DRAFT RECLAMATION SAFETY AND HEALTH STANDARDS
RELEASE
Comments on this draft release must be submitted to ssummerhays@usbr.gov by December 15, 2019.

Background and Purpose of the Following Draft Reclamation Safety and Health Standards (RSHS)

The RSHS are being updated by the Bureau of Reclamation Safety and Occupational Health Office to reflect new guidance from Reclamation, the Department of the Interior, and the Occupational Safety and Health Administration. This public release is intended to provide the public an opportunity to comment on each updated section in draft form. This process will enhance transparency and eliminate potential confusion about Reclamation’s safety standards.

The RSHS are incorporated into the Reclamation Manual Directive and Standard, Occupational Safety and Health Directive – General (SAF 01-01). The Reclamation Manual is used to clarify program responsibility and authority and to document Reclamation-wide methods of doing business. All requirements in the Reclamation Manual are mandatory for Reclamation employees.

See the following pages for the draft RSHS.
Section 14

Permit-Required Confined Spaces

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

14.2 General Requirements
Per the standards set in this section, a confined space program must include a confined space inventory, a permitting system, entry requirements, atmospheric testing requirements, rescue procedures, and training. Engineering and administrative controls shall be implemented to reduce confined space hazards whenever feasible. Tunnels are classified as confined spaces and usually as permit-required confined spaces. Entry into tunnels and all underground activities must comply with the requirements of tunnel and shaft construction and be conducted in accordance with the requirements of the PRCS program.

14.3 Responsibilities

14.3.1 Regional Safety Manager
14.3.1.1 Provide technical support for implementing the PRCS program.

14.3.2 Area Office Manager
14.3.2.1 Ensure all affected employees and contractors are trained on and comply with this program.
14.3.2.2 Provide necessary resources to implement and maintain the procedures in this program.
14.3.2.3 Select a Program Coordinator.
14.3.2.4 Support the authority of the Program Coordinator to implement the PRCS program.
14.3.2.5 Ensure there is an adequate rescue team for any confined space entry and allow work time for training and practice.

14.3.3 Program Coordinator
14.3.3.1 Implement and update the written confined space program and procedures to ensure program effectiveness.
14.3.3.2 In coordination with the Regional Industrial Hygienist, recommend/purchase equipment for atmospheric testing of confined spaces.

14.3.3.3 Conduct surveys to identify, inventory/document, and assess all potential PRCS. The written inventory must list all confined spaces, specify whether they are PRCS, and document associated and/or potential hazard(s) that must be eliminated or controlled before entry.

14.3.3.4 Coordinate with facility supervisors to ensure that a danger sign is placed at each entrance to each PRCS.

14.3.3.5 Periodically review and update the list of PRCS-trained employees.

14.3.3.6 Provide and/or coordinate training for entry supervisors, attendants, and entrants.

14.3.3.7 Conduct/coordinate training for air monitoring of PRCS.

14.3.3.8 Review the written PRCS program as well as the canceled permits on an annual basis to ensure that the program is adequate and up to date.

14.3.3.9 In coordination with the Entry Supervisor, investigate any near miss or incident in a confined space in which a condition outside the scope of the permit arises.

14.3.3.10 Coordinate on-site rescue team training and practice.

14.3.4 First-Line Supervisor

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

14.3.4.2 Verify that any employee/contractor entering a confined space has the appropriate training prior to their entering the space.

14.3.4.3 Confirm adequate engineering and administrative controls for confined space hazards are provided, working properly, and in good repair.

14.3.4.4 Ensure job hazard analyses (JHAs) reflect potential PRCS hazards and document controls for the hazards.

14.3.4.5 Ensure the Program Coordinator is included in the review for all JHAs involving PRCS.

14.3.4.6 Monitor all canceled confined space entry permits and ensure they are forwarded to the Program Coordinator upon completion of the job/task.

14.3.5 Entry Supervisor

14.3.5.2 Know space hazards that may be faced during entry, including information on the mode of exposure, signs or symptoms of exposure.
14.3.5.3 Ensure all entry permits are correctly and thoroughly completed.

14.3.5.4 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.

14.3.5.5 Authorize entry and oversee entry operations.

14.3.5.6 Terminate entry and cancel the permit when either the permitted entry operations have been completed or an unpermitted condition arises in or near the permit space.

14.3.5.7 Optionally serve as an attendant if trained and equipped for that role.

14.3.5.8 Ensure measures are in place to remove unauthorized personnel who enter or attempt to enter the permit space during entry operations.

14.3.5.9 Verify that necessary information on chemical hazards and safety data sheets (SDS) are accessible at the worksite for the employees and rescue team.

14.3.5.10 Before authorizing entry into a PRCS, verify the capability and availability of rescue services and the means of summoning them.

14.3.5.12 Ensure that rescue team members have current certification in first aid and cardiopulmonary resuscitation (CPR).

14.3.5.14 In coordination with the Program Coordinator, investigate any near miss in a confined space or any incident in which a condition outside the scope of the permit arises.

14.3.5.15 Maintain a rescue plan that has provisions for conducting the rescue of individuals within a PRCS for each PRCS entry.

14.3.6 Attendant

14.3.6.1 Know the hazards that may be faced 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 Continuously maintain an accurate count of and establish proper means to identify the authorized entrants in the PRCS.

14.3.6.3 Maintain communication with the authorized entrants as necessary to monitor entrant status and alert entrants of the need to evacuate.

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

14.3.6.6 Warn unauthorized persons to stay away from the PRCS or to exit immediately if they have accidentally entered the space.

14.3.6.7 Perform only non-entry rescues.

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

14.3.6.9 Do not enter the PRCS under any circumstances, including for rescues.

14.3.7 Entrant

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

14.3.7.2 Use appropriate personal protective equipment (PPE).

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

14.3.7.4 Exit from the permit space 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, or (4) an evacuation alarm is activated.

14.3.8 Rescue Team

14.3.8.1 Practice permit space rescues at least once every 12 months, by means of simulated rescue of dummies, manikins, or actual persons from actual permit spaces or from representative permit spaces.

14.3.8.2 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 requirements of paragraph 14.8.6.

14.3.8.3 Receive emergency response training as well as all training required of authorized entrants to PRCS.

14.3.8.4 Maintain current certification in first aid and CPR.

14.3.9 Project Manager

14.3.9.1 Ensure that any contractors hired to enter a PRCS provide evidence of current training for all individuals that will be involved in the work.
14.3.9.2 Confirm that the contractor provides equipment, PPE, and tools necessary to complete PRCS work.

14.3.9.3 Ensure that the contractor provides rescue services and that, prior to starting work, the contractor practices permit space rescues by means of simulated rescue operations from the actual permit spaces or representative permit spaces.

14.3.9.4 Notify the Program Coordinator of all contractor PRCS entries before the contractor starts work.

14.4 Training Requirements

14.4.1 Initial
Employees working with PRCS must be trained prior to performing any related duties. Training must be provided for those working as entrants, attendants, entry supervisors, and rescuers in accordance with the duties stated in this section and OSHA 1910.146, Permit-Required Confined Spaces. The initial training must cover the following topics:

- Confined space regulations and definitions
- Confined space entry hazards, both general and specific to work site
- 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
- Communications
- Ventilation
- 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 may be assigned additional confined space duties 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 supervisor requests retraining

14.4.3 Recordkeeping
PRCS-trained personnel must be tracked in the agency system of record.
14.5 Hazard Identification, Assessment, and Safety Measures

14.5.1 Determination of Confined Spaces and PRCS
A space must first be identified as a confined space and then evaluated to determine if it is a PRCS. A confined space must be sized and configured to allow an employee to bodily enter and perform assigned work, must have limited or restricted means for entry or exit, and must not be designed for continuous employee occupancy. A confined space is classified as "permit required" if it contains, or has a potential to contain, a hazardous atmosphere, a material which has the potential to engulf an entrant, an internal configuration that could cause an entrant to be trapped or asphyxiated, or any other recognized serious safety or health hazard.

14.5.2 Survey of Confined Spaces and PRCS
The Program Coordinator, or their designee, shall conduct a survey of the worksite 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 site must maintain an inventory of confined spaces and PRCS that identifies each space and its associated hazards. Information in the inventory shall be communicated to personnel by the Program Coordinator and up to date labels on PRCS.

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 will be routed to all affected personnel by the Program Coordinator.

14.5.5 Labeling of Confined Spaces
Confined spaces shall be labeled accordingly. PRCS must be clearly labeled with a danger sign for those who work around and/or may be unfamiliar with the space.

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

- Engineering Controls (e.g., ventilation)
- Administrative Controls (e.g., rotating workers, reducing the amount of worker exposure, and housekeeping)
- PPE
14.5.6.1 Lockout/Tagout Requirements. All energy sources of the confined space must be locked and tagged out and/or clearance applied according to the facility Hazardous Energy Control Program (HECP). See paragraph 14.8.8.

14.5.6.2 PPE Requirements. See paragraph 14.7 and RSHS Section 8.

14.5.7 Hazard Evaluation
The Entry Supervisor and/or the Program Coordinator shall identify and reevaluate hazards when changes in activities or other physical or environmental conditions could adversely alter the conditions of the space.

14.6 Pre-job Briefing and Planning Requirements

14.6.1 JHAs
The First-Line Supervisor, Program Coordinator, and Entry Supervisor must be involved in JHA planning and review. The Entry Supervisor will ensure that the JHA planning reflects the site conditions and that employees and contractors working on site has been fully informed of the content of the JHA.

14.6.1.1 Working Limits. The JHA must define the appropriate working limits of atmospheric hazards of the PRCS and the continuous testing timeframe for the PRCS entry permit.

14.6.1.2 Tunnels. JHAs for tunnel entry and underground activities must address the specific hazards associated with distance, communication, physical demands, and emergency rescue in addition to all other confined space entry hazards.

14.6.2 Pre-entry Hazard Assessment
A hazard assessment shall be completed through the JHA process and reviewed by the Job 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 should 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 shall maintain a rescue plan that has provisions for conducting 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, “Provisions for Rescue.”
14.6.3.1 Development. The rescue team (Reclamation, commercial/municipal, and/or contractor) is responsible for developing the rescue plan. They must be provided access to the spaces in which they will perform rescue to create an appropriate rescue plan.

14.6.3.2 Review and Verification. The Program Coordinator, 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.

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

14.7 PPE

The Entry Supervisor and/or the Program Coordinator shall determine the PPE needed by all personnel entering the confined space, including rescue teams.

14.7.1 Selection

PPE shall be selected according to the requirements of the job to be performed and must meet the specifications of applicable standards.

14.7.2 Training

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

14.8 Safe Practices

14.8.1 Permit System

An entry permit is essential for assuring safety during work in PRCS with known hazards or with potentially hazardous atmospheres. 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 entry 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 permit space,
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- hazards of the permit space and conditions that require immediate evacuation,
- measures used to isolate the permit space and to eliminate or control permit space hazards,
- acceptable entry conditions,
- dates and results of initial and periodic tests performed,
- names, initials, or 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 confined space program,
- additional permits issued to authorize work in the permit space, and
- reason for canceling the permit.

14.8.1.2 Permit Posting. The entry permit shall be posted conspicuously near the work location until the work has been completed and the permit is canceled.

14.8.1.3 Permit Duration. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit. If a space is secured/out of service, the permit may be open indefinitely until the job task is completed, unless the conditions of the space change in such a way that it is no longer a reclassified space.

14.8.1.4 Issuance of New Entry Permits. If a previously permitted space must have a new permit issued, 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) so that appropriate revisions to the confined space permit program can be made.

14.8.1.6 Cancelation 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. 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.

14.8.1.6.1 RECORDKEEPING. Canceled permits will be filed for one year in a central location and a copy sent to 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 procedures.

14.8.2.1 Safety Procedures. Safety procedures will be strictly adhered to during any PRCS entry.
14.8.2.2 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 and Program Coordinator prior to entry.

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

14.8.2.4 Protecting PRCS Openings. When entrance covers are removed, the PRCS opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent anyone from accidently falling through the opening and foreign objects from entering the space.

14.8.2.5 Ventilation. All confined spaces shall be ventilated naturally or mechanically by forced-air ventilation to ensure atmospheric hazards are reduced or eliminated.

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

14.8.2.7 Atmospheric Testing. Atmospheric testing is required prior to entry into a PRCS. The internal atmosphere shall be tested with a calibrated, direct-reading instrument for (in order)

- oxygen content,
- flammable gases and vapors, and
- potential toxic air contaminants.

14.8.2.7.1 EQUIPMENT TRAINING. The Program Coordinator is responsible for coordinating training for employees on how to operate the air testing and monitoring equipment (e.g., gas detectors) used to meet the requirements of the following paragraphs.

14.8.2.7.2 SAMPLING. Initial sampling must be conducted at the entrance, at various levels within the space (top, middle, bottom, and around conduits, pipes, or cables), and in various areas of the space (corners and center). Sampling shall start at the top of the space to detect the presence of lighter-than-air combustibles and toxins. A remote probe may be used, and intrinsically safe equipment must be used if a flammable atmosphere is suspected or present.

14.8.2.7.3 AIR MONITORING. Air monitoring must be conducted for the duration of the entry by having at least one of the entrants wear a gas detection monitor while inside the PRCS. 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.
14.8.2.7.4 ACCEPTABLE LIMITS. The Entry Supervisor must evaluate the test data for hazardous atmosphere in the permit space and verify that acceptable conditions exist for entry. The atmosphere of a PRCS is considered within acceptable limits when the conditions in 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>
<thead>
<tr>
<th>Hazard</th>
<th>Acceptable Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oxygen</strong></td>
<td>Pre-entry: 20.5%–23.5%</td>
</tr>
<tr>
<td></td>
<td>Working: 19.5%–23.5%</td>
</tr>
<tr>
<td><strong>Combustible gas</strong></td>
<td>&lt; 10% of the lower explosive limit</td>
</tr>
<tr>
<td><strong>Toxic gases and vapor substances</strong></td>
<td>&lt; OSHA permissible exposure limit</td>
</tr>
<tr>
<td><strong>Carbon monoxide (CO)</strong></td>
<td>Pre-entry: ≤12 ppm</td>
</tr>
<tr>
<td></td>
<td>Working limit: Determined by JHA</td>
</tr>
<tr>
<td><strong>Hydrogen sulfide (H₂S)</strong></td>
<td>Pre-entry: ≤5 ppm</td>
</tr>
<tr>
<td></td>
<td>Working limit: Determined by JHA</td>
</tr>
<tr>
<td><strong>Airborne combustible dust</strong></td>
<td>Obscures vision no more than 5 feet</td>
</tr>
</tbody>
</table>

14.8.3 Alternate Entry Procedure

Under certain conditions, PRCS may be entered under the Alternate Entry Procedure. For example, if the Program Coordinator can demonstrate with monitoring and inspection data that the only hazard is an actual or potential hazardous atmosphere that can be made safe for entry using continuous forced air ventilation, standard PRCS entry procedure is not required.

14.8.3.1 Hazards. No hazards, such as potential engulfment or serious safety hazards, other than actual or potential hazardous atmosphere may exist in the space. Employees cannot enter the space until it is demonstrated that no other hazards exist.

14.8.3.2 Controls. The atmospheric hazards will be controlled mechanically by continuous forced-air ventilation. Employees cannot enter the space until it is demonstrated for the Program Coordinator and Entry Supervisor that the forced-air ventilation alone maintains a safe atmosphere for entry.

14.8.3.3 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.
14.8.3.4 **Data.** Monitoring data must support the above demonstrations. If an initial entry into the PRCS is necessary to obtain the data, the entry shall be performed in compliance with the PRCS permit.

14.8.3.5 **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 directed by the JHA and as needed for the job task being performed within the space. Results must be documented in the alternate entry certification.

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

14.8.3.7 **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.

**14.8.3.7.1 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 Conditions.** Atmospheric hazards controlled through forced-air ventilation are not considered to be eliminated. Physical hazards that are locked out, removed, etc., are considered eliminated. 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 an Alternate Entry or a PRCS.

**14.8.4.2 Documentation.** The Entry Supervisor must document that all the hazards in the permit space have been eliminated. The document must contain the date, location of the space, a description of how the hazards have been eliminated, and the Entry Supervisor’s signature.

**14.8.4.2.1 POSTING AND ARCHIVING.** The document must be posted at the point of entry and is valid for one work shift. 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 outside the space that could endanger the entrant(s). Evacuation is also necessary if the attendant cannot effectively and safely perform their duties.

14.8.6 Provisions for Rescue
All confined space 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 set by National Fire Protection Association (NFPA) standard 350, Guide for Safe Confined Space Entry and Work, paragraph 10.1.3.4 (2019 edition).

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 to ensure they are appropriate for the potential complexity of the response. Should a worker become incapacitated and require extraction, the rescue team must be capable of response and entry within the times listed in Table 14-2.

<table>
<thead>
<tr>
<th>Response Mode</th>
<th>Response 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. Retrieval systems shall be available and ready when an authorized person enters a permit space, 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 chest or full-body harness 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.

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 trained and equipped to enter the confined space to rescue an incapacitated entrant.

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, which must include practice rescuing from the space to be entered or a representative space within the preceding 12 months.

14.8.6.3.2 Rescue Summons. The procedure for summoning the rescue response must be established on the entry permit, and the attendant must have the means (i.e., communication equipment and capability) to issue the summons.

14.8.6.4 Non-Reclamation Rescue Service. A commercial or municipal rescue service used must be certified in PRCS rescue and evaluated for response time and rescue capability.

14.8.6.4.1 Pre-entry Review. The Entry Supervisor, in coordination with the Program Coordinator, must (1) verify that 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 permit spaces that they will rescue from so that they may develop appropriate rescue plans and practice rescue operations.

14.8.6.4.2 Rescue Summons. The attendant must have the means (i.e., communication equipment and capability) and be trained in the procedure for summoning the rescue service.

14.8.7 Non-Reclamation Entrants

Contractors and their employees must not be allowed to enter a PRCS until the provisions of this confined space/PRCS program have been satisfied.

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 is responsible for coordinating the work. When both Reclamation and contractor personnel are working in or near PRCS, their entry operations must be coordinated to avoid endangering any personnel.

14.8.7.2 Hazard Information. The Program Coordinator or designee shall inform all contractors performing work in PRCS of any potential health or other safety hazards of that space.
14.8.7.3 **Debrief.** The Program Coordinator or designee shall debrief with the contractor at the conclusion of the entry operations, reviewing any hazards confronted or created during entry operations.

14.8.8 **Isolation and Lockout/Tagout (LOTO) Safeguards**

All energy sources that are potentially hazardous to 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 per OSHA 1910.147.

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 **Warning Signs**

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

14.9.2 **Entry Communication**

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

14.10 **Definitions**

<table>
<thead>
<tr>
<th>Acceptable entry conditions</th>
<th>The conditions that must exist in a permit-required confined space to allow entry and to ensure that employees can safely enter and work within the space.</th>
</tr>
</thead>
<tbody>
<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.</td>
</tr>
</tbody>
</table>
### Attendant
The individual stationed outside of one or more PRCS who monitors the authorized entrants and performs other duties as assigned to maintain the safety of entrants.

### Authorized entrant
An employee who is authorized by permit to enter a PRCS.

### Confined space
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.

### Control measures
A system, device, or action that controls or prevents the introduction of physical hazards into the confined space.

### 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 passes through an opening into 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.

**Mode**
Means of exposure.

**Non-permit required confined space**
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.

**Permissible exposure limit**
The maximum concentration of a hazardous chemical that a worker can be exposed to as determined by an eight-hour time-weighted average.

**Permit system**
The facility's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

**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.

Self-rescue
Unaided escape from a permit space when exposed to a hazard.

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 rescue 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


California Occupational Safety and Health Administration. Subchapter 7, General Industry Safety Orders, Section 5157, “Permit-Required Confined Spaces.”

