**Title: P.7. Confined Space Entry**

1. Purpose: The purpose of this program element is to assure that there is an appropriate written protocol or standard operating procedure to follow when entering, for any reason, any area that has limited openings for entry and exit that would make escape difficult in an emergency, has a lack of ventilation, contains known and potential hazards, and/or is not intended or designed for continuous human occupancy.
2. Introduction: This directive contains requirements for procedures and practices to protect employees from the hazards of entry into confined spaces.
3. Procedure Elements:

1. Hazard Assessment. This begins with the need to conduct an assessment to determine if a Confined Space Entry program is required for the agency. If it is found that there is a need, then follow the guidance in the remainder of this directive in developing, implementing, and maintaining an effective program to address the need. Maintain the assessment for recordkeeping purposes. The assessment should include the following:
2. Evaluate all agency work locations to determine and identify the presence of confined spaces.
3. A “confined space” means a space that meets the following criteria:
	* 1. Is large enough and so configured that an employee can bodily enter and perform assigned work.
		2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.). Spaces with limited or restricted means for entry or exit must receive consideration for rescue provisions.
		3. Is not designed for continuous employee occupancy.
4. Applicable Standards: Several safety standards and regulations pertain to confined space entry procedures which include the following:
5. OSHA 29 CFR 1910.146- Permit Required Confined Spaces (to include appendixes A through F).
6. Federal Register 58 FR4462
7. American National Standards Institute (ANSI), “Safety Requirements for Working in Tanks and Other Confined Spaces”, ANSI Z117.1-2009
8. National Institute for Occupational Safety and Health (NIOSH), Criteria Document, “A Guide to Safety in Confined Spaces”, July, 1987
9. Written Procedure: Develop a written policy for Confine Space Entry that is consistent with industry regulatory standards and applies to all Commonwealth employees and contractors during entry or working near confined spaces. These mandatory procedures prescribe the minimum criteria for preventing exposures to hazardous conditions when entering and working in proximity to a confined space.
10. Perform and document an assessment for all potential confined spaces to determine the classification as either "non-permit required" or "permit-required".
	1. "Non-permit confined space" (NPRCS) means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.
	2. Permit Required Confined Spaced (PRCS) means confined space that has one or more of the following characteristics:
		1. Contains or has a potential to contain a hazardous atmosphere;
		2. Contains a material that has the potential for engulfing an entrant;
		3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
		4. Contains any other recognized serious safety or health hazard.
11. Maintain a list that identifies the classification and location of agency confined spaces.
	1. Develop signage, labeling, and/or security procedures to communicate the location of confined spaces and restrict unauthorized access.
	2. A sign reading, DANGER – PERMIT REQUIRED CONFINED SPACE – DO NOT ENTER, or using other similar language would satisfy the requirement for a sign.
12. Determine, document, and communicate the agency’s position on confined space entry to all employees through training and written documentation from the following options:
	* 1. Do not permit any employee to enter any confined space at any time, permit required or non-permit required. All such entries will be performed by qualified outside contractors.
		2. Do not permit any Commonwealth of Pennsylvania employee to enter any PRCS, but may enter NPRCS or spaces declassified to NPRCS. All PRCS entries will be performed by qualified outside contractors.
		3. Permit authorized Commonwealth of Pennsylvania employees to enter PRCS and NPRCS or spaces declassified as such.
13. Define, document, and communicate agency program roles, responsibilities, and duties as appropriate based on the agency’s position regarding confined space entry. (managers, supervisors, safety coordinator, facility management, authorized attendants, authorized entrants, authorized entrant supervisor, and employees).
14. Develop basic procedures for all confined spaces classified as “non-permit required” to ensure that there is no introduction of hazards that would change it to “permit-required.”
15. When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the employer shall reevaluate that space and, if necessary, reclassify it as a permit-required confined space.
16. Refer to and follow any other applicable standards or procedures pertaining to NPRCS based on the type of tasks or work to be performed.
17. Develop detailed entry procedures, including alternate entry and reclassification procedures, as appropriate for all confined spaces classified as “permit required”.
18. Develop a permit system that establishes written procedures for preparing and issuing permits for entry and for returning the permit space to service following the completion of work.
19. Develop procedures for atmospheric testing and equipment maintenance.
20. Develop, provide, and document training so that all affected employees acquire the understanding, knowledge, and skills necessary for the safe performance of assigned duties.
21. Develop procedures for on-site and/or off-site emergency and rescue services.
22. Develop procedures for contractors or outside personnel that may enter or perform work near agency identified confined spaces to ensure compliance with all requirements.
23. Ensure the proper application of other procedures as necessary to enter and perform the work in a safe manner such as lockout/tagout procedures, electrical safety, fall prevention, and hot work permits.
24. Permit Required Entry Procedures: Develop and implement the means, procedures, and practices necessary for safe permit space entry operations. Entry into a designated PRCS must include, but is not limited to, the following requirements:
25. Implement the measures necessary to prevent unauthorized entry by securing entry points and posting appropriate warning signs.
26. Identify and evaluate hazards before entry. Include operations by personnel within the space that may create a new hazard within the space (e.g. welding within a vessel, using chemicals inside the space, etc.).
27. Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits.
28. Establish safe practices such as isolating the space, purging, inerting, flushing, ventilation, barricades, lockout/tagout to eliminate or control hazards.
29. Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
30. Provide and maintain the necessary equipment at no cost to employees. Ensure that employees use the equipment properly. Examples of equipment include the following: testing and monitoring, PPE, ventilation, communications, lighting, barriers, ingress and egress, and rescue.
31. Monitor/test the permit space and atmosphere as necessary prior to entry and continuously during operations to ensure acceptable entry conditions exist.
32. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.
33. The entrance to the confined space shall be maintained free of obstructions, debris and/or other conditions that prevent ready entry into and exit from the confined space.
34. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.
35. Designate the persons who have active roles (authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere) in the entry operations. Identify the duties of each employee and provide them with the appropriate training.
36. Develop and implement procedures for summoning rescue and emergency services, for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue.
37. Coordinate entry operations during multiple employer or space entries.
38. Develop and implement the procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed.
39. Any confined space classified as permit-required may be reclassified as non-permit required if it meets the following criteria:
40. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated.
41. If it is necessary to enter the permit space to eliminate hazards, the entry shall be performed as permit required. If testing and inspection during entry demonstrate that the hazards within the permit space have been eliminated, the permit space may be reclassified as a non-permit required confined space for as long as the hazards remain eliminated.
42. Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards.
43. Document the basis for determining that all hazards in a permit space have been eliminated, through a written certification that contains the date, the location of the space, and the signature of the person making the determination. The certification shall be made available to each employee entering the space or to that employee's authorized representative
44. If hazards arise within a permit required space that was declassified to non-permit required, each employee in the space shall exit immediately. The space must then be reevaluated to determine whether it must be reclassified as a permit required space.
45. When an agency arranges to have contractors perform work that involves permit space entry, the agency shall:
	1. Inform the contractor that the workplace contains permit required spaces and entry is only allowed through compliance with the agency’s PRCS program.
	2. Inform the contractor of the hazards identified and the agency’s experience with the space.
	3. Apprise the contractor of any precautions or procedures that the agency has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.
	4. Coordinate entry operations with the contractor, when both the agency and contractor personnel will be working in or near permit spaces.
	5. When the agency does not allow employees to enter permit required confined spaces, contractors would be responsible to follow the requirements listed in this guidance document.
	6. Ensure the contractor informs the agency of the permit space program that they will follow and any hazards confronted or created in permit spaces, either through a debriefing or during entry operations.
46. Alternate Entry Procedures for Permit-Required Confined Spaces (PRCS): As appropriate, develop and implement the procedures and practices necessary for the use of alternate entry procedures for permit-required confined spaces.
47. The use of alternate procedures for entering a permit space must include, but are not limited to, the following requirements:
48. It can be demonstrated through monitoring and inspection data that the only hazard posed by the space is an actual or potential hazardous atmosphere.
49. It can be demonstrated through monitoring and inspection data that continuous forced air ventilation alone is sufficient to maintain that space free from atmospheric hazards and safe for entry.
50. If initial entry of a permit space is necessary to obtain the data then the procedures for permit required entry must be followed.
51. Hazardous conditions shall be eliminated before entrance covers are removed.
52. When entrance covers are removed, the opening shall be properly guarded with a barrier to protect Entrants from an accidental fall or from foreign objects entering the confined space.
53. Before entry into the confined space, the internal atmosphere shall be monitored with a calibrated direct reading instrument for the following conditions in the order given:
	* 1. oxygen content
		2. flammable gases and vapors
		3. potential toxic air contaminants
54. Whenever Entrants are inside the space, no hazardous internal atmosphere is permitted.
55. Continuous forced air ventilation shall be used as follows:
56. Entrants may not enter the space until the forced ventilation has controlled any hazardous atmosphere.
57. Forced ventilation shall be directed to the immediate areas where work is to be done and continue until all Entrants have left the space.
58. The air supply for the forced air ventilation must be from a clean source and may not increase the hazard in the space.
59. The atmosphere within the space shall be continuously monitored whether or not forced ventilation is used.
60. If a hazardous atmosphere is detected during entry, the following procedures shall apply:
61. All Entrants shall exit the space immediately.
62. The space shall be evaluated to determine how the hazardous atmosphere developed.
63. Measures shall be carried out to protect Entrants from the hazardous atmosphere before subsequent entry takes place.
64. The agency must verify that the space is safe and that all alternate entry procedures are followed by means of a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space.
65. When there are changes in the use or configuration of a permit required space that may increase the hazards to Entrants, the agency shall re-evaluate that space and, if necessary, discontinue the use of alternate entry procedures.
66. Permit System: Before entry is authorized, completion of the measures required for entry must be documented by preparing an entry permit. The permit system must address the following requirements:
67. Document all steps necessary for entry.
68. Must be signed by the entry supervisor prior to entry.
69. The permit must be posted at entry portals and made available to all entrants at time of entry.
70. Require initials or signature of persons completing the steps for entry.
71. The duration of the permit may not exceed the time required to complete the assigned task. In most cases, a new permit should be issued when entry operations extend through shifts or over multiple days.
72. The entry supervisor must cancel the permit if a prohibited condition arises or the work has been completed.
73. Each cancelled entry permit must be retained for one year to facilitate program review.
74. The entry permit form that documents compliance and authorizes entry must identify the following:
75. The permit space to be entered.
76. The purpose of entry.
77. The date and the authorized duration of the entry permit.
78. The personnel, by name, currently serving as entrants and attendants.
79. The entry supervisor by printed name and signature.
80. The hazards of the permit required space.
81. The measures used to isolate, eliminate, and/or control the hazards before entry.
82. The acceptable entry conditions.
83. The test results, when they were taken, and the signature(s) / initial(s) of the tester(s).
84. An accurate count of all entrants and a log of entry and exit times.
85. The rescue services and the means to summon them.
86. The communication procedures used by authorized entrants and attendants to maintain contact during the entry.
87. The equipment required for entry such as PPE, testing equipment, communications equipment, alarm systems, and rescue equipment.
88. Any other information necessary to ensure safe entry.
89. Any additional permits needed such as hot work permits.
90. Training: Develop, provide, and document initial and refresher training for all affected employees. The training must establish employee proficiency in the required duties for authorized entrants, attendants, entry supervisors, and general employees.
91. The training program content and frequency of training is dependent upon the type of confined space entries permitted by the agency.
92. All affected non-authorized employees must be made aware of the confined space policy to include the following:
93. Confined space identification
94. General locations and types of agency confined spaces.
95. The agency’s policy prohibiting entry by employees not specifically trained for confined space operations.
96. Initial and refresher training for authorized employees must be provided as follows:
97. Before the employee is assigned or performs confined space entry duties.
98. Before there is a change in assigned duties.
99. Whenever there are new or revised procedures.
100. Whenever a change in permit space operations presents a new hazard.
101. Whenever there is reason to believe there are deviations from procedures or inadequacies in the employee's knowledge or use of the procedures.
102. Authorized employees (entrant, attendant, entrant supervisor) required to conduct or supervise confined space work shall receive training on their respective duties that includes, but is not limited to, the following:
103. Hazard recognition and control procedures.
104. Communications procedures and equipment.
105. Personal protective clothing and equipment.
106. Atmospheric testing procedures and equipment.
107. Entry procedures and safe work practices.
108. Evacuation/emergency procedures and equipment.
109. Non-entry retrieval equipment and procedures (Supervisor/Attendant Only).
110. Work planning and supervision (Supervisor/Attendant Only).
111. Rescue and Emergency Services: Develop procedures for the determination and selection of on-site, off-site, and non-entry rescue of employees engaged in confined space work.
112. An agency that designates off-site rescue and emergency services shall ensure the following:
113. Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to respond to a rescue summons in a timely manner. What will be considered timely will vary according to the specific hazards involved in each entry.
114. Inform each rescue team or service of the hazards they may confront.
115. Provide the rescue service with access to all permit spaces so they can develop appropriate rescue plans and practice rescue operations.
116. An agency whose employees have been designated to provide on-site rescue and emergency services shall take the following measures:
117. Must be properly trained in entry procedures, rescue procedures, and PPE requirements.
118. Permit space rescues must be practiced at least annually from similarly configured spaces.
119. Must be trained in basic first-aid and CPR, and have at least one member currently certified.
120. Retrieval systems or methods shall be used whenever entry is made, unless the retrieval equipment would increase the overall risk of entry or would not be of value. Retrieval systems shall meet the following requirements:
121. Each entrant shall use a chest or full body harness, with a retrieval line attached at the center of their back near shoulder level, or above their head.
122. Wristlets may be used if a harness is infeasible or creates a greater hazard and the use of wristlets is the safest and most effective alternative.
123. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space for immediate use.
124. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.
125. If an injured entrant is exposed to a substance with a required MSDS or similar document, it shall be made available to the medical facility treating the entrant.
126. Checklists and Forms: Develop the necessary forms to ensure safe entry and document compliance. The forms may include, but are not limited to, the following:
127. Confined space assessment form.
128. Permit required entry permit form.
129. Alternate entry certification and/or declassification permits.
130. Atmospheric monitoring form.
131. Confined space entry log.
132. Agency listing of confined spaces.
133. Rescue performance evaluations.
134. Program Effectiveness Review and Response: The effectiveness of this program in preventing workplace injuries and illnesses should be evaluated at least annually with appropriate actions taken to address any program deficiencies found.
135. Review the permit space program, using the canceled permits, within 1 year after each entry and revise the program as necessary to ensure that employees are protected from the hazards.
136. A single annual review may be performed that covers all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.