

# Oregon OSHA – Adopted Changes to Confined Spaces Standard for General Industry and Construction

Administrative Order 5-2014  
Adopted October 20, 2014, effective January 1, 2015  
(construction industry: effective March 1, 2015)

Text removed is in [~~brackets with line through~~].

Text added is in **bold and underline**.

---

## Division 2/J

### 437-002-0146 Confined Spaces

(1) *Purpose and application. This rule applies to all activities in confined spaces and provides requirements to protect employees from the hazards of entering and working in confined spaces.*

(2) *Exceptions. This standard does not apply to the following:*

(a) *Construction work regulated by Division 3/P Excavations, except for ~~[existing]~~**entry into sanitary sewer[s and new sanitary sewers when connected to an existing sanitary sewer]spaces that are large enough to bodily enter.***

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

(c) *Enclosed spaces regulated by 1910.269 in Division 2/R Electric Power Generation, Transmission and Distribution, except when that standard requires compliance with this standard.*

(d) **Enclosed spaces regulated by 1926.953 in Division 3/V Electric Power Generation, Transmission and Distribution, except when that standard requires compliance with this standard.**

(~~[e]~~**e**) *Manholes and vaults regulated by 1910.268(o) in Division 2/R Telecommunications, [except when those provisions are insufficient to render the space safe to enter]**unless the space cannot be made safe to enter even after following the requirements of 1910.268(o).***

(~~[f]~~**f**) *Welding in confined spaces regulated by Division 2/Q Welding, Cutting & Brazing, when the only hazards are related to the welding process.*

([f]g) Grain bins, silos, tanks, and other grain storage structures regulated by 1910.272, Grain Handling Facilities.

([g]h) Diving operations regulated by Division 2/T, Commercial Diving Operations.

([h]i) Except for (a) through ([g]h) above, when any other applicable standard addresses work in confined spaces or additional hazards that may be present, you must comply with the provisions of that standard and this standard. Where the requirements of one standard are more restrictive than the other, follow the more stringent requirements.

### (3) Definitions.

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

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

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

*Atmospheric testing* – see “Testing.”

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

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

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

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

**Blanking or blinding - The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.**

*Calibration* – The checking of a direct-reading instrument against an accurate standard (such as a calibration gas) to determine any deviation and correct for errors.

*Note:* A similar process may also be referred to as a “bump test” in which an instrument is tested with an accurate standard to ensure it is still reading correctly. For the purposes of this rule, a “bump test” performed in accordance with the manufacturer’s instructions can be used to verify calibration.

*Confined space* – A space that meets all of the following:

- Large enough and so configured that an employee can fully enter the space and perform work.
- Has limited or restricted means for entry and/or exit.
- Is not designed for continuous human occupancy.

*Continuous system* – a confined space that meets all of the following:

- Part of, and contiguous with, a larger confined space (for example, storm sewers, sanitary sewers, or steam tunnels)
- [~~Cannot be isolated from the larger confined space~~]
- Subject to a potential release from the larger confined space that can overwhelm control measures and/or personal protective equipment, resulting in a hazard that is immediately dangerous to life and health.

**[Control** – The action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by isolation or ventilation), and then using these methods to maintain the reduced hazard level. Control also refers to the engineering methods used for this

~~purpose. Personal protective equipment is not a control.]~~

**Control or controlling – Authority to regulate, direct or influence.**

Controlling contractor - The employer that has overall responsibility for construction at a worksite.

Note: A controlling contractor who owns or manages a property is both a controlling contractor and a host employer.

**Double block and bleed - The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.**

Emergency - Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

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

Entrant (see the definition of authorized entrant).

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

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

Entry supervisor – The person (such as the employer, foreman, or crew chief, or any other designated employee) responsible for:

- Determining if acceptable entry conditions are present at a permit space where entry is planned; and
- Authorizing entry and overseeing entry operations; and
- Terminating entry as required

Hazard – **For the purpose of this rule, hazard means** a[A] physical hazard or hazardous atmosphere.

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

**Hazard elimination – The action taken to remove a hazard from the work environment. For confined spaces, this includes isolation. For a hazard to be eliminated, the conditions that create or cause the hazard no longer exist within the confined space.**

Hazardous atmosphere – An existing or potential atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to [self-rescue (that is,] escape unaided from a permit space[}], injury, or acute illness from one or more of the following:

- A flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit.
- An airborne combustible dust at a concentration that meets or exceeds its lower explosive limit.

*Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 meters) or less.*

- *An atmospheric oxygen concentration below 19.5 percent (oxygen deficient) or above 23.5 percent (oxygen enriched).*
- *An airborne concentration of a substance that exceeds the dose or exposure limit specified by an Oregon OSHA requirement.*

*Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to ~~self-rescue~~ **escape unaided**, injury, or acute illness due to its health effects is not covered by this provision. **You must still follow all other applicable Oregon OSHA requirements to protect employee health.***

- *An atmosphere that presents an immediate danger to life or health (IDLH).*

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

*Immediately dangerous to life or health (IDLH) – means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.*

*Note: Some materials – hydrogen fluoride gas and cadmium vapor, for example – may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12 - 72 hours after exposure. The victim “feels normal” from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be “immediately” dangerous to life or health.*

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

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

**Isolate or i[H]solation – ~~[The process by which a permit required confined space is removed from service and completely protected against the release of energy and material into the space by such means as]~~ **The elimination or removal of a physical or atmospheric hazard by preventing its release into a confined space. Isolation includes, but is not limited to, the following methods:****

- ~~[B]blanking or blinding;[-]~~
- ~~[M]misaligning or removing sections of lines, pipes, or ducts;[-]~~
- ~~[A]a double block and bleed system;[-]~~
- **machine guarding;**
- ~~[Lockout or tagout of all sources of energy;-]~~
- ~~[B]blocking or disconnecting all mechanical linkages;~~
- **locking out or tagging out energy sources.**

**Note: When using lockout/tagout, you must follow all of the requirements of 1910.147, “The Control of Hazardous Energy”.**

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

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

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

*Permit-required confined space (permit space) – A confined space that has one or more of the following characteristics:*

- *Contains, or has a potential to contain, a hazardous atmosphere.*
- *Contains a material that has the potential to engulf an entrant.*
- *Has an internal configuration such that an entrant could become trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.*
- *Contains any other recognized serious safety or health hazard that can inhibit an entrants ability to ~~[self-rescue]~~ **escape unaided.***

*Physical hazard – An existing or potential hazard that can cause death or serious physical harm in or near a confined space, or a hazard that has a reasonable probability of occurring in or near a confined space, and includes, but is not limited to:*

- *Explosives; mechanical, electrical, hydraulic, and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces; and*
- *Chemicals that can cause death or serious physical harm through skin or eye contact (rather than through inhalation).*

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

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

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

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

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

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

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

*Note: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to and during entry.*

*Ventilate or ventilation – ~~[Controlling a hazardous atmosphere using powered equipment, such as fans and blowers, to continuously move air].~~ **Controlling an actual or potentially hazardous atmosphere using either powered equipment, such as fans and blowers, or reliable natural air flow, or a combination of the two, to reduce an otherwise hazardous atmosphere below the level that***

**makes it a hazardous atmosphere. Ventilation is a method of hazard control, not hazard elimination.**

You – The employer.

You can use this table to determine which requirements to follow.

Requirements for Confined Spaces										
For spaces that are	The requirements in the following [sections] paragraphs apply									
	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Evaluation	Permit-required confined space entry programs and permits	Permit Entry	Equipment	Personnel	Rescue	Alternate entry	Training	Multi-employer worksites	Records
Confined spaces	X									
Permit-required confined spaces	X	X	X	X	X	X		X	X	X
Never entered	X									
If you only:										
Use alternate entry procedures	X			X			X	X		
Have other employers enter your space	X								X	X
Are a rescue service provider		X	X	X	X	X		X		X

(4) Evaluation.

~~[(a) You must determine if there are confined spaces in your workplace. Ensure all confined spaces are part of this determination.]~~

(A) Exceptions:

~~(i) Employers of mobile workers where the employer or controlling contractor is not the property owner are not required to perform this evaluation, but must follow the requirements of (4)(c) through (4)(e).~~

~~(ii) On sites where confined spaces are being built, the host employer or controlling contractor is not responsible for performing this determination unless:~~

~~(I) Any of their employees enter that space.~~

~~(II) An agent of the employer enters that space.~~

~~(III) Employees of an employer responsible to that controlling contractor or host employer enter that space.~~

~~(IV) They assume control over that space.~~

~~(B) Before employees of another employer enter a confined space under your control, and you have information related to paragraph (4)(b), you must provide it to that employer.~~

~~(b) You must evaluate all of your confined spaces to determine if they are permit-required confined spaces. This evaluation must include:~~

~~(A) Any known or anticipated hazard.~~

~~(B) The determination from any previous evaluation of that space.~~

~~(C) Any precautions and procedures previously implemented for entering the space.~~

~~(c) When your employees are mobile, you must determine if they will be exposed to confined spaces at their assigned work locations, and if those spaces are subject to any hazards. This determination must include information, if any, from the host employer or controlling contractor.~~

~~(A) Determine if the space meets the definition of a confined space.~~

~~(B) Identify any physical and atmospheric hazards that make the space a permit-required confined space.~~

~~(d) When a space has hazards that make it a permit space:~~

~~(A) Develop and implement a means so employees can identify that space. Signs, labels, or tags are methods that can be used to accomplish this.~~

~~(B) Allow employees or their representatives to observe the evaluation or re-evaluation of the space.~~

~~(C) When conditions within a confined space or a permit space change, re-evaluate it.~~

~~(D) Take all necessary measures to prevent unauthorized employees from entering permit spaces.~~

~~(e) Ensure employees do not enter any unevaluated confined space until it is fully evaluated.]~~

**(a) You must determine if any of your confined spaces are permit-required confined spaces. This evaluation must include:**

**(A) Any known or anticipated hazard.**

**Note: If the only hazard associated with a confined space is a fall hazard, it is not covered by the Confined Space rule. If the space contains other hazards that make it a permit space, the fall hazard must be addressed on the permit.**

(B) The determination from any previous evaluation of that space.

(C) Any precautions and procedures previously implemented for entering the space.

(b) Exceptions:

(A) Employers of mobile workers (for example, contractors, electricians, plumbers) where they are not the property owner or controlling contractor are not required to perform this evaluation for the entire site. Mobile worker employers must evaluate the areas they are responsible for or where their employees will be working and must follow the requirements of (4)(e).

(B) Controlling contractors on sites with existing confined spaces are responsible for performing this determination only for the area under their control.

(C) On sites where confined spaces are being built, the host employer or controlling contractor is responsible for ensuring this determination is accomplished only when:

(i) Any of their employees enter that space.

(ii) An agent of the employer enters that space.

(iii) Employees of an employer accountable to that controlling contractor or host employer enter that space.

(iv) They assume control over that space.

(c) Before employees of another employer enter a confined space at your workplace that is under your control, and you have information related to paragraph (4)(a), you must provide it to that employer.

(d) When a space has hazards that make it a permit space:

(A) Develop and implement a means so employees can identify that space. Signs, labels, or tags are methods that can be used to accomplish this.

(B) Allow employees or their representatives to observe the evaluation or re-evaluation of the space.

(C) When conditions within a confined space or a permit space change, re-evaluate it.

(D) Take all necessary measures to prevent unauthorized employees from entering permit spaces.

(e) Prevent employees from entering any unevaluated confined space until it is fully evaluated.

(f) When your employees are mobile, you must determine if they will be exposed to permit-

**required confined spaces at their assigned work locations. This determination must include information, if any, from the host employer or controlling contractor.**

**(A) Identify any physical and atmospheric hazards that make the space a permit-required confined space.**

**(B) Allow employees or their representatives to observe the evaluation or re-evaluation of the space.**

**(C) When conditions within a confined space or a permit space change, re-evaluate it.**

**(D) Take all necessary measures to prevent unauthorized employees from entering permit spaces.**

**(E) Prevent employees from entering any unevaluated confined space until it is fully evaluated.**

(5) Permit-Required Confined Space Entry Program and Permits.

(a) When employees must enter a permit space, develop and implement a written program that describes the means, practices, and procedures to safely identify and enter permit spaces.

(b) [~~Ensure this program includes~~]**Include the following in the program:**

(A) Documentation of entry permit procedures.

(B) Measures taken to prohibit unauthorized persons from entering permit spaces.

(C) Designation of employee roles, such as entrants, attendants, entry supervisors, rescuers, or those who test or monitor the atmosphere in a permit space.

(D) Identification of designated employee duties.

(E) Training on the written program and entry permits.

(F) Training employees on their designated roles.

(G) Instructions to identify and evaluate hazards.

(H) Methods to eliminate and/or control hazards.

(I) Instructions on equipment use and maintenance.

(J) Instructions to coordinate entry with another employer.

(K) Procedures necessary for concluding the entry and canceling the permit after entry operations have been completed.

(c) On fixed sites, [~~ensure this program also includes~~]**include the following additional elements:**

(A) The location of all permit spaces.

(B) The reason for the classification of each permit space or each type of permit space.

Note: Where there are multiple permit spaces of the same type that have the same

hazards, such as sewers, water vaults, or valve pits, the exact location of each space does not need to be identified so long as there is enough information so that employees can readily identify each type of space and its hazards at each location.

(C) Exception: The location of permit spaces at remote unmanned locations do not need to be added to the program until the first time employees go to that location after the effective date of this rule.

(d) [~~Ensure~~]**Provide** employees and their representatives [~~have~~] access to the written program.

([~~g~~]**e**) [~~Ensure~~]**Provide** entrants or their authorized representatives have access to the completed permit before entry so they can confirm that pre-entry preparations have been completed.

([~~h~~]**f**) Review the permit program when there is any reason to believe that employees are not adequately protected, and revise it as necessary.

(A) Situations that require this review include:

(i) Unauthorized entry of a permit space.

(ii) **Discovery of a**[A] previously unrecognized hazard[~~is discovered~~].

(iii) **Existence of a**[A] condition prohibited by the permit or permit program[~~exists~~].

(iv) An injury or near-miss [~~occurs~~] during entry.

(v) An employee reports **of** concerns about the effectiveness of the program.

(vi) Any other condition that affects employee safety or health.

(B) When revising the permit program to correct hazard-related deficiencies, do not allow entries into affected permit spaces to be made until the revisions are complete.

(C) **Provide**[~~Ensure~~] employees and their representatives [~~have~~] access to the revised permit program.

([~~i~~]**g**) Review permits within one year of their cancellation to evaluate:

(A) The permit program.

(B) The protection provided to employees entering permit spaces.

(6) Permit Entry.

[~~(5)(e)~~]**(a) Develop and implement procedures for issuing permits. Procedures must include how to:** [~~Ensure procedures are developed and implemented for issuing permits. Ensure these procedures include how to:~~]

(A) Evaluate the hazards of the space.

(B) Evaluate hazards of the work to be performed.

(C) Identify safe entry conditions.

[~~(5)(f)~~]**(b) [Ensure-e] Entry permits must include the following information:**

(A) The space to be entered.

(B) The purpose of the entry.

(C) The date, start, and stop times of the permit.

(D) *The hazards of the space.*

(E) *Acceptable entry conditions.*

(F) *Results of initial tests and periodic monitoring performed to evaluate and identify the hazards and conditions of the space, or the period for continuous monitoring, accompanied by the names or initials of the testers and by an indication of when the tests were performed.*

(G) *Appropriate measures used before entry to isolate the space and eliminate or control hazards.*

*Examples of appropriate measures include the de-energizing and lockout or tagging of equipment, and procedures for purging, inerting, ventilating, and flushing permit spaces.*

(H) *Names of entrants and current attendants.*

(I) *The signature of the original supervisor authorizing entry.*

(J) *The current entry supervisor.*

(K) *Communication procedures for entrants and attendants to maintain contact during the entry.*

(L) *Equipment provided for safe entry, such as:*

(i) *Personal protective equipment (PPE)*

(ii) *Testing and monitoring equipment*

(iii) *Communications equipment*

(iv) *Alarm systems*

(v) *Rescue equipment*

(M) *Rescue services available, and how to contact them.*

(N) *Other information needed for safety in the particular permit space.*

(O) *Additional permits issued for work in the space, such as for hot work.*

(P) *Any problems, if any, encountered during the entry.*

(~~a~~**c**) *Perform initial testing for atmospheric hazards, where necessary, before entry is made.*

(~~b~~**d**) *Provide each entrant or their authorized representative with the results of any initial testing before they enter the space.*

(~~e~~**e**) [~~Ensure~~]**Maintain** *safe entry conditions [~~are maintained~~] for the duration of the entry.*

(A) *When the space is too large to isolate, or is part of a continuous system, such as a sewer, ensure continuous monitoring where entrants are working for the duration of the entry*

(B) *When an entrant or their authorized representative has reason to believe that the testing or monitoring was inadequate, re-test the space.*

(~~f~~**f**) [~~Ensure~~]**Follow** *all actions and precautions identified on the permit are followed.*

(~~e~~**g**) *When conditions require the space to be evacuated, do not allow re-entry unless you:*

(A) *Re-assess the conditions of the space to ensure it is safe for re-entry and ensure*

*the permit reflects the evacuation and subsequent re-assessment; or*

*(B) Issue a new permit.*

*([f]h) Allow entrants or their authorized representatives the opportunity to observe monitoring, testing, and all other actions taken to eliminate or control the hazards of the space.*

*(7) Equipment.*

*(a) When employees enter permit spaces, provide the following equipment as necessary:*

*(A) Testing and monitoring equipment.*

*(B) Ventilating equipment, when needed, used to obtain and maintain acceptable entry conditions.*

*(C) Communication equipment, such as a two-way radio, for effective communication between the attendant and all entrants, and to initiate rescue when necessary.*

*(D) Lighting equipment needed to ensure employees can see well enough to work safely and exit the space quickly in the event of an emergency.*

*(E) Barriers or shields to protect entrants from external hazards, such as pedestrians and vehicles.*

*(F) Ladders or other equipment to safely enter and exit the space.*

*(G) Rescue and emergency equipment necessary to safely and effectively rescue entrants.*

*(H) Any other equipment necessary to safely enter and exit the space.*

*(I) Personal protective equipment as mandated by any applicable Oregon OSHA standard or as otherwise required by the employer's assessment of the hazards.*

*(b) Provide all necessary equipment at no cost to employees.*

*(c) Ensure all equipment is maintained and used in accordance with the instructions from the manufacturer.*

*(d) [~~Ensure~~ **Train**] all employees who use equipment [~~are trained~~] in the use of that equipment.*

*(8) Personnel.*

*(a) Before employees enter permit spaces, designate entrants, attendants, and entry supervisors.*

*Note: The entry supervisor can also be either the attendant or entrant.*

*(b) Entrants must:*

*(A) Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards.*

*(B) Communicate with the attendant as necessary so the attendant can monitor the entrant's status and to enable the attendant to alert entrants of the need to evacuate the space.*

*(C) Alert the attendant whenever the entrant detects a dangerous or hazardous condition or warning sign or symptom of exposure to a dangerous situation.*

*(D) Exit from the permit space as quickly as possible whenever:*

- (i) An order to evacuate is given by the attendant or the entry supervisor, or*
- (ii) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or*
- (iii) The entrant detects a dangerous or hazardous condition, or*
- (iv) An evacuation alarm is activated.*

*(c) Attendants must:*

*(A) Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards.*

*(B) Be aware of possible behavioral effects of hazard exposure in authorized entrants.*

*(C) Continuously maintain an accurate count of authorized entrants in the permit space and ensure that the means used to identify authorized entrants accurately identifies who is in the permit space.*

*(D) Remain outside the permit space during entry operations until relieved by another attendant.*

*(E) Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.*

*(F) Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order the authorized entrants to evacuate the permit space immediately under any of the following conditions:*

- (i) If the attendant detects a dangerous or hazardous condition;*
- (ii) If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;*
- (iii) If the attendant detects a situation outside the space that could endanger the authorized entrants; or*
- (iv) If the attendant cannot effectively and safely perform all the duties required of the attendant*

*(G) Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;*

*(H) Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:*

- (i) Warn the unauthorized persons that they must stay away from the permit space;*
- (ii) Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and*
- (iii) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;*

*Note: The employer can give the attendant the authority to remove*

*unauthorized individuals who enter or who attempt to enter the permit space during entry operations, so long as the attendant does not enter the space.*

- (I) Perform non-entry rescues as specified by the employer's rescue procedure; and*
- (J) Perform no duties that might interfere with the attendant's primary duty to monitor and protect any authorized entrant.*

*NOTE: An attendant may monitor more than one space at a time, but the duties in relation to one space may not interfere with the duties for any other spaces. If an attendants' attention is focused on one space, such as to initiate the rescue procedures, all other spaces that the attendant is monitoring must be evacuated or another attendant must take over those duties first.*

*(d) Entry supervisors must:*

- (A) Know the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards*
- (B) Understand the means and methods to control and/or eliminate the hazards of the permit space*
- (C) Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin*
- (D) Inform entrants and attendants of the hazards and conditions associated with the space and the methods used to eliminate and/or control those hazards*
- (E) Terminate the entry and cancel the permit as required by the permit entry program*
- (F) Verify that rescue services are available and that the means for summoning them are operable*
- (G) Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.*
- (H) Reevaluate the conditions within the space whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space.*

*(9) Rescue.*

*(a) Before employees enter a permit space, develop and implement procedures to remove entrants in the event of an emergency or when they are unable to ~~self-rescue~~ **evacuate without outside assistance**. These procedures must include:*

- (A) The process for summoning rescue services.*

*Note: At a minimum, if an off-site rescue service is being considered, the employer must contact the service to plan and coordinate the evaluations required by the standard. Merely posting the service's number or planning to rely on the 911 emergency phone number to obtain these services at the time of a permit space emergency would not comply with the rescue requirements of the standard.*

- (B) The process for summoning emergency medical services or transporting injured*

entrants to a medical facility.

(C) If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant.

**(b) Ensure rescue personnel can respond to a rescue call in a timely manner. Timeliness is based on the identified hazards of the space. Rescuers must be able to reach potential victims within an appropriate time frame based on the identified hazards of the permit space.**

**Note: When there are multiple entrants in a permit space, the rescue plan needs to address how all entrants will be removed in a timely manner.**

**(c) Ensure all rescuers, including non-entry, entry, and third-party, are knowledgeable in basic first aid and cardiopulmonary resuscitation (CPR). At least one member must be certified in first aid and CPR.**

**Note: Additional medical training, such as oxygen administration, the use of automated external defibrillators (AEDs), and personnel decontamination should be considered.**

**(d) Rescuers must practice performing permit space rescues prior to entry and no more than 12 months before an entry.**

**(A) The practice rescue must include every type of space in which the rescue team may perform rescues.**

**(B) The practice rescue must include removing persons, dummies, or manikins from the actual permit spaces, or representative spaces (simulated permit-required confined spaces) that have similar opening size, configuration, and accessibility issues as the actual permit spaces where rescue may be performed.**

**Note: Reliance upon “self rescue” does not constitute an acceptable rescue program.**

**([b]e) Where feasible, use non-entry retrieval systems or methods whenever an authorized entrant enters a permit space, unless it would increase the overall risk to the entrant or would not contribute to the rescue of the entrant.**

**(A) Non-entry Rescue. Use a retrieval system that meets the following requirements.**

**(i) Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant’s back near shoulder level, above the entrant’s head, or at another point which you can establish presents a profile small enough for the successful removal of the entrant. Wristlets or ankle straps or other equally effective means may be used in lieu of the chest or full body harness if you can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of other methods are the safest and most effective alternative.**

**(ii) Attach the other end of the retrieval line to a mechanical device or fixed point outside the permit space so that rescue can begin as soon as the attendant becomes aware that rescue is necessary. Ensure a mechanical device is available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 m) deep.**

**(ii) Designate a rescue person or team to perform rescues in a timely manner.**

~~*Note: The response time is based on the hazards of the space. For example, IDLH hazards require an immediate response, and responders would need to be available on-site during the duration of the entry.*~~

~~*(iii) Ensure all rescuers are trained in basic first aid and cardiopulmonary resuscitation (CPR). At least one member must be certified in first aid and CPR.*~~

~~*(iv) Rescuers must practice performing permit space rescues at least once every 12 months.*~~

~~*(I) The practice rescue must include every type of space in which the rescue team may perform rescues.*~~

~~*(II) The practice rescue must include removing persons, dummies, or manikins from the actual permit spaces or representative spaces that have similar opening size, configuration, and accessibility issues as the actual permit spaces where rescue may be performed.*~~

~~*(III) Exception: Rescuers do not need to perform annual practice rescues when mobile workers enter a permit space when, prior to beginning entry operations, the employees designated to perform non-entry rescue (including attendants, if applicable):*~~

~~*(i) Have access to the permit space to be entered or to a simulated permit space; and*~~

~~*(ii) Develop appropriate rescue plans; and*~~

~~*(iii) Conduct practice rescue operations in accordance with (9)(b)(A)(iv)(II).]*~~

**(B) Entry Rescue.**

*(i) Where non-entry rescue is not feasible or would increase the overall risk to the entrant, designate a rescue team before employees enter any permit space.*

*(ii) Ensure the rescue team:*

~~*[(I) Can respond to a rescue call in a timely manner. Timeliness is based on the identified hazards of the space. Rescuers must be able to reach potential victims within an appropriate time frame based on the identified hazards of the permit space.]*~~

~~*[(I)I] Can efficiently rescue employees from permit spaces.*~~

~~*[(I)II] Has the appropriate equipment to rescue employees from all permit spaces employees enter.*~~

*(iii) Inform each rescue team or service about the hazards they may confront when called to perform rescue.*

*(iv) Provide the rescue team or service with access to all permit spaces from which rescue may be necessary.*

*(v) Provide rescue team members with personal protective equipment (PPE) needed for safe entry and any other equipment required to safely conduct rescues.*

~~[(vi) Use and maintain all equipment according to the instructions from the manufacturer.~~

~~(vii) Rescue teams must practice performing permit space rescues at least once every 12 months.~~

~~(I) The practice rescue must include the different kinds of spaces in which the rescue team may perform rescues.~~

~~(II) The practice rescue must include removing persons, dummies, or manikins from the actual permit spaces or representative spaces that have similar opening size, configuration, and accessibility issues as the actual permit spaces where rescue may be performed.~~

~~(III) Exception: The rescue team does not need to perform annual practice rescues when mobile workers enter a permit space when, prior to beginning entry operations, the employees designated to perform rescue:~~

~~(i) Have access to the permit space to be entered or to a simulated permit space; and~~

~~(ii) Develop appropriate rescue plans; and~~

~~(iii) Conduct practice rescue operations in accordance with (9)(b)(B)(vii)(II).]~~

~~(vi[ii]) Rescue team personnel must have the same training and proficiencies as a permit space entrant, attendant, and/or entry supervisor.~~

~~[(ix) Ensure all rescue team members are trained in basic first aid and cardiopulmonary resuscitation (CPR). At least one member must be certified in first aid and CPR.~~

~~Note: Additional medical training, such as oxygen administration, the use of automated external defibrillators (AEDs), and personnel decontamination should be considered.]~~

~~[(x)vii] When a third-party rescue service is used, ensure that the service is:~~

~~(I) Aware that they are so designated and agree to it[ ~~in writing~~] prior to entry.~~

~~(II) Capable of performing all required rescue operations.~~

~~(III) Knowledgeable in first aid and CPR, and at least one member is certified in first aid and CPR.~~

~~[(III) Trained in first aid and CPR, and at least one member is certified in first aid and CPR.]~~

~~[(C) Third party entry rescue providers.~~

~~(i) In addition to the requirements of this rule, employers that provide entry rescue services must:~~

~~(I) Obtain information required by paragraph (4) regarding every permit space in which entry rescue by your employees may be necessary.~~

~~(II) Be familiar with the policies and procedures as described in paragraph (9)(a).~~

~~(ii) When activated to perform a rescue, without entering the space and using the entry permit, evaluate the space to:~~

~~(I) Identify all physical and atmospheric hazards.~~

~~(II) Determine the precautions and procedures to follow for entry into the space.]~~

(10) Alternate Entry.

(a) Permit spaces may be entered without a permit when:

(A) All hazards have been eliminated; or

(B) All physical hazards, if any, have been eliminated and all atmospheric hazards are controlled with continuous ~~[forced air]~~ ventilation.

Note: For purposes of this rule, “hazard elimination” means that the conditions which caused the hazard no longer exist within the space.

Note: Continuous ~~[forced air]~~ ventilation does not eliminate atmospheric hazards. It only controls the hazards.

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

(c) When employees enter permit spaces under alternate entry, you do not need to comply with the requirements of paragraphs (5), (6), (8), (9), ~~[and]~~ (12), and (13) of this rule for those entries.

(d) Develop and implement procedures for each space that can be entered with alternate entry procedures. These procedures must address:

(A) Who can authorize alternate entry procedure and is responsible for ensuring safe entry conditions.

~~(A)~~(B) The hazards of the space.

Note: When all hazards (if any) have been addressed and all other physical hazards, if any, have been eliminated and all atmospheric hazards have been eliminated, or are controlled with continuous ventilation, alternate entry is allowed.

~~(B)~~(C) The methods used to eliminate hazards.

~~(C)~~(D) The methods used to ensure that the hazards have been eliminated.

~~(D)~~(E) The methods used to test the atmosphere within the space, where applicable, for all atmospheric hazards.

~~(E)~~(F) The methods used to determine if unsafe conditions arise before or during entry.

~~(F)~~(G) The criteria and conditions for evacuating the space during entry.

~~(G)~~**H**) The methods for training employees in these procedures.

~~(H)~~**I**) The methods for ensuring employees follow these procedures.

(e) When using ventilation to control atmospheric hazards:

(A) Use only properly calibrated direct-reading meters to test the atmosphere.

~~[(B) Ensure direct reading instruments are used and tested according to the instructions and recommendations from the instrument manufacturer.]~~

~~[(C)~~**B**) Test the atmosphere for all identified atmospheric hazards before entering the space.

~~(D)~~**C**) ~~[Ensure]~~**Do not allow** employees **to** ~~[only]~~ enter ~~[after]~~**until** testing verifies that all **identified** atmospheric hazards are adequately controlled by the ventilation.

~~[(E)~~**D**) Perform continuous monitoring for all atmospheric hazards during the entry.

~~[(F)~~**E**) Immediately evacuate the space:

(i) When monitoring indicates the return of atmospheric hazards.

(ii) Upon any failure with the direct-reading instrument.

(iii) Upon any failure with the ventilation.

(iv) When a new hazard is introduced or conditions within the space change.

(f) ~~[Ensure]~~**Provide** all employees ~~[or their representatives]~~ who will conduct the entry ~~[have]~~ **or their representatives** the opportunity to observe all activities used to comply with this section.

(g) ~~[Ensure]~~**Provide** all employees who conduct entry ~~[have]~~ an effective means of communication, such as a two-way radio, cell phone, or voice if other employees are present, to summon help while within the space.

(h) When a space is evacuated, it cannot be re-entered as an alternate entry unless:

(A) The conditions that necessitated the evacuation are corrected; and

(B) The re-entry is treated and documented as a new entry.

(i) Document each entry. This documentation must include:

(A) The location of the space.

(B) The hazards of the space.

(C) The measures taken to eliminate the hazards.

(D) When applicable, the measures used to control the atmospheric hazards.

(E) When applicable, the identity of the direct-reading instruments used to test the atmosphere ~~[, including the date of calibration].~~

(F) When applicable, the results of the atmospheric testing.

(G) The date of the entry.

(H) The duration of the entry.

(I) When applicable, any and all conditions that required the evacuation of the space.

(J) The name, title, and signature of the person responsible for ensuring the safe

entry conditions.

(j) Maintain this documentation for the duration of the entry at the location of the entry.

Note: Additional record retention requirements may apply under [~~OAR 437-002~~]1910.1020, "Access to Employee Medical and Exposure Records."

(11) Training.

(a) Train each employee involved in permit space activities so they acquire the understanding, knowledge, and skills necessary to safely perform their duties, according to their assigned responsibilities.

(A) Provide training:

- (i) For all new employees
- (ii) Before an employee is assigned permit space duties
- (iii) Before there is a change in an employee's assigned duties
- (iv) When there is a hazard for which the employee hasn't already been trained
- (v) When there are changes to the permit program
- (vi) When the permit audit shows deficiencies
- (vii) Whenever there is a deviation from the established procedures or employee knowledge of the procedures is inadequate

(B) Document employee training. Ensure the documentation:

- (i) Contains the employee's name, the name and signature of the trainer, and the date of training.
- (ii) Contains the responsibilities for which they were trained.
- (iii) Is available for inspection by employees and their authorized representative.

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

(c) Awareness training:

(A) Provide [~~awareness training to all~~] employees whose work operations are or may be in an area where permit spaces are present [~~to explain~~] **with a basic overview of:**

- (i) The permit space program
- (ii) The entry permit system
- (iii) The alternate entry procedures, if used
- ~~[(iv) How to recognize permit spaces in their work area]~~

**Note: Awareness training is not required for employees whose exposure is negligible, such as office workers who walk in a parking lot that has a sewer manhole or workers entering a building with a baghouse near it, as long as those employees have no other exposures to permit spaces. Similarly, when all permit spaces cannot be accessed or opened by employees, awareness training is not required.**

**An example of this are spaces that are locked or require a specialized tool, access to the key or tool is controlled, and access without the key or tool would require extraordinary means (such as a chop saw or cutting torch).**

(B) Provide this training:

- (i) For all new affected employees
- (ii) For all employees whose duties change to include work in areas with permit spaces
- (iii) When inadequacies in an employee's knowledge indicate that the employee has not retained the requisite understanding
- (iv) When there is a change in the permit program
- (v) When there are new or previously unidentified permit spaces

**(C) Ensure all employees understand how to recognize permit spaces in their work area.**

(12) Multi-employer worksites.

(a) Unless you fall within an exemption under paragraph (4)(b)(~~(a)~~(A)), before employees of another employer enter permit spaces under your control, you must:

(A) Inform the employer and their employees:

- (i) That the workplace contains permit spaces and can be entered only when the applicable requirements of this rule are met
- (ii) Of the identified hazards and your experience with each permit space they will enter
- (iii) Of any precautions or procedures you require to protect employees in or near spaces where the work will be performed

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

(C) Discuss entry operations with the employer after they are complete. This discussion must include:

- (i) The program followed during permit space entry  
and
- (ii) Any hazards confronted or created

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

(13) Records. Keep cancelled permits for at least one year from the date the permit expires for review (see paragraph (5)(~~(f)~~(g))).

Note: Additional record retention requirements may apply under [~~OAR 437-002-~~]1910.1020, "Access to Employee Medical and Exposure Records."

**(14) Effective dates. For work covered under Division 3, Construction, these rules are effective as of March 1, 2015.**

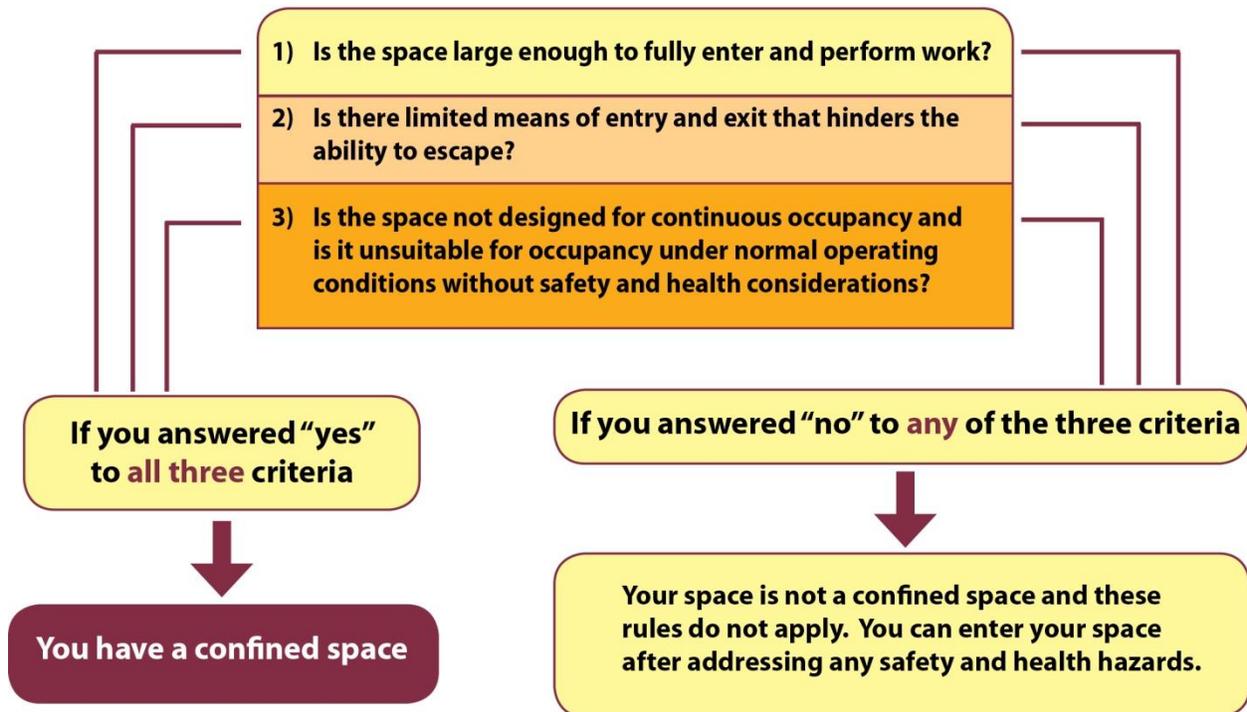
*Stat. Auth.:* ORS 654.025(2) and ORS 656.726(4).

*Stats. Implemented:* ORS 654.001 through 654.295.

*Hist:* OR-OSHA Admin. Order 6-2012, f. 9/28/12, ef. 4/1/13.

**OR-OSHA Admin. Order 5-2014, f.10/20/14, ef. 1/1/15.**

**Non-Mandatory Appendix A**  
**Part I: Evaluate the space to determine if you have a confined space.**  
**Evaluate the Space**



Evaluation of confined spaces

A confined space is defined as having three distinct characteristics. It must meet all three in order to be a confined space.

1 – It must be large enough to enter.

First, it must be large enough and so configured that an employee can fully enter and perform work. A space that is just large enough that an employee could just barely squeeze into, but cannot perform any work does not meet this definition. Similarly, a space that is large enough that an employee can only get part of their body into, but can't fully enter, does not meet this definition. While there may be hazards associated with these types of spaces, they are not addressed with this particular rule.

2 – It must have limited means of entry and exit.

Second, it must have a limited means for entry and exit. Typically, if you must contort your body to enter a space it may be limited means of entry and exit. Examples of this include having to climb through a porthole, climb up a ladder, or crawling through a tunnel in order to exit.

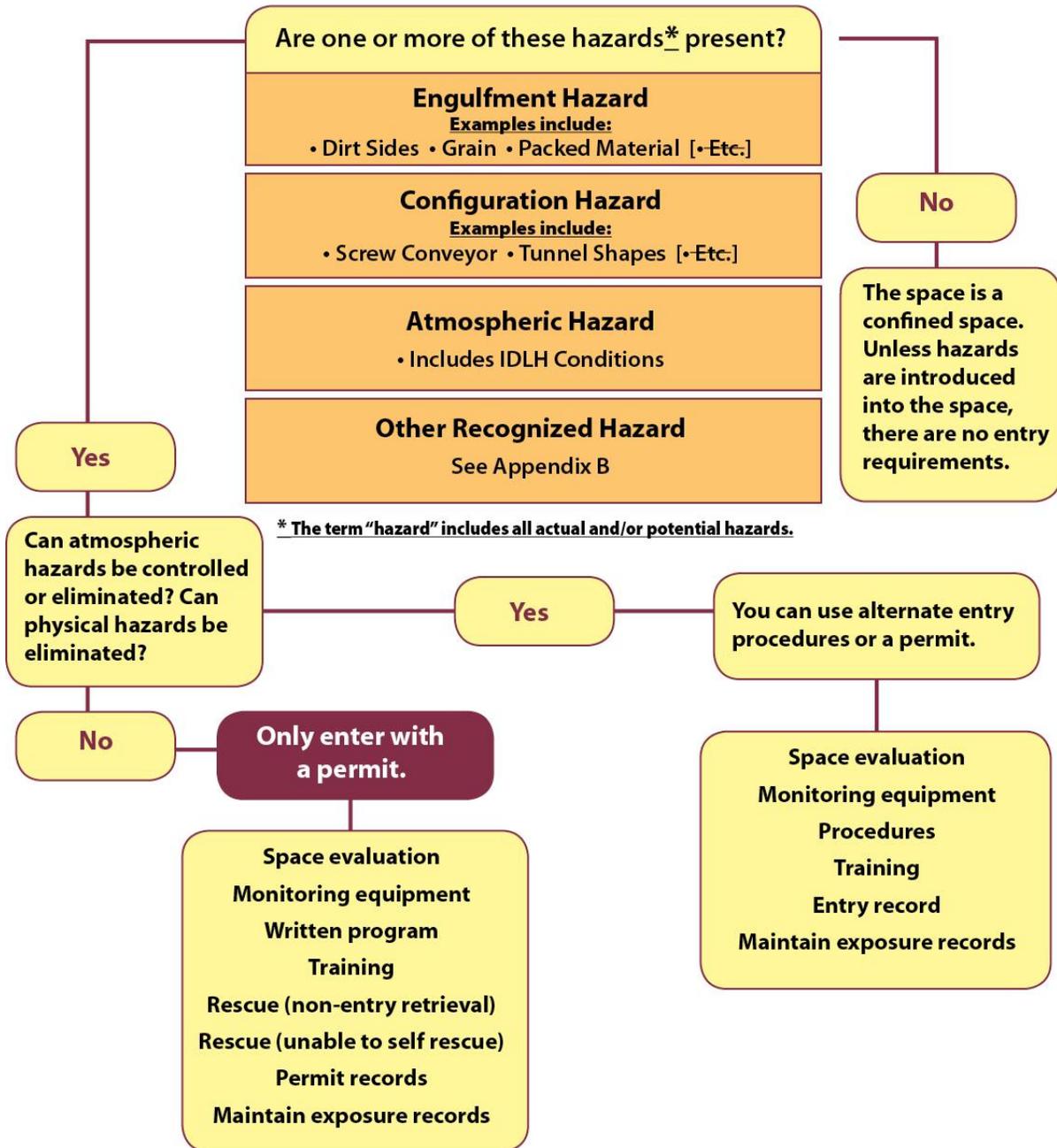
Another way of measuring limited means of entry and exit is to determine how difficult it would be to extract an injured person from the space. If there is a need for any type of technical rescue operation to remove an immobilized person from the space then you likely have limited entry and exit. It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

3 – It is not designed for continuous occupancy.

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

**PART II: Determine if you have a permit-required confined space.**

**You determined that you have a confined space.**



## Evaluation of Permit-Required Confined Spaces

A permit space is a confined space with an actual or potential hazard that can inhibit an entrant's ability to safely exit the space.

Once a confined space is identified, the next step is to determine if it is a permit-required confined space (permit space). There are 2 types of actual or potential hazards.

Atmospheric hazards can include an oxygen-deficient or oxygen-rich atmosphere, a toxic atmosphere, or an explosive atmosphere. Physical hazards can include entrapment, engulfment, electrocution, heat stroke, moving machinery, or any other serious hazard.

### **Atmospheric Hazards**

In evaluating the atmospheric hazards, it is important to include conditions within the space, systems connected to the space, conditions outside of the space, and anything that is brought into the space in order to perform assigned tasks. For example, workers may need to enter one part of a tunnel where there are no obvious sources of atmospheric hazards, but workers in another part of the tunnel may be creating an atmospheric hazard that has the potential to migrate to other parts of the system. These need to be identified by all affected parties. Another example of overlooked hazards can be with a space with a particularly small volume with several workers inside. In these situations the simple act of breathing can create an oxygen-deficient atmosphere.

Another consideration for evaluating atmospheric hazards is using air monitoring equipment to evaluate conditions within a permit space. Any air monitoring equipment must be used according to the manufacturer's instructions, and employees using those meters must know how to use them. There have been several fatalities in permit required confined spaces where the air monitoring equipment alarms identified an unsafe condition but were ignored by the operator. If there is any indication of equipment failure all permit required confined space operations must stop until the equipment is repaired.

Also, there can be a tendency to oversimplify the results of oxygen testing when evaluating an oxygen-deficient atmosphere. While the rule clearly identifies 19.5% as an oxygen-deficient atmosphere that does not mean that nothing more needs to happen if the meter reads 19.6% oxygen. Typically, the normal atmospheric concentration of oxygen is around 20.8% to 21.5%. If your meter reads 20.9% outside of the space, and 19.9% inside the space that is telling you that something has displaced 1% of the oxygen inside the space, which equates to 10,000 parts-per-million of another gas. To place this into perspective, an atmosphere containing 1200 parts-per-million of carbon monoxide is considered to be immediately dangerous to life and health. It is vitally important to identify that other gas to truly identify all of the hazards of that space.

### **Physical Hazards**

Physical hazards can come in many different forms. The hazard could be related to the configuration of a space, equipment inside the space or materials which can flow into a space and entrap an entrant. There are several ways of eliminating physical hazards through lockout/tagout, blanking and blinding or a physical separation on piping systems from the confined space.

In evaluating physical hazards, it is important to understand that the confined space must be evaluated as it normally operates. There can be a tendency to evaluate a space after protective actions, such as lockout/tagout, are taken, and then not designate it as a permit space. If any actions, such as lockout/tagout, are necessary to make the space safe for entry, then it is a permit space. While lockout/tagout is recognized as a elimination of hazards, it is only a temporary elimination that exists only as long as the lock is in place. Once the lock is removed, the hazard is no longer eliminated. Another consideration for using lockout/tagout is that all of the requirements for ~~using lockout/tagout~~ **the control of hazardous energy** in 1910.147, where applicable, still apply. Any hazards that still remain after applying lockout/tagout must still be addressed.

**Stat. Auth.:** ORS 654.025(2) and ORS 656.726(4).

**Stats. Implemented:** ORS 654.001 through 654.295.

**Hist:** OR-OSHA Admin. Order 6-2012, f. 9/28/12, ef. 4/1/13.

**OR-OSHA Admin. Order 5-2014, f. 10/20/14, ef. 1/1/15.**

## Non-Mandatory Appendix B

### Potential Confined Space Hazards

What follows is a compilation of hazards and conditions which may compromise safe confined space entry and/or rescue procedures. The list is not exhaustive. Specific confined spaces may have hazards unique to that space. All hazards need to be evaluated and eliminated or controlled prior to entry. Consider hazards that may be present initially as well as those that may develop during the course of work.

#### Atmospheric hazards:

- Oxygen deficiency
- Oxygen enrichment
- Inert gases used to exclude oxygen (for example, nitrogen, helium, steam, freons, argon, or carbon dioxide)
- Flammable or explosive gases, liquids, vapors, mists, fibers, or dusts
- Toxic dusts, mists, fumes, smoke, vapors, fibers, or gases
- Airborne biological contaminants, including molds, bacteria, viruses and other potential disease-inducing agents

#### Engulfment hazards – presence of materials that can capture or surround an entrant:

- Avalanche of materials
- Surrounding and suffocating
- Trenching cave-ins
- Drowning
- Bridged materials which collapse when stepped on

Falls from heights [~~(5 feet or more)~~]

Falling objects (tools, structural materials, debris)

Harness or lifeline snag points (e.g., agitator blades, piping, screws, etc.)

#### Configuration of space:

- Complexity of internal structure
- Inwardly sloping walls or floors
- Tight and/or narrow diameter spaces - entrapment
- Access restricting rescue

#### Ignition sources – examples include:

- Grinding
- Welding, cutting, burning, brazing
- Space heaters
- Hand tools
- Power tools
- Exposed light bulbs
- Sources of static electric discharge (e.g., synthetic clothing, transfer of liquids or gases not bonded and grounded)
- Non-intrinsically safe equipment

Illumination – insufficient in quality or quantity

Moving mechanical equipment:

- Agitators
- Tumblers
- Crushers
- Mixing blades
- Screw conveyors
- Shakers

Electrical power sources

- Transmission lines
- Junction boxes
- Transformers
- Electrically powered equipment taken into the space or installed in the space

Hydraulically or pneumatically powered equipment

Pressurized lines

- Steam
- Hydraulic
- Pneumatic
- Fuel and other gas
- Water

Radiation

- Ionizing
- Non-ionizing (including lasers)

Process material lines, open or leaking lines which introduce:

- Toxic materials
- Flammable or combustible
- Oxidizing materials
- Corrosive materials
- Heated liquid or gaseous substances (such as steam) containing hydraulic oils, other fluids, or gases
- Other substances hazardous to health or that may displace oxygen

Isolation is difficult or impossible -- Examples of environments in which significant isolation issues may arise:

- Wastewater sewer systems
- Stormwater drain systems
- Dams
- Hydro-electric plants
- Nuclear plants

Hazards originating in adjacent areas:

- Exhaust or flue gases
- Chemical releases

Mobile confined spaces that are not adequately secured prior to entry:

- Moving (such as ships and barges; or rail cars or tank trucks that do not have chocks or wheel blocks)
- Rotating (cement or other trucks which may not be properly locked out)
- Shifting (tank trucks lacking a cab or jack stand)
- Crushing (garbage trucks which may not be properly locked out)

Noise (preventing the ability to communicate or hear warnings)

Slippery surfaces

Surface contaminants – liquids and solids on floors, walls, ceilings, or other interior surfaces that may cause eye or skin irritation, burns, or other adverse health effects upon contact

Thermal (heat and cold) extremes:

- Surfaces (radiant or conduction)
- Air temperature (convection)

Tripping hazards

Uncontrolled lateral movement or swing potential with suspended loads

Vibration – Vibrating equipment or vibration of the confined space

Work or equipment introducing additional hazards:

- Hot work (welding, cutting, burning, grinding)
- Inerting
- Abrasive blasting
- Surface coating and painting
- Use of solvents, degreasers, and other cleaning agents
- Demolition activities
- Use of internal combustion engines
- Use of space heaters
- Use of equipment which is not approved or fit for use in the type of confined space, such as non-intrinsically safe or no GFCI when needed.

**Stat. Auth.:** ORS 654.025(2) and ORS 656.726(4).

**Stats. Implemented:** ORS 654.001 through 654.295.

**Hist:** OR-OSHA Admin. Order 6-2012, f. 9/28/12, ef. 4/1/13.

**OR-OSHA Admin. Order 5-2014, f. 10/20/14, ef. 1/1/15.**

## Non-mandatory Appendix C Sample Confined Space Entry Permit[s] **and** **Alternate Entry Form**

The following confined space entry permit[s] **and alternate entry form** can be modified to fit your particular entry. ~~You can also use these forms to document an alternate entry.~~ Make sure you use only the appropriate portions of the forms to create your own entry permit or alternate entry form.

You can also design your own entry permit or alternate entry form. You're not required to use the examples provided here.

# CONFINED SPACE ENTRY PERMIT Sample 1

Date:					
Site location or description:					
Purpose of entry:					
<hr/> <hr/> <hr/>					
Supervisor(s) in charge of crews:		Type of crew (welding, plumbing, etc)		Phone #:	
Permit duration:					
Communication procedures (including equipment):					
<hr/> <hr/> <hr/>					
Rescue procedures (also see emergency contact phone numbers at end of form):					
<hr/> <hr/> <hr/>					
REQUIREMENTS COMPLETED	DATE	TIME	REQUIREMENTS COMPLETED	DATE	TIME
(Put N/A if item doesn't apply)			(Put N/A if item doesn't apply)		
Lockout/De-energize/Try-out			Supplied Air Respirator (N/A if alternate entry)		
Line(s) Broken-Capped-Blank			Respirator(s) (Air Purifying)		
Purge-Flush and Vent			Protective Clothing		
Ventilation			Full Body Harness w/ "D" ring		
Secure Area (Post and Flag)			Emergency Escape Retrieval Equip		
Lighting (Explosive Proof)			Lifelines		
Hotwork Permit			Standby safety personnel (N/A if alternate entry)		
Fire Extinguishers			Resuscitator—Inhalator (N/A if alternate entry)		
<b>Add other specific information, if needed, or attach additional instructions or requirements. See the following examples in bold print.</b>					
<b>Line(s) to be bled/blanked:</b>					
<b>Ventilation equipment:</b>					
<b>PPE clothing:</b>					
<b>Respirator(s):</b>					
<b>Fire extinguisher(s):</b>					
<b>Emergency retrieval equipment:</b>					

**CONFINED SPACE ENTRY PERMIT**  
**Sample 1 (continued)**

<b>AIR MONITORING</b>									
<b>Substance Monitored</b>		<b>Permissible Levels</b>		<b>Monitoring Results</b>					
Time monitored (put time)		Record the time							
Percent Oxygen		19.5% to 23.5%							
<del>LEL/LFL</del>		Under 10%							
Toxic 1:		____ PEL	____ STEL						
Toxic 2:		____ PEL	____ STEL						
Toxic 3:		____ PEL	____ STEL						
Toxic 4:		____ PEL	____ STEL						
<b>REMARKS:</b>									
_____									
_____									

Air Tester Name	Instrument(s) Used (For example: oxygen meter, combustible gas indicator, etc.)	Model # or Type	Serial# or Unit

**ATTENDANTS AND ENTRANTS**

<b>Attendant(s)</b> (Required for all confined space work except alternate entry)	<b>ID#</b>	<b>Confined Space Entrant(s)</b>	<b>ID#</b>

**REMARKS:**

\_\_\_\_\_

\_\_\_\_\_

**SUPERVISOR AUTHORIZATION – ALL CONDITIONS SATISFIED**

Department or phone number: \_\_\_\_\_

**EMERGENCY CONTACT PHONE NUMBERS:**

AMBULANCE: \_\_\_\_\_ FIRE: \_\_\_\_\_ SAFETY: \_\_\_\_\_ RESCUE TEAM: \_\_\_\_\_ OTHER: \_\_\_\_\_

**CONFINED SPACE ENTRY PERMIT**  
**Sample 2**

Date and time issued:
Job site/space I.D.:
Equipment to be worked on:
Standby personnel:
Date and time expires:
Job supervisor:
Work to be performed:
1. Atmospheric Checks: _____ Time: _____
Oxygen _____ %
Explosives _____ % L.F.M.
Toxic _____ PPM
2. Tester's signature: _____
3. Source isolation (No Entry): _____ N/A Yes No
Pumps or lines blinded, disconnected, or blocked: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4. Ventilation modification: _____ N/A Yes No
Mechanical: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Natural Ventilation only: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5. Atmospheric check after isolation and ventilation:
Oxygen: _____ % >19.5%
Explosive: _____ % L.F.M. <10%
Toxic: _____ PPM <10PPM H <sub>2</sub> S
Time: _____
Tester's signature: _____
Communication procedures:

## CONFINED SPACE ENTRY PERMIT Sample 2 (continued)

7. Rescue procedures:				
8. Entry standby and backup persons successfully completed required training? Is it current?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
9. Equipment:				
Direct reading gas monitor tested:	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Safety harnesses and lifelines for entry and standby persons:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hoisting equipment:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Powered communications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SCBA's for entry and standby persons:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Protective clothing:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All electric equipment listed: Class I, Division I, Group D and non-sparking tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Periodic atmospheric tests:				
Oxygen _____% Time _____	Oxygen _____% Time _____			
Oxygen _____% Time _____	Oxygen _____% Time _____			
Explosive _____% Time _____	Explosive _____% Time _____			
Explosive _____% Time _____	Explosive _____% Time _____			
Toxic _____% Time _____	Toxic _____% Time _____			
Toxic _____% Time _____	Toxic _____% Time _____			
We have review the work authorized by this permit and the information contained here. Written instruction and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit not valid unless all appropriate items are completed.				
Permit prepared by: _____ Entry Supervisor				
Approved by: _____ Unit Supervisor				
Review by: _____ Operations Manager				
<b>This permit is to be kept at the job site. Return this job site copy to the unit supervisor following job completion.</b>				
Entrants Name	Sign in	Sign out	Sign in	Sign out

## CONFINED SPACE ENTRY PERMIT

### Sample 3

<b>PERMIT VALID FOR 8 HOURS ONLY. ALL PERMIT COPIES MUST REMAIN AT THE SITE UNTIL JOB IS COMPLETED.</b>					
Date:		Site location /description:			
Purpose of entry:					
Supervisor (s) in charge of crews		Type of Crew		Telephone #	
Communication procedures:					
_____					
_____					
Rescue procedures (telephone number at bottom):					
_____					
_____					
<b>BOLD INDICATES MINIMUM REQUIREMENTS TO COMPLETE AND REVIEW PRIOR TO ENTRY</b>					
<b>Note: For items that do not apply, enter N/A in the blank.</b>					
<b>REQUIREMENTS COMPLETED</b>	<b>DATE</b>	<b>TIME</b>	<b>REQUIREMENTS COMPLETED</b>	<b>DATE</b>	<b>TIME</b>
Lockout/De-energize/Tagout			<b>Full Body Harness w/"D" Ring</b>		
Line(s) Broken-Capped-Blank			<b>Emergency Escape Retrieval Equipment</b>		
Purge-Flush and Vent			<b>Lifelines</b>		
Ventilation			Fire Extinguishers		
Secure Area (Post and Flag)			Lighting (Explosive proof)		
Breathing Apparatus			Protective Clothing		
Resuscitator - Inhalator			Respirator(s) (Air Purifying)		
Standby Safety Personnel			Burning and Welding Permit		
Continuous Monitoring: <input type="checkbox"/> Yes <input type="checkbox"/> No					
Periodic Monitoring Frequency: _____					
<b>Test(s)</b>	<b>Permissible entry level</b>				
Percent of oxygen	19.5% TO 23.5%				
Lower flammable limit	Under 10%				
Carbon monoxide	+35 PPM				
Aromatic Hydrocarbon	+1 PPM *5 PPM				
Hydrogen Cyanide	(Skin) *4 PPM				
Hydrogen Sulfide	+10 PPM *15 PPM				
Sulfur Dioxide	+2 PPM *5 PPM				
Ammonia	* 35 PPM				
* Short-term exposure limit: Employees can work in the area up to 15 minutes.					
+ 8 hour Time Weighted Average: Employees can work in the area 8 hours (longer with appropriate respiratory protection).					
<b>REMARKS:</b> _____					
_____					

**CONFINED SPACE ENTRY PERMIT**  
**Sample 3 (continued)**

GAS TESTER NAME & CHECK #: \_\_\_\_\_  
INSTRUCTIONS USED: \_\_\_\_\_  
MODEL &/OR TYPE: \_\_\_\_\_  
SERIAL &/OR UNIT #: \_\_\_\_\_

**~~SAFETY STANDBY IS REQUIRED FOR ALL CONFINED SPACE WORK~~**

<del>SAFETY STANDBY PERSON(S)</del> _____	<del>CHECK#</del> _____
_____	_____
_____	_____
_____	_____

<del>CONFINED SPACE ENTRANT(S)</del> _____	<del>CHECK #</del> _____
_____	_____
_____	_____
_____	_____

**SUPERVISOR AUTHORIZATION - ALL CONDITIONS SATISFIED:**

Department or phone number: \_\_\_\_\_

**EMERGENCY CONTACT PHONE NUMBERS:**

Ambulance: \_\_\_\_\_

Fire: \_\_\_\_\_

Safety: \_\_\_\_\_

Gas coordinator: \_\_\_\_\_

# SAMPLE CONFINED SPACE ENTRY PERMIT

**Permit**

**date:**        /   /

**Work shift:** 1<sup>st</sup>  2<sup>nd</sup>  3<sup>rd</sup>

**Expires:**        /   /

**Time started:**        \_\_\_\_\_

**Permit space to be entered (name and location of space):** \_\_\_\_\_  
\_\_\_\_\_

**Purpose of entry:**        \_\_\_\_\_

**Pre-entry checklist**

**Do not enter this permit space until the following “needs action” conditions are corrected.**

<u>OK</u>	<u>Needs action</u>	
<input type="checkbox"/>	<input type="checkbox"/>	<b><u>Before entering the permit space, the supervisor or designee must notify the rescue team. IDLH conditions require at least one rescue team member located outside the space.</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	<b><u>A minimum of two employees must be assigned to work involving permit space entry. One employee must remain outside the permit space at all times.</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	<b><u>The surrounding area must be surveyed to show that it is free of hazards such as drifting vapors from tanks, piping, sewers, or vehicle exhaust.</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	<b><u>Those responsible for operation of the gas monitor have been trained.</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	<b><u>Gas monitor calibration tests and functional test (fresh air calibration) have been performed this shift on the gas monitor.</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	<b><u>The atmosphere will be continuously monitored while the space is occupied, if required by entry procedure.</u></b>

**Identify potential hazards**

<u>Possible atmospheric hazards</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>
<u>Lack of oxygen</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Combustible gases</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Combustible vapors</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Combustible dusts</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Toxic gases/vapors</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Possible non-atmospheric hazards</u>			
<u>Noise</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Chemical contact</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Electrical hazard</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Mechanical exposure</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Temperature extreme</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Engulfment</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Entrapment</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Other non-atmospheric hazard (list on separate page)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Pre-entry requirements**

<u>Requirements</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Requirements</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>
<u>Lockout - tagout/de-energize</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Hot work permit</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Pipes(s) broken or capped or blanked</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Fall arrest harness/lifeline/tripod</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Purge or flush or drain</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Personal protective equipment</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Ventilation (natural or mechanical)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Hardhat</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Secure area</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Gloves</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Safe lighting</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Safety glasses</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Non-sparking tools</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Respirator, type _____</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Communication method _____</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Other PPE: _____</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Contractor employees involved</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Other PPE: _____</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Continuous air monitoring used</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Periodic air monitoring used</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Space-monitoring results</u>		<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
<u>Substance monitored</u>	<u>Permissible entry levels</u>	<u>Time: _____</u> <u>Initial: _____</u>	<u>Time: _____</u> <u>Initial: _____</u>	<u>Time: _____</u> <u>Initial: _____</u>	<u>Time: _____</u> <u>Initial: _____</u>
<u>Percent oxygen</u>	<u>19.5% to 23.5%</u>	_____	_____	_____	_____
<u>Combustible gas</u>	<u>Less than 10% LEL</u>	_____	_____	_____	_____
<u>Other toxic gas _____</u>	_____	_____	_____	_____	_____
<u>Other toxic gas _____</u>	_____	_____	_____	_____	_____
<u>Other toxic gas _____</u>	_____	_____	_____	_____	_____

**Names of trained, authorized individuals**

- Entry supervisor: \_\_\_\_\_
- Entry attendant: \_\_\_\_\_
- Authorized entrants: \_\_\_\_\_
- Authorized entrants: \_\_\_\_\_

**Emergency contact information**

Emergency responder: \_\_\_\_\_ Phone number: \_\_\_\_\_  
Contact person: \_\_\_\_\_ Time: \_\_\_\_\_

**This permit has been terminated for the following reason:**

Work completed       Canceled      Time: \_\_\_\_\_ Note: \_\_\_\_\_

Supervisor's signature \_\_\_\_\_ Time: \_\_\_\_\_ Date: / / \_\_\_\_\_

Return this completed permit to \_\_\_\_\_ . Review, then file for one year.

## SAMPLE ALTERNATE ENTRY FORM

<u>Location of space:</u> _____	
<u>Entry date:</u> _____	<u>Duration of entry:</u> _____

<u>List entrants' names</u>
_____
_____
_____

<u>List physical hazards in the space</u>	<u>List atmospheric hazards in the space</u>
_____	_____
_____	_____
_____	_____

<u>List each action taken to eliminate physical and atmospheric hazards in the space</u>	
<u>Action</u>	<u>Description</u>
_____	_____
_____	_____
_____	_____

<u>Ventilation</u>		
<u>Is ventilation required?</u>	YES <input type="checkbox"/>	NO <input type="checkbox"/>
<u>If "Yes," type of ventilation:</u>	<u>Amount of ventilation (cfm or AC/hr)</u>	

<u>Air monitoring</u>					
<u>Substance monitored</u>	<u>Unit</u>	<u>Permissible levels</u>		<u>Monitoring results</u>	
				<u>Initial Test</u>	<u>Peak reading during entry</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

<u>Instruments used for air monitoring</u>	
<u>Model # or type:</u>	<u>Calibration (or bump test) date:</u>
_____	_____
_____	_____
_____	_____

<u>Additional notes about the space and entry (including whether evacuation was necessary)</u>
_____
_____
_____

<u>Person responsible for ensuring the space is safe to enter</u>	
<u>Name:</u> _____	<u>Job title:</u> _____
<u>Signature:</u> _____	

Stat. Auth.: ORS 654.025(2) and ORS 656.726(4).  
 Stats. Implemented: ORS 654.001 through 654.295.  
 Hist: OR-OSHA Admin. Order 6-2012, f. 9/28/12, ef. 4/1/13.  
 OR-OSHA Admin. Order 5-2014, f. 10/20/14, ef. 1/1/15.

Non-Mandatory Appendix D  
Rescue Service Considerations

- (1) This appendix provides guidance to employers in choosing an appropriate rescue service. It contains criteria that may be used to evaluate the capabilities both of prospective and current rescue teams. Before a rescue team can be trained or chosen, however, a satisfactory permit program, including an analysis of all permit-required confined spaces to identify all potential hazards in those spaces, must be completed. Oregon [R-]OSHA believes that compliance with all the provisions of 437-002-0146 will enable employers to conduct permit space operations without recourse to rescue services in nearly all cases. However, experience indicates that circumstances will arise where entrants will need to be rescued from permit spaces. It is therefore important for employers to select rescue services or teams, either on-site or off-site, that are equipped and capable of minimizing harm to both entrants and rescuers if the need arises.
- (2) For all rescue teams or services, the employer's evaluation should consist of two components: an initial evaluation, in which employers decide whether a potential rescue service or team is adequately trained and equipped to perform permit space rescues of the kind needed at the facility and whether such rescuers can respond in a timely manner, and a performance evaluation, in which employers measure the performance of the team or service during an actual or practice rescue. For example, based on the initial evaluation, an employer may determine that maintaining an on-site rescue team will be more expensive than obtaining the services of an off-site team, without being significantly more effective, and decide to hire a rescue service. During a performance evaluation, the employer could decide, after observing the rescue service perform a practice rescue, that the service's training or preparedness was not adequate to effect a timely or effective rescue at his or her facility and decide to select another rescue service, or to form an internal rescue team.
- a. Initial Evaluation
- i. The employer should meet with the prospective rescue service to facilitate the evaluations required by 437-002-0146(9). At a minimum, if an off-site rescue service is being considered, the employer must contact the service to plan and coordinate the evaluations required by the standard. Merely posting the service's number or planning to rely on the 911 emergency phone number to obtain these services at the time of a permit space emergency would not comply with ~~paragraph (9)(b)(C) of the standard~~ **the rescue requirements of the standard**.
  - ii. The capabilities required of a rescue service vary with the type of permit spaces from which rescue may be necessary and the hazards likely to be encountered in those spaces. Answering the questions below will assist employers in determining whether the rescue service is capable of performing rescues in the permit spaces present at the employer's workplace.

1. What are the needs of the employer with regard to response time (time for the rescue service to receive notification, arrive at the scene, and set up and be ready for entry)? For example, if entry is to be made into an IDLH atmosphere, or into a space that can quickly develop an IDLH atmosphere (if ventilation fails or for other reasons), the rescue team or service would need to be standing by at the permit space. On the other hand, if the danger to entrants is restricted to mechanical hazards that would cause injuries (e.g., broken bones, abrasions) a response time of 10 or 15 minutes might be adequate.
2. How quickly can the rescue team or service get from its location to the permit spaces from which rescue may be necessary? Relevant factors to consider would include: the location of the rescue team or service relative to the employer's workplace, the quality of roads and highways to be traveled, potential bottlenecks or traffic congestion that might be encountered in transit, the reliability of the rescuer's vehicles, and the training and skill of its drivers.
3. What is the availability of the rescue service? Is it unavailable at certain times of the day or in certain situations? What is the likelihood that key personnel of the rescue service might be unavailable at times? If the rescue service becomes unavailable while an entry is underway, does it have the capability of notifying the employer so that the employer can instruct the attendant to abort the entry immediately?
4. Does the rescue service meet all the requirements of ~~paragraph (9)(b)(B) of~~ the standard? If not, has it developed a plan that will enable it to meet those requirements in the future? If so, how soon can the plan be implemented?
5. For off-site services, is the service willing to perform rescues at the employer's workplace? (An employer may not rely on a rescuer who declines, for whatever reason, to provide rescue services.)
6. Is an adequate method for communications between the attendant, employer and prospective rescuer available so that a rescue request can be transmitted to the rescuer without delay? How soon after notification can a prospective rescuer dispatch a rescue team to the entry site?

7. For rescues into spaces that may pose significant atmospheric hazards and from which rescue entry, patient packaging and retrieval cannot be safely accomplished in a relatively short time (15-20 minutes), employers should consider using airline respirators (with escape bottles) for the rescuers and to supply rescue air to the patient.
8. If the employer decides to use SCBA, does the prospective rescue service have an ample supply of replacement cylinders and procedures for rescuers to enter and exit (or be retrieved) well within the SCBA's air supply limits?
9. If the space has a vertical entry over 5 feet in depth, can the prospective rescue service properly perform entry rescues? Does the service have the technical knowledge and equipment to perform rope work or elevated rescue, if needed?
10. Does the rescue service have the necessary skills in medical evaluation, patient packaging and emergency response? Where necessary, can the rescue service perform patient decontamination before being transported to a medical facility?
11. Does the rescue service have the necessary equipment to perform rescues, or must the equipment be provided by the employer or another source?

**b. Performance Evaluation**

Rescue services are required by paragraph (9)(d)[(b)(B)(vii)] of the standard to practice rescues ~~[at least once every]~~ **prior to an entry or within 12 months of an entry**, provided that the team or service has not successfully performed a permit space rescue within that time. As part of each practice session, the service should perform a critique of the practice rescue, or have another qualified party perform the critique, so that deficiencies in procedures, equipment, training, or number of personnel can be identified and corrected. The results of the critique, and the corrections made to respond to the deficiencies identified, should be given to the employer to enable it to determine whether the rescue service can quickly be upgraded to meet the employer's rescue needs or whether another service must be selected. The following questions will assist employers and rescue teams and services evaluate their performance.

- i. Have all members of the service been trained as permit space entrants, at a minimum, including training in the potential hazards of all permit spaces, or of representative permit spaces, from which rescue may be needed? Can team members recognize the signs, symptoms, and consequences of exposure to any hazardous atmospheres that may be present in those permit spaces?

- ii. Is every team member provided with, and properly trained in, the use and need for PPE, such as SCBA or fall arrest equipment, which may be required to perform permit space rescues in the facility? Is every team member properly trained to perform his or her functions and make rescues, and to use any rescue equipment, such as ropes and backboards, that may be needed in a rescue attempt?
- iii. Are team members trained in the first aid and medical skills needed to treat victims overcome or injured by the types of hazards that may be encountered in the permit spaces at the facility?
- iv. Do all team members perform their functions safely and efficiently? Do rescue service personnel focus on their own safety before considering the safety of the victim?
- v. If necessary, can the rescue service properly test the atmosphere to determine if it is IDLH?
- vi. Can the rescue personnel identify information pertinent to the rescue from entry permits, hot work permits, and [M]SDSs?
- vii. Has the rescue service been informed of any hazards to personnel that may arise from outside the space, such as those that may be caused by future work near the space?
- viii. If necessary, can the rescue service properly package and retrieve victims from a permit space that has a limited size opening (less than 24 inches (60.9 cm) in diameter), limited internal space, or internal obstacles or hazards?
- ix. If necessary, can the rescue service safely perform an elevated (high angle) rescue?
- x. Does the rescue service have a plan for each of the kinds of permit space rescue operations at the facility? Is the plan adequate for all types of rescue operations that may be needed at the facility? Teams may practice in representative spaces, or in spaces that are “worst-case” or most restrictive with respect to internal configuration, elevation, and portal size. The following characteristics of a practice space should be considered when deciding whether a space is truly representative of an actual permit space:
  - 1. Internal configuration.
    - a. Open – there are no obstacles, barriers, or obstructions within the space. One example is a water tank.

- b.** Obstructed – the permit space contains some type of obstruction that a rescuer would need to maneuver around. An example would be a baffle or mixing blade. Large equipment, such as a ladder or scaffold, brought into a space for work purposes would be considered an obstruction if the positioning or size of the equipment would make rescue more difficult.

## **2.** Elevation.

- a.** Elevated – a permit space where the entrance portal or opening is above grade by 4 feet or more. This type of space usually requires knowledge of high angle rescue procedures because of the difficulty in packaging and transporting a patient to the ground from the portal.
- b.** Nonelevated – a permit space with the entrance portal located less than 4 feet above grade. This type of space will allow the rescue team to transport an injured employee normally.

## **3.** Portal size.

- a.** Restricted – A portal of 24 inches or less in the least dimension. Portals of this size are too small to allow a rescuer to simply enter the space while using SCBA. The portal size is also too small to allow normal spinal immobilization of an injured employee.
- b.** Unrestricted – A portal of greater than 24 inches in the least dimension. These portals allow relatively free movement into and out of the permit space.

## **4.** Space access.

- a.** Horizontal – The portal is located on the side of the permit space. Use of retrieval lines could be difficult.
- b.** Vertical – The portal is located on the top of the permit space, so that rescuers must climb down, or the bottom of the permit space, so that rescuers must climb up to enter the space. Vertical portals may require knowledge of rope techniques, or special patient packaging to safely retrieve a downed entrant.