## Confined Space Entry

1. **Purpose**

This procedure has been established this to minimize the risk of exposure to employees who may enter into or work near confined spaces. These procedures establish requirements to ensure that personnel are aware of related hazards and responsibilities.

1. **Classification of Confined Spaces**

Confined spaces are categorized as either permit-required or non-permit required.

* **Permit Required Confined** Spaces - A permit-required confined spaceis any confined space that has one or more of the following characteristics:
  + Contains or has a potential to contain a hazardous atmosphere.
  + Contains a material that has the potential for engulfing an entrant.
  + Has an internal configuration such that an entrant could be trapped or asphyxia by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section.
  + Contains any other recognized serious safety or health hazard.
* **Non-Permit Required Confined Spaces** -A Non-permit Required Confined Space is a confined space that does not contain or have the potential to contain any hazard capable of causing death or serious physical harm.

1. **Roles and Responsibilities for Confined Space Entry**

**Site Managers/Supervisor Shall:**

* Provide resources and oversight necessary to enable compliance with the requirements of this program.
* Be directly responsible for ensuring the safety of their employees in confined spaces.
* Ensure that employees engaged in confined space entry operations receive the appropriate level of training prior to starting entry operations.
* Evaluate confined spaces within the facility, work sites, and project sites to ensure that the proper precautions are taken for safety, including clearly marking confined spaces.

**The EHS Representative will:**

* Assist Site Managers and Supervisors to achieve compliance with this program;
* Assist with identification and labeling of confined spaces;
* Audit the program effectiveness at least annually; and
* Review and update procedures at least annually and more frequently, as needed.

**Entry Supervisor shall:**

* Be available at the general workplace and on-call to the Attendant at all times while work is being performed in the confined space
* Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure and that all tests 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.
* Terminate the entry and cancel the permit as required.
* Verify that rescue services are available and that the means for summoning them are operable as appropriate.
* Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
* 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 terms of the Entry Permit, and the acceptable entry conditions are maintained.
* Complete training for Authorized Employees under the Lockout/Tagout procedure in order to understand lockout/tagout concepts applied to confined space entry.
* Learn functions, use, and limitations of any monitoring instrumentation that will be used for entry.

**Authorized Entrants must:**

* Know the hazards that may be faced during entry, including information on the mode, signs, symptoms, and consequences of the exposure.
* Communicate with Attendant, as necessary, to enable Attendant to monitor Entrant status and to enable the Attendant to alert Entrants of the need to evacuate the space.
* Exit from the confined space as quickly as possible whenever:
* An order to evacuate is given by the Attendant or the Entry Supervisor.
* Entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
* Entrant detects a prohibited condition.
* An evacuation alarm is activated.
* Authorized Entrants shall alert the Attendant whenever:
* Entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
* Entrant detects a prohibited condition.
* There shall not be more than one authorized person in any confined space. This will apply to all contract or third party workers.

**Attendants shall:**

* Know the hazards that may be faced during entry, including information on the mode, signs, symptoms, and consequences of the exposure.
* Be aware of possible behavioral effects of hazard exposure in Entrants.
* Continuously maintain an accurate count of Entrants.
* Remain outside the permit space during entry operations until relieved by another Attendant.
* Monitor activities inside and outside the space, including weather conditions, to determine if it is safe for Entrants to remain in the space.
* Provide pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards.
* Perform no duties that might interfere with the primary duty to monitor and protect Entrants.
* Order Entrants to evacuate the permit space immediately under any of the following conditions:
  + If Attendant detects a prohibited condition.
  + If Attendant detects a situation outside the space that could endanger Entrants.
  + If Attendant cannot effectively and safely perform all their duties.
  + Take the following actions when unauthorized entrants enter the confined space:
  + Warn unauthorized persons that they must stay away from the permit space.
  + Advise unauthorized persons that they must exit immediately if they have entered the confined space.
  + Inform Entrants and the Entry Supervisor if unauthorized persons have entered the permit space.
* Maintain understandable communication (by employer-specified means) with entrants to ensure their safety; communication must take into account possible language barriers.
* Immediately summon rescue and other emergency services as soon as the Attendant determines that Entrants may need assistance to escape from permit space hazards.
* NEVER enter any confined space for any reason, or to rescue an Entrant (only non-entry rescues are permitted, as applicable).
* The attendant shall only monitor one confined space at a time. If another confined space is entered, a separate attendant shall be required.

1. **Training Requirements**

Training shall be provided so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned.

Training will be provided:

* Before the employee is first assigned confined space entry duties.
* Prior to a change in confined space procedures.
* Whenever a Supervisor believes either that there are deviations from the entry procedures or a new hazard is presented.
* When there are inadequacies in the employee's knowledge or use of these procedures.

As a minimum, training includes all OSHA-required elements in 1910.146, and the elements of this procedure. Testing of employees will occur through written and practical (demonstration) tests in order to evaluate the employee’s competency, and to determine the need for retraining. Retraining will be performed as necessary. This training shall be documented and retained in the employee’s personnel file.

1. **Training Records**

This training shall be documented and retained in the employee’s personnel files. The certification shall include the employees name, trainer signature and date of training. Copies of certification shall be made available to employees and their authorized representative.

1. **Rescue Training**

The local Fire Department rescue team has been designated as the outside rescue service for confined spaces. We have conferred with the Fire Department and informed them of possible situations that may require their services. They have been given the opportunity to visit the facility to look at possible rescue scenarios. They have been given an opportunity to examine the entry site, practice rescues, and decline as appropriate. The Fire Department will be onsite for any IDLH conditions while work is being performed.

1. **Entry Permit System**

**No one may enter a confined space until a confined space Entry Permit has been prepared and reviewed by the Entry Supervisor and the EHS department.**

A permit shall not be authorized until all conditions of the Entry Permit have been met. The completed permit shall be available at the time of entry to all Authorized Entrants, by posting at the entry portal or by any other equally effective means, so the Entrants can confirm that pre-entry preparations have been completed.

The duration of the permit may not exceed the time required to complete the assigned tasks or job as identified on the permit. The Entry Supervisor shall terminate entry and cancel the entry permit:

* When entry operations covered by the entry permit have been completed;
* At the end of each shift;
* When a condition that is not allowed under the entry permit arises in or near the permit space; or
* By the appearance of a new hazard (such as lightning in the area.)

Upon completion of work in a confined space:

* The entry permit will be canceled.
* The confined space will be mechanically sealed in such a way that no personnel can enter.
* If the confined space cannot be mechanically sealed then barricades must be erected around all openings with signage that indicates that entry is not allowed.

Each canceled Entry Permit will be retained by the site supervisor for at least one (1) year to facilitate the regulatory review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the pertinent permit so that appropriate revisions to the permit-required confined space program can be made.

1. **Multiple Employer Entry Procedures**

When employees from another employer arrange to perform work that involves permit space entry, the host employer shall:

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

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:

* Obtain any available information regarding permit space hazards and entry operations from the host employer.
* Coordinate entry operations with the host employer, when both the host employer’s personnel and contractor personnel will be working in or near permit spaces.
* Inform the host employer of the permit space program that the contractor will follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.

1. **Atmospheric Hazards and Testing**

A hazardous atmosphere is one which may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (i.e., to escape unaided from the workspace), injury, or acute illness from one or more of the following:

* Flammable gas, vapors, or mists in excess of 10% of the LEL.
* Atmospheric oxygen concentration below 19.5% or above 23.5%.
* Atmospheric concentration of a toxic or hazardous substance which could result in a dose in excess of its Permissible Exposure Limit.
* Any other atmospheric condition that is immediately dangerous to life or health. Both natural and man-made processes create atmospheric hazards in confined spaces such as rusting, painting, welding and cleaning.

1. **Order Of Testing**

Before any employee enters the space, the internal atmosphere must be tested using a calibrated direct-reading instrument. Testing will be performed by a technically qualified person who has received training to effectively evaluate hazards and exposures. Entrants or their representatives are given the opportunity to participate in and review calibrated air monitoring before entry. Atmospheric testing must be done in this order:

* Oxygen content.
* Flammable gases and vapors.
* Potential toxic air contaminants.

1. **Continuous Monitoring**

As long as anyone is in the space, it must be tested frequently or monitored continuously to ensure that no new hazards are created. Employees and their representatives may request that a space be re-evaluated at anytime.

NOTE: After a long break, and before going back into a space, the atmosphere must be tested again.

1. **Unacceptable Entry Condition**

Employee Exposure Unacceptable Entry Conditions

Oxygen content below 19.5% or above 23.5%.

Flammable gas, vapors, or mist in excess of 10% of the LEL

Potential toxic air contaminants exposure in excess of its PEL

Supervisor can only allow workers inside the space under the following conditions. If conditions in the space exceed these conditions, all Entrants must be evacuated from the space immediately.

1. **Controlling Atmospheric Hazards**

Control methods must be documented on the Entry Permit, which must be reviewed by the Entry Supervisor.

The ways to control atmospheric hazards are:

* **Ventilation**

Ventilation replaces contaminated air with clean, breathable air. Two types of ventilation are natural or forced (mechanical).

* **Natural Ventilation**

Natural ventilation is often not adequate to achieve acceptable entry conditions, and therefore is usually combined with mechanical ventilation.

* **Mechanical Ventilation**

Mechanical ventilation (fans) supply air to the space or exhaust it from the space.

1. **Selection of Ventilation Devices:**

The Entry Supervisor must consider:

* Volume of air needed
* Type of atmosphere
* Power requirements and availability
* Source of clean air
* Length of time ventilation is needed
* Type of work to be done

1. **Use of Electrical Equipment**

If a confined space presents an electrocution hazard:

* Use grounded or double insulated tools.
* Make certain that all electrical equipment is in good repair.
* When dangerous air contamination is attributable to flammable or explosive substances, lighting and electrical equipment must be Class 1, Division 1 rated per the National Electrical Code and no ignition sources may be introduced into the area.

1. **Program Evaluation**

An annual review of this CSE procedure and its implementation will be directed by the Environmental, Safety and Health Department in order to ensure that the program meets OSHA and our requirements. This will include a review of all completed confined space Entry Permits. Each cancelled entry permit shall be kept on file in the issuing department for at least one (1) year to facilitate the review of the permit-required confined space program.

The following circumstances shall warrant a review of the program prior to the annual requirement:

* Unauthorized entry of a permit space,
* Detection of a permit space hazard not covered by the permit or detection of a condition prohibition by the Entry Permit,
* The occurrence of an injury or near-miss during entry,
* A change in the use or configuration of a permit space,
* Employee complaints about the effectiveness of the program,
* Any other circumstance the Environmental, Safety and Health Department feels should warrant review of the program.

Our employees are encouraged to provide input to this procedure, in order to help improve CSE operations. All comments and feedback should be directed to a Supervisor or the Environmental, Safety and Health Department.