted or created during entry operations and safety procedures taken.

14.3.9 Employee Rescue Teams
14.3.9.1 Shall practice PRCS rescues prior to entry and at least once every 12 months, by means of simulated rescue of dummies, manikins, or actual persons from actual PRCS or from representative PRCS.

14.3.9.2 Shall develop a rescue plan and review with everyone involved in the PRCS entry.

14.3.9.3 Shall respond immediately to rescue calls from the attendant or any other person recognizing a need for rescue from the PRCS. Response capability and rapidity must meet the requirements of paragraph 14.8.6.

14.3.9.4 Shall receive emergency response training as well as all training required of authorized entrants to PRCS.

14.3.9.5 Shall maintain current certification in first aid and CPR.

14.4 Training Requirements
14.4.1 Initial
Training must be outlined in the PRCS program and provided for those working as entrants, attendants, entry supervisors, and rescuers in accordance with the duties stated in this section, OSHA 1910.146, *Permit-Required Confined Spaces*, and OSHA 1926 Subpart AA, *Confined Spaces in Construction*. The initial training must cover the following topics:

- Confined space regulations and definitions (General Industry and Construction)
- Confined space entry hazards, both general and specific to work site
- Methods/types of entry
- Entry and exit procedures
- Air monitoring
- Roles and responsibilities for confined space entry
- Permits
- PPE, respirators, and other safety equipment
- Identification of potential hazards
• Introduction of new hazards
• Communication equipment and procedure
• Ventilation equipment
• Lighting equipment
• Ingress and egress equipment for authorized entrants
• Barriers and shields to protect entrants from external hazards
• Emergency procedures and rescue

14.4.2 Refresher Training
Refresher training shall be conducted as needed to maintain employee competence in entry procedures and precautions. Retraining is required before an employee can be assigned additional confined space duties or if any of the following conditions exist:

• The employee fails to perform already assigned duties in accordance with the program
• The employee has not performed any confined space work for a period of one year
• Changes are made in the PRCS program
• The employee or first-line supervisor requests retraining
• The employee was involved in any near miss or incident related to PRCS work

14.4.3 Recordkeeping
PRCS training shall be tracked in the DOI system for tracking training.

14.5 Hazard Identification, Assessment, and Safety Measures

14.5.1 Determination of Confined Spaces and PRCS
A flowchart for determining classification of a PRCS can be found in OSHA 1910.146 Appendix A. A space must first be identified as a confined space and then evaluated to determine if it is a PRCS. A confined space is one that has all three characteristics below

• Is large enough and configured to allow an employee to bodily enter a perform assigned work
• Has limited or restricted means for entry or exit
• Is not designed for continuous employee occupancy

A confined space is classified as “permit-required” if it has one or more of the following characteristics:

• Contains, or has potential to contain, a hazardous atmosphere
• Contains a material which has the potential to engulf an entrant
• Internal configuration that could cause an entrant to be trapped or asphyxiated
• Contains any other recognized serious safety or health hazard

New Release

14.5.2 Survey of Confined Spaces and PRCS
The program coordinator shall conduct a survey to identify confined spaces and PRCS. The purpose of the survey is to develop and maintain an inventory of those locations and/or equipment at a facility that meets the definition of a confined space or PRCS. The initial survey shall include air monitoring, when feasible, to determine the air quality in the confined spaces.

14.5.3 Site Inventory of Confined Spaces and PRCS
Each facility must maintain an inventory of confined spaces and PRCS that identifies each space in the normal operating condition and its associated hazards. Information in the inventory, including up to date signs on PRCS, shall be communicated to employees by the program coordinator.

14.5.4 Master Inventory of PRCS
A master inventory of PRCS shall be maintained by the program coordinator. Any change in designation of a confined space shall be routed to all affected personnel by the program coordinator.

14.5.5 Labeling of PRCS
The program coordinator in coordination with the first-line supervisor shall ensure each PRCS entrance, within their area of responsibility, is clearly labeled with a danger sign identifying it as a PRCS for those who work around and/or are unfamiliar with the space. See paragraph 14.9.1.

14.5.6 Hazard Controls
Hazard controls shall be instituted to address hazards in work processes and/or working environments associated with PRCS entry. The following order of precedence shall be employed to reduce confined space risks:

- Hazard elimination
- Product substitution
- Isolating hazards
- Engineering controls (e.g., ventilation)
- Administrative controls (e.g., rotating workers, reducing worker exposure, housekeeping)
- PPE and air testing/monitoring equipment

14.5.6.1 Lockout/Tagout Requirements. All energy sources of the space must be locked and tagged out and/or clearance applied according to the facility’s Hazardous Energy Control Program (HECP). See paragraph 14.8.8.
14.5.6.2 **PPE requirements.** See paragraph 14.7 and RSHS Section 8, *Personal Protective Equipment.*

14.5.7 **Hazard Reevaluation**
When changes that could adversely alter the conditions of the space (activities or other physical/environmental conditions) occur in any confined space, the entry supervisor and/or the program coordinator shall identify and reevaluate the hazards prior to entry.

14.6 **Pre-job Briefing and Planning Requirements**

14.6.1 **JHAs**
The first-line supervisor and program coordinator shall be involved in JHA planning and review. The entry supervisor shall ensure that the JHA reflects the site conditions and that employees working on site have been fully informed of the content of the JHA.

14.6.1.1 **Working Limits.** The JHA must reiterate the appropriate working limits of atmospheric hazards, the acceptable entry conditions of the PRCS, and the testing/monitoring frequency and timeframe per the PRCS entry permit.

14.6.1.2 **Tunnels.** If a tunnel is classified as a PRCS, the JHA shall state that entry and work activities will be in accordance with PRCS requirements. JHAs for PRCS tunnel entry and underground activities must address the specific hazards associated with distance, communication, physical demands, and rescue, in addition to all other confined space entry hazards.

14.6.2 **Pre-entry Hazard Assessment**
A hazard assessment shall be completed by the entry supervisor and reviewed by the first-line supervisor and the program coordinator prior to any entry into a confined space. No entry shall be permitted until the hazard assessment has been reviewed and discussed by all employees engaged in the activity. The hazard assessment shall identify the sequence of work to be performed in the confined space, specific hazards known or anticipated, and control measures to eliminate each hazard or reduce it to an acceptable level.

14.6.3 **Rescue Plan**
The entry supervisor, in coordination with the rescue team, shall maintain a rescue plan that has provisions for performing the rescue of individuals within a PRCS. The written plan shall be kept onsite where the PRCS work is being conducted. See paragraph 14.8.6.
14.6.3.1 Development. The rescue team (Reclamation, commercial/municipal, and/or contractor) is responsible for developing the rescue plan. The rescue team must be provided access to the spaces in which they will perform rescue prior to creating a job specific rescue plan.

14.6.3.2 Review and Verification. The first-line supervisor and entry supervisor must review the rescue plan and verify its adequacy before any entry into the space.

14.6.3.3 Training. All affected personnel shall be trained on the rescue plan.

14.7 Personal Protective Equipment (PPE)

The entry supervisor and/or the program coordinator shall determine/review the PPE needed by all employees entering the confined space, including rescue teams. Contracted rescue teams shall determine and provide their own PPE.

14.7.1 Training

PRCS participants must be trained on the reason for, proper use and fit, and limitations of PPE and other safety equipment required for entry into confined spaces.

14.7.2 Selection

PPE shall be selected according to the requirements of the job to be performed and must be documented in the JHA.

14.8 Safe Practices

14.8.1 Permit System

An entry permit is essential for assuring safety during working in PRCS with known or potential hazards. The entry permit process guides the supervisor and workers through a systematic evaluation of the space to be entered and the associated hazards.

14.8.1.1 Entry Permits. A written entry permit must be completed in full and signed by the entry supervisor prior to any PRCS entry. All permits shall include:

- Identification of space to be entered
- Purpose of entry
- Date/time and duration of the permit
- Names of authorized entrant(s), attendant(s) and the entry supervisor
- Means of identifying authorized entrants inside the PRCS
- Hazards of the PRCS and conditions that require immediate evacuation
- Measures used to isolate the PRCS and to eliminate or control PRCS hazards
• Acceptable entry conditions
• Dates and results of initial and periodic tests performed
• Names, initials, and signatures of the testers
• Rescue and emergency services contact information
• Means of contacting rescue and emergency services
• Communication procedures to be used by authorized entrants, attendant(s) and rescue team during the entry
• Equipment to be provided for complying with the PRCS program
• Additional permits issued to authorize working in the PRCS
• Reason for canceling the permit

14.8.1.2 Permit Posting. The entry permit, and any additional permits issued to authorize work in the PRCS, shall be posted at all points of entry until the work has been completed and the permit is canceled.

14.8.1.3 Permit Duration. The duration of the permit shall not exceed the time required to complete the assigned task of job identified on the permit. If a space is secured/out of service, then the permit may be open indefinitely until the job task is completed. If conditions of the space and/or work change, then employees must exit the space so it can be reevaluated.

14.8.1.4 Issuance of New Entry Permits. If a previously permitted space must have a new permit issued, then atmospheric testing must be conducted, and the results must be within acceptable limits. The entry supervisor must verify that all precautions and other measures called for on the previous permit are still in effect.

14.8.1.5 Problems or New Conditions During Entry. Any problems or new conditions encountered during an entry operation shall be noted on the respective permit(s).

14.8.1.6 Cancellation of Entry Permit. The entry supervisor must cancel entry permits when an assignment is completed or if work conditions or activities introduce a new hazard or prohibited condition. If an entry permit is cancelled prior to an assignment being completed, the confined space and hazards must be reassessed, and a new permit issued before work can recommence.

14.8.1.7 Recordkeeping. Cancelled permits shall be filed for one year in a central location and a copy sent to the program coordinator. Cancelled permits shall not be discarded until after review by the program coordinator.

14.8.2 Entry Procedure
When entry into a PRCS is necessary, the entry supervisor must review and sign the completed PRCS entry permit and initiate entry procedure.
14.8.2.1 **Additional Permits.** Any use of chemicals, welding, soldering, or cutting must be outlined in the JHA. Additional permit(s) for such work must be obtained and approved by the entry supervisor prior to entry. See 14.8.1.2 for permit posting.

14.8.2.2 **Opening a PRCS.** Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.

14.8.2.3 **Protecting PRCS Openings.** When entrance covers are removed, the PRCS opening shall be promptly guarded by railing, temporary cover, or other temporary barrier that will prevent anyone from accidentally falling through the opening and foreign objects from entering the space. Railing shall meet the applicable requirements of OSHA 1926.502 (Construction) or 1910.28 (General Industry).

14.8.2.4 **Ventilation.** All PRCS spaces shall be ventilated naturally or by mechanically forced air ventilation to ensure atmospheric hazards are reduced to a safe level for entry.

14.8.2.5 **Lighting.** Ensure appropriate lighting is used for atmospheric conditions of the space and provides adequate illumination to safely conduct work.

14.8.2.6 **Atmospheric Testing.** Atmospheric testing is required prior to entry into a PRCS. Initial air sampling must be conducted at the entrance, at various levels within the space (top, middle, bottom, and around conduits, pipes and cables), and in various areas of the space (corners and center) to determine the oxygen level and detect the presence of combustibles and toxins. A remote probe is acceptable, and intrinsically safe equipment must be used if a flammable atmosphere is suspected or present. The internal atmosphere shall be tested with a calibrated, direct-reading instrument, in the following order:

- Oxygen content
- Flammable gases and vapors
- Potential toxic air contaminants

14.8.2.6.1 **Air Monitoring.** Air monitoring shall be conducted for the duration of the entry. Periodic results shall be documented on the PRCS entry permit according to the timeframe established in the JHA. All air monitoring equipment must be calibrated and maintained according to the manufacturer’s specifications.

14.8.2.6.2 **Acceptable Limits.** The entry supervisor must evaluate the test data for hazardous atmosphere in the PRCS and verify that acceptable conditions exist for entry. The atmosphere of the PRCS is considered within acceptable limits when the conditions of Table 14-1 are maintained. Any space with an atmospheric condition recognized...
as immediately dangerous to life or health (IDLH) is not acceptable for entry.

Table 14-1. Acceptable Conditions of Hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Acceptable Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>Pre-entry: 19.5%-23.5% Working: 19.5%-23.5%</td>
</tr>
<tr>
<td>Combustible gas</td>
<td>&lt;10% of the lower explosive limit</td>
</tr>
<tr>
<td>Toxic gases and vapor substances</td>
<td>&lt;OSHA permissible exposure limit</td>
</tr>
<tr>
<td>Carbon monoxide (CO)</td>
<td>Pre-entry: ≤ 12 ppm Working limit: ≤ 50% of PEL (25 ppm)</td>
</tr>
<tr>
<td>Hydrogen sulfide (H₂S)</td>
<td>Pre-entry: ≤ 5 ppm Working limit: ≤ 50% of PEL (10 ppm)</td>
</tr>
<tr>
<td>Airborne combustible dust</td>
<td>Industry Practice (See OSHA Annotated Table Z-1 for regulatory limits)</td>
</tr>
</tbody>
</table>

14.8.3 Alternate Entry Procedure

14.8.3.1 Conditions. Alternate entry procedures may be used for entering a PRCS under the following conditions:

14.8.3.1.1 Hazards. The entry supervisor, in coordination with the program coordinator, can demonstrate that the only hazard is an actual or potential hazardous atmosphere.

14.8.3.1.2 Controls. The entry supervisor, in coordination with the program coordinator, can demonstrate that continuous forced air ventilation alone is enough to maintain that the permit space is safe for entry.

14.8.3.1.3 Monitoring Data. Monitoring data must support the above demonstrations and be made available to each entrant. If an initial entry into the PRCS is necessary to obtain this data, the entry shall be performed in compliance with a PRCS permit.

14.8.3.2 Entrance Covers. Conditions that make it unsafe to remove an entrance cover shall be eliminated before the cover is removed. When the cover is removed, the opening shall be promptly guarded with a barrier that will prevent falling through the opening and falling objects from entering the space.

14.8.3.3 Pre-Entry Testing. Prior to entering, the internal atmosphere of the space shall be tested with calibrated direct-reading instruments, for oxygen content, flammable gases and vapors, and for potential toxic air contaminants, in that order.

14.8.3.4 Ventilation. Continuous forced air ventilation shall be used to eliminate any hazardous atmosphere. Ventilate the immediate areas where entrants are or will be...
and continue until all entrants have exited the space. Air supply shall be from a clean source and not add to hazards in the space. Periodically test the atmosphere to ensure ventilation is preventing accumulation of hazardous atmosphere.

14.8.3.5 **Hazards.** If hazardous atmosphere is detected during entry, entrants shall leave the space immediately and the space shall be reevaluated to determine the source and appropriate controls for any subsequent entry. No hazards, such as potential engulfment or serious safety hazards, other than actual or potential hazardous atmosphere, may exist in the space. Employees shall not enter the space until it is demonstrated for the program coordinator and entry supervisor that no other known hazards exist, and adequate hazard controls have been implemented.

14.8.3.6 **Controls.** Employees shall not enter the space until it is demonstrated for the entry supervisor that the air ventilation alone maintains a safe atmosphere for entry. Physical hazards that are not locked out, removed, etc., are considered eliminated.

14.8.3.7 **Methods.** Methods for satisfying the above demonstration requirements may include, but are not limited to, appropriate air changes, smoke tube testing, air monitoring data, and exposure data.

14.8.3.8 **Monitoring and Results.** Air monitoring must be conducted before entry and while ventilating the space. Monitoring results must be documented prior to entry and periodically as mentioned in the JHA and as needed for the job task being performed within the space. Results must be documented in the alternate entry verification.

14.8.3.9 **Entrants.** Entrants must be trained and qualified both to serve as PRCS entrants and use air testing and monitoring equipment.

14.8.3.10 **Verification.** The entry supervisor must prepare and sign an alternate entry verification to certify that the conditions for alternate entry have been met. The verification statement must identify the space, the purpose of the entry, the time of entry, and the entrants.

14.8.3.11 **Posting and Archiving.** The verification statement must be posted at the point of entry and must be kept in the program coordinator’s office after the entry is completed.

14.8.4 **Reclassification of a PRCS**
A PRCS that does not have an actual or potential hazardous atmosphere may be reclassified as a non-permit required confined space if all other hazards within the space can be eliminated without entry into the space. If the space must be entered to eliminate the
non-atmospheric hazards, this must be done under permit before the space can be reclassified.

14.8.4.1 **Space Conditions.** Controlling atmospheric hazards through forced-air ventilation is not considered to be elimination. Conditions in the space shall be periodically verified and documented. If hazards arise within the reclassified space, each employee must exit, and the entry supervisor must reevaluate the space to determine whether the space must be upgraded to a PRCS.

14.8.4.2 **Documentation.** The entry supervisor must document the basis for determining that all the hazards in the PRCS have been eliminated, through a certification that contains the date, location of the space, a description of how the hazards have been eliminated, and the entry supervisor’s signature.

14.8.4.3 **Duration.** The certification shall be made available to each employee entering the space and is valid for the duration of the work task. The document must be kept in the program coordinator’s office for one year after the entry has been completed.

14.8.5 **Evacuation**
Evacuation is necessary if the attendant detects a prohibited condition, a behavioral effect on an entrant from exposure to a hazard, or a situation occurs outside the space that could endanger the entrant(s). Evacuation is also necessary if the attendant cannot safely and effectively perform their duties.

14.8.6 **Provisions for Rescue**
All PRCS entry permits must include a plan for rescuing the entrants; see paragraph 14.6.3. The rescue plan shall meet the tiered rescue modes and times (see Table 14-2) set by National Fire Protection Association (NFPA) 350, *Guide for Safe Confined Space Entry and Work*, paragraph 10.1.3.4 (2019 edition). Rescue teams shall be a designated group of employees or a commercial or municipal service contracted to provide rescue services.

14.8.6.1 **Rescue Response Modes.** The degree and rapidity of response must consider both the anticipated hazards of the space and the technical aspects of moving an ill or injured entrant to a stable environment. Rescue capabilities shall be evaluated by the program coordinator and entry supervisor to ensure they are appropriate for the potential complexity and response. If an entrant becomes incapacitated and requires extraction, the rescue team must be capable of response and entry within the times listed in Table 14-2, Rescue Times by Response Mode.
Table 14-2. Rescue Times by Response Mode

<table>
<thead>
<tr>
<th>Response Mode</th>
<th>Time to Site</th>
<th>Time for Rescue Setup and Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>5 minutes</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Tier 2</td>
<td>On-site</td>
<td>12-15 minutes</td>
</tr>
<tr>
<td>Tier 3</td>
<td>On-site</td>
<td>2 minutes</td>
</tr>
</tbody>
</table>

14.8.6.2 Retrieval Systems for Non-Entry Rescue. Mechanical Retrieval systems shall be available and ready when an authorized person enters a PRCS, unless such equipment increases the overall risk of entry or the equipment would not contribute to the rescue of the entrant.

14.8.6.2.1 Configuration. Retrieval systems shall include a lifting device, or anchor, chest or full-body harness, wristlets, if appropriate, and a retrieval line attached at the center of the entrant’s back near shoulder level or above the head. If harnesses are not feasible or would create a greater hazard, wristlets may be used instead. Retrieval systems shall be included in the rescue plan.

14.8.6.2.2 Installation/Operation. The retrieval line shall be firmly fastened outside the space so that rescue can begin as soon as anyone is aware that retrieval is necessary. A mechanical device shall be available to retrieve personnel from vertical confined spaces more than five feet deep.

14.8.6.3 Employee Rescue Teams. Rescue teams shall be a designated group of employees who have been trained, evaluated, and equipped to enter the PRCS to rescue an incapacitated entrant. Prospective employee rescue teams must be evaluated per PSHA 1910.146(k) and demonstrate proficiency with rescue-related tasks and equipment, while rescuing entrants from the specific PRCS.

14.8.6.3.1 Pre-Entry Review. Before the entry, the entry supervisor must verify both that an adequate number of rescue team members are immediately available to respond to an emergency and that all rescue team members have current training.

14.8.6.3.2 Exercise the Rescue Plan. Rescue teams shall exercise the rescue plan by practicing rescue from the actual PRCS or a representative PRCS at least once every 12 months. Representative PRCS shall, with respect to opening, size configuration, and accessibility, simulate the types of PRCS from which actual emergency rescue is to be performed.

14.8.6.3.3 Rescue Summons. The procedure for summoning the rescue response must be established on the entry permit, and the
attendant(s) must have the communication equipment and be trained in the procedure for summoning the rescue service.

14.8.6.4 Non-Reclamation Rescue Service. Prospective rescue services must be evaluated per OSHA 1910.146(k) prior to selection. Additional rescue service evaluation criteria are available in OSHA 1910.146 App F, Rescue Team or Rescue Service Evaluation Criteria.

14.8.6.4.1 Pre-Entry Review. The entry supervisor, in coordination with the program coordinator, must (1) verify the selected rescue service is qualified to perform the rescue, (2) inform the rescue service of the hazards associated with the confined space, and (3) provide the rescue service access to all PRCS that they will rescue from so that they are able to develop appropriate rescue plans and practice rescue operations.

14.8.6.4.2 Rescue Summons. The procedure for summoning the rescue response must be established on the entry permit, and the attendant(s) must have the communication equipment and be trained in the procedure for summoning the rescue service.

14.8.7 Non-Reclamation Entrants.

14.8.7.1 Coordination of Work. If confined spaces are to be entered by contractors, either alone or in conjunction with Reclamation employees, the project manager/COR in coordination with program coordinator is responsible for coordinating the work. When both Reclamation and contractor personnel are working in or near PRCS, entry operations must be coordinated to avoid endangering any personnel.

14.8.7.2 Hazard Information. The project manager/COR in coordination with program coordinator shall inform all contractors performing work in PRCS of any potential health or other safety hazards of the space.

14.8.7.3 Debrief. The project manager/COR in coordination with program coordinator shall debrief with the contractor at the conclusion of the entry operations, including a review of any hazards confronted or created during entry operations and safety procedures taken.

14.8.8 Isolation and Lockout/Tagout (LOTO) Safeguards

All energy sources that are potentially hazardous to the PRCS entrants shall be secured, relieved, disconnected, and/or restrained before entry. Equipment systems or processes shall be locked out and/or tagged out as required by the HECP prior to PRCS entry. Any removal of locks, tags, or other protective measures shall be done in accordance with the facility HECP or LOTO Program.
14.8.9 **Ingress and Egress Safeguards**

Means for safe entry and exit shall be provided for confined spaces and PRCS. Each entry and exit point shall be evaluated by the entry supervisor and/or program coordinator to determine the most effective methods and equipment that will enable employees to safely enter and exit the space. See paragraph 14.8.6 for provisions for rescue and standards for retrieval systems for emergency egress.

14.9 **Communication Requirements**

14.9.1 **PRCS Signage**

All PRCS access points that could be inadvertently or intentionally entered shall have posted danger signs that identify the spaces as a PRCS. The danger signs shall contain warning language the entry is prohibited except to authorized personnel and that a permit is required before entry. Danger Signs shall be maintained in a legible condition.

14.9.2 **Entry Communication**

PRCS attendants must have an established means of communication with all entrants, rescue team/services, and emergency services. The means of communication must be stated in the JHA and entry permit.

14.10 **Definitions**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable entry conditions</td>
<td>The conditions that must exist in a PRCS to allow entry and to ensure that employees can safely enter and work within the space.</td>
</tr>
<tr>
<td>Alternate entry</td>
<td>A PRCS in which the potential or actual atmospheric hazards can be eliminated prior to entry or can be controlled with continuous mechanical forced-air ventilation or reliable natural ventilation.</td>
</tr>
<tr>
<td>Attendant</td>
<td>The individual stationed outside the PRCS who monitors the authorized entrants and performs other duties as assigned to maintain the safety of entrants.</td>
</tr>
<tr>
<td>Authorized entrant</td>
<td>An employee who is authorized by permit to enter a PRCS.</td>
</tr>
<tr>
<td>Confined space</td>
<td>A space that is sized and configured to allow an employee to bodily enter and perform assigned work, has limited or restricted means for entry or exit, and is not designed for continuous employee occupancy.</td>
</tr>
<tr>
<td>Control measures</td>
<td>A system, device, or action that controls or prevents the introduction of physical hazards into the confined space.</td>
</tr>
</tbody>
</table>
### Emergency
Any occurrence or event internal or external to the PRCS (including any failure of control measures or monitoring equipment) that could endanger entrants.

### Engulfment
The surrounding and/or effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated and 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
The action by which a person has significantly exposed themselves to the hazards of the space or passes through an opening to a PRCS. Entry is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the PRCS.

### Entry permit (Permit)
The written or printed document that allows and controls entry into a permit space. The permit is granted by the employer and contains information such as the type of space to be entered, the purpose of entry, the names of entrants, etc.

### Entry supervisor
The person responsible for (1) determining if acceptable entry conditions are present at a permit space where entry is planned, (2) authorizing entry and overseeing entry operations, and (3) terminating entry when prohibited conditions develop.

### Hazardous atmosphere
An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness.

### Hot work permit
The written authorization to perform operations capable of providing a source of ignition, such as riveting, welding, cutting, burning, and heating.

### Immediately dangerous to life or health (IDLH)
Any condition that poses an immediate threat to life, that would cause irreversible adverse health effects, or that would interfere with an employee’s ability to escape unaided from a permit space. NOTE: Some materials may produce immediate transient effects that, even if severe, pass without medical attention but are followed by sudden, possibly fatal collapse from 12 to 72 hours after exposure. The victim feels normal after recovering from the transient effects until collapse. Such materials in hazardous quantities are immediately dangerous to life or health.

### 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; or blocking or disconnecting all mechanical linkages.

### Lower explosive limit
The minimum concentration of vapor in air below which propagation of a flame does not occur in the presence of an ignition source.
<table>
<thead>
<tr>
<th>Mode</th>
<th>Means of exposure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-permit required confined space</td>
<td>A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazards capable of causing death or serious physical harm.</td>
</tr>
<tr>
<td>Permissible exposure limit</td>
<td>The maximum concentration of a hazardous chemical that a worker can be exposed to as determined by an eight-hour time-weighted average.</td>
</tr>
<tr>
<td>Permit system</td>
<td>The facility’s written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.</td>
</tr>
</tbody>
</table>
| Permit-required confined space (PRCS) | A confined space that has one or more of the following characteristics and therefore requires entrants to be authorized by permit:  
  • Contains or has potential to contain a hazardous atmosphere  
  • Contains a material that has the potential for engulfing an entrant  
  • Has an internal configuration that could cause an entrant to 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 serious safety or health hazard (chemical, thermal, animal, mechanical, etc.) |
| Program coordinator        | A person that has the appropriate training and/or experience to manage, coordinate, implement, and evaluate specific program elements and/or permit-required confined space requirements. |
| Prohibited condition       | Any condition in a permit space that is not allowed by the permit during the period when entry is authorized. |
| Rescue services            | The personnel designated to rescue employees from permit spaces. |
| Retrieval system           | The equipment (including a retrieval line, chest or full-body harness and/or wristlet, 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 to a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space. NOTE: Testing enables Reclamation 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. |
| Tier 1 rescue response mode | A type and timing of rescue in which there are no recognized hazards but technical rescue for extraction is required when a worker becomes incapacitated. |
### Tier 2 rescue response mode
A type and timing of rescue in which there are non-life-threatening hazards to a worker that require rapid intervention and technical rescue.

### Tier 3 response mode
A type and timing of rescue in which there are life-threatening hazards to a worker that require immediate intervention and technical rescue.

### 14.11 References


