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## Permit Required Confined Space Program

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**THE UNIVERSITY OF MAINE**

Orono Campus & Related Sites

**PERMIT-REQUIRED CONFINED SPACE PROGRAM**

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## **1. Purpose and Background**

The University of Maine (“UMaine”) Permit Required Confined Space Program (“UMaine Confined Space Program”) has been designed to protect employees, visitors, researchers, students, and/or contractors from the dangers associated with work in or around confined spaces.

As defined by OSHA, a confined space is any space that is large enough and so configured that an employee can bodily enter and perform assigned work, 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. A “permit-required” confined space is a confined space that contains at least one serious safety or health hazard, such as, but not limited to, a hazardous atmosphere, an engulfment hazard, and / or inwardly converging walls.

Confined spaces and permit-required confined spaces are present throughout the University of Maine Buildings and Grounds. Day to day or routine maintenance activities, as well as renovation or construction projects may involve entry into confined spaces by University employees, contractors, and possibly students. While it is accepted that during the course of these activities, entry into confined spaces may be necessary, it is an objective of the University of Maine to reduce the potential risk involved with this type of activity. This program will help reduce the risk involved with entry into confined spaces.

## **2. University of Maine Approval**

The University of Maine is committed to conducting permit-required confined space entry operations in a safe and healthful manner. This program establishes the minimum requirements that University of Maine workers must follow in order to perform tasks within or around permit-required confined spaces. Departments may utilize their own confined space program only if their program is equal to, or exceeds the minimum requirements set forth by this program.

### 3. Confined Space Evaluation Procedures

This program outlines the specific requirements that must be completed prior to working in any confined space, and while work is being performed in or around confined spaces. The “responsible department” (whose workers enter the confined space) shall ensure that the requirements outlined in this program are completed and implemented.

University of Maine personnel are not allowed to enter confined spaces containing serious chemical or physical hazards (i.e., “a hazardous atmosphere”), or spaces having the *potential* to contain a hazardous atmosphere unless it can be demonstrated that all serious safety or health hazards can be controlled or eliminated prior to entry. Additionally, personnel may not enter a Category III permit-required confined space unless a rescue team has been designated and is available to provide adequate rescue services including medical treatment of individuals rescued from the space.

Confined spaces located throughout the University of Maine Orono Campus and its remote sites have been identified and classified as “permit-required” or “non-permit” spaces in Appendix A of this program. “Non-permit” spaces meet the definition of a confined space but do not contain a recognized serious safety or health hazard. “Permit-required” confined spaces, those confined spaces **containing (or having the potential to contain) a hazard**, are divided into three categories: I, II, or III.

Work within or around permit-required confined spaces can be outsourced to contract personnel so long as all of the requirements outlined in Section 9 of this program are satisfied.

#### 3.1 Definition and Classification of Confined Spaces

All spaces meeting OSHA’s definition of a confined space must be classified as either a permit-required or a non-permit confined space.

The University of Maine has divided permit-required confined spaces into categories I, II, and III; all other properly evaluated confined spaces are non-permit confined spaces. A listing of all identified confined spaces is found in Appendix A of this program. If a confined space is not listed in Appendix A of this program then workers are not allowed to enter the space until it has been identified, evaluated, listed in Appendix A, and all necessary precautions are implemented to enter the space safely as outlined in Section 3.3 of this program.

#### 3.2 Signing Permit-Required Confined Spaces and Informing Employees

All UMaine workers are to be informed of the existence, location, and danger posed by all permit-required confined spaces which they encounter at the UMaine or its remote sites. This is accomplished one of two ways: 1) Through training, performed by the responsible department; or 2) By placing permit-required confined space signs that read “DANGER, Permit-Required Confined Space, Do Not Enter” (or equivalent). The signs are to be placed by the responsible department in or next to the entrance to each permit-required confined space, in a prominent, visible location. If it is determined that signs cannot be placed in a prominent, visible location, the responsible department is required to train all individuals entering the area where the space is located regarding the existence, location, and danger posed by the un-signed space.

### 3.3 Evaluation of Confined Spaces

The procedures found in this program shall be used only for spaces that are properly listed in Appendix A of this program. Permit-required confined spaces are not to be entered unless the entrants follow entry procedures that are at least equal to those found in this program. Therefore if a confined space is created, modified, or if previously non-existent hazards (those hazards not identified in Appendix A) are introduced into a confined space then you must contact SEM for further direction prior to entry. ***Any updates to Appendix A must be approved by SEM.***

Departments are required to maintain an up to date inventory of all confined spaces they control. Also, departments must include in their inventory those spaces that they may enter but which are controlled by other departments. Any change(s) must be communicated to SEM in order to maintain an up-to-date master copy of Appendix A.

**Prior to allowing entry into any confined space the “responsible department” shall:**

**Verify that the space is listed in Appendix A and that the hazards within the confined space match those hazards listed in Appendix A. When determining the hazards present in a confined space you must also consider the type of work that is going to be performed in the space. If the hazards you identify are identical to those listed in Appendix A then entry may occur only if all necessary entry procedures are performed prior to, throughout, and after the entry. If there are discrepancies between the hazards found in the confined space and those listed in Appendix A then the “responsible department” shall contact SEM for assistance.**

The UMaine Confined Space Program requires that a Confined Space Evaluation Form (SEM Form MF10036) shall be used by all departments to identify confined spaces not already listed in Appendix A of this program. Completed evaluation forms are to be maintained by the department and sent to the Department of Safety and Environmental Management (SEM).

SEM or a trained and qualified designee shall perform all initial space evaluations for purposes of identifying hazards, categorizing the spaces, and listing them in Appendix A of this program. Each department must locate all confined spaces in their area(s) and notify SEM so that the spaces can be evaluated, categorized, and listed in Appendix A.

Confined space evaluations must include a review of chemical hazards that are present and/or will be created within the space during entry. The safety data sheets (MSDS) for all of the chemicals used / found within, or around, the space must be obtained and reviewed to determine what measures must be taken for safe entry. Please contact the SEM to arrange a time for chemical specific testing if you plan to use, or if the space contains, volatile or toxic materials.

The three categories developed by the University of Maine, for confined spaces that contain at least one serious safety or health hazard, are defined as follows:

Category I	Category I confined spaces that DO NOT contain, nor have the potential to contain, a hazardous atmosphere but contain serious safety or health hazards that can be eliminated prior to entry. *Note - When all hazards are temporarily eliminated from the space, prior to entry, then a confined space entry permit is not required.	Entry Procedures Required (Section 4.1)
Category II	Permit-required confined spaces which ONLY contain, or have the potential to contain, a hazardous atmosphere, which hazards can be controlled by using forced air ventilation. (Also known as Alternative Procedures)	Entry Permit Required (Section 4.2)
Category III	Permit-required confined spaces that: 1) Have the potential to contain a hazardous atmosphere, which cannot be controlled by using forced air ventilation; 2) Contain serious safety or health hazards that cannot be eliminated prior to entry; or 3) Contain, or potentially contain, a mix of atmospheric and other serious safety or health hazards (regardless of whether or not the hazards can be eliminated or controlled prior to entry). An example of this type of space would be a manhole containing electrical wiring having a voltage potential of 50 volts or more. To enter this type of space the employer must follow a confined space entry permit program that includes rescue services.	Entry Permit Required (Section 4.2)

Appendix A contains a list of Permit-Required confined spaces by category (I, II, or III).

#### 4. Entry Procedures

This section provides details regarding the required entry procedures into each category of permit-required confined space (I, II, and III).

##### 4.1 Category I Confined Spaces, Entry Procedures Required

Prior to entering any Category I space, workers must compare those hazards listed in Appendix A of this program to those currently present, or potentially present within the space to be entered.

If the work or task to be performed in a Category I confined space will introduce a new hazard not previously listed in Appendix A (i.e. painting, cleaning the space with chemicals, or placing an auger in the space) then prior to entry the responsible department shall complete a confined space evaluation form (Appendix D), send the completed form to the Department of Safety and Environmental Management (SEM), and follow the directions obtained from SEM.

A Category I space cannot be entered using the procedures in this section (4.1) unless the following criteria are satisfied:

- The space is free of actual or potential atmospheric hazards; and
- Prior to entering the space, all serious safety or health hazards within the space are eliminated (e.g. lock-out tag-out).

Prior to entering a Category I space, the responsible department must develop safe entry procedures, which will most likely include lock-out procedures and other measures needed to eliminate all serious safety or health hazards prior to entry.

Consideration shall be given to utilizing engineering controls, administrative procedures, or personal protective equipment (PPE) prior to performing work in a confined space that is either **excessively hot or cold** or **has a relative high humidity** (i.e., “environmental conditions”). If work is to be performed in a confined space having a hot environment, see the requirements pertaining to such work in Appendix F.

If hazards arise within a Category I space while work is being performed within the space then all personnel shall immediately exit the space, the space shall be re-evaluated, and re-categorized if necessary. Re-entry is only allowed if all applicable entry procedures are implemented.

## **4.2 Category II & III Permit-Required Confined Spaces**

Category II and III confined spaces require more complex entry procedures than a Category I confined space. The remaining provisions of section 4 outline procedures and criteria that must be followed and met in order to enter either Category II or III permit-required confined spaces.

### **4.2.1 Category II Permit-Required Confined Space Specific Criteria**

A Category II permit-required confined space meets the following criteria:

- The only serious safety or health hazard within the space is an actual or potential hazardous atmosphere (i.e. oxygen deficiency, explosive atmosphere, and/or toxic gas(es); and
- The actual or potential atmospheric hazard(s) can be controlled by use of forced air ventilation.

If the space does not meet the criteria outlined above then the space must be recognized and treated as a Category III permit-required confined space.

Entry into a Category II permit-required confined space does not require having rescue services readily available so long as all other entry procedures are performed.

### **4.2.2 Category II & III Confined Space Entry Requirements**

Prior to entering any Category II or III space, Entry Supervisors shall verify that all conditions necessary to prepare the confined space for entry have been completed. Completion of The University of Maine Confined Space Entry Permit (“Entry Permit”) ensures that for a confined space entry:

- A proper determination is made regarding adequate engineering and safety controls,
- Employees are properly trained; and,
- Establishes the method of communication to be used during entry.

Prior to entry, the Entry Permit shall be prepared and reviewed with all personnel involved with the entry process by the Site Manager, Department Director, and / or Entry Supervisor.

Prior to entering any Category II or III confined space the space must be permitted safe for entry by **completing, and documenting on the Confined Space Entry Permit, the following:**

- The permit-required confined space to be entered;



- The reason(s) for entry;
- The date and the authorized duration of the Entry Permit;
- Identification (by name) of the authorized entrants;
- The personnel (by name) serving as attendants;
- The individual (by name) currently serving as entry supervisor. A space shall be provided for the signature or initials of the entry supervisor who originally authorized entry, and the site manager or director who authorized the Entry Permit;
- The hazards of the permit-required confined space to be entered;
- The controls or measures to be used to isolate the space and to eliminate or control the permit-required confined space hazards before entry (e.g., lockout/tagout, purging, ventilation);
- Acceptable entry conditions;
- Results of initial and continuous air-monitoring tests accompanied by the names or initials of the testers and when the tests were performed;
- For category III spaces, that rescue services have been notified of the entry and can respond to the site if summoned;
- For category III spaces, the communication devices and emergency phone numbers to be used to summon rescue services and maintain communication between authorized attendant(s) and entrant(s);
- Equipment (PPE, testing equipment, communication equipment, alarms systems and rescue equipment) to be provided, and equipment calibration(s);
- Additional permits that have been issued to authorize work in the permit-required confined space (e.g., hot work permit); and
- Any other information particular to the confined space necessary to ensure entrant safety.

**Please Note – Appendix B, the University of Maine Confined Space Entry Permit, shall be used for entry into any Category II and Category III Confined Spaces.**

Completed Entry Permits shall be reviewed and signed by the Entry Supervisor prior to allowing entry. Completed Confined Space Entry Permits shall be made available at the time of entry to all authorized entrants (by posting near the entry point or by any other equally effective means) allowing entrants to confirm that all pre-entry preparations have been completed. The duration of the Entry Permit may not exceed the time required to complete the assigned task or job identified on the permit.

The entry shall be terminated and the Entry Permit cancelled if the operations covered by the permit have been completed or a condition not allowed by the permit arises in or near the space. Category III confined

spaces must be immediately evacuated if rescue services become unavailable (rescue services will notify the University if and when they become unavailable).

Copies of all Entry Permits shall be retained for at least one year by each responsible department. Problems encountered during an entry operation shall be noted on the corresponding Entry Permit so that appropriate revisions to the permit program can be made.

Consideration shall be given to providing engineering controls, administrative procedures, or personal protective equipment (PPE) prior to work in a confined space that is either **excessively hot or cold** or **has a relative high humidity**. If necessary, time limits for working under such conditions shall be designated on the Entry Permit. See Appendix F for requirements regarding work in hot environments.

#### 4.2.3 Duties and Responsibilities for Category II & III Spaces

For all permit-required confined space entries into a Category II or III confined space, the “Responsible Department” or designee must assign a confined space Attendant and a trained Entry Supervisor to oversee the activities and work that involves entry. These individuals must be listed on the Entry Permit. Confined space entrants cannot function as the Entry Supervisor or the Attendant. If roles change with an Entrant becoming an Entry Supervisor or Attendant (or other similar role changes) the previous Entry Permit shall be closed and a new Entry Permit completed reflecting the new duties. Again, Entry Permit designated Entry Supervisors and Attendants cannot enter a confined space(s).

##### ***Duties of Entry Supervisors:***

The Entry Supervisor must fulfill these duties but does not necessarily have to remain on-site throughout the entire entry procedure for Category II Confined Space entries; however, the Entry Supervisor ***shall*** remain on-site for Category III Confined Space entries.

The Entry Supervisor shall:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- Know and establish protections for hazards outside the entry point to the confined space. This may require barricades, fencing, positioning of vehicles or other means to ensure people, objects or other vehicles do not pose a hazard to those entering and exiting space.
- Verify (by checking the entries on the Entry Permit) that all tests and procedures specified by the permit have been conducted and that all equipment specified by the permit has been acquired and set-up before signing the Entry Permit and allowing entry;
- Terminate the entry and cancel the Entry Permit when:
  1. The permit expires;
  2. The work being performed in the space is completed;
  3. Roles change involving entrants and Entry Supervisor and/or entrants and Attendants; or
  4. A condition that is not allowed according to the Confined Space Entry Permit arises in or near the space.
- For entry into a Category III space, verify that rescue services are available and that the means for summoning them are adequate and operable;
- For entry into a Category III space, prior to authorizing entry, follow Appendix C procedures to notify Emergency / Rescue services;

- Contact Public Safety or site supervision if unauthorized individuals enter or attempt to enter a permit-required confined space during entry operations, and ask the unauthorized entrant to exit the space;
- For entry into a Category III space, notify the Rescue Services once the work in the confined space has been completed and /or the Entry Permit is canceled;
- Determine, whenever responsibility for a permit-required confined space entry operation is transferred and at intervals dictated by the hazards and operation performed within the space, that entry operations remain consistent with terms of the Entry Permit and that acceptable entry conditions are maintained;
- Ensure monitoring equipment is properly calibrated and used and results are properly recorded and filed;
- Prior to entering a Category III confined space, test the communication system to verify that the attendant can communicate with emergency service personnel; and
- Ensure that the confined space personnel and personnel working around the permit-required confined space have been properly trained.

**Duties of Authorized Attendants:**

Authorized Attendants shall:

- Know the potential hazards that may be encountered during Confined Space Entry, including the types of exposures and the signs, symptoms and consequences of exposure to these hazards;
- Be familiar with the monitoring equipment alarms, and the limitations of the equipment;
- Continuously maintain an accurate count of authorized entrants in the permit-required confined space and ensure that there is a means to accurately identify authorized entrants who are in the space;
- Remain outside the permit-required confined space during all entry operations until relieved by another authorized attendant, or until the Entry Permit is cancelled;
- Communicate with authorized entrants as necessary to monitor entrant status and alert entrants of the need to evacuate as necessary;
- Monitor activities inside and outside the permit-required confined space to determine if it is safe for entrants to remain in the space;
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order the authorized entrants to immediately evacuate the permit-required confined space if any of the following conditions occur:
  1. A prohibited condition arises within the space (e.g. air meter alarms sound);
  2. The entrants show signs or symptoms of being exposed to hazardous substances;
  3. A situation arises outside the space that could endanger the occupants of the space;
  4. The attendant cannot perform their duties adequately; and

5. For a Category III space, rescue services become unavailable.

- For entry into a Category III space, summon rescue and other emergency services as soon as an entrant needs emergency assistance;
- Take the following actions when unauthorized persons approach or enter a permit-required confined space while entry is underway:
  1. Warn the unauthorized persons that they must stay away from the permit-required confined space;
  2. Advise the unauthorized persons that they must exit immediately if they have entered the permit-required confined space; and
  3. Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit-required confined space;
- Perform non-entry rescue, in accordance with your training;
- Be properly trained to utilize the retrieval equipment necessary for non-entry rescue;
- Notify the Entry Supervisor if you have removed the entrants and canceled or suspended the Confined Space Entry Permit; and
- Maintain primary responsibility of monitoring and protecting the authorized entrants rather than performing other duties.
- The attendant may also be the Entry Supervisor.

**Duties of Authorized Entrants:**

Authorized Entrants shall:

- Know the hazards that may be encountered during Confined Space Entry including the types of exposures, signs or symptoms and consequences of exposure to these hazards;
- Know how to properly use all of the equipment specified on the Entry Permit;
- Prior to entering a permit-required confined space, review the Entry Permit and ensure it is complete;
- Communicate with the Authorized Attendant regularly and follow directions provided by the Attendant / Entry Supervisor;
- Alert the attendant whenever:
  1. A dangerous atmospheric condition, or physically threatening situation arises in or around the space; or
  2. Entrant detects a prohibited condition (such as entry by an unauthorized person, or expiration of the Entry Permit).
- Exit from the permit-required confined space as quickly as possible when:

1. An order to evacuate is given by the attendant or entry supervisor;
2. No authorized person is attending the space;
3. An entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
4. The entrant detects a prohibited condition; or
5. An evacuation alarm is activated including, but not limited to, the confined space gas meter alarms (audible or visible) and building fire alarm (or equivalent).

#### 4.2.4 Air Monitoring

When monitoring the atmosphere, the following measurements shall be obtained in the following sequence:

1. Oxygen content (Acceptable entry conditions are between 19.5% and 23%).
2. Lower Explosive Limit, or Combustible Gas Level (Acceptable entry condition is an LEL <10%). Note – If working in an environment where there is a potential explosive atmosphere due to the presence of a combustible particulate (e.g. organic or synthetic fibers / dusts and metal dusts can be combustible) then Class II Division I equipment shall be used throughout the entry.
3. Toxic substances (Acceptable entry conditions dependent upon contaminants).

Air-monitoring shall occur continuously throughout entry, and atmospheric readings must be recorded on the Confined Space Entry Permit (Appendix B) prior to entry, upon entry, at least two hours following entry, and whenever entrants must leave the space due to a hazardous atmospheric condition.

Different gases and vapors may be heavier, lighter or the same weight as air and therefore may be stratified or present at different levels within a confined space. Therefore, pre-entry testing shall be performed at all levels of stratification (i.e., top, middle and bottom). Consult the equipment manufacturer's manual for proper procedures for evaluating multiple levels within a confined space.

Authorized individuals entering the permit-required confined space, or their authorized representative, shall be provided the opportunity to observe pre-entry testing and any subsequent periodic monitoring of a permit-required confined space atmosphere. If the authorized entrant has reason to believe that the evaluation of the permit-space is not adequate then the permit-required confined space shall be re-evaluated in the presence of the individual or their authorized representative.

Air-monitoring may only be conducted by personnel that have received hands-on training regarding the calibration and operation of the air monitoring equipment. Such equipment must be maintained in good working condition at all times and must be calibrated in accordance with the manufactures recommendations. Calibration records and calibration checks must be documented and maintained for two years (See Appendix -J).

If chemicals are used to clean, prepare or otherwise treat a confined space, or area within the vicinity of a confined space, then entry is not allowed. Instead, please contact SEM for further assessment and instructions.

#### 4.2.5 Ventilation

Category II spaces must be ventilated prior to and throughout entry unless other safety measures can be taken. Forced air ventilation shall be used to control actual and / or potential atmospheric hazards, including fire(s) / explosion(s). The forced air ventilation is to be directed toward the entrant(s), drawn from a clean

source, and must be adequate for the task. Category III spaces must be ventilated if they contain, or have the potential to contain, a hazardous atmosphere. Consult SEM for additional information.

#### **4.2.6 Communication**

Two different communication systems must be considered when entering Category II and III confined spaces: 1) Communication between the entrants and the attendant (required for both category II and III confined spaces); and 2) Communication between the entry team (entrant, attendant, and supervisor) and rescue services (required for entry into category III confined spaces). Communication may be verbal but must be adequate for the confined space being entered:

##### Communication between Entrants and Attendant(s):

A reliable method of communication shall be established between the authorized attendant(s) and all confined space entrants. The communication method shall be used to monitor the authorized entrant(s) activities and for the entrants to report their status to the attendant. The method of communication is to be documented on the Entry Permit and shall be adequate to allow communication between the entrants and attendant.

Means for summoning emergency medical services must also be immediately available to the attendant at all times during entry (e.g. radio, cell phone). The communication system shall be tested to verify that the attendant can communicate with emergency service personnel prior to entry. The means utilized for communication shall be documented on the Entry Permit.

##### Communication between Entry Team and Rescue Services:

A system for the entry team (entrants, attendant, and supervisor) to communicate with the appropriate rescue services (that being the services who have agreed to perform confined space rescue) shall be developed so that:

- Rescue Services are notified prior to entry;
- Information regarding the availability of Rescue Services is transmitted to the entry team prior to entry;
- Emergency notifications are promptly relayed to Rescue Services in the event of an emergency; and
- Rescue Services promptly notifies the entry team if the rescue services are no longer available.

The means for communication can be via cell phone, radio, or any other adequate means.

The procedures for communication for the Orono Campus are outlined in Appendix C of this program.

## **5. Retrieval / Rescue Equipment**

Retrieval systems shall be used for entries into Category III spaces as designated in Appendix A of this program unless the retrieval equipment increases the overall risk of entry, or would not contribute to the rescue of the entrants, in which case an equally effective rescue system shall be developed, documented, and implemented. Retrieval equipment must facilitate non-entry rescue. A mechanical retrieval device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 m) deep.

Workers entering Category III confined spaces must wear a full body harness. When a retrieval system is required, a retrieval line must be attached to the full body harness at a location that the “Responsible Department” can prove is the safest means for removal of the entrant(s). The retrieval line shall be attached to an adequately rated retrieval system.

Safety equipment and retrieval systems shall be inspected in accordance with manufacturer recommendations prior to each use.

Lifelines, harnesses, and snap hooks must meet appropriate ANSI and/or CSA Standards. Lanyards may be detached from the lifeline when necessary if the equipment creates a higher risk than leaving it attached.

## 6. Emergency Response

**At no time should the authorized attendant (or any other person other than the rescue team) enter the space to facilitate a rescue.** The attendant is to provide the Rescue Service with information necessary to facilitate a rescue. Under no circumstances shall the attendant leave the site until the rescue has been facilitated or they have been relieved by an appropriately trained individual.

If an emergency rescue of the entrant is required the following protocols shall be followed by the authorized attendant:

- Immediately notify the Rescue Services designated on the Entry permit; and
- Immediately begin non-entry emergency rescue procedures.

The Site Manager, Department Manager, or Entry Supervisor is responsible to ensure that the Emergency Rescue Team meets the requirements for a rescue team. Orono Fire Department is the primary Emergency Rescue Team for the University of Maine Orono Campus. Off campus locations must make prior arrangements with a local rescue team or contracted rescue team prior to any entry.

Emergency Rescue Team will practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces.

-Note - Prior to any entry into a Category III space at the University of Maine Orono campus, the Department and individuals involved with the entry shall utilize the site specific notification system outlined in Appendix C “Notification System For Entry Into A Category III Confined Space”.

## 7. Training

Each department is responsible to ensure that all employees entering or working around a confined space receive adequate training. The extent of the required training depends upon the workers involvement with confined space entry activities. The four levels of required training are outlined below:

*-Awareness Training-* All workers entering areas where there are permit-required confined spaces are to be informed of the existence, location, and danger posed by the permit-required confined spaces by the use of signage or training. This training is required before a worker is assigned duties in an area containing a permit-required confined space.

*-Initial Training-* Employees working in a confined space must know where this program is located. Employees involved with confined space entry must understand how this program functions, how to use this

program properly, and what steps they must take to safely enter the confined spaces in accordance with the provisions set forth in this program. This training is required before the employee is first assigned duties related to non-permit or permit-required confined space entry.

*-Entry Supervisor Training-* Persons who directly supervise workers involved with confined space entry procedures are to undergo initial training regarding their duties and responsibilities.

*-Confined Space Specific Training-* Confined space specific training must be provided prior to every Entry Permit. Workers who have received confined space specific training must be able to demonstrate an understanding of the procedures necessary to control or eliminate the hazards within the space, and take any other measures necessary to protect the workers involved in entry operations (i.e. lock-out tag-out, hot work, etc.). Specific training shall be provided to each affected employee:

- Prior to first assigned duties;
- Whenever there is a change in the permit space operations that presents a hazard for which an employee has not been previously been trained;
- Before there is a change in assigned duties;
- Whenever a previously unidentified hazard, or a hazard for which the entrants are not prepared to control or eliminate arises within a confined space; and
- Whenever the Entry Supervisor has reason to believe that the workers have deviated from permit-required confined space entry procedures, or that there are inadequacies in the employee's knowledge or use of the proper entry procedures.

All confined space training, other than awareness training, must be certified. The certification shall include the names of the workers trained, signature or initials of the trainer(s), and the date(s) of training. Training certifications shall be available for review by the employees or their authorized representatives.

## **8. Reclassification of Confined Spaces**

When there are changes in the use or configuration of a non-permit or permit-required confined space the "Responsible Department" shall evaluate the space, have the confined space categorized appropriately, and have Appendix A updated to reflect the hazards present, or potentially present within the space. If a non-permit confined space becomes a permit-required confined space then (if possible) the space is to be signed to read "Danger Permit-Required Confined Space Do Not Enter" (or equivalent wording).

**Prior to allowing entry into any confined space the "responsible department" shall:**

- 1<sup>st</sup> Evaluate the space and compare evaluation findings to Appendix A. Such an evaluation shall consider the nature of the work being performed in the space.**
- 2<sup>nd</sup> Prevent entry into the space if the hazards within the space vary from those listed in Appendix A of this program.**
- 3<sup>rd</sup> Contact SEM to have the space evaluated and categorized properly if the hazards vary or the space has not previously been evaluated (entry is prohibited until all hazards have been identified and adequately assessed).**

Confined space evaluations must include a review of chemical hazards that are present and/or will be created within the space during entry. The material safety data sheets (MSDS) for all of the chemicals used / found within, or around, the space must be obtained and reviewed to determine what measures must be taken for



safe entry. Please contact SEM to arrange a time for chemical specific testing if you plan to use, or if the space contains, volatile or toxic materials.

All confined space categorizations must be approved by SEM.

## **9. Contactor Requirements**

When departments arrange to have contractors perform work that involves entry into permit-required confined spaces, the department shall:

1. Inform the contractor that the workplace contains permit-required confined spaces, and that permit-required confined space entry is allowed only by following a proper confined space program meeting the regulatory requirements established in 29 C.F.R. §1910.146;
2. Apprise the contractor of the elements, including the hazards identified and the department's experience with the space, that make the space in question a permit-required confined space;
3. Apprise the contractor of any precautions or procedures that the "Responsible Department" has implemented for the protection of employees in or near the permit-required confined spaces where the contractor will be working;
4. Coordinate entry operations with the contractor, when University personnel and the contractor will be working in, or near permit-required confined spaces; and
5. De-brief the contractor at the conclusion of entry operations regarding the permit-required confined space program and any hazards confronted or created in the space(s) throughout entry operations; and
6. Prior to entering permit-required confined spaces, the "Responsible Department" shall verify that the contractor(s) have a confined space entry plan and have rescue services available for response.

## **10. Access to Records and Record Keeping Practices**

Departments shall provide access to records related to permit-required confined spaces to employees or their authorized representative for review, program monitoring, and record keeping purposes. Permit-required confined space evaluations, classifications, re-classification forms, and all Entry Permits shall be made available to department personnel prior to entry into a permit-required confined space.

Entry Permits, identification forms, evaluation forms, equipment inspection forms, and calibration records shall be maintained for at least one-year and shall be reviewed by the "Responsible Department" annually. The confined space program is to be updated annually based upon the deficiencies noted during the review of the Entry Permits.

Confined space training records shall be maintained by Department. A workers training record shall be maintained until the worker is assigned new job responsibilities that do not involve confined space entry or until their employment with the University of Maine ends.

Departments shall maintain contractor statements regarding implementation of a confined space entry plan, and procurement of proper rescue services throughout the contracted project.

## Revision Page

DATE	TYPE	PAGE NUMBERS
September 23, 2004	Minor	8, 11, 12, 14, 16, 19, Appendix C
December 22 2005	Regulatory Consistency	13
July 30, 2007	Revise Appendix C Updated Appendix A and addition of Appendix J	NA
October 02, 2007	Major changes to wording. Standardized naming conventions And terminology. Clarified wording Regarding role changes. Role Changes now require new Entry Permit. Update Appendices C & I	Throughout document. Throughout document. Throughout document. 7  Appendices C & I
December 9, 2011	Only change updated Appendix A	Appendix – A
March 14, 2013	Only change undated Appendix A	Appendix – A
May 2, 2013	Minor	6, 9? 11, 13, 14 Appendix G pg 28

**Appendix A**  
**Confined Space Identification, Location, Categorization, and Hazards**

Site Specific Confined Space Identification Listing

**Appendix B**  
**Confined Space Entry Permit**

Form MF10035  
(Available on SEM Forms web page).

**Appendix C**  
**Notification System for Entry into a Category III Confined Space**  
**Orono Campus**

Form MF10038, Confined Space Emergency Rescue Services Notification  
(Available on SEM Forms web page).

# Notification System for Entry into a Category III Confined Space (Form Instructions)

## 1.0 Purpose

Ensure the safety of University of Maine employees through complying with OSHA permit-required confined space regulations by establishing rescue services notification requirements for University of Maine employees working in permit-required confined spaces.

## 2.0 Scope

This procedure applies to all employees at the Orono Campus of the University of Maine.

## 3.0 References

- OSHA Standard 29 CFR 1910.146
- University of Maine Confined Space Program
- University of Maine Public Safety (UMPS) Permit-required Confined Space Entry Check List - “Confined Space Emergency Rescue Services Notification” (MF10038)

## 4.0 Definitions

**Attendant** is the person who remains outside the confined space and in communication with both UMPS and the workers inside the confined space.

**Confined Space** means any space that is large enough and so configured that an employee can bodily enter and perform assigned work, has limited or restricted means of entry or exit (e.g. tanks, vessels, silos, storage bins, hoppers, vaults, and pits.), and is not designed for continuous employee occupancy.

**Confined Space Entry** means either the passing into a confined space or the ensuing work activities that take place within the confined space.

**Confined Space Entry Request** is relayed to Public Safety when University employees will enter and/ or perform work within a permit-required confined space at the University of Maine Orono Campus.

**Permit-Required Confined Space** is a confined space that contains a serious hazard.

**Public Safety Communication Coordinator (PSCC)** is the UMPS employee responsible for answering the 911 calls and communicating on the radio.

**Supervisor** is the person responsible for employees performing the confined space entry.

## 5.0 Instructions

### 5.1 Notification

Before entry can be made into a Category III permit-required confined space, rescue services must be notified and available. University of Maine Public Safety (UMPS) plays a vital role in communicating the availability

of services to the confined space entrants and summoning emergency services as needed. The confined space attendant at the site also plays a vital role in ensuring the safety of those that enter the confined space.

## **5.2 University of Maine Public Safety (UMPS) Procedure**

The PSCC will receive information from the confined space entry supervisor/attendant, and complete sections I and II on the checklist at the end of this appendix. (MF10038)

Following completion of sections I and II, the PSCC relays the checklist information to the appropriate fire department to determine if rescue services are available. (The determination of the availability and **jurisdiction** will be made by the shift command officer at the Fire Department).

The PSCC then relays the availability information to the person(s) requesting confined space entry. If Rescue Services are unavailable then University of Maine employees shall not enter the Category III permit-required confined space.

If rescue is available, the PCSS will fax a copy of the completed checklist to the appropriate fire department **and Safety & Environmental Management (SEM)**.

**If the PCSS receives notice that rescue services have become unavailable then the PCSS must immediately relay this information to the confined space entry supervisor / attendant so the entry can be immediately terminated.**

When the confined space entry is completed the PCSS will be informed and they will communicate this to the appropriate fire department and fax a copy of the completed checklist to the department responsible for entry (e.g., Facilities Management).

## **5.3 Summary of Attendant Duties Pertaining To This Appendix**

Regarding this Appendix, the Attendant shall:

Not allow entry into confined space until notified by UMPS that rescue services are available.

Maintain communications with both UMPS and the employees performing the confined space entry.

Ensure the safety of the Employees who have entered the confined space.

When necessary, terminate confined space entries and ask all entrants to exit the space.

If an emergency arises immediately inform UMPS and begin non-entry rescue.

Notify UMPS when confined space entry is terminated.

## **6.0 Training**

All UMPS communicators are required to be trained upon initial assignment and periodically thereafter on their respective duties and the procedures found in this Appendix.

## **7.0 Records**

UMPS shall maintain record of the employees training pertaining to this appendix. Confined space notifications will be maintained by SEM for a minimum of one year.

## **8.0 Audits**

Periodically each department shall conduct an audit of their procedures related to the duties outlined in this appendix.

**Appendix D**  
**Confined Space Evaluation Form**

Form MF10036  
(Available on SEM Forms web page).



## **Appendix E**

### **OSHA Regulation 29 CFR 1910.146**

To access the OSHA standard please visit their web site at [www.osha.gov](http://www.osha.gov) and then locate 29 CFR 1910.146 (Permit-Required Confined Space Standard) by accessing the subject index from the homepage then clicking in the following order on:

1. S
2. Standards (29 CFR)
3. Part 1910 (Occupational Safety & Health Standards)
4. 1910.146 – Permit-Required Confined Spaces

## Appendix F

### Work In Hot Environments

High temperatures and humidity stress the body's ability to cool itself. Such environmental conditions are not uncommon within a confined space. Thus preventative measures are to be taken by those workers working within confined spaces where temperature and/or humidity are a concern. How do you know if these factors are a concern? Workers start experiencing signs or symptoms of heat stress. There are three major forms of heat stress: **heat cramps**, **heat exhaustion**, and **heat stroke**, with heat stroke being a life threatening condition.

#### Heat Cramps

Heat cramps are muscle spasms which usually affect the arms, legs, or stomach. Frequently they don't occur until sometime later after work, at night, or when relaxing. Heat cramps are caused by heavy sweating, especially when water is replaced by drinking, but salt or potassium is not. Although heat cramps can be quite painful, they usually don't result in permanent damage.

#### Heat Exhaustion

Heat exhaustion occurs when the body's internal air-conditioning system is overworked, but has not completely shut down. In heat exhaustion, which is more serious than heat cramps, the surface blood vessels and capillaries which originally enlarged to cool the blood collapse from loss of body fluids and necessary minerals? *This happens when you don't drink enough fluids to replace what you're sweating away.* Symptoms of heat exhaustion include:

- Headache
- Intense Thirst
- Fatigue
- Nausea
- Loss of Appetite
- Hyperventilation
- Cool Moist Skin
- Low to Normal Blood Pressure
- Heavy Sweating
- Dizziness
- Loss of Coordination
- Impaired Judgment
- Tingling in Hands or Feet
- Anxiety
- Weak and Rapid Pulse (120-200)

Somebody suffering these symptoms should be moved to a cool location such as a shaded area or air-conditioned building. Have them lie down with their feet slightly elevated. Loosen their clothing, apply cool, wet cloths or fan them. Have them drink water or electrolyte drinks. Try to cool them down, and have them checked by medical personnel. Victims of heat exhaustion should avoid strenuous activity for at least a day, and they should continue to drink water to replace lost body fluids.

#### Heat Stroke

Heat stroke occurs when the body has depleted its supply of water and salt, and the victim's core body temperature rises to deadly levels. Heat stroke is life threatening. A heat stroke victim may first suffer heat cramps and/or the heat exhaustion before progressing into the heat stroke stage, but this is not always the case. On the job, heat stroke is sometimes mistaken for heart attack. Recognizing the signs and symptoms of heat stroke is very important. Review the signs and symptoms anytime an employee collapses while working in a hot environment. Early signs and symptoms of heat stroke include:

- Heat cramps
- High Body Temperature (103° F)
- Hot Red or Flushed Dry Skin
- Difficulty Breathing
- Heat exhaustion (signs or symptoms)
- Typically a Distinct Absence of Sweating
- Rapid Pulse
- Constricted Pupils

Advanced signs or symptoms of heat stroke:

- Seizure
- Collapse
- Body Temperature Above 108° F
- Convulsions
- Loss of Consciousness
- Death

Lowering a heat stroke victim's body temperature is vital to survival. Seconds count. Pour water on them, fan them, or apply cold packs. Call 911 and get an ambulance on the way as soon as possible.

**Preventative Measures For Heat Stress (cramps, exhaustion, and stroke):**

- Condition yourself for working in hot environments - start slowly then build up to more physical work. Allow your body to adjust over a few days.
- Drink lots of liquids (water or electrolyte drinks). Don't wait until you're thirsty. Electrolyte drinks, or fruit high in potassium (bananas) are good for replacing minerals lost through sweating. Never drink alcohol, and avoid caffeinated beverages.
- Take a break if you notice you're getting a headache or you start feeling overheated. Cool off in the shade or in a building for a few minutes before going back to work.
- Wear light weight, light colored clothing when working out in the sun.
- Use the confined space ventilation fan to create air currents within the confined space.
- Persons outside the confined space could use a fan where possible.
- Get enough sleep at night.

## Appendix G

### Definitions for Permit-Required Confined Space Program

"Acceptable entry conditions" means the conditions that must exist in a permit-required confined space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

"Attendant" means an individual stationed outside one or more permit-required confined spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit-required confined space program.

"Authorized entrant" means an employee who is authorized by the employer to enter a permit-required confined space.

"Blanking or blinding" means the absolute closure of a pipe, line, or duct by fastening a solid plate (i.e. spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

"Category I Confined Spaces" DO NOT contain, nor have the potential to contain, a hazardous atmosphere but contain serious safety or health hazards that can be eliminated prior to entry.

"Category II Confined Spaces" Are defined as permit-required confined spaces which ONLY contain, or have the potential to contain, a hazardous atmosphere, which hazards can be controlled by using forced air ventilation.

"Category III Confined Spaces" are confined spaces that: 1) Have the potential to contain a hazardous atmosphere, which cannot be controlled by using forced air ventilation; 2) Contain serious safety or health hazards that cannot be eliminated prior to entry; or 3) Contain, or potentially contain, a mix of atmospheric and other serious safety or health hazards (regardless of whether or not the hazards can be eliminated or controlled prior to entry). An example of this type of space would be a manhole containing electrical wiring having a voltage potential of 50 volts or more. To enter this type of space the employer must follow a confined space entry permit program that includes rescue services.

"Confined space" means a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. 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
3. Is not designed for continuous employee occupancy.

"Designee" means that person designated by the "Responsible Department" (see definition below). Note: This person must have received the appropriate training from SEM.

"Double block and bleed" means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

"Emergency" means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit-required confined space that could endanger entrants.

"Engulfment" means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

"Entry" means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

"Confined Space Entry permit" means the written or printed document that is provided by the employer to allow and control entry into a permit-required confined space and that contains the information specified in this program.

"Entry supervisor" means the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit-required confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

NOTE: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

"Hazardous atmosphere" means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit-required confined space), injury, or acute illness from one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
2. Airborne combustible dust at a concentration that meets or exceeds its LFL;

NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.

3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;

NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

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

NOTE: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200 of this Part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

"Hot work permit" means the employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

"Immediately Dangerous to Life or Health (IDLH)" means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit-required confined space.

NOTE: Some materials -- hydrogen fluoride gas and cadmium vapor, for example -- may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

"Inerting" means the displacement of the atmosphere in a permit-required confined space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. NOTE: This procedure produces an IDLH oxygen-deficient atmosphere.

"Isolation" means the process by which a permit-required confined space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

"Line breaking" means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

"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.

"Oxygen deficient atmosphere" means an atmosphere containing less than 19.5 percent oxygen by volume.

"Oxygen enriched atmosphere" means an atmosphere containing more than 23.5 percent oxygen by volume.

"Permit-required confined space (permit-required confined space)" means a confined space that has one or more of the following characteristics: Contains or has a potential to contain a hazardous atmosphere; Contains 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.

"Permit system" means the employer's written procedure for preparing and issuing permits for entry and for returning the permit-required confined space to service following termination of entry.

"Prohibited condition" means any condition in a permit-required confined space that is not allowed by the permit during the period when entry is authorized.

"Rescue service" means the personnel designated to rescue employees from permit-required confined spaces.

"Responsible Department" is that department whose workers are entering a confined space.

"Retrieval system" means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit-required confined spaces.

"Testing" means the process by which the hazards that may confront entrants of a permit-required confined space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit-required confined space. NOTE: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

## Appendix H Rescue Team Evaluation Guidelines

For all rescue teams or services, the employer's evaluation should consist of two components: an initial evaluation, in which employer's decide whether a potential rescue service or team is adequately trained and equipped to perform permit-required confined space rescues of the kind needed at the facility and whether such rescuers can respond in a timely manner, and a performance evaluation, in which employers measure the performance of the team or service during an actual or practice rescue.

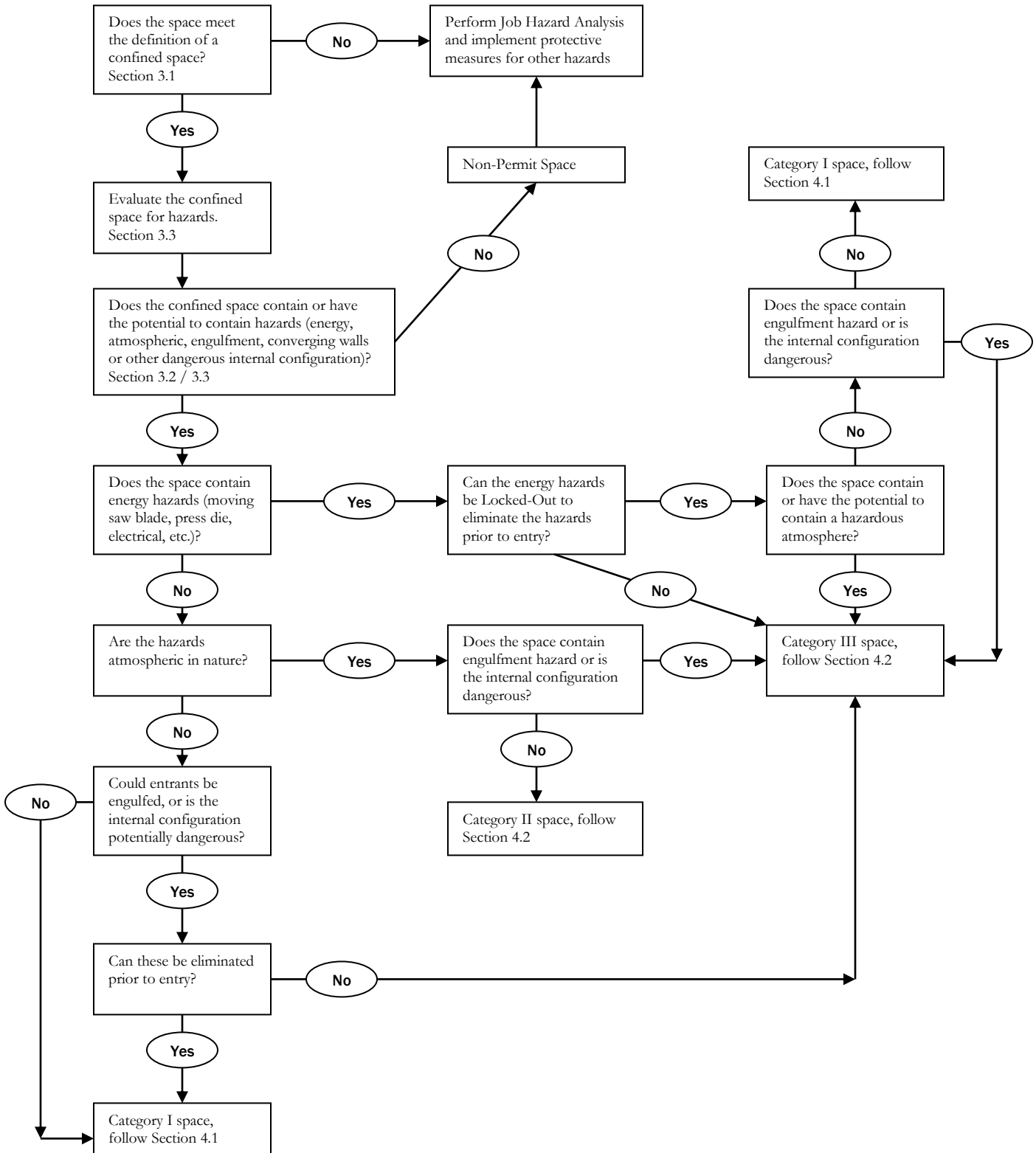
INITIAL EVALUATION		
Decide whether a potential rescue service is adequately trained and equipped to perform permit-required confined space rescues of the kind needed at the facility and whether rescuers can respond in a timely matter. At a minimum, if an off-site rescue service is being considered, the employer must contact the service to plan and coordinate the required evaluations. <b><i>Merely posting the service's number or planning to rely on the 911 emergency phone number to obtain these services at the time of a permit-required confined space emergency would not comply with the regulations.</i></b>		
1	What are the needs of the employer with regard to response time (time for the rescue service to receive notification, arrive at the scene, and set up and be ready for entry)? <i>For example, if entry is to be made into an IDLH atmosphere, or into a space that can quickly develop an IDLH atmosphere (if ventilation fails or for other reasons), the rescue team or service would need to be standing by at the permit-required confined space. On the other hand, if the danger to entrants is restricted to mechanical hazards that would cause injuries (e.g. broken bones, abrasions) a response time of 10 to 15 minutes might be adequate.</i>	
2	How quickly can the rescue team get from its location to the permit-required confined spaces from which rescue may be necessary? <i>(Consider the location of the rescue team relative to the employer's workplace, the quality of roads to be traveled, potential bottlenecks or traffic congestion, the reliability of the rescuer's vehicles, and the training and skill of its drivers.)</i>	
3	What is the availability of the rescue service? Is it unavailable at certain times of the day or in certain situations? What is the likelihood that key personnel of the rescue service might be unavailable at times? If the rescue service becomes unavailable while an entry is underway, does it have the capability of notifying the employer so that the employer can instruct the attendant to abort the entry immediately?	
4	Does the rescue service meet all the requirements of paragraph (k)(2) of the standard? If not, has it developed a plan that will enable it to meet those requirements in the future? If so, how soon can the plan be implemented? <i>Paragraph (k)(2) requires that rescuers shall: (1) have the proper PPE and be trained in the use of that PPE, (2) be trained to perform rescue duties and complete training to at least the authorized entrant level, (3) be trained in first aid and CPR, and (4) practice making permit-required confined space rescues at least once every 12 months.</i>	
5	For off-site services, is the service willing to perform rescues at the employer's workplace? <i>(An employer may not rely on a rescuer who declines, for whatever reason, to provide rescue services.)</i>	
6	Is an adequate method for communications between the attendant, employer and prospective rescuer available so that a rescue request can be transmitted to the rescuer without delay? How soon after notification can a prospective rescuer dispatch a rescue team to the entry site?	

7	For rescues into spaces that may pose significant atmospheric hazards and from which rescue entry, patient packaging and retrieval cannot be safely accomplished in a relatively short time (15-20 minutes), employers should consider using airline respirators (with escape bottles) for the rescuers and to supply rescue air to the patient. If the employer decides to use SCBA, does the prospective rescue service have an ample supply of replacement cylinders and procedures for rescuers to enter and exit (or be retrieved) well within the SCBA's air supply limits?	
8	If the space has a vertical entry over 5 feet in depth, can the prospective rescue service properly perform entry rescues? Does the service have the technical knowledge and equipment to perform rope work or elevated rescue, if needed?	
9	Does the rescue service have the necessary skills in medical evaluation, patient packaging and emergency response?	
10	Does the rescue service have the necessary equipment to perform rescues, or must the employer or another source provide the equipment?	
<p><b>PERFORMANCE EVALUATION</b></p> <p>Rescue services are required to practice rescues at least once every 12 months, provided that the team has not successfully performed a permit-required confined space rescue within that time. As part of each practice session, the service should perform a critique of the practice rescue, or have another qualified party perform the critique, so that deficiencies in procedures, equipment, training or number of personnel can be identified and corrected. The results of the critique, and the corrections made to respond to the deficiencies identified, should be given to the employer to enable it to determine whether the rescue service can quickly be upgraded to meet the employer's rescue needs or whether another service must be selected. The following questions will assist employers and rescue services evaluate their performance.</p>		
1	Have all members of the service been trained as permit-required confined space entrants, at a minimum, including training in the potential hazards of all permit-required confined spaces, or of representative permit-required confined spaces, from which rescue may be needed? Can team members recognize the signs, symptoms and consequences of exposure to any hazardous atmospheres that may be present in those permit-required confined spaces?	
2	Is every team member provided with, and properly trained in, the use and need for PPE, such as SCBA or fall arrest equipment, which may be required to perform permit-required confined space rescues in the facility? Is every team member properly trained to perform his/her functions and make rescues, and to use any rescue equipment, such as ropes and backboards, that may be needed in a rescue attempt?	
3	Are team members trained in the first aid and medical skills needed to treat victims overcome or injured by the types of hazards that may be encountered in the permit-required confined spaces at the facility?	
4	Do all team members perform their functions safely and efficiently? Do rescue service personnel focus on their own safety before considering the safety of the victim?	
5	If necessary, can the rescue service properly test the atmosphere to determine if it is IDLH?	
6	Can the rescue personnel identify information pertinent to the rescue from entry permits, hot work permits, and MSDSs?	
7	Has the rescue service been informed of any hazards to personnel that may arise from outside the space, such as those caused by future work near the space?	
8	If necessary, can the rescue service properly package and retrieve victims from a permit-required confined space that has a limited size opening (less than 24 inches (60.9 cm) in diameter), limited internal space, or internal obstacles or hazards?	
9	If necessary, can the rescue service safely perform an elevated (high angle) rescue?	



10	<p>Does the service have a plan for each of the kinds of permit-required confined space rescue operations at the facility? Is the plan adequate for all types of rescue operations that may be needed at the facility? Teams may practice in representative spaces, or in spaces that are “worst-case” or most restrictive with respect to internal configuration, elevation, and portal size. The following characteristics of a practice space should be considered when deciding whether a space is truly representative of an actual permit-required confined space:</p> <p><b>Internal Configuration</b>  Open – there are no obstacles, barriers, or obstructions within the space. One example is a water tank.  Obstructed – the permit-required confined space contains some type of obstruction that a rescuer would need to maneuver around. An example would be a baffle or mixing blade. Large equipment, such as a ladder or scaffold, brought into a space for work purposes would be considered an obstruction if the positioning or the size of the equipment would make rescue more difficult.</p> <p><b>Elevation</b>  Elevated – a permit-required confined space where the entrance portal or opening is above grade by 4 feet or more. This type of space usually requires knowledge of high-angle rescue procedures because of the difficulty in packaging and transporting a patient to the ground from the portal.  Non-elevated – a permit-required confined space with the entrance portal located less than 4 feet above grade. This type of space will allow the rescue team to transport an injured employee normally.</p> <p><b>Portal Size</b>  Restricted – A portal of 24 inches or less in the least dimension. Portals of this size are too small to allow a rescuer to simply enter the space while using a SCBA. The portal size is also too small to allow normal spinal immobilization of an injured employee.  Unrestricted – A portal of greater than 24 inches in the least dimension. These portals allow relatively free movement into and out of the permit-required confined space.</p> <p><b>Space Access</b>  Horizontal – The portal is located on the side of the permit-required confined space. Use of retrieval lines could be difficult.  Vertical – The portal is located on the top of the permit-required confined space, so that rescuers must climb down, or the bottom of the permit-required confined space, so that rescuers must climb up to enter the space. Vertical portals may require knowledge of rope techniques, or special patient packaging to safely retrieve a downed entrant.</p>	
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## Appendix I Flow Chart to Help Determine Category of Confined Space(S)



**Appendix J**  
**Calibration / Bump Check Log**

Form MF10039.1  
(Available on SEM Forms web page).