

**Confined Space Plan** 

Mariposa Land Port of Entry

# **Confined Space Plan**

## **Table of Contents**

1.0	Scope	2
2.0	Definitions	2
3.0	General Requirements	
4.0	Permit-Required Confined Space	4
5.0	Non-Permit Required Confined Space	Error! Bookmark not defined.
5.0 6.0	Non-Permit Required Confined Space Decontamination, Isolation and Testing	Error! Bookmark not defined.
5.0 6.0 7.0	Non-Permit Required Confined Space Decontamination, Isolation and Testing Burning and Welding	Error! Bookmark not defined. 6 6

## **Confined Space Plan**

Project Name: Error! Reference source not found. Site Location: Error! Reference source not found. Error! Reference source not found.

#### 1.0 Scope

This procedure establishes the minimum requirements for entry into a confined space at this construction site. The words "confined space" means a space that is large enough to enter, has limited or restricted means of entry or exit and is not designed for continuous human occupancy. Examples of common confined spaces include: tank, closed vessel, vault, pipeline, tunnel, passageway, duct, pit, trenches/excavations, etc.

#### 2.0 Definitions

- A. Acceptable Entry Conditions: 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.
- **B.** Attendant: An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties.
- C. Authorized Entrant: An employee who is authorized by the employer to enter a permit space.
- **D. Blanking or Blinding**: 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 and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
- E. Confined Space: A space that is large enough and so configured that an employee can bodily enter and perform assigned work, has limited or restricted means for entry or exit, and is not designed for continuous employee occupancy.
- F. Double Block and Bleed: 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.
- **G. Emergency**: Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.
- **H. Engulfment**: 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.
- I. Entry: The action by which a person passes through an opening into a confined 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.
- **J.** Entry Permit: The written or printed document that is provided by the employer to allow and control entry into a permit space.
- **K.** Entry Supervisor: The person (such as the employer, foreman, or crew chief) 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 section.
- L. Hazardous Atmosphere: An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:
  - 1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL).

- 2. Airborne combustible dust at a concentration that meets or exceeds its LFL. Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 M) or less.
- 3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.
- 4. Atmospheric concentration of any substance which could result in employee exposure in excess of its dose or permissible exposure limit.
- 5. Any other atmospheric condition that is immediately dangerous to life or health.
- M. Immediately Dangerous to Life or Health (IDLH): Means any condition that poses an immediate or delayed threat to life, that would cause irreversible adverse health effects, or that would interfere with an individual's ability to escape unaided from a permit space.
- **N. Inerting**: 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. This procedure produces an IDLH oxygen-deficient atmosphere.
- O. Isolation: 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 tag out of all sources of energy; or blocking or disconnecting all mechanical linkages.
- P. Line Breaking: The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure or temperature capable of causing injury.
- **Q.** Non-Permit Confined Space: A confined 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.
- **R.** Oxygen Deficient Atmosphere: Means an atmosphere containing less than 19.5 percent oxygen by volume.
- **S.** Oxygen Enriched Atmosphere: Means an atmosphere containing more than 23.5 percent oxygen by volume.
- T. Permit-Required Confined Space: A confined space that has one or more of the following characteristics:
  - 1. Contains or has a potential to contain a hazardous atmosphere.
  - 2. Contains a material that has the potential for engulfing an entrant.
  - **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. Contains any other recognized serious safety or health hazard.
- **U. Permit-Required Confined Space Program**: The employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.
- V. **Permit System**: The employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.
- **W. Prohibited Condition**: Any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
- X. Rescue Service: The personnel designated to rescue employees from permit spaces.
- Y. Retrieval System: 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.
- **Z. Testing**: The process by which the hazards that may confront entrants of a permit space are identified and evaluated

### 3.0 General Requirements

**A.** Space Entry- A means of quick, safe entry and exit shall be provided and be available during the occupancy of the confined space.

- **B.** Barricades- The entrance to a confined space should be protected and/or effectively barricaded to prohibit unauthorized entry.
- **C.** Lighting- If lighting and power requirements cannot be met by the use of battery lights and pneumatic equipment, reduced voltage at a maximum of 12 volts must be used. Higher voltages may be used only with a ground fault circuit interrupter (GFCI) protection. A minimum lighting requirement for work areas shall be 5 candles of light.
- **D.** Fall Hazards- When there are fall hazards (e.g., man holes) guardrails or other effective barricades will be installed.
- **E.** Training- All employees involved in confined space entry will be trained in their applicable duties before entering a confined space. Employees will be retrained when conditions change or when there are deviations from the established procedures or when there are inadequacies in the employee's knowledge of the procedures.
- **F.** Hazard Instruction- All persons entering the confined space shall be instructed as to the hazards involved, the precautions to be taken, the use of protective and emergency equipment, and the use of rescue equipment.
- **G.** Attendant and Rescue- Sufficient manpower shall be available outside the confined space to help rescue if it becomes necessary. At least one standby attendant, having available the same protective equipment and clothing as the person inside the confined space, shall be present at the entry point throughout the occupancy and must maintain communications with the persons inside.
- **H.** Non Permit Confined Space- Confined spaces may be classified as a non-permit confined space on an individual task basis under the following conditions:
  - 1. Atmospheric Testing- If the space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the confined space.
  - 2. Continuous Monitoring- Atmospheric testing verifies that there are no hazards in the confined space.
  - **3.** Changing Conditions- If hazards arise within the confined space when it has been declassified to a non-permit space, each employee shall exit the space. The competent person will reevaluate the space and determine whether it must be reclassified as a permit space.

### 4.0 Permit-Required Confined Space

- A. Permit Requirements- Prior to personnel entering a permit required confined space a Confined Space Entry Permit must be properly executed by the supervisor of the craft performing the work, and the identified competent person. If the work is being performed by a subcontractor, they should assign a competent person. A Confined Space Pre-Entry Checklist should also be completed before anyone enters the space.
- **B.** Confined Space Entry Permit Validity- The executed Confined Space Entry Permit is valid only for the specified work, location, and time period indicated on the permit. The permit must be displayed in a waterproof pouch near the entry point of the confined space.
- **C.** Permit Documentation- All permits will be kept on file for at least one year and maintained in the safety point files.
- D. Safety Equipment- All persons entering a confined space shall wear a safety harness, or other means of rescue, continuously. The safety harness shall be attached to a lifeline leading out of the confined space and be securely fastened to prevent it from being pulled inside.
- **E.** Atmospheric Testing- Before allowing authorized workers to enter a permit space, the atmosphere will be tested by the entry supervisor to determine whether the atmosphere is safe for entry.
  - 1. Initial Testing- The internal atmosphere shall be tested to determine whether the space is safe to enter.
  - 2. Periodic/Continuous Testing- Periodic testing or continuous testing will be performed while employees are inside the space. Employees using the testing equipment will be trained how to use the equipment. Test results will be recorded on the Confined Space Entry Permit . The tests used shall measure, at a minimum, the following:
    - i. Oxygen content.
    - ii. Flammable gases and vapors.

- iii. Carbon monoxide.
- iv. Any other potential toxic air contaminants.
  - a) If there are any hazardous substances or hazardous conditions present in the space, no employee is allowed to enter the space until the hazard is corrected.
  - b) If at any time while in the space a hazard is identified through atmospheric testing, observation, or other means, all employees in the space will evacuate the area immediately.
- **3.** Testing Observation- Any employee who enters the space, that employee's authorized representative, or a Hensel Phelps representative has the opportunity to observe the pre-entry and continuous monitoring performed at the permit-space. The authorized entrant or that employee's representative can request a reevaluation of the space if they feel that the evaluation was not adequate.
- F. Ventilation- Ventilation will be used when necessary to prevent the accumulation of a hazardous atmosphere.
- **G.** Each Permit Required Confined Space will have the following individuals with associated responsibilities:
  - 1. Entrant:
    - i. Know the hazards that may be faced during entry, which will include information on the mode, signs or symptoms of exposure, and consequences of the exposure.
    - ii. Properly use equipment as required to enter the confined space.
    - iii. Communicate with the attendant as necessary to enable the attendant to alert entrants of the need to evacuate the confined space when required.
    - iv. Alert the attendant whenever:
      - a) The entrant recognizes any warning signs or symptoms of exposure to dangerous situations.
      - b) The entrant detects a prohibited condition.
    - v. Exit from the confined space as quickly as possible whenever:
      - a) An order to evacuate is given by the attendant or then entry supervisor.
      - b) The entrant recognizes any warning signs or symptoms of exposure to a dangerous situation.
      - c) The entrant detects a prohibited condition.
      - d) An evacuation alarm is activated.
  - 2. Attendant:
    - i. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
    - ii. Be aware of possible behavioral effects of hazard exposure in authorized entrants.
    - iii. Continuously maintain an accurate count of authorized entrants in the permit space.
    - iv. Remain outside the permit space during entry operations until relieved by another attendant.
    - v. Monitor conditions inside and outside the space.
    - vi. Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space immediately if the attendant:
      - a) Detects a prohibited condition.
      - b) Detects the behavioral effects of hazardous exposure to the entrant.
      - c) Detects a situation outside the space that could endanger the authorized entrants.
      - d) Cannot effectively and safely perform all the duties required of him or her.

- vii. Initiate on-site rescue procedures and, if necessary, summon additional rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
- viii. Take the following actions when unauthorized persons approach or enter a permit space while entry in underway:
  - a) Warn the unauthorized persons that they must stay away from the permit space.
  - b) Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
  - c) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the confined space.
- ix. Perform non-entry rescues or other rescue services as part of the rescue procedure.
- x. Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.
- xi. There will be at least one attendant positioned outside the confined space during work operations in the permit space.
- xii. The attendant must know the procedures to rescue person(s) in the confined space.
- xiii. The attendant must be able to recognize hazards to the entrant and have the authority to take prompt corrective action.
- xiv. The attendant must have a way to communicate at all times to the entrant.
- 3. Entry Supervisors:
  - i. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms of exposure, and consequences of exposure.
  - ii. Verify, by checking that the appropriate entries have been made on the permit, 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.
  - iii. Terminate the entry and cancel the permit if required.
  - iv. Verify that rescue services are available and that the means for summoning additional services are operable.
  - v. Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
  - vi. 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 that acceptable entry conditions are maintained.

### 5.0 Decontamination, Isolation and Testing

- **A.** Review of Confined Space (Supervisor Requirements)- A review of the confined space and its previous contents must be made by the project superintendent and the craft supervisor responsible for the work to ascertain that the necessary ventilation, protection clothing, respiratory equipment, emergency standby equipment, fire prevention precautions, and atmospheric and residual analysis tests have been specified and provided.
- **B.** Service Entrants (gas, electrical etc.) All pipelines, electrical services, agitators, and any other services leading to the confined space must be disconnected, blanked off, valved off (or otherwise rendered inoperative), and locked, tagged, and tried before personnel are allowed to enter.
- **C.** Prior Use of Confined Space- If the confined space has previously been in use, cleaning and decontamination must be performed and tests performed to determine atmospheric and residual analysis prior to personnel entering.

- **D.** Ventilation- The confined space must be adequately ventilated by the removal of manholes, vents, lines, etc. During warm and/or humid weather, or if natural draft ventilation is inadequate for comfort, fresh air should be supplied by forced ventilation.
- E. Testing- Appropriate tests of the atmosphere shall be made before entering the confined space. In all cases, an oxygen, flammable atmosphere and carbon monoxide test will be performed. The test will be performed, and the test results recorded on the permit form by the person testing who will initial the form. A designated, qualified representative shall also initial the form to indicate they witnessed the test. If the oxygen concentration is less than 19.5 percent, or toxic contaminants exceed allowable limits and cannot be corrected by cleaning and ventilation, approved air-supplied respiratory equipment shall be used with suitable protective clothing. If the explosive atmosphere test indicates the presence of any flammable vapor, entry shall not be made.

### 6.0 Burning and Welding

- **A.** Review of Welding and Burning Operations- Burning and welding in confined spaces entails unusual hazards and detailed analysis shall be made of each specific case to ensure safe performance of the work.
- **B.** Gas Cylinders- When burning or welding is being performed in any confined space, the gas cylinders and welding machines shall be left outside. When going to lunch or on a break, the gas must be turned off at the cylinders.
- **C.** Surface Coatings/Residual Materials- Surface coatings such as preservatives or corrosive resistant finishes and any residual materials from previous use must be removed for a distance of two feet from the point of welding or burning to prevent evolution of fumes.
- D. Stainless or Galvanized Welding- In vessels and/or tanks that have stainless steel or galvanized internal construction, personnel must use supplied air respirators if burning or welding is to be performed.

### 7.0 Additional Confined Space Requirements

- A. Confined Space Identification- Superintendent, shall develop a list of confined spaces on the project and identify whether the confined spaces are permit or non-permit required confined spaces. This list will be kept with the Confined Space Plan and updated as new confined spaces are presented on the jobsite. The confined spaces shall be identified on the site using signage, labels or painting at the entrance of the confined spaces to communicate the hazard.
- B. Entry/Egress and Changes in Conditions- Safe entry access and egress along with the necessary personal protective equipment and audio communication devices shall be identified for the entrant into the confined space through the Error! Reference source not found. process. Changes in the confined space that result in unsafe conditions or inadequate protection will result in immediate stoppage of work activity until the hazard can be controlled. In addition, the Error! Reference source not found. shall be amended to reflect the change in the activity procedure implementation.
- C. Rescue- Rescue of the permit required confined space entrant will be accomplished through two methods: on site rescue implemented by the attendant using a tripod and retractable for vertical spaces and/or outside Fire and Rescue. Regardless, both require training on the implementation of rescue techniques which shall be practiced at least annually. Outside Fire and Rescue shall be invited to the jobsite and a review conducted of each permit required confined space and rescue training conducted as necessary. Under no circumstance shall the attendant enter unprotected into a permit required confined space to attempt a rescue.
- **D.** Emergency Response Notification- For emergency notification procedures, see the Emergency Response Plan. This portion shall be included in the confined space entrant, attendant and supervisors training for both Hensel Phelps and subcontractors.
- **E.** Training Requirements- Permit required confined space training will be required for the entrant supervisor, attendant and entrant.