



BRIGHAM YOUNG UNIVERSITY – IDAHO

ENVIRONMENTAL, HEALTH & SAFETY

SAFETY DEPARTMENT

CONFINED SPACE ENTRY PROGRAM

EH-001-R03

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Brigham Young University-Idaho

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1.0 Overview

Working in confined spaces can pose significant risks to university employees. Every year there are deaths recorded in a variety of industries including education. There are a variety of confined spaces spread across campus and its satellites. Each confined space has the potential to expose workers to serious health and safety hazards. This document has been created to minimize the risks associated with work in confined spaces. OSHA has established a Confined Space Standard which requires specific training, equipment, and documentation in order to meet minimum safety standards. Specific responsibilities for implementing and monitoring the program's effectiveness are assigned to departments, supervisors, employees, and the Safety Department. The program will be reviewed annually, and updated as needed to meet current standards.

2.0 Policy

All University employees involved with confined space entry activities must receive training and adhere to the standards outlined in the current BYU-Idaho Confined Space program.

A confined space is defined as a space that:

1. is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. has limited or restricted means for entry or exit (for example, tanks, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
3. is not designed for continuous employee occupancy.

3.0 Requirements

- OSHA Confined Space Standard 29 CFR 1910.146, is accessible online at:
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9797
- OSHA Welding Standard, 29 CFR 1910.252, is accessible online at:
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9853
- BYU-Idaho EH-002 Hot Work Permit Program
- BYU-Idaho EH-018 Respiratory Protection Program

4.0 Purpose

This program has been created to help prevent serious accidents, injuries, and death in university-identified confined spaces. Departments will utilize this program to increase employee awareness, provide required training, and to help ensure compliance with federal, state, and local laws and regulations.

5.0 Scope

This program applies to all university employees, contractors employed by the university, and outside agencies performing authorized work on university property.

Note: This program applies to entry into any confined space, including those at remote locations that are entered by BYU-I employees.

6.0 Procedures

Three different entry procedures are available depending upon the type of space to be entered, hazards present or potentially present in the space, and the type of work to be performed in the confined space. The most comprehensive procedures used for entry are referred to as the Full Permit System, see section 6.1 below. Alternate Entry Procedures and Telecommunication Entry Procedures are also available for work within confined spaces that satisfy certain criteria (see sections 6.2 and 6.3 respectively below).

The following table is provided to help individuals determine what procedures can be used to help determine which confined space entry permit should be used. If the confined space contains a hazard from section A and B of the table then the Full Permit System must be used for entry. If the confined space does not contain a hazard from section A, but does contain the hazard indicated in section B then either Alternate Entry Procedures or Telecommunication Entry Procedures can be used to enter the confined space, dependent upon the work being performed.

		Hazards Present, or Potentially Present in the Confined Space:	Y	N
Section A	1	Moving parts?	<input type="checkbox"/>	<input type="checkbox"/>
	2	Electrical hazards?	<input type="checkbox"/>	<input type="checkbox"/>
	3	Hydraulic or pneumatic hazards?	<input type="checkbox"/>	<input type="checkbox"/>
	4	Solid or liquid engulfment hazard?	<input type="checkbox"/>	<input type="checkbox"/>
	5	Constriction hazard (i.e. converging walls)?	<input type="checkbox"/>	<input type="checkbox"/>
	6	Any other recognized serious hazards (other than atmospheric)?	<input type="checkbox"/>	<input type="checkbox"/>
Section B	7	Hazardous atmosphere (i.e. low O ₂ , explosive, toxic, heat, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Note: Some conditions that would cause question 7 to be answered yes = incomplete combustion, presence of chemicals, decaying organic matter, corrosion, welding, or natural gas or other chemical lines in or around the confined space.</i>			

Note: a similar table is found on the Confined Space Entry Form (Appendix A), and must be filled out and posted prior to each entry.

Note: Many of the procedures found in 6.1 below are referenced by the Alternate Entry Procedures and Telecommunication Procedures.

6.1 Full Permit System

The Full Permit System must be used for entry into any confined space that cannot be entered using the Alternate Entry Procedures or Telecommunication Entry Procedures. Full Permit System procedures are outlined in Appendix B and the following sections of the Full Permit System (6.1).

6.1.1 General Requirements

- Departments must provide and maintain all equipment necessary for their employees to safely enter and perform work within those confined spaces the individuals will enter. Equipment must be maintained in accordance with manufacturer recommendations.
- A space that has existing or potential hazards cannot be entered unless an authorized attendant is present at all times the space is occupied.
- A space that will be void of existing and potential hazards during entry can be entered without use of a supervisor and/or attendant.
- Confined spaces that are no longer used must be sealed by the department responsible for the space to prevent individuals from entering the space.
- All welding, cutting, brazing, and any other flame/spark producing operation must be done in accordance with the current version of the BYU-Idaho "EH-002 Hot Work Permit Program".
- Respiratory protection will be worn when the conditions warrant as indicated in 6.1.2 through 6.1.3.

6.1.2 Air Monitoring

- An explosion proof calibrated confined space meter must be used when monitoring the atmosphere within a confined space. Readings must be recorded on the Confined Space Entry Form (Appendix A) prior to entry, periodically during entry, and whenever an entrant exits.
- When monitoring the atmosphere within a confined space, the following measurements must be obtained in the following sequence:
 - Oxygen Content
Note: Acceptable concentration between 19.5% and 23%.
 - Lower Explosive Limit
Note: Acceptable concentration <10% LEL.
 - Toxic Air Contaminants.
Note: Acceptable entry conditions depend upon individual contaminant exposure limit(s).
- Different gases and vapors may be heavier, lighter or the same weight as air and therefore may be stratified or present at different levels within a confined space. Therefore, pre-entry testing must be performed at all levels of stratification.

- Authorized individuals entering the Confined Space, must be provided the opportunity to observe pre-entry testing and any subsequent periodic monitoring of a confined space atmosphere. If the authorized entrant has reason to believe that the evaluation of the confined space is not adequate, the space must be re-evaluated in the presence of the individual.
- Air monitoring may only be conducted by personnel that have received hands-on training and understand how to calibrate, bump check, and operate the air monitoring equipment. Such equipment must be maintained in good working condition at all times and must be calibrated and bump checked in accordance with manufacture recommendations. Bump checks are recorded on the corresponding Confined Space Entry Form. When not performed by the Safety Department, the departments are responsible for maintaining calibration records.
- All entrants must immediately exit a confined space should a confined space meter(s) alarm.

Note: If multiple entrants enter the space then it is acceptable to have only the lead entrant utilize a confined space meter so long as doing so effectively monitors the atmosphere for all entrants.

6.1.3 Controlling Atmospheric Hazards

- When a confined space contains, or has the potential to contain a serious safety or health hazard due to an airborne contaminant, forced air ventilation must be used to control actual and/or potential atmospheric hazards. The ventilation must be directed toward the entrants, drawn from a clean source, and must be adequate for the task. Consult the Safety Office for additional information.

Note: oxygen must never be used to ventilate a confined space.

- If a confined space contains a hazardous atmosphere that cannot be controlled by using forced air ventilation then the atmosphere must be considered immediately dangerous to life and health (IDLH). Individuals working for BYU-Idaho are not allowed to enter an IDLH atmosphere. Work within a confined space that contains or may contain an IDLH atmosphere must be contracted to a qualified vendor.
- When gas welding or cutting is being performed in any confined space the gas cylinders and welding machines must be left outside the space. When gas welding or cutting, the torch valves must be closed and the gas supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time (including lunch breaks). Where practicable, the torch and hose must also be removed from the confined space.

Note: When arc welding is to be suspended for any substantial period of time (including lunch breaks) all electrodes shall be removed from their holders and the holders carefully located so that accidental contact cannot occur and the machine must be disconnected from the power source.

Note: Ventilation does not eliminate a hazardous atmosphere – it only controls the hazard.

6.1.4 Communication

Note: 6.1.4 requirements do not apply to spaces being entered using the Alternate Entry Procedures.

- When individuals will enter a confined space that contains, or potentially contains, a serious safety or health hazard then the following parties must establish and maintain a reliable method of communication:
 - Between the attendant and University Dispatch; and
 - Between the attendant and the entrants.
- The method of communication can be:
 - Face to face verbal communication;
 - Via 2-way radio; and/or
 - By cell phone.
- The means for summoning rescue services must be tested and verified to be functional prior to confined space entry. The means and procedures for communication must be outlined on the Confined Space Entry Form.
- Communication must be maintained between the attendant and entrants while the confined space is occupied. The purposes for maintaining communication is to monitor entrant activities and summon rescue services if the need arises.
- If signs and symptoms of chemical exposure, distress due to exposure to temperature extremes (hot or cold environments), or signs and symptoms of physical distress are experienced during entry then entrants must communicate their signs and symptoms to the attendant and exit the Confined Space. Attendants/entry supervisors will order all entrants to evacuate the confined space should such information be relayed.

6.1.5 Retrieval & Rescue Equipment

Note: 6.1.5 requirements do not apply to spaces being entered using the Alternate Entry Procedures

- A non-entry retrieval system must be used for all entries into any confined space that contains, or has the potential to contain a serious safety or health hazard. Retrieval equipment must facilitate non-entry rescue. If a retrieval system increases the overall risk of entry, or does not contribute to the rescue of entrants then individuals employed by BYU-Idaho are not allowed to enter the confined space and the work must be contracted out by the department seeking entry into the confined space.
- The retrieval system utilized for most confined space entries consists of a full body harness, lifeline, proper hand winch, and properly rated tripod/davit system. If this system will not work then the department responsible for entry into the confined space must develop an equally

effective system that will facilitate non-entry rescue, in consultation with the Safety Department.

- Safety equipment and retrieval systems must be inspected by the Safety Department in accordance with manufacturer recommendations prior to each use.
- Lifelines, harnesses, and snap hooks must meet the appropriate ANSI and/or CSA Standards. Lanyards may be detached from the lifeline when necessary if connecting the equipment creates a higher risk than leaving it attached.
- Only authorized entrants and rescue service personnel are allowed to enter a confined space. Attendants/entry Supervisors must carry out non-entry rescue procedures if an emergency arises within the space and the entrants are unable to exit the space without assistance.

6.1.6 Emergency Services

Note: 6.1.6 requirements do not apply to spaces being entered using the Alternate Entry Procedures.

- The following procedures must be followed if an emergency arises within a confined space during entry:
 - The attendant is to immediately notify the Safety Office and University Dispatch (496-3000, or 911 from a campus phone);
 - Immediately begin non-entry rescue procedures; and
 - Dispatch must immediately contact Madison County Fire Department and provide a description of the emergency and the location of the confined space where the emergency has occurred.
- The Rescue Team must have the opportunity to practice rescues on campus.
- The criteria for selecting and evaluating rescue team members can be found in the appendix of OSHA standard 29 CFR 1910.146, available online at www.osha.gov

6.1.7 Contractor Requirements

- When departments arrange to have contractors perform work that involves entry into a confined space that contains a serious safety or health hazard, the department must:
 - Inform the contractor that the workplace contains confined spaces that have or potentially could contain a serious safety or health hazard, and that entry is allowed only by following a confined space program that meets current OSHA requirements;
 - Apprise the contractor of the elements, including the hazards identified and the department's experience with the space;
 - Apprise the contractor of any precautions or procedures that the department responsible for contracting the employer has previously

implemented for the protection of employees in or near the confined spaces where the contractor will be working;

- Coordinate entry operations with the contractor, when University personnel and the contractor will be working in, or near a confined space;
- Debrief the contractor at the conclusion of entry operations to review any alterations to the confined space as well as any hazards/difficulties encountered during entry operations; and
- Prior to allowing entry into a confined space, the department responsible for the entry must verify that the contractor(s) have a confined space entry program and have arranged their own rescue services.

Note: a single person can be selected by a department to function as the entry supervisor and attendant so long as the individual can adequately perform the responsibilities for both positions.

6.2 Alternate Entry Procedures

Departments may use the alternate procedures specified in this section for entering a permit space that satisfies all of the following conditions:

- (A) The department can demonstrate that the only hazard posed by the permit space is an actual or potential hazardous atmosphere;
- (B) The department can demonstrate that continuous forced air ventilation alone is sufficient to maintain the permit space safe for entry;
- (C) The department develops monitoring and inspection data that supports the demonstrations required by paragraphs (A) and (B) above;
- (D) If an initial entry of the permit space is necessary to obtain the data required by paragraph (C) of this section, then the entry must be performed in compliance with section 6.1, 7.0, 8.0, 9.0, and 10.0 of this program; and
- (E) The determinations and supporting data required by paragraphs (A), (B), and (C) of this section are documented by the Department (using a Confined Space Entry Form) and are made available to each employee who enters the permit space under the terms of this section or to that employee's authorized representative.

Complete the decision tree questions found on the Confined Space Entry Form, Appendix A to determine whether or not alternate entry procedures can be used to enter the confined space.

6.2.1 Alternate Entry Procedures (See Appendix C for Flow Chart)

- (A) Any conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed.
- (B) When entrance covers are removed, the opening must be promptly guarded by a railing, temporary cover, or other temporary barrier that will

prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

- (C) Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee, who enters the space, or that employee's authorized representative, must be provided an opportunity to observe the pre-entry testing required by this section including:
 - (1) Oxygen content,
 - (2) Flammable gases and vapors, and
 - (3) Potential toxic air contaminants.
- (D) There may be no hazardous atmosphere within the space whenever any employee is inside the space.
- (E) Continuous forced air ventilation must be used, as follows:
 - (1) An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;
 - (2) The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present within the space and must continue until all employees have left the space;
 - (3) The air supply for the forced air ventilation must be from a clean source and may not increase the hazards in the space.
- (F) The atmosphere within the space must be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee, who enters the space, or that employee's authorized representative, must be provided with an opportunity to observe the periodic testing required by this paragraph.
- (G) If a hazardous atmosphere is detected during entry:
 - (1) Each employee must leave the space immediately;
 - (2) The space must be evaluated to determine how the hazardous atmosphere developed; and
 - (3) Measures must be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.
- (H) The Department must verify that the space is safe for entry and that the pre-entry measures required by this section have been taken, by completing a Confined Space Entry Form. The form must be completed as much as possible before entry, filled out as necessary throughout entry, and finalized once entry is complete. Entry forms must be made available to each employee entering the space or to that employee's authorized representative.

All procedures outlined above, in section 6.2.1, must be performed in accordance with all applicable requirements found in section 6.1 of this program (e.g. air monitoring requirements).

6.2.2 Changes in Use or Configuration

- When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the Department overseeing entry must reevaluate the space and take all necessary precautions to protect individuals who have or will enter the space.

6.2.3 Additional Alternate Entry Procedures Training Requirements

- The following training requirements compliment, or are in addition to those required in section 8.0 of this program:
 - (A) Training must be provided to each affected employee:
 - (1) Before the employee is assigned duties under this section;
 - (2) Before there is a change in assigned duties;
 - (3) Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;
 - (4) Whenever the Department has reason to believe either that there are deviations from the permit space entry procedures required by this section or that there are inadequacies in the employee's knowledge or use of these procedures.
 - (5) Refresher training every three (3) years.
 - (B) The training must establish employee proficiency in the duties required by this section and must introduce new or revised procedures, as necessary, for compliance with this section.

6.3 Telecommunication Entry Procedures

The procedures contained in this section apply only to the work conditions, practices, means, methods, operations, installations and processes performed at telecommunications centers and at telecommunications field installations, which are located outdoors or in building spaces used for such field installations. "Center" work includes the installation, operation, maintenance, rearrangement, and removal of communications equipment and other associated equipment in telecommunications switching centers. "Field" work includes the installation, operation, maintenance, rearrangement, and removal of conductors and other equipment used for signal or communication service, and of their supporting or containing structures, overhead or underground, on public or private rights of way including buildings or other structures.

Complete the decision tree questions found on the Confined Space Entry Form, Appendix A to help determine whether or not Telecommunication entry procedures can be used to enter the confined space. See Appendix C for Telecommunications Entry Procedures Flow Chart.

6.3.1 Guarding Manholes and Street Openings

- When covers of manholes or vaults are removed, the opening must be promptly guarded by a railing, temporary cover, or other suitable temporary barrier which is appropriate to prevent an accidental fall through the opening and to protect employees working in the manhole from foreign objects entering the manhole.
- While work is being performed in the manhole, a person with basic first aid training must be immediately available to render assistance if there is cause for believing that a safety hazard exists. If controlling foot or vehicle traffic, and/or the opening of the manhole cannot be adequately guarded to protect employees then a person with basic first aid training must be immediately available. Other examples of manhole worksite hazards which must be considered to constitute a safety hazard include, but are not limited to:
 - Manhole worksites that are subject to unusual water hazards that cannot be abated by conventional means.
 - Manhole worksites that are occupied jointly with power utilities as described in section 6.3.3 below.

6.3.2 Requirements prior to entering manholes and unvented vaults

- Before an employee enters a manhole, the following steps must be taken:
 - (A) The internal atmosphere must be tested for acceptable concentrations of oxygen (19.5 ppm to 23 ppm) and combustible gas (<10%), in that order using a properly calibrated and functioning confined space meter.
 - (B) When unsafe conditions are detected by testing or other means, the work area must be ventilated and otherwise made safe before entry.
- An adequate continuous supply of forced air must be provided while work is performed in manholes under any of the following conditions:
 - (A) Where combustible or explosive gases or vapors have been initially detected and subsequently reduced to a safe level by forced air ventilation;
 - (B) Where organic solvents are used in the work procedures;
 - (C) Where open flame torches are used in the work procedure;
 - (D) Where the manhole is located in that portion of a public right of way open to vehicular traffic and/or exposed to a seepage of gas or gases; or
 - (E) Where a toxic gas or oxygen deficiency is found.
- The requirements found above in 6.3.2 of this section do not apply to work in central vaults that are adequately ventilated.

6.3.3 Joint Power and Telecommunication Manholes

- While work is being performed in a manhole occupied jointly by an electric utility and a telecommunication utility, an employee with basic first aid training must be available in the immediate vicinity to render emergency assistance as may be required. The employee whose presence is required in the immediate vicinity for the purposes of rendering emergency assistance is not to be precluded from occasionally entering a manhole to provide assistance other than in an emergency. The requirement of this paragraph does not preclude a qualified employee, working alone, from entering for brief periods of time, a manhole where energized cables or equipment are in service, for the purpose of inspection, housekeeping, taking readings, or similar work if such work can be performed safely.

6.3.4 Ladders

- Ladders must be used to enter and exit manholes exceeding 4 feet in depth.

6.3.5 Flames

- When open flames are used in manholes, the following precautions must be taken to protect against the accumulation of combustible gas:
 - A test for combustible gas must be made immediately before using the open flame device, and at least once per half hour while using the device and a fuel tank (e.g. acetylene) may not be in the manhole unless in actual use.

6.3.6 Documentation

- The Department must verify that the space is safe for entry and that the pre-entry measures required by this section have been taken, by completing a Confined Space Entry Form (Appendix A). The form must be completed as much as possible before entry, filled out as necessary throughout entry, and finalized once entry is complete. Entry forms must be made available to each employee entering the space.

7.0 Responsibilities

7.1 Departments

- Determine whether or not individuals overseen by the department are or will need to enter confined spaces while performing work for BYU-Idaho;
- Departments must inform individuals they oversee about the location of confined spaces in locations where the individuals will be performing their work;
- Ensure individuals involved with confined space entry are properly trained;
- Ensure that confined space entries are performed in accordance with this BYU-Idaho Confined Space Program;
- Provide all necessary equipment for safe entry into confined spaces;

- Maintain all confined space equipment needed for the individuals overseen by the Department in accordance with manufacturer recommendations;
- Unless using the Alternate Entry Procedures (when appropriate), assign an entry supervisor and at least one attendant for entry into permit-required confined spaces;
- Maintain training records, completed Confined Space Entry Forms, and completed Supervisor Self Assessment checklists;
- Protect all individuals, including the general public, from the dangers presented by confined spaces found in their area of control; and
- Establish and maintain a progressive disciplinary action plan – where individuals not following the requirements of this Confined Space program are disciplined. Repeated or gross failure to follow the requirements of this program will result in disciplinary actions taken, up to and including termination of employment.

7.2 Entry Supervisor

- Select properly trained individuals to complete work within the Confined Space;
- Prior to entry:
 - Ensure that the confined space multi-gas meter is functioning properly, and calibrate the confined space multi-gas meter in accordance with manufacturer recommendations prior to obtaining atmospheric readings within the space;
 - Evaluate the confined space and document the evaluation by completing a Confined Space Entry Form (Appendix A) in accordance with this program;
 - If the confined space contains, or has the potential to contain a serious safety or health hazard during entry then the supervisor must determine what measures must be taken to eliminate or control the hazards. *Note: contact The Safety Department (496-2437) for assistance if necessary;*
 - If atmospheric contaminants will be present, or are potentially present during entry then the supervisor must become familiar with signs and symptoms of exposure to the contaminants;
 - Verify that all procedures necessary to eliminate and/or control hazards have been established and/or completed prior to allowing entry;
 - Verify that all equipment specified by the Confined Space Entry Form has been acquired, is in proper working order, and properly set-up; and
 - Review the Confined Space Entry Form, and the measures taken for safe entry, with all individuals involved with the entry.
- Terminate entry (and cancel the Confined Space Entry Form) if;
 - The Confined Space Entry Form expires;
 - The work being performed in the space is completed; or

- A dangerous condition, not already accounted for, arises in or near the space during entry.
- Ask unauthorized individuals not to enter the confined space, and contact University Police Dispatch if they keep trying to enter the confined space;
- Whenever responsibility for entry is transferred, and at intervals dictated by the hazards and operations performed within the space, determine that entry operations remain consistent with terms of the Confined Space Entry Form and that acceptable entry conditions are maintained;
- Notify the Safety Department (496-2437) once entry into the space has been canceled/completed; and
- Perform self assessments to determine if improvement is needed by completing a Supervisors Self Assessment Form (Appendix E) at least annually.

7.3 Confined Space Attendant

- Know the potential hazards that may be encountered during entry into the confined space, including signs, symptoms, and consequences of exposure to any hazardous chemicals present in the space during entry;
 - Be familiar with air monitoring equipment alarms, and monitor limitations;
 - Prior to and throughout entry, obtain atmospheric readings by communicating with the confined space entrants and document the results of the air monitoring on the Confined Space Entry Form;
 - Summon rescue and other emergency services as necessary by calling University Dispatch at 496-3000;
 - Perform non-entry rescue as needed.
- Note: Attendants must be properly trained to utilize the retrieval equipment necessary for non-entry rescue;*
- Identify and continuously maintain an accurate count of authorized confined space entrants;
 - Remain outside the confined space during all entry operations until relieved by another authorized attendant, or until the Confined Space Entry Form is cancelled and entrants have vacated the space;
 - Communicate with authorized entrants throughout entry to monitor entrant status and alert entrants regarding the need to evacuate as necessary;
 - Monitor activities inside and outside the confined space to determine if it is safe for entrants to remain in the space and order the authorized entrants to immediately evacuate if any of the following conditions occur:
 - A potentially dangerous condition arises within the space (e.g. air meter alarms sound);
 - The entrants show signs or symptoms of being exposed to hazardous substances;

- An entrant shows signs or symptoms of heat stress, heart trouble, etc.;
 - A situation arises outside the space that could endanger the occupants within the space;
 - The attendant cannot perform their duties adequately; and/or
 - If rescue services become unavailable.
- Take the following actions when unauthorized persons approach or enter a confined space while entry is underway:
 - Warn the unauthorized persons that they must stay away from the confined space;
 - Advise the unauthorized persons that they must exit immediately if they have entered the confined space; and
 - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the confined space.
 - Notify the Entry Supervisor if you have removed the entrants and canceled, suspended, or completed the entry; and
 - Do not perform duties that interfere with the primary responsibility of monitoring and protecting the authorized entrants.

7.4 Authorized Entrants

- Know the hazards that may be encountered during Confined Space Entry including the signs, symptoms, and consequences of exposure to chemical hazards;
- Know how to properly use all of the equipment specified on the Confined Space Entry Form;
- Prior to entering a confined space, review the Confined Space Entry Form;
- Use a confined space multi-gas meter to continuously monitor the atmosphere within the confined space throughout entry;
- As prompted by the Attendant, provide confined space meter readings;
- Communicate with the Authorized Attendant regularly and follow their directions;
- Alert the attendant whenever:
 - A potentially dangerous situation arises in or around the confined space (this includes entry by an unauthorized person); or
 - The Confined Space Entry Form expires.
- Entrants must exit a confined space as quickly as possible whenever:
 - An order to evacuate is given by the attendant or entry supervisor;
 - If the attendant leaves the space unattended;

- An entrant recognizes any warning sign or symptom of exposure to a hazardous substance;
- The entrant detects a prohibited condition;
- An alarm sounds; or
- Any other valid reason arises.

7.5 University Dispatch

- If a confined space entry supervisor contacts dispatch and requests emergency services then Dispatch must gather any necessary information and immediately contact the campus rescue team and/or Madison County Fire Department for response; and

7.6 The Safety Department

- Develop, maintain, and review this program annually;
- Help identify confined spaces at Brigham Young University-Idaho;
- Where possible, post confined space signs, identifying them as **“DANGER – Permit Required Confined Space, Do Not Enter”** or equivalent wording;
- Perform assessments to determine the extent of department compliance with this program;
- Perform regular inspections and testing of entry equipment in accordance with manufacturers recommendations;
- Establish a campus rescue team and ensure the proper training of such; and
- Offer initial and refresher confined space training.

8.0 Training

The extent of the required training depends upon the workers involvement with confined space entry activities. There are three levels of required training, which are outlined below:

8.1 Awareness Training

- All individuals performing work for BYU-Idaho and entering areas where there are confined spaces are to be informed of the existence, location, and danger posed by each space via signage or training. At BYU-Idaho, all manholes and storm drains are considered to be confined spaces.

Note: Manholes and storm drains are difficult to sign therefore these spaces are always considered to be confined spaces.

8.2 Initial Training

- Employees working in a confined space must know where this program is located. Employees involved with confined space entry must understand what is required of them and what steps they must take to safely enter a confined space in accordance with this program. Initial training is required before the employee is first assigned duties related to confined space entry.

8.3 Refresher Training

- The content of the initial training must be obtained at least every three years by all individuals involved with confined space entry procedures.

8.4 Site Training

- Just prior to entry, the site supervisor, site attendant, and entrants must gather together to review the completed Confined Space Entry Form that pertains to the space being entered – specifically, individuals must know what hazards are present, how the hazards have been eliminated or how they will be controlled throughout entry, and what to do if something goes wrong during entry.
- All confined space training, other than awareness training, must be certified. The certification must include the names of the workers trained, signature or initials of the trainer(s), and the date(s) of training. Training certifications must be available for review by the employees or their authorized representatives. Only the most current training records need to be maintained.

9.0 Monitoring

9.1 Departments

- Review documents prepared and retained by individual supervisors for accuracy. Documents may include, but not be limited to:
 - Employee evaluations
 - Supervisors Self Assessment Form (Appendix E)
 - Confined space Entry forms (Appendix A).

9.2 Supervisors

- Supervisors overseeing individuals that perform work falling within the scope of this program must complete the checklist found in Appendix E at least annually to determine if improvement is needed.
- Review and maintain Confined Space Entry Forms for at least 1 year.
- Review and maintain the most recent confined space meter calibration records for at least 1 year.
- Review documents prepared by Entry Supervisors, Confined Space Attendants, and Authorized Entrants to ensure accuracy and consistency.
- Completed checklists need to be maintained for at least one year and provided to The Safety Department when requested.
- Review all requests for repairs of monitoring or safety equipment, and document completed repairs.
- Review and ensure that all individuals who perform work falling within the scope of this program receive all required initial training, and refresher training as stated in this document. Training should include, but not be limited to the items listed in

Section 8 of this document. Training records should be maintained for at least 3 years.

- All documents will be made available to the Safety Department when requested.

9.3 The Safety Department

- Review all records received, and evaluate the completeness and accuracy.
- Monitor the submission of required records and reports.
- Maintain a permanent record of all documents received.
- Provide additional training as may be necessary to ensure compliance with the Confined Space Program.
- Meet with Physical Facilities, Auxiliary Maintenance, and the Office of Information and Technology at least annually to request training records, checklists, Confined Space Entry Forms, and confined space meter calibration records.
- Perform random assessments of field activities related to confined space entry, and transmit findings to the department responsible for entry.
- Review and respond to all comments and suggestions received from departments, supervisors, or employees pertaining to the Confined Space Program.

Appendix A - CONFINED SPACE ENTRY FORM

BYU-Idaho Confined Space Work Permit

The following confined spaces no longer require a Confined Space Work Permit, however entrance is to be treated the same, (i.e. Safety Attendant, Atmospheric Testing, etc.) : Steam Vaults S1 through S10.

All other designated confined spaces still require the completed permit to be posted at the work site.

Permit submitted by	<input type="text"/>
Email Address:	<input type="text"/>
Date work to be done	<input type="text"/> Permit good for 24 hours only!
Time work to be started	<input type="text"/>
Time work completed	<input type="text"/>
Work Order Number	<input type="text"/>
Location of work	<input type="text"/>
Nature of work	<input type="text"/>
Other Hazardous Work	None <input type="text"/>
Entrant/s	<input type="text"/>
Attendant/s	<input type="text"/>
Department or Shop	<input type="text"/>
Oxygen Reading	<input type="text"/>
LEL Flammability Reading	<input type="text"/>
Hydrogen Sulfide Reading	<input type="text"/>
Carbon Monoxide Reading	<input type="text"/>

Chlorine Reading

Required Check List
 Yes
No

1. Was a pre-entry hazard assessment conducted?

 Yes
No

2. Is Lockout/Tagout required?

 Yes
No

3. Is mechanical ventilation required?

 Yes
No

4. Is Respiratory protection required?

 Yes
No

5. Do you have communications on site?

 Yes
No

6. Are barriers erected at vault entrance?

 Yes
No

7. Is adequate personal protective equipment being used?

 Yes
No

8. Will a copy of the permit be posted at the work site?

 Yes
No

9. Will vault be secured after completion of work?

Print a copy of this permit using your tool bar print function and keep the copy at the work site.

Then click on the "**Submit Permit**" button below after printing a copy of the permit.

Upon completion, e-mail the safety office noting of completion and any problems that may have been encountered.

IN CASE OF AN EMERGENCY CALL 911 . DO NOT ENTER THE CONFINED SPACE. WAIT FOR RESCUE PERSONNEL.

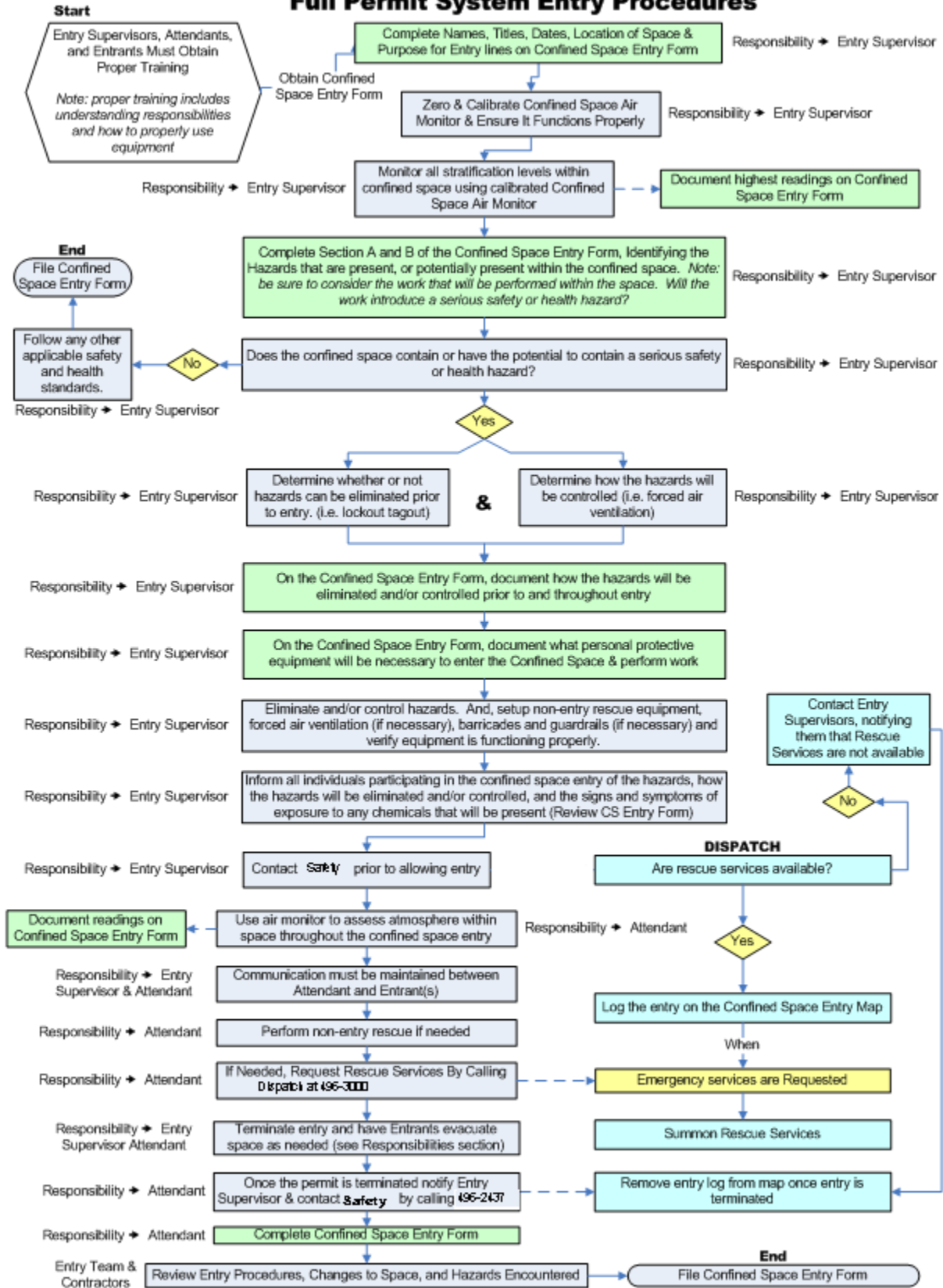
Submitted

Reset Permit

(Save a copy for your records)

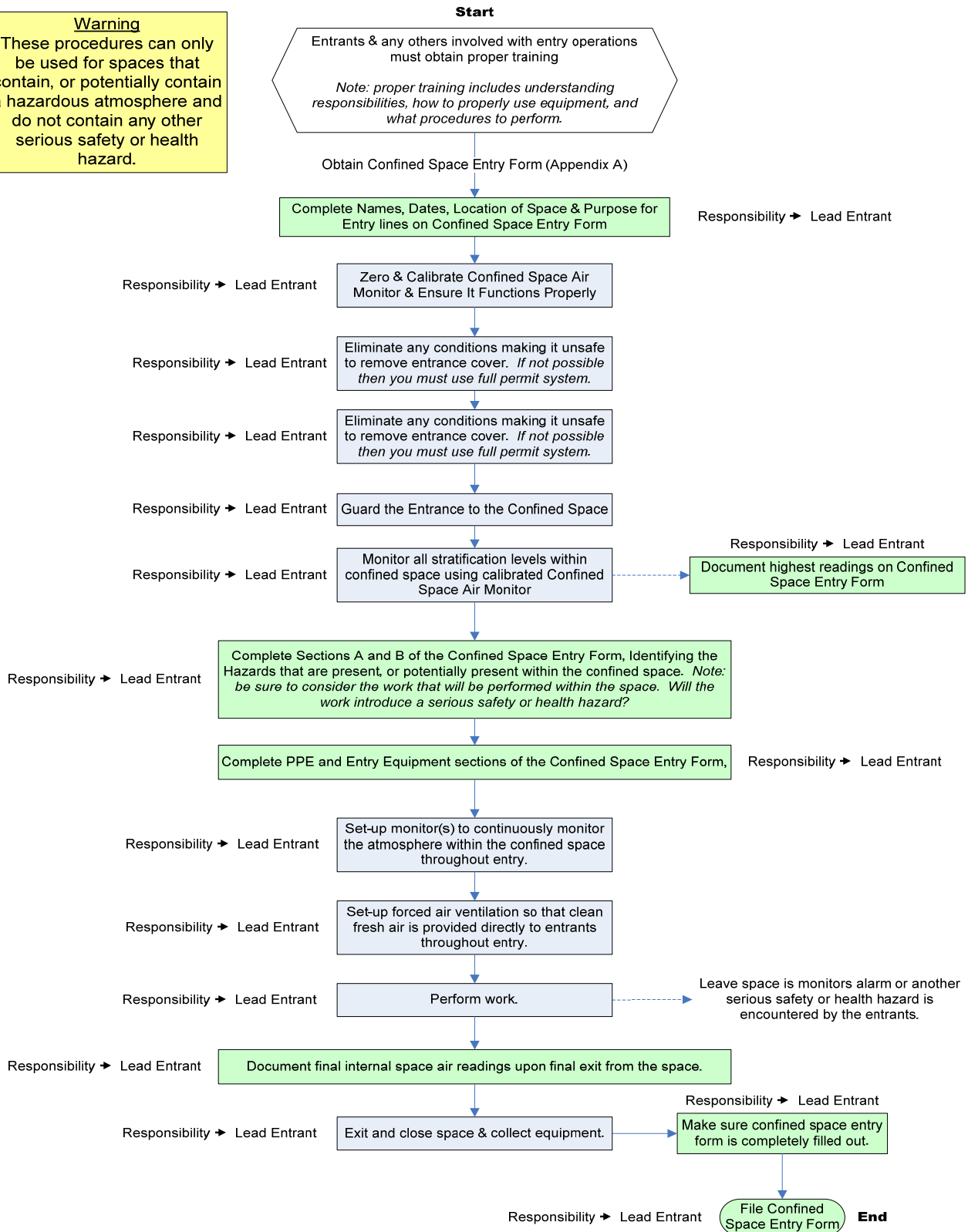
Appendix B

Full Permit System Entry Procedures



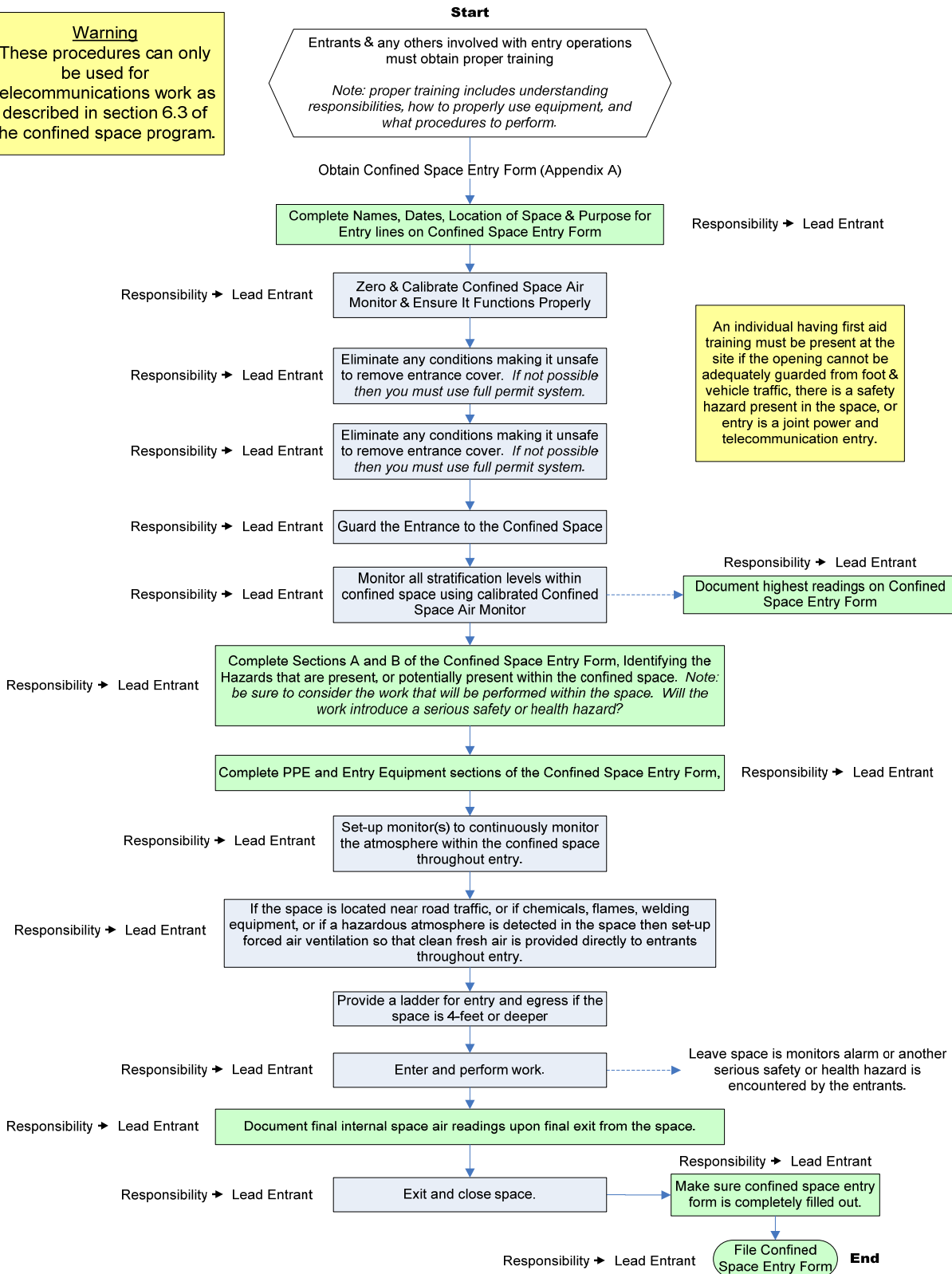
Appendix C Alternate Confined Space Entry Procedures

Warning
These procedures can only be used for spaces that contain, or potentially contain a hazardous atmosphere and do not contain any other serious safety or health hazard.



Appendix D Telecommunications Entry Procedures

Warning
These procedures can only be used for telecommunications work as described in section 6.3 of the confined space program.



Appendix E

Supervisor Self Assessment Form
(For Confined Spaces)

Date of Assessment: _____

Name of Assessor: _____

Note: "No" answers are undesirable.

Yes	No	Questions
<input type="checkbox"/>	<input type="checkbox"/>	1. Have/do individuals receive confined space training (initial, refresher, & site training) prior to entering confined spaces?
<input type="checkbox"/>	<input type="checkbox"/>	2. Have individuals who work in confined spaces been provided with the equipment they need? (i.e. gas monitors, tripod and harnesses, forced air ventilation, communication devices, and lockout tagout devices)
<input type="checkbox"/>	<input type="checkbox"/>	3. Are gas monitors calibrated and bump checked in accordance with manufacturer recommendations?
<input type="checkbox"/>	<input type="checkbox"/>	4. Is continuous air monitoring performed throughout entry?
<input type="checkbox"/>	<input type="checkbox"/>	5. Are confined spaces that contain, or that have the potential to contain serious safety or health hazards entered under the direction of an Entry Supervisor, or when appropriate in accordance with the Alternate Entry Procedures?
<input type="checkbox"/>	<input type="checkbox"/>	6. Is an attendant present, and performing his duties, for every entry into a confined space that does not qualify for the Alternate Entry Procedures and contains, or has the potential to contain serious safety or health hazards?
<input type="checkbox"/>	<input type="checkbox"/>	7. Are confined spaces evaluated prior to entry?
<input type="checkbox"/>	<input type="checkbox"/>	8. Is a Confined Space Entry Form completed each time a confined space is entered?
<input type="checkbox"/>	<input type="checkbox"/>	9. Are Confined Space Entry Forms and Self Assessments maintained in accordance with this program (1 yr & 5 yrs respectively)?
<input type="checkbox"/>	<input type="checkbox"/>	10. Are confined spaces properly signed?

Note: This checklist is not intended to be a comprehensive checklist, but has been provided as a tool for Supervisors/Departments to measure how much improvement is needed, if any.

APPENDIX F

DEFINITIONS

“Acceptable entry conditions” means the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

“Attendant” means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

"Authorized entrant" means an employee who is authorized by the employer to enter a permit space.

"Blanking or blinding" means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

"Confined space" means a space that:

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

"Double block and bleed" means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

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

"Engulfment" means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

"Entry" means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

"Entry permit (permit)" means the written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in paragraph (f) of this section.

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

NOTE: *An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.*

"Hazardous atmosphere" means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

(1) Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

(2) Airborne combustible dust at a concentration that meets or exceeds its LFL;

NOTE: *This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.*

(3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

(4) Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;

NOTE: *An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.*

(5) Any other atmospheric condition that is immediately dangerous to life or health.

NOTE: *For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200 of this Part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.*

"Hot work permit" means the employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

"Immediately dangerous to life or health (IDLH)" means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

NOTE: *Some materials -- hydrogen fluoride gas and cadmium vapor, for example -- may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.*

"Inerting" means the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

NOTE: *This procedure produces an IDLH oxygen-deficient atmosphere.*

"Isolation" means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

"Line breaking" means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

"Non-permit confined space" means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

"Oxygen deficient atmosphere" means an atmosphere containing less than 19.5 percent oxygen by volume.

"Oxygen enriched atmosphere" means an atmosphere containing more than 23.5 percent oxygen by volume.

"Permit-required confined space (permit space)" means a confined space that has one or more of the following characteristics:

- (1) Contains or has a potential to contain a hazardous atmosphere;
- (2) Contains a material that has the potential for engulfing an entrant;
- (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- (4) Contains any other recognized serious safety or health hazard.

"Permit-required confined space program (permit space program)" means the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

"Permit system" means the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

"Prohibited condition" means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

"Rescue service" means the personnel designated to rescue employees from permit spaces.

"Retrieval system" means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

"Testing" means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

***NOTE:** Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.*