Northland Community & Technical College

PERMIT-REQUIRED CONFINED SPACE ENTRY PROGRAM

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Our confined space entry program details the requirements which will prevent worker exposure to dangerous air contamination and oxygen deficiency or enrichment within confined spaces which include but are not limited to: sewers, vats, pits, tubs, vessels, boilers, silos, tanks, ducts, pipelines, bins, and compartments. It includes the recognition and evaluation of confined spaces, the establishment of a permit system, training programs, and rescue procedures to ensure safe entry.

SAFETY OFFICER

The responsibility and authority for the confined space entry program is assigned to the Safety Officer. The responsibilities include identification, location, and classification of confined spaces, development of standard operating procedures in accordance with all laws, implementation of and training in confined space entry procedures, and evaluation of program effectiveness.

IDENTIFICATION OF CONFINED SPACES

At Northland Community & Technical College, we have the following confined spaces:

Confined Space	Size (cu. ft.)	Location	Classification

See the complete list of confined space locations & classification information in the Northland Community & Technical College Compliance Manual under the "Confined Space – Assessments" tab. Hazard assessments for these spaces can also be found in this location. The College enters the Air Handling Units as long as they follow the lock out tag out procedures developed for the units. All other Confined Spaces will be entered using the confined space procedures as required by OSHA regulations.

Our goal is to minimize the hazard of our confined spaces through the use of engineering and administrative controls such as ventilation, flushing, and eliminating or minimizing time in confined spaces. Other means rather than entry will be utilized when feasible. The Safety Officer will establish a list of confined spaces, and will request additional evaluations whenever exposures are expected to change (new products, processes, jobs, equipment, etc.). All confined spaces will be appropriately labeled in the work place including class of confined space and a warning against unauthorized entry.

CONTRACTOR INFORMATION
Safety Officer will allow each contractor when they arrive on site to see the hazard assessment for the confined space that they are going to enter. The contractor then will inform the College the type of confined space equipment and program they have for entering the space. The contractor is responsible for ensuring that the proper procedures are followed and appropriate equipment is used when entering the space (tri-pod, retrieval device, body harness, four gas meter, ventilation equipment, attendant, and communication devices).

ATMOSPHERIC TESTING AND VENTILATION
Prior to entry, the employee will perform atmospheric testing. The employee will use necessary monitoring equipment based on simplicity, accuracy, reliability, and maintenance considerations. The employee will ensure that the air monitoring equipment (i.e. gas meter) is properly calibrated. All air monitoring instruments shall be calibrated as per the manufacturers guidelines (or at a minimum of once every six months). Calibration forms or records shall be kept with the instruments. It is the responsibility of the individual doing the air monitoring to ensure that the instrument is in calibration prior to use – this can be accomplished by checking the calibration records and/or having the instrument re-calibrated.

Atmospheric testing must include testing of all areas of a confined space (i.e. top, middle, bottom) – especially entries involving a descent into atmospheres that may be stratified or layered. In situations where stratified layers may exist, the atmospheric envelope should be tested at regular intervals (i.e. approximately every four feet). Care must be taken when testing potentially stratified atmospheres – so that the instruments sampling speed and detector response are not overwhelmed – (i.e. not able to keep up with rate of descent - so as to provide false or inaccurate readings). Adequate sampling time must be allowed when sampling stratified layers.

Atmospheric testing must be conducted in the following order:

1. Oxygen
2. Combustible Gases 10% LFL/LEL
3. Toxic gases / vapors, Hydrogen sulfide or carbon monoxide or any other hazardous substance

Ventilation equipment will be chosen which can provide the CFM's required. Consideration will also be given to its ability to fit into the confined spaces and allow workers the access and maneuverability needed to perform the work.

VENTILATION EQUIPMENT

Make:
Model:
CFM Output:
Storage Location:

ATMOSPHERIC TESTING EQUIPMENT

Make: MSA
Model: Altair 4
Serial #:
Regular Calibration Date: (minimum every six months – or as per manufacturers recommendation)

ENTRY PERMIT SYSTEM

The entry permit system provides for identification of confined spaces and hazards, continuous atmospheric testing or monitoring, and an emergency rescue plan.

A written permit form must be completed for each entry into a confined space. It must contain all the information listed on the Entry Permit forms, and must be kept on file in the compliance manual.

The employee will complete a permit form for Permit-Required Confined Spaces. These will be used to train workers and authorize entry for a period of one work shift.

PRE-ENTRY PROCEDURES

- Obtain permit.

- Disconnect lines that may convey injurious substances by POSITIVE means (utilize Lockout Procedure(s)).

- Calibrate monitoring equipment where used. Calibrate relative to oxygen content of the ambient air at the time of sampling. Calibration of the sampling device relative to oxygen content shall be performed where the 20.9% natural content of oxygen in the air is most likely to occur. NOTE: Oxygen calibration should not be performed near a confined space opening.

- Records are kept with the equipment and must be kept for at least one year. Test atmosphere where indicated and record results on appropriate form (Entry Permits). NOTE: confined spaces with a combustible atmosphere greater than 10% of the lower explosive limit, shall NOT be entered even if a breathing apparatus or respirator is used.

- Personal Protective Equipment will be issued when injurious or corrosive substances are present and their use will be enforced. An eyewash and safety shower will also be provided if these substances are present. (A hose with power nozzle and portable eyewash will be adequate.)

- Interconnected spaces will be individually tested; the most hazardous condition will govern the procedures to be followed.

- Ventilation shall be used wherever feasible to augment natural ventilation.

- Prior to entry into these spaces, the following spaces will be ventilated at least 3 times the total volume (cubic feet) of air prior to entry. The permit will describe the length of time.

- Continuous Air Monitoring shall be performed for: (see the previous section for gas testing order):
    - Oxygen enrichment condition/equipment requires oxygen monitoring to ensure O_2 does not exceed 23%.
    - Oxygen deficiency condition/equipment requires oxygen monitoring to ensure O2 does not fall below 19.5%.
    - Combustible Gases (measured against 10% LFL/LEL).
    - Hydrogen sulfide or carbon monoxide or any other hazardous substance the Northland Community & Technical College has reason believe exists in the

confined space.

- No smoking or open flames shall be allowed within 10 feet of confined space.

ENTRY PROCEDURES

1. Permit must be completed and signed by all authorized entrants and attendants trained in basic first aid and adult cardiopulmonary resuscitation**,** and posted at the entrance. All individuals signing the permit will inspect the space to ensure all precautions are established.

2. Residue or sludge will be removed before entry by filling the space with water and draining, or by the use of a high powered hose nozzle to break up the residue, or other cleaning methods.

3. Grounding or Ground Fault Interrupters will be used with lighting and electrical tools.

4. A trained attendant must be posted outside the confined space will maintain visual or verbal contact with the employee AT ALL TIMES.

5. All trained attendants will be instructed NOT TO ENTER the space under any circumstances.

6. Work completed will be written across the face of the permit when the job is complete. The permit will be sent to the Safety Officer and filed in the compliance manual.

RESCUE PROCEDURES

1. Trained attendant will sound the alarm: two-way radio, telephone, or other means of summoning emergency (see permit); to alert the supervisor (see permit).

2. Trained attendant shall be familiar with the permit procedure, be alert for changing conditions, know how to summon assistance immediately, and know how to use emergency rescue equipment. Attendant will take all emergency action short of entering space.

3. The RESCUER shall be the local Fire Department or another trained service that is capable of conducting a rescue.

4. The SUPERVISOR will arrange for the Rescuer to be met and escorted to the confined space.

5. The RESCUER shall have breathing air, a lifeline, a harness, a hoisting device, and an attendant trained in CPR before entering a confined space to effectively perform an emergency rescue.

EMPLOYEE TRAINING

All appropriate employees will be trained in the definition and recognition of confined spaces, their hazards, and rescue procedures.

Northland Community & Technical College will conduct initial training online. Re-training will be scheduled whenever personnel changes, process or product changes, confined space changes occur, or the program review indicates inadequacies. Refresher training will be conducted on an

annual basis.

PROGRAM REVIEW
A review will be conducted at least annually of the effectiveness of the Northland Community & Technical College confined space entry procedure.

RECORD KEEPING
All records will be kept in the compliance manual. The compliance manual is located in the Safety Officer's office.

APPENDICES

CONFINED SPACE ENTRY PERMIT

GENERAL INFORMATION Space to be Entered:

Purpose of Entry:

Confined Space Entry No:

Location/Area:

Authorized Duration of Permit: Date: Time:

Date: Until Time:

☐

EQUIPMENT REQUIRED FOR ENTRY AND WORK

PPE:
☐ NA
_____

Respiratory Protection:
☐ NA
_____

Ventilation:
☐ 2000 CFM / Welder

Illumination:
_____

Atmospheric Testing/Monitoring (Check all that apply):
☐ _____ Monitor / Meter Calibration Date:_____

☐ Other (Identify):

Communication Method & Equipment:

☐ Verbal / Visual ☐ Equipment (List): _____

☐
☐
☐
☐
☐
☐
☐

Non-Entry Rescue Equipment (Check all that apply): ☐ Harness
☐ Lanyard ☐ Tripod ☐ Wristlet

☐ Other (List): _____

TESTING RECORD		**PRE-ENTRY**	**PERIODIC MONITORING RESULTS**				
Required			Results	Results	Results	Results	Results
Oxygen	>19.5% <23.5%						
Flammability	<10%LEL/LFL						
H_2S	<10 ppm						
CO	<35 ppm						
Other (If Potential Exists)							
Other:							
	Time						
Initials	***Tester***						

AUTHORIZATION BY ENTRY SUPERVISOR

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space.

Printed Name	**Signature**	**Date**	**Time**

THIS PERMIT MUST BE POSTED AT CONFINED SPACE ENTRY POINT

PERMIT REQUIRED CONFINED SPACE
RECLASSIFICATION FORM

1. **Prior to reclassifying a Permit Required Confined Space, the Entry Supervisor is responsible for completing this form in its entirety.**

2. **This form must be visibly posted at the entrance to the confined space throughout the duration of the job.**

3. **This form cannot be used if Hot Work is to be performed in a confined space.**

4. **Return this form to the Safety Officer following completion of work.**

Department:_____

Confined Space Name:_____

Work Description:_____

Identify what was done to eliminate all hazards that allow reclassification to a non-permit required confined space (Place a check mark in each box):

☐ Air monitoring has been conducted for the following hazards:

POTENTIAL ATMOSPHERIC HAZARD		**PRE-ENTRY TEST RESULTS**
Oxygen	<23.5% and >19.5%	
Flammability	<10% LEL/LFL	
H_2S	<10 PPM	
CO	<35 PPM	
Other		

☐ This CONFINED SPACE will not pose a potential atmospheric hazard throughout the duration of the job.

☐ The following applicable physical hazards have been eliminated and will remain eliminated throughout the duration of the job:

☐ Equipment Locked Out ☐ Electrical Equipment Grounded
☐ Vessel Drained / Flushed ☐ Chemical Lines Blinded
☐ List any other requirements needed to reclassify this confined space:

_____

_____

I confirm that this Permit Required Confined Space (PRCS) can now be reclassified as a Non-Permit Required Confined Space.

_____ _____

Entry Supervisor's Signature ***Date***

HOW TO RECLASSIFY A PERMIT REQUIRED CONFINED SPACE

Permit Required Confined Spaces may be reclassified to a non-permit confined space only under the following procedures:

1. If the permit space poses no actual or potential atmospheric hazards, and if all hazards within the space can be eliminated (removed, locked-out, etc…) without entry into the space, the space may be reclassified as a non-permit required confined space for as long as the non-atmospheric hazards remain eliminated. **If Hot Work is to be performed in a confined space, this Reclassification Form may not be used – an Entry Permit is required.*

2. If entry is required to eliminate hazards, an entry permit must be completed. If testing and inspection during that entry demonstrate that the hazards have been eliminated, the space may be reclassified (using this form) as a non-permit required confined space for as long as the hazards remain eliminated. **NOTE:** Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards.

3. The basis for determining that all hazards in a permit space have been eliminated shall be documented by completing the Reclassification Form. The completed Reclassification Form shall be posted at the entrance to the confined space and be visible to all entrants.

4. If a hazard arises, all entrants must exit immediately and the space shall then be re-evaluated to determine whether it must be reclassified as a permit space.

5. Reclassification Forms are good for one working shift and must be returned to the Safety Officer upon their expiration. They will be kept and filed by the Safety Officer for a minimum period of one year.