

CONFINED SPACE POLICY (29 CFR 1910.146)

1. **INTRODUCTION** - This policy is designed to provide specific procedures/safe work practices for employees required to enter confined spaces. These procedures/practices will be implemented in compliance with all applicable state and federal regulations pertaining to confined space entry.
2. **SCOPE** - This policy applies to all faculty and staff. If hired, qualified contractors perform any entry or work needed inside a confined space, the contractors must have a verified confined space entry policy in place and use the appropriate gas monitors, permits, and emergency equipment. See Contractors section below.
3. **RESPONSIBILITIES**
 - a. **Department Managers** - The Director of Facilities (and their designees) commitment to confined space operations will include:
 - i. Assessing the feasibility of reducing the total number of confined spaces and entries.
 - ii. To identify, evaluate, and eliminate potential hazards within the confined spaces prior to entry.
 - iii. To train employees who may work in confined spaces on proper procedures and entry techniques.
 - b. **Human Resources (HR) Environmental Health and Safety Specialist** - will accomplish the following:
 - i. Review changes in operations and keep current with new processes and/or facilities within the company and identify new Confined Space requirements when needed.
 - ii. Work with managers and coordinate efforts to analyze, minimize occupational exposures.
 - iii. Document training records and maintain in divisions folders
 - iv. Ensure that hazard assessments have been completed to determine type of confined space (permit or non-permit) and what type of PPE to be used
 - c. **Employees** - Employees will participate in the following:
 - i. Use PPE as instructed and in accordance with training received.
 - ii. Follow the procedures outlined in this policy.

- iii. Maintain PPE and report any damage or loss to supervisor or manager.

4. DEFINITIONS

a. Confined Spaces

- i. Confined Space – an enclosed space that has one or more of the following characteristics:
 - 1. Large enough to enter.
 - 2. Has limited or restricted means for entry or exit.
 - 3. Is not designated for continuous employee occupancy.
- ii. Permit-required Confined Space – has one or more of the following characteristics:
 - 1. Contains or has a known potential to contain a hazardous atmosphere.
 - 2. Contains material with the potential for engulfment of an entrant.
 - 3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a smaller cross-section.
 - 4. Contains any other recognized serious safety or health hazard.

b. Confined Spaces Identification and Marking - The HR

Environmental Health and Safety Specialist will evaluate the entire facility and identify each confined space:

- i. A Confined Space Hazard Assessment form will be completed for each confined space. A sample form is attached to this policy. Each survey form shall be kept on file.
- ii. Every confined space must be evaluated annually for any changes.
- iii. Each confined space listed will be posted at each entry point with a sign indicating that the area is a confined space and that a written permit is required for entry. No personnel are permitted to enter a confined space without a written permit.

5. PERMIT SYSTEM - The Confined Space Entry Permit will be completed for any confined space entry. Any authorized entrant or attendant, whether an employee of St. Norbert College or a contractor, may begin the permit process by requesting a permit from their supervisor or the safety department. The written permit contains five major sections: General information, Isolation of the space, Atmospheric monitoring, Equipment required, and Additional permits required.

- a. **General Information** - This section is for recording general information about the confined space and the work project. The permit expiration date and time are established at the time the permit is approved.

- i. This time will be by the end of the work shift. The date and time that the permit is started should be entered, the confined space number, and the expiration time and date.
 - ii. The location of and a general description of the space should be filled in. A short description of the purpose for entering the confined space is also recorded.
 - iii. The names of each Entrant and Attendant involved in this entry are listed. The names of the Entry Supervisor and Rescue Team members are all listed. The rescue team can be the fire department.
 - iv. If hot work will be involved in the project, the permit number and a description of the hot work will be filled in and a copy of the hot work permit attached.
 - v. List the location of the nearest phone and phone number to reach Rescue Team members.
 - vi. The person in charge must check off that they have confirmed the training qualifications of all personnel involved in the project and have conducted a pre-entry briefing of all personnel.
- b. Isolation of Space** - The major external connections to the space are listed. Each segment includes the more common methods to secure the connection. The person in charge will evaluate the operation and circle all the actions that must be taken. As each action is completed, the block should be checked off.
- c. Atmospheric Monitoring** - This section will include verification that the gas monitor was tested/calibrated in fresh air prior to use and the time of initial monitoring. Employees must verify that we are within acceptable tolerance levels for Oxygen, Flammable Gasses, Carbon Monoxide, and other toxic gasses:
- i. O2 must be within 19.5% and 23.5%
 - ii. LEL (Lower Explosive Limit) must be below 10%
 - iii. CO must be below 35 PPM.
 - iv. H2S must be below 10 PPM.

The after ventilation section of the form is only used when initial readings were not within acceptable ranges.

- d. Equipment Required** - This section is divided into monitoring equipment, ventilation equipment, personal protective equipment (PPE), lighting, entry and emergency equipment, barriers or shields, and other equipment. Check off the blocks for any equipment required for this entry.

When all items have been completed, the person in charge will sign the form at the bottom and post the permit next to the entry to the confined space. The permit must be returned to the HR Environmental Health and Safety Specialist after the project is completed.

- e. Additional Permits** - If hot work or any other work requiring a permit will be involved in the project, the permit number and a description of the hot work/other work will be

filled in and a copy of the permit attached.

6. OPERATING PROCEDURES

a. General Rules

- i. Monitor the atmosphere in the confined space continuously during operations.
- ii. Use proper personal protective clothing and equipment.
- iii. Have an attendant on standby during the entire operation.
- iv. Ventilate the space from external connections.
- v. Use adequate lighting with a backup.
- vi. Eliminate or control all hazards.
- vii. Maintain constant communications between the attendant and entrants.
- viii. Plan for emergencies.
- ix. Have rescue equipment available and ready for use.

b. Atmospheric Monitoring - Atmospheric hazards account for the largest percentage of fatalities in confined space accidents. Attention to this area is critical. Atmospheric monitoring should always be done for oxygen content and flammable gases or vapors. The person in charge will have to make an assessment of the need to monitor for any toxic contaminants. If a toxic contaminant may be present, a copy of the Safety Data Sheet (SDS) will be available on the job site. The person in charge will find the permissible exposure limit on the SDS and enter it on the confined space permit form. A method for monitoring the toxic material will be identified and used. If necessary, the person in charge should contact the HR Environmental Health and Safety Specialist for assistance.

- i. Always monitor for:
 1. Oxygen concentration between 19.5% and 23.5%.
 2. Flammable gases or vapors below 10% lower explosive limit (LEL).
- ii. Inspect atmospheric monitoring equipment prior to use. The instrument(s) must be calibrated per the manufacturer's instructions. Allow the gas detection equipment to warm up according to the manufacturer's instructions.
- iii. Monitor the atmosphere in the area of the confined space prior to opening the entry to the confined space. If you detect an unacceptable atmosphere, find and correct the problem prior to entering the confined space.
- iv. Open the entry to the confined space and monitor the atmosphere just outside the opening. Continue monitoring as you lower the monitor slowing through the entire height of the space. If the entry is horizontal, extend the monitor as far into the space as possible. Correct any problems detected prior to entering the space. After correcting the problem, retest the atmosphere. Continue this cycle until you

obtain acceptable atmospheric readings.

- v. At least one entrant will wear an atmospheric monitor during operations in the confined space.
- vi. Anytime operations are suspended (lunch break, to obtain more tools, etc.), monitor the atmosphere again prior to reentering the space.

c. Monitor atmosphere:

- i. Prior to opening confined space.
- ii. In all areas inside confined space.
- iii. Continuously during operations.

d. Personal Protective Equipment - Required PPE will be identified by the person in charge. Entrants and attendants are responsible for obtaining and properly using any required personal protective equipment.

e. Hazard Elimination and Control - The Director of Facilities (or their designee(s)) will identify all potential hazards concerning the confined space. Each hazard will be eliminated or controlled. Hazards may exist in any of the following categories:

- i. Atmospheric conditions.
- ii. Contents or residual contents.
- iii. Potential energy.
- iv. Environment in the space.
- v. Configuration of the space.
- vi. Nature of the work.
- vii. External hazards.

f. Atmospheric Hazards - Forced fresh air ventilation is the first option for correcting an atmospheric hazard. Place the ventilator outside the space with the inlet six to ten feet from the entrance to the confined space. Extend the flexible duct from the outlet of the ventilator into the confined space. Ideally the end of the duct should be suspended approximately two feet above the bottom of the space. Ventilate the space for at least ten minutes and test the atmosphere. Continue until the atmosphere is acceptable. Ventilation should continue during the entire confined space operation.

If the space is oxygen deficient and ventilation will not correct the problem, personnel will need to wear air supplied respirator protection. If a flammable vapor or gas is present, the space may need to be ventilated. Ventilation procedures include:

- i. Force fresh air into space (forced ventilation)
- ii. Make sure source air is fresh

- iii. Get air flow to bottom of space
- iv. Use continuously
- g. Contents and Residues** - All contents should be removed from the space when possible. Clean interior surfaces from outside the space prior to entry when practical. Entrants must assume that residues may be present and protect themselves from contact with harmful materials. Contents and Residues means:
 - i. Remove contents
 - ii. Clean space
 - iii. Isolate space
 - iv. Protect personnel from contact with materials
- h. Potential Energy** - All potential energy sources must be secured. Potential energy sources include but are not limited to:
 - i. Electrical equipment and circuits
 - ii. Hydraulic equipment and systems
 - iii. Pneumatic equipment and systems
 - iv. Mechanical equipment and systems

Follow the procedures in the Lockout/Tagout policy when appropriate.

- i. Environment in the Space** - Entrants will need to address any safety issues that the environment inside the space may create. Examples include:
 - i. Slippery surfaces
 - ii. Extreme temperatures
 - iii. Extreme surface temperatures
 - j. Configuration in the Space** - The configuration of the space can make safe operations more difficult. Use particular care when any of the following are present:
 - i. Unusual shape or slope
 - ii. Low overhead clearance
 - iii. Drop offs in floors
 - iv. Complex layout
 - k. Nature of Work** - Extra caution is required if the work will include extra hazards or potentially dangerous equipment (welding, grinding, etc.).
- 7. EXTERNAL HAZARDS** - External hazards such as vehicle traffic, machinery, equipment, and processes may increase the hazards of the confined space entry. External hazards must be secured

prior to entering the confined space.

- 8. CONTRACTORS** - Any contractor performing work for St. Norbert College that may involve confined space operations will be furnished with a copy of this policy and information on any specific confined spaces they may encounter during their work. Contractors must have a verified Confined Space Entry Policy and shall use their own monitoring equipment when entering the space(s). They shall also use their own permits.

The contractor liaison for St. Norbert College will be responsible for checking for compliance with this policy. Any contractor job where this policy is not followed or an unsafe condition is discovered will be stopped immediately and the contractor informed that work may not resume until appropriate safety measures have been taken.

9. DUTIES DEFINED

- a. Entrant** - Personnel entering a confined space are responsible for the following:

- i. Wear appropriate protective clothing and equipment properly.
- ii. Maintain contact with attendant.
- iii. Follow instructions of the attendant in the event of an emergency.
- iv. Use safe work practices at all times.
- v. Monitor atmospheric testing results.

- b. Attendant** - Personnel in role of attendant during a confined space operation are responsible for the following:

- i. Maintain an accurate count of entrants in the confined space.
- ii. Monitor the activities of entrants from outside the confined space.
- iii. Order entrants to evacuate the confined space immediately when they:
 1. Observe a condition which is not allowed in the entry permit.
 2. Detect behavioral effects of hazard exposure.
 3. Detect a situation outside the space which could endanger entrants.
 4. Detect an uncontrolled hazard within the permit space.
- iv. Prevent unauthorized personnel from entering the confined space or work area.
- v. Monitor the atmosphere in the confined space.
- vi. Watch for any hazards that may affect the confined space operation.
- vii. Notify entrants to evacuate when any unsafe condition exists.
- viii. Call for help if an emergency occurs.
- ix. Use a retrieval device from outside the confined space to retrieve an injured

entrant.

c. Entry Supervisor - The Director of Facilities (or their designee) during a confined space operation is responsible for the following:

- i. Evaluate the need for entry into the confined space.
- ii. Insure that all work preparations that are necessary to complete job in the minimum time with a single entry have been completed.
- iii. Obtain a confined space permit form.
- iv. Complete the confined space permit.
- v. Check training qualification of all entrants, attendants, and contractor employees.
- vi. Conduct a pre-entry briefing of all personnel reviewing:
 1. Hazards
 2. Required PPE
 3. Hazard control
 4. Operating procedures
 5. Emergency procedures
- vii. Supervise the job to insure that safe procedures are used.
- viii. Ensure that the confined space is returned to operating condition when the job is completed.
- ix. Return the confined space permit to the HR Environmental Health and Safety Specialist.

d. Rescue Team - In the event of an emergency within a confined space, the attendant will summon the rescue team and outside rescue services. Non-entry rescue methods should be used. Rescue team members must:

- i. Have received documented rescue team training within the previous 12 months.
- ii. Be trained to use all relevant PPE, Life lines, and Safety Harnesses.
- iii. At least one member of the rescue team should be currently certified in CPR and First Aid.
- iv. Must remain on-site and readily available when needed during the entire duration of an entry.

10. EMERGENCIES - An emergency exists anytime a situation occurs which threatens or may threaten the health or safety of any personnel involved in the confined space operation, whether they are inside the confined space or outside the confined space. When an emergency occurs, the attendant will immediately:

- a. Call for the evacuation of all entrants.
- b. If the injured individual is connected to a retrieval device, it should be used to retrieve them immediately.
- c. Notify the person in charge.
- d. Notify the rescue team.
- e. Call 911, if necessary.

Under no circumstances will the attendant ever enter the confined space to attempt a rescue!

11. INSPECTION - Equipment designated for use in confined space operations will be inspected prior to each use by the personnel utilizing it. A record of this inspection will be maintained onsite until work operations cease and then they will be forwarded to the HR Environmental Health and Safety Specialist. Inspection of atmospheric monitoring equipment shall include a field calibration of each instrument.

Reference the flowchart in Appendix 1 to determine actions for confined spaces and entry.

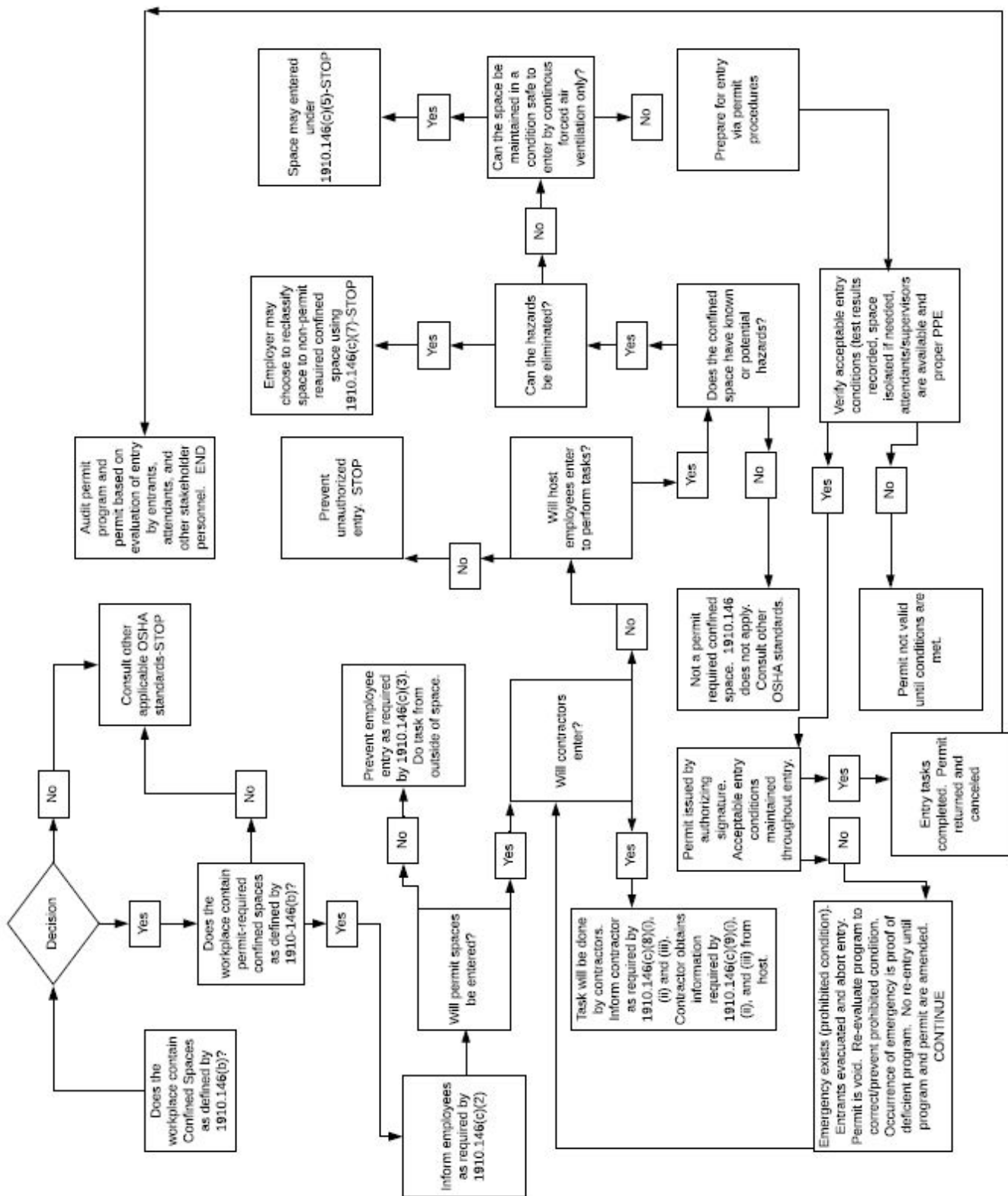
12. POLICY EVALUATION - The HR Environmental Health and Safety Specialist will conduct periodic evaluations of the workplace to ensure that the provisions of this policy are being implemented. The evaluation will include regular consultations with employees who use confined spaces and their supervisors, site inspections, air monitoring and review of records. Identified problems will be noted and addressed by the HR Environmental Health and Safety Specialist. These findings will be reported to management, and the report will list plans to correct deficiencies in the confined space policy and target dates for the implementations of those corrections.

13. DOCUMENTATION AND RECORDKEEPING - Copies of training will be retained. These records will be updated as new employees are trained and as existing employees receive refresher training. Training records shall be maintained with the HR Environmental Health and Safety Specialist.

14. POLICY REVIEW AND UPDATE - This policy shall be reviewed and updated on an annual basis or sooner if necessary.

Date	Update or Revision	By Whom
2/8/18	Initial Policy Creation with peer review	M. Eddy
6/22/18	Updated per E. Jahnke's notes	M. Eddy

Appendix 1



CONFINED SPACE HAZARD ASSESSMENT

Date of survey?	Location:	
Location of Space:		
Description of Space:		
Can be bodily entered?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Does the space meet the definition of a confined space?
Limited or restricted entry?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Not designed for continuous human occupancy?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Hazardous atmosphere?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Permit Required?
Potential for engulfment?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Internal configuration hazard?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Other serious safety hazard?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Possible atmospheric hazards:		
Possible contents hazards:		
Configuration of space:		
Other hazards:		
Reasons for entering and typical activities:		
Who usually enters space:		
Frequency of entry:		
Number of entry points:		
Alternate procedures?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Reclassification?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
External connections to space:	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Survey completed by:

Print Name Signature Date

Appendix 3

CONFINED SPACE ENTRY PERMIT

Space To Be Entered:	
Confined Space #:	Department:

GENERAL ENTRY INFORMATION		PURPOSE OF ENTRY	
Date Issued:			
Time Issued:	AM or PM (circle one)		
Date Expires:			
Time Expires:	AM or PM (circle one)		
Nearest phone location:			
Rescue Team Phone #:			

PERSONNEL LIST				
ENTRY SUPERVISOR				
NAME	SIGNATURE	EMP. NO.	DATE TRAINED	
ENTRANTS				
NAME	SIGNATURE	EMP. NO.	DATE TRAINED	
ATTENDANTS				
NAME	SIGNATURE	EMP. NO.	DATE TRAINED	
RESCUE TEAM				
NAME	SIGNATURE	EMP. NO.	DATE CPR TRAINED	DATE FIRST AID TRAINED

<p style="text-align: center;">Communication Procedures or Devices to Be Used by Authorized Entrants and Attendants:</p> <p> <input type="checkbox"/> Radio <input type="checkbox"/> Verbal <input type="checkbox"/> Other _____ </p>
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Check Measures Used to Isolate, Eliminate or Control Permit Space Hazards Before Entry		
<input type="checkbox"/> Purge – Flush and Vent	<input type="checkbox"/> Ventilation	<input type="checkbox"/> Inerting
<input type="checkbox"/> Blanking, Blocking, Bleeding	<input type="checkbox"/> External Barricades	<input type="checkbox"/> Identification & Signs
<input type="checkbox"/> Lockout / Tagout Procedure No(s):		
<input type="checkbox"/> Other (Explain)		

ATMOSPHERIC MONITORING

Gas monitor was tested/calibrated in fresh air prior to use.

PURPOSE	TIME	OXYGEN 19.5 TO 23.5%	EXPLOSIVE <10% LEL	CO <35 PPM	H ₂ S <10 PPM	TESTER SIGNATURE:
Initial:	AM or PM					
After Ventilation:	AM or PM					
	AM or PM					
	AM or PM					

EQUIPMENT USED

YES	NO	N/A	EQUIPMENT	DESCRIPTION
			Gas Testing and Monitoring	Meter _____ No. _____
			Ventilation Equipment	<input type="checkbox"/> Blower
			Personal Protective Equipment	<input type="checkbox"/> Safety Harness & Life Lines <input type="checkbox"/> Respiratory Protection <input type="checkbox"/> Hard Hat <input type="checkbox"/> Gloves <input type="checkbox"/> Aluminized Clothing (as needed) <input type="checkbox"/> Other Clothing (as needed)
			Lighting	
			Entry and Emergency Equipment	<input type="checkbox"/> Ladder <input type="checkbox"/> Winch <input type="checkbox"/> Lifelines <input type="checkbox"/> SCBA <input type="checkbox"/> First Aid Kit
			Barriers or Shields	<input type="checkbox"/> Pedestrian Barriers <input type="checkbox"/> Vehicle Barriers <input type="checkbox"/> Other Barriers
			Other Equipment (as needed)	<input type="checkbox"/> Non-sparking Tools <input type="checkbox"/> Intrinsically Safe Lighting

Additional Permits Required:

<input type="checkbox"/> Hot Work	<input type="checkbox"/> Other _____
ENTRY PERMIT APPROVAL	
I have reviewed all work authorized by this permit and the information contained herein. Written instructions and safety procedures have been received and understood. All personnel involved in this entry have been given the opportunity to review and comment on this permit. This permit is not valid unless all applicable items are completed.	
Entry Supervisor Signature:	Date: _____ Time: _____ AM or PM

ENTRY PERMIT CANCELLATION	
Entry Supervisor Signature:	Date: _____ Time: _____ AM or PM

KEEP THIS ENTRY PERMIT NEAR THE CONFINED SPACE ENTRANCE FOR THE DURATION OF THE ENTRY. WHEN THE ENTRY IS COMPLETE, SEND THE COMPLETED AND SIGNED PERMIT TO THE SAFETY OFFICE TO BE KEPT ON FILE FOR 1 YEAR AFTER THE ENTRY DATE. ENTRY PERMIT REVIEW AND APPROVAL

SAFETY DEPARTMENT SIGNATURE:	DATE:
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