

2018

CONFINED SPACE ENTRY.

Pottawattamie County

Safety & Health Program

Section B 2

It is the policy of Pottawattamie County to provide a safe and healthful workplace for employees. It is the intent of this policy to comply with OSHA requirements listed in 29 CFR 1910.146; all local, state, and federal laws.



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CONFINED SPACE ENTRY

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I. Objective

The purpose of Pottawattamie County's Confined Space Program is to establish procedures that will ensure employees safe entry into permit-required confined spaces in order to perform routine tasks associated with their employment.

This procedure is designed to provide safety requirements in accordance with the Occupational Safety and Health Administration's (OSHA) Confined Space Standard, 1910.146.

II. Scope and Applicability

This procedure applies to any employee who is required to enter an area that has been identified as a permit-required confined space or any contractor and/or subcontractor hired to perform work for Pottawattamie County in a permit-required confined space.

III. Definitions

- A. A **confined space** is:
1. Large enough for personnel entry;
 2. Has limited or restricted means for entry or exit;
 3. Is not designed for continuous occupancy.
 4. Examples are pits, vaults, tanks, sewers systems, and hoppers.
- B. A **non-permit space** is a confined space that does **NOT** present any potential hazards, nor will the work performed therein create a hazardous condition.
- C. A **permit-required space** is a confined space that **MAY** present one or more potential hazards including hazardous atmospheres, fire/explosion, engulfment, entrapment, electrical, mechanical, or any other serious hazard. It is advised that the Permit approach be used for all confined space work as a means to evaluate and properly control hazards present.
- Permit-required confined space hazards include risks of falls, crushing, asphyxiation, fire, explosion, chemical exposure, engulfment, drowning, electrocution, or dismemberment.
- D. **Entry** occurs whenever any body part crosses the plane of entry of the space when the intent is to enter.

IV. Authority & Responsibility

A. Risk Management is responsible for:

1. Developing the written permit-required confined space program and reviewing the program annually.
2. Providing training for employees who enter or work near permit-required confined spaces. Maintains training records.
3. Assisting departments, as needed, in calibrating, approving and making recommendations for all monitoring equipment, safety equipment, training programs and materials for safe entry and work operations.
4. Assisting in identifying permit-required confined spaces on county property.
5. Assisting in inspecting permit-required confined space locations for determination of potential hazards and controls.
6. Reviewing completed permits and entry operations.

B. Department and Supervisors are responsible for:

1. Designating roles for employees (entrants, attendants, entry supervisors).
2. Identifying permit-required confined space(s) and/or potential permit required confined spaces and providing a list to Risk Management.
3. Notifying affected employees of permit-required confined spaces and potential permit-required confined spaces.
4. Updating the permit-required confined space list whenever there are changes affecting work conditions or whenever new permit-required confined spaces are identified.
5. Providing required personal protective equipment (PPE) to employees.
6. Ensuring affected employees receive training for their permit-required confined space duties.
7. Maintaining appropriate employee training records and permit-required confined space entry permit records. Forwards copies of training records to Risk Management.

8. Taking appropriate disciplinary action whenever an employee fails to follow safety precautions outlined in this program.
9. Conducting briefing and de-briefing with any contractor on the permit-required confined space they are hired to work in.
10. Ensuring that permit-required confined space entry equipment is properly maintained and stored.
11. Ensuring that all entry permits are completed, reviewed, and signed upon termination of entry.
12. Submitting entry permits to Risk Management upon termination of entry.

C. Employees are responsible for:

1. Notifying the supervisor of any permit-required confined space encountered not currently on the permit-required confined space list.
2. Reporting jobs requiring entry into permit-required confined spaces to the supervisor.
3. Notifying their supervisor whenever work operation may require a hot work permit or work operations may result in chemical exposure or generation of hazardous atmosphere or other hazardous conditions and address appropriately.
4. Attending permit-required confined space training.
5. Complying with duties assigned to them when working as entrants and attendants of permit-required confined spaces.
6. Employees **shall not** enter a confined space unless they have been designated as an Authorized Entrant.

D. Authorized Entrants are responsible for:

1. Having knowledge of the hazards and potential hazards associated with the specific permit-required confined space including mode of exposure (i.e. respiratory, skin), signs or symptoms, and consequences of exposure prior to entry.
2. Properly using all equipment (including personal protective equipment) which is necessary for safe entry operation.

3. Maintaining (verbal, radio, wired) communication with attendant to enable the attendant to monitor the status and to enable the attendant to alert him/her of the need to evacuate the space.
4. Exiting from the permit-required confined space when ordered by attendant; when experiencing signs and/or symptoms of exposure; when a prohibited condition exists or when the monitoring alarm sounds.

E. Attendants are responsible for:

1. Having knowledge of the hazards and potential hazards associated with the specific permit-required confined space including mode of exposure (i.e. respiratory, skin), signs or symptoms, and consequences of exposure prior to entry.
2. Remaining outside the permit-required confined space until termination of the entry operation, or until relieved by another qualified attendant.
3. Maintaining an accurate count of authorized entrants within the permit-required confined space.
4. Maintaining communication with the authorized entrant(s) to monitor his/her status and to alert the entrant of any need to evacuate the space.
5. Monitoring activities inside and outside the space to determine if it is safe for entrants to remain in the space or order evacuation if the attendant detects:
 - a. a prohibited condition
 - b. detects behavioral effects in the authorized entrant as a result from exposure to atmospheric hazards
 - c. detects a condition outside the space that could endanger the authorized entrant(s)
 - d. Cannot effectively and safely perform all required duties of an attendant
6. Performing no other duties that interfere with primary attendant duties.
7. Performing non-entry rescues as required by the specific entry permit.
8. Summoning rescue services if needed.

F. Entry Supervisors are responsible for:

1. The Entry Supervisor for the confined space operation shall be a competent person(s) and shall be designated on an as needed basis by the Department Head. Entry Supervisor designations will be reviewed on an annual basis. Entry Supervisors are responsible for the following for each confined space operation:
 - a. Training on and performing a thorough hazard assessment (see Appendix A) of the confined space and of the work that will be performed therein.
 - b. Having knowledge of the hazards and potential hazards associated with the specific permit-required confined space including mode of exposure (i.e. respiratory, skin), signs or symptoms, and consequences of exposure that may be faced during entry.
 - c. Understanding and explaining how to execute a Confined Space Permit as well as any other required permits, such as a Hot Work permit, Fall Protection, Trenching and Shoring Requirements.
 - d. Utilizing the Confined Space Permit system which includes;
 - i. Utilizing the Confined Space Entry Control Worksheet, and Permit forms (Appendices A & B) for permit space entry evaluation and establishment of required controls.
 - ii. Requiring Confined Space Entry Permits to be issued at least each shift, if applicable.
 - e. Completing and signing the entry permit.
 - f. Verifying (onsite) that the appropriate entries have been made on the permit that all tests specified have been conducted, and all equipment specified on the permit is in place, before endorsing the permit and allowing entry to begin.
 - g. Assign appropriately trained and qualified personnel to the confined space project.
 - h. Terminating the entry and canceling the permit when the entry operation has been completed or a prohibited condition arises in or near the space.
 - i. Verifying that rescue services are available during a permit-required space entry and that the means for summoning them are operational.

- j. Removing unauthorized individuals who enter or attempt to enter the permit-required confined space during entry operations.
 - k. Ensuring that the entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.
 - l. Posting Signs -"Danger- Confined Space; Enter by Permit Only" at the entry point of all confined spaces.
2. Entry Supervisors may also serve as an attendant or as an authorized entrant, if trained and equipped as required for each role filled. The duties of entry supervisor may be passed from one individual to another during an entry operation

V. General Requirements for Permit-Required Confined Space

A. Identification of Confined Spaces

Departments, along with Risk Management will identify all areas within Pottawattamie County that come under the definition of a permit-required confined space.

B. Assessment of Confined Spaces

All permit required permit-required confined spaces shall be formally assessed and a permit entry form will be completed every time the space is entered. The following must be conducted before any employee enters the permit-required confined space:

1. Implement any measures necessary to prevent unauthorized entry;
2. Identify and evaluate the hazards of the permit-required confined space(s) before entry;
3. Develop and implement the means, procedures, and practices necessary for safe permit-required confined space entry operations.

C. Prevention of Unauthorized Entry

Unauthorized entry into permit-required confined spaces shall be prevented. Prevention measurements include training, signs and security measures. Any employee working in or around permit-required confined spaces shall attend permit-required confined space awareness training.

D. Hazard Communication

1. Signs shall be posted where feasible near permit-required confined spaces to prevent any inadvertent or unauthorized entry. These postings shall be permanently affixed to the wall or door of the space and shall be large enough to be plainly visible to any entrant.
2. In locations where permanent notices cannot be logically placed (sewer manhole or vaults located in roadways), temporary signs shall be posted along with the necessary barricades and fences in plain view during the entire time the entrance to the permit-required confined space is removed.
3. The signs shall read -"Danger- Confined Space; Enter by Permit Only", or using other similar language that satisfies the requirement.

E. Identify Employees

1. Departments must designate employees who have active roles (authorized entrants, attendants, and entry supervisor) in entry operations and identify the duties of each role. At least one attendant must be identified and stationed outside the permit-required confined space for the duration of the entry operation.
2. Only trained attendants, authorized entrants, and entry supervisors shall work in and around a permit-required confined space.

F. Equipment

Equipment, including testing, monitoring, communication and personal protective equipment, shall be provided, maintained and properly used.

G. Rescue

Non-entry retrieval equipment shall be set-up and utilized where there exists a potential for an IDLH atmosphere, engulfment, vertical entries, or any other recognizable serious health hazard unless use of such retrieval equipment would create an additional hazard.

H. Permit-Required Confined Space Covers and Barricades

When a permit-required confined space has both top and bottom openings, or access hatches or manways in both high and low positions, it is preferable to use the bottom or low entrance for safety reasons whenever practical. Permit-required confined space openings shall be guarded by railing, temporary covers, or other barriers that will warn and prevent against an accidental fall as well as preventing foreign objects from falling into the space.

I. Personal Protective Equipment (PPE)

1. All personal protective equipment shall be selected, used, inspected, and cleaned according to the manufacturer's recommendations and any applicable OSHA regulations. The department conducting the entry is responsible for the cost, maintenance, and proper usage of the PPE.
2. A comprehensive evaluation must be completed for all hazards that may be encountered. Every reasonable effort will be made to eliminate or control the hazards before permitting entry into the permit-required confined space.
3. Personal protective equipment (PPE) will not be substituted for hazard elimination if feasible. If required, PPE will be used to protect the entrant from potential hazards. All required PPE will be provided by Pottawattamie County and it is the responsibility of employees to use the equipment properly. If there is any question as to the adequacy of the provided protection for a given task, the employee will contact their supervisor before entry.

J. Hot Work in Permit-required Confined Spaces

1. Any welding, brazing, cutting, heating, and grinding operations within a permit-required confined space requires a hot work authorization on the permit-required confined space entry permit.
2. Continuous ventilation and air monitoring shall be performed during hot work when the potential exists for the creation of a hazardous atmosphere.
3. Welding operations or any other spark-producing work shall not be performed if 10% or more of the lower explosive limit/lower flammable limit (LEL/LFL) of any combustible gas exists in the permit-required confined space.
4. Fire extinguishers shall be available at the worksite and a person standing fire watch is required.
5. Welding cylinders and electric welding machines shall be kept outside the permit-required confined space, whenever possible.

VI. Confined Space Pre-Planning, Entry & Exit

Pottawattamie County employees will pre-plan before entering a permit-required confined space. Planning must include provisions for the following:

A. Entry Supervisor Planning Responsibilities:

1. Contacts facility representatives to gather information about the confined space, work to be done, and materials to be used in the confined space.

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2. Utilizes the Confined Space Entry Control Worksheet, and Permit forms (Appendices A & B) for permit space entry evaluation and establishment of required controls.
3. Assesses whether those hazards that create the "permit required confined space" can be eliminated without employee entry into the space, and respective controls to eliminate or properly control these hazards.
4. Identifies any potential immediately dangerous to life or health atmospheric hazards and requirements to control exposure to workers.
5. Determines rescue requirements for the permit required confined space and assures response, training and equipment is effective.
6. Arranges for qualified and adequate numbers of Entrants and Attendants.
7. Obtains and assures the Confined Space Entry and Hot Work (if applicable) permits are fully and accurately completed.
8. Identifies all equipment, including personal protective equipment, needed for the job is ready and onsite.
9. Coordinates confined space entry activities with other site employers that may be affected by the entry and that all work is compliant with the permit, and that the procedures of the contractors at a minimum, complies with this written program.

B. Preparation & Entry of Confined Space

1. Isolation of the Confined Space

- a. Drain, clean and purge the confined space as appropriate.
- b. Isolate all forms of kinetic and potential (stored) energy inside the confined space, including:
 - i. Electrical
 - ii. Hydraulic
 - iii. Mechanical
 - iv. Thermal
 - v. Pneumatic
 - vi. Hydraulic
- c. Isolate all lines carrying fuels, liquids or gases into the space. Purge and assure the area is clean and free of residual material.

- d. Develop alternate controls and affirm their function for protection of entrants for lines that may not be controlled such as lines through storm water or sewer vaults.
 - i. Blank lines as needed.
 - ii. Implement any needed alternate practices to assure worker protection.
- e. Provide barricades and post the entrance of the space with a sign stating "Danger Confined Space Do Not Enter" or equivalent wording. Address traffic control needs as well with an approved Traffic Safety Control Plan.
- f. Prohibit entry of compressed gas cylinders in a confined space.
- g. Assure that a rescue plan is in place and functional, with adequate response time before executing the permit or allowing entry.

2. Personal Protective Equipment (PPE) and Other Required Equipment

- a. Establish all needed personal protective equipment (PPE), and other equipment needed (e.g., ventilation, GFCIs, monitoring instruments, retraction and fall gear, egress and access gear, and any other similar equipment) using the confined space entry control worksheet and your job hazard assessment tool.
- b. Assure that all equipment is in a "ready to use" state and current on inspections.
- c. Assure employees are fully trained and competent in the use of PPE and other required equipment.
- d. Assure that all required equipment is specific to the permit and reviewed in pre-entry meeting.

3. Electrical Equipment

- a. Provide electrical equipment that meets the electrical classification of the area.
- b. Assure all electrical equipment is grounded; gear is inspected and safe for use.
- c. Use ground fault circuit interruption (GFCI) for power sources.

4. Atmospheric Tests

- a. It is the policy of Pottawattamie County that entry into a confined space will be permitted only if atmospheres are proven to be safe for entry with adequate oxygen, contaminant levels below adopted exposure limits, and less than 10% Lower Flammable Limit (LFL) maintained.
- b. Atmospheres are considered Immediately Dangerous to Life and Health (IDLH) until proven otherwise.
 - i. IDLH is defined by the US National Institute for Occupational Safety and Health (NIOSH) as exposure to airborne contaminants that is "likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment."
 - ii. Examples include smoke or other toxic contaminant concentrations at sufficiently high concentrations.
 - iii. OSHA regulations define the term as "an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere."
- c. Atmospheres must have adequate oxygen. Ambient air at sea level has about 20.9% oxygen. Greater than 19.5% is required for entry but **NOTE** that if there is less than 20.9% oxygen, there is another gas or vapor present that needs to be identified and quantified; or the meter is not calibrated or working correctly.
- d. Atmospheres must also be safe from a flammability standpoint with the Lower Flammable Limit (LFL) being less than 10% required. If there is any amount of a flammable present, it can affect the oxygen or toxics levels and must be completely evaluated.
- e. Atmospheres must also be safe from a "Toxic" standpoint with atmospheres containing less than applicable OSHA and ACGIH established exposure limits.
- f. Calibrate (zero and span gasses) monitoring equipment and record information on the Daily Instrument Calibration Form. Record all results on the permit, sign and initial where indicated.
- g. Make initial atmospheric tests of the space. Assess all sections of the space and consider vapor density of materials that could have been present.

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- h. Attach extension probes to the monitoring equipment, or lengths of inert tubing material to reach all section and to the bottom of the space. For *horizontal* spaces, the probe may need to be attached to a pole.
- i. Take atmospheric measurements in all needed locations, sections, sub-spaces of the space. Allow needed time for remote samples to reach the instrument to assure accuracy of data.
- j. Obtain a reading for oxygen first, followed by %LFL, then for toxic contaminants of concern (as applicable). The assessment of toxics is based on the materials stored or used in the space, and any materials expected to be used or present in the environment.
- k. Record all results on the permit, sign and initial where indicated.
- l. Determine if acceptable entry conditions exist with respect to oxygen, %LFL, and other hazardous atmospheres.
 - i. Evaluate the hazards of any materials to be used in or atmospheres that could be created during the work in the space.
 - ii. Determine the monitoring and ventilation approaches needed to control all atmospheric issues.
- m. If entry conditions are not in accordance with the atmospheric requirement or permit requirements indicated, correct the condition(s) and retest before proceeding.
- n. If acceptable entry conditions exist, determine the means for continuous monitoring and communication and documentation of readings.
- o. Monitor continuously for oxygen, %LFL and applicable toxics if hot work will be performed in the space.

5. Ventilation

- a. Ventilation is required for all entries.
- b. Open as many openings as possible in the space to aid in cross ventilation. Evaluate and address poorly configured areas, sub-spaces, and the vapor densities of materials to assure adequate ventilation of all areas.
- c. Never ventilate confined spaces with oxygen.

- d. Provide five (5) air changes per hour, or at least 10,000 cfm for large spaces minimum. Provide at least 2,000 cfm of active exhaust ventilation for each welder or torch operating under a Hot Work Permit within the space.
- e. If any motorized equipment is used, be sure that the exhaust does not enter the space and never have this gear operating in a space. Carbon monoxide monitoring may be required as a toxic as well as oxygen content.
- f. Place ventilation gear and ducting such that it does not create a hazard by impairing the access/ egress or vision and communication with attendants and entry staff. Exhaust to safe areas and do not direct contaminants to other workers.
- g. Use fire/explosive proof (appropriate electrical equipment for Hazardous Areas Classifications) equipment, including ventilating equipment that is properly grounded when exhausting flammable or combustible gases, vapors and dusts from confined spaces.

6. Authorizing the Permit

- a. Prior to signing the permit, the Entry Supervisor is to personally inspect the space, and surrounding area, and work to be done in the space, and review all monitoring, ventilation and other gear and materials to be used; and confirm that all necessary precautions have been taken and all relevant information concerning the entry parameters are documented on the permit.
- b. The Entry Supervisor is to conduct a safety briefing informing all entrants and attendants of space conditions; review work to be done in the space; time of permit and communication and rescue procedures.
- c. The Entry Supervisor is to require the entrant(s) and attendant(s) to each print their names and sign the permit; and outline the rescue procedures.
- d. The permit is to be reviewed and affixed to a location near the space entrance.

7. Entry Operations

- a. Prohibit entry when oxygen deficient, greater than 10% lower flammable limit atmospheres, toxic (above established exposure limits without proper respiratory equipment), or IDLH levels are present in the space. Re- clean, purges, and ventilates spaces as needed and re-tests to assure they are safe for entry.

- b. Assure a safe access and egress is established.
- c. Limit entry to qualified entrants listed on the permit and only for the purpose(s) stated on the permit.
- d. Require entrants to follow all PPE, equipment and procedural requirements listed on permit.
- e. Attach body harness, if required, to a lifeline, and the other end of the life line is attached to an approved anchor point and mechanical lifting device outside the space at all times the entrant(s) are in the space.
- f. Attendant(s) are required to remain at the entrance whenever an entrant is inside the confined space.
 - i. The attendant may not be assigned other duties that may distract him/her from maintaining uninterrupted contact and communication with the entrant(s).
 - ii. The attendant may only attend to one confined space entry at any one time.
 - iii. Each space must have its own attendant.

C. Exiting the Confined Space

- 1. Assure a safe access and egress is established.
- 2. Authorized entrants are to immediately evacuate when ordered. The attendant is to order entrant(s) to immediately evacuate the space whenever:
 - a. Atmospheric conditions change.
 - b. A new or prohibited condition on the entry permit develops.
 - c. The surrounding work area becomes unsafe.
 - d. Any monitoring instrumentation, rescue equipment, ventilation, etc. becomes compromised.
 - e. Possible symptoms of exposure are noted in the entrant(s).
 - f. Entrant(s) express any type of concern regarding any safety or health aspect of the entry or work being done.

D. Rescue Requirements

1. A rescue plan shall be in place and functional, with adequate response time before a confined space permit is executed or before allowing entry.
2. Non-entry rescue procedures shall be established for every entry.
3. Fully trained, equipped, and qualified entry rescue staff shall be established prior to entry, and shall be available for the duration of the entry.
4. Communication shall be established and maintained between the attendants and rescue staff at all times.

E. Completion of Entry Work

1. Inspect and assure all items are cleaned, and equipment is back in a ready to use state.
2. Cancel the permit by obtaining the signature of the Entry Supervisor and recording the time and date on the permit.
3. The Entry Supervisor is to inspect the area and assure all is safe and ready to be put back into operation.
4. The space can then be put back in operation, openings closed, signs and barricades removed, etc.
 - a. Reference the permit to assure all has been addressed in re-activating a space.
 - b. If the space cannot be closed until a later time, provisions must be maintained (barricades, warning signs) to prevent in all cases any persons from falling into or entering the space.

VII. Training, Medical Surveillance & Recordkeeping

A. Training

1. Confined Space Training shall be completed annually.
2. All Entry Supervisors, entrants, attendants, and rescue staff are to be trained prior to any assignments and are to have all needed knowledge of equipment, hazard assessments, permitting requirements, and all health and safety aspects associated with entry.

3. Training is to be repeated:
 - a. Whenever a near miss (a near miss is an unplanned event that did not result in injury, illness, or damage – but had the potential to do so) or incident occurs.
 - b. As needed, after results of annual program audits are performed.

B. Medical Surveillance

Entry Supervisors, entrants, attendants, and rescue staff are required to be medically qualified for confined space entry work which includes that they be fit testing and medically qualified for wearing assigned respirators.

C. Recordkeeping

1. Training records shall be forwarded to Risk Management for inclusion in the employees training file.
2. All incident investigations involving near misses or incidents are to be documented by the department and forwarded to Risk Management for review.
3. All staff training including that of the Entry Supervisors, Entrants, Attendants, and Rescue staff shall be documented by the department and forwarded to Risk Management for the training file.
4. All classes, pre-entry worker briefings, tool box briefings, Audit result briefings and incident investigation briefings involving near misses or incidents are to be documented qualifications.
5. Confined Space Entry Permits plus Hot Work Permits (if issued).
6. Monitoring equipment calibration logs.
7. Lock-out/Tag-out records (if used).
8. Medical clearance documentation shall be maintained in the employee medical file.

MODEL FORMS

Model forms for this program are located on the following pages.
Departments may modify or develop their own forms based on
the specific needs of their department.

Modified forms are subject to
review and approval of Risk Management

Appendix A: Confined Space Entry Control Worksheet

This form is used to evaluate hazards and needed controls for developing a permit or Job Hazard Analysis specific to a confined space; check all that apply; specify details on back for developing specific permit for Entry

Location:

Confined space and work to be done:

Site Contact Information and Management:

Issues and Controls needing to be addressed for entry:

- | | |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Hazards of Work to Be Done Known With Controls Set | <input type="checkbox"/> Properly Equipped and Trained Rescue Staff Immediately Available |
| <input type="checkbox"/> Fall Hazards/ Fall Protection | <input type="checkbox"/> GFCI's/ Ground Assurance in Use on Electricals |
| <input type="checkbox"/> Entry/Egress | <input type="checkbox"/> Respiratory Equipment |
| <input type="checkbox"/> Isolation (blanking, bleeding, etc.) and Lock-out | <input type="checkbox"/> Air Supplied |
| <input type="checkbox"/> Supervisor, Rescue, Entry, Standby Trained Persons Established | <input type="checkbox"/> Escape Capability |
| <input type="checkbox"/> Pre-entry Clean and Purge | <input type="checkbox"/> Air Purifying |
| <input type="checkbox"/> Barricading/ Posting | <input type="checkbox"/> Skin Protection |
| <input type="checkbox"/> Harnesses; Retraction Gear | <input type="checkbox"/> Eye Protection |
| <input type="checkbox"/> Stand-by Person in Communication | <input type="checkbox"/> Hearing Protection |
| <input type="checkbox"/> Calibrated Pre-entry Monitoring Gear (Oxygen, LFL, Toxics); Trained in Use | <input type="checkbox"/> Lighting |
| <input type="checkbox"/> Calibrated Entry Monitoring Gear (Oxygen, LFL, Toxics) ; Trained in Use | <input type="checkbox"/> Foot Protection |
| <input type="checkbox"/> Heat Stress | <input type="checkbox"/> Other Personal Protective Equipment Gear |
| <input type="checkbox"/> Ventilation to all areas | <input type="checkbox"/> Other Controls: _____ |
| <input type="checkbox"/> Spark Proof Tools/ Explosion Proof Electricals | <input type="checkbox"/> Other Controls: _____ |
| <input type="checkbox"/> Communication Gear | <input type="checkbox"/> Other Controls: _____ |
| <input type="checkbox"/> Ladder/scaffolding | <input type="checkbox"/> Other Controls: _____ |
| | <input type="checkbox"/> Other Controls: _____ |

Appendix A: Confined Space Entry Control Worksheet (continued)

Control	Comment on gear, training, other Notes:
Hazards of Work to Be Done Known With Controls Set	
Fall Hazards/ Fall Protection	
Entry/Egress Isolation (blanking, bleeding, etc.)	
Isolation and Lock-out Pre-entry Clean and Purge	
Supervisor, Rescue, Entry, Standby Trained Persons Established	
Pre-entry Clean and Purge	
Barricading/ Posting	
Harnesses; Retraction Gear	
Stand-by Person in Communication	
Calibrated Pre-entry Monitoring Gear (Oxygen, LFL, Toxics); Trained in Use	
Calibrated Entry Monitoring Gear (Oxygen, LFL, Toxics); Trained in Use	
Heat Stress	
Ventilation to all areas	
Spark Proof Tools/ Explosion Proof Electricals	
Communication Gear	
Properly Equipped and Trained Rescue Staff Immediately Available	
GFCI's/ Ground Assurance in Use on Electricals	
Respiratory Equipment <ul style="list-style-type: none"> ✓ Air Supplied ✓ Escape Capability ✓ Air Purifying 	
Personal Protective Equipment Gear: <ul style="list-style-type: none"> - Skin Protection - Eye Protection - Hearing Protection - Lighting - Foot Protection 	
Ladder/scaffolding	
Other (Specify):	

Appendix B: Confined Space Permit

DATE: _____ **SITE LOCATION and DESCRIPTION:** _____

Time Issued/ Expires: _____ (PERMIT VALID FOR 8 HOURS ONLY). ALL COPIES OF PERMIT WILL REMAIN AT JOB SITE UNTIL JOB IS COMPLETED

PURPOSE OF ENTRY: _____

HAZARDS THAT WORK IN SPACE CAN CREATE: _____

SUPERVISOR(S) in charge of crews _____

Type of Crew _____

Phone # _____

REQUIREMENTS TO BE COMPLETED, REVIEWED, AND VERIFIED PRIOR TO ENTRY

REQUIREMENTS COMPLETED	DATE	TIME	BY
Lock Out/De-energize/Tag-out			
Line(s) Broken-Capped-Blanked			
Purge-Flush and Vent			
Ventilation			
Secure Area (Post and Flag)			
Breathing Apparatus			
Resuscitator - Inhalator			
Standby Safety Personnel			
Standby Safety Trained			
Rescue Safety Personnel			
Rescue Safety Trained			
All Involved Current on Training			
Rescue Process Effective			
Full Body Harness w/"D" ring			
Hoisting & Emergency Escape Retrieval Equipment			
Fire Extinguishers			
Lighting (Explosive Proof)			
Protective Clothing			
Respirator(s) Specified			
Hot Work/ Burning and Welding Permit			

Note: Items that do not apply enter N/A in the blank.

Stand-by personnel: _____

COMMUNICATION PROCEDURES: _____

RESCUE PROCEDURES (PHONE NUMBERS AT BOTTOM):

Rescue Personnel: _____

Phone Numbers:

Appendix C: Atmospheric Checks

Atmospheric Tests (all areas & levels)	Oxygen %*	Explosive % Lower Flammable Limit (LFL) <10% Required	Toxic ppm/mg/m ³ (less than OSHA & ACGIH Req'd.)	Time	Tester's signature (validating calibration, test results, and ventilation)
Initial Checks					
After Isolation And Ventilation					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					
Continuous Atmospheric Test					

* - Ambient air at sea level has about 20.9% oxygen. Greater than (>)19.5% is required for entry but **NOTE**; if there is less than 20.9% oxygen, there is another gas or vapor present that needs to be identified and quantified

Testing Equipment Used:
 Calibration Date and Time:
 By:

We have reviewed the work under this permit and the information contained herein. Written instructions and safety procedures have been received and are understood.

Appendix C: Atmospheric Checks (continued)

Entrants(s): (print)	
Attendant(s): (print)	

I certify that the requirement of this confined space entry permit has been met and authorizes entry into the confined space to which this permit applies. This permit is not valid unless all appropriate items are completed.

Authorization	Signature/ Time/ Date
Stand-by Person: (Print)	
Entry Supervisor: (print)	
Relief Entry Supervisor: (print)	

Permit Cancellation Date/ Time/ Reason: