



AUBURN

UNIVERSITY

CONFINED SPACE ENTRY PROGRAM

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Risk Management & Safety

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I. Purpose

The purpose of the Auburn University Confined Space Program is to define procedures that ensure employees and students safe entry into confined spaces to perform routine tasks associated with their job or project activities. This procedure has been designed to provide minimum safety requirements.

The potential for safety and health hazards and limited means of egress represents a risk to people who work in confined spaces. This procedure addresses these hazards through the use of Confined Space Entry Permits, atmospheric testing, personal protective equipment (PPE), rescue procedures and training.

This standard applies to any operation that requires employees or students to enter or work inside any manhole, sewer, sump, vault, crawl space, air handler, boiler, vat, pit, tunnel, tank, tank car, or similar confined space.

II. Scope

The Confined Space Entry Program shall be implemented for Auburn University including the main, branch, and remote campuses where there is need to perform any activity within a confined space. However, a Department/Division may implement its own Confined Space Entry Program as long as it is as stringent as the University's Confined Space Entry Program.

Employees and students who are authorized to enter a Permit-Required Confined Space must complete confined space entry training. Authorized employees and students shall not enter any confined space until satisfactory air monitoring is completed and appropriate action taken as described in this program to protect entrants. An attendant must be present and in constant communication with entrant(s) for the duration of any entry.

III. Confined Space Definition

A. A space that is large enough and so configured that an employee or student can

bodily enter and perform assigned work;

- B. A space that has limited means for entry or exit; and
- C. A space that is not designed for continuous employee occupancy.

IV. Permit-Required Confined Space Definition

The Permit-Required Confined Space (entry by permit only) means a confined space that has one or more of the following characteristics:

- A. Contains or has the potential to contain a hazardous atmosphere;
- B. Contains a material that has the potential for engulfing an entrant;
- C. 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; and
- D. Contains any other recognized serious safety or health hazard. Examples of serious safety or health hazards might include:
 - 1. Fall hazards
 - 2. Unguarded machinery
 - 3. Extreme heat or cold
 - 4. Steam pipes or chemical lines
 - 5. Electrical hazards
 - 6. Potentially hazardous levels of dust

V. Non-Permit Required Confined Space Definition

A Non-Permit Required Confined Space is a confined space that does not contain or have the potential to contain any safety and health hazard capable of causing death or

serious physical harm. Therefore, provided that the work to be performed lacks any potential to create a prohibited or unacceptable condition, entry to a Non-Permit-Required Confined Space may proceed as described below.

Prior to entry:

1. Review the work to see if personal protective equipment (PPE) is needed;
2. Establish traffic control barriers at the entry point, if applicable;
3. Eliminate any condition that would make removal of the confined space entry cover unsafe;
4. Once the entry cover is removed, promptly guard the entry point with a temporary barrier to prevent an accidental fall through the opening and protect employees or students working in the space from foreign objects entering the space;
5. Ensure a safe means of communication is available;
6. Test the space for oxygen content, combustibles, carbon monoxide, and any other potential toxic gases to assure justification conditions is met;
7. Ensure proper PPE is donned; and
8. Ensure appropriate lighting and/or equipment (e.g., ladders) for safe entry and exit by entrants is available.
9. Entry

VI. Prohibitions

No confined space shall be entered until adequate precautions have been taken to ensure the safety of the entrant(s) and their work environment.

VII. Potential Hazards

A. Oxygen Deficiency - Normal breathing air contains 20.9% oxygen. Atmospheres containing less than 19.5% oxygen are considered to be oxygen deficient while atmospheres with more than 23.5% oxygen are oxygen enriched. Under this program, atmospheres with less than 19.5% oxygen or more than 23.5% oxygen are considered immediately dangerous to life and health (IDLH).

Some of the more common causes of oxygen deficiency are:

1. Oxidation of metals (rusting).
2. Bacterial action in sewers, which consumes oxygen and produces carbon dioxide and hydrogen sulfide.
3. Fuel combustion – which uses oxygen and produces carbon monoxide.
4. Displacement by other heavier gases, such as argon.

B. Combustible/Flammable Gases and Vapors - These hazards are naturally occurring gases (natural gas) and the vapors of a large group of liquids which are used as fuels and solvents. Some of these liquids vaporize easily when placed in open air. Both gases and vapors may burn or explode when mixed with the required amount of air and an ignition source.

1. Many combustible and flammable gases/vapors are heavier than air and will flow down to the lowest point of a pit, tank, or opening in a confined area while other gases may be lighter than air and collect at the top of the confined space.
2. Many of these combustible and flammable gases/vapors are also toxic such as, petroleum solvents (paint thinner, gasoline, lacquer thinner) vapors when they are concentrated in a confined space without adequate ventilation.

C. Toxic Atmospheres - Gases and vapors which are known to produce disease, acute

discomfort, bodily injury or death are atmospheric toxins. The two main classifications of gases found in these atmospheres are irritants and asphyxiants.

1. Irritants - Gases which are irritating to the respiratory and nervous system at low levels and may cause death at higher levels. An example is hydrogen sulfide which can occur naturally or as a by-product of natural decomposition of organic material.
2. Asphyxiants - These are gases which cause asphyxiation by displacing the oxygen in the atmosphere or by preventing oxygen uptake within the body. Three common examples are methane, hydrogen sulfide (sewer gas) and carbon monoxide. Methane and hydrogen sulfide are often encountered in sewers, storage bins, and tunnels. Carbon monoxide is the common toxic product of combustion.

D. General Safety Hazards

1. Mechanical and Electrical – De-energization of mechanical and electrical systems must be completed to eliminate these hazards before entry into a confined space by an entrant. Special precautions must be taken to ensure that static electricity or other ignition sources are disconnected and other mechanical hazards are protected.
2. Communication Problems - When visual monitoring of the worker is not possible, two-way radio is necessary to ensure communication between the entrant and the attendant.
3. Entry and Exit - Entry and exit time is a major factor because of configuration of the confined space
4. Physical - Physical hazards include thermal effects, noise, vibration, slick/wet surfaces, rotation, fatigue, engulfment, and falling objects.
 - a. Thermal factors are air temperature, radiant heat exchange, and air

movement. If the space is hot with a large amount of residual heat, such as a boiler or steam manhole, it must be allowed to cool before any entry. Allow boilers at least 3 days to cool before attempting entry into the various compartments. Allow steam manholes enough time to cool and reach zero pressure on steam supply and condensate return lines before entry. Monitor entrants for signs of heat stress when entry is made into hot environments.

- b. Operations that generate vibrations also produce noise which may further interfere with communication and generate static electricity which could provide a source of ignition in atmospheres with flammable or combustible vapors.
- c. Rotational Hazards, such as electric motor shafts, fan belts, fan blades and blower squirrel cages pose physical hazards to entrants that must be controlled by de-energization (lockout/tagout) before entry into a confined space.
- d. Slick/wet Surfaces - Aside from slip and fall hazards, a wet surface will increase the likelihood for electric shock in areas where electrical circuits, equipment, and tools are used.
- e. Fatigue - Work/rest cycles should be determined prior to entry based upon temperature, humidity level and space limitations and modified as required.

VIII. General Requirements

- A. The work area will be evaluated to determine if it meets the definition of a confined space.
- B. Confined spaces will be identified as such and employees and applicable students shall be informed of their existence, location, and danger by posting danger signs or other equally effective means.

- C. Effective measures will be taken to prevent unauthorized entry into a confined space.
- D. A written Permit-Required Confined Space Program is used (See Section IX) if entry into the confined space is required and shall detail:
1. Measures taken to eliminate any unsafe conditions associated with the removal of the entrance cover.
 2. Measures taken to guard the entrance opening from entry after the cover is removed.
 3. Testing methodology of the atmosphere with a calibrated direct read instrument for oxygen first, followed by combustible/flammable gases and vapors, carbon monoxide, hydrogen sulfide, and potential toxic air contaminants, as required.
 4. Preventative measures taken to ensure that there is not a hazardous atmosphere whenever an employee is inside the space.
 5. How continuous forced air ventilation will be used to eliminate any hazardous atmosphere, how it will be directed to ventilate the employee work areas, and the source of the air supply.
 6. Monitoring activities designed to ensure that continuous forced air prevents the formation of a hazardous atmosphere.
 7. Procedures to extract an entrant if a hazardous atmosphere is detected during entry, how the space will be evaluated to determine how the hazardous atmosphere developed, and how the hazardous atmosphere will be eliminated before re-entry.
- E. Verify that the space is safe for entry and a written certification containing the date, the location of the space, and the signature of the person providing the certification is completed.

- F. Entry permits are issued for each entry into a Permit-Required Confined Space.
- G. When there are changes in the use, risk/hazard level or configuration of a Non-permit or Permit-Required Confined Space, it will be re-evaluated, reclassified, and documented as appropriate.
- H. When outside contractors are involved in Permit-Required Confined Space entry:
 - 1. The contractor will follow the confined space entry requirements described in Occupational Safety and Health Administration's (OSHA) Confined Space Standard, 1910.146 and 1910.269 and the University's Confined Space Entry Program.
 - 2. The contractor will complete the required confined space entry checklist and provide the checklist to the University Project Manager.

IX. Permit-Required Confined Space Program

- A. Prevent unauthorized confined space entry. As outlined in each Permit-Required Confined Space Permit, precautions such as cordoning/barricading the work area to prevent entry from students and other people must be employed to prevent unauthorized entry.
- B. Identify and evaluate hazards before entry. A summary sheet of all Permit-Required Confined Spaces has been completed.
- C. Safe permit entry operations include:
 - 1. Ensuring all attendants, entrants and entry supervisors have received the appropriate level of training to perform their duties.
 - 2. Permitting for the type of Permit-Required Confined Space.
 - 3. Ensure all the mandatory equipment has been inspected, in good working order, and listed on the permit.

4. Ensure work area is properly barricaded to prevent unauthorized entry.
5. The confined space entry supervisor should complete all items on the Confined Space Supervisor Field Inspection Form and entry permit. Special precautions should be administered before opening a confined space especially manhole covers. This includes but is not limited to eliminating any hazards and guarding the opening (standard guardrail, temporary cover, etc.) The confined space entry supervisor should review all information and certify accuracy by signing the entry permit and posting at the job site.
6. The attendant, entrant and confined space entry supervisor should pay particular attention to atmospheric testing i.e., oxygen content, flammable gases and vapors, carbon monoxide, hydrogen sulfide, potential toxic air contaminants, purging, inerting, flushing, lockout/tagout and/or ventilating the permit space as necessary to control the hazards. Please note continuous forced air ventilation shall be used, as follows:
 - a. If a hazardous atmosphere is detected, an employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere.
 - b. The air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees and students have left the confined space.
 - c. The air supply for the forced air ventilation shall be from a clean source and may not increase the hazards in the space.
7. Once all precautionary measures have been taken and conditions are acceptable for entry, the authorized entrant(s) may enter the confined space.
8. The atmosphere within the space shall be continually tested and recorded hourly to ensure that the continuous forced air prevents the formation of a hazardous atmosphere.

9. If a hazardous atmosphere is detected during entry:
 - a. Each employee shall leave the space immediately.
 - b. The space shall be evaluated to determine how the hazardous atmosphere developed.
 - c. Measures shall be implemented to protect employees and students from the hazardous atmosphere before any subsequent entry takes place.
 10. The permit must be cancelled after work has been completed not to exceed 24 hours. The entry supervisor, attendant or authorized entrant may cancel the permit by indicating the expiration date/time on the permit.
- D. The following equipment may be mandatory depending on the specific confined space to be entered:
1. Air testing and monitoring equipment
 2. Ventilating equipment
 3. Communications equipment
 4. Personal protective equipment where engineering and work practice controls are insufficient
 5. Adequate lighting equipment
 6. Barriers and shields
 7. Equipment for safe egress
 8. Rescue and emergency service equipment
- E Evaluation of permit space conditions
1. Pre-entry testing for acceptable entry conditions is required before entry and continual testing for the duration of the operation.

2. Where it is not feasible to isolate the space (as in sewers) continuous monitoring is required.
 3. Tests for atmospheric hazards require testing for oxygen first followed by combustible\flammable gases and vapors, carbon monoxide, hydrogen sulfide and toxic gases and vapors as required all conducted by a qualified and trained attendant or other designated person.
- F. One attendant is required outside the permit space for the duration of entry operations.
- G. Duties are established and training provided for all participants.
- H. Rescue and emergency services are provided by local fire department only. The attendant will summon the fire department in an emergency.
- I. Entry operations follow the coordinated entry provisions when contractors or other employers are involved.
- J. A Permit-Required Confined Space Program review is conducted
1. Annually, and
 2. Whenever there is reason to believe deficiencies may exist.
- K. A mandatory Entry Permit System is used for all Permit-Required Confined Space entries.
1. An entry permit must be completed prior to entry authorization and be signed by the identified confined space entry supervisor.
 2. The permit must be available at all times to authorized entrants at or near the point of entry.
 3. The permit may not exceed the time required to complete the assigned task.

Permits are valid for a maximum 24 hour period.

4. The entry supervisor will terminate entry and cancel the entry permit when
 - a. Entry operations have been completed or
 - b. A condition not allowed by the entry permit arises.
5. Cancelled entry permits must be retained for at least 1 year by the issuing department to facilitate program review.

X. Duties and Responsibilities

A. Risk Management and Safety

1. Prepare the Confined Space Entry Program with annual review and revisions as needed.
2. Distribute the Confined Space Entry Program.
3. Provide consultation, advisory assistance and information concerning confined space entry or the Confine Space Entry Program.
4. Identify and document potential confined space work areas.
5. Provide Confined Space Entry Permit Form.
6. Investigate and document all accidents or near misses reported as the result of confined space entry or an aborted entry attempt.

B. Divisions/Departments

1. Notify Risk Management and Safety of documented confined space work areas under their control.
2. Implement all provisions of the Confined Space Entry Program for work or research areas under their control.
3. Provide training for confined space entrants and attendants as required by the Confined Space Entry Program.

4. Identify confined space entry supervisors that are authorized to sign the Permit-Required Confined Space Entry Permit.
5. Provide specialized training to confined space entrants and attendants regarding the specific equipment and practices used during entry.
6. Assure that warning signs are posted immediately outside of entrances to confined spaces and that such signs are secured.
7. Assure that the entry permit is posted immediately outside the entrance to confined spaces.
8. Maintain original entry permits upon completion or termination of a Permit-Required Confined Space Entry.
9. Coordinate Confined Space Program and rescue drills with the local fire department.

C. Confined Space Entry Supervisor

1. Complete the Confined Space Supervisor Field Inspection Form.
2. Complete the Permit-Required Confined Space entry permit and verify that all precautions and pre-entry procedures are fulfilled prior to entry.
3. Terminate entry and cancel permits in the event conditions within the space change, entrants show signs of over-exposure or conditions cannot be verified.
4. Verify availability of the rescue team prior to entry.
5. Ensure that only documented entrants access the confined space.
6. Ensure appropriate PPE is available and used by entrants.

7. The entry supervisor shall supervise the entry team's implementation of the means, procedures and practices necessary for safe entry operations which include, but are not limited to, the following:
 - a. Isolating the permit space by blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; using a double block and bleed system; using lockout/tagout procedures; or blocking or disconnecting all mechanical linkages.
 - b. Purging, inerting, flushing, or ventilating the Permit-Required Confined Space as necessary to eliminate or control atmospheric hazards.
8. Ensure that only the assigned tasks or activities identified on the permit are conducted within the Permit-Required Confined Space. If assigned activities exceed the duration of the permit or additional activities are required the entrant(s) shall leave the space until the confined space entry supervisor can modify the Confined Space Entry Permit, as required.
9. Ensure original entry permits are forwarded to the responsible Division/Department upon completion or termination of a Permit-Required Confined Space Entry.
10. An entry supervisor also may serve as an attendant, or as an authorized entrant, as long as that person is trained and equipped to do so. The duties of entry supervisor may be passed from one individual to another during the course of an entry.

D. Confined Space Entrants

1. Adhere to the requirements of the confined space entry plan and supplemental entry procedures.
2. Understand the hazards of the confined space including the signs and symptoms of exposure.

3. Communicate with the attendant regularly while inside the confined space and report any unusual conditions or circumstances.
4. Leave the confined space immediately when instructed to do so by the attendant or if warning signs or symptoms of exposure to a hazard is detected.
5. Complete all safety training requirements, requesting further instruction if unclear on any part of the training.
6. Comply with documentation procedures.
7. Report all workplace injuries, perceived exposure incidents or unsafe conditions to their Supervisor as soon as possible.
8. Use appropriate PPE.

E. Confined Space Entry Attendants

1. Adhere to the requirements of the entry permit and supplemental entry procedures.
2. Remain outside of the confined space in constant two-way communication with the entrant(s) until relieved by an alternate attendant or all entrants have exited the space.
3. Conduct pre-entry and periodic air monitoring as required by the Confined Space Program.
4. Continuously communicate with the confined space entrants and monitor the space to assure that conditions remain within acceptable parameters as defined in the Permit-Required Confined Space Entry section of this program and instruct entrants to leave a space if any parameter varies from acceptable as defined in this document.
5. Maintain an accurate account of entrants in the confined space.

6. Summon rescue personnel in the event of an emergency; and AU Public Safety and Security or local Police Department in the event that an unauthorized person enters the space.
7. Complete all safety training requirements, request further instruction if unclear on any part of the training, and comply with documentation procedures.
8. Understand the hazards of the confined space including the signs and symptoms of exposure.
9. Report all workplace injuries, exposure incidents or unsafe conditions to the confined space entry supervisor as soon as possible.
10. Perform non-entry rescue procedures if able to do so safely.
11. Perform no duty that may interfere with attendant duties while serving in the capacity of attendant.
12. Secure the confined space after completion of the work to prevent dangerous conditions.

XI Training

- A. Training is provided to ensure understanding, knowledge, and skills are developed for assigned duties.
- B. Training is provided:
 1. Before initial assignment.
 2. When there is a change in confined space entry requirements.
 3. When inappropriate deviations in program have been identified or employee knowledge levels indicate that additional training is warranted.
 4. On an annual basis.

C. Training to include:

1. Confine space identification and location.
2. Monitoring equipment operation.
3. Warning signs, symptoms of exposure and detection of prohibited conditions.
4. Use of personal protective equipment.
5. Evacuation requirements.
6. Rescue procedures.
7. Ventilation techniques.
8. Basic first aid and CPR.

D. Employees and students must establish proficiency in duties assigned.

E. Certification of training includes trainee names, date of-training and trainer's signature.

XII Rescue and Emergency Services

An entrant's evacuation from a confined space, or self-rescue, shall take place when any of the following conditions occur:

- A. An attendant observes a potential problem that can affect the entrant(s) such failure of the ventilation system.
- B. Activation of an atmospheric alarm.
- C. Entrant(s) experience signs and symptoms of a hazard in the space.

Each entrant shall use a body harness with a retrieval line attached. The other end of the retrieval line shall be attached to a mechanical device for any vertical permit-required space more than 5 feet deep.

In the event an entrant or entrants become incapacitated, rescue services that can be performed safely from outside the confined space (e.g. hoisting a harnesses entrant) shall be undertaken. Other entrants within the confined space shall immediately exit the confined space and only provide such assistance as will not endanger them. In any event the attendant shall immediately notify the local fire department.

The local fire department provides rescue and emergency services.

- A. The local fire department must be informed of confined space location and potential hazards involved in rescue prior to entry.
- B. Access must be provided to all permit-required spaces for fire department/rescue team training purposes.
- C. A Material Safety Data Sheet (MSDS) must be provided for all chemicals or products of concern.

APPENDICES

Appendix I

Definitions

1. “Acceptable entry conditions” means the conditions that must exist in a permit space to allow authorized entrant to enter and work within the space.
2. “Attendant” means an individual stationed outside the permit space who monitors the authorized entrants and who performs all attendants’ duties.
3. “Authorized entrant” means an employee who is authorized to enter a permit space.
4. “Blanking or blinding” means the absolute closure of a pipe, line or duct by the fastening of a solid plate that completely covers the bore and is capable of withstanding the maximum pressure with no leakage.
5. “Confined Space” means a space that:
 - A. Is large enough that an employee can bodily enter and perform assigned work;
 - B. Has limited means for entry or exit; and
 - C. Is not designed for continuous employee occupancy.
6. “Confined Space Entry permit” (permit) means the written or printed document that allows and controls entry into a permit space.
7. “Confined Space Entry Supervisor” means the person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this standard.
8. “Contractor” - A person or business which provides goods or services to Auburn University under terms specified in a contract. Contractors are not considered employees of Auburn University.
9. “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.

10. “Emergency” means any occurrence (including any failure of hazard control or monitoring equipment) or events internal or external to the permit space which could endanger entrants.
11. “Engulfment” means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance.
12. “Entry” means the action by which a person passes through an opening into a permit- required Confined Space. Entry is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.
13. “Entry Permit” - The written or printed document to allow and control entry into a permit space.
14. “Hazardous atmosphere” means an atmosphere that may expose entrants to the risk of death, incapacitation, impairment of ability to self-rescue (unaided escape from a permit space), injury, or acute illness from one or more of the following causes:
 - A. A flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit LFL;
 - B. An airborne combustible dust at a concentration that meets or exceeds its LFL; (This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less).
 - C. An atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
 - D. An atmospheric carbon monoxide concentration greater than 25 ppm;
 - E. An atmospheric hydrogen sulfide concentration greater than 10 ppm;
 - F. Atmospheric concentration of any substance for which a dose or a permissible exposure limit or threshold limit value exists which could result in employee exposure in excess of its dose or permissible exposure limit; and
 - G. Any other atmospheric condition that is immediately dangerous to life or health.
15. “Hot work permit” means the written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

16. “Immediately dangerous to life or health (IDLH)” means any condition which 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 space.
17. “Inerting” means the displacement of the atmosphere in a permit 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).
18. “Isolation” means the process by which a permit 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.
19. “Line breaking” means the intentional opening of a pipe, line or duct that is or has been carrying flammable, corrosive or toxic materials, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.
20. “Non-Permit Confined Space” means a 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.
21. “Oxygen deficient atmosphere” means an atmosphere containing less than 19.5 percent oxygen by volume.
22. “Oxygen enriched atmosphere” means an atmosphere containing more than 23.5 percent oxygen by volume.
23. “Permit-required Confined Space” (permit space), means a Confined Space that has one or more of the following characteristics:
 - A. Contains or has the potential to contain a hazardous atmosphere;
 - B. Contains a material that has the potential for engulfing an entrant;
 - C. 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

D. Contains any other recognized serious safety or health hazard.

24. "Permit system" means the written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.
25. "Prohibited condition" means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
26. "Rescue service" means the personnel designated to rescue employees and students from permit spaces.
27. "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 spaces.
28. "Testing" means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

Appendix II

Entry Permit Content Requirements

The Confined Space Entry Permits identify the items below by permit section:

1. Entrance date and time
2. Termination date and time
3. The permit space to be entered
4. The type of space
5. Reason for entry
6. Atmospheric hazards
7. Physical hazards
8. Hazard controls
9. Communication equipment
10. Required PPE
11. Rescue details
12. Authorized entrants
13. Authorized attendants
14. Atmospheric testing
15. Permit cancellation date and time

Example form follows.

CONFINED SPACE ENTRY PERMIT



Atmospheric Testing	Type of Gas Monitor	Date of Calibration							
		1st	2nd	3rd	4th	5th	6th	7th	8th
Test Results	Acceptable								
Oxygen	19.5 - 23.5%								
Combustible Gas	Below 10% LEL								
Carbon Monoxide	0 - 25 ppm								
Hydrogen Sulfide	0 - 10 ppm								
Other _____	_____								
Other _____	_____								
Other _____	_____								

Permit Cancellation Date and Time

Reason for Permit Cancellation

Comments

Entry Supervisor Printed
Signed

Appendix III

Confined Space Supervisor Field Inspection Form

Confined Space Supervisor Field Inspection
Form

Type of Confined Space: _____

Location: _____ Department: _____

Audit Date: _____ Auditor(s): _____

Instructions: Supervisor must use this form to assessment a confined space entry:

1. Review each applicable question with confined space personnel and check corresponding Yes (Y), No (N) and/or Not Applicable (N/A) boxes.
2. Please include any notes in the notes/comments section of form.
3. The supervisor must review this form and his/her observations with all confined space authorized employees and students and have them sign the attendance form.

<i>Please answer the following questions.</i>	Yes	No	N/A	Notes / Comments / Corrective Actions
Is this a Confined Space?				
Are open holes or areas properly barricaded?				
Is access for entry and egress adequate?				
Is a four gas meter being used to monitor atmosphere within the space?				
Is the calibration on the four gas monitor current?				
Have all proper Lockout / Tagout procedures been followed?				
Retrieval device/harnesses in place to remove entrant's in the event of an emergency?				
Is forced air ventilation being used to ventilate space?				
Permit				
Is the permit required form filled out correctly and properly signed?				
Is the permit posted at the entry site?				
Attendant				
Is there an attendant at the site?				

Please answer the following questions	Yes	No	N/A	Notes / Comments / Corrective Actions
Attendant Continued				
Is the attendant aware of the hazards the entrant is exposed to?				
Is the attendant aware of the possible behavioral effects of hazard exposure to the entrant?				
Is the attendant aware of the number of entrants in the confined space?				
Does the attendant know what to do if an unauthorized person tries to enter the confined space?				
Does the attendant know who the entry supervisor is?				
What type of communication is in place between the attendant and the entrant?				
Does the attendant know the procedure to follow if he/she needs to leave the confined space area?				
Does the attendant have a means of immediate communication to summon help if necessary?				
Does the attendant know the requirements if the attendant is to leave the area?				
Entrant				
Is the entrant familiar with the hazards in the confined space?				
Does the entrant know the method of communication with the attendant?				
Is the entrant wearing rescue equipment?				
Does the entrant know he/she is to follow the direction of the attendant or entry supervisor?				
	Additional Comments:			

Appendix IV

Confined Space Entrant Record

