



**Dartmouth College** HANOVER • NEW HAMPSHIRE • 03755

37 Dewey Field Road – Tel (603) 646-1762 – Fax (603) 646-2622

ENVIRONMENTAL HEALTH AND SAFETY

<http://www.dartmouth.edu/~ehs/>

## **PERMIT REQUIRED CONFINED SPACE POLICY**

**January 2016 Revision**

**In Accordance with OSHA Regulation 29CFR1910.146**

## Confined Space Entry Program

### I. Purpose

This policy describes how Dartmouth College will comply with the requirements of the Occupational Safety and Health Administration standard 29 CFR 1910.146, "Permit Required Confined Space".

### II. Scope and Application

This program applies to College employees whose job may require them to enter a confined space. Only trained employees are authorized to enter and work in a confined space.

### III. Definition

- A confined space is any location that is not intended for human occupancy AND has restricted means of entry/exit. At Dartmouth College, confined spaces are locations such as manholes, electrical, steam and telephone vaults. Confined spaces may also have additional hazards present that must be anticipated, planned for and controlled with safe work practices—such as electrical hazards, steam hazards and potentially oxygen deficient atmospheres.
- There are two types of confined space; Permit Required Confined Space and Non Permit required Confined Space.
  - Permit Required Confined Space means a confined space that has one or more of the following:
    - Contains or has the potential to contain a hazardous atmosphere
    - Contains a material that has the potential for engulfing an entrant
    - Has a 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
    - Contains any other recognized serious safety or health hazard
  - Non Permit Required Confined Space 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.
- Confined Space Permit is a document that is required whenever an employee enters a permit required confined space. The document must be completed prior to entry of the space.

#### **IV. Confined Space: General Requirements**

- Only trained, authorized personnel may enter a confined space. Training is provided by EHS on a periodic basis. Supervisors are responsible for ensuring all new personnel are trained.
- A standardized confined space permit tag is to be taken to the confined space location, clearly and accurately completed, displayed during the entry process and returned to the Tool Crib when the work is completed or no later than the end of the shift. A confined space permit is only valid for one shift. See Appendix One.
- An approved, calibrated and operable confined space monitor (air monitor) must be used. Honeywell four gas meters are available in the troubleshooter's tool crib.
- A confined space must have a fixed means of entry and exit--such as a ladder or fixed steps. Ladders must remain in place throughout the entry.
- A minimum of two authorized persons must be present when entering a confined space--a two-way radio capable of summoning help in an emergency must be present and operable by the attendant.
- Barricades (guard rails) and other forms of warning (caution tape, traffic cones) must be used whenever a confined space is opened or unguarded in such a way that may be hazardous to others.
- No confined space is to be left open or unprotected at any time.
- Lock-out/Tag-out (LOTO) must be used as required to eliminate potentially dangerous energy hazards.
- Welding and paint use in a confined space must be accompanied by continuous ventilation and monitoring. Introduction of welding and/or painting into a confined space makes the confined space a permit required confined space.
- All confined space locations must be visually inspected prior to entry for any unforeseen hazards. Examples could include a gasoline spill from a roadway or a leaking steam line.

#### **V. Confined Space Entry Procedures:**

*Before arriving at the location. . .*

- Obtain a Dartmouth College confined space permit and confined space four gas air monitor. Ensure prior approval signatures are obtained for the permit.

- Inspect and test the confined space four-gas monitor to ensure it is working properly. Calibration must have been within the last 12 months—indicated by a calibration sticker. A monthly "gas" calibration must also be current to within 30 days and is done in-house by the Electronics Shop. Ensure batteries are fresh. Simply put, never use an un-calibrated, defective or questionable monitor!

*At the Confined Space. . . .*

1. Set up barricades and other forms of warning.
2. Test location at various levels (at least three--near the bottom, middle and top) to determine oxygen levels or potentially explosive atmospheres. **Allow adequate response time of instrument when taking readings--do not rush.** Oxygen concentrations must be above 19.5% and below 23.5% for entry. Combustible gasses must be below 10% of the LEL (lower explosive limit) for entry. **If monitoring results are outside of the safe ranges, the space is not safe for entry. Do not enter and notify your supervisor.**
3. Mechanically ventilate the confined space with a blower for at least ten minutes<sup>1</sup>.
4. Re-test the location as outlined in Step 2 and continuously monitor the space throughout the entry.
5. If acceptable, entry may proceed. The attendant must remain outside the space with radio, and in contact with the entrant(s) at all times.
6. If work will require more than five minutes or if the location is hot or uncomfortable, continuous ventilation is required. A "saddle" vent may be used to avoid blocking the access. Do not place ventilation intakes near auto exhausts or otherwise contaminated air sources.
7. In hot or demanding environments, workers are encouraged to drink plenty of fluids and leave the location for brief periods as needed to recover.
8. At the first sign of danger (for example, alarm on monitoring equipment) the attendant must order an immediate evacuation of the space while self rescue by the entrant is still possible.
9. In the event of an emergency, the attendant is to summon help immediately via radio. It must be clearly stated that this is an emergency and that a 911 call must be placed to summon help. At no time should they put themselves in danger by entering a potentially hazardous environment in an attempt to rescue, nor shall they leave the space unattended while someone is in the confined space.

---

<sup>1</sup> There are a small number of manhole locations on campus where the space is quite small. In all cases, the space must be monitored but ventilation is not practical.

10. Ensure that you have completed your confined space permit and that the permit is displayed at the work location; for example, the confined space permit may be tied to the barricade. In adverse conditions, the tag may be protected against damage but must be readily available at the location. Without the tag, there is no documentation that proper procedures have been followed.
11. Return the completed confined space permit to the Tool Crib no later than the end of the shift. The Tool Crib attendant is responsible for collecting and retaining confined space permits.

## **VI. Rescue**

- The Hanover Fire Department serves as the primary rescue organization for Dartmouth College's confined space entry program.
- If a rescue is needed, the attendant should call 911 and provide the exact location of the confined space entry. If the attendant does not have a cell phone, the radio should be used to contact dispatch and alert them of the emergency so that they can contact the Hanover Fire Department.
- Confined space rescue drills will be conducted annually with the Hanover Fire Department.

## **VI. Alternative Procedures for Specific Confined Space Entry**

- The following "Standard Operating Procedures should be consulted for alternative entry procedures into selected types of confined space.
  - SOP #

## **VI. Audits**

A documented audit of this program will be done periodically and revisions made as necessary to ensure compliance. On an on-going basis, supervisors are responsible for ensuring that the provisions of this program are followed. EHS will collect all confined space permits from FOM once a year as part of the audit process and retain these permits for a period of three years.

Revision 5: November, 1999

Revision 6: March, 2000

Revision 7: November, 2003

Revision 8: July, 2008

Revision 9: January 2016

