

CONFINED SPACE PRE-ENTRY CHECKLIST

(Appendix 4C)

(Post at Point of Entry)



1.	Unsafe conditions for removing an entrance cover are eliminated.	Yes	No
2.	Entrance openings are guarded to prevent workers and objects from falling into the space.	Yes	No
3.	Oxygen content tested and suitable for entry.	Yes	No
4.	Flammable gases and vapors tested and space suitable for entry.	Yes	No
5.	Potential toxic air contaminants tested and space suitable for entry.	Yes	No
6.	Forced-air ventilation has eliminated any hazardous atmosphere.	Yes	No
7.	Forced-air ventilation ventilates the immediate area where work is performed.	Yes	No
8.	Forced-air ventilation continues until all workers have left the space.	Yes	No
9.	All test results are documented.	Yes	No
10.	Air supply for the forced-air ventilation is clean and does not increase hazards in the space.	Yes	No
11.	Atmosphere inside the space is periodically tested as necessary.	Yes	No
12.	The employer has taken the required pre-entry procedures through a written certification process.	Yes	No
13.	Certification includes date, location of space and the signature of the certifying person.	Yes	No
14.	The emergency phone number list has been established.	Yes	No
15.	The employer has verified that the space is safe for entry.	Yes	No

Contact rescue personnel by local fire department in the event of an emergency.

Notice: If any of the above questions are answered "no" do not enter. Contact your immediate supervisor.

Job Location _____

Entry Supervisor/Foreman Signature: _____ Date: _____

CONFINED SPACE ATMOSPHERE TESTING PROCEDURE (Appendix 4D)



Atmospheric testing is required for two distinct purposes:

1. Evaluation of the hazards of the permit space.
2. Verification that acceptable conditions exist for entry into that space.

- (1) Evaluation testing:** The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data and development of the entry procedure should be done by, or reviewed by, a technically qualified professional (e.g., OSHA consultation service, or certified industrial hygienist¹, registered safety engineer, certified safety professional) based on evaluation of all serious hazards.
- (2) Verification testing:** The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions. Testing order should be oxygen, flammables, and then toxics. Results of testing (i.e. actual concentration) should be recorded on the permit in the space provided adjacent to the stipulated acceptable entry condition.
- (3) Duration Of testing:** Measurement of values for each atmospheric parameter should be made for at least the minimum response time of the test instrument specified by the manufacturer.
- (4) Testing stratified atmospheres** When monitoring for entries involving a descent into atmospheres which may be stratified, the atmospheric envelope should be tested a distance of approximately four (4) feet (1.22 meters) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response.
- (5) Periodically retest:** To verify that the atmosphere remains within acceptable entry conditions.

¹Title 29 Code of Federal Regulations 1910.146, Appendix B.
229 CFR 1910.146 (c)(5)(ii)(C) and (d)(5)(iii).
329 CFR 1910.146 (c)(5)(ii)(F) and (d)(5)(ii).

CONFINED SPACE DEFINITIONS (Appendix 4E)



DEFINITIONS:

Confined space: a space that is large enough and so configured that an employee can bodily enter and perform assigned work; and 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); and is not designed for continuous employee occupancy.

Permit-Required Confined Space: A Confined space is considered "Permit required" if it 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 the 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; or 4). Contains any other recognized serious safety or health hazard.

Non-Permit Required Confined Space: 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".

No-Entry Confined Space: A space where our employees are not allowed to enter. These spaces require the posting of do-not-enter signs. Contractors may be called upon to work in these areas. If a Contractor is called upon to work in these areas, a Confined Space Entry Permit is required and special precautions will be made prior to entry.

Hazardous Atmospheres: An atmosphere which poses a danger to persons or property. Hazardous Atmospheres can be defined as Flammable, Toxic, Irritant / corrosive, and Asphyxiating.

Hazardous Atmospheres - Flammable: Generally An atmosphere arises from enriched oxygen atmospheres, vaporization of flammable liquids, byproducts of work, chemical reactions, concentration of combustible dust or absorption of chemicals from inner surfaces of the confined space. For instance, ammonia may result in a flammable atmosphere.

Hazardous Atmospheres - Toxic: The substances to be regarded as toxic in a confined space can cover the entire spectrum of gases, vapors, and air-borne dusts. Examples include: 1.) Manufacturing process (such as charcoal manufacturing), 2.) Product storage (such as Removing decomposed organic material from a tank), 3.) operations performed in the confined space (such as welding or brazing).

Hazardous Atmospheres – Irritant / and or Corrosive: Irritant or corrosive atmospheres can generally be divided into primary and secondary groups. The primary irritants exert no systemic toxic effects because the products formed by them on tissues of the respiratory tract are non-irritant and other irritant effects are so violent as to obscure any systemic toxic action. (Examples are chlorine, ozone, hydrochloric acid, sulfuric acid, ammonia, etc.). A secondary irritant is one that may produce systemic toxic effects in addition to surface irritation. (Examples include benzene, carbon tetrachloride, other chlorinated solvents, etc.). The danger of this atmosphere is that the worker is usually not aware of any increase in his exposure to toxic substances.

Hazardous Atmospheres – Asphyxiating: The normal atmosphere is composed of approximately 21% oxygen and 78% nitrogen and various other gases. An Asphyxiating Atmosphere is deficient of the proper amount of Oxygen. Reduction of oxygen in a confined space may be the result of either consumption or displacement.

Ventilation: Ventilation for confined space purposes should consist of about 20 air changes per hour. This means charging the air in a space once every three minutes.

PERMIT-REQUIRED CONFINED SPACE DECISION FLOW CHART

(Appendix 4f)

