CONFINED SPACE ENTRY: Program Overview

The Michigan Occupational Safety and Health Administration (MIOSHA) Part 90, Confined Space Rules, defines types of confined spaces:

A Confined Space is large enough that an employee can bodily enter and perform assigned work, has limited or restricted means for entry or exit, is not designed for continuous employee occupancy.

Permit-Required Confined Space (permit space) is a confined space that contains or has a potential to contain a hazardous atmosphere; contains a material that has the potential for engulfing an Entrant; has an internal configuration such that an Entrant could be trapped or asphyxiated; contains any other recognized serious safety or health hazard.

It is imperative that workers know how to recognize confined spaces and permit-required confined spaces, monitor and control the hazards within confined spaces, and restrict access so that only authorized personnel enter these spaces.

RECOGNITION OF CONFINED SPACES

The types of confined spaces entered by Central Michigan University employees have been identified and documented. The entry team shall be trained to recognize and understand the hazards. Entry Teams must review the existing hazard assessments or conduct a thorough assessment of the space prior to each entry so that they can, in turn, train and protect their fellow employees through engineering controls and safe work practices.

Evaluation of Confined Space

Personnel shall be trained to properly complete tests for a confined space utilizing appropriate instruments. Properly maintained atmospheric monitoring instruments as well as any needed information available from Material Safety Data Sheets (MSDS), & the Hazard Assessment & Written Entry Procedure will be utilized prior to commencing any confined space entry. Central Michigan University’s Energy Control Program /Lockout/Tagout procedures will be utilized prior to confined space entry to eliminate whenever possible exposures to process hazards or to the potential of engulfment of the entrants.

Control Measures

Written procedures shall be established describing minimum measures and precautions which facilitate safe entry. Hazards shall be controlled through engineering and/or work practices. Each space shall be re-evaluated by the Entry Supervisor immediately prior to entry to verify conditions or hazards have not changed from the last hazard assessment.

ENTRY PERMIT SYSTEM

A Confined Space Entry Permit shall be required for all spaces determined to meet the criteria of a Permit-Required Space. This entry permit documents that the hazards of the space have been identified and evaluated, and that all required precautions have been completed.

TRAINING

Personnel shall be trained to perform their job assignment safely in any capacity required, and prior to that job assignment. These personnel include the Entry Supervisor, the Attendant, and all Authorized Entrants. They shall be trained in equipment utilization, procedures, and safe job practices.

RESCUE PROVISIONS

Personnel shall be trained in the proper use of safety equipment and procedures for the use of non-entry retrieval. Provisions shall be made to have Mount Pleasant Fire Department available (on-call or on-site) for all permit-required confined space entries.

EMPLOYEE DUTIES

Authorized Entrants

- Know the hazards that may be encountered during entry, and signs/symptoms of exposure
- Properly operate all equipment
- Communicate with the Attendant as necessary.
- Alert the Attendant whenever:
  - recognizes a warning sign or symptom of exposure
  - detects a prohibited condition.
- Exit the permit space quickly whenever:
  - ordered by the Attendant or Entry Supervisor
  - entrant recognizes any warning sign or symptom of exposure
  - entrant detects a prohibited condition
  - evacuation alarm is activated

Attendant

- Know the hazards that may be encountered during entry, including signs/symptoms of exposure.
- Be aware of possible behavioral effects of hazard exposure in Entrants.
- Maintain an accurate count of authorized Entrants in the permit spaces.
- Remain outside the permit space during entry operations until relieved by another authorized Attendant.
- Maintain communication with the Entrants
- Monitor activities inside and outside the space
- Order evacuation immediately if any of the following conditions occur:
  - detects a prohibited condition.
  - detects behavioral effects of hazard exposure in an Entrant.
  - detects a situation outside the space that could endanger the Entrants.
  - cannot effectively and safely perform all the duties required.
- Summon rescue and other emergency services as needed.
- Take the following actions when unauthorized persons approach or enter a permit space:
  - warn the unauthorized persons they must stay away from the permit space.
  - assure the unauthorized persons they must exit immediately if they have entered the permit space.
  - inform the authorized Entrants and the Entry Supervisor if unauthorized persons have entered the permit space.
- Perform non-entry rescues
- Perform other assigned duties so those duties do not interfere with the Attendant’s primary duty of monitoring and protecting the Entrants.

Entry Supervisor

- Know the hazards that may be encountered during entry.
- Verify and document on the entry permit that all tests specified by the permit have been conducted and procedures/equipment specified are in place before signing the permit and allowing entry.
- Know when and how to terminate the entry and cancel the entry permit.
- Be able to verify that rescue services are available and the means for summoning them is operable.
- Conduct a Pre-Entry Briefing with all members of the Confined Space Entry Team.
- Post the entry permit
- Determine that entry operations remain consistent with the terms for acceptable entry conditions whenever responsibility for a permit space entry operation is transferred.
- Remove unauthorized individuals who enter or attempt to enter a permit space.

Entry supervisors must be familiar with the functioning of the Entry Permit System. Upon completion of a confined space entry, the supervisor shall terminate the entry permit and record any useful information regarding the duration of entry, any hazardous conditions detected, or steps taken to prepare the space for safe entry. All canceled permits will be sent to the ESS Coordinator.

DESIGNATION OF PERMIT REQUIRED CONFINED SPACES AT CMU

- Air Handling Units (when not properly locked and tagged out)
- Boilers
- Brine Tanks
- Building Tunnels and Crawl Spaces in the following areas: Brooks Hall crawl spaces numbered 029-038 & the crawl space at the north end of West Hall.
- Chillers
- Cooling Towers
- Elevator Pits
- Hot Water Tanks
- Pool Holding Storage Tanks & Sand Filters
- Sewers
- Sump Pits and Sewage Ejector Pits
- Steam Tunnels
- Telecommunication Vaults
- Utility Manholes
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PURPOSE

This program has been developed to assure that Central Michigan University complies with the Michigan Occupational Safety and Health Administration (MIOSHA) Part 90 Confined Space Entry rules and to provide employees with a better understanding of what confined spaces are, the hazards involved with confined spaces, and the work practices necessary to complete a safe entry into a confined space.

Each department that operates in areas considered to be PERMIT-REQUIRED CONFINED SPACES and/or whose employees are involved in confined space entry activities must follow this written confined space entry program. Although the hazards potentially associated with entering and working in confined spaces are capable of causing bodily injury, illness, and death, confined space entry operations should not present a threat to employee health and/or safety.

INTRODUCTION

The MIOSHA, under Part 90 Confined Space Rules, defines three types of spaces:

A. Confined Space means a space that (must meet all three requirements):
   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; **AND**
   3. Is not designed for continuous employee occupancy.

B. Permit-Required Confined Space (permit space) means (that a confined space that has one or more of the following characteristics):
   1. Contains or has a potential to contain a hazardous atmosphere; **OR**
   2. Contains a material that has the potential for engulfing an Entrant; **OR**
   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. (Other hazards could include radiation, noise, electricity, and moving parts of machinery).

C. Non-Permit Confined Space means a confined space that does not contain a hazardous atmosphere; has natural or mechanical ventilation to ensure the atmosphere remains respirable; and does not contain any other hazards. (Examples could be vented vaults, motor control cabinets, and dropped ceilings).

Typical confined spaces include, but are not limited to:

- Storage Tanks
- Boilers
- Manholes
- Air Handling Units
- Underground Tunnels
- Telecommunication Vaults
- Sewers
- Pipelines
- Valve pits
- Elevator Pits
- Silos
- Building Crawl Spaces
PROGRAM OVERVIEW

- **Recognition of Confined Space:** The types of confined spaces entered by Central Michigan University employees have been identified and documented together with the potential hazards anticipated in those spaces. The entry team shall be trained to be able to recognize and understand these hazards. This will be accomplished by reviewing the existing hazard assessments or conducting a thorough assessment of the space prior to each entry so that they can in turn train and protect their fellow employees through engineering controls and safe work practices.

- **Evaluation of Confined Space:** Personnel shall be trained to properly complete tests for a confined space utilizing appropriate instruments. Properly maintained atmospheric monitoring instruments, as well as any needed information available from Material Safety Data Sheets (MSDS), will be utilized prior to commencing any confined space entry. MSDS will be used to determine the acceptable exposure limits for hazardous materials used by CMU personnel or contract personnel within CMU spaces. Central Michigan University’s Energy Control Program (Lockout/Tagout) procedures will be utilized prior to commencing any confined space entry to eliminate, whenever possible, exposures to process hazards or to the potential engulfment of the entrants.

- **Control Measures:** Where previous entry data is available, written procedures shall be established describing minimum measures and precautions which will allow for safe entry. Hazards shall be controlled through engineering and/or work practices. Each space shall be re-evaluated by the Entry Supervisor immediately prior to entry to verify that conditions or hazards have not changed from the last hazard assessment.

- **Confined Space Entry Permit:** A Confined Space Entry Permit shall be required for all spaces determined to meet the criteria of a Permit-Required Space. This entry permit documents that the hazards of the space have been identified and evaluated, and that all required precautions have been completed. The Confined Space Entry Permit System shall be implemented for all personnel required to enter permit required spaces to insure proper preparation, issuance, and implementation of permits. All cancelled permits will be sent to the Environmental Health and Safety (EHS). All permits will be reviewed annually.

- **Training:** Personnel shall be trained to perform their job assignment safely in any capacity required, and prior to that job assignment. These personnel include the Entry Supervisor, the Attendant, all Authorized Entrants and Rescue. They shall be trained in equipment utilization, procedures, and safe job practices. Both initial and annual re-training shall be provided.

- **Rescue Provisions:** Personnel shall be trained in the proper use of safety equipment and procedures for the use of non-entry retrieval. The preference is always to avoid rescue through the proper use of entrant self-rescue and non-entry retrieval as a means of exiting confined spaces under an emergency. Provisions shall be made to have the Mount Pleasant Fire Department available and on-call.
or on-site for all permit-required confined space entries. Greg Walterhouse (Chief, Mount Pleasant Fire Department) shall be contacted ten (10) working days prior to entry for all scheduled work. Emergency repairs will require Chief Walterhouse be contacted, however, the ten (10) working days will be waived.

CMU DESIGNATION OF CONFINED SPACES

As required under MIOSHA Part 90 Confined Space rules, all workspaces have been evaluated to determine the requirements for permit entry and posted to inform the exposed employees. Where signs cannot be used, employees will be informed through training and written documentation that specific types or categories of spaces have been deemed Permit Required.

Following completion of the survey of representative confined spaces conducted in December, 2007, the following determinations were made:

- **Air Handling Units**: All air handling units and ventilation ductwork throughout campus buildings on the main campus (including exhaust systems) will be designated as Non-Permit spaces provided proper lockout/tagout has been applied prior to entry into these systems. (The necessity of lockout/tagout must be determined on a case-by-case basis). If air handling units are not properly locked/tagged out, the air handling unit will be considered a permit required confined space. In addition, prior to entry into the exhaust systems located in Dow Science Mechanical Rooms 216 and 333, follow the notification requirements established in the “Dow Science Ventilation System Shutdown Procedures” (Appendix I) to ensure faculty and students working in the affected laboratories and Facilities Management personnel are not exposed to exhaust contaminants. Care must be taken to ensure employees entering elevated ductwork or ductwork with vertical “drop-off” areas are trained in the use of fall protection equipment, when necessary. Personnel authorized to enter these areas: Electrical, BMW and HVAC Services.

- **Building Tunnels and Crawl Spaces**: All building tunnels and crawl spaces on the main campus are designated as Non-Permit confined spaces with the exception of the following, which will be entered as Permit Required confined spaces: a) the Crawl spaces numbered 029 to 038 in Brooks Hall and accessed through Mechanical Room 028, and (b) the Crawl Space on the north end of West Hall.

  Particular care should be taken when entering narrow or low ceiling tunnels such as those in the Grawn Hall/Smith Hall/Warriner Hall network or when crossing steam line intersection points as these additional obstructions may make exiting the space more difficult.

  **Emergency Entry** into steam tunnels to investigate leaks in processes or entry to repair any utilities must be addressed on a case-by-case basis. If hazards inherent in the process or introduced by the leak(s) or repair task (hot work, chemical products, etc.) are determined to be present, the space will be reclassified into a permit-required confined space until the hazards have been eliminated. Personnel authorized to enter these areas: Telecommunications, Facilities Management and CMU Police.
• **Elevator Pits:** Because of infrequent entry into elevator pits and the requirements to use state licensed contractors, all elevator pits are currently designated as **Permit-Required** confined spaces. Entry procedures into elevator pits will be determined on a case-by-case basis. The designation of a particular pit must be assessed and documented by the contractor prior to entry into the space. An elevator pit entry which is found to not possess any serious safety or life threatening hazards may be entered with the approval of the program administrator following the completion of the Declassification Form for Permit-Required Spaces (Pages 29 & 30 or Appendix V).

• **Brine Tanks:** All brine tanks are designated as **Permit-Required** confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into vaults by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. Personnel authorized to enter these areas: Facilities Management.

• **Chillers:** All chillers are designated as **Permit-Required** confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into vaults by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. Personnel authorized to enter these areas: Facilities Management.

• **Hot Water Tanks:** All hot water tanks are designated as **Permit-Required** confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into hot water tanks by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. Personnel authorized to enter these areas: Facilities Management & Residence Life.

• **Chemical Neutralization Pits:** All Chemical Neutralization Pits are designated as **Permit-Required** confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into these pits by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. Personnel authorized to enter these areas: Facilities Management.

• **Pool Holding Storage Tanks & Sand Filters:** All Pool Holding Storage Tanks & Sand Filters are designated as **Permit-Required** confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into these areas by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. Personnel authorized to enter these areas: Facilities Management.

• **Boilers:** All boilers are designated as **Permit-Required** confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into vaults by Central Michigan University personnel and their subsequent lack of familiarity of the dangers
associated with entry into these spaces. Personnel authorized to enter these areas: Facilities Management.

- **Cooling Towers:** All Cooling Towers are designated as Permit-Required confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into vaults by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. Personnel authorized to enter these areas: Facilities Management.

- **Sewers:** All sanitary and storm sewer entries are designated as Permit-Required entries. The designation has been determined from the potential engulfment and atmospheric hazards and due to infrequent entry into sewers by Central Michigan University personnel and the subsequent lack of familiarity of the dangers associated with entry into sewers. As entries into these spaces are more commonly conducted by contractor personnel, all contractors must comply with the requirements of this Central Michigan University Confined Space Entry Program. Refer to Appendix VI for Contractor Notification Letter. Personnel authorized to enter these areas: Maintenance mechanics.

- **Sump Pits and Sewage Ejector Pits:** All Sump Pits and Sewage Ejector Pits are designated as Permit-Required confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into vaults by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. As entries into these spaces are more commonly conducted by contractor personnel, all contractors must comply with the requirements of this Central Michigan University Confined Space Entry Program. Refer to Appendix VI for Contractor Notification Letter.

- **Telecommunication Vaults:** All telecommunication vaults and manholes are designated as Permit-Required confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into vaults by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. Personnel authorized to enter these areas: Telecommunications and Electrical.

- **Utility Manholes:** All electrical and chilled water utility manholes are designated as Permit-Required confined spaces. The designation has been determined from the potential process hazards, undocumented atmospheric conditions, and infrequent entry into vaults by Central Michigan University personnel and their subsequent lack of familiarity of the dangers associated with entry into these spaces. As entries into these spaces are more commonly conducted by contractor personnel, all contractors must comply with the requirements of this Central Michigan University Confined Space Entry Program. Refer to Appendix VI for Contractor Notification Letter. Personnel authorized to enter these areas: Facilities Management.
CONFINED SPACE HAZARDS

Hazard recognition is critical for the entry team to respond to the potential hazards of entry and take the proactive steps necessary to prepare the space for safe entry. By documenting these preparations using the Entry Permit, the entry team has created a ‘daily diary’ of the decisions made regarding how to enter and what actions will be taken to affect a safe rescue in the event of an emergency. The following section summarizes these hazards prior to a more thorough discussion of their potential existence.

ATMOSPHERIC HAZARDS

ATMOSPHERIC HAZARDS

As summarized by NIOSH in its document, “Worker Deaths in Confined Spaces”, atmospheric hazards have historically accounted for nearly half of confined space entry deaths. Common atmospheric hazards found in confined spaces include:

- Oxygen Deficiency or Enrichment
- Presence of Flammable Gases, Vapors, or Mists (i.e. gasoline vapors, methane gas)
- Presence of Toxic Substances (i.e. gasoline vapors, carbon monoxide, hydrogen sulfide)
- Presence of Airborne Combustible Dust

Oxygen-Deficient/Enriched Atmospheres

An oxygen-deficient atmosphere has less than 19.5% available oxygen and is life-threatening. Any atmosphere with less than 19.5% oxygen shall not be entered without an approved self-contained breathing apparatus (SCBA) or air-supplied respirator with escape breathing apparatus and shall be entered only for emergency reasons such as entry rescue.

The oxygen level in a confined space can decrease because of work being done, such as welding, painting, or cleaning with solvents or it can be decreased by certain chemical reactions (rusting) or through bacterial action (fermentation or digestion).

The oxygen level is also decreased if oxygen is displaced by another gas, such as carbon dioxide, methane or nitrogen. Total displacement of oxygen by another gas, such as carbon dioxide, may result in unconsciousness, followed by death. The following table outlines the physiological changes undergone as the Oxygen level changes in a space:

<table>
<thead>
<tr>
<th>Oxygen by Volume</th>
<th>Resulting Condition/Effect on Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>Difficult Breathing, Death in Minutes</td>
</tr>
<tr>
<td>8%</td>
<td>Mental Failure, Fainting</td>
</tr>
<tr>
<td>14%</td>
<td>Faulty Judgment, Rapid Fatigue</td>
</tr>
<tr>
<td>16%</td>
<td>Impaired Judgment &amp; Breathing</td>
</tr>
<tr>
<td>19.5%</td>
<td>Minimum for Safe Entry</td>
</tr>
<tr>
<td>21%</td>
<td>Oxygen Concentration of Normal “Air”</td>
</tr>
<tr>
<td>23.5%</td>
<td>Oxygen Enriched. Extreme Fire Hazard, Increased Pulse. No entry shall be permitted at or above this level.</td>
</tr>
</tbody>
</table>
An oxygen enriched atmosphere has more than 23.5% available oxygen. Any atmosphere with more than 23.5% oxygen shall not be entered.

The oxygen level in a confined space can increase because of leaking equipment, such as oxy-acetylene equipment.

Oxygen enriched atmospheres cause physiological changes such as increased heart rate, euphoria, and cause combustible gas indicators to underestimate explosive hazards.

**Flammable Atmospheres**

Two factors contribute to a flammable atmosphere:

1) The concentration of Oxygen in air; and
2) Fuel (flammable gas, vapor or dust) in the proper mixture.

If a source of ignition is introduced into a space containing a flammable atmosphere, an explosion will result. The lowest percentage at which this will occur is the Lower Explosive Limit, commonly called the LEL, and highest percentage is the Upper Explosive Limit, referred to as the UEL. Mixtures below the LEL are too lean to ignite. Mixtures above the UEL are too rich to ignite. However, care must be taken when a mixture is too rich because dilution with fresh air could bring the mixture into the flammable or explosive range.

The atmosphere must be less than 10% of the LEL before it can be considered for entry. Additionally, the source of the gas vapor should be investigated to ensure that the concentration will remain below 10% of the LEL, and also, to ensure that the gas or vapor is not hazardous to health, or in excess of established permissible exposure limits (PEL).

An oxygen-enriched atmosphere (above 23.5%) will cause flammable materials, including hair and clothing, to burn violently when ignited. Therefore, *never use pure oxygen to ventilate a confined space.*

A flammable atmosphere may also be produced by an airborne combustible dust at a concentration that meets or exceeds its lower explosive limit. This concentration may be approximated as a condition in which the dust obscures vision at a distance of five feet or less.

**Toxic Atmospheres**

Toxic atmospheres can accumulate for a variety of reasons. Therefore, it is important to know the past and present activities conducted within a confined space. Toxic atmospheres:

*Can result from the material used or stored in the space:*

The product can be absorbed into the walls and give off toxic gases when removed; or when cleaning out the residue of a stored or collected material, toxic gases can be given off.

The substances contained within a confined space may cause skin irritation or be absorbed by the skin. Therefore, identification of substance is important to determine if personal protective equipment, (PPE), is required.

*Can result from the work being performed in a confined space:*
Toxic atmospheres, those that exceed established PELs, may be generated during work such as welding, painting, sanding, degreasing or sludge removal.

*Can result from the areas adjacent to the confined space:*

Toxics produced by work in a nearby area can accumulate and enter a confined space, such as nearby vehicle exhaust. Additionally, the confined space may be a branch of a larger system. Therefore, isolation procedures should be followed to ensure the confined space does not become “re-connected” to the system.

Examples of toxic gases commonly found in confined spaces are methane, carbon monoxide, and hydrogen sulfide. A toxic atmosphere can be produced, however, by any substance which may result in an employee exposure in excess of an established exposure limit (i.e., PEL, TLV, REL, etc.).

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLV</td>
<td>Threshold Limit Values established yearly as consensus guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH). Normally stated as an eight hour time-weighted average which should not be repeatedly exceeded through any 40 hour workweek.</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-Term Exposure Limit is an ACGIH recommendation for a 15 minute exposure which should not be exceeded in order to prevent 1) irritation, 2) chronic or irreversible tissue damage, or 3) narcosis of sufficient degree to increase the likelihood of accidental injury, impair or self-rescue or materially reduce work efficiency provided that the daily TLV-TWA is not exceeded.</td>
</tr>
<tr>
<td>Ceiling</td>
<td>Ceiling Limit is a maximum concentration which should not be exceeded during any part of a working exposure.</td>
</tr>
<tr>
<td>REL</td>
<td>Recommended Exposure Levels are guidelines published by NIOSH as recommended levels of exposure. Often more conservative than OSHAs PELs.</td>
</tr>
</tbody>
</table>
ENGULFMENT HAZARDS

Engulfment occurs when a confined space Entrant is trapped or enveloped, usually by a liquid or finely divided (flowable) solid substance. The engulfed entrant is in danger of asphyxiation, either through plugging or filling of the victim’s respiratory system as the engulfed material is inhaled, or through compression of the torso by the engulfing material resulting in the inability of the chest to expand.

PHYSICAL HAZARDS

These include those resulting from the process or work tasks within or adjacent to the space being entered. These hazards include those associated with mechanical, electrical, pneumatic and hydraulic energies.

The correct preventive measure against mechanical and electrical hazards is a lockout of the energy sources. A comprehensive lockout program in accordance with MIOSHA Part 85 (OSHA 29 CFR 1910.147) titled “The Control of Hazardous Energy” (Lockout/Tagout) is in place at Central Michigan University. This can be found at www.ess.cmich.edu/written.

Care must be taken to ensure that the confined space is isolated from all other systems. Where necessary, all associated machinery must be isolated from the electrical or power supply. If the startup of electrical, steam, pneumatic, hydraulic, or other mechanical equipment could cause injury, the lockout procedure must be followed.

Physical hazards include, but are not limited to:

<table>
<thead>
<tr>
<th>Mechanical Hazards</th>
<th>Electrical Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Moving Parts</td>
<td>• High Voltage Lines</td>
</tr>
<tr>
<td>• Crushing</td>
<td>• Capacitors</td>
</tr>
<tr>
<td>• Pinching</td>
<td>• Batteries</td>
</tr>
<tr>
<td>• Conveyors</td>
<td>• Transformers</td>
</tr>
<tr>
<td>• Fans</td>
<td>• Lightning</td>
</tr>
<tr>
<td>• Flowing Liquids</td>
<td></td>
</tr>
<tr>
<td>• Compressed Air</td>
<td></td>
</tr>
<tr>
<td>• Hydraulic Fluids</td>
<td></td>
</tr>
</tbody>
</table>

OTHER HAZARDS of confined spaces may include:

- Temperature Extremes
- Excessive Noise
- Communication Problems
- Slippery Floors
- Inadequate Access or Opening
- Crammed Work Areas
- Size of Openings into the Confined Space
- Falling Objects
- Electrical and Mechanical Hazards
- Limited Egress and/or Excessive Distance from the Work Area
- Inadequate Lighting
CONFINED SPACE ENTRY TEAM

The confined space entry team consists of four groups of people.

- **The Entry Supervisor** is responsible for determining if acceptable entry conditions exist, for authorizing entry and overseeing entry operations, and for terminating entry. An Entry Supervisor may also serve as an Attendant or Authorized Entrant, as long as he/she is adequately trained. Prior to entry, the Entry Supervisor must review the written entry procedures for that space and conduct a pre-entry briefing using this information.

- **The Authorized Entrant** is the employee who enters the confined space and performs the work. Entry of a confined space is defined as beginning when any part of the Entrant’s body breaks the plane of the confined space entrance. Entrants should exit the confined space when:
  a. the Attendant orders evacuation, and/or
  b. an automatic alarm is activated on the four-gas meter, and/or
  c. the Entrant perceives danger or experiences physical difficulties and/or
  d. the Entrant has an adverse reaction to the environment.

- **The Attendant** is stationed outside of the confined space and maintains communication as necessary with the Entrants. Acceptable forms of communication may include visual, voice, two-way radio, lifeline signals. The Attendant must also know emergency procedures, how many people are in the confined space, and be able to recognize any hazards inside or outside the confined space which may be cause for evacuation. The Attendant can also perform other duties as long as those other duties do not interfere with the safety of the Entrants. For example, the Attendant may pass or receive equipment and materials to and from the authorized Entrants as long as no entry is made by the Attendant. It is the responsibility of the Attendant to notify the Entrants if there is a need to evacuate the confined space. The Attendant should return the entry permit to the Entry Supervisor when the project is complete and all of the Entrants have evacuated the area. **Attendants shall never enter a confined space to attempt a rescue.**

- **The Rescue personnel** include contracted services with employees trained to provide confined space rescue. Rescue personnel must be familiar with confined space hazards and rescue procedures and equipment. Annual training on spaces at CMU is required for any person participating in confined space rescue. Training must include discussion of general and specific hazards, proper selection of PPE and rescue equipment, and procedural requirements for confined space rescue.

**TRAINING**

Entry Supervisors, Entrants and Attendants must receive appropriate Confined Space Entry Training specific to their function before engaging in confined space entry activities.

All employees who may be involved in permit-required confined space entry procedures will receive the appropriate level of training to acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned to them.
Training will be provided to each affected employee before the employee is assigned permit space duties, whenever there is a change in assigned duties, whenever a new hazard regarding entry operations is encountered, whenever a program review identifies inadequacies which need to be addressed, and annually.

Certification of training will include the employee’s name, qualifying signature, and the date of training. Documentation of training will be maintained by the Program Administrator for inspection. This documentation is maintained at EHS, Smith 103.

**Entrant Training**

Upon successful completion of training, Entrants will:

1. Know the hazards that may be encountered during entry, including information on the mode, signs or symptoms, and consequences of exposure.

2. Know how to properly operate testing and monitoring equipment, ventilating equipment, communications equipment, personal protective equipment, lighting equipment, barriers, equipment for ingress and egress (i.e., ladders), rescue and emergency equipment, and any other equipment which may be necessary for a safe entry.

3. Know how to communicate with the Attendant as necessary.

4. Know how to alert the Attendant whenever:
   a. The Entrant recognizes any warning sign or symptom of exposure to a dangerous situation, and/or
   b. The Entrant detects a prohibited condition.

5. Know to exit the permit space quickly whenever:
   a. Ordered by the Attendant or Entry Supervisor.
   b. The Entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
   c. The Entrant detects a prohibited condition.
   d. An evacuation alarm is activated.

**Attendant Training**

Upon completion of training, every employee who may serve as an Attendant will:

1. Know the hazards that may be encountered during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

2. Be aware of possible behavioral effects of hazard exposure in Entrants.

3. Know how to maintain an accurate count of authorized Entrants in the permit spaces, and never leave the space during the Entrant’s entry operation.

4. Know the importance of remaining outside the permit space during entry operations until relieved by another authorized Attendant.
5. Know how to maintain communication with the Entrants as necessary to monitor Entrant status and to alert Entrants of the need to evacuate.

6. Be able to monitor activities inside and outside the space to determine if it is safe for Entrants to remain in the space and order evacuation immediately if any of the following conditions occur:
   a. If the Attendant detects a prohibited condition.
   b. If the Attendant detects behavioral effects changes in an Entrant.
   c. If the Attendant detects a situation outside the space that could endanger the Entrants.
   d. If the Attendant cannot effectively and safely perform all the duties required of him/her.

7. Know how to summon rescue and other emergency services before he/she determines the Entrants may need assistance to escape from the permit space.

8. Know how to take the following actions when unauthorized persons approach or enter a permit space:
   a. Warn the unauthorized persons they must stay away from the permit space.
   b. Advise the unauthorized persons they must exit immediately if they have entered the permit space.
   c. Inform the authorized Entrants and the Entry Supervisor if unauthorized persons have entered the permit space.

9. Know how to perform non-entry rescues (i.e., know how to use a retrieval system).

10. Know how to perform other assigned duties so those duties do not interfere with the Attendant’s primary duty of monitoring and protecting the Entrants.

**Entry Supervisor Training**

Upon successful completion of training, all persons who assume the role of Entry Supervisor will:

1. Know the hazards that may be encountered during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

2. Be able to verify and document on the entry permit that all tests specified by the permit have been conducted and that all procedures and equipment specified are in place before signing the permit and allowing entry to begin.

3. Know when and how to terminate the entry and cancel the entry permit.

4. Be able to verify that rescue services are available and the means for summoning them is operable.

5. Conduct a Pre-Entry Briefing with all members of the Confined Space Entry Team involved in the particular entry at-hand. As part of the Briefing, the Entry Supervisor will fill-out the
Pre-Entry Checklist on the Confined Space Entry Permit. The Written Entry Procedures must be consulted as part of the briefing.

6. Post the entry permit at the entry point to the confined space until the entry operation has been terminated.

7. Know how to determine if entry operations remain consistent with the terms for acceptable entry conditions whenever responsibility for a permit space entry operation is transferred.

8. Be able to remove unauthorized individuals who enter or attempt to enter a permit space.

Entry supervisors should be most familiar with the functioning of the Entry Permit System. Upon successful completion of a confined space entry, the supervisor shall terminate the entry permit and record any useful information regarding the duration of entry, any hazardous conditions detected, or steps taken to prepare the space for safe entry. All canceled permits will be sent to the Program Administrator.

**Rescue Training**

Contracted rescue services must provide documentation of training for all personnel working in CMU confined spaces. In addition, contracted services must train on CMU spaces at least annually (once every 12 months) according to MIOSHA Part 90.
WORKING IN CONFINED SPACES

Confined spaces can make even the most common work activities potentially hazardous. Each employee should be aware of:

1. Special precautions to prevent the creation of hazardous atmospheres,
2. Ventilation in a confined space,
3. Air sampling requirements during work,
4. Power tools and lighting hazards,
5. Posting warning signs or barricades to prevent entry by unauthorized personnel or pedestrians, and
6. Use of Entry Permits to document all actions taken to safely make entries.

**SPECIAL PRECAUTIONS: LOCKOUT / TAGOUT**

Isolation of a confined space means the separation of the space from unwanted forms of energy which could be a serious hazard to Entrants. Isolation can be accomplished by blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; power lockout; or disconnecting all mechanical linkages. Refer to Central Michigan University’s Energy Control Program procedures for specific information regarding the isolation of the process related space being entered.

**SPECIAL PRECAUTIONS: ATMOSPHERIC CHANGES**

Additionally, precautions must be taken to prevent creating hazardous, toxic, or explosive atmospheres while employees are within a confined space. The types of materials used while working in a confined space must be thoroughly evaluated. Testing the atmosphere inside the confined space is necessary before entering and during the time when work is being performed. The use of toxic or flammable chemical materials can change the atmospheric condition of a confined space after initial testing. When an atmosphere is changed, it can create a dangerous environment.

Potentially dangerous atmospheres may be easily created by:

1. Using chemical products (painting, cleaning with solvents, applying adhesives, etc.)
2. Hot work, and
3. Mixing of incompatible chemicals

**Prohibited from use in confined spaces, (including non-permit confined spaces), unless evaluated and approved by the confined space Program Administrator are as follows:**

- oxygen, acetylene, welding products of any kind and chemical(s)/chemical agents. It is important to install adequate ventilation and to continuously monitor the atmosphere during such activities.
PRE-ENTRY BRIEFING

Prior to entry into any Permit-Required Confined Space, the Entry Supervisor must conduct a pre-entry briefing with all of the authorized Entrants and Attendants. The pre-entry briefing will include a review of the information on the Confined Space Entry Permit and all other necessary preparations for a safe entry, operation, exit, and rescue. This includes a review of the Hazard Assessment and Entry Procedures for the space to be entered. The Entry Supervisor must also fill out the confined space entry permit.

PREPARATION FOR ENTERING A PERMIT CONFINED SPACE

Prior to entry into a permit required space, an entry permit from an shall be completed by authorized Entry Supervisor taking into consideration the following:

1. Identify and evaluate the hazards of the permit space prior to entry.
2. Specify acceptable entry conditions.
3. Isolate the permit space, if necessary.
4. Provide external barriers as necessary to protect the Entrants.
5. Purge, inert, flush and/or ventilate the permit space as necessary to eliminate or control atmospheric hazards.
6. Assemble the following as necessary:
   - Atmospheric Testing Equipment (Atmospheric testing equipment is available in the Electrical shop Office and the Central Energy Facility Office.)
   - Ventilating Equipment
   - Communications Equipment
   - Personal Protective Equipment
   - Entry Equipment such as lighting, ladders, etc.
   - Rescue and Emergency Equipment
   - Any other equipment necessary for safe entry into and rescue from the permit space
7. Conduct atmospheric testing. Repeat as necessary to ensure acceptable entry conditions are maintained.
8. Provide at least one Attendant for the duration of entry operations.
9. Designate the persons who will have active roles in the entry operations (i.e., authorized Entrants, Attendants, Entry Supervisors, person who will test the atmosphere). Inform all participants of their duties.
10. Ensure Mount Pleasant Fire Department is on-site and available. If a confined space entry emergency develops, the Attendant will contact the CMU Police Department (CMUPD) & Mount Pleasant Fire Department. The CMUPD will summon the necessary Mt. Pleasant emergency services (ambulance), and coordinate the direction of the emergency personnel to the confined space entry site. Note: CMU Police will be contacted prior to entry and given the location of the space.
ATMOSPHERIC TESTING

Atmospheric testing of a confined space is done from the outside of the area to be tested, and before anyone enters the permit required confined space. The Entry Supervisor must evaluate the hazards which may be present so that all of the potential hazards are tested for.

Atmospheric testing is the most important part of the confined space entry procedure.

The results of all tests must be recorded in the appropriate section of the confined space entry permit before entry is allowed.

The probe connected to the atmospheric analyzer, or the analyzer itself, is placed inside the confined space near the area where the work is to be performed. It may be necessary to test the atmosphere in several locations if the work area is large or spread out.

It is important to understand that some gases or vapors are heavier than air and will settle to the bottom of a confined space. Also, some gases are lighter than air and will be found around the top of a confined space (Refer to the figure below). Therefore, it is necessary to test all areas (top, middle, and bottom) of a confined space with properly calibrated testing instruments to determine what gases are present. The following graph illustrates this.

![Graph of gas levels]

Test From outside of the space: Top, Middle, and Bottom

If testing reveals oxygen-deficiency, or the presence of toxic gases or vapors, the space must be ventilated and re-tested before entering the space. Environmental and Safety Services must be contacted if this condition occurs.

Employees may not enter a space where atmospheric testing equipment has identified a hazardous atmosphere exists and where that atmosphere has not been corrected with ventilation.

If there is any chance that the atmosphere inside a confined space could change because of the work being done, continuous atmospheric monitoring shall be performed for the duration of the entire confined space operation.
NOTE: Response times for atmospheric testing equipment varies. Approximately one minute is recommended. Refer to manufacturer’s operating instructions for actual instrument response time. It is important to allow the instrument sufficient time to equilibrate before each reading.

ATMOSPHERIC TESTING EQUIPMENT

Air monitors are housed at CEF, the Electrical Shop and EHS. Atmospheric Testing Equipment can be obtained from John Fernandez Supervisor of Utility Operations, Central Energy Facility, Mike Lemay, Supervisor of Electrical and Mechanical Trades or by requesting personnel from Environmental Health and Safety to provide on-site testing.

Additionally, instrumentation must be calibrated and maintained in accordance with manufacturers’ instructions. Many instruments may require annual servicing. A maintenance log for the Industrial Scientific M-40 Monitors will be kept by Environmental Health and Safety.

PROCEDURES FOR THE CALIBRATION OF INDUSTRIAL SCIENTIFIC M40 AIR MONITORING EQUIPMENT

The calibration station for the Confined Space Industrial Scientific M40 Air Monitors will be kept in EHS, Smith 103.

EHS will pick up, calibrate & deliver the monitor(s) by the 20th of each month.

Once the calibration is complete a slip will be generated indicating pass/fail on each of the four sensors. If the calibration indicates “pass” on all four sensors, the monitor can be used for confined space air monitoring. If the calibration indicates “fail” on any of the four sensors, the monitor must be removed from service.

If necessary, EHS has an additional monitor that can be checked out.

All calibration slips should be kept with the monitor(s). EHS will also maintain copies of each calibration.
SAFETY EQUIPMENT

The three types of equipment used in confined space entry include:

- **Precautionary Equipment**
  
  Precautionary equipment warns others that the nearby area is, or may become, hazardous. Precautionary equipment may include warning signs, barricades and pylons. Warning devices should be used to alert others that confined space work is being performed and only authorized personnel are allowed in the area.

- **Equipment Used in the Confined Space**
  
  Special equipment in addition to the tools used to accomplish the job should be used to make conditions in the permit space less hazardous. The equipment may include testing and monitoring equipment, ventilating equipment, portable lighting, communication equipment, ground fault circuit interrupters, non-sparking tools, personal protective equipment, body harnesses, wristlets, mechanical lifting devices, and retrieval lines to name a few.

  Remember when using forced air ventilating equipment to place the blower at least five feet away from the permit space entrance, and ventilate the space with air from a fresh source. Also, try to achieve a minimum of 5 air changes prior to entry. **Remember: It is best to blow air into the permit space instead of drawing air out.**

- **Rescue Equipment**
  
  The equipment will be inspected prior to entry and at regular intervals (monthly) to ensure that it remains in proper operating condition at all times. A mechanical device will be available to retrieve personnel from vertical type permit spaces more than five feet deep. The Entry Supervisor will determine what equipment is necessary to complete the project safely.

  **Equipment should be inspected before and after each use to ensure the equipment operates as specified by the manufacturer. Annual maintenance is to be conducted on equipment as recommended by the manufacturer.**
COMPLETION OF ENTRY OPERATIONS

When entry operations have been completed, all equipment and tools have been removed, and the Attendant has verified that all Entrants have exited the permit-required confined space, the Entry Supervisor will cancel the permit. Cancellation of a permit will include a review of the entry operations with the Attendants noting any unusual circumstances which occurred (e.g., presence of unauthorized personnel in the area, detection of hazards which may not have been previously identified, complaints from Entrants, etc.). Permits are canceled by noting the date, time and supervisor’s initials on the permit. Any time there is a premature cancellation the reason(s) must be provided on the permit. All Confined space entry permits (including contractor permits) will be submitted to the Program Administrator at EHS.

The canceled entry permits will be maintained by the Program Administrator for at least one year. A single annual review covering all entries performed during a 12-month period will be conducted. The program will be revised to address any deficiencies which are identified.

NOTE: The Entry Supervisor shall terminate entry and cancel the entry permit if a condition that is not allowed under the entry permit arises in or near the permit space, even if entry operations have not been completed. A new entry permit will be completed following elimination of the conditions, and further work may commence.

EMERGENCY RESPONSE

• Non-Entry Retrieval

Retrieval systems are available for any authorized entries and should be used whenever possible to facilitate non-entry rescue. The retrieval system used at CMU consists of a full-body harness and retrieval line attached at the center of the back. The retrieval line shall be firmly fastened outside of the space in order for a rescue attempt to begin immediately. A mechanical device is available for retrieval from vertical and horizontal spaces.

• Contracted Confined Space Rescue

Prior to any permit confined space entries the Written Entry Procedures must be reviewed. The written procedures will designate if non-entry retrieval is acceptable or if Mount Pleasant Fire Department must be on site. When necessary, the Mount Pleasant Fire Department (Greg Walterhouse, Chief) will be contacted by the Entry Supervisor ten (10) working days prior to entry. During entry activities, the selected Entry Rescuers will either be in visual or radio contact with the confined space entry team.
CONFINED SPACE PROGRAM ENTRY PERMIT SYSTEM

• Confined Space Recognition

All sewers, utility manholes, brine tanks, chillers, boilers, hot water tanks, chemical neutralization pits, pool holding storage tanks, pools, cooling towers, sand filters and elevator pits will be permit-required confined spaces. All other permit-required spaces are marked with a sign indicating that it is a “Permit Required - Confined Space”. All Permit-Required Confined Spaces are not to be entered without complying with the Confined Space Permit Procedure.

• Procedures For Obtaining A Confined Space Entry Permit

Requesting a Confined Space Entry Permit: A request for a Confined Space Entry Permit shall be initiated by the highest ranking individual (supervisor, foreman, contractor, or if one person, the individual) needing access to the Confined Space.

Initiation of the Confined Space Entry Permit: Confined Space Entry Permits shall only be issued by the following listed personnel:

1. Jay Kahn, Director of Facilities Operations
2. Mike Walton, Director Energy Optimization
3. Mark McDonald, Director of Information Technology, Telecommunications
5. Alger Smock, Supervisor HVAC
6. Any PEP project manager for contracted work

• Entry Planning

Written Entry Procedures must be reviewed prior to entry and used while preparing the permit. Deviation from the Confined Space Written Procedure is prohibited. It is also recommended that the Entry Supervisor review the canceled permits for that space to determine if past experience would be helpful with your current entry procedure.

• Signatory Authorization

The name of the Entry Supervisor authorizing entry into the confined space must be printed legibly on the Confined Space Entry Permit and the authorizing person must sign and date the form before entry begins (after all prerequisite testing and compliance has been fulfilled). A copy of the Confined Space Entry Permit shall remain posted at the confined space for review by the Entrants until such times as the planned work is terminated, or at the end of each shift (whichever occurs first).

• Entry Monitoring

CMU’s Confined Space Entry Permit policy requires that a properly trained Attendant be present at all Permit Confined Space Entry occurrences and that continuous monitoring of atmospheric conditions, including periodic documentation on the Permit, shall be conducted.
- **Entry Termination**

Entry termination can either be a *Premature Termination* (termination because conditions are no longer acceptable for safe occupancy) or *Normal Termination* (termination upon completion of authorized work) and the permit is canceled by the Entry Supervisor. Entry Supervisors or Entrants/Attendants should record useful information such as completion time or comments which might prove useful during the annual review. Future entries may then be simplified or altered to adopt these recommendations. Termination is noted on the permit. Additional comments can be provided using the Additional Information section of the permit or on the back of the permit.

- **Outside Contractor Compliance**

All outside contractors must insure that their personnel have been properly trained in confined space entry procedures and must conform to the Central Michigan University Confined Space Entry Program. Non-compliance can result in immediate termination of their work. Copies of canceled contractor entry permits must be submitted to the appropriate Facilities Management or Telecommunications representative. The Facilities Management or Telecommunications representative will forward a copy of the cancelled permit to the Program Administrator (EHS, Smith 103).

All contractors will be responsible for contracting rescue services (if applicable).

- **Recordkeeping**

All Confined Space Entry Permits shall be maintained in a permanent file for at least one year by the Program Administrator (EHS, Smith 103). Revisions to the program will be made as needed to assure complete personnel protection and regulatory compliance.

**CONFINED SPACE ENTRY PROCEDURES - FILLING OUT THE PERMIT**

After conducting preparations with the Confined Space Entry Team, indicate the following applicable information on the Confined Space Entry Permit and review it with the team. *If there is not enough space on the front of the permit or if additional information is necessary, please record the information on the back of the permit. Note: See Appendix IV for copies of blank Entry Permits.*

All sections of the permit must be filled out completely. All employees shall be instructed by supervisors or their designated representatives that entry into a confined space is prohibited without an authorized permit. The permit serves as certification that the space is safe for entry. A permit shall not be authorized until all conditions of the permit are met.

In addition to filling out the permit, the Hazard Assessment & Written Entry Procedure Form (Appendix III) for that space shall be attached to the permit.

**LOCATION/FACILITY/DESCRIPTION OF SPACE**

Give exact location, name of building, approximate dimensions and/or layout of the confined space. Identify contents of confined space. This refers to any chemicals or other materials and energy that are usually present in the confined space.
PURPOSE OF ENTRY
Give the reason for entering the confined space. Specifically describe nature of the work being performed.

HAZARDS
Entry Supervisors will determine mechanical and physical hazards. List all items and energy that will require lockout/tagout, blanking and bleeding, disconnecting, or securing. Physical hazards should also be listed. Indicate whether mechanical or natural ventilation will be used. If mechanical ventilation will be used, the exhaust must be pointed away from personnel or ignition sources.

PRE-ENTRY CHECKLIST
EVERY question must be answered. Any question answered NO renders the confined space as NOT ACCEPTABLE for entry.

ADDITIONAL PERMITS
Additional permits must be filled out and attached. For example, any “Hot Work” being performed requires an additional permit.

AIR MONITORING EQUIPMENT
In the spaces provided, identify the instrument being used, model/type, serial # or unit #, date of calibration, name of person doing the test.

AIR MONITORING REQUIREMENTS
Atmospheric testing shall be conducted prior to entering permit-required confined spaces. All of the manufacturer’s operating instructions must be followed. The test equipment should be tested in a known atmosphere to insure its accuracy. Ventilation equipment must be shut off before conducting any atmospheric testing. The atmosphere must be tested at the bottom, top, and middle of all confined spaces.

Test oxygen level first. If oxygen level is less than 19.5% or greater than 21.5%, perform additional ventilation. Then shut off ventilation equipment and re-test the oxygen content. If oxygen is between 19.5% and 21.5%, continue entry preparation.

Test for flammable gases. If the meter reading is less than 10% of the lower explosive limit (LEL), continue entry preparations. If the meter reading is greater than 10% of the LEL, continue ventilation of the confined space. Then shut off the ventilation and re-test the atmosphere. If the meter reading is still greater than 10% of the LEL, no entry will be permitted.

Test for toxics. If a toxic atmosphere is present, no person should be permitted to enter the confined space at a level exceeding the Permissible Exposure Limit (PEL) without proper Personal Protective Equipment (PPE). ESS should be contacted to assist in identifying proper precautions and protective measures to be taken.

CONTINUED MONITORING IS REQUIRED BY 29 CFR 1910.146 THROUGHOUT DURATION OF CONFINED SPACE WORK AND SHOULD BE RECORDED EVERY 30 MINUTES.

COMMUNICATION
For this section, indicate all forms of communication that apply. Emergency telephone number(s) must be listed, as well as location of nearest working phone. In addition, all rescue personnel names must be documented.

**LIST ALL ENTRANTS/SUPERVISORS/ATTENDANTS**
All supervisors/employee’s/attendant’s names must be listed and time of entry indicated.

**ADDITIONAL INFORMATION**
For example, identify additional equipment that may be necessary to complete the project.

**SIGNATURES**
The entry supervisor and the issuing supervisor (may be the same) shall sign and date the permit, verifying that all entry conditions have been met.

**The Permit**

A copy of the permit and any other permits (such as hot work permit, if applicable) will remain posted at the confined space site until the entry has been terminated. The supervisor in charge is responsible for the permit. Any problems or concerns encountered during the entry operation should be listed in the Additional Information section of the Permit or back of Permit.

Authorizing Entry Supervisor will periodically check on the progress of the crew and check the results of the periodic testing being done.

**Termination Of The Permit**

Upon termination of the confined space entry, the Entry Supervisor will cancel the permit, inquire as to any problems which were encountered during the entry operation and list them in the Additional Information section of the Permit (or the back of the Permit) and submit the canceled Permit to the Program Administrator (EHS, Smith 103).
**CENTRAL MICHIGAN UNIVERSITY CONFINED SPACE ENTRY PERMIT**

Date / Time Issued: ___________/____________  Date / Time Expires: ___________/____________

- PERMIT CANCELLED-Date / Time / Supervisor’s Initials: ___________/____________

**IF CONDITIONS CHANGE & THE PERMIT IS PREMATURELY CANCELLED, PLEASE NOTE THE REASON(S) BELOW (Additional Information) AND FORWARD PERMIT TO ESS.**

Location / Facility/Description of space: ____________________________________________________

Purpose of Entry: ________________________________________________________________________

Hazard (Attach Hazard Assessment Form to Permit):
_____________________________________________________________________________________
_____________________________________________________________________________________

**PRE-ENTRY**

Acceptable Entry Conditions: **Green** = Acceptable for entry. **Yellow** = Caution, ensure proper procedure has been followed. **Red** = NOT acceptable for entry.

Has system been locked out and/or tagged out?

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<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Has piping been blanked, broken or capped?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Has piping been double-blocked and bled?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Has space been ventilated?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
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Has fall protection been provided?

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<th></th>
<th>Yes</th>
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Is rescue equipment available?

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<th></th>
<th>Yes</th>
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Is a first aid kit available?

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<th></th>
<th>Yes</th>
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Has entrant(s) been provided with safety harness?

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<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Has entrant(s) been provided with line life?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Is adequate lighting available?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Is lighting and equipment GFCI protected?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Is area secured and barricades in place?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Is a fire extinguisher available?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Has protective clothing been provided? Is it adequate?

<table>
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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Are personnel trained to perform assigned duties?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Has ALL equipment been inspected and ready for use?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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Have specific written entry procedures been reviewed by all involved?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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Have rescue personnel been notified of the entry?

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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Have specific non-entry rescue procedures been reviewed by all involved?

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<tr>
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<th>Yes</th>
<th>No</th>
<th>N/A</th>
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**Air Monitoring Requirements** (Record results at least every 30 minutes)

<table>
<thead>
<tr>
<th></th>
<th>Permissible Entry Levels</th>
<th>Preentry Time:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen (%)</td>
<td>19.5% to 23.5%</td>
<td>__________</td>
<td>______</td>
</tr>
<tr>
<td>LEL Under 10%</td>
<td>20%</td>
<td>__________</td>
<td>______</td>
</tr>
<tr>
<td>CO 55 PPM</td>
<td>Sulfide 20 PPM</td>
<td>__________</td>
<td>______</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>Other</td>
<td>__________</td>
<td>______</td>
</tr>
</tbody>
</table>

**Additional Information:**

Additional Permits: Please attach additional permits issues to authorize work in this space (i.e. Hot Work)

**Air Monitoring Equipment**

<table>
<thead>
<tr>
<th>Instrument Used</th>
<th>Model</th>
<th>Serial #</th>
<th>Date Calibrated</th>
<th>Person Doing Test</th>
</tr>
</thead>
</table>

Authorization: I have reviewed the work authorized by this permit and the information pertaining to each item. Safety procedures have been received and are understood by all personnel.

**Communication:**

Between Attendant and Entrant(s):

<table>
<thead>
<tr>
<th></th>
<th>Radio</th>
<th>Other</th>
</tr>
</thead>
</table>

Emergency Notification:

<table>
<thead>
<tr>
<th></th>
<th>Portable Radio</th>
<th>Telephone</th>
</tr>
</thead>
</table>

Emergency Telephone Number: ___________

Location of Nearest Working Telephone: ___________

Rescue Personnel: _______________________________________________________________________

<table>
<thead>
<tr>
<th>Entry Supervisor</th>
<th>Issuing Supervisor</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
</table>
ALTERNATE PROCEDURES

In recognition that not all spaces meeting the definition of permit-required confined space are equally hazardous, MIOSHA has developed an “Alternate Procedure” for entry into permit-required confined spaces that are determined to pose extremely low levels of hazards. Alternate Procedures offer an advantage in that they eliminate the need for the following:

- PREPARATION OF AN ENTRY PERMIT
- PRESENCE OF AN ATTENDANT
- ARRANGEMENTS FOR EMERGENCY SERVICES
- MANDATORY USE OF A RETRIEVAL SYSTEM

The alternate entry method may be used only if the following conditions are satisfied:
An actual or potential hazardous atmosphere can be controlled by continuous forced air ventilation.
Sufficient monitoring (at least one year of documentation) and inspection documentation exist proving that the atmosphere is controlled and safe.

If the conditions outlined above are met, entry into the space may proceed if the entry supervisor can verify and provide written certification that the following conditions have been met:

1. Hazards concerned with entry (high temperature or pressures within the space, sources of energy, etc.) have been eliminated, and barriers to protect the Entrants have been set in place.
2. Atmospheric testing has been performed (oxygen, flammable, toxic gases).
3. Continuous forced air ventilation is present.
4. The atmosphere is tested periodically (as necessary).
5. Entrants exit the space immediately if a hazardous atmosphere is detected.
6. Written certification is provided verifying that all of the procedures have been adhered to. The written certification must include the date, location, and signature of the Entry Supervisor before entry takes place. Completed Alternate Procedures Certification Forms must be returned to the Program Administrator (ESS, Smith 103).

Alternate Procedures may be used only if continuous forced air ventilation can maintain the permit space “safe” for entry. During an Alternate Procedures, a hazardous atmosphere cannot exist. If a hazardous atmosphere is created during entry operations, all Entrants must evacuate. **If there are any non-atmospheric hazards, the space is ineligible for Alternate Procedure.** Also, if hot work or the use of toxic materials (i.e. solvents) will be involved, Alternate Procedures cannot be used. Before entering a permit required confined space under Alternate Entry Procedures, approval must be obtained from the Program Administrator.
CENTRAL MICHIGAN UNIVERSITY
ALTERNATE PROCEDURES CERTIFICATION FORM

DATE: ______________ PERMIT SPACE DESCRIPTION: ______________ LOCATION: ______________

ACTUAL OR POTENTIAL ATMOSPHERIC HAZARDS:

- Oxygen Deficiency __ No __ Yes
- Explosive / Flammable Gases __ No __ Yes
- Toxic Gases __ No __ Yes Specify substances & percentages below
- Other Atmospheric __ No __ Yes
- Any non-atmospheric hazards (water, engulfment, energy, etc)? __ No __ Yes

WILL CONTINUOUS FORCED AIR VENTILATION ALONE BE SUFFICIENT FOR SAFE ENTRY?
If “no” space is ineligible for Alternate Procedures __ No __ Yes

Verify that the following conditions have been met:

☐ Non-Atmospheric Hazards concerned with entry (energy, high temperature or pressures within the space, etc.) have been eliminated, and barriers to protect the entrants have been set in place.
☐ Atmospheric testing has been performed (oxygen, flammable, toxic gases).
☐ Continuous forced air ventilation is present.
☐ The atmosphere is tested periodically (as necessary).
☐ Entrants exit the space immediately if a hazardous atmosphere is detected.

HAS INSPECTION CONFIRMED THAT CONDITIONS LISTED ABOVE ARE ACCURATE? __ No __ Yes

ANY ENTRY TO COLLECT DATA OR INSPECT A SPACE MUST BE BY PERMIT CONDITIONS
Under Alternate Procedures, the atmosphere must be tested periodically as necessary to ensure against a hazardous atmosphere. See Confined Space Hazard Assessment/Written Entry Procedure and Confined Space program for guidance.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Acceptable Entry Conditions</th>
<th>Pre-entry Tests</th>
<th>Post-entry / Periodic / Continuous Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Oxygen</td>
<td>19.5% - 23.5%</td>
<td>Time Result Init.</td>
<td>Time Result Init. Time Result Init. Time Result Init.</td>
</tr>
<tr>
<td>Flamm/Explosive</td>
<td>Under 10% LEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxic: CO</td>
<td>35 PPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2S</td>
<td>10 PPM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALTERNATE PROCEDURES CERTIFICATION BY ENTRY SUPERVISOR

I am familiar with the special requirements and conditions under which a permit-required confined space may be entered under alternate procedures, as found in MIOSHA Part 90 Section (c)(5) and 29 CFR 1910.146(c)(5). The basis for the conclusion that the space is eligible for these alternate procedures are inspections and testing (with a calibrated, direct reading instrument, as noted above). I verify that all necessary pre-entry steps have been taken. I verify that the space is safe for entry.

SIGNATURE OF ENTRY SUPERVISOR
AUTHORIZING ENTRY UNDER ALTERNATE PROCEDURES: ________________________________

☐ FORM CANCELLED-Date / Time / Supervisor’s Initials: __________ / __________ / __________
IF CONDITIONS CHANGE & THIS FORM IS PREMATURELY CANCELLED, PLEASE NOTE THE REASON(S) ON THE BACK OF THE FORM AND FORWARD THE FORM TO ESS.

This form must be submitted to EHS, Smith 103, upon completion of entry operations.
DECLASSIFICATION OF A PERMIT SPACE

Under certain conditions, a space which is initially classified as a Permit Space may be declassified to a Non-Permit space. Declassification may be appropriate if the following conditions are met:

- The confined space poses no actual or potential atmospheric hazard; and
- All hazards within the confined space can be eliminated (and not just controlled) without entry into the space.

NOTE: Declassification requires elimination of a hazard and not simply control (i.e., forced air ventilation is considered a hazard control, not elimination).

If it is necessary to enter a permit space to eliminate hazards so that declassification can take place, the entry must be conducted under full permit conditions.

The Program Administrator (EHS) will document all permit spaces which may be declassified.

Declassification is effective only for as long as the hazard remains eliminated. If any hazards arise in a declassified space, all employees must exit immediately, and any re-entry must be under permit conditions.

In some cases, declassification can be performed on a job-specific basis. In any job-specific declassification, the basis for declassification must be well documented by the program administrator or his/her designated representative (i.e., an authorized Entry Supervisor). This method may allow entry by trained or licensed personnel into a space (possibly elevator shafts or pits) as long as written task descriptions and entry procedures are submitted to the program administrator and are found to be adequate replacements for a complete written hazard assessment and entry procedure.

Though not required under the regulation, a declassified space that is not entered frequently (i.e., weekly or daily), will be reviewed using the ‘Declassification Form for Permit-Required Spaces’ prior to entry. This is an effort to verify that no changes have occurred in the space since its’ last hazard evaluation. The Declassification Form for Permit-Required Spaces must be submitted to the Program Administrator (EHS, Smith 103) following completion of entry operations.
CENTRAL MICHIGAN UNIVERSITY
DECLASSIFICATION FORM FOR PERMIT REQUIRED CONFINED SPACES

PLEASE NOTE: You must verify with ESS that declassification is allowed before the space is entered.

DATE: __________________ PERMIT SPACE DESCRIPTION: ___________________ LOCATION: __________________

Under certain conditions, a space which is initially classified as a Permit Space may be declassified to a Non-Permit space. Declassification may be appropriate if all of the following conditions are met:

- The confined space poses no actual or potential atmospheric hazard; and
- All hazards within the confined space can be eliminated (and not just controlled) without entry into the space.

Prior to entry verify that all energy has been de-energized, and moving equipment is secured from movement?  ☐ No ☐ Yes

(If no, then the space must be entered as a full permit entry confined space)

Lighting has been provided within the space prior to entry?  ☐ No ☐ Yes

(If no, then this space must be entered as a full permit entry confined space)

All non-atmospheric hazards have been eliminated?  ☐ No ☐ Yes

No actual or potential atmospheric hazards exist?  ☐ No ☐ Yes

(Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards)

HAS INSPECTION CONFIRMED THAT THE CONDITIONS LISTED ABOVE ARE ACCURATE?  ☐ No ☐ Yes

Prior to entry into any confined space, including declassified spaces, the atmosphere within the space should be monitored before entry even though no potential atmospheric conditions, which may be IDLH or hazardous, have been identified. This effort will be made, though not required by regulation, to ensure no unexpected changes will ever pose a hazard to CMU employees or to contractors working within CMU facilities. Atmospheric testing shall be performed as listed below.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Acceptable Entry Conditions</th>
<th>Pre-entry Tests</th>
<th>Post-entry / Periodic / Continuous Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td>% of Oxygen</td>
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</tr>
<tr>
<td>H2S</td>
<td>10 PPM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DECLASSIFICATION PROCEDURES CERTIFICATION BY ENTRY SUPERVISOR:

I am familiar with the special requirements and conditions under which a permit-required confined space may be Declassified, as found in MISHA Part 90 section (c)(7) and 29 CFR § 1910.146(c)(7). The basis for the conclusion that the space is eligible for these declassification procedures are inspections and testing (with a calibrated, direct reading instrument, as noted above). I verify that all necessary pre-entry steps have been taken. I verify that the space is safe for declassified entry.

SIGNATURE OF ENTRY SUPERVISOR
AUTHORIZING ENTRY UNDER DECLASSIFICATION PROCEDURES: __________________________

☐ FORM CANCELLED-Date / Time / Supervisor’s Initials: __________/__________/_________

IF CONDITIONS CHANGE & THIS FORM IS PREMATURELY CANCELLED, PLEASE NOTE THE REASON(S) ON THE BACK OF THE FORM AND FORWARD THE FORM TO ESS.

This form must be submitted to EHS, Smith 103, upon completion of entry operations.
RECORDKEEPING AND ANNUAL PROGRAM REVIEW

Annual program review shall be conducted prior to January 31st of each year. The program administrator shall oversee a thorough review and summary of the entry activities to compare to previous year’s entry experiences. In addition, canceled permits will be used to facilitate the required annual review of the permit system. **All canceled Entry Permits must be retained for at least one year.** Any problems encountered during an entry operation shall be noted on the entry permit and the Program Administrator will be notified so that appropriate revisions can be made to the written Confined Space Entry Program.

All certifications of Alternate Procedures and Declassification Forms shall be collected, reviewed and summarized to evaluate the overall compliance with and effectiveness of the written program. The intent of this effort is to evaluate what percentage of entry into permit spaces are being conducted by methods other than those required under this program’s entry procedures.

An inspection of all personal protective, entry, and rescue equipment shall be completed annually to evaluate the disposition of the existing equipment and to determine what equipment needs or changes might be indicated from the condition of the existing inventory.

**Circumstances which may suggest that revisions to the program are necessary include:**

- Any unauthorized entry into a permit space
- Detection of a hazard not previously identified
- Detection of a condition prohibited by the permit
- Occurrence of injuries or near-misses during entry
- Changes in use or configuration of a permit space
- Employees complaints regarding the program
<table>
<thead>
<tr>
<th>Date</th>
<th>DESCRIPTION OF DEFICIENCIES</th>
<th>PROGRAM REVISED</th>
<th>SIGNATURE OF PROGRAM ADMINISTRATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/7/97</td>
<td>General Review. Removed two spaces from Permit Required.</td>
<td>X</td>
<td>Jon Kujat</td>
</tr>
<tr>
<td>1/06-7/06</td>
<td>Updating Complete Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/06 – 7/06</td>
<td>Updating Confined Space List (permit and non-permit)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/06-7/06</td>
<td>Updating rescue procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/06</td>
<td>Request Alternate Entry from Tom Burke (Supervisor, Facilities Management)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>12/07</td>
<td>Added additional spaces</td>
<td>X</td>
<td>Jon Kujat</td>
</tr>
<tr>
<td>3/13</td>
<td>Updating Complete Program</td>
<td>X</td>
<td>Jon Kujat</td>
</tr>
</tbody>
</table>
CMU PERMIT-REQUIRED CONFINED SPACES

A survey was conducted and determined that the following locations are permit-required confined spaces:

Barnes Kitchen
- Hot Water Tank
- Sump Pits located in Mechanical Rooms 001 &004

Beddow Hall
- Sump Pit

Brooks Hall
- Crawl Spaces

Campbell Hall
- Air Handling Units in Rooms 222 & 422
- Sewage Ejector Pit
- Sump Pit

Carey Dining Commons
- Air Handling Units 1 & 2
- Brine Tank
- Sump Pit

Celani Hall
- Air Handling Units in Mechanical Rooms 127 & 227
- Hot Water Tanks

Dow Science Complex
- Air Handling Units 3, 4, 5, 6, & 7
- Chemical Neutralization Pit
- Sewage Ejector Pit

EHS Building
- Air Handling Units 1, 2, 3, & 4
- Sump Pits
- Brine Tank

Engineering & Technology Building
- Air Handling Units 16, 17, 18, 19, 20, 21, 22, & 23
- Chilled Water Valve Pit
- Chiller
- Vacuum Chamber (Room 139)

Fabiano Hall
- Air Handling Units in Room 127 & 227
- Hot Water Tanks
- Sump Pit

**Finch Fieldhouse**
- Sump Pit

**Foust Hall**
- Air Handling Units in Mechanical Room 34
- Chiller
- Sump Pit

**Grawn Hall**
- Air Handling Units in Room 004 & 013
- Sump Pit

**Health Professions Building**
- Air Handling Units 1, 2, 3, 4, & 5

**Herrig Hall**
- Sump Pit

**Indoor Athletic Complex**
- ATU 1, 2, 3, & 4

**Kelly Shorts Stadium**
- Air Handling Unit 2 & 3

**Kesseler Hall**
- Air Handling Units in Room 222 & 422
- Sump Pit

**Kewadin Apartments**
- Hot Water Tanks

**Kulhavi Hall**
- Sump Pit
- Air Handling Units in room 22 & 422

**Merrill Dining Commons**
- Air Handling Unit
- Brine Tank

**Moore Hall / Bush Theater**
- Air Handling Units 13, 14, 15, 16, 17, & 18
- Chiller
Music Building
- Air Handling Unit 1, 3, &4
- Brine Tank

Northwest Apartments
- Hot Water Tank

Park Library
- Air Handling Units 1a, 1c, 2A, 2C, & exhaust duct
- North Ciller
- North Sump Pit
- South Chiller
- South Sump Pit
- North Exhaust Duct
- RAF 1a, 1c, 2a, & 2c
- South Exhaust Duct
- Vacuum Tank

Pearce Hall
- Air Handling Unit
- Hot Water Tank
- Sump Pit

Powerhouse (Central Energy Facility)
- AHU above Room 107
- Steam Drum (Boiler #4 Room 103, Boiler #1 & #2 Room 104, Boiler #5 Room 129)
- Stack House (Boiler #4 Room 103, Boiler #1 & #2 Room 104, Boiler #5 Room 129)
- Economizer (Boiler #4 Room 103, Boiler #1 & #2 Room 104, Boiler #5 Room 129)
- Transition Duct Below Economizer (Boiler #4 Room 103, Boiler #1 & #2 Room 104, Boiler #5 room 129)
- Fire Box (Boiler #4 Room 103, Boiler #1 & #2 Room 104, Boiler #5 Room 129)
- Mud Drum (Boiler #4 Room 103, Boiler #5 Room 129)
- Sump Pits (Room 010(x2), Room 004 , Room 005)
- Brine Tanks (Room 004, Room 005)
- Condensate Tanks (Room 104, Room 004)
- Baghouse (Above Room 100)
- Ash Silo (Above Room 100)
- Wood Chip Silos (Room 012(x2)
- Hot Water Storage Tank (Room 004)
- Make Up Water Storage Tank(s) (Room 004)
- Wood Chip Hopper(s) (x2)(Room 103)
- Wet Scrubber Duct (Room 103)
- Induced Draft Fan Inlet (Room 011)
- Area Under Air Heat Plate Heat Exchanger (Room 011)
- Ash Hopper Below Economizer Cyclone (Room 011)
- Ash Hopper #2 (Room 011)
- Wood Chip Conveyor (Room 011)
- Air Duct From Air Heat Exchanger (Room 011)
- Blowdown Tank (Room 129)
- Combustion Air Plenum (Room 129)
- Forced Draft Fan Sound Attenuator Transition Plenum (Room 129)
- Gas Turbine Diverter Damper Chamber (Room 129)
- Chilled Water Expansion Tank (Room 005)
- Chilled Water Return Storage Tank Air Separator (Room 005)
- Forced Draft Fan Inlet Boiler #4 (Room 103)
- Silo Dust Collector (Room 012)
- Silo Area Bag House (Room 012)
- Cooling Tower Sump Pit (Cooling Towers)
- Outside Salt Storage

**Public Broadcasting**
- Air Handling Unit

**Ronan Hall**
- Air Handling Unit – Sublevel Mechanical Room, East, West Penthouse
- Sump Pit

**Rose Arena/Ryan Hall**
- Air Handling Unit 1D, 1F, 1G, 2A, 2F, 2G, 4D, 8E, 11D, 13C, 17B, 20C, & 40A
- Brine Tank
- Hot Water Tank
- Pool Holding/Storage Tank
- Pool Overflow/Drain Sump Pump
- Sewage Ejector Pit
- Sump Pit

**Rowe Hall**
- Boiler
- Chiller
- Cooling Tower
- Sump Pit

**Student Activity Center**
- Air Handling Unit 9, 10, 11 & 12
- Sump Pit
- Pool
- Sand Filters
- Sewage Ejector Pit
• Sump Pit

**Satellite Energy Facility**
- Air Handling Unit 1 & 2
- Cooling Tower
- Sump Pit
- Vat

**Saxe Hall**
- Sump Pit

**Sloan Hall**
- Sump Pit

**Smith Hall**
- Air Handling Unit
- Sump Pit

**Thorpe Hall**
- Sump Pit

**Bovee University Center**
- Sump Pit
- Chiller
- Air Handling Unit 1, 2, 3, 4, 7, 9, 10, 11, 12, 13, 14, 15, 16, & 17
- Sump Pit

**Warriner Hall**
- Air Handling Unit 1, 3, Northwest, South Side
- Blower, Northwest & Southeast
- Sump Pit
- Chiller

**West Hall**
- Air Handling Unit 1
- Sump Pit

**Wightman Hall**
- Sump Pit

**Woldt Hall**
- Air Handling Unit 1, 2, & 3
- Brine Tank

Please See Appendix III for the list of permit required confined spaces hazard assessment.
NOTE: The list of permit-required confined spaces may not be all inclusive. If additional areas meeting the definition of a permit-required confined space are added or discovered, the Program Administrator should be contacted to conduct further evaluation. Additionally, when there are changes in the use or configuration of a non-permit confined space that might increase the hazards to Entrants, the space will be reevaluated and reclassified as a permit-space, if necessary. It is important to maintain this program up-to-date. Therefore, it will be reviewed and revised at least annually to reflect any changes.

Employees will be informed of the existence, location, hazards of the permit-required confined spaces via Danger or Caution Signs and through employee training.

The following permit spaces are **APPROVED FOR ALTERNATE PROCEDURES**.

<table>
<thead>
<tr>
<th>NAME OF PERMIT SPACE</th>
<th>LOCATION OF PERMIT SPACE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Documentation substantiating the use of Alternate Procedures for the permit spaces named above can be obtained from the Program Administrator.
CONTRACTOR REQUIREMENTS

In some instances, outside contractors may be required to perform work inside permit spaces. The following procedures will be adhered to regarding contractors:

1. The contract documents will inform the contractor supervisor that the workplace contains permit spaces and entry is allowed only through compliance of a written permit space entry program. The CMU project manager in charge of the project will coordinate responses to any questions raised.

2. The contract documents will inform the contractor of the hazards which make the space a permit-required confined space by including a copy of the Confined Space Hazard Assessment and Written Entry Procedure for the space in the contract.

3. The Confined Space Hazard Assessment and Written Entry Procedure will inform the contractor of any precautions or procedures which have been implemented for employee safety in or near the permit space.

4. If CMU workers and the contractor will be working in the same permit space, the CMU Entry Supervisor and contractor supervisor will coordinate entry operations. All CMU Employees will follow this plan.

The contractor will ensure the contractor’s employees have received adequate training regarding this standard. The Project Manager will as obtain a copy of the contractor’s written Permit-Required Confined Space Entry Program.

At the completion of entry operations, copies of canceled permits must be submitted to the CMU Facilities Management or Telecommunications representative & forward to the Program Administrator. These canceled permits will be annotated in the remarks section regarding any hazards confronted or created during the entry operation. Submission of the canceled permits to CMU is a requirement before final payment by CMU.

At no time shall contractors be allowed to use the Central Michigan University confined space entry or rescue equipment.

A “Contractor Notification Letter” located in Appendix VI may be used to inform contractors of their confined space entry obligations to the Central Michigan University Facilities Management department.
Standard Operating Procedures for Changing Filters in the Dow Exhaust Fan Units

Background
These procedures pertain to the specific task of changing the filters in the Dow exhaust fan units. In March 1998, one of the used filters was sent to Drug and Laboratory Disposal, Inc. for RCRA analytical testing to determine whether it was a hazardous waste. The results indicated that the filter was not a RCRA hazardous waste; therefore, the filters were disposed of as regular solid waste. The results indicated a positive reading for barium, chromium, copper, mercury, and zinc; however for each of these metals, the concentration was still well below the RCRA regulatory limits.

Because the filters are non-hazardous, the exhaust fans can be shut down, and the hood usage can be controlled during the time of the task, the space was down-graded from a permit-required confined space to a non-permit required confined space. Therefore, the regulations pertaining to entry of a permit-required confined space do not apply.

However, prior to commencing this task in the future, the entrants must coordinate the work through the Manager, Lab Safety, Risk Management, Environmental Health & Safety/ Emergency Management. The Manager, Lab Safety will speak with the chemistry department to determine if any new chemicals are being used or if chemical procedures have changed considerably to indicate that the chemical content of the exhaust filters may have changed.

Prior to beginning the work of changing filters
1. Schedule this work only during routine shutdown periods (see FM Procedures Guide under the subject of Dow Science Ventilation for recommended schedule times). This will ensure that hoods will not be used during the time of the work.
2. Use the buddy system. Make sure there are 2 people for this job. The rationale for this decision is based on the length of time required for this job (~0.5 hours per unit), the level of personal protective equipment worn, and the isolation of the individual in the confined space.
3. Lock out the power source for the exhaust unit being worked on prior to making entry using established lockout/tagout procedures.

Work practices
1. Make sure the filters are bagged inside the exhaust unit by individuals who are wearing the personal protective equipment listed in the next section. Bagged filters can go out as regular trash.
2. Student employees are not allowed to change filters in the Dow exhaust fan units.
3. Other preventive maintenance work on the exhaust fan unit cannot be carried out at the same time as the filter changes (such as changing belts).

Personal Protective Equipment for this Task
1. Safety goggles
2. Disposable nitrile gloves worn underneath + PVC over-gloves
3. Disposable Tyvek suit
4. Half mask respirator with P100/acid gas/organic vapor cartridge
Training
Personnel conducting this task must have completed the following training:
1. Lockout/Tagout
2. Personal Protective Equipment
3. Respirator

Updated By: __________________________   Date: 3/2013
Jennifer Walton, Manager Lab Safety
Risk Management, Environmental Health & Safety/Emergency Management
### Central Michigan University
Confined Space Hazard Assessment and Written Entry Procedure

<table>
<thead>
<tr>
<th>Location:</th>
<th>Assessment Date:</th>
</tr>
</thead>
</table>

#### I. CONFINED SPACE CLASSIFICATION
This Space is a: Permit-Required Space

#### II. CONFINED SPACE LOCATION/DESCRIPTION

<table>
<thead>
<tr>
<th>Building Name:</th>
<th>Room Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confined Space Description:</td>
<td></td>
</tr>
<tr>
<td>Department Name/Location:</td>
<td></td>
</tr>
<tr>
<td>Dimensions:</td>
<td>Volume (cubic feet):</td>
</tr>
<tr>
<td>No. of Access Openings:</td>
<td>Primary Access Point:</td>
</tr>
<tr>
<td>Means or Access Into Space:</td>
<td></td>
</tr>
</tbody>
</table>

#### III. PROCESS PERFORMED IN SPACE
Identification of Process: Heats & stores water.

Chemicals/Hazardous Materials In Use? □ Yes X No

#### IV. ENTRY PARAMETERS
Primary Reason for Entry:
Frequency of Entry:

#### V. NOTIFICATION
Pre-entry briefing on specific hazards and control measures to Confined Space Team

#### VI. SITE CONTROL

Notification to be given to affected department service interruption and entry work

#### VII. SPACE PREPARATION METHODS

#### VIII. LOCKOUT/TAGOUT/ISOLATION
Lockout/tagout:

#### IX. HAZARD IDENTIFICATION

<table>
<thead>
<tr>
<th>Atmospheric Hazards</th>
<th>Content Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential Energy Sources</td>
<td>Environmental Hazards</td>
</tr>
<tr>
<td>Potential Energy Sources cont.</td>
<td>Environmental Hazards cont…</td>
</tr>
<tr>
<td>Configuration Hazards</td>
<td></td>
</tr>
</tbody>
</table>

#### X. HOT WORK/SMOKING
No Smoking Permitted In Space At Any Time

#### XI. VENTILATION
Mechanical Fresh Air Supply (blowing)
Ventilator Set-Up/Specifications:

<table>
<thead>
<tr>
<th>Type Ventilator: Electric</th>
<th>Size (cfm):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Ventilation Purge Time (min):</td>
<td></td>
</tr>
<tr>
<td>Duct (hose) Size (diameter):</td>
<td>Maximum Number of 90 Degree Bends:</td>
</tr>
<tr>
<td>Duct length:</td>
<td>Saddle Vent Required?:</td>
</tr>
<tr>
<td>Ventilation Required During Entry Work?:</td>
<td>X Yes</td>
</tr>
<tr>
<td></td>
<td>□ No</td>
</tr>
</tbody>
</table>


XII. ELECTRICAL EQUIPMENT

XIII. ILLUMINATION (TO TAKE INTO SPACE)

XIV. PRE-ENTRY AND ENTRY ATMOSPHERIC TESTING (ALWAYS REQUIRED)

<table>
<thead>
<tr>
<th>Substance</th>
<th>X Continuous</th>
<th>□ Periodic - Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Combustible Gas</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Toxic:</td>
<td>H₂S</td>
<td>X Continuous</td>
</tr>
<tr>
<td></td>
<td>CO</td>
<td>X Continuous</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td>□ Continuous</td>
</tr>
</tbody>
</table>

PEL for H₂S = 10 ppm, CO= 35 ppm
Instrumentation: 4-Gas Meter

XV. RESPIRATORY PROTECTION SELECTION

XVI. MINIMUM PPE*

XVII. FALL PROTECTION AND RESCUE DEVICES

XVIII. COMMUNICATION EQUIPMENT

<table>
<thead>
<tr>
<th>Attendant Required?</th>
<th>X Yes</th>
<th>□ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Attendant and Entrant(s):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Notification:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Telephone Number:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location of Nearest Working Telephone:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

XIX. RESCUE TEAM

Mount Pleasant Fire Department

XX. SPECIAL HAZARDS/REQUIREMENTS/Notes

None.
APPENDIX III
HAZARD ASSESSMENT & WRITTEN ENTRY PROCEDURE
CONFINED SPACE HAZARD ASSESSMENT AND
WRITTEN ENTRY PROCEDURE BY BUILDING

Barnes Kitchen
Beddow Hall
Brooks Hall
Campbell Hall
Carey Dining Commons
Celani Hall
Dow Science Complex
EHS Building
Engineering & Technology Building
Fabiano Hall
Finch Fieldhouse
Foust Hall
Grawn Hall
Health Professions Building
Herrig Hall
Indoor Athletic Complex
Kelly Shorts Stadium
Kesseler Hall
Kewadin Apartments
Kulhavi Hall
Merrill Dining Commons
Moore Hall
Music Building
Northwest Apartments
Park Library
Pearce Hall
Powerhouse (Central Energy Facility)
Public Broadcasting Building
Ronan Hall
Rose/Ryan Arena
Rowe Hall
Student Activity Center
Satellite Energy Facility
Saxe Hall
Sloan Hall
Smith Hall
Thorpe Hall
University Center
Warriner Hall
West Hall
Wightman Hall
Woldt Hall
Exterior Spaces
APPENDIX IV

BLANK CONFINED SPACE ENTRY PERMIT
**CENTRAL MICHIGAN UNIVERSITY CONFINED SPACE ENTRY PERMIT**

Date / Time Issued: ___________ / ___________ Date / Time Expires: ___________ / ___________

☐ PERMIT CANCELLED-Date / Time / Supervisor’s Initials: ___________ /__ __ __/__ __

**IF CONDITIONS CHANGE & THE PERMIT IS PREMATURELY CANCELLED, PLEASE NOTE THE REASON(S) BELOW (Additional Information) AND FORWARD PERMIT TO ESS.**

Location / Facility / Description of space: ___________________________________________________

Purpose of Entry: __________________________________________________

Acceptable Entry Conditions:

- Green = Acceptable for entry. Yellow = Caution, ensure proper procedure has been followed. Red = NOT acceptable for entry.

<table>
<thead>
<tr>
<th>Has system been locked out and or tagged out?</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has piping been blanked, broken or capped?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Has piping been double-blocked and bled?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Has space been ventilated?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Has fall protection been provided?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Is rescue equipment available?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Is a first aid kit available?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Has entrant(s) been provided with safety harness?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Has entrant(s) been provided with life line?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Is adequate lighting available?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Is lighting and equipment GFCI protected?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Is area secured and barricades in place?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Is a fire extinguisher available?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Has protective clothing been provided?</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>

| Are personnel trained to perform assigned duties? | Yes | No | N/A |
| Has ALL equipment been inspected and ready for use? | Yes | No | N/A |
| Have specific written entry procedures been reviewed by all involved? | Yes | No | N/A |

| Have rescue personnel been notified of the entry? | Yes | No | N/A |
| Have specific non-entry rescue procedures been reviewed by all involved? | Yes | No | N/A |

<table>
<thead>
<tr>
<th>Permissible Entry Levels</th>
<th>Preentry Time</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.5% to 23.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 PPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 PPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Supervisor</th>
<th>Enterant(s)</th>
<th>Attendants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Air Monitoring Equipment**

<table>
<thead>
<tr>
<th>Instrument Used</th>
<th>Model</th>
<th>Serial #</th>
<th>Date Calibrated</th>
<th>Person Doing Test</th>
</tr>
</thead>
</table>

**Authorization:**

I have reviewed the work authorized by this permit and the information pertaining to each item. Safety procedures have been received and are understood by all personnel.

**Additional Information:**

**Additional Permits:** Please attach additional permits issues to authorize work in this space (i.e. Hot Work)
APPENDIX V

ALTERNATE ENTRY FORM
DECLASSIFICATION FORM
CENTRAL MICHIGAN UNIVERSITY
ALTERNATE PROCEDURES CERTIFICATION FORM

DATE: __________________ PERMIT SPACE DESCRIPTION: __________________ LOCATION: __________________

ACTUAL OR POTENTIAL ATMOSPHERIC HAZARDS:

- Oxygen Deficiency __ No __ Yes
- Explosive / Flammable Gases __ No __ Yes Specify substances & percentages below
- Toxic Gases __ No __ Yes __________________
- Other Atmospheric __ No __ Yes __________________
- Any non-atmospheric hazards (water, engulfment, energy, etc)? __ No __ Yes If “yes”, space is ineligible for Alternate Procedures.

WILL CONTINUOUS FORCED AIR VENTILATION ALONE BE SUFFICIENT FOR SAFE ENTRY?
If “no” space is ineligible for Alternate Procedures __ No __ Yes

Verify that the following conditions have been met:

☐ Non-Atmospheric Hazards concerned with entry (energy, high temperature or pressures within the space, etc.) have been eliminated, and barriers to protect the entrants have been set in place.

☐ Atmospheric testing has been performed (oxygen, flammable, toxic gases).

☐ Continuous forced air ventilation is present.

☐ The atmosphere is tested periodically (as necessary).

☐ Entrants exit the space immediately if a hazardous atmosphere is detected.

HAS INSPECTION CONFIRMED THAT CONDITIONS LISTED ABOVE ARE ACCURATE? __ No __ Yes

ANY ENTRY TO COLLECT DATA OR INSPECT A SPACE MUST BE BY PERMIT CONDITIONS
Under Alternate Procedures, the atmosphere must be tested periodically as necessary to ensure against a hazardous atmosphere. See Confined Space Hazard Assessment/Written Entry Procedure and Confined Space program for guidance.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Acceptable Entry Conditions</th>
<th>Pre-entry Tests</th>
<th>Post-entry / Periodic / Continuous Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Time</td>
<td>Result</td>
</tr>
<tr>
<td>% of Oxygen</td>
<td>19.5% - 23.5 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flamm/Explosive</td>
<td>Under 10% LEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxic: CO</td>
<td>35 PPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H₂S</td>
<td>10 PPM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALTERNATE PROCEDURES CERTIFICATION BY ENTRY SUPERVISOR

I am familiar with the special requirements and conditions under which a permit-required confined space may be entered under alternate procedures, as found in MIOSHA Part 90 Section (c)(5) and 29 CFR 1910.146(c)(5). The basis for the conclusion that the space is eligible for these alternate procedures are inspections and testing (with a calibrated, direct reading instrument, as noted above). I verify that all necessary pre-entry steps have been taken. I verify that the space is safe for entry.

SIGNATURE OF ENTRY SUPERVISOR
AUTHORIZING ENTRY UNDER ALTERNATE PROCEDURES: ________________________________

☐ FORM CANCELLED-Date / Time / Supervisor’s Initials: __________/__________/__________

IF CONDITIONS CHANGE & THIS FORM IS PREMATURELY CANCELLED, PLEASE NOTE THE REASON(S) ON THE BACK OF THE FORM AND FORWARD THE FORM TO ESS.

This form must be submitted to EHS, Smith 103, upon completion of entry operations.
PLEASE NOTE: You must verify with ESS that declassification is allowed before the space is entered.

DATE: ______________ PERMIT SPACE DESCRIPTION: __________________ LOCATION: ______________

Under certain conditions, a space which is initially classified as a Permit Space may be declassified to a Non-Permit space. Declassification may be appropriate if all of the following conditions are met:

- The confined space poses no actual or potential atmospheric hazard; and
- All hazards within the confined space can be eliminated (and not just controlled) without entry into the space.

Prior to entry verify that all energy has been de-energized, and moving equipment is secured from movement? ☐ No ☐ Yes

Yes

(If no, then the space must be entered as a full permit entry confined space)

Lighting has been provided within the space prior to entry? ☐ No ☐ Yes

(If no, then this space must be entered as a full permit entry confined space)

All non-atmospheric hazards have been eliminated? ☐ No ☐ Yes

No actual or potential atmospheric hazards exist? ☐ No ☐ Yes

(Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards)

HAS INSPECTION CONFIRMED THAT THE CONDITIONS LISTED ABOVE ARE ACCURATE? ☐ No ☐ Yes

Prior to entry into any confined space, including declassified spaces, the atmosphere within the space should be monitored before entry even though no potential atmospheric conditions, which may be IDLH or hazardous, have been identified. This effort will be made, though not required by regulation, to ensure no unexpected changes will ever pose a hazard to CMU employees or to contractors working within CMU facilities. Atmospheric testing shall be performed as listed below.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Acceptable Entry Conditions</th>
<th>Pre-entry Tests</th>
<th>Post-entry / Periodic / Continuous Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Oxygen</td>
<td>19.5% - 23.5%</td>
<td>Time</td>
<td>Result</td>
</tr>
<tr>
<td>Flamm/Explosive</td>
<td>Under 10% LEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxic: CO</td>
<td>35 PPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2S</td>
<td>10 PPM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DECLASSIFICATION PROCEDURES CERTIFICATION BY ENTRY SUPERVISOR:

I am familiar with the special requirements and conditions under which a permit-required confined space may be Declassified, as found in MIOSHA Part 90 section (c)(7) and 29 CFR § 1910.146(c)(7). The basis for the conclusion that the space is eligible for these declassification procedures are inspections and testing (with a calibrated, direct reading instrument, as noted above). I verify that all necessary pre-entry steps have been taken. I verify that the space is safe for declassified entry.

SIGNATURE OF ENTRY SUPERVISOR
AUTHORIZING ENTRY UNDER DECLASSIFICATION PROCEDURES: __________________________________________

☐ FORM CANCELLED-Date / Time / Supervisor’s Initials: __________ / ________/ __________

IF CONDITIONS CHANGE & THIS FORM IS PREMATURELY CANCELLED, PLEASE NOTE THE REASON(S) ON THE BACK OF THE FORM AND FORWARD THE FORM TO ESS.

This form must be submitted to EHS, Smith 103, upon completion of entry operations.
Contractor Notification Letter

Permit-Required Confined Space Program

Date: ______________________

Contractor / Vendor Address:

________________________________________
________________________________________
________________________________________
________________________________________

To whom it may concern:

Central Michigan University, hereafter called CMU, has in-place a Permit-Required Confined Space Entry Program. The Permit-Required Confined Space Entry Program complies with the Occupational Safety and Health Administration (OSHA), and the Michigan Occupational Safety and Health Administration (MIOSHA), General Industry Permit-Required Confined Space standards; 29 CFR 1910.146 (OSHA) and Part 90 (MIOSHA).

Organizations, hereafter called contractor, providing contractor services to CMU, are hereby notified of their responsibilities to the “Contractor/Host Employer” aspects of CMU’s Permit-Required Confined Space Entry Program. Be aware Contractors normally required to comply with the OSHA and MIOSHA Construction Industry standards are required to comply with the OSHA and MIOSHA General Industry standards when working within confined spaces serviced by CMU.

Permit-required confined spaces serviced by CMU have been identified with a sign or label reading “Danger - Confined Space - Enter by Permit Only”. However, some permit-required confined spaces, such as sub-surface sewers, do not require identification with a sign or label. As such, if you are required to work within a space which has not been identified as permit-required confined space, you are asked to contact the CMU representative to provide clarification on the classification of the confined space in question.

In keeping within regulatory compliance of the aforementioned General Industry standards, the following requirements must be satisfied prior to providing work services within permit-required confined spaces serviced by CMU:

1. The Contractor has in-place a Written Permit-Required Confined Space Entry Program, fulfilling the requirements of MIOSHA Part 90 and OSHA 1910.146, available for review by the authorized CMU representative.

2. The on-site Contractor employees have been trained in permit-required confined space entry operations, and demonstrate competence in permit-required confined space entry operations, fulfilling the requirements of MIOSHA Part 90 and OSHA 1910.146.

3. The Contractor has developed procedures for working within the permit-required confined space(s) of concern. The procedures must be in compliance with MIOSHA Part 90 and OSHA 1910.146, and must follow industry-accepted safe work practices including provisions for a trained and qualified Entry Rescue Team.

4. The Contractor has equipment available for use in the permit-required confined space entry operation(s) of concern.

In addition, a prudent contractor should insure:

1. It has in place a Written Lockout/Tagout Program, fulfilling the requirements of MIOSHA Part 85 and OSHA 29 CFR 1910.147; the General Industry standards for The Control of Hazardous Energy Sources. The Written Lockout/Tagout Program must address those hazardous energies associated with the permit-required confined space(s) of concern. The Written Lockout/Tagout Program must be available for review by the authorized CMU representative.
2. Its on-site employees have been trained in lockout/tagout procedures, and demonstrate competence in lockout/tagout procedures, meeting the requirements of MIOSHA Part 85 and OSHA 1910.147.

3. It has in place a Written Hazard Communication Program, fulfilling the requirements of the federal OSHA Hazard Communication Standard, 29 CFR 1910.1200, adopted by reference and in conjunction with the Michigan Occupational Safety and Health Act 154. The Contractor’s Written Hazard Communication Program must address those hazardous materials associated with the permit-required confined space(s) of concern. The Contractor’s Written Hazard Communication Program must be available for review by the authorized CMU representative.

4. Its on-site employees are trained in the Written Hazard Communication Program, and demonstrate competence in the Contractor’s Written Hazard Communication Program. Training and competence includes those materials brought into the permit-required confined space, those materials created as a result of operations in or near the permit-required confined space, and those materials normally existing within the permit-required confined space.

5. Has contracted with or has within the company, a fully trained and equipped rescue team.

In addition to the above listed requirements, the Contractor should be aware of the following protocol, complying with the General Industry Permit-Required Confined Space standards, when conducting permit-required confined space entry operations on CMU serviced grounds.

- Prior to conducting permit-required confined space entry operations, the Contractor representative will be apprized of the elements, hazards, and past experiences encountered while working within the permit-required confined space(s) of concern. The Contractor representative will also be provided with precautions or procedures CMU has implemented for the protection of CMU employees working in or near the permit-required confined space(s) of concern.

- When it has been decided Contractor employees and CMU employees will be working in or near the same permit-required confined space(s), the authorized Contractor supervisor and authorized CMU supervisor will coordinate entry operations, with the CMU supervisor in the lead.

- At the close of entry operations within the permit-required confined space(s) of concern, the Contractor representative will notify CMU of the procedures the Contractor followed while conducting entry operations, and the hazards encountered or created during entry operations.

If you have any questions regarding these requirements on permit-required confined space entry, please contact CMU.

Sincerely,

________________________________________
(Signature)

________________________________________
(Title)