

Marshall Municipal Utilities
CONFINED SPACE ENTRY
Effective January 1, 2011

Purpose

Marshall Municipal Utilities confined space entry program is designed to protect employees from the recognized hazards associated with enclosed areas; as well as to ensure all the necessary and adequate steps are taken to eliminate and control the hazards of entering and performing work in confined spaces.

Objective

1. Assure every worker will safely exit a confined space in the same condition as they entered.
2. Provide a safe and healthful environment for all MMU employees working within confined spaces.

Application/Training

All employees whose duties require they enter a confined space shall be trained in the proper procedures for entry, observation, and work activities. Necessary training will be provided by the Safety Department, in conjunction with individual departments. Training will cover all recognized hazards and requirements to safely complete the necessary confined space work.

A review of MMU's operations has revealed that employees are exposed to confined space hazards. This policy applies to all MMU employees at all MMU locations with confined spaces. Employees shall follow all steps of the procedures set forth in this policy.

All such work performed by sub-contractors on MMU sites shall be in accordance with this policy.
Contact the Safety Department for all sub-contractor confined space work.

Classification

Confined spaces may have, but not limited to, hazards such as engulfment, electrical, fall hazards, and/or contaminated atmospheres.

Regulatory agencies define a confined space as one which:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Has limited or restricted means of entry or exit (for example: tanks, vessels, silos, storage bins, hoppers, vaults, and pits or spaces that may have limited means of entry); and
3. Is not designed for continuous employee occupancy.

Confined spaces are classified as two major types, **permit-required** and **non-permit** required. A "non-permit" confined space is one that does not contain or have the potential to contain any hazard capable of causing death or serious physical harm. A "permit-required" confined space is a confined space that has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere that may expose employees to the risk of death, incapacitation, inability to self-rescue, injury or acute illness;
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 small cross-section; or
4. Contains any other recognized serious safety or health hazard.

Some examples of confined spaces on Marshall Municipal Utilities property or projects may include, but not limited to, boilers, tanks, basins, vaults, sewer lift stations, and excavations.

Procedure

Marshall Municipal Utilities will treat all spaces as permit-required spaces; unless, a space can be “reclassified” as a non-permit confined space (see **Reclassification** section of this policy) or is proven to have no existing or potential hazards. A completed permit is required before entry into a permit-required space is made. The purpose of the permit is to ensure that all necessary precautions have been taken and it is safe for an employee to enter. All required testing and lock-out/tag-out procedures must be performed before the permit is complete. Testing equipment and permits are obtained at each department location.

1. Air Monitoring

- A. Prior to initial entry, the internal atmosphere shall be tested with a calibrated direct-reading instrument. Continuous air monitoring must be performed throughout the entire job sequence to ensure adequate air quality.
 - i. If a mechanical ventilation system is applied in order to support a safe working atmosphere, final testing shall be performed while the ventilation system is operating. - The ventilation system shall operate at a minimum of 5 minutes before final testing. Given the size of the confined space, additional time may be required.
- B. Testing shall be conducted at the work level, lowest point, and various heights by a person trained in the use of the test equipment.
- C. No personnel shall enter a confined space until testing confirms that the air is safe to breathe. Any untested atmosphere shall be assumed to contain HAZARDS.

2. Duration of Permit

- A. The permit shall be posted at the location of the confined space.
- B. Permits shall be issued for as long as the confined space is open and/or occupied.
- C. If the confined space is left unattended for more than thirty (30) minutes, all the conditions of the permit shall be rechecked, the area retested, and documented accordingly on the permit. If left unattended for less than thirty minutes, retesting before entry may be required depending upon the nature, location, and surrounding conditions of the confined space; and documented accordingly. Situations involving

known toxic materials, flammable gases or corrosive materials shall require retesting after an unattended period of any length.

- D. For succeeding shifts or if any personnel changes occur, a new permit is required.
- E. If any conditions significantly change within the confined space, all personnel shall evacuate the space. The space shall be reevaluated until acceptable conditions warrant safe entry. All changes shall be documented on the permit.
- F. Upon completion of the job, the permit(s) shall be retained by the department and a copy shall be provided to the Safety Department.

3. Special Safety Equipment

- A. The requirement of harness, lifelines, breathing apparatus, ventilation system, tripods, rescue winch, PPE, and protective clothing shall be documented on the permit. (Special protective equipment shall be consistent with the potential exposure)
- B. A safety harness shall be worn by all persons entering a confined space that would require a vertical lift to make a rescue. Lifelines shall be attached to each individual for emergency rescue. A tripod, hoist, and retrieval winch shall be utilized.
- C. The most applicable form of equipment {Self-Contained Breathing Apparatus(SCBA), Powered Air Purifying Respirator(PAPR), or half-face/full-face respirators} to provide reliable breathing air shall be worn in contaminated or dusty environments, where toxic concentrations are outside the set limits or where ambient conditions are subject to change.

4. Special Work Practices

- A. Consideration shall be given to the nature of the work associated with each confined space entry permit with necessary precautionary measures specified on the permit.
- B. Barricades and warning signs shall be utilized to inform anyone in the work area of the existence, location of, and the dangers posed by the permit space; and prevent any unauthorized entrant(s) into the permit-required space.
- C. A ground fault circuit interrupter is required with electric tools and/or extension lights used in permit-required confined spaces.
 - i. Only intrinsically safe lighting is to be utilized in a permit-required space.
- D. Compressed gas cylinders (other than breathing air) shall not be taken into a confined space.
- E. Special additional ventilation and/or fresh breathing air shall be required when cutting or welding is performed within a permit-required space. Hoses and nozzles of equipment must be carefully inspected prior to use.
- F. Smoking is prohibited in a confined space.
- G. Entry into a confined or enclosed space with an unsafe atmosphere shall be avoided if at all possible. Any "Authorized" personnel required to enter a confined space with an unsafe atmosphere, or an IDLH (Immediately Dangerous to Life and Health)

environment, shall be equipped with a fresh-air breathing apparatus, body harness and lifeline, and maintain constant communication with the Attendant. Necessary rescue personnel and equipment shall be available in the event of an emergency.

Rescue Services

An essential requirement of every confined space entry program is the presence of an attendant and a plan that will effectively and safely remove the individual(s) from the enclosure in the event the unexpected happens.

1. One attendant shall be stationed outside the confined space when internal work is being performed. This person's primary responsibility is to maintain constant verbal or visual communication with those inside the confined space and to call upon emergency assistance and/or the rescue team, if necessary.
2. The attendant shall be familiar with the permit procedure, be alert for changing conditions, and know how to immediately contact assistance, know how to use the rescue equipment specified for the job, and be currently certified in CPR/First Aid. The attendant must be able to take all emergency actions, except for entering the confined space, until emergency assistance arrives.
3. The attendant shall have no assigned duties which would take them away from the point of entry.

Minimum safety and rescue equipment for **any** confined space entry requiring a vertical lift is:

1. Full body harness and lifeline (Attached)
2. Tripod with manual hoist, and manual retrieval hoist
3. First Aid Equipment

Marshall Municipal Utilities has elected to use an off-site rescue team, in the event of an emergency. This team will be supplied by Marshall Fire Department. The confined space rescue team shall be immediately notified, via 911, in the event of an emergency. MMU shall inform the rescue service of any hazards they may confront; as well as, provide the rescue service with access to all confined spaces in order to develop training procedures and appropriate rescue plans.

To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue. Retrieval systems shall meet the following requirements, at a minimum:

1. Each authorized entrant shall use a full body harness, with a retrieval line attached to the back D-ring. Wristlets may be used in lieu of the harness only if the supervisor can demonstrate that its use is infeasible or creates a greater hazard, and that the use of wristlets is the safest and most effective alternative.
2. The other end of the retrieval line should be attached to a manual winch so that rescue can begin as soon as the rescuer becomes aware that a rescue is necessary. The manual winch shall be able to retrieve personnel from vertical permit-required spaces more than five (5) feet deep.

Confined Space Reclassification

A space classified as a permit-required confined space may be reclassified as a non-permit space under the following procedures:

1. 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.
2. If it is necessary to enter the permit space to eliminate hazards, such entry shall be treated as permit-required. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated.
3. The basis for determining that all hazards in a permit space have been eliminated shall be documented through a 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.
4. If hazards arise within a permit space that has been reclassified to a non-permit space, each employee in the space shall exit the space. The space shall then be reevaluated to determine whether it must be reclassified as a permit-required space, in accordance with other applicable provisions of this section.

Note: The "control" of atmospheric hazards, energy sources, or any other identified hazards within the confined space does not constitute the reclassification of a permit-required space. The "elimination" of all the identified hazards within the space is the only acceptable method to reclassify a permit-required confined space to a non-permit confined space.