

 CORPORATE SAFETY MANUAL	<b>ENVIRONMENTAL, HEALTH AND SAFETY STANDARDS</b>	
<b>TITLE: CONFINED SPACE ENTRY</b>	<b>Document Number: *</b>	
	<b>Issue Date:</b> *	<b>Revision Date:</b>

## 1 Purpose

The purpose of this policy is to provide minimum safety requirements to be followed while entering, exiting, and working in potentially hazardous confined spaces at normal atmospheric pressure. All employees and contractors working on (Insert Company Name) jobsites fall under the scope of this policy.

## 2 Responsibilities

It is the responsibility of the (insert title) to ensure that the procedures outlined in this policy are adhered to whenever a confined space must be entered. It is the responsibility of the (insert title), Site Health and Safety Officer and any other properly trained individuals to act as emergency response team rescue members.

## 3 Policy Content

### 3.1 DEFINITIONS

**ACTION LEVEL**, unless otherwise indicated, is one-half the current American Conference of Governmental Industrial Hygienists Threshold Limit. For confined space entries, action levels are based on acute exposures, and are preferably developed from short-term or ceiling value standards, rather than full work-period standards.

An **ATTENDANT** is one who watches and controls the entrance to the confined space to detect any difficulties the entrant may have and monitor any change outside the space, which could affect the entry. The Attendant maintains constant, uninterrupted visual or oral communications with the person(s) inside the space. The Attendant keeps all unauthorized persons out of the confined space. The attendant is responsible for non-entry rescue and summoning emergency rescue when necessary.

A **CONFINED SPACE** is one that is large enough for a person to bodily enter and perform work, that has limited or restricted means of entry or exit, and is not designed for continuous occupancy.

**EMERGENCY RESPONSE TEAM (ERT) RESCUE MEMBERS (RESCUERS)** are persons who are assigned to perform a rescue in a confined space **by entry** if necessary. A Rescuer must have had field training (including simulated rescues) within the last twelve months on how to enter and perform a rescue in a confined space that may be Immediately Dangerous to Life or Health (IDLH). A Rescuer must have the same training as authorized Entrants and Attendants. In addition, a Rescuer must have training in the use of all retrieval

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equipment available at the site, and must be trained in the use of, and be medically capable of wearing an air-line respirator with auxiliary self-contained breathing air supply or a self-contained breathing apparatus. ERT Members must also be trained in basic first aid and CPR (cardiopulmonary resuscitation).

An authorized **ENTRANT** is one who enters a confined space to work or inspect. An authorized entrant is a member who has been trained in the hazards of the confined space, the symptoms of exposure, and the use of all safety equipment for the work.

**ENTRY PERMIT** is a document that identifies the space to be entered, the work to be performed, as well as identifying times and dates, participants, and safety information pertinent to the entry. The permit serves as a record of the entry and is updated periodically during the entry and is posted at the entry point under the control of the ATTENDANT. Completed ENTRY PERMITS are returned to the Site Safety and Health Officer and are retained as employee exposure records.

THE **ENTRY SUPERVISOR** is the person in charge of the entry into the confined space. The Entry Supervisor must be knowledgeable of all hazards, all equipment, and all operations that could affect the space. The Entry Supervisor must be trained in safety permit writing and must be knowledgeable of rescue and retrieval equipment. The Entry Supervisor must be sure that all Entrants (workers), Attendants (watchers), and Rescue Helpers understand their assignments and the hazards of the space prior to each entry. The Entry Supervisor must ensure that all operations equipment is returned to service after the entry is complete.

**PERMIT REQUIRED CONFINED SPACE (PRCS)** is any space with limited or restricted means of entry or exit that is not designed for continuous human occupancy and has a potentially serious safety or health hazard. Serious safety and health hazards include:

- The potential for a toxic or flammable atmosphere
- Contains material with engulfment potential
- Has an internal configuration such that an entrant could be trapped
- Has serious hazards such as other moving equipment or other hazardous energies

### 3.2 **GENERAL REQUIREMENTS**

No **(Insert Company Name)** employees may enter a permit-required confined space without full adherence to this procedure. Entry is defined as breaking the plane of the entryway of the space.

A safety permit is required for each entry into a permit-required confined space. The safety permits must specifically address confined space entry or use a supplemental checklist to address potential concerns.

Each confined space entry must be accompanied by the proper equipment and a plan to quickly and safely remove a person from that specific confined space or a similarly configured confined space.

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An internal audit will be conducted annually to verify compliance with this procedure. Completed permits for the prior year will be reviewed as part of the audit to identify any potential deficiencies.

An inventory of all classified spaces where this procedure applies must be maintained and updated at least annually.

### **3.3 ENTRY PREPARATION**

Prior to the start of the Entry the Project Superintendent or the Site Health and Safety Officer must brief all entrants on the work to be done, the entry procedures, and the hazards of the entry.

The confined space must be as CLEAN as practicable before entry.

The space must be ISOLATED. All liquid chemical and gas lines connected to the space (except vents direct to atmosphere with no manifolding) must be made inoperable by:

- Blanking (blinding) or
- Disconnection and misalignment or
- Double block and bleed and
- Locking and tagging out

Connections to steam and hot water lines and jackets must also be isolated by one of the methods listed in above.

Cold water lines must be valved off, *locked* and tagged. Further isolation is not required.

Closing valves must isolate gas piping carrying nitrogen, other asphyxiants, and other toxic gases, DISCONNECTION, locking and tagging out.

ENERGY sources must be DEENERGIZED, locked and tagged out to prevent reenergization. If reenergization can occur, the effectiveness of controls must be verified periodically during the entry. The effectiveness of all lockout/tagout efforts must be verified before entry.

The space must be ventilated using uncontaminated, mechanical ventilation in amounts sufficient to provide five air changes.

After ventilating wait at least 15 minutes before atmosphere testing.

### **3.4 ENTRY PREPARATION – ATMOSPHERIC TESTING**

Representative samples of the atmosphere in the space must be tested before entry for OXYGEN, FLAMMABLE GAS AND VAPOR, AND IF NECESSARY, TOXIC GAS AND VAPOR. Test without the blower on. TEST AT SEVERAL LEVELS in the space (at least top, middle and bottom). Sampling must be done in this order: oxygen first, then LEL, then toxic atmospheres.

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**NOTE: All entrants and rescue personnel will be informed of sampling results upon request.**

A calibrated oxygen meter, which is checked in fresh air, must be used, and any condition causing a deviation from a reading of 19.5-22% must be corrected before entry.

A calibrated combustible gas meter must be used to evaluate the presence of flammable gases and vapor. Entry into a confined space (for reasons other than rescue) with flammable gas and vapor readings above 0% but not greater than 5% may only be permitted as a result of a Hazard Review held specifically for the entry in question.

Absolutely no entry may be made into a confined space that is IMMEDIATELY DANGEROUS TO LIFE OR HEALTH or a space with an LEL reading above 5% except for emergency rescue. (An air-line respirator with auxiliary self-contained breathing air supply or a self-contained breathing apparatus must be worn for rescue where a toxic or oxygen-deficient atmosphere is known or suspected.)

If toxic gases or vapor are suspected, they must be evaluated. Entry into an atmosphere exceeding action level workplace exposure limits may only be done using proper respiratory protection, up to and including or self-contained breathing apparatus.

**NOTE: A very low LEL reading may also present a toxic atmosphere.**

INFORM all personnel whose activities could affect the space. Stop open transfers and other production activities in the immediate area. Mark off or barricade the entrance area. Assign a qualified Attendant to stand-by outside the confined space.

RESCUE EQUIPMENT must be readily available for use. In all cases the equipment must be in good working order. Rescue equipment must include:

- An effective means to summon emergency response assistance (located at the entry site).
- Self-contained breathing apparatus for each rescuer.
- Rescue retrieval equipment. (Note: Non-entry rescue equipment must be set up and ready for use.)
- All emergency rescue/retrieval equipment must be inspected before each confined space entry.

Evaluate the need for and if necessary, provide personal FALL PROTECTION in the confined space. As a minimum, the Project Superintendent and/or Site Health and Safety Officer must inspect the confined space and ensure the safe preparation of the space with the Entrants and Attendant. In addition the Project Superintendent must review the Entrants' and Attendant's specific responsibilities with them prior to the start of work.

### 3.5 DURING ENTRIES INTO PERMITS-REQUIRED CONFINED SPACES

MECHANICAL VENTILATION must be provided in confined spaces during entry except where good natural ventilation exists. Where mechanical ventilation is provided, a rate of at

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least one air change per ten minutes is required. Such operations such as welding, painting, and high pressure water jetting may require higher rates.

Where mechanical ventilation is not feasible, or an additional level of protection is needed, respiratory protection appropriate for the inhalation hazard encountered, must be used to protect Entrants.

Any ELECTRICAL tools used in the space must be provided with a ground fault circuit interrupter (GFCI).

The Attendant must stay at the confined space entrance while the Entrant is in the space. The Attendant must order the Entrant to evacuate if the Attendant:

- Detects a hazardous condition
- Detects behavioral effects in the Entrant that could be caused by a hazardous exposure
- Detects a danger or condition outside the space that would endanger the entrants or would prevent the Attendant from performing his/ her duties.
- A chemical or fire emergency occurs elsewhere within the area.
- Cannot perform his duties as Attendant

There must be a sufficient number of rescue team members trained in retrieval ON-CALL AND IMMEDIATELY AVAILABLE to safely effect a rescue.

Oxygen and flammable gas and vapor concentrations must be tested *at least once every 15 minutes* during the confined space entry operation. *All sample results must be recorded on the entry permit (or an attachment), indicating the time of sample and results.*

RETEST oxygen and flammable vapor levels before re-entry if the space is unoccupied for more than 15 minutes.

REISSUE the ENTRY permit after one shift or with a change in Entrant(s) or Entry Supervisor.

### **3.6 RESCUE OPERATIONS**

The site confined space rescue procedure must emphasize NON-ENTRY RESCUE WHERE FEASIBLE. That is, whenever feasible the Entrant(s) must wear a full body harness or other device connected at all times to a retrieval system, thereby enabling rescuers to hoist a victim out without entry should a problem occur.

For each type of confined space the site must DEMONSTRATE the capability to promptly remove an unconscious or injured person.

If the Entrant collapses or shows a need to be rescued, the Attendant will summon the ERT. The Attendant may attempt to retrieve the Entrant (without entering) with the aid of Rescue Helpers. If this is unsuccessful, an entry for rescue may be made by a trained rescue team member(s).

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***NOTE: Certain incidents with injuries such as a fall with a broken leg will require entry rescue and careful removal. An Attendant must be trained to recognize when not to immediately hoist an injured person out of the space.***

A trained rescuer may enter the confined space only after:

- Help arrives (rescue helpers or trained rescue team members)
- He/she is connected to his/her own retrieval line.
- He/she is wearing a self contained breathing apparatus for those situations which involve a known or suspected hazardous atmosphere.

***Note: The air supply for rescue must be independent of the breathing air supply used for routine operations.***

### 3.7 CONTRACTORS

Contractors who will perform confined space entry must have a confined space entry, lockout, and rescue procedure as comprehensive as **(Insert Company Name)** Procedures, or utilize the **(Insert Company Name)** procedure.

### 3.8 TRAINING

Entrants, Attendants and **(insert title)** must initially receive thorough, hands-on training in the site confined space entry procedures and their tasks for each assignment. They must also receive annual refresher training.

ERT rescue members must participate in annual rescue drills.

Rescue Helpers and any employees who are expected to operate retrieval equipment, must receive initial, hands-on training in the operation of the equipment and annual refresher training.

Entrants, Rescue Team Members and others who may be expected to wear air purifying respirators or self contained breathing apparatus must be physically capable of using that equipment and trained annually in its use.

### 3.9 CONFINED SPACE MANAGEMENT

Where feasible, confined spaces will be normally closed and locked. Entrances to confined spaces should be posted with a warning sign; this is mandatory if the space cannot be closed and locked.

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## 4 **References**

OSHA 29 CFR 1910.146 Confined Space Entry

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## 5 **Appendices**

Confined Space Entry Permit

**(Insert Company Name and Address)**

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