

## **Proper Classification of Confined Spaces— Confined Space Program Management**

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### **Introduction**

Federal OSHA promulgated the “Permit-Required Confined Spaces” (CFR 1910.146) safety standard in early 1993 and essentially all “State Plan” OSHA groups adopted the standard (nearly) verbatim within 6 months to 1 year afterward. Thus between State Plans and Federal OSHA, enforcement of this regulation has been in place for over 15 years. Despite this history, safety publications and news media regularly report hundreds of fatalities each year (often multiple in the same space) in confined spaces. As an “expert witness” with over 28 cases over the past 30 years, it is eminently clear to this presenter that the (host) employer and/or contractor performing the tasks often did not properly recognize the life-threatening hazards that in reality made the task being performed an entry to a “Permit-Required Confined Space.”

In an ideal world all permit spaces would bear signage to alert maintenance personnel that special procedures, equipment, training, possible ventilation, air monitoring, and rescue programs are required for safe entry to the space. Unfortunately, this does not always occur for a variety of reasons, and the tragic loss of life continues year after year. Many safety officers, maintenance supervisors, and field operations managers often find the OSHA regulation confusing or intimidating and thus fail to properly classify the workspace as:

1. Not a confined space
2. Non-Permit Confined Space (NPCS)
3. Permit-Required Confined Space (PRCS)
4. PRCS Hazard eliminated to NPCS status (Reclassified Space)
5. PRCS Atmospheric hazard only controlled by ventilation (Alternate Procedure)

Thus in 2004 the OSHA Training Institute commissioned the author to develop and conduct a 4 hour workshop entitled “Classification of Spaces” to be delivered as part of their 3-day confined space course (#260/2260) for State and Federal compliance officers. That 52-scenario work product has been shortened to 30 representative real-world confined space entry activities by the author for this presentation. Attendees will follow the key steps of understanding definitions and recognizing hazards in order to arrive at the proper classification of these 30 spaces from a variety of industries. Audience participation is required and workshop handout materials will be provided by the presenter for all attendees. Attendees will be divided into “team members” (up to 5 people per team) and each team will undertake proper protocol for dealing with several of the case studies and present and defend their plan to the entire audience with clarification and guidance supplied by the course presenter.

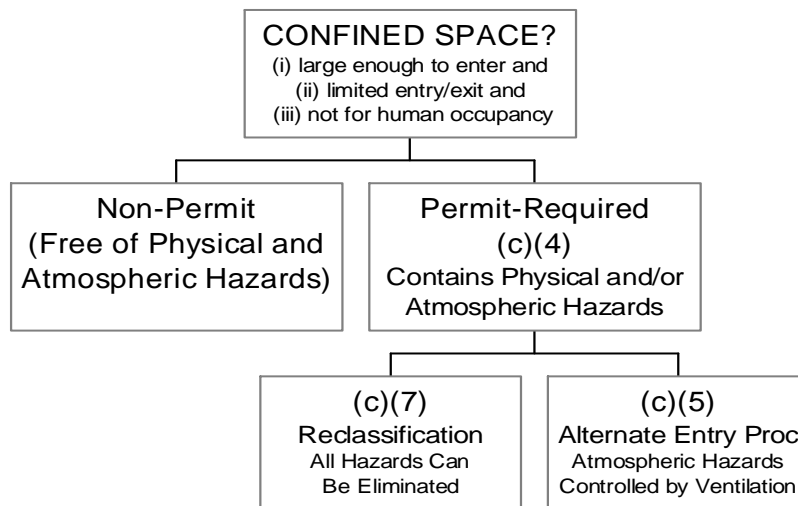
## Limitations

### General Industry vs. Construction

Paragraph (a) of 1910.146 specifically exempts “agriculture construction and shipyard employment” from compliance with the “Permit-Required Confined Space” rule. For years, the moment a backhoe, bobcat, or crane was at the job site (or even if the word “construction” was painted on the door of a pick-up truck) employers have often claimed exemption from 1910.146 and at best, followed bare minimal compliance with CFR1926(b)(6), the confined space rule for construction from the 1970’s. Some salient points should be noted here: OSHA has clearly distinguished and classified maintenance, rehabilitation, re-lining, etc as general industry tasks while only true building of the space (or major reconstruction) should fall under construction regulation. The CFR1926 construction regulation is weak, limited, and fails to cover rescue, air monitoring, multi-employer worksites, and classification of spaces among other deficiencies. In the absence of a current rigorous confined space rule for true construction work, many large host employers and mega-project managers have required all sub-contractors to follow 1910.146 even though the site was really a bona fide construction site. As a result of some combination of the above circumstances, certain employers failed to follow 1910.146 practices at sewer relining projects, tank entry, and wet well pump maintenance operations, with disastrous consequences. Contested cases in this area have expanded considerably in the last few years, so it should not be a surprise that Federal OSHA put forth for comment in 2008 its CFR1926.1200 Subpart AA, a true new “Confined Spaces in Construction” Proposed Regulation.

### Classification of Spaces

CFR1910.146 states in its General Requirement Section (c)(1) that an employer must evaluate work spaces at their facilities for the possible presence of “Permit-Required Confined Spaces” as given in the Definition Section (b) of the regulations. The evaluation of the workspace and the resultant proper classification of the space are best described by logic path diagram given in Figure #1.



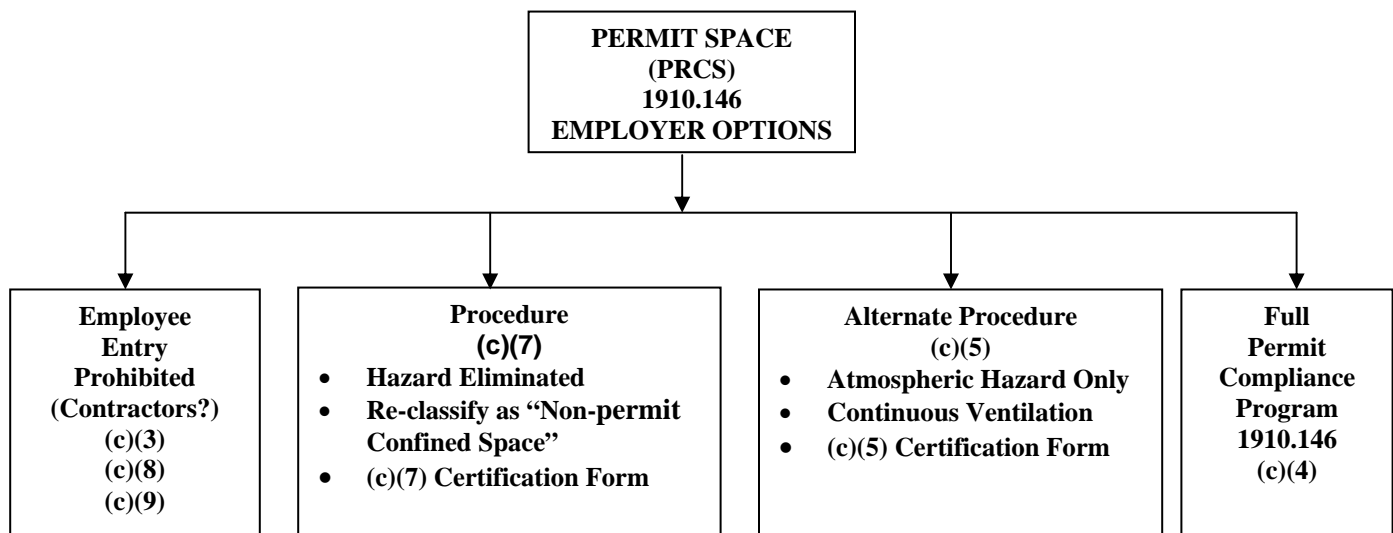
**Figure 1. A Decision Path Flowchart for Confined Space Entry Options.**

It should be noted from Figure #1 that upon determining that a workspace meets the three concurrent confinement requirements given in OSHA’s definition of “confined space”, the competent person making the evaluation has only two options in their classification logic—“Non-Permit Confined Space” or “Permit-Required Confined Space”. A truly “Non-Permit Space” must be free of all hazards, requires no signage, eliminates rescue requirements, and suspends the bulk of any costly and time-consuming requirements for entry. [A hazard review form should be kept on file to support the employers’ contention of “hazard free” status of such a space.] When the confined space under review fails the test of “hazard free” status, it must be designated as “permit-required.” But in-depth review of the history of the space, accident/incident reports, nature of tasks performed may allow the competent person to elect one of the three options listed below:

1. Permit in Perpetuity (Always entered under full permit conditions)
2. “Reclassification to Non-Permit” status through elimination of all hazards
3. “Alternate Procedure” using adequate ventilation when only atmospheric hazards are present

[Full discussions of these options are found in sections (c)(4), (c)(7), and (c)(5) respectively of CFR1910.146.]

Although the language of 1910.146 may not be eminently clear to all, it is a simple fact that the discussion above and the content of the rule allows 4 options for entry whenever an employer requires that a task be done in a permit-required confined space under their ownership or control. This is best summarized by the diagram in Figure #2.



**Figure 2. Possible Classifications of Confined Spaces**

In the author’s experience, cases involving improper classification of space have frequently centered on:

- Reclassified space to non-permit status as found in paragraph (c)(7) when the space is not truly free of all hazards.

- “Alternate procedure” entry by continuous ventilation of atmospheric hazards to safe levels as found in section (c)(5)(ii) when hazards other than atmospheric are still present

### Rescue

It should be emphasized that Federal OSHA’s only substantive change of 1910.146 since its introduction was in 1998 when it expanded rescue section (k), added employee participation paragraph (l), and introduced Appendix (F) for Evaluation Criteria for Rescue Services. Many employers failed to have the resources in budget and personnel to develop their own rescue trained and equipped service, and sought help from outside the workplace through the use of fire departments or private contract rescue services. Several salient points have developed in recent years regarding compliance with the enhanced rescue section (k) and Appendix (F):

1. Employers often (incorrectly) classified the space as a non-permit space at the outset in order to avoid the costly requirements of rescue section (k).
2. The employer sometimes argued reclassification of this permit space to non-permit (to avoid the costly rescue section requirements) when in truth they had not truly eliminated all hazards through emptying and isolation of the space.
3. Some employers incorrectly argued that an attendant activating a non-entry rescue retrieval device (attached by lifeline and harness to the entrant) while summoning an EMS unit via cell phone, is full compliance with rescue section (k) and guidelines of Appendix (F).
4. The employer named a local fire department as the off-premises rescue service, but had no written contract or on-site practice drills to support their contention of compliance with rescue section (k).
5. Small employers in rural areas proposing that a Volunteer Fire Department can be designated as a Confined Space Rescue Service.

Rescue section (k) has been a frequent and costly violated paragraph of the standard and in some instances authorities have levied higher monetary fines for violations of this section, as compared to violations of other paragraphs of 1910.146.

Contested cases involving violation of rescue section (k) have frequently been based on the following:

1. Failure of the employer to develop an effective rescue plan, which designates the rescue service and means to contact that service.
2. Failure of the employer to have the designated rescue service perform (at a minimum) an annual practice rescue drill from a typical permit space using a dummy, mannequin, or human volunteer.
3. Employer contention that an attendant activating a non-entry rescue device (winch, tripod, hoist, davit arm, etc. from outside the space) constitutes full compliance with the regulation.
4. Failure of the employer to evaluate the training, response time, equipment available, etc. for the designated rescue service in order to be assured that rescue can be achieved based on location, width, depth, height, etc. of the permit space.

### Common Confined Space Classification Errors

1. The employer often makes a determination of non-permit status even when ALL HAZARDS have not been eliminated. [Example: A space has been emptied of contents, isolated (including lockout), washed and cleaned but shows several %LEL of residual

- flammable substances and an oxygen level of 19.9% by volume—it clearly is not free of all atmospheric hazards!]
2. The employer introduces a blower of 1200 cfm effective blower capacity to a 1500 cubic feet pit with 6” of standing liquid of unknown origin at the bottom of the pit. In this instance, the blower is of adequate capacity to effectively ventilate the space, but standing liquids of unknown origin cannot be present during (c)(5) “Alternate Procedure” entries.
  3. The employer decides to combine (c)(5) and (c)(7) procedures to reclassify a space not being aware that a FED OSHA opinion letter of the mid 1990’s does not allow combining the two procedures. Ventilation never eliminates atmospheric hazard; it possibly can only control them to safe levels.
  4. An employer puts workers in protective suits to clean out sludge-like residue at the bottom of a chemical tank after bringing a gasoline powered blower into the tank producing carbon monoxide. The contention of a (c)(5) “Alternate Procedure” due to continuous ventilation was firmly overruled by an administrative law judge due to CO exposure and chemical hazards still in the confined space.
  5. An employer incorrectly designated furnace shutdown, cooldown, isolation (with lock-out) as “Alternate Procedure” simply because a blower was required after all other hazard removal steps were complete. Only atmospheric hazards (actual or potential) can be present in “Alternate Procedure” entries; thus the above furnace preparation was essentially a (c)(7) “Hazard Eliminated” entry not “Alternate Entry.”