

Minnesota State University Moorhead

Confined Space Program

Introduction

Many workplaces contain spaces that are considered to be "confined" because their configurations hinder the activities of any employees who must enter into, work in, and exit from them. In many instances, employees who work in confined spaces also face increased risk of exposure to serious physical injury from hazards such as entrapment, engulfment, and hazardous atmospheric conditions. Confinement itself may pose entrapment hazards, and work in confined spaces may keep employees closer to hazards, such as an asphyxiating atmosphere, than they would have otherwise. For example, confinement, limited access, and restricted airflow can result in hazardous conditions that would not arise in an open workplace.

The term "permit-required confined space" (i.e. permit space) refers to those spaces that meet the definition of a "confined space" and pose health or safety hazards, thereby requiring a permit for entry.

A confined space has limited or restricted means of entry or exit, is large enough for an employee to enter and perform assigned work and is not designed for continuous occupancy by the employee. These spaces may include, but are not limited to underground tunnels, tanks, crawl spaces, pits, vessels, and manholes.

A permit-required confined space is one that meets the definition of a confined space and has one or more of these characteristics:

1. Contains or has the potential to contain a hazardous atmosphere.
2. Contains a material that has the potential for engulfing an entrant.
3. Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.
4. Contains any other recognized serious safety or health hazards.

A non-permit 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.

At Minnesota State University Moorhead, confined spaces are found in the following areas:

- Heating Plant's boilers, DA tank, condensate tank, and blow down tank (permit required)
- Heating Plant's underground fuel storage (permit required)
- Stormwater lift stations and manholes (permit required)
- Langseth Hall Acid Neutralization Tank (permit required)
- Building water storage tanks (permit required)
- Exterior sump pits (permit required)
- Swimming pool sand filter tanks (permit required)
- Nemzek Hall's basement area surrounding the swimming pool (non-permit)
- Underground utility tunnels (non-permit)
- Basement crawl spaces (non-permit)
- Elevator pits (non-permit)

Non-Permit Confined Space Entry/Exit Procedures

1. Prior to entering a non-permit confined space tunnel or crawl space, contact the Physical Plant's main office (477-2662) and alert them of your entry by providing the following information:
 - Person(s) entering
 - Entrance location
 - Exit location
 - Expected exit time
2. Physical Plant will document the information onto the Non-Permit Confined Space Entry Log for Tunnel & Crawl Space Areas.
3. Maintain occasional communications with the Physical Plant by utilizing radio, cell phone, text messaging, or other means of contact.
4. Notify the Physical Plant's main office when exiting the confined space.
5. Physical Plant will note the actual exit time on the Entry Log.
6. If the Physical Plant's main office is not notified of exit in a timely fashion, Moorhead Fire & Rescue may be contacted for an emergency rescue.

Permit-Required Confined Space Entry Procedures

Prior to Entry

Preparation:

1. Prior to entering a confined space, contact the responsible person (supervisor, co-worker, or other designated person trained in confined space procedures) and alert them of your entry. Notify the same responsible person upon exiting the confined space.
2. The confined space that is going to be entered needs to be identified and shut down by means of Lockout/Tagout procedures.
3. Purging shall be done in order to establish a relatively clean atmosphere by removing as much of the system-generated hazard as possible.
4. All potential hazards (system and work generated) must be identified.
5. Lines which convey flammable, toxic, or otherwise hazardous materials into the confined space must be disconnected or blocked off to prevent the development of dangerous air contamination or oxygen deficiency. This must be noted on the entry permit system.
6. As applicable, electrical or mechanical equipment must be isolated. Isolation shall be checked in the field.

Air Quality:

1. Measure oxygen, combustible gas levels, and other contaminants, as applicable in the confined space to verify the confined space classification and the level of worker protection required. Test results must be recorded on the Confined Space Entry Permit.
2. Testing equipment must be maintained and calibrated following the manufacturer's instructions. Field-test the instrument (including a battery check) prior to use. Monitoring equipment must be factory calibrated at least once per year. A calibration log must be maintained.
3. The instrument or probe should be lowered into the confined space slowly to determine the air quality at all levels and areas.
4. Where interconnected spaces are blocked off as a unit, each space shall be tested and the results recorded on the permit. The most hazardous condition found will be used to determine the classification.

Safety:

1. Before entering a confined space, check to see that the ladder is in good condition and provides for a safe entrance and exit. If the ladder is unsafe or none exists, a hoist or other appropriate device should be used to gain access into vertical entry confined spaces as needed.
2. A harness-type belt and safety line (that suspends a person upright) shall be worn when entering any permit-required confined space and other vertical entry confined spaces, where practical and feasible. The line shall be at least 2,000 pounds test. The free end of the line must be secured outside the entry opening.
3. An approved hoisting device or other effective means shall be provided for permit-required confined spaces for lifting the employee out of the confined space in an emergency. A hoisting device should also be used for entry into vertical entry spaces, as needed.

Person in Charge of Entry**Responsibilities:**

1. Oversee all activities associated with the confined space entry.
2. Must fill out the Confined Space Entry Permit and give final authorization for entry.
3. Has the authority to stop the work and order employees out of the space if a hazard has not been properly controlled. The Standby or Lead Person can also require evacuation based on monitor readings prior to alarm activation.

Standby Person

A Standby Person must always be present during entry into permit-required confined spaces. The Standby Person cannot be assigned other duties during confined space entry.

Duties:

1. Be stationed immediately outside of the confined space entry whenever someone is inside.
2. Respond to emergency situations. Be prepared to enter the confined space and/or initiate rescue procedures. Must notify other personnel outside of the confined space prior to emergency entry.
3. Attend to lifeline, and other emergency and safety equipment, including remote monitoring equipment.

4. Maintain communications with employee(s) inside the confined space by voice, radio, visual, or other means of contact.

Training

Any employee expected to work in confined spaces must be trained in the following prior to entry:

1. Confined space entry procedure including authority, duties, and responsibilities of each employee.
2. Emergency procedures, specific to each job.
3. Potential hazards that may be encountered.
4. Communication procedures.
5. Use of the monitoring equipment, including calibration.

General Rules

1. Never enter a confined space during what may be considered unsafe conditions. If the weather is bad or visibility is poor, etc., work in confined space should be stopped until conditions improve.
2. Before uncovering any access to a confined space (where applicable), place safety cones or a barrier around the opening. This should be used to control vehicle traffic or to alert any individuals in the area of the opening.
3. Never leave a confined space open and unattended.
4. Employees entering the confined space shall have voice or other means of communication with the observer.
5. No smoking should be allowed in confined spaces or within 20 feet of a confined space opening.
6. All electrical and lighting equipment must be properly grounded. Only approved equipment may be used in confined spaces subject to air contamination by flammable or explosive substances.
7. Non-sparking tools should be used in confined spaces where there is a potential for combustible atmosphere.

8. Employees entering a confined space shall carry nothing in their hands. Needed equipment should be lowered prior to entry when possible. Equipment should be lowered only when ordered and never dropped.
9. Keep all tools and equipment at least three feet away from the confined space opening/access.
10. The blower motor should be at least 10 feet downwind from the confined space opening/access.

Recordkeeping

1. The original copy of the Confined Space Entry Permit shall be kept by the Heating Plant's Chief Engineer.
2. Non-permit confined space monitoring records must be kept for a minimum of 30 days after expiration.
3. Permit-required confined space entry permits must be kept for one year.
4. The Equipment Calibration Log will be kept by the Heating Plant's Chief Engineer.
5. Training records will be kept by the Department of Environmental Health and Safety.

Personal Protective Equipment

The following personal safety equipment shall be worn as indicated:

1. Safety glasses if required.
2. Hard hats must be worn when working in spaces where falling debris or matter is possible.
3. If the confined space has contained corrosive material or those that are absorbed through the skin, employees must wear appropriate personal protective clothing.
4. All personal protective equipment shall be provided by the University.

Emergency Rescue

Emergency rescue is the extrication or removal of an employee from a confined space. The employee may be ill or injured. An emergency rescue plan shall be developed and discussed with all employees before any entry into a confined space is made.

An emergency rescue plan must address the following:

1. Identification of the Standby Person.

2. An emergency communication network.
3. Location and proper use of emergency rescue equipment.
4. Specific rescue procedures based on the types of potential accidents that could occur.

Moorhead Fire and Rescue is the primary contact in providing all confined space emergency rescue procedures. Should an emergency rescue be required, call 911 and let the dispatcher know a confined space rescue is needed. Then report the rescue to Public Safety at 477-2449.

Contractors/Outside Vendors

1. Any work for MSUM at any facilities, building(s) or off-site location(s) must be conducted in accordance with all confined space program applicable regulations (29 CFR 1910.146).
2. Contractors must have a written confined space program that complies with all applicable regulations. Contractors must provide copies of their written program and employee training documentation along with their rescue agreement to MSUM
3. Contractors are responsible to supply all the equipment (general and specific) needed to perform safe entry and/or rescue.
4. When a contractor is required to enter or work in a permit required space, the contractor should review the written copy of the known hazards identified in that confined space provided by MSUM.

MSUM must inform any contractors whom they hire to enter permit spaces about:

1. The permit spaces and permit space requirements.
2. Any identified hazards.
3. MSUM's experience with the space, such as knowledge of hazardous conditions.
4. Precautions or procedures to be followed when in or near permit spaces.

When employees of more than one employer are conducting entry operations, the affected employers must coordinate entry operations to ensure that affected employees are appropriately protected from permit space hazards.

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