

**CALIFORNIA STATE UNIVERSITY,  
LOS ANGELES**

**CONFINED SPACE ENTRY PROGRAM**

**April 2016**

**PROGRAM APPROVAL AND AUTHORIZATION**

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**Date**

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## 1.0 PURPOSE:

- 1.1 The Confined Space Entry Program provides guidance to authorized employees who during the performance of their duties will enter confined spaces. The procedures will assist in managing and complying with applicable health and safety laws and regulations, and are designed to protect employees from such health and safety hazards as, exposure to hazardous atmospheres, hazardous materials, or conditions which may trap or engulf the employee.

Steps outlined in this procedure must be taken to provide an effective Confined Space Entry Program that complies with Cal/OSHA's recommendations and guidelines for maintaining a health workplace.

## 2.0 ORGANIZATIONS AFFECTED:

- 2.1 This program governs the following organizational units of the University and outside contractors.

### 2.1.1 Facilities Services.

1. Electricians
2. Plumbers
3. Building Services Engineers

### 2.1.2 Maintenance Technicians in academic areas.

### 2.1.3 Facilities Planning and Construction.

1. Contractors

## 3.0 REFERENCE:

- 3.1 CCR Title 8, Subsection 7, Group 16.  
Control of Hazardous Substances, Article 108, Confined Space.

## 4.0 DEFINITIONS:

- 4.1 A "**Confined space**" has all of the following attributes:

4.1.1 Is large enough or so configured that an employee can enter and perform work.

4.1.2 Has limited or restricted means for entry or exit (i.e. tanks, vessels, silos, storage bins, hoppers, vaults, pits or other spaces that may have limited means of entry).

4.1.3 Is not designed for continuous employee occupancy.

- 4.2 A "**Permit required confined space**" (permit space) is a confined space that has one (1) or more of the following characteristics:

4.2.1 Contains or has a potential to contain a hazardous atmosphere.

4.2.2 Contains a material that has the potential for engulfing an entrant.

4.2.3 Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor, which slopes downward and tapers to a smaller cross-section.

4.2.4 Contains any other recognized serious safety or health hazard.

### 4.3 Working Definitions:

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

**“Attendant”** means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant’s duties assigned in the employer’s permit space program.

**“Authorized entrant”** means an employee who is authorized by the employer to enter a permit space.

**“Blanking or blinding”** means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore. The device must have the capability of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

**“Confined space”**. See section 4.1.

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

**“Emergency”** means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

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

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

**“Entry permit”** (permit) means the written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in section 7.3 and Appendix C.

**“Entry supervisor”** means the person (such as the employer, foreman, or crew chief) responsible for 1) determining if acceptable entry conditions are present at a permit space where entry is planned, 2) authorizing entry and overseeing entry operations, and (3) terminating the permit entry.

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

**“Hazardous atmosphere”** means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of self-rescue (escape unaided from the permit space), injury, or acute illness from one (1) or more of the following causes:

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

Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.

Atmospheric concentration of any substance that is higher than the dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in subpart Z, Toxic and Hazardous Substances.

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

NOTE: For air contaminants for which Cal/OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets can provide guidance in establishing acceptable atmospheric conditions.

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

**“Immediately dangerous to life or health (IDLH)”** means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual’s ability to escape unaided from a permit space.

**“Permit required confined space (permit space)”**. See section 4.2.

**“Rescue service”** means the personnel designated to rescue employees from permit spaces.

**“Testing”** means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the test that is to be performed in the permit space.

## 5.0 RESPONSIBILITIES:

### 5.1 Management

- 5.1.1 Determines which set of entry procedures, Permit-required or Non-permit entry, are required to perform entry into the confined space.
- 5.1.2 Ensures that training for permit-required confined space and/or non-permit confined space entry is current for each participant in confined space entry.
- 5.1.3 Provides required equipment for entry & rescue teams.
- 5.1.4 Ensures confined space assessments have been conducted.
- 5.1.5 Ensures permit-required confined space signs are posted where required.
- 5.1.6 Evaluates rescue teams/service to ensure adequacy of training and preparation.
- 5.1.7 Ensures that access and communication with rescue teams are established during entry into spaces with IDLH atmospheres.
- 5.1.8 Annually reviews this program and all entry permit requirements.

### 5.2 Employees

- 5.2.1 Follow program requirements.
- 5.2.2 Report any previously unidentified hazards associated with confined spaces.

### 5.3 Entry Supervisor

- 5.3.1 Entry supervisors are responsible for the overall permit space entry and must coordinate all entry procedures, tests, permits, equipment and other relevant activities. The following entry supervisor duties are required:
  - 5.3.1.1 Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of any exposure.
  - 5.3.1.2 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.
  - 5.3.1.3 Terminate the entry and cancel the permit when the entry is completed and/or if there is a need for terminating the permit prior to job completion.
- 5.3.2 Verify that rescue services are available and that the means for summoning them are in place and operational.
- 5.3.3 Remove unauthorized persons who enter or attempt to enter the space during entry operations.
- 5.3.4 Determine whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space that entry operations remain consistent with the permit terms and that acceptable entry conditions are maintained.

### 5.4 Entry Attendants

- 5.4.1 At least one (1) attendant is required outside the permit space into which entry is authorized for the duration of the entry operation. Responsibilities include:
  - 5.4.1.1 To know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
  - 5.4.1.2 To be aware of possible behavioral effects of hazard exposure on entrants.
  - 5.4.1.3 To continuously maintain an accurate count of entrants in the permit space and ensure a means to accurately identify authorized entrants.
  - 5.4.1.4 To remain outside the permit space entry operations until relieved by another attendant. Once properly relieved, they may participate in other permit space activities, including rescue if they are properly trained and equipped.
  - 5.4.1.5 To communicate with entrants as necessary to monitor entrants status and alert entrants of the need to evacuate.
  - 5.4.1.6 To monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the entrants to immediately evacuate if:
    - 5.4.1.6.1 The attendant detects a prohibited condition.
    - 5.4.1.6.2 Detects entrant behavioral effects of hazard exposure.

- 5.4.1.6.3 Detects a situation outside the space that could endanger the entrants.
- 5.4.1.6.4 The attendant cannot effectively and safely perform all the attendant duties.
- 5.4.1.7 To summon rescue and other emergency services as soon as the attendant determines the entrant(s) need assistance to leave the permit space hazards.
- 5.4.1.8 To perform non-entry rescues as specified by the rescue procedure and entry supervisor.
- 5.4.1.9 Not to perform duties that might interfere with the attendants' primary duty to monitor and protect the entrants.
- 5.4.1.10 To take the following action when unauthorized persons approach or enter a permit space while entry is under way:
  - 5.4.1.10.1 Warn unauthorized persons that they cannot enter the permit space.
  - 5.4.1.10.2 Advise unauthorized persons that they must exit immediately if they have entered the space.
  - 5.4.1.10.3 Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

## 5.5 Entrants

- 5.5.1 All entrants must be authorized by the entry supervisor to enter permit spaces, have received the required training, use the proper equipment, and observe the entry permit conditions and procedures. The following entrant duties are required:
  - 5.5.1.1 Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure to the potential hazards.
  - 5.5.1.2 Properly use the equipment required for safe entry.
  - 5.5.1.3 Communicate with the attendant as necessary to enable the attendant to monitor the status of the entrants and to enable the attendant to alert the entrants of the need to evacuate the space if necessary.
  - 5.5.1.4 Alert the attendant whenever the entrant recognizes any warning signs or symptoms of exposure to a dangerous situation, or any prohibited condition is detected.
  - 5.5.1.4 Exit the permit space as quickly as possible whenever the attendant or entry supervisor gives an order to evacuate the permit space, the entrant recognizes any warning signs or symptoms of exposure to a dangerous situation, the entrant detects a prohibited condition, or an evacuation alarm activation.

## 6.0 ENTRY STANDARD OPERATING PROCEDURES (SOP):

- 6.1 The Standard Operating Procedure (SOP) has been developed to standardize entry procedures. The SOP outlines the following:

6.1.1 Hazards - any of the following conditions:

1. Explosive / Flammable Atmospheres
2. Toxic Atmospheres
3. Engulfment
4. Asphyxiation
5. Entrapment
6. Slips & Falls
7. Chemical Exposure
8. Electric Shock
9. Thermal / Chemical Burns
10. Noise & Vibration

6.2 Hazard Control / Engineering Controls & Abatement - are procedures, equipment or parts designed and installed to control or prevent hazards. For example:

1. Locked entry points
2. Temporary ventilation
3. Temporary lighting

6.3 Administrative Controls - are established requirements and procedures of the Confined Space / Entry Permit Space program. Including:

1. Signs
2. Employee training
3. Entry procedures
4. Atmospheric monitoring
5. Rescue procedures
6. Use of prescribed PPE

6.4 Acceptable Entry Conditions – is when it has been established that a confined space has been tested and confirmed free of atmospheric hazards and conditions of causing death or serious physical harm.

6.5 Means of Entry - the requirements for entering a confined space have been determined, including:

1. Entry Equipment Requirements
2. Emergency Procedures

## 7.0 PERMIT REQUIRED CONFINED SPACE ENTRY (GENERAL RULES):

7.1 During all confined space entries, the following safety rules must be strictly enforced:

7.1.1 Only authorized and trained employees may enter a confined space or act as attendant.

7.1.2 No smoking is permitted in a confined space or near entrance/exit area.

7.1.3 During confined space entries, an attendant must be present at all times.

7.1.4 Constant visual or voice communication will be maintained between the attendant and employees within the confined space.

7.1.5 No bottom or side entry will be made or work conducted below any hanging material or material which could engulf an employee.

7.1.6 Air and oxygen level monitoring is required before entering any permit-required confined space. Oxygen levels in a confined space must be between 19.5 and 23.5

percent. Levels above or below will require the use of SCBA equipment, other approved supplied-air respirator or air blower equipment.

7.1.7 Additional ventilation and Oxygen Level Monitoring is required when welding is performed. The monitoring will check Oxygen Levels, Explosive Gas Levels and Carbon Monoxide Levels. Entry will not be permitted if explosive gas is detected above one-half the Lower Explosive Limit (LEL).

7.1.8 To prevent injuries to others, when covers are removed, those openings to the confined space will be protected by barricades.

## 7.2 Confined Space Entry Procedures

7.2.1 Each employee who enters or is involved in the entry must:

7.2.1.1 Understand, the procedures for confined space entry.

7.2.1.2 Know the hazards of the specific space.

7.2.1.3 Review the specific procedures for each entry.

7.2.1.4 Understand how to use entry and rescue equipment

## 7.3 Confined Space Entry Permits

7.3.1 Confined Space Entry Permits must be completed before any employee enters a permit-required confined space. The Permit must be completed and signed by an authorized member of management before entry.

7.3.1.1 Permits will expire at the completion of the shift or if any pre-entry condition changes. Permits will be maintained on file for twelve (12) months.

## 7.4 Contractor Entry

7.4.1 All work by non-University employees that involves entry into a University-controlled confined space will follow the procedures of this program.

7.4.2 A contractor may operate and control a permit required confined space or reclassify to a non-permit space only through agreement with RM/EH&S.

7.4.3 Information on known specific hazards of the confined spaces to be entered will be provided to contractor management prior to commencing entry or work.

## 8.0 TRAINING:

8.1 Training for Confined Space Entry includes:

1. Duties of the entry supervisor, entrant and attendants.
2. Confined Space Entry permits.
3. Hazards of confined spaces.
4. Use of air monitoring equipment.
5. First-aid and CPR training.
6. Emergency action & rescue procedures.
7. Confined space entry & rescue equipment.
8. Rescue training, including entry and removal from representative spaces.

NOTE: See Appendix A - Confined Space Training Outline

## 9.0 CONFINED SPACE HAZARDS:

### 9.1 Flammable Atmospheres

A flammable atmosphere generally arises from enriched oxygen atmospheres, vaporization of flammable liquids, byproducts of work, chemical reactions, concentrations of combustible dusts, or disruption of chemical from inner surfaces of the confined space.

An atmosphere becomes flammable when the ratio of oxygen to combustible material in the air is neither too rich nor too lean for combustion to occur. Combustible gases or vapors can accumulate when there is inadequate ventilation in within a confined space. Flammable gases such as acetylene, butane, propane, hydrogen, methane, natural or manufactured gases or vapors from liquid hydrocarbons can be trapped in confined spaces. In particular, heavier-than-air gases will seek lower levels such as in pits, sewers, and various types of storage tanks and vessels. Lighter than air gases may also be a problem when not allowed to escape by rising away from a confined space.

By-products of work procedures can generate flammable or explosive conditions within a confined space. Work such as spray painting can result in the release of explosive gases or vapors. Welding in a confined space is a major cause of explosions in areas that contain combustible gas.

Chemical reactions forming a flammable atmosphere occur when surfaces are initially exposed to a corrosive atmosphere, or when chemicals combine to form flammable gases. For example, dilute sulfuric acid reacts with iron to form hydrogen or calcium carbide makes contact with water to form acetylene. Other examples of spontaneous chemical reactions that may produce explosions from small amounts of unstable compounds are acetylene-metal compounds, peroxides, and nitrates. In a dry state, these compounds have the potential to explode upon percussion or exposure to increased temperature. Another class of chemical reactions that form flammable atmospheres arise from deposits of carbon, ferrous oxide, ferrous sulfate, iron, etc. that can be found in tanks. These tanks and their flammable deposits may spontaneously ignite upon exposure to air.

Combustible dust concentrations may accumulate where sufficiently fine combustible materials are produced. Accumulation of static electricity may accumulate in an atmosphere of relatively low humidity (below 50%). Static discharge can ignite a flammable atmosphere, including combustible dust atmospheres.

### 9.2 Toxic Atmospheres

The substance to be regarded as toxic in a confined space can cover the entire spectrum of gases, vapors, and finely-divided airborne dust. The sources of toxic atmospheres encountered may arise from the following:

1. Products contained in the confined space.  
For example:
  - (a) Service piping connected to the space containing toxics.
  - (b) Organic matter that decomposes to release H<sub>2</sub>S gas.
2. Toxic material outside the confined space that flows in by gravity.  
For example:
  - (a) Carbon monoxide from an engine exhaust.
  - (b) Propane from a leaking exterior connection.
3. Work activity within the space such as welding or brazing operations.
4. Carbon monoxide (CO) is a common toxic gas which is produced from burning or decomposing organic material. Due to its similar density to air, it mixes freely in air and

can accumulate in a space without any warning odor or color that may build up in a confined space.

Because of these many common sources, any untested atmosphere must be suspect. The atmosphere must be tested for H<sub>2</sub>S, CO and combustible gas.

Other toxic gases may be present due to work activity such as welding and its toxic accumulations handled directly, such as spot ventilation and respirators.

### 9.3 Asphyxiating Atmospheres

The normal atmosphere is composed of about 21% oxygen, 78% nitrogen, and small amounts of various other gases. Reduction of oxygen below 19.5% is considered hazardous. In a confined space oxygen can be reduced by:

1. Consuming the oxygen through work processes such as respiration or open flames without sufficient ventilation.
2. Displacement of air from the breathing space with non-breathable gases. A common example would be a heavier-than-air gas like Argon or propane flowing into and filling a pit from above.

Oxygen less than 19.5% is considered hazardous by Cal/OSHA and requires immediate exit from the space. It is an indication that something is wrong with breathable air and must be corrected before re-entry.

Although 21% Oxygen is ideal, breathing lower oxygen levels can be tolerated to an extent. When the oxygen level falls to 17%, there is a deterioration of night vision, deeper breathing, accelerated heartbeat, poor muscular coordination, and rapid fatigue. Between 6-10% the effects are nausea, vomiting, inability to perform, and unconsciousness. Less than 6% creates spasmodic breathing, convulsive movements, and death in minutes. These effects are subject to individual variation.

### 9.4 Mechanical Hazards

Electrical or mechanical equipment have the potential to cause an injury. Therefore, equipment presenting a hazard must be manually isolated to prevent inadvertent activation before workers enter or while they work in a confined space.

The hazards associated with a confined space, such as the potential of flammable vapors or gas being present, and the build-up of static charge due to mechanical cleaning, such as abrasive blasting, all influence the precautions which must be taken to ensure safety.

To prevent leaks, flashbacks, and other hazards, workers will completely isolate the space. To completely isolate a confined space, the closing of valves is not sufficient. All pipes must be physically disconnected or isolation blanks bolted in place. Other special precautions must be taken in cases where flammable liquids or vapors may re-contaminate the confined space. The pipes blanked or disconnected should be inspected and tested for leakage to check the effectiveness of the procedure. Other areas of concern are steam valves, and pressure lines. A less apparent hazard is the space referred to as a void, such as double walled vessels, which must be given special consideration in blanking off and rendering it inert.

### 9.5 Thermal Effects

There are four (4) factors influencing the interchange of heat between people and their environment. They are: 1) air temperature, 2) air velocity, 3) moisture contained in the air, and 4) radiant heat. Due to the design of confined spaces, moisture content and radiant heat are the most difficult to control.

The most dangerous to personnel is radiant heat. As the body temperature rises progressively, a worker may be able to continue to function until the body temperature reaches approximately 102 degrees F. At this point heat exhaustion, heat cramps or heat stroke may occur. Monitoring the employee, provision for frequent rest and water breaks is required well before conditions accumulate to cause heat stress symptoms.

#### 9.6 Noise

Noise problems are usually intensified in confined spaces because the interior tends to cause sound to reverberate and thus expose the worker to higher sound levels than those found in an open environment. This intensified noise increases the risk of hearing damage to workers, which could result in temporary or permanent loss of hearing.

Noise in a confined space which may not be intense enough to cause hearing damage may still disrupt verbal communication with the emergency standby person on the exterior of the confined space. If the workers inside are not able to hear commands or danger signals due to excessive noise, the probability of severe accidents can increase.

#### 9.7 Vibration

Vibration transmits energy. Whole body vibration may affect multiple body parts and organs depending upon the vibration characteristics. Segmental vibration is more localized in creating injuries to hands and fingers. Even at levels that feel safe, vibration over a long period of time may cause musculoskeletal disorders.

#### 9.8 Other Hazards

Some physical hazards cannot be eliminated because of the nature of the confined space or the work to be performed. These hazards include items as scaffolding, surface residues, and structural hazards.

Scaffolding material depends upon the type of work to be performed, the calculated weight to be supported, any surface on which the scaffolding is placed, and the substance previously stored in the confined space if known or detected during monitoring.

Surface residues in confined spaces can increase the already hazardous conditions of electrical shock, reaction of incompatible materials, release of toxic substances, and bodily injury due to slips and falls.

Structural hazards within a confined space will include but are not limited to baffles in horizontal tanks, overhead structural members, or scaffolding installed for maintenance constitutes physical hazards. Workers must review and enforce safety precautions when confronted with structural hazards.

### 10.0 RESCUE TEAM (SERVICE):

10.1 After a review of the rescue team criteria it has been determined that the off-site Fire Department shall perform the function. To ensure compliance with Cal/OSHA standards the fire department has developed a plan to coordinate emergency requirements for the University.

10.2 The Fire Department is familiar with the rescue needs of the campus, and capable of meeting the requirements associated with any emergency including Immediate Danger to Life or Health (IDLH) atmospheres, potential traffic issues, and response time is 5 to 10 minutes.

### 11.0 SEWER SYSTEM ENTRY:

11.1 Sewer entry differs in three vital respects from other permit entries:

11.1.1 There rarely exists any way to completely isolate the space (a section of a continuous system) to be entered.

11.1.2 Without isolation, the atmosphere is beyond the control of the entrant or employer. It can become hazardous (toxic, flammable or explosive) from unseen, undiscovered sources.

11.1.3 Sewer workers are especially knowledgeable in entry and work in their permit spaces because of their frequent entries.

11.2 Adherence to procedures: The University/employer shall designate as entrants only employees who are thoroughly trained in sewer entry procedures and who demonstrate that they follow the entry procedures exactly as prescribed when performing sewer entries.

11.3 Atmospheric monitoring: Entrants shall be trained in the use of, and be equipped with, atmospheric monitoring equipment which sounds an audible alarm, in addition to its visual readout. These monitoring devices will test at least for oxygen, flammable vapors, carbon monoxide and hydrogen sulfide.

11.4 Leave the space immediately if any the following occur:

1. Oxygen concentration less than 19.5 % or more than 23.5%.
2. Flammable gas 10 % or more of methane's LFL.
3. Hydrogen sulfide at or above 10 ppm (8-hr TWA).
4. Carbon monoxide at or above 35 ppm (8-hr TWA).

11.5 Ensure that all atmospheric monitoring equipment is calibrated according to the manufacturer's instructions.

11.6 Use the atmospheric monitoring equipment to measure the entrant's environment, and provide advance measurement in the entrant's direction of movement.

11.7 Surge flow and flooding: To protect entrants, sewer crews will not enter the system during periods of heavy rain, local firefighting runoff or when hazardous materials may have been released into or near the sewer system.

## 12.0 PROCEDURE FOR ATMOSPHERIC TESTING:

12.1 Atmospheric testing is required for two distinct purposes; evaluation of the hazards of the permit space and verification that acceptable entry conditions for entry into that space exist.

12.1.1 Evaluation testing: The atmosphere of a confined space shall be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space. A technically qualified professional should do evaluation and interpretation of this data, and development of the entry procedure (e.g., Cal/OSHA consultation services, or certified industrial hygienist, registered safety engineer, certified safety professional, etc.) based on evaluation of all serious hazards.

12.1.2 Verification testing: The atmosphere of a permit space that may contain a hazardous atmosphere shall be tested for residues. All contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions. The results will be recorded on the permit.

- 12.1.3 Duration of testing: Measurement values for each atmospheric parameter shall be continuous as long as the entrant is in the permit space.
- 12.1.4 Testing stratified atmospheres: When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope shall be tested at a distance of approximately four (4) feet in the direction of travel and to each side. The entrant's rate of travel shall be slowed to accommodate the sampling speed and detector response.
- 12.1.5 Order of testing: A test for oxygen is performed first because most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen deficient atmosphere. Combustible gases are then tested for in an effort to determine the threat of fire or explosion. If tests for exposure to toxic gases and vapors are required this test will be conducted last.
- 12.1.6 Each permit-required confined space would be marked "Confined Space – Entry Permit Required."

### 13.0 PROCEDURE FOR NON-PERMIT CONFINED SPACE ENTRY:

- 13.1 A confined space is considered to be a permit-required confined space until all hazards and potential hazards have been removed.
- 13.2 Removal of hazards that require entry into the confined space prior to reclassification must to be performed under a Confined Space Entry Permit (Appendix C).
- 13.3 To reclassify the space as a non-permit confined space the following must occur:
  - 13.3.1 An assessment of actual and potential hazards is made and noted on the Confined Space Re-Classified as Non-Permit Confined Space (Appendix D).
  - 13.3.2 All accessible actual and potential hazards have been removed by lock-out / tag-out, blanking, blocking, or other means of isolation.
  - 13.3.3 The space is tested to verify that the atmosphere is not hazardous per section 10.0 and noted on Confined Space Re-Classified as Non-Permit Confined Space (Appendix D) with the tester's signature and date. These atmospheric readings are to be provided to the entrants.
  - 13.3.4 Continuous forced ventilation for the space is provided for entrants throughout entry.
    - 13.3.4.1 Exception: If the air testing shows no hazardous levels and all other section 13.3.2 hazards have been removed, non-permit entry can be made in order to establish ventilation.
  - 13.3.5 The supervisor or lead responsible for the entry will sign and date the Confined Space Re-Classified as Non-Permit Confined Space (Appendix D) to signify that reclassification of the space is acceptable.
  - 13.3.6 Upon completion of the Confined Space Re-Classified as Non-Permit Confined Space (Appendix D) and use of continuous forced ventilation, the space is reclassified as a non-permit required space until restoration of any of the hazards or discovery of additional hazards.

## 14.0 APPENDICES:

Appendix A: Confined Space Training Outline

Appendix B: Supervisor Safety Checklist – Confined Spaces

Appendix C: Confined Space Entry Permit

Appendix D: Non-Permit Entry Certification

Appendix E: Permit Required Confined Spaces Decision Flow Chart