

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 Bureau of 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 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) which must be eliminated or controlled before entry. Shall coordinate with facility staff to ensure a danger sign is placed at every entrance to PRCS.

- 14.3.3.4** Shall review and update the list of PRCS trained employees.
- 14.3.3.5** Shall provide and/or coordinate training for entry supervisors, attendants, and entrants.
- 14.3.3.6** Shall provide and/or coordinate training for air monitoring of PRCSs.
- 14.3.3.7** Shall coordinate with facility staff to review the PRCS program and cancelled permits on an annual basis to ensure the program is adequate and up to date.
- 14.3.3.8** Shall coordinate with first-line supervisors to review job hazard analyses (JHAs) involving PRCS.
- 14.3.3.9** Shall, in coordination with the entry supervisor/first-line supervisor, investigate any near misses or incidents in a confined space or when a condition outside the scope of the permit arises.
- 14.3.3.10** 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 all affected employees comply with the elements of this program.
- 14.3.4.2** Shall provide/coordinate training for employees entering or working around PRCSs, including the on-site rescue team. Verify 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 each.
- 14.3.4.6** Shall ensure the program coordinator is included in the review of 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 and retain all canceled PRCS entry permits and provide to the program coordinator.

14.3.5 Entry Supervisors

- 14.3.5.1** Shall assess the PRCS and understand/convey any hazards the entry team may face, 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 all tests have been completed and documented, test results are within the acceptable entry conditions, and all procedures and equipment are in place.
 - 14.3.5.4** Shall verify 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 which 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 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 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 or incident in a confined space, or when 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 entry.
- 14.3.6 Attendants**
- 14.3.6.1** Shall understand the hazards present or likely to become present during entry, including information on the mode, signs or symptoms, and consequences of 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 authorized entrants in the PRCS.
- 14.3.6.3** Shall maintain communication with authorized entrants to monitor status and alert entrants of the need to evacuate.
- 14.3.6.4** Shall continuously monitor activities inside and outside the confined space to determine if it is safe for entrants.
- 14.3.6.5** Shall summon rescue and other emergency services immediately upon determining authorized entrants may need assistance to escape from PRCS hazards.
- 14.3.6.6** Shall warn unauthorized persons to stay out of or exit immediately, if they have entered, the PRCS.
- 14.3.6.7** Shall not perform any other duties which will interfere with the primary duty to monitor and protect 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 present or likely to become present during entry, including information on the mode, signs or symptoms, and consequences of 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 the PRCS as quickly as possible whenever (1) an order to evacuate is given by the attendant or 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) communication is lost, or (5) an evacuation alarm is activated.

14.3.8 Project Managers/Contracting Officers Representative (COR)

- 14.3.8.1** Shall ensure any contractors hired to enter a PRCS provide evidence of current training for all individuals involved in the work.
- 14.3.8.2** Shall inform contractors performing work in PRCSs of any potential health or other safety hazards.
- 14.3.8.3** Shall confirm the contractor provides equipment, PPE, and tools necessary to complete PRCS work.

- 14.3.8.4** Shall ensure the contractor provides rescue services and prior to starting work, the contractor practices rescue 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 work starts.
- 14.3.8.6** Shall debrief contractors 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 persons from actual PRCSs or from representative PRCSs.
- 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 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 and all training required of authorized entrants to PRCSs.
- 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; and
- 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; and/or
- The employee was involved in a near miss or incident related to PRCS work.

14.4.3 Recordkeeping

All Reclamation training records shall be kept in the Department of the Interior (DOI) official repository.

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 has all three characteristics below:

- Is large enough 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.

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 with the potential to engulf an entrant;
- An internal configuration causing an entrant to be trapped or asphyxiated; and/or
- Contains any other recognized serious safety or health hazard.

14.5.2 Survey of Confined Spaces and PRCS

The program coordinator shall conduct a survey to identify confined spaces and PRCSs. The purpose of the survey is to develop and maintain an inventory of those locations and/or equipment at a facility meeting the definition of a confined space or PRCS. The initial survey shall include air monitoring, when feasible, to determine 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 PRCSs identifying each space in the normal operating condition and its associated hazards. Information in the inventory, including up-to-date signs on PRCSs, shall be communicated to employees by the program coordinator.

14.5.4 Master Inventory of PRCS

A master inventory of PRCSs 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, see paragraph 14.9.1.

14.5.6 Hazard Controls

Hazard controls shall be instituted to address hazards in work processes and/or 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 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 could adversely alter conditions of the space (activities or other physical/environmental conditions), the entry supervisor and/or 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 the JHA reflects site conditions and employees working on site have been fully informed of its content.

14.6.1.1 Working Limits. The JHA must reiterate the appropriate working limits of atmospheric hazards, acceptable entry conditions, and 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 entry and work activities will be in accordance with PRCS requirements. JHAs for PRCS tunnel entry and underground activities must address 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 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, 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 with provisions for performing the rescue of individuals within a PRCS. The written plan shall be kept onsite, 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 spaces where they will perform rescue prior to creating a job specific rescue plan.

14.6.3.2 Review and Verification.

The first-line 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 program coordinator shall determine and review 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 requirements of the job 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 PRCSs with known or potential hazards. The entry permit process guides the supervisor and workers through a systematic evaluation of the space and associated hazards.

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

- Identification of space to be entered and purpose of entry;
- Date/time and duration of the permit;
- Names of authorized entrant(s), attendant(s) and entry supervisor;
- Means of identifying authorized entrants inside the PRCS;
- Hazards and conditions which require immediate evacuation;
- Measures used to isolate the PRCS and to eliminate or control hazards;
- Acceptable entry conditions;
- Dates and results of initial and periodic tests performed;
- Names, initials, and signatures of testers;
- Rescue and emergency services information and means of contact;

- Communication procedures used by authorized entrants, attendant(s), and rescue team during the entry;
- Equipment provided for complying with the PRCS program;
- Additional permits issued; and
- 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 identified. If a space is secured/out of service, the permit may be open indefinitely until the job task is completed. If conditions of the space and/or work change, employees must exit 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, atmospheric testing must be conducted, and the results must be within acceptable limits. The entry supervisor must verify all precautions and 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 complete 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 retained for one year and a copy sent to the program coordinator. Cancelled permits shall not be dispositioned 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 entry permit and initiate entry procedures.

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, see 14.8.1.2 for permit posting.

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- 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 preventing anyone from accidentally falling through the opening and/or foreign objects from entering the space. Railings shall meet applicable requirements of OSHA 1926.502 (Construction) or 1910.28 (General Industry).
- 14.8.2.4 Ventilation.** All PRCSs 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 the PRCS atmospheric conditions 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 entry. Periodic results shall be documented on the entry permit according to the timeframe established in the JHA. All air monitoring equipment must be calibrated and maintained according to manufacturer's specifications.
- 14.8.2.6.2 Acceptable Limits.** The entry supervisor must evaluate test data for hazardous atmospheres in the PRCS and verify acceptable conditions for entry exist. The atmosphere 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

Hazard	Acceptable Condition
Oxygen	Pre-entry: 19.5%-23.5% Working: 19.5%-23.5%
Combustible gas	<10% of the lower explosive limit
Toxic gases and vapor substances	<OSHA permissible exposure limit
Carbon monoxide (CO)	Pre-entry: ≤ 12 ppm Working limit: ≤ 50% of PEL (25 ppm)
Hydrogen sulfide (H ₂ S)	Pre-entry: ≤ 5 ppm Working limit: ≤ 50% of PEL (10 ppm)
Airborne combustible dust	Industry Practice (See OSHA Annotated Table Z-1 for regulatory limits)

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 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 continuous forced air ventilation alone is enough to maintain the permit space is safe for entry.

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

14.8.3.2 Entrance Covers. Conditions where it is 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 which 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 shall be tested with calibrated direct-reading instruments in the following order: for oxygen content, flammable gases and vapors, and for potential toxic air contaminants.

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 hazards. Periodically test 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. 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 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 the air ventilation alone maintains a safe atmosphere. Physical hazards 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. 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 the conditions have been met. The verification statement must identify the space, purpose of entry, time of entry, and 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 without an actual or potential hazardous atmosphere may be reclassified as a non-permit required confined space if all other hazards can be eliminated without entry. 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 elimination. Conditions in the space shall be periodically verified and documented. If hazards arise, each employee must exit and the entry supervisor must reevaluate to determine whether the space must be reclassified as a PRCS.

14.8.4.2 Documentation. The entry supervisor must document the basis for determining all hazards in the PRCS have been eliminated, through a certification which 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 job task. The document must be kept in the program coordinator's office for one year after entry has been completed.

14.8.5 Evacuation

Evacuation is necessary if the attendant detects a prohibited condition, behavioral effect on an entrant from exposure to a hazard, a situation occurs outside the space which could endanger the entrant(s), or 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 contracted commercial/ municipal service.

14.8.6.1 Rescue Response Modes. The degree and rapidity of response must consider both anticipated hazards of the space and 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

Response Mode	Response Time to Site	Time for Rescue Setup and Entry
Tier 1	5 minutes	15 minutes
Tier 2	On-site	12-15 minutes
Tier 3	On-site	2 minutes

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 would not contribute to the rescue of the entrant.

14.8.6.2.1 Configuration. Retrieval systems shall include a lifting device, 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. Retrieval systems shall be in the rescue plan.

14.8.6.2.2 Installation/Operation. The retrieval line shall be firmly fastened outside the space so rescue can begin as soon as retrieval is necessary. A mechanical device shall be available to retrieve personnel from vertical confined spaces more than 5 feet deep.

14.8.6.3 Employee Rescue Teams. Rescue teams shall be a designated group of employees trained, evaluated, and equipped to enter PRCSs to rescue an incapacitated entrant. Prospective employee rescue teams must be evaluated per OSHA 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 entry, the entry supervisor must verify both an adequate number of rescue team members are immediately available and 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 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 actual emergency rescue 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 rescue services.

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 hazards associated with the confined space, and (3) provide access to all PRCSS they will rescue from as 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 rescue services.

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

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

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

14.8.8 Isolation and Lockout/Tagout (LOTO) Safeguards

All energy sources that are potentially hazardous to the PRCSS 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 HECF. Any removal of locks, tags, or other protective measures shall be done in accordance with the facility HECF 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 effective methods and equipment enabling employees to safely enter and exit the space, see paragraph 14.8.6.

14.9 Communication Requirements

14.9.1 PRCS Signage

All PRCS access points shall have posted danger signs identifying the space. The danger signs shall contain warning language stating entry is prohibited except to authorized personnel and 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

Acceptable entry conditions	The conditions that must exist in a PRCS to allow entry and to ensure that employees can safely enter and work within the space.
Alternate entry	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.
Attendant	The individual stationed outside the 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 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.
Immediately dangerous to life or health (IDLH)	Any condition that poses an immediate threat to life, which 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: <ul style="list-style-type: none">• 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

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- Occupational Health and Safety Administration. 29 CFR 1910 Subpart J General Environmental Controls 1910.146 App F, *Non-Mandatory Appendix F – Rescue Team or Rescue Service Evaluation Criteria*. <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.146AppF>.