Department of Environmental Health & Safety

Confined Space Entry Program

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SECTION

OHIO UNIVERSITY

CONFINED SPACE ENTRY PROGRAM

1.0 SCOPE

This document establishes the precautions, training, responsibilities, requirements, and methods, which are to be used by all Ohio University personnel and contractors while preparing for and entering confined spaces at Ohio University.

2.0 PURPOSE

The purpose of this program is to insure that Ohio University does everything possible to prevent injury or illness to employees and contractors who may be entering a confined space. It is also the intention of this policy to comply with the OSHA Standard 29 CFR 1910.146. It is the responsibility of all employees to follow all procedures outlined in this program without exception.

3.0 REFERENCES AND DEFINITIONS

3.1 REFERENCES

3.1.1 OSHA Permit-Required Confined Spaces for General Industry, 29 CFR 1910.146.

3.1.2 OSHA Lockout/Tagout Standard for General Industry, 29 CFR 1910.147.

3.2 DEFINITIONS

3.2.1 Attendant: Individual stationed outside one or more permit spaces who monitors the authorized entrants and performs all duties assigned in the confined space program

3.2.2 Authorized Entrant: Employee who is authorized by the employer to enter a confined space.

3.2.3 Blanking or Blinding: The absolute closure of a pipe, line or duct. This is done by fastening a solid plate or "CAP" across its bore that completely covers the bore; which extends at least to the outer edge of the flange at which it is attached; and that is capable of withstanding the maximum upstream pressure.

3.2.4 Confined Space: A space that is large enough and so configured as to allow bodily entry and perform assigned work, has limited or restricted means of entry/exit, and is not designed for continuous occupancy.

3.2.5 Double block and bleed: The closure of a line, duct, or pipe by locking and tagging a drain or vent which is open to the atmosphere in the lines between two locked closed valves

3.2.6 Emergency: Any occurrence, including any failure of hazard control or monitoring equipment, or event affecting the confined space that could endanger entrants.

3.2.7 Entry: Action by which a person passes through an opening into a confined space. Entry is considered to have occurred as soon as any part of the entrant's body

- Any other atmospheric condition that is immediately dangerous to life or health.

3.2.12 Hot Work: The cutting, welding, brazing, grinding or torch soldering of materials. All work of this type must be done in accordance with the Ohio University hot work permit system and appropriate ventilation.

3.2.13 Isolation: The separation of a permit entry space from unwanted forms of energy, which could be a serious hazard to entrants. Isolation is usually accomplished by such means as blanking or blinding, removal or misalignment of pipe sections or spool pieces, double block and bleed, or lockout and tagout.

3.2.14 Low Hazard 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(non-permit confined space) or where the atmospheric or potential atmospheric hazard can be controlled with ventilation (alternate procedures).

3.2.15 Permit-Required Confined Space: A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains or has a material that has the potential for engulfing an entrant;
- 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
- Contains any other recognized serious safety or health hazard.

3.2.16 Physical Hazards**:** Examples include but are not limited to:

- Confinement, restricted entry and exit, physical impediment of the body, use of the hands or a contortion of the body to enter into or exit from the confined spaces.
- Engulfment: The surrounding and effective capture of a person by a liquid or finely divided solid substance, bridging.
- Other Common Hazards: Temperature extremes, noise, excessive moisture, vibration, ionizing radiation, electrocution, particle abrasion/impaction, combustible dusts, animals, slippery footing conditions, and water falls.

3.2.17 Prohibited Condition: Any condition in a permit space that is not allowed by the permit during the period entry is authorized.

3.2.18 Testing: Process by which the hazards that may confront entrants of a confined space are identified and evaluated. This includes specifying tests that are to be performed in the space.

4.0 GENERAL

4.1 All potential Confined Spaces have been evaluated per OSHA Permit-Required Confined Space Decision Tree (Appendix A).

4.2 A completed permit shall be completed and approved to enter any confined space. No employee shall enter a confined space without a si

4.12 Alternate Procedures-If all the above concerns have been removed and the only hazard is an actual or potential atmospheric hazard that can be controlled with ventilation, this can be done without stand-by rescue services as long as the requirements of the Standard are met for "alternate procedures":

- Entry cover removed safely
- Access protected or guarded
- Continuous ventilation provided
- Internal atmosphere tested and continuously monitored
- Proper permit record is kept

4.13 Once the space has been declassified from its permit space designation then the posted permit shall reflect this by checking the "low hazard confined space" (non-permit or alternate procedures) designation in the appropriate section of the permit (Appendix D).

5.0 ENTRY PERMITS

5.1 Confined space entry permits must be completed and authorized only by the Authorized Entry Supervisor's before entry into a confined space (Appendix D - Permit). Entry permits that authorize entry into a confined space must include the following information:

- Specific location of the permit space to be entered.
- The purpose of the entry.
- The date and authorized duration of the entry permit.
- Identification of authorized entrants to the space.
- Identification of persons who will serve as attendants, as required.
- Name of entry supervisor.
- The hazards of the space to be entered.
- Measures used to isolate the space, as necessary.
- Measures used to eliminate or control the hazards of the space.
- The acceptable entry conditions for the space.
- Results of initial and periodic testing along with the names of the testers and the times the tests were performed and identification of equipment used

- Original at the confined space work site
- One copy to the Authorized Entry Supervisor
- One copy to EHS, Confined Space Program Administrator

6.0 DUTIES AND RESPONSIBILITIES

6.1. Authorized Entrant Duties:

6.1.1 Utilize working knowledge of the hazards present during entry, including: information on the mode, signs, or symptoms and consequences of exposure.

6.1.2 Possess adequate knowledge and skill to use equipment necessary to perform the task safely and effectively.

6.1.3 Maintain communication with the attendant as necessary to enable the attendant to monitor entrant status and allow attendants to alert entrants of the need to evacuate confined space for any reason.

6.1.4 Alert the attendant whenever entrant recognizes or suspects the presence of a dangerous situation.

6.2.1 Possess working knowledge of the hazards that may be present in the confined space including: information on the mode, signs or symptoms, and consequences of exposure

6.2.2 Be aware of possible behavioral effects of hazard exposure in authorized entrants

6.2.3 Continuously maintain an accurate count of authorized entrants in the confined space

6.2.4 Remain outside the permit space during entry operations until relieved by another authorized attendant

6.2.5 Communicate with authorized entrants as necessary to monitor entrant status, and to alert entrants of the need to evacuate the space.

6.2.6 Monitor activities inside and outside the space to determine if it is safe for entrants to remain inside the space.

6.2.7 Order authorized entrants to exit the space immediately under any of the following conditions:

- If the attendant detects a prohibited condition.
- If the attendant detects the behavioral effects of hazard exposure in an authorized entrants.
- If the attendant detects a situation outside the space that could endanger the entrants.
- If the attendant cannot safely and effectively perform his required duties for any length of time.

6.2.8 Take the following actions when unauthorized persons approach or enter a confined space while entry is in progress:

- Warn unauthorized persons that they must stay away from the confined space.
- Advise unauthorized persons that they must exit the space immediately if they have entered the permit space.
- Inform the authorized entrants and entry supervisor if unauthorized persons have entered the permit space.

6.2.9 Perform non-entry rescue as specified in the emergency rescue plan

6.2.10 Perform no other concurrent tasks that may interfere with primary duty of monitoring and protecting the authorized entrants.

6.2.11 Continuously monitor the space for hazardous atmospheres when needed.

6.3 Entry Supervisor Duties

6.3.1 Possess working knowledge of hazards that may be faced during entry, including: information on the signs or symptoms, and consequences of exposure.

6.3.2 Verify, by checking entry 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 authorizing the permit and allowing entry work to begin.

6.3.3 Terminate the entry and cancel the permit as required by this program.

6.3.4 Verify that rescue services are available and that the means for summoning them are operable (if a permit required confined space can not be declassified to non-permit or alternate procedures).

6.3.5 Remove unauthorized individuals who enter, or attempt to enter the confined space during entry operations.

6.3.6 If responsibility for an entry operation is transferred, that entry operations remain consistent with terms of the entry permit.

6.3.7 Notify affected area supervision and the EHS Representative in advance of anticipated confined space entry.

6.3.8 It is recommended that entry supervisors inspect the entry site in the field to verify conditions.

7.0 CONFINED SPACE ENTRY PROGRAM

7.1 Pre-Entry

7.1.1 The Entry Supervisor shall notify affected area supervision and the EHS Representative well in advance of anticipated confined space entry.

7.1.2 Acquire entry permit from the Entry Supervisor or the EHS

7.2.1 Assemble authorized entry workers (enough to complete the task)

7.2.2 Assemble authorized attendants (at least one)

7.2.3 Assemble entry supervisor (one)

7.3 Organize Required Equipment (Appendix B).

7.3.1 Check operation of required equipment

7.3.2 Check the departments Standard Operating Procedures (SOP) for entering the space

7.4 Determine atmospheric conditions of confined space.

7.4.1 Ensure that atmospheric test equipment is calibrated according to the manufacturers recommendations.

- Test equipment is maintained by the Lauche Heating Plant and Environmental Services Shop at Facilities Management
- EHS has back-up equipment

7.4.2 Test for potential atmospheric hazards, which are anticipated in the confined space.

- oxygen
- flammable gases, vapors, or mists
- flammable and respirable dusts
- toxic atmospheres and residues

7.4.3 Flush, purge, and ventilate as needed to preventk

7.5.2 Ensure that items brought into space will not create an atmospheric, electrical, physical, chemical, flammable, or mechanical hazard.

7.5.3 Hot work (i.e. welding, cutting, brazing, and grinding)

- Examples listed above require also a hot work permit, ventilation, and fire watch in a confined space.
- Avoid any activity that may generate materials that may make a previously monitored and declassified space a permitted one again

7.5.4

- No vehicular traffic, heavy equipment, or heavy loads shall be permitted over a confined space while employees are in the space

7.9.8 Remove equipment and any work materials used inside confined space upon completion of work.

7.10 Post-Entry

7.10.1

EQUIPMENT CHECKLIST

The following is a list of equipment which may be used for permit required confined space entry operations.

1. Testing and Monitoring Equipment
   -air sampling devices and monitors

2. Ventilating Equipment
   -fans, blowers, etc.
   - gases for purging or inerting ie. argon

3. Communication Equipment
   - two way radios
   - hand signals

4. Personal Protective Equipment
   - protective suits
   - respiratory protection
   - gloves, hard hat, boots etc.
   - fall protection
   - "Man down" alarms

5. Lighting and Electrical Equipment
   - intrinsically safe flood lights
   - explosion-proof fixtures
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APPENDIX D

CONFINED SPACE PERMIT FORM

CONFINED SPACE ENTRY PERMIT
Ohio University

A. Confined Space #_____ Purpose of Entry _____

Dept. Entering _____ Date_____ Time: Entry_____

Building & Description of Space_____ Exit_____

_____ Work Order No. _____

B. Potential Hazards (check all that apply)

C. Monitoring Record

Action Level
<19.5%
>23.5%
>10% of LEL
>25ppm
>10pp

D. Safety Equipment Checklist

E. Hazard Control Checklist

APPENDIX E

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OHIO UNIVERSITY'S CONFINED SPACES LIST

Contact the following Departments for a listing of confined spaces on campus, a description of them, standard operating procedures (SOP's) for entry, and trained entry supervisors, attendants, and entrants:

- Environmental Health & Safety: 593-1662
- Facilities Management, Lausche Heating Plant: 593-4715
- Facilities Management, Environmental Services Shop: 593-9146
- Facilities Management, Plumbing Shop: 593-4704