Confined Space Program
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*Contact your Department Head or UEHS for a copy of this document*
CONFINED SPACE PROGRAM

Issued By: University Environmental Health and Safety
Effective Date: October 1994
Revision Date: Aug. 2002, April 04, Nov. 06, Nov. 09, April 2011, Oct. 11, March 13, July 2013, Nov. 13, April 14, May 14, Dec. 15

1.0 Statement of Purpose:

The University of Southern Maine (USM) is committed to conducting work within confined spaces in a safe and healthful manner. Safe conditions are achieved through compliance with the Occupational Safety and Health Administration’s (OSHA) permit-required confined space standard. This program establishes the minimum requirements for University employees to following in order to reduce the risks of illness, injury or death resulting from exposure to confined space hazards.

2.0 Scope:

This program is designed to protect employees, contractors, students, and staff from the dangers associated with routine maintenance activities as well as renovation and construction projects relating to confined space operations. A written permit program calls for the evaluation of confined spaces; identification of permit required confined spaces, determination of the hazards in each permit space, and documentation of methods for managing those hazards.

3.0 Regulatory Application:


4.0 Descriptions:

1. Confined Space - A space must meet three criteria to be considered a confined space:
   a) It must be large enough and so configured that an employee can bodily enter it and perform the assigned work.
   b) It must have limited or restricted means for entry or exit (for example: tanks, vessels, electrical vaults and steam pits).
   c) It must not be designed for continuous occupancy.

2. Non-permit Required Confined Space – A non-permit confined space does not contain or, with respect to atmospheric hazards, have the potential to contain any hazards capable of causing death or serious physical harm.
3. **Permit Required Confined Space** – A permit required confined space is a confined space that has one or more of the following characteristics:

   a) Contains or has a known potential to contain a hazardous atmosphere.
   b) May contain a material with the potential for engulfment of an entrant.
   c) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section, or
   d) Contains any other recognized serious safety or health hazard (high voltage, steam, etc.).

4. **University Environmental Health & Safety (UEHS)**

   Provide guidance to Deans, Directors, Department Heads, & Supervisors on how to implement confined space procedures. UEHS will offer confined space training for employees to fulfill their responsibilities under the confined space program and perform periodic audits of the confined space program.

5. **Deans, Directors, & Department Heads aka “Responsible Department”**

   Deans, Directors, Department Heads, & Supervisors are responsible for ensuring that confined space procedures and policies are developed and followed by their employees. May also be referred to as the “Responsible Department”

5.0 **General Program Requirements**

   The procedures found in this program shall be used only for spaces that are properly listed in the USM Confined Space Identification & Hazard Recognition document 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 the USM Confined Space Identification & Hazard Recognition document) are introduced into a confined space then you must contact UEHS for further direction prior to entry. Any updates to USM Confined Space Identification & Hazard Recognition document must be approved by UEHS.

   All USM workers are to be informed of the existence, location, and danger posed by all permit-required confined spaces which they encounter at the USM 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-signded space.

1. Each Department shall evaluate the workplace to determine if any spaces are permit required confined spaces. The USM Confined Space Identification & Hazard Recognition document is located in the University Environmental Health & Safety (UEH&S) Office. A copy is also kept in the Confined Space Entry binder in each of the Facilities Management offices. The list of confined spaces is updated with each program revision or as changes in the workplace require.
2. The “Responsible Department(s)” 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 UESH in order to maintain an up-to-date master copy of The USM Confined Space Identification & Hazard Recognition document.

3. If the workplace contains permit spaces, the Responsible Department shall inform exposed employees, by posting danger signs of the existence and location of dangers posed by the permit spaces. All entrances to any confined space shall be posted. Note: A sign reading “DANGER – PERMIT REQUIRED CONFINED SPACE – DO NOT ENTER” or using other similar language satisfies the requirement for a sign.

For example:

**DANGER**
**CONFINED SPACE**
ENTRY BY PERMIT ONLY
*(Add this information when applicable)*

a) RESPIRATOR REQUIRED FOR ENTRY
b) RETRIEVAL LINE REQUIRED FOR ENTRY
c) HOT WORK PERMITTED
d) NO HOT WORK PERMITTED

4. All warning signs shall be printed both in English and in the predominant language of non-English speaking workers if appropriate. Whenever established visual symbols exist, they shall also be used. Workers unable to read labels and posted signs shall receive information regarding hazards and shall be informed of the instructions printed on the signs.

5. If the department decides that its employees will enter the permit spaces, the department in conjunction with UEHS shall develop and implement a written permit space program. The written program shall be available for inspection by employees.

6. USM Departments may use alternate procedures for entering a permit space under the conditions set forth in Alternate Procedures for Entering a Permit Space on page (9) of this program.

**6.0 Program and Entry Procedures:**

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

1. Verify that the space is listed in The USM Confined Space Identification & Hazard Recognition list.

2. Conduct a Job Hazard Assessment (JHA) (see appendix(s) F & G) prior to entry for all tasks to be performed in the permit space. The purpose of the JHA is to identify potential hazards for each task and to develop and implement measures to eliminate or reduce employee exposure to the hazard(s). The JHA shall be reviewed with and signed by all employees involved in the Permit Space entry.

3. Eliminate any conditions making it unsafe to remove an entrance cover before the cover is removed.
4. Implement the measures necessary to prevent unauthorized entry or accidental fall through by promptly guarding the opening using a railing, temporary cover, or other temporary barrier.

5. Identify and evaluate the hazards of permit spaces before entry.

6. Develop and implement the means, procedures and practices necessary for safe permit space entry operations including but not limited to the following:

   a) Specifying acceptable entry conditions;
   b) Providing each authorized entrant or that employee’s authorized representatives with the opportunity to observe any monitoring or testing of the permit spaces;
   c) Isolating the permit space;
   d) Purging, flushing or ventilating the permit space as necessary to eliminate or minimize atmospheric hazards;
   e) Establish pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards; and
   f) Verifying that conditions in the permit space are acceptable prior to and throughout the duration of an authorized entry.

7. Provide the following equipment at no cost to employees, maintain that equipment properly, and ensure that employees use the equipment properly.

   a) Atmospheric testing and monitoring equipment;
   b) Ventilating equipment needed to eliminate a hazardous atmosphere;
   c) Communications equipment;
   d) Personal protective equipment;
   e) Lighting equipment for safe working conditions and emergency exit;
   f) Barriers and shields;
   g) Ladders;
   h) Rescue and emergency equipment; and
   i) Any other equipment necessary for safe entry into and rescue from the permit space.

8. Evaluate permit space conditions as follows when entry operations are conducted:

   a) Test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin.
   b) When testing for atmospheric hazards:
      i. Test first for oxygen.
      ii. Test next for combustible or explosive gases and vapors.
      iii. Test lastly for toxic substances – atmosphere containing gases, vapors, or fumes known to have poisonous physiological effects. The most common toxic gases encountered are carbon monoxide and hydrogen sulfide.
   c) Test or monitor the permit space as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations.
   d) When monitoring the atmosphere for entries involving a decent, the atmosphere shall be tested at the top, middle and bottom of the space. If the space greater than eight feet in depth, the atmosphere shall be tested at intervals of four feet beginning at the top of the space and continuing to the bottom.
e) Provide each authorized entrant or that employee’s authorized representative and opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces.

f) Reevaluate the permit space in the presence of any authorized entrant or that employee’s authorized representative who requests that the employer conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate.

g) Immediately provide each authorized entrant or that employee’s authorized representative with the results of any testing conducted.

9. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations. Note: An attendant may only be assigned to monitor one space. Multiple spaces will require an attendant for each space.

10. Designate the persons who are to have active roles (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training identified in the training section of this policy.

11. Develop and implement procedures for summoning rescue and emergency services, for retrieving entrants from permit space, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue.

12. Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this section.

13. Develop and implement procedures to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space, so that employees of one employer do not endanger the employees of any other employer.

14. Develop and implement procedures (such as closing off a permit space and cancelling the permit) necessary for concluding the entry after entry operations have been completed.

15. Review entry operations when the employer has reason to believe that the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized. Note: Examples of circumstances requiring the review of permit the space program are:
   a) any unauthorized entry of a permit space,
   b) the detection of a permit space hazard not covered by the permit,
   c) the detection of a condition prohibited by the permit,
   d) the occurrence of an injury or near-miss during entry,
   e) a change in the use or configuration of a permit space, and
   f) employee complaints about the effectiveness of the program.

16. Review the permit space program using the canceled permits within 1 year after each entry and revise the program as necessary, to ensure that employees participating in entry operations are protected from permit space hazards.

17. Provide training so that all employees whose work is covered by this policy acquire the understanding, knowledge and skills necessary for the safe performance of their assigned duties.
18. Provide proper training in the use of protective equipment including safety harness and a life line and retrieval equipment.

7.0 Procedures for Testing the Atmosphere

The atmosphere of a confined space should be analyzed using calibrated equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmosphere that might exist or arise in the space. When testing for entries involving a descent into atmospheres that may be stratified, the atmosphere should be tested a distance of approximately every 4 feet in the direction of travel and to each side. The results of the testing should be recorded on the permit.

Order of Testing:

1. Test first for Oxygen- \( \text{O}_2 \) using the calibrated “MSA Orion Multi-gas Detector”

The acceptable range is between 19.5% and 23.5%. Do not enter if the reading obtained is not within this range. Measures shall be implemented to establish a safe atmosphere before any entry begins. Note: Additional testing is to be conducted every 15 minutes after work begins and continued as long as the space is occupied by personnel.

2. Test secondly for Combustible Gases. (LEL)

Check the space’s atmosphere for unacceptable levels of methane or other combustible gases. The meters warning alarm will begin sounding at a level of 10% of the LEL. Do not enter if the reading obtained is greater than 10%. Measures shall be implemented to establish a safe atmosphere before any entry begins. Note: Additional testing is to be conducted every 15 minutes after work begins and continued as long as the space is occupied by personnel.

3. Test next for Carbon Monoxide – \( \text{CO} \)

Check the space’s atmosphere for unacceptable levels of CO. The meter’s warning/alarm will begin sounding at a level of 35 ppm. Do not enter if the reading obtained is greater than 35 ppm. Measures shall be implemented to establish a safe atmosphere before any entry begins. Note: Additional testing is to be conducted every 15 minutes after work begins and continued as long as the space is occupied by personnel.

4. Testing lastly for Toxic Gases; Hydrogen Sulfide – \( \text{H}_2\text{S} \).

Check the space’s atmosphere for unacceptable levels of Hydrogen Sulfide. The meters warning alarm will begin sounding at a level of 10 ppm. Do not enter if the reading obtained is greater than 10 ppm. Measures shall be implemented to establish a safe atmosphere before any entry begins. Note: Additional testing is to be conducted every 15 minutes after work begins and continued as long as the space is occupied by personnel.

8.0 The Permit System; the employers written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.
1. Before entry is authorized, the “Responsible Department” shall document by preparing an entry permit, the completion of measures required by paragraph (5) of the Permit Required Confined Space Program and Entry Procedures of this program.

2. Before entry begins, the Entry Supervisor identified on the permit shall verify by checking that the appropriate entries have been made on the permit, that all test specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

3. The completed permit shall be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it to or near the entry portal or by any other equally effective means so that the entrants can confirm that pre-entry preparations have been completed.

4. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit as the purpose of entry.

5. Supervisor transfer: The “Responsible Department” shall ensure that each entry supervisor shall determine that whenever responsibility for a permit space entry operation is transferred, entry operations shall remain consistent with the terms of the permit and that acceptable entry conditions are maintained. The name and signature of the new supervisor shall be placed on the initial entry permit and all involved personnel shall be notified of the supervisory transfer.

6. The Entry Supervisor shall terminate entry and cancel the entry permit when:
   a) The entry operations covered by the entry permit have been completed.
   b) A condition that is not allowed under the entry permit arises in or near the permit space.

7. The “Responsible Department” shall retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the permit so that appropriate revisions to the program can be made.

9.0 The Entry Permit

1. The entry permit is a written or printed form established by the employer to document compliance with the OSHA “Permit-Required Confined Spaces” standard. The content is based on the hazard identification and evaluation for that confined space (or class or family of confined spaces, if a number of spaces may contain similar hazards) and is the instrument by which the “Responsible Department” authorizes his or her employees to enter that permit required confined space.

2. The Entry Permit documenting compliance with OSHA regulations and authorizing entry to a permit space shall identify:
   a) The permit space to be entered.
   b) The purpose of entry.
   c) The date and authorized duration of the entry permit.
   d) The authorized entrants within the permit space by name.
   e) The personnel, by name, currently serving as attendants.
   f) The individual by name currently serving as entry supervisor.
g) The hazards of the permit space to be entered.
h) The measures used if necessary to isolate the permit space and to eliminate or control permit space hazards before entry.
i) The acceptable entry conditions.
j) The results of initial and periodic atmospheric rests.
k) The rescue and emergency services to be summoned and the means of communication to summon rescue and emergency services.
l) The communication procedures used by authorized entrants and attendants to maintain contact during entry.
m) Equipment such as PPE, testing equipment, communication equipment and rescue equipment to be used for compliance with OSHA regulations.
n) Any other information pertinent to the specific confined space to ensure employee safety.
o) Any additional permits such as “Hot Work” that have been issued to authorize work in the space.

10.0 Alternate Procedures

1. A “Responsible Department” may use the Alternate Procedures specified below under the following conditions:

   a) The “Responsible Department” must demonstrate that the only hazard posed by the permit space is an actual or potential hazardous atmosphere (i.e. no liquid, steam, electrical hazards, etc.).
   b) The “Responsible Department” can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry.
   c) The “Responsible Department” must develop monitoring and inspection data that supports the demonstrations of preceding paragraphs (a) and (b).
   d) If an initial entry of the permit space is necessary to obtain the data required by paragraph (c) above, such that entry will be made under the full provisions of the Permit-Required Confined Space Program Entry Procedures of this program.
   e) The determinations and supporting data required by paragraphs (a), (b) and (c) are documented and made available to each employee.
   f) Alternate Entry into the permit space under the terms stated above, is performed in accordance with the terms listed below in paragraph (2) of this section.

2. Alternate Entry into a permit space must be conducted in accordance with the following requirements:

   a) Any conditions making it unsafe to remove the entrance cover shall be eliminated before the cover is removed.
   b) Openings must be promptly guarded by a railing, temporary cover, or other temporary barrier or shield that will prevent an accidental fall through opening and that will protect each employee working in the space from falling and/or foreign objects entering the space.
   c) Before entering the space, the internal atmosphere must be tested with a calibrated direct-reading instrument for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants in that order as shown below.
      i. Oxygen content
      ii. Flammable gases and vapors
      iii. Potential toxic air contaminants
d) There may be no hazardous atmosphere within the space while and employee is within the space.

e) Continuous forced air ventilation shall be used, as follows:
   i. An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere
   ii. The forced air ventilation shall be directed as to ventilate the immediate areas where the employee is or will be present within the space and shall continue until all employees have left the space
   iii. The air supply for the forced air ventilation shall be from a clean source and shall not increase the hazards in the space.

f) The atmosphere within the space shall be continuously tested to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.

g) If a hazardous atmosphere is detected during entry, each employee shall leave the space immediately

h) The employer shall evaluate the space to determine how the atmosphere developed and measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry is allowed.

i) The space shall immediately be reclassified as a permit required confined space and the pre-entry measures described in this program shall be followed.

j) The employer shall certify that the space is safe for entry and the pre-entry measures required by this program have been taken through written certification containing the date, location of the space, and the signature of the competent person providing the certification.

11.0 **Reclassification of a Permit-Required Confined Space**

1. A permit required confined space may be reclassified as a non-permit confined space by the employer under the following procedures:

   a) If the permit space poses no actual 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.
   b) If it is necessary to enter the permit space to eliminate the hazards, such entry shall be performed in full compliance with all requirements described in this program.
   c) If testing and inspection during that entry demonstrate that the hazards within the space have been eliminated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated. **Note:** Control of atmospheric hazards alone, through forced air ventilation, does not constitute elimination of the hazards. This applies only to Alternate Procedures.
   d) The “Responsible Department” shall document the basis for determining that all hazards in the permit space have been eliminated 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 all employees.
   e) If hazards arise with a space that has been declassified, each employee in the space shall exit the space. The “Responsible Department” in conjunction with UEHS shall then reevaluate the space and determine whether it must be reclassified as a permit space.
## 12.0 Controlling Potential Hazards

1. Hazardous Atmosphere: A hazardous atmosphere is defined as an atmosphere which exposes employees to a risk of death, incapacitation, injury or acute illness. A hazardous atmosphere has one or more of the following characteristics:

   a) A flammable gas, vapor or mist in excess of 10% of its lower flammable limit (LFL).
   b) An airborne combustible dust at a concentration that obscures vision at a distance of five feet (1.52m) or less.
   c) An atmospheric oxygen concentration below 19.5% or above 23.5%.
   d) An atmospheric concentration of any substance for which a permissible exposure limit is published in Sub-Part Z of 29 CFR 1910 and could result in employee exposure in excess of its permissible limit(s).

   **Note 1:** Proper ventilation may be achieved by local exhaust ventilation or the use of portable ventilation fans, or a combination of the two practices. The goal for distributing contaminants from a local generation point throughout the work space to obtain maximum dilution below the concentrations of contaminants specified in 29 CFR Part 1910 Sub-Part Z.

   **Note 2:** Render the atmosphere of a permit space non-flammable, non-explosive or otherwise chemically non-reactive by such means as washing the inside of the permit space with a compatible substance and then removing the compatible substance to conduct work in the permit space.

2. Electrical and Mechanical

   a) In order to prevent accidental activation of moving parts that would be hazardous to the worker, a safe working condition is achieved by locking circuit breakers and/or disconnects in the open (off) position with a key-type padlock and a tag.
   b) Energized lines and/or equipment with the space shall be de-energized in accordance with 29 CFR Part 1910.146. The Control of Hazardous Energy and the Universities Lock Out/Tag Out program, unless that electrical source is required to test, evaluate or repair equipment within the space.
   c) Each person entering the permit space should have his own padlock and a different key-type padlock on the circuit breaker and or disconnect. The only key to open the padlock should remain on the person working in the confined space. A tag should also accompany the lock on the circuit breaker.
   d) Mechanical isolation of moving parts can be achieved by disconnecting linkages or removing drive belts or chains.

3. Heat/Steam

   a) Close steam supply valves and secure with chains, padlocks and tags. Insert a solid blank as permitted in order to ensure the absolute closure of a pipe, line or duct by fastening across its bore a solid plate or “cap” which completely covers the bore; which extends at least to the outer edge of the flange at which it is attached and which is capable of withstanding the maximum upstream pressure. **Note:** Heating systems – cannot double; all singles on our campuses.
b) Check steam line surface temperature and ambient temperature using a thermometer attached to a string or a pole, to assure that the temperatures are within acceptable limits before entering. Use protective clothing as needed.

4. Chemical/Hot Water Lines

a) Double Block and Bleed to isolate a line, duct, or pipe by locking and tagging a drain or vent that is open to the atmosphere in the line between two locked/closed valves.
b) Close fluid supply and return valves and secure with chains, padlocks and tags.

5. Fire and Explosion Hazards

a) Static Electricity: A spark generated by static electricity can have sufficient energy to ignite flammable or explosive gases, vapors or dust.
i. Grounding and bonding eliminates a difference in electrical potential between a container and the earth. Grounding wires must be connected to known grounds like gas pipes or water pipes and grounded metal building framework.
ii. Preventing fire or explosion involves recognizing the hazard and taking appropriate steps. This includes using equipment to detect an explosive or flammable atmosphere and using equipment; for example, explosion proof instruments and non-sparking bronze, brass or aluminum tools. Items that can also generate a spark are: beepers, loose coins, and a metal belt buckles.

b) Additional Items to be aware of:
i. Previously stored products.
ii. Leaks and spills.
iii. Incompatible chemicals
iv. Biological hazards.
v. Poor visibility.

13.0 Participant Responsibilities: routine/scheduled entry operations for maintenance and repair.

Entry Supervisor

1. An entry supervisor may also serve as an attendant or as an authorized entrant as long as the person is trained and equipped as required by this program. Also, the duties of the entry supervisor may be passed from one individual to another during the course of entry operations.

2. Duties of the Entry Supervisor:
a) Determining if acceptable entry conditions are present at the permitted space.
b) Authorizing entry into permitted spaces.
c) Overseeing entry operations.
d) Terminating entry operations.
e) Know the hazards that may be faced during entry including information the signs and symptoms of exposure.
f) Verifies, by checking that:
i. The appropriate entries have been made on the permit;
ii. All atmospheric tests specified by the permit have been conducted;
iii. And all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
g) Terminates the entry and cancels the permit when the entry operations have been completed or when a condition not allowed under the entry permit arises.
h) Verifies that retrieval equipment is on site and operable.
i) Verifies that the means for summoning rescue services are available and operable.
j) Removes unauthorized individuals from the permit area.
k) Insures that the entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.
l) Coordinates whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazard and operations performed within the space
m) Remains on campus from work start up to work conclusion and the permit space is cleared and the permit is canceled.

Authorized Entrant

1. An employee who is authorized by the “Responsible Department” to enter a permit required confined space. Authorized entrants may rotate duties, serving as attendants if the permit program and the entry permit so state. Any properly trained person with the authority to authorize entry by other persons, may enter the permit space during the term of the permit provided the attendant is informed of that entry.

2. Duties and Responsibilities of the Authorized Entrant:

   a) Prior to entering a permit space, the entrant must have been trained to know and recognize the hazards that may be faced during entry operations including mode, signs or symptoms, and consequences of exposure.
   b) Know how to properly use all equipment required by this program, including PPE, fall protection, air monitoring equipment etc.
   c) Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert the entrant of the need to evacuate the space.
   d) Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or the entrant detects a prohibited condition.
   e) Exit the permit space as quickly as possible whenever;
      i. An order to evacuate is given by the attendant or entry supervisor.
      ii. The entrant recognizes a warning sign or symptom of exposure to a dangerous situation.
      iii. The entrant detects a prohibited situation.
      iv. An evacuation alarm is activated.
Attendant

1. The attendant is an individual who is fully trained to monitor the authorized entrants, and is stationed outside one or more permit required confined spaces. Attendants may be assigned to monitor more than one permit space provided the duties can be safely and effectively performed for each permit space. Note: An attendant cannot monitor more entrants or permit spaces than the entry permit authorizes.

2. Duties and Responsibilities of the Attendant:
   
   a) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
   b) Is aware of the possible behavioral effects of hazard exposure in authorized entrants.
   c) Continuously maintains an accurate count of all persons in the space identified as “Entrants” on the entry permit.
   d) Remains outside the permit space during entry operations until relieved by another attendant.
   e) Maintains effective and continuous communication with the authorized entrants in order to monitor the entrant status and to alert entrants of the need to evacuate the space in the event of one or more of the conditions described in line “f” of this section.

   f) Attendants must order authorized entrants to evacuate the permit space immediately when:
      i. The attendant detects a condition that is prohibited.
      ii. The attendant detects behavioral effects of hazard exposure in an entrant.
      iii. The attendant detects a situation outside the space which could endanger the entrants.
      iv. The attendant cannot safely and effectively perform all the duties required.
      v. The attendant is monitoring entry in more than one permit space and must focus attention on the retrieval of entrants from one of those spaces.
      vi. The attendant must leave the work station.

   g) The attendant must warn unauthorized persons to stay away from the permit space and advise the unauthorized person(s) to exit immediately if they have entered the permit space. Informs authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

   h) The attendant is to have a means of communication that has been tested prior to entry operations to be sure it is in working order.

   i) Summons rescue or other emergency services (911) as soon as the attendant determines that entrants may need assistance to escape from permit space hazards.

   j) Performs non-entry retrieval as specified by this program.

   k) Performs no other duties that might interfere with the primary duty to monitor and protect the authorized entrant.
14.0 Participant Responsibilities: Emergency Situations

1. Attendant's Responsibilities:
   a) Attendants shall not enter the permitted space to attempt rescue of entrants.
   b) Attendants must immediately notify the USM Police Department (PD) of the emergency situation. The USM PD will in turn notify the Gorham Fire Department of the need for rescue assistance.
   c) Attendants should begin non-entry rescue procedures using the retrieval winch, Tri-pod and life line system.
   d) The attendant shall evaluate the entrant upon extraction from the permit space and shall begin administering CPR and/or First Aid as needed.

2. Entrant's Responsibilities:
   a) The entrant must exit the permit space when the attendant orders evacuation.
   b) The entrant must exit the permit space when perceived dangers exist or automatic alarms are activated signaling dangers exist.

15.0 Outside Rescue Service:

1. USM UEH&S Dept. shall evaluate the ability of Gorham Fire Department, to provide confined space rescue services in a timely manner with proficiency at rescue operations.
2. USM UEH&S Dept. shall determine that the Gorham Fire Department’s is adequately equipped for the rescue services.
3. USM UEH&S Dept. or Facilities Management shall ensure that Gorham Fire Department confined space rescue service personnel are aware of the hazards they may confront when called on to perform a rescue.

16.0 Non-Entry Rescue Team – Utility Provision

1. Emergency entrance and retrieval from a permit required confined space may be conducted without the availability of the Gorham Fire Department serving as the outside rescue service under the following circumstances:
   a. An emergency mechanical or utility disruption or failure of service has developed in a permit required confined space, and
   b. Entry for emergency repair or shut-off has been authorized by one or more of the following personnel:
      i. The Director responsible for maintenance operations, and
      ii. The Director of University Environmental Health & Safety (UEH&S), or
      iii. Safety and Health Specialist (after exhausting all attempts to reach a Director identified in line “ii”).
2. The USM Police Department is notified and in turn notifies Gorham Fire Department of the entry.
3. Entry for emergency repair or shut-off is conducted in full compliance with Paragraphs (1) through (15) of the Permit Required Confined Space Program and Entry Procedures section of this program.
4. To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters the permit space. Each authorized entrant shall use a full body harness with a retrieval line.

5. The other end of the retrieval line shall be attached to a mechanical device or a fixed point outside the permit space in such a manner that a rescue can begin as soon as necessary. **Note:** The Rescue team shall not enter the permit space at any time during the entry and retrieval process.

### 17.0 Training

Deans, Directors, Department Heads, & Supervisors are 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.
18.0 Recordkeeping

“Responsible Department(s)” 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. Any problems encountered during an entry operation shall be noted on the pertinent permit so that appropriate revisions to the program can be made.

1. Completed/canceled permits must be filed in the Confined Space Entry Log book and a copy given to UEH&S. The “Responsible Department” will coordinate the review process with UEHS and will identify and document the paragraphs and items reviewed a description of the findings, and whether or not changes to the program were made as a result of the review process.

Confined space training records shall be maintained by the “Responsible 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. A copy shall be forwarded to UEHS “Responsible Department” shall maintain contractor statements regarding implementation of a confined space entry plan, and procurement of proper rescue services throughout the contracted project. A copy shall be forwarded to UEHS.

2. Confined Space – Identification & Hazard Recognition for USM campuses are found in the Confined Space Identification and Hazard Recognition document maintained by UEH&S. A copy is to be kept.

19.0 Contractor Provisions

Hired Outside Contractors: In situations when a “Responsible Department” hires an outside contractor to work in a permit required confined space:

1. “Responsible Department” Obligations:

   a) Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section.
   b) Apprise the contractor of the elements, including the hazards identified and the host employer’s experience with the space, that make the space in question a permit space.
   c) Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.
   d) Coordinate entry operations with the contractor when both host employer personnel and contractor personnel will be working in or near permit spaces.
e) Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

f) 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.

**Note:** No contractor will be permitted to work in a USM designated permitted spaces unless they have a Confined Space program. Note: All contractors are subject to enforcement by OSHA.

2. **Contractor Obligations:** In addition to complying with the permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations shall:

   a) Present a confined space program that complies with the OSHA standard and use it during work-related activities.
   
   b) Obtain any USM information regarding permit-required space hazards and entry operations.
   
   c) Coordinate entry operations with Facilities Management when both USM personnel and contractor personnel will be working in or near a permit-required confined space.
   
   d) Inform USM personnel of the permit space program that the contractor will follow.
   
   e) Advise USM of any hazards confronted or created in the confined permit space either through a debriefing or during the entry operation.
## Revisions Page

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<th>Date</th>
<th>Type</th>
<th>Page Numbers</th>
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<tr>
<td>December 2015</td>
<td>Added definitions 4&amp;5 \nUEHS and Deans Directors etc</td>
<td>Section 4.0</td>
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<td>Clarification &amp; expanded \nDepartment responsibilities. (2) \nElaborated on areas that a sign could not be posted.</td>
<td>Section 5.0</td>
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<td>Inserted \nPrior to allowing entry into any confined space the “responsible department” shall:</td>
<td>Section 6.0</td>
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<td></td>
<td>Clarified &amp; updated Training responsibilities</td>
<td>Section 17.0 Training</td>
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<td>Replaced employer with “Responsible Department” throughout the document</td>
<td>Most sections</td>
</tr>
<tr>
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<td>Expanded and identified responsibilities</td>
<td>Section 18.0 Record Keeping</td>
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<td>Added f</td>
<td>Section 19.0 Contractor provisions</td>
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<td>Added Appendix G</td>
<td>Appendix G</td>
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<td>April 2016</td>
<td>Corrected typos – realigned text</td>
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Appendix A

HIRED OUTSIDE CONTRACTORS RECORDKEEPING FORM

CAMPUS __________________________ LOCATION __________________________

CONTRACTOR'S NAME ______________________________________________________

CONTRACTOR'S OFFICE PHONE # ____________________________________________

CHARGE PERSON __________________________________________________________

JOB DESCRIPTION __________________________________________________________

CHECK OFF COLUMN:

When USM arranges to have a contractor perform work that involves permitted space entry, USM shall:

_______ A. Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section.

_______ B. Apprise the contractor of the elements, including the hazards identified and the host employer’s experience with the space that makes the space in question a permit space.

_______ C. Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.

_______ D. Coordinate entry operations with the contractor, when both host employer personnel and contractor personnel will be working in or near permit spaces.

_______ E. Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

CONTRACTOR NAME: ___________________________ Title: __________________________

USM REP: _______________ ____________________________

Name ____________________________ Title ____________________________
Appendix B

USM CONFINED SPACE ENTRY PERMIT
(Issue Approval 12 Hours)

Permit Space to be Entered ___________ Location _________________ Purpose ___________________

Date of Entry _____________ Time _____________ Expected Duration (hrs.) _____________

HAZARDS: (Check all that apply) Atmospheric ___ Chemical ___ Engulfment ___ Physical___
Heat ___ Undergrd/Overhd ___ Cold ___ Describe______________________________________________

Space Isolation: LO/TO ___ Barriers ___ Ventilation ___ Traffic ___ Other: _____________________________

USM LO/TO Program followed? Yes ___ N/A ___ Locks & Tags Available? Y ___ N ___

Equipment Needed: Air Monitor ___ Ventilator ___ Ladder(s) ___ Lighting ___ Barriers/Shields ___

Tripod ___ Winch ___ Body Harness ___ Glasses/Goggles ___ Hearing Protection ___ Gloves ___

Any Other Permits or Information Needed? Yes ___ No ___

MSDS Needed? Yes ___ No ___ MSDS Available? Yes ___ No ___

Contractor Information as per 1910.146(c)(8) or (c)(9)_______________________________________

Rescue: Non-entry ____ Entry ____ If Entry Rescue, Call GFD at 839-5581 to Confirm Availability

Has Rescue (Non-Entry or Entry Rescue) Been Pre-Planned? Yes ____ No ____

To Activate Rescue: Radio ____ Phone: 780-5211 OR 911

Entry supervisor(s): __________________, __________________, __________________

Authorized Attendant(s): __________, __________, __________, __________

Communication Procedures used by attendant and entrant: Voice ____ Radio ____ Other ____

INITIAL ATMOSPHERIC MONITORING

Conducted by: Name ___________________________ Time _____________
Gas Meter Mfr: ___________________________ Model: ___________ Calibration Date: ___________

PRE ENTRY TESTING: TOP MIDDLE BOTTOM
%O2 19.5% - 23.5% 
<10% LEL
< 35 PPM CO
< 10 PPM H2S

Safe for Entry: Yes ____ No ____ Entry Supervisor authorizes Entry: Yes ____ No ____

Entry Supervisor Signature: ______________________________________________
Alternate Entry? Y ____ N ____. the only hazard posed is an actual or potential hazardous atmosphere. This requires continuous forced air ventilation & air monitoring.

Reclassified Non-Permit? Y ____ N ____, no potential or actual atmospheric hazards exist & all other hazards are eliminated.

If “Yes” to either of the above, entry is permitted without the availability of emergency rescue service.

ENTRY LOG

<table>
<thead>
<tr>
<th>AUTHORIZED ENTRANT</th>
<th>Time In</th>
<th>Time Out</th>
<th>Time In</th>
<th>Time Out</th>
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CONTINUOUS OR PERIODIC ATMOSPHERIC MONITORING

<table>
<thead>
<tr>
<th>Time</th>
<th>Oxygen O₂ 19.5 - 23.5%</th>
<th>LEL &lt; 10%</th>
<th>CO &lt; 35 ppm</th>
<th>H₂S &lt; 10 ppm</th>
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<tr>
<th>Time</th>
<th>Oxygen O₂ 19.5 - 23.5%</th>
<th>LEL &lt; 10%</th>
<th>CO &lt; 35 PPM</th>
<th>H₂S &lt; 10 ppm</th>
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PERMIT CANCELLED/ENTRY TERMINATED AT (TIME): ___________________

GORHAM FD NOTIFIED AT (TIME): ________ GORHAM FD NOTIFIED AT (TIME): __________

ENTRY SUPERVISOR SIGNATURE: ____________________________________________
Appendix C

Attendant

Duties and Responsibilities:

1. Know and recognize the hazards.

2. Know the mode, signs or symptoms and consequences of exposure.

3. Know the possible behavioral effects of hazard exposure in authorized entrants.

4. Maintain an accurate count of all persons in the space.

5. Remain outside the permit space until relieved by another attendant.

6. Communicate continuously with the entrants.

7. Order evacuation of the permit space immediately when:
   a) The attendant detects a prohibited condition.
   b) The attendant detects behavioral effects of hazard exposure in an entrant.
   c) The attendant detects a situation outside the space which could endanger the entrants.
   d) The attendant cannot safely and effectively perform all the duties required.
   e) The attendant is monitoring entry in more than one permit space and must focus attention on the retrieval of entrant from one of those spaces.
   f) The attendant must leave the work station.

8. Warn unauthorized persons to stay away from the work area.

9. Inform authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

10. Test and maintain a means of communication with the entrant.

11. Summon rescue or other emergency services (911).

12. Perform non-entry retrieval.

13. Perform no other duties that might interfere with the primary duty to monitor and protect the authorized entrant.
Appendix D

Authorized Entrant
Duties and Responsibilities:

1. Know and recognize the hazards.

2. Know the mode, signs or symptoms, and consequences of exposure.

3. Know how to properly use all equipment including:
   a) Air monitoring
   b) PPE
   c) Fall protection
   d) Communication

4. Communicate with the attendant continuously.

5. Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or the entrant detects a prohibited condition.

6. Exit the permit space as quickly as possible whenever;
   a) An order to evacuate is given by the attendant or entry supervisor.
   b) The entrant recognizes a warning sign or symptom of exposure to a dangerous situation.
   c) The entrant detects a prohibited situation.
   d) An evacuation alarm is activated.
Appendix E

Entry Supervisor
Duties and Responsibilities:

1. Know the hazards.

2. Know the signs and symptoms of exposure to a hazardous atmosphere.

3. Verifies that:
   
   a) The appropriate entries have been made on the permit,
   b) All atmospheric tests specified by the permit have been conducted,
   c) All procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

4. Determine if acceptable entry conditions are present.

5. Verifies that retrieval equipment is on site and operable.

6. Verifies that the means for summoning rescue services are available and operable.

7. Authorizes entry.

8. Oversees entry operations.

9. Removes unauthorized individuals from the permit area.

10. Determines whenever responsibility for a permit space entry operation is transferred and that entry operations remain consistent with the terms of the entry permit.

   Note: “An entry supervisor may also serve as an attendant or as an authorized entrant as long as that person is trained and equipped as required by this program. Also, the duties of the entry supervisor may be passed from one individual to another during the course of entry operations.”

11. Terminate entry operations and cancels the permit when the entry operations have been completed or when a condition not allowed under the entry permit arises.

12. Remains on site until the work is finished, the space is cleared and the permit is canceled.
Appendix F

Job Hazard Assessment Form

Work Area ________________ Assessment Conducted By ________________
Date ________________

Personal Protective Equipment (Hazard Assessment by Task)

<table>
<thead>
<tr>
<th>Task</th>
<th>Hazard(s)</th>
<th>PPE Required</th>
<th>Method for Isolation</th>
<th>Department</th>
</tr>
</thead>
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</tbody>
</table>
### Appendix F

**Job Hazard Assessment (Example)**

**Work Area ________________ Assessment Conducted By ________________
Date ____________

#### Personal Protective Equipment (Hazard Assessment by Task)

<table>
<thead>
<tr>
<th>Task</th>
<th>Hazard(s)</th>
<th>PPE Required</th>
<th>Method for Isolation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work in elevator pit.</td>
<td>Electrical from sump pump Elevator descending into pit Liquid from sump overflow</td>
<td>Eye protection Rubber boots Leather work gloves</td>
<td>LO/TO electrical to sump pump. LO/TO elevator cab to prevent lowering. Block/Bleed source of liquid.</td>
<td>DFM performing work.</td>
</tr>
<tr>
<td>Entering high noise area</td>
<td>Noise in excess of 85dB</td>
<td>Foam, cap, or earmuff type hearing protection</td>
<td>N/A</td>
<td>Both ears, all production areas, prior to exposure area</td>
</tr>
<tr>
<td>Chemical mixing</td>
<td>Caustic burns</td>
<td>Chemical gloves, apron, goggles and face shield, rubber boots, sleeves</td>
<td>N/A</td>
<td>Only authorized employees are to mix chemicals. <strong>Read MSDS prior to using any chemicals.</strong></td>
</tr>
<tr>
<td>First aid/CPR</td>
<td>Bloodborne pathogens/ Air borne diseases</td>
<td>Latex / non-latex examination gloves, safety eyewear, CPR device protective mask</td>
<td>N/A</td>
<td>Immediate notification if exposed to body fluids. See Bloodborne Pathogen Control Program</td>
</tr>
<tr>
<td>Grinding, sanding, chipping, abrading</td>
<td>Debris in eyes, burns, lacerations to face and other non-protected body parts.</td>
<td>Safety glasses / goggles, face shield, gloves, arm protection, Safety toed leather boots</td>
<td>N/A</td>
<td>Use point of operation area guarding when available.</td>
</tr>
<tr>
<td>Grinding, sanding, chipping, abrading</td>
<td>Hand lacerations, impingement</td>
<td>Leather or thick cloth work gloves</td>
<td>N/A</td>
<td>When using powered tools</td>
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<tr>
<td>Welding, brazing</td>
<td>Eye hazard, burns</td>
<td>Welding helmet, apron, gloves, chaps</td>
<td>N/A</td>
<td>See selection chart for proper lens shade</td>
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<td>Work on electrical circuits</td>
<td>Electrical shock</td>
<td>Reference NFPA 70E</td>
<td>LO/TO electrical breakers/disconnects/switches</td>
<td>Maintenance &amp; testing</td>
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</tbody>
</table>
USM Confined Space Identification & Hazard Recognition

PORTLAND & GORHAM CAMPUS’S

The USM Confined Space Identification & Hazard Recognition document is located in each of the Facilities Management offices. A copy is also kept in the University Environmental Health & Safety (UEH&S) Office.

CONTACT YOUR DEPARTMENT SUPERVISOR OR UEHS FOR A COPY OF THIS DOCUMENT.