Permit Required
Confined Space Program

Program originated: 01/2002
Revised: 5/2020
Reviewed by: David Oesterle, Occupational Safety Coordinator
FORWARD

The University of Northern Iowa Permit Required Confined Space Program is a guide intended to establish and maintain uniform compliance with Occupational Safety and Health Administration, 29 CFR, General Industry, 1910.146, Permit Required Confined Spaces, and ensure the safety of personnel required to enter and work in a permit required confined space.

The Environmental Health and Safety Office is responsible for oversight of compliance with local, state, and federal safety and health regulations applicable to the University. The Permit Required Confined Space Program establishes minimum policies and procedures required for entry into a University permit required confined space.

The Environmental Health and Safety Office is responsible for overseeing compliance of entry into permit required confined space. An inventory of permit required confined spaces is kept at the Facilities Management.

University departments and contractors authorized entry into a University permit required confined space must comply with applicable local, state, and federal regulations including University policies and procedures.

University departments and contractors may implement alternative permit required confined space entry procedures considered equal to or more stringent than the minimum policies and procedures established by the University Permit Required Confined Space Program.
I. Scope and Application

The University Permit Required Confined Space Program is intended to manage safe entry into a University of Northern Iowa permit required confined space. The program establishes mandatory minimum procedures for safe entry and exit.

Entry into a University permit required confined space must be completed by authorized personnel trained to recognize permit required confined space hazards. Permit Required Confined Space Entry Permits are required for authorized entry to all permit required confined spaces.

Non-University personnel are expected to comply with the University Permit Required Confined Space Program or to demonstrate more stringent procedures that will be utilized during entry into a University permit required confined space.

II. Definitions

A. Unauthorized entry

Unauthorized entry of a permit required confined space is an unsafe act involving willful disregard for University safety rules. Failure to comply with the procedures of the Permit Required Confined Space Program shall be addressed with applicable University disciplinary procedures.

B. Confined Space

A space that:
1. Is large enough and so configured that an employee can bodily enter and perform assigned work and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry and
3. Is not designed for continuous employee occupancy.

C. Permit Required Confined Space

A confined space that has one or more of the following characteristics:
1. contains or has a potential to contain a hazardous atmosphere
2. contains a material that has the potential for engulfing an entrant
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section or
4. contains any other recognized serious safety or health hazard.
D. Non-Permit Confined Space
   A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

E. Reclassified Non-Permit Confined Space
   A Permit Required Confined Space that has been tested and documented to be hazard free. Upon completion of testing, documentation, and notification of dispatch this space may be entered for maintenance purposes as a Non-Permit Confined Space. Space returns to Permit Required Confined Space status upon exiting.

F. Hot Work Permit
   Written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

G. Attendant
   An individual stationed outside a permit space who monitors the authorized entrants and who performs all attendant’s duties assigned in the University Permit Required Confined Space Program.

H. Authorized Entrant
   An employee authorized by the employer to enter a permit space.

I. Entry Supervisor
   The person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this program.

J. Entry Permit (permit)
   The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified by 29 CFR General Industry, 1910.146 paragraph (f) Entry Permit.
K. Dispatch

During normal University working hours, dispatch is performed at the Facilities Management by 2-way radio or contacting 3-4400 by telephone. During non-university hours, dispatch is performed by the University of Northern Iowa Public Safety by 2-way radio or contacting 3-4000 by telephone.

L. Design & Construction

Personnel responsible for oversight of renovation, remodel, or construction of existing or new facilities on University property.

M. Emergency

Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

N. Immediately Dangerous to Life or Health (IDLH)

Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual’s ability to escape unaided from a permit space.

O. Safe Zone

An area immediately surrounding a Permit Required Confined Space.

III. Responsibilities

A. Plan Administrator

The University Safety Officer or designated representative is responsible for implementation of the University Permit Required Confined Space Program. Primary responsibilities include but are not limited to:
1. Interaction and communication with regulatory agencies
2. Developing compliance strategies
3. Communication with University administrative personnel
4. Delegation of implementation responsibilities
5. Evaluation of the workplace to determine if any spaces are permit required confined spaces and
6. If the workplace contains permit spaces, the employer shall inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces.
B. University Department / Unit / Division

University departments designate employee(s) authorized by training to participate in a permit required confined space entry applicable to departmental facility responsibilities. University departments can develop and implement a departmental permit required confined space entry procedure equal to or more stringent than the University Permit Required Confined Space Program. Alternate permit required confined space entry procedures developed by University departments must be approved by the University Safety Officer or designated representative prior to entry into a University permit required confined space. University departments shall establish and maintain records, information, and employee training required by local, state, and federal regulations and University policies and procedures.

C. Entry Supervisor

The duties of an Entry Supervisor include:
1. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
2. Verifies by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing and allowing entry to begin
3. Terminates the entry and cancels the permit as required when either: i) the entry operations covered by the entry permit have been completed or ii) a condition that is not allowed under the entry permit arises in or near the permit space
4. Verifies that rescue services are available through Cedar Falls Fire Rescue ((see page 10 – section VI-A of this document for more information) and that the means for summoning them are operable
5. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations and
6. Determines whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained

D. Authorized Entrant

The duties of an Authorized Entrant include:
1. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
2. Properly uses equipment as required by the University Permit Required Confined Space Program
3. Communicates with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space as covered under the duties of the attendant.

4. Alerts the attendant whenever
   i) the entrant recognizes any warning signs or symptoms of exposure to a dangerous situation, or
   ii) the entrant detects a prohibited condition and

5. Exits from the permit space as quickly as possible whenever:
   i) An order to evacuate is given by the attendant or the entry supervisor
   ii) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation,
   iii) The entrant detects a prohibited condition, or
   iv) An evacuation alarm is activated.

E. Attendant

The duties of an Attendant include:
   1. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
   2. Is aware of possible behavioral effects of hazard exposure in authorized entrants
   3. Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants accurately identifies who is in the permit space
   4. Remains outside the permit space during entry operations until relieved by another attendant
   5. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space if any condition in (6) arises
   6. Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
      i) if the attendant detects a prohibited condition
      ii) if the attendant detects the behavioral effects of hazard exposure in an authorized entrant
      iii) if the attendant detects a situation outside the space that could endanger the authorized entrants or
      iv) if the attendant cannot effectively and safely perform all the duties required of an attendant per the University Permit Required Confined Space Program
   7. Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards
8. Takes the following actions 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 the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space
9. Performs non-entry rescues as specified by the employer's rescue procedure (see page 10 for more information) and
10. Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

**An attendant may monitor only one permit required confined space entry location at a time.**

F. Public Safety

Public Safety Officers are responsible for control of pedestrian and vehicle traffic in the surrounding area during the entry of a permit required confined space located outside of University buildings.

G. Cedar Falls Fire Rescue (CFFR)

Primary emergency response/rescue agency assigned permit required confined space rescue according to a Memorandum of Understanding, Confined Space Rescue and Emergency Medical Service with the City of Cedar Falls, Department of Public Safety, Fire Division. (See Exhibit 1)

H. Design & Construction

Responsible for informing contractor(s) they hire about the elements of the University Permit Required Confined Space Program. If contractor(s) decide to use their own permit required confined space procedure, it is the responsibility of Design & Construction to determine if the contractor(s) procedures are as stringent if not more stringent than the University Permit Required Confined Space Program.

IV. **Employee Information and Training**

A. University Permit Required Spaces are assigned unique inventory numbers and signs are posted “**DANGER—PERMIT REQUIRED CONFINED SPACE—DO NOT ENTER**” (See Exhibit 2) to warn individuals about the potential hazards of unauthorized access to permit required confined spaces.
B. Contract employer(s) are responsible for their employee(s) compliance with local, state, and federal health and safety regulations including training.

C. The University shall provide training so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this section.

D. Training shall be provided to each affected employee:
   1. Before the employee is first assigned duties under this section
   2. Before there is a change in assigned duties
   3. Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained
   4. Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures as listed in the University Permit Required Confined Space Program or that there are inadequacies in the employee’s knowledge or use of these procedures.

E. The training shall establish employee proficiency in the duties required by the University Permit Required Confined Space Program and shall introduce new or revised procedures, as necessary, for compliance with the University Permit Required Confined Space Program.

F. The employer shall certify that the training required by the University Permit Required Confined Space Program has been accomplished. The certification shall contain each employee’s name, the signature or initials of the trainers, and the dates of training. The certification shall be maintained by the individual departments and be available for inspection by employees and their authorized representatives.

V. Permit Required Confined Space Entry Equipment

University equipment and devices used during entry of a permit required confined space must be maintained and inspected according to manufacturer’s recommendations. The following are expected to be minimum equipment requirements:

1. Communication equipment which will enable the attendant to communicate with dispatch, monitor entrant status and enable the attendant to alert entrants of the need to evacuate the space.

2. Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency.
3. Pedestrian, vehicle or other barriers as necessary to protect entrants from external hazards.

4. Equipment, such as ladders, needed for safe ingress and egress by authorized entrants.

5. Personal protective equipment or devices must be selected for the specific hazards known to be present in a permit required confined space.

6. Ground fault protection must be provided on electrical service in the permit required confined space.

7. Portable fire extinguishers must be available within close proximity of the permit required confined space when a potential for fire exists.

8. Proper lock out/tag out equipment must be provided for use in specific lock out/tag out procedure.

9. To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. If the vertical entry in to permit required spaces is 5 feet or greater, a mechanical retrieval system shall be utilized. Retrieval systems shall meet the following requirements.
   i) Each authorized entrant shall use a full body harness, with a retrieval line attached at the center of the entrant’s back near shoulder level, above the entrant’s head, or at a another point which the employer can establish presents a profile small enough for the successful removal of the entrant. Wristlets may be used in lieu of the chest or full body harness if the employer can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.
   ii) The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

10. If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.
11. Mechanical forced air ventilation with fresh air shall be the preferred method for control of a potential hazardous atmosphere.

12. A direct read four-gas monitor must be used for atmospheric testing prior to initial entry of a permit required confined space. The meter must be used by at least one of the authorized entrants for the purpose of constantly monitoring the atmosphere to ensure acceptable entry conditions. Monitors are to be maintained by the department using them.

13. Fuel gas cylinders that are designed to be refilled are prohibited from a permit required confined space.

VI. Emergency Response

A. In accordance with the signed Memorandum of Understanding between the University of Northern Iowa, the City of Cedar Falls, and Sartori Emergency Medical Services (See Appendix 1), Cedar Falls Fire Rescue and Sartori Emergency Medical Services agree to be first responders in emergency situations related to the University Permit Required Confined Space Program. Cedar Falls Fire Rescue will provide their own rescue equipment.

B. Prior to entry into a permit required confined space, Cedar Falls Fire Rescue must be put on notice of the time and place of entry. Entry into a permit required confined space can only be made if the Cedar Falls Fire Rescue is available for response to an emergency extrication situation. If at any time during an entry Cedar Falls Fire Rescue is unable to respond to an emergency extrication, they are to immediately notify the designated entry supervisor. All authorized entrant personnel shall immediately be removed from the permit required confined space until notification that Cedar Falls Fire Rescue is again available for emergency response.

C. In the event of an emergency situation that the attendant recognizes as potentially life or health threatening, the attendant SHALL NOT ENTER THE PERMIT REQUIRED CONFINED SPACE, but must take the following steps:

1. Direct authorized entrants to exit the permit required confined space.
2. If an authorized entrant is unable to exit the permit required confined space, the attendant shall notify Cedar Falls Fire Rescue, whether directly or through dispatch, of the emergency situation.
3. Start non-entry rescue procedures.
4. Notify entry supervisor of situation.
5. Assist authorized entrants in exiting permit required confined space but UNDER NO CIRCUMSTANCES SHALL THE ATTENDANT ENTER THE PERMIT REQUIRED CONFINED SPACE.
6. Stay at the permit required confined space and give assistance as directed by Cedar Falls Fire Rescue.

D. Personnel participating or aiding in emergency rescue shall be certified for first aid and cardiopulmonary resuscitation (CPR).

E. Actions to be taken during emergency response situations shall be included in Permit Required Confined Space Program training given to University employees.

F. Cedar Falls Fire Rescue shall be provided access to permit required confined spaces whenever necessary to develop appropriate rescue plans and practice rescue procedures.

G. Emergency rescue equipment shall be maintained according to manufacturer's recommendations and immediately available for rescue. Cedar Falls Fire Rescue emergency rescue equipment may be supplemented with university equipment if desired by Cedar Falls Fire Rescue.

VII. Permit Required Confined Space Entry

General Requirements

A. All University confined spaces shall be considered permit required confined spaces until confirmed and documented otherwise by pre-entry evaluation.

B. A University permit required confined space may be reclassified to non-permit status and entered without attendant provided that a properly executed written Pre-Entry Checklist For Non Permit Required Confined Spaces (See Exhibit 3A) or Permit Required Confined Space Reclassification Form (See Exhibit 3B) shows that atmospheric hazards, engulfment hazards, entrapment or space configuration hazards, and any other hazards capable of causing death or serious physical harm have been adequately controlled or determined to be non-existent.

C. If "Hot Work" is to be performed in a permit required confined space or a reclassified permit required confined space a "Hot Work Permit" (See Exhibit 4) shall be satisfactorily completed by the appropriate manager prior to performing any hot work. When hot work is performed forced ventilation shall be provided and the work atmosphere shall be monitored for flammable gasses, oxygen content and carbon monoxide.

D. Fuel gas cylinders that are designed to be refilled are prohibited from a permit required confined space.
Plan for Entry into Permit Required Confined Space

Appendix A to 29 CFR 1910.146 – Permit Required Confined Space Decision Flow Chart may be used as a guide to establishing mandatory minimum conditions required for access to a permit required confined space.

The University of Northern Iowa Plan for Entry into Permit Required Confined Space includes but is not limited to the following:

1. Complete project briefings with applicable manager, supervisor, authorized entrants, entry supervisor, attendant, and other affected personnel and discuss anticipated space hazards, scope of work, Material Safety Data Sheet information, personnel assignments, scope of testing, applicable lock out/tag out procedures and emergency response.

2. Contact Cedar Falls Fire Rescue to notify them of the approximate time and location of the Permit Required Confined Space Entry.

3. Designated entry supervisor shall complete and sign a Permit Required Confined Space Entry Permit (See Exhibit 5).

4. Establish a safe zone and assign an attendant to monitor the permit required confined space entry. An attendant shall not monitor more than one permit required confined space entry at a time. Public Safety may be asked to assist with control of pedestrian and vehicle traffic as necessary.

5. Complete air quality testing with a direct read four-gas instrument to confirm if acceptable atmospheric conditions exist in the permit required confined space. Testing is to be completed by personnel who have been trained in the operation of the instrument being used for the testing. Implement continuous air monitoring and ventilation as necessary for maintaining acceptable air quality for the duration of the entry.

6. Isolate source(s) of stored energy following specific lock out/tag out procedures.

7. Verify and test communication links with dispatch center via two-way radio or telephone at the site. Initiate radio communication at least hourly to report progress, personnel status, and confirm communication to be operable.

8. Set up and equip authorized entrants with applicable emergency extraction hardware and harness.
9. Contact Cedar Falls Fire Rescue to notify them of start of entry. If at any time Cedar Falls Fire Rescue notifies entry supervisor or attendant that they are unavailable for rescue, authorized entrants are to be immediately evacuated from permit required confined space.

10. Monitor and maintain safe entry conditions as necessary with periodic testing, inspection, and communication with authorized entrants for the duration of the entry.

11. Terminate the entry operation when
   i) project has been completed
   ii) the attendant detects a prohibited condition
   iii) the attendant detects the behavioral effects of hazard exposure in an authorized entrant
   iv) the attendant detects a situation outside the space that could endanger the authorized entrants, or
   v) the attendant cannot effectively and safely perform all the duties required of an attendant per the University Permit Required confined Space Program.

12. Contact Cedar Falls Fire Rescue and dispatch to notify them of completion of entry.

**Plan for Entering into a Reclassified Non-Permit Confined Space**

A University of Northern Iowa permit required confined space may be reclassified to non-permit status and entered without attendant provided that the following mandatory sequence of steps and events is followed by the authorized employee and that a properly executed written Pre-Entry Checklist For Non permit Required Confined Spaces (See Exhibit 3A) or Permit Required Confined Space Reclassification Form (See Exhibit 3B) is completed and present at the entry site.

**Pre-Entry Phase**

1. Inform immediate supervisor of the entry and location.

2. Identify work zone and barricade opening as needed to protect workers, pedestrians, and motorists.

3. Test the atmosphere in the permit required confined space with a suitable calibrated 4-gasmonitor and record results on pre-entry form.

**Note:** If a hazardous atmosphere is detected provide mechanical ventilation and retest. If hazardous atmosphere can not be eliminated by mechanical ventilation then DO NOT ENTER. Contact immediate supervisor for assistance.
4. Evaluate potential engulfment hazards. Potential engulfment hazards must be eliminated prior to entry. Verify hazard control on pre-entry form.

5. Evaluate entrapment hazards. Potential entrapment hazards must be eliminated prior to entry. Verify hazard control on pre-entry form.

7. Evaluate all hazardous energies and flows (e.g. exposed energized electrical conductors, moving machinery and chemical lines that may discharge into the space). All hazardous energies and flows must be controlled and locked out/ tagged out prior to entry. Verify hazard control on pre-entry form.

8. Evaluate all space configuration hazards. Potential space configuration hazards must be eliminated prior to entry. Verify hazard control on pre-entry form.

9. Evaluate all other recognizable potential hazards (e.g. falling object hazards, hazards created by worker activities or any other dangerous conditions). All potential hazards must be eliminated or controlled prior to entry. Verify hazard control on pre-entry form.

10. Complete either a written Pre-Entry Checklist For Non permit Required Confined Spaces (See Exhibit 3A) or Permit Required Confined Space Reclassification Form (See Exhibit 3B) and sign.

**Note:** If all above hazard conditions can not be verified as acceptable entry conditions, permit required confined space can not be reclassified as a Non-permit Confined Space. All procedures for Permit Required Confined Space entry would then apply.

**Entry Phase**

11. Inform dispatch of specific location, intent to enter, and anticipated amount of time necessary to complete necessary work in reclassified space.

12. Ensure that atmospheric testing equipment is on and working properly

13. Enter reclassified space and perform necessary tasks.
14. If hazards arise within a permit space that has been reclassified as a Non-permit Confined Space each employee in the space shall exit the space. The employer shall then reevaluate the space and determine whether it must be reclassified as a permit space, in accordance with other applicable sections of this University Permit Required Confined Space Program. DO NOT RE-ENTER UNTIL ALL HAZARDS HAVE BEEN RE-EVALUATED. Until that time the space is to be considered a permit required confined space.

Post Entry Phase

15. Notify dispatch when entry is completed.

16. Remove any barricades.

17. File any written records with manager/supervisor.

VIII. Records

1. University departments responsible for implementation of the Permit Required Confined Space Program shall maintain training records including employee name and/or signature, date(s) of the training, signature or initials of trainer(s), and synopsis of course content. Training and education records shall be available for review. A copy of all training records should be sent to the office of the University Safety Manager.

2. Entry permits shall be valid for no longer than one working shift. Confirmation of safe entry conditions must be documented every time a space is entered.

3. Copies of Permit Required Confined Space Entry Permits, Pre-Entry Checklist For Non permit Required Confined Spaces, Permit Required Confined Space Reclassification Forms, and Hot Work permits are to be kept by the departments completing the form for at least 1 year to facilitate the review of the Permit Required Confined Space Program.

4. Electronic computerized records and documentation shall be acceptable certification and support compliance with applicable regulations and University policies and procedures.
5. The University of Northern Iowa Permit Required Confined Space Program shall be reviewed annually or whenever there is reason to believe that the measures taken under the permit space program may not protect employees. Review will be conducted with the participation and input from employees and AFSCME Council 61 representation. The University Permit Required Confined Space Program will be revised to correct deficiencies found to exist. Examples of circumstances requiring the review of the permit space program are: any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

The University of Northern Iowa Permit Required Confined Space Program is designed to comply with local, state, and federal regulations applicable to the University of Northern Iowa, Cedar Falls, Iowa. Annual review of the program shall be completed with the participation and input from employees and AFSCME Council 61 representation.
EXHIBIT 1
RESOLUTION NO. 12-00-01

RESOLUTION APPROVING AND AUTHORIZING THE EXECUTION OF A CONFINED SPACE RESCUE AGREEMENT WITH THE UNIVERSITY OF NORTHERN IOWA.

WHEREAS, City Staff has recommended to the City Council of the City of Cedar Falls, Iowa, that said Council approve and authorize the Confined Space Rescue Agreement with the University of Northern Iowa, and

WHEREAS, the City Council of the City of Cedar Falls, Iowa, deems it in the best interest of the City of Cedar Falls, Iowa, to approve and accept said agreement.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Cedar Falls, Iowa, that the Confined Space Rescue Agreement with the University of Northern Iowa, for the purpose of performing emergency rescue is hereby approved and the Mayor and City Clerk are hereby authorized to execute said agreement on behalf of the City of Cedar Falls, Iowa.

ADOPTED this 13th day of March, 2000.

[Signature]
Joel Crews, Mayor

ATTEST:
[Signature]
Gary L. Hesse, CMC, City Clerk
MEMORANDUM OF UNDERSTANDING
CONFINED SPACE: RESCUE & EMERGENCY MEDICAL SERVICE

The University of Northern Iowa's regulatory responsibilities includes compliance with Occupational Safety and Health Administration, General Industry, 1910.146, Permit-required confined space standards.

This memorandum of understanding is generated to document an emergency response agreement for the purpose of performing emergency rescue from a permit-required confined space on the University of Northern Iowa's campus. Cedar Falls Fire Rescue and Sartori Emergency Medical Service are recognized as the primary agencies which will be requested to provide emergency services for rescue from a university permit-required confined space.

Cedar Falls Fire Rescue and Sartori Emergency Medical Service each hereby agree and certify, by their signatures below, that each agency will respond to the emergency need related to the referenced University of Northern Iowa's permit-required confined spaces in accordance with the University's emergency standard operating procedures.

In consideration, the University of Northern Iowa will assist all local agencies designated to respond to a confined space emergency with development of joint standard operating procedures required for an effective, efficient, and safe permit-required confined space rescue.

The university will also provide and maintain a current inventory of permit-required confined spaces, material safety data sheets for hazardous materials known or suspected to be within a permit-required confined space, a copy of the written confined space program utilized by the university, and coordination of site visits or joint training ventures.

This agreement shall remain in effect until one of the parties gives at least 90 calendar days advance written notice to the other parties of termination.

Dean Short's 12-12-96
Director, U.N.I. Public Safety
University Safety Officer

Mayor Ed Stachovic 10/28/96
City of Cedar Falls

Michael Hall, Supervisor 11-20-96
Paramedic Service
Sartori Emergency Medical Service
EXHIBIT 2
DANGER
PERMIT-REQUIRED
CONFINED SPACE
DO NOT ENTER

Call 273-4400

Space No.
EXHIBIT 3A
PRE-ENTRY CHECKLIST FOR NON PERMIT REQUIRED CONFINED SPACES

NAME OF CONFINED SPACE: ___________________________ DATE: ___________________________
CHECKLIST COMPLETED BY: _____________________________

MINIMUM CONDITIONS FOR ENTRY
If the specified conditions are met, and hazard control is verified on this checklist then one or more persons may enter the confined space without an entry permit and a stand-by person (attendant). If the specified conditions cannot be met and/or hazard control cannot be verified, DO NOT ENTER. Contact immediate supervisor for assistance.

Oxygen: Minimum 19.5% and Maximum 23.3%
Flammable Gasses: No greater than 10% of LFL
Flammable Dusts: Must not reduce visibility to <5'
Engulfment Hazards: No engulfment hazard may be present
Hazardous Flows: Must be secured and locked/tagged out
Hazardous Energies: Must be secured and locked/tagged out
Other Toxic Substances: No greater than PEL for substance
External Hazards: External hazards must be controlled

VERIFICATION OF HAZARD CONTROL

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<th>HAZARD</th>
<th>METHOD/MEANS OF HAZARD CONTROL</th>
<th>VERIFICATION OF HAZARD ELIMINATION</th>
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<td>En gulft ment Hazards</td>
<td>All actual engulfment hazards must be eliminated prior to entry.</td>
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<td>En trance ment Hazards</td>
<td>All actual entrapment hazards must be eliminated prior to entry.</td>
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<tr>
<td>Hazardous Energies</td>
<td>All actual hazardous energies (exposed electrical conductors and moving machinery) must be secured and locked/tagged out prior to entry.</td>
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RECORD OF CONFINED SPACE AIR TESTING

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EMERGENCY PROCEDURE

If a hazardous condition is detected or perceived immediately evacuate the confined space. Do not re-enter. Contact immediate supervisor for assistance. No person will re-enter the confined space until all hazards have been re-evaluated and eliminated. In the event of an emergency, use nearest telephone or two-way radio to call 911 to summon emergency assistance.
EXHIBIT 3B
UNIVERSITY OF NORTHERN IOWA
PERMIT REQUIRED CONFINED SPACE
RECLASSIFICATION FORM

ENTRANT________________________________ DATE____________

CONFINED SPACE # ________  LOCATED AT_____________________

ESTIMATED AMOUNT OF TIME IN SPACE ___________________________

1. SUPERVISOR NOTIFIED?  Y   N   WHO______________________

2. WORK ZONE SECURED AND PUBLIC PROTECTED?  Y   N

3. ATMOSPHERE EVALUATION - (RECORD LEVELS)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>O₂ (19.5% - 23.5%)</td>
<td>Flammable Gas (&lt;10% of LFL)</td>
</tr>
<tr>
<td>CO (&lt;35 PPM)</td>
<td>H₂S (&lt;10 PPM)</td>
</tr>
</tbody>
</table>

4. DOES AN ENGULFMENT HAZARD EXIST?  Y   N

5. DOES AN ENTRAPMENT HAZARD EXIST?  Y   N

6. ANY HAZARDOUS ENERGIES/FLOWS NOT SECURED WITH LOCK OUT / TAG OUT?  Y   N

7. ANY OTHER UNCONTROLLED HAZARDS?  Y   N

   NOTE: DO NOT CONTINUE IF ANY Y'S ARE CIRCLED ON 4-7

8. HAS DISPATCH BEEN NOTIFIED OF ENTRY?  Y   N

   TIME______________________________

9. HAS DISPATCH BEEN NOTIFIED OF EXIT?  Y   N

   TIME______________________________

SIGNATURE_________________________________________

COPIES OF THIS FORM TO BE KEPT BY THE DEPARTMENT FOR AT LEAST 1 YEAR
University of Northern Iowa
Hot Work Permit

DATE / TIME PERMIT ISSUED

DATE / TIME PERMIT EXPIRES

LOCATION:

DESCRIPTION OF HOT WORK PROJECT:
(What is being done and who is doing it)

CHECKLIST

1. Continuous air monitoring required
2. Natural ventilation established
3. Forced – air mechanical ventilation
4. Lock out / Tag out applicable
5. Fire hazards controlled or removed
6. Fire watch established
7. Fire suppression equipment on site
8. Communication established with dispatch

NOTE: Full sized compressed gas tanks are not to be taken in to a confined space or a restricted access space.

COMMENTS:

HOT WORK AUTHORIZED BY:

Name (print) ___________________________ Title ___________________________

Signature ___________________________ Date ___________________________

COPIES OF THIS FORM TO BE KEPT BY THE DEPARTMENT FOR AT LEAST 1 YEAR
EXHIBIT 5
PERMIT REQUIRED CONFINED SPACE ENTRY PERMIT

### Description and Location

**Confined Space ID:** __________________________

**Description:**

**Comments:**

____________________________________________________________________________________

### Potential Hazards

<table>
<thead>
<tr>
<th>Description</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Residue:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous Atmosphere:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engulfment Hazard:</td>
<td></td>
<td></td>
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<tr>
<td>Flash Fire:</td>
<td></td>
<td></td>
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<tr>
<td>Electrocut:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Lighting:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Work Room:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving Machinery:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Footing:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid Material In-Flow:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injury_Sudden Illness:</td>
<td></td>
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<tr>
<td>Hot Surfaces:</td>
<td></td>
<td></td>
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<tr>
<td>Solid Material Out-Flow:</td>
<td></td>
<td></td>
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<tr>
<td>Respirable Dust:</td>
<td></td>
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<tr>
<td>Fall Hazard:</td>
<td></td>
<td></td>
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<tr>
<td>Steam Hot Water Inflow:</td>
<td></td>
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<tr>
<td>Other (specify):</td>
<td></td>
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</tbody>
</table>

### Required Precautions Before Entry

**Isolate and Lockout:**

**Test Space for:**

- %O2: ______
- %LFL: ______
- ppm H2S: ______
- ppm CO: ______
- Other: __________________________

**Barricade Opening:**

**Ventilation:**

**Other (specify):**

____________________________________________________________________________________

### Required Precautions During Entry

**Surveillance Method:**

**Safety Hoist:**

**Ventilation:**

**Respirator:**

**Monitor Atmosphere:**

**Other PPE:**

**Safety Harness/Lifeline:**

**GFI/L.V.Equip:**

### Emergency Action Plan

Entrants shall immediately self evacuate if a hazard is detected or perceived. Stand-by person: use nearest telephone or (two-way radio) to call 911 to summon emergency assistance.

If entrant is attached to a lifeline attempt to extricate without entering the confined space.

Stand-by person shall not enter to perform an unassisted internal rescue.

### Emergency Response Information

**Agency Designated to Respond to An Emergency:**

**Access to Confined Space:**

**Depth at Entry Point:**

**Small Entry Opening:** (24" or less)

**Rescue Difficulty:**

**Most Likely Foreseeable Emergency:**

**Worst Case Scenario:** __________________________

### ENTRY PERMIT AND WORK AUTHORIZATION

**Permit Date Expiration**

**Issued By:** __________________________

**Issued:** ___/___/___

**Date:** ___/___/___

**Name of Confined Space:**

**Scope of Work:**

**Hot Work Authorized:**

- No____
- Yes____

**Scope:**

**Comment:**

**Signatures of Authorized Entrants and Stand-By Person (May Alternate)**

- Yes _____ No _____

1. __________________________
2. __________________________
3. __________________________
4. __________________________
5. __________________________
6. __________________________

Signatures verify that safety plan and appropriate MSDS's have been reviewed.
### Specified Means of Hazard Control

<table>
<thead>
<tr>
<th>HAZARD</th>
<th>ENGINEERING CONTROLS/PERSOAL PROTECTIVE EQUIPMENT</th>
<th>Verification of Hazard Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Atmosphere</td>
<td></td>
<td>Yes No</td>
</tr>
<tr>
<td>Engulfment Hazards</td>
<td></td>
<td>Yes No</td>
</tr>
<tr>
<td>Entrapment Hazards</td>
<td></td>
<td>Yes No</td>
</tr>
<tr>
<td>Hazardous Energies</td>
<td></td>
<td>Yes No</td>
</tr>
<tr>
<td>Hazardous Inflows</td>
<td></td>
<td>Yes No</td>
</tr>
<tr>
<td>Fall Hazards</td>
<td></td>
<td>Yes No</td>
</tr>
<tr>
<td>Falling Object Hazards</td>
<td></td>
<td>Yes No</td>
</tr>
</tbody>
</table>

### Minimum Conditions for Entry

If conditions are not met entry is prohibited. If occupied the space must be immediately evacuated.

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Minimum Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>Minimum 19.5% and Maximum 23.5%</td>
</tr>
<tr>
<td>Flammable Gasses</td>
<td>No greater than 10% of LFL</td>
</tr>
<tr>
<td>Hydrogen Sulfide H2S</td>
<td>No greater than 10 ppm</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>No greater than 35 ppm</td>
</tr>
<tr>
<td>Other Toxic Substances</td>
<td>No greater than PEL for substance</td>
</tr>
</tbody>
</table>

### Record of Permit Required Confined Space Air

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Monitor #</th>
<th>Confined Space (Record fresh air calibration/check on this line)</th>
<th>% Oxygen</th>
<th>% LEL</th>
<th>ppm H2S</th>
<th>ppm CO</th>
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Reviewed by: _____________________________________________________________ Date: _____________________