

Richland County School District One  
Permit-Required Confined Space Entry Program  
(29 CFR Part 1910.146)

PERMIT-REQUIRED CONFINED SPACE ENTRY PROGRAM  
FOR RICHLAND COUNTY SCHOOL DISTRICT ONE

**Purpose**

Richland County School District One strives for safe work practices, a clear understanding of what is needed to accomplish them and involvement at every level in this program. This program informs all interested persons of the county's intent to comply with the OSHA Confined Space Standard, Title 29 Code of Federal Regulations, 1910.146. This program applies to all work operations where an employee must enter a confined space as part of the employee's duties. Please contact the Risk Manager if you have any suggestions for a safe workplace.

**Definition of Confined Space**

*A Confined Space is a space*

- Large enough for an employee to enter and work.
- Has limited or restricted means of entry or exit.
- Is not designed for continuous employee occupancy (E.g. tanks, pits, vessels, storage bins, vaults).

**Definition of Permit-Required Confined Space (PRCS)**

*A Permit-Required Confined Space is a confined space that contains*

- Contains or has the potential to contain a hazardous atmosphere.
- Contains a material that has the potential to engulf an entrant; or
- Has an internal configuration that could trap or asphyxiate an entrant by inwardly converging walls or a floor that slopes downward and tapers to a small cross section.
- Contains any recognized serious safety or health hazards such as unguarded machinery, Exposed live wires, or heat stress.

**Prohibited condition** – defined as any condition not allowed by permit during entry operations

**Training**

Richland County School District One is responsible for providing and documenting training of employees:

- a. before the employee is first assigned duties involving entry into permit spaces;
- b. before there is a change in assigned duties.
- c. whenever there is a change in permit space operations that present a hazard of which an employee has not been previously trained; and
- d. whenever there is reason to believe that there are deviations from the permit space entry procedures of the facility or that there are inadequacies in the employee's knowledge or use of these procedures.

**A. Entrant's Duties:**

1. must know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
2. must know how to properly use testing and monitoring equipment, ventilating equipment, communications equipment, personal protective equipment, lighting equipment, ladders, and rescue and emergency equipment;
3. must understand the method by which to communicate with the attendant;
4. must know how to recognize the signs or symptoms of exposure to a dangerous situation or detect a prohibited condition; and

5. must know how to exit the space when ordered to do so by attendant or entry supervisor or when an evacuation alarm is activated, to recognize any warning signs or symptoms of exposure to a dangerous situation and to detect a prohibited situation or condition.

**B. Attendant's Duties:**

1. must know the hazards that may be faced during entry, including information on the mode signs or symptoms, and the consequences of the exposure.
2. must know the behavioral effects of hazard exposure on entrants.
3. must keep an accurate count of authorized entrants in the permit space and ensure that the means used to identify them accurately identifies who is in the permit space.
4. must remain outside the permit space during entry operations until relieved by another attendant.
5. must communicate as necessary with authorized entrants to monitor their status and to alert them of the need to exit the space under the following conditions:
  - i. if a prohibited condition is detected;
  - ii. if the behavioral effects of hazard exposure are detected in the authorized entrant;
  - iii. if a situation outside the permit space is detected that could endanger the authorized entrants; or
  - iv. if the attendant cannot effectively and safely perform all the duties required for the entry procedure, must know how to summon rescue and other emergency services as soon as the attendant determines that the authorized entrants may need assistance to escape from permit space hazards;
6. must know how to take the following action when unauthorized persons approach or enter a permit space while entry is underway:
  - i. warn the unauthorized persons that they must stay away from the permit space;
  - ii. advise the unauthorized persons that they must exit immediately if they have entered the permit space; and
  - iii. inform authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
7. must know how to perform *non-entry* rescue as specified in the County rescue procedure; &
8. must know how to perform no duty that interferes with the primary duty to monitor and protect the authorized entrants.

**C. Entry Supervisor's Duties:**

1. must know the hazards that may be faced during entry, including information on the mode signs or symptoms of the exposure.
2. must know to 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 signing the permit and allowing entry to begin;
3. must know to terminate the entry and cancel the permit when entry operations covered in the entry permit have been completed and a condition not allowed under the entry permit arises in or near the permit space;
4. must know to verify that rescue services are available and that the means for summoning them are operable.
5. must know that he must remove unauthorized persons who enter or who attempt to enter the space during entry operations;
6. must know how to determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed in the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

**D. Training Certification**

| DATE OF TRAINING | EMPLOYEE NAME | DUTY OF EMPLOYEE | TRAINER'S SIGNATURE |
|------------------|---------------|------------------|---------------------|
| _____            | _____         | _____            | _____               |

### General Procedures

Richland County School District One will ensure the safety of employees who must work in confined spaces by:

1. Enforcing measures necessary to prevent unauthorized entry into the permit space.
2. Identifying and evaluating the hazards of permit spaces before employees enter them.
3. Specifying acceptable entry conditions.
4. Providing each authorized entrant (or his representative) with a chance to observe any monitoring or testing of permit space atmospheres.
5. Isolating, purging, inerting, flushing or ventilating the permit space to eliminate or control hazards within the space.
6. Providing pedestrian, vehicle, or other barriers to protect entrants from external hazards.
7. Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
8. Providing the following equipment at no cost to the employees, maintain that equipment properly, and ensure that employees use these properly:
  - a. Testing and monitoring equipment capable of monitoring for oxygen level, flammable gases and toxic vapors.
  - b. Ventilating equipment needed to obtain acceptable entry conditions.
  - c. Communications equipment for use by entrant and attendant.
  - d. Personal protective equipment insofar as feasible when engineering and work practice controls do not adequately protect employees.
  - e. Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency.
  - f. Barriers and shields.
  - g. Equipment such as ladders needed for safe entry and exit from the space by authorized entrants.
  - h. Rescue and emergency equipment such as body harness, tripod and hoist.
  - i. Any other equipment necessary for safe entry into and rescue from permit spaces, such as appropriate respiratory protective equipment.
9. Providing at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.
10. Designating the persons who are to have active roles in entry operations, identify the duties of each such employee, and provide each such employee with the training necessary to carry out the assigned entry responsibilities.
11. Developing and implementing procedures for summoning rescue and emergency services in a timely manner, for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees and for preventing unauthorized personnel from attempting a rescue.
12. Using a system for the preparation, issuance, use, and cancellation of entry permits.
13. Developing and using procedures to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space.
14. Developing and using procedures necessary for concluding the entry such as closing off a permit space and canceling the permit after entry operations have been concluded.
15. Reviewing entry operations when it is believed that measures taken under the permit space program may not protect employees and revising the program to correct deficiencies found to exist before future entries are authorized.
16. Reviewing the permit space procedure at least annually, using the cancelled permits kept from entries of the previous year and revising the procedure as necessary.

#### CERTIFICATION for PERMIT SPACE ANNUAL REVIEW

| ENTRY<br>PERMIT<br>DATE | PERMIT<br>SPACE<br>ENTERED | PROBLEMS<br>FOUND | PROCEDURE<br>REVISION<br>NEEDED | REVISION<br>MADE |
|-------------------------|----------------------------|-------------------|---------------------------------|------------------|
| _____                   | _____                      | _____             | _____                           | _____            |
| _____                   | _____                      | _____             | _____                           | _____            |
| _____                   | _____                      | _____             | _____                           | _____            |

## Workplace Evaluations

**A. Identifying Confined Spaces.** Each department is responsible for identifying its confined spaces.

Certification shall include this:

DEPARTMENT / FACILITY LOCATION: \_\_\_\_\_

| DESCRIPTION OR<br>NAME OF CONFINED SPACE | HOW<br>ENTERED | SIZE OF<br>SPACE |
|--|----------------|------------------|
| _____                                    | _____          | _____            |
| _____                                    | _____          | _____            |

**B. Identifying Permit-Required Confined Spaces.** Each department is responsible for identifying PRCS.

Certification shall include this:

DEPARTMENT / FACILITY LOCATION: \_\_\_\_\_

| DESCRIPTION OF<br>PERMIT-REQUIRED<br>CONFINED SPACE | POTENTIAL<br>ATMOSPHERIC<br>HAZARD | OTHER<br>HAZARDS |
|---|------------------------------------|------------------|
| _____   | _____                              | _____            |
| _____   | _____                              | _____            |

At each permit required confined space the department must post a warning sign (or must use some equally effective means) with the following or similar language: **Danger! Permit-Required Space – Do Not Enter**

**C. Reclassification of Permit-Required Confined Spaces to Non-Permit Required**

A permit-required confined space may be reclassified as a non-permit space when it poses no actual or potential atmospheric hazards and if all other hazards within the space are eliminated *without* entry into the space. If hazards arise within the reclassified space, employees must exit the space and the space re-evaluated to see if it must be reclassified as a permit space.

Certification requires showing the basis for reclassification with the following.

DEPARTMENT / LOCATION: \_\_\_\_\_

| DESCRIPTION<br>OF SPACE | WHAT IS<br>HAZARD | BASIS FOR<br>RECLASSIFICATION | DATE/<br>SIGNATURE |
|-------------------------|-------------------|-------------------------------|--------------------|
| _____                   | _____             | _____                         | _____              |
| _____                   | _____             | _____                         | _____              |

### Pre-Entry Precautions

Eliminate any conditions making cover removal unsafe before a cover is removed. To prevent accidental injury to employees and third parties, use temporary railings, barriers or covers. Provide adequate warnings. Notify the Columbia Fire Department Shift Commander at 545-3726 of the confined space entry.

### Pre-Entry Evaluation of Atmosphere

Before authorizing entry into a permit-required confined space (PRCS), it must be evaluated to determine if the conditions are safe for entry. Any employee authorized to enter the PRCS may observe the pre-entry and any subsequent testing and may request reevaluation of the space.

Test length must be at least the minimum response time specified by the manufacturer. No person may enter or remain when there is any hazardous atmosphere. Periodic testing of any continuous ventilation is required.

### **Assigning Authorized Entrants**

Only employees who have completed training may be authorized to enter a PRCS. Before they are authorized to enter a PRCS, assign their specific duties. See Training for the Entrant's Duties.

### **Assigning Attendants**

Only employees who have completed attendant training can perform attendant duties. Before they act as attendants, assign their specific duties and responsibilities. The attendant must have a self-contained breathing apparatus available for immediate use. The attendant shall not enter the space unless relieved by another worker. See Training for the Attendant's Duties.

### **Assigning Entry Supervisors / Lead Workers**

Only supervisors or lead workers who have completed entry training can supervise entry into a PRCS. Before they act as such, assign their specific duties and responsibilities. See Training for their duties.

### **Documentation**

Thoroughly documenting the permit to enter is very important. See the attached Entry Permit.

### **Permits to Enter**

The Directors and their designees have the entry supervision responsibility. They authorize entry and issue work permits for the department's confined spaces. Permits and related documents are kept in the departments. The following is required:

- a. An entry supervisor will sign the entry permit to authorize the entry to begin;
- b. The completed permit will be made available at the time of entry to all authorized entrants by posting it at the entry portal or by any other equally effective means so that entrants can confirm that pre-entry preparations have been completed.
- c. The duration of the permit may not exceed the time required to complete the job identified on the permit.
- d. The entry supervisor must terminate entry and cancel the entry permit when:
  - 1.) The entry operations covered by the entry permit have been completed; or
  - 2.) A condition that is not allowed under the entry permit arises in or near the permit space. (see below sample permit-required confined space, equipment and signs)

### **Required Contents for Permits (see attachment page 9)**

- 1). identification of space
- 2). purpose of entry
- 3). date and duration of permit
- 4). list of authorized entrants
- 5). names of current attendants and entry supervisor
- 6). list of hazards in the permit space
- 7). list of measures to isolate permit space and eliminate/control hazards.
- 8). the acceptable entry conditions
- 9). results of tests initialed by the person(s) performing tests
- 10). rescue emergency services and means to summon
- 11). communication procedures for attendants/entrants
- 12). required equipment (such as respirators, communications, alarm, etc.)
- 13). any other necessary information
- 14). any additional permits (such as for hot work).

**After Work Completion – Entry Supervisor’s / Lead Worker’s Duty**

Upon finishing the PRCS work, ensure closure procedures are completed and the site is in safe condition.

**Alternate procedures**

Alternate procedures may be used when:

1. It can be demonstrated that the only hazard is an actual or potential hazardous atmosphere.
2. It can be demonstrated that continuous forced air ventilation alone is sufficient to maintain the space safe for entry.
3. Monitoring and inspection data has been developed that supports the above demonstration required.
4. Monitoring and inspection data has been documented and made available to employee who Enter the spaces or their representatives.

| DESCRIPTION OF PERMIT SPACE | POTENTIAL ATMOSPHERIC HAZARD | ATMOSPHERE CONTROL METHOD | MONITORING/ INSPECTION DATA |
|-----------------------------|------------------------------|---------------------------|-----------------------------|
| _____                       | _____                        | _____                     | _____                       |

**Alternate Procedures Requirements:**

1. Any conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed.
2. The entrance opening must be guarded when the cover is removed.
3. Before an employee enters the space, the atmosphere must be tested, with a calibrated direct-reading instrument for oxygen level, for flammable gases and vapors, and for potential toxic air contaminants, in that order, and the entrant or his representative may observe the testing.
4. There may be no hazardous atmosphere within the space whenever any employee is inside the space.
5. Continuous forced air ventilation must be used to eliminate any hazardous atmosphere.
6. The atmosphere within the space must be tested periodically and the entrant or his representative must be allowed to observe the testing.
7. If a hazardous atmosphere is detected during entry the employee must leave the space immediately and the space evaluated to determine how the hazardous atmosphere developed.
8. A written certification must be prepared verifying that the space is safe for entry, and that pre-entry measures have been taken, before any subsequent entry takes place. It must show the date, the location of the space and signature of the person providing the certification. The certification must be made available to the entrant or his representative.

**Rescue and Emergency Services**

Richland County School District One uses the City of Columbia Fire Department to perform rescues from permit spaces. The City of Columbia manages the city-county unified operations, which the county funds for the county area.

The City has the ability to respond to a rescue summons in a timely manner and, considering the hazards identified, to proficiently perform rescue-related tasks, to use the proper equipment and to function appropriately while rescuing entrants from the particular permit space or types of permit space identified.

It will be given access to all permit spaces from which rescue may be necessary, so that the rescue service can develop appropriate rescue plans and practice rescue operations.

**Sewer System Entry**

Sewer space is subject to sudden and unpredictable hazards and very often the entry area cannot be isolated. Only employees who demonstrate thorough training are permitted as entrants. Local weather should be closely monitored when there are flooding or surge flow risks. Should the county maintain any large bore sewers a complete review and issue of needed equipment must be completed before entry.

The department must determine the best type of testing equipment for its entry operations. Entrants should be trained in and equipped with the atmospheric monitoring equipment that sounds an audible alarm in addition to a visual readout when any of the following occur: *oxygen content less than 19.5%; flammable gas or vapor at 10% or more of lower flammable limit; or hydrogen sulfide at or above 10 ppm or carbon monoxide at or above 35 ppm, measured as an eight hour time-weighted average.*

The atmospheric monitoring equipment must be calibrated according to the manufacturer's instructions. While broad range oxygen sensors are well suited to obtain a reading of flammables (hydrocarbons), substance specific devices are required to measure levels or detected contaminants.

### **Contractors**

When contractor employees are required to enter permit-required spaces to perform work Richland County School District One will:

1. inform the contractor that there are permit-required confined spaces at the work site and entry is allowed only when using a permit space procedure that meets the OSHA permit space requirements. Contractor *must* have its own written Permit-Required Confined Space Program.
2. inform the contractor of experience with and hazards of the permit space.
3. inform the contractor of any precautions or procedures that has been implemented by Richland County School District One to protect employees in or near permit spaces where contractor personnel will be working in or near permit spaces.
4. coordinate entry operations with the contractor when both contractor and County personnel will be working in or near permit spaces.
5. debrief the contractor following and regarding any hazards confronted or created during entry operations.

### **Program Review**

This program should be reviewed at least annually and revised as needed.

### **Program Enforcement**

Disciplinary action may be taken for failure to follow this program or any other safety procedures.

### **Information**

Copies of this written program may be obtained from Risk Management, which has the overall responsibility for coordinating and updating the School District's safety programs.



### Entry Permit

Confined Space Entry Permit

RICHLAND COUNTY SCHOOL DISTRICT ONE

Date: \_\_\_\_\_

Site location or description: \_\_\_\_\_

Purpose of entry/Equipment to be worked on: \_\_\_\_\_

Supervisor(s) in charge: \_\_\_\_\_ Phone #: \_\_\_\_\_ Type of crew (welding,  
 \_\_\_\_\_ plumbing, etc): \_\_\_\_\_

Date Issued \_\_\_\_\_ Time Expires: \_\_\_\_\_

Entrant \_\_\_\_\_ Attendant \_\_\_\_\_  
 Signature \_\_\_\_\_ Signature \_\_\_\_\_

Rescue procedures (also see emergency contact phone numbers at end of form):

- (a). Entry, standby, and backup persons \_\_\_y\_\_\_n\_\_\_n/a (b). Successfully completed training? \_\_\_y\_\_\_n\_\_\_n/a  
 (c). Equipment: Direct reading gas monitor-tested \_\_\_y\_\_\_n\_\_\_n/a (d). Safety harness/lifelines for entry/standby  
 persons \_\_\_y\_\_\_n\_\_\_n/a (e). Hoisting equipment \_\_\_y\_\_\_n\_\_\_n/a (f). Powered communication equipment \_\_\_y\_\_\_n\_\_\_n/a  
 (g). Protective clothing \_\_\_y\_\_\_n\_\_\_n/a (h). All electric equipment listed Class I, Division I, Group D \_\_\_y\_\_\_n\_\_\_n/a  
 (i). Non-sparking tools \_\_\_y\_\_\_n\_\_\_n/a

| REQUIREMENTS COMPLETED(list)                        | n/a | y       | n       | DATE | TIME | REQUIREMENTS COMPLETED  | DATE | TIME |
|---|-----|---------|---------|------|------|---|------|------|
|   |     |         |         |      |      | ___y___n___n/a  |      |      |
| Lockout/De-energize/Try-out                         |     | ___Y___ | ___N___ |      |      | Supplied Air Respirator (N/A if alternate entry)                  |      |      |
| Line(s) Broken-Capped-Blank, Blinded, Disconnected  |     | ___Y___ | ___N___ |      |      | ___Y___N/A<br>Respirator(s) (Air Purifying) ___Y___N              |      |      |
| Purge-Flush and Vent, Natural Vent, Mechanical Vent |     |         |         |      |      | Protective Clothing ___Y___N                                      |      |      |
| Ventilation   |     | ___Y___ | ___N___ |      |      | Full Body Harness w/"D" ring Y N                                  |      |      |
| Secure Area (Post and Flag)                         |     | ___Y___ | ___N___ |      |      | Emergency Escape Retrieval Equipment ___Y___N                     |      |      |
| Lighting (Explosive Proof)                          |     | ___Y___ | ___N___ |      |      | Welding/burning permits Y N<br>Lifelines ___Y___N                 |      |      |
| Hot Work Permit                                     |     | ___Y___ | ___N___ |      |      | Standby safety personnel (N/A if alternate entry) ___Y___N ___N/A |      |      |
| Fire Extinguishers                                  |     | ___Y___ | ___N___ |      |      | Resuscitator-Inhalator (N/A if alternate entry) ___Y___N ___N/A   |      |      |

Other specific information:

Line(s) to be bled/blanked, **broken-capped, blinded, disconnected**:

Ventilation equipment:

PPE clothing:

Respirator(s):

Fire extinguisher(s):

Emergency retrieval equipment:



**CONTINUOUS MONITORING \*\*  
TESTS TO BE TAKEN**

**Permissible  
Entry Level**

**Record Levels every 2 hours**

|                               |                |       |       |       |       |
|-------------------------------|----------------|-------|-------|-------|-------|
| 1. Percent Oxygen             | 19.5-23.5%     | _____ | _____ | _____ | _____ |
| 2. Lower Flammable Limit(LEL) | Under 10%      | _____ | _____ | _____ | _____ |
| 3. Carbon Monoxide            | +50 PPM        | _____ | _____ | _____ | _____ |
| 4. Aromatic Hydrocarbon       | +1 PPM * 5 PPM | _____ | _____ | _____ | _____ |
| 5. Hydrogen Cyanide           | (skin) * 4 PPM | _____ | _____ | _____ | _____ |
| 6. Hydrogen Sulfide           | * 20 PPM       | _____ | _____ | _____ | _____ |
| 7. Sulfur Dioxide             | * 5 PPM        | _____ | _____ | _____ | _____ |
| 8. Ammonia                    | +50 PPM        | _____ | _____ | _____ | _____ |

\*\* Short-term exposure limit, employees can work in the area up to 15 minutes.  
+ 8-hour time weighted average. Employees can work in area for 8 hours.

| <b>GAS TESTER NAME<br/>AND CHECK</b> | <b>INSTRUMENT<br/>USED</b> | <b>MODEL AND/<br/>OR TYPE</b> | <b>SERIAL AND/<br/>UNIT #</b> |
|--------------------------------------|----------------------------|-------------------------------|-------------------------------|
| _____                                | _____                      | _____                         | _____                         |
| _____                                | _____                      | _____                         | _____                         |
| _____                                | _____                      | _____                         | _____                         |

Safety Standby person is required for all confined space work.

| <b>STAND BY<br/>PERSONS</b> | <b>CONFINED SPACE<br/>CHECK#</b> | <b>ENTRANTS</b> | <b>CONFINED SPACE<br/>CHECK#</b> | <b>ENTRANTS</b> | <b>CHECK#</b> |
|-----------------------------|----------------------------------|-----------------|----------------------------------|-----------------|---------------|
| _____                       | _____                            | _____           | _____                            | _____           | _____         |
| _____                       | _____                            | _____           | _____                            | _____           | _____         |

Attendant \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**RICHLAND COUNTY SCHOOL DISTRICT ONE**

**Periodic Tests:**

|            |              |                   |               |         |
|------------|--------------|-------------------|---------------|---------|
| Time _____ | Oxygen _____ | % Explosive _____ | % Toxic _____ | % _____ |
| Time _____ | Oxygen _____ | % Explosive _____ | % Toxic _____ | % _____ |
| Time _____ | Oxygen _____ | % Explosive _____ | % Toxic _____ | % _____ |
| Time _____ | Oxygen _____ | % Explosive _____ | % Toxic _____ | % _____ |
| Time _____ | Oxygen _____ | % Explosive _____ | % Toxic _____ | % _____ |
| Time _____ | Oxygen _____ | % Explosive _____ | % Toxic _____ | % _____ |
| Time _____ | Oxygen _____ | % Explosive _____ | % Toxic _____ | % _____ |

We have reviewed the work authorized by this permit and the information herein. Written instructions and safety procedures have been received and understood. Entry cannot be approved if any checks are in the "no" column. This permit is not valid unless all appropriate items are completed.

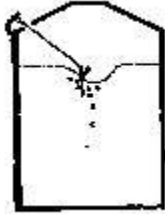
Permit Prepared by: (Supervisor) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Approved by: Department Manager \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

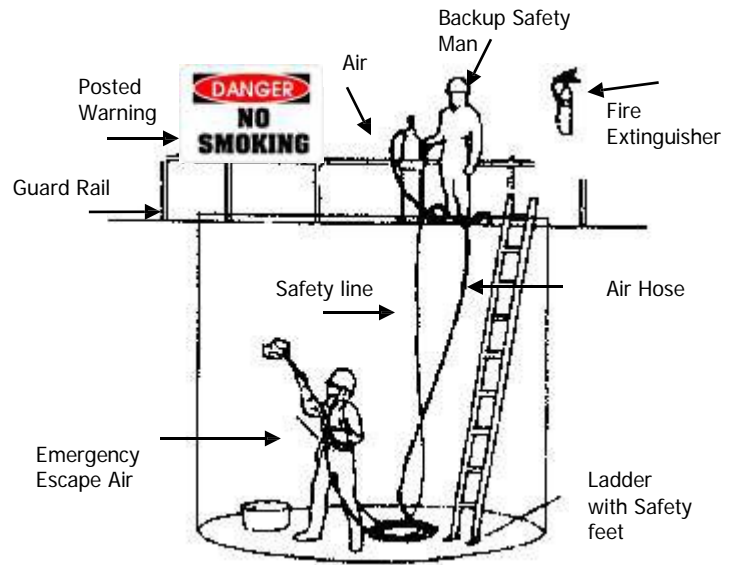
\*\* This permit to be kept at job site; Return to the appropriate department at completion of the job.

ILLUSTRATION OF PROPER SET-UP

Permit System:



Use Buddy System with Life Line if Entry is Required



DEATH LURKS IN CONFINED SPACES



