

**TARLETON STATE UNIVERSITY
CONFINED SPACE PROGRAM**

Office of Risk Management and Safety
August 2009

1. GENERAL

The following information is provided to assist departments in developing procedures to meet safety requirements for entry into a confined space.

2. PURPOSE

This program sets forth recommended minimum requirements that need to be followed to maximize the safety of all workers entering such spaces, against known or potential hazards.

3. SCOPE

Affected departments are expected to establish Confined Space Entry Procedures. The Confined Space Entry Procedures shall include provisions to:

- a. identify and evaluate all hazards and potential hazards;
- b. establish procedures and practices for a safe entry;
- c. establish a written confined space checklist system;
- d. post signs addressing the hazard;
- e. prevent unauthorized entry;
- f. train entrants, attendants and personnel authorizing entry;
- g. provide and maintain proper equipment;
- h. ensure procedures and equipment for rescue;
- i. protect entrants from hazards outside of the confined space; and
- j. provide contractors with available information.

4. RESPONSIBILITIES

- a. The Tarleton Department of Risk Management & Safety will:
 - i. assist in identifying confined spaces as necessary
 - ii. assist with training as appropriate
 - iii. monitor program compliance
 - iv. assist in the selection of atmospheric monitoring equipment, personal protective equipment, and other necessary equipment.
- b. The department/supervisor will:
 - i. identify person authorizing entry, authorized entrants and attendants
 - ii. provide atmospheric monitoring equipment, personal protective equipment and all other necessary equipment
 - iii. provide proper training for persons authorizing entry, authorized attendants, and authorized entrants
- c. The employee will:
 - i. follow guidelines described in this program and other required programs to assure safe entry into confined spaces

5. DEFINITIONS

- a. **Confined Space** - Any enclosed space which is defined as:
 - i. large enough for an employee to bodily enter and perform work
 - ii. limited means of entry or egress
 - iii. not designed for continuous occupation
 - iv. contains an actual or potential hazardous atmosphere
 - v. Some examples of confined space areas include: tanks, storage bins, hoppers, vaults and pits

- b. **Entry** - An entry is made as soon as the entrant's face breaks the plane of the opening of the space.

- c. **Entrant** - Any properly trained person who has been authorized to enter a confined space.

- d. **Attendant** - An individual positioned outside the confined space that is trained as required and who monitors the entrants inside the confined space as well as external surroundings.

- e. **Person Authorizing Entry** - An individual authorizing or in charge of entry who shall be trained in the administrative, technical and managerial aspects of confined-space entry, and have the authority to terminate the entry whenever conditions become unfavorable. (See Attachment I for authorization personnel.)

- f. **Hazardous Atmosphere** - an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (escape unaided from a permit space), injury, or acute illness from one or more of the following causes:
 - i. Flammable gas vapor in excess 10% of its lower explosive limit (LEL)
 - ii. Airborne combustible dust or mist concentrations that obscure vision at a distance of 5ft or less
 - iii. Oxygen concentration below 19.5% or above 23.5%
 - iv. Any other atmospheric condition or concentration that is dangerous to life or health

For more information on permissible exposure limits by substance, refer to 29 CFR 1910 Subpart G – “Occupational Health and Environment Control” and 29 CFR 1910 Subpart Z – “Toxic and Hazardous Substances.”

- g. **Lockout/Tagout** - The placement of a lockout device and warning tag on an energy isolating device in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

- h. **Hot Work** – Employer’s written authorization to perform operations which could provide a source of ignition, such as riveting, welding, cutting, burning or heating.
- i. **Permit Required Confined Space** – “permit space” means a confined space that has one or more of the following characteristics:
 - i. Contains or has potential to contain a hazardous atmosphere
 - ii. Contains a material that has the potential for engulfing an entrant
 - iii. Contains an internal configuration such that the entrant could be trapped or asphyxiated by inwardly converging walls or a floor that slopes and tapers to a smaller cross-section
 - iv. Contains any other recognized serious safety or health hazard

6. GENERAL GUIDELINES

The following procedures are applicable to all confined spaces:

- a. All Confined Spaces will be appropriately marked and secured at all times.
- b. Department Operating Procedures will be reviewed by authorizing personnel prior to any entry.
- c. A minimum of two employees will be required for any ‘Type I’ Confined Spaces activity.
- d. The Tarleton Control Center (Ext. 9265) will be advised before any entry.
- e. All Permit-Required Confined Spaces will be checked for atmospheric hazards before entry. (Must be completed by a person authorized to permit entry – refer to Appendix A)
- f. All Confined Spaces will be treated as Permit-Required if “Hot Work” is to be performed.

Permit-Required Confined Spaces:

- i. Storm Drain Tunnels
- ii. Grease Traps
- iii. Sump Pumps
- iv. Underground Water Meters
- v. Sewer manholes
- vi. Steam Tunnel

Permit-Required Confined Spaces may be reclassified temporarily as Non-Permit Confined Spaces if no atmospheric hazards are present. If atmospheric hazards are present, OSHA Regulations 29 CFR 1910 will apply and all parts of the Permit Required Confined Spaces section will be implemented.

Non-Permit Confined Spaces:

- i. Crawlways (All buildings)
- ii. Attic Spaces (All buildings)
- iii. Elevator Shafts (All buildings)

Non-Permit Confined Spaces require compliance with standard operating procedures and safety precautions.

7. PERMIT REQUIRED CONFINED SPACES

Completion of a Confined Space Checklist Form (see Appendix A) is necessary to identify all conditions which must be evaluated before entry into a confined space. Information requested includes:

- a. The identity of the confined space;
- b. Purpose of entry into the space;
- c. The known or potential hazards of the space;
- d. Measures for isolation of the space, such as lockout/tagout;
- e. Acceptable environmental conditions in the confined space;
- f. Equipment and procedures for testing and monitoring to verify that acceptable environmental conditions are met and maintained;
- g. Rescue services, procedures and equipment which would be called upon in case of an emergency;
- h. Communication procedures and equipment to be used by entrants and attendants to maintain contact;
- i. Personal protective equipment, such as respirators, special clothing, safety retrieval lines, etc;
- j. Any additional information relating to particular circumstances of the confined space;
- k. Names of the Person Authorizing Entry, Supervisor, Authorized Entrants and Attendants.

In instances in which hot work will be performed, the individual authorizing entry into the space will document "HOT WORK PERFORMED" prominently on the confined space entry checklist.

Individual(s) authorizing entry into a confined space will sign or initial the confined space entry checklist after all precautions for a safe entry have been met, and before entry takes place.

Upon completion of the work, or at the end of the work day, and after all individuals have evacuated the space, the person authorizing entry shall finish the project by filling in the time and date of completion on the checklist and initial next to the date of completion.

8. ENTRY PERMISSION

- a. Entrants shall notify the Person Authorizing Entry of their intent to enter a confined space.
- b. Person Authorizing Entry shall identify all real or potential hazards associated with the specific confined space by referring to any record on

file. If no record exists for that specific space, one should be developed before work begins.

- c. The Person Authorizing Entry shall complete the Confined Space Checklist before authorizing entry into a confined space.
- d. A copy of the completed checklist shall be filed for future reference.

9. ENTRY TEAM PREPARATION

- a. All Authorized Entrants and Attendants shall receive a briefing by the Person Authorizing Entry or Supervisor on the real or potential hazards associated with entering the confined space.
- b. Emergency procedures such as rescue and evacuation shall be discussed
- c. All team members shall acknowledge an understanding of the hazards involved in entering the confined space by signing the Confined Space Checklist.
- d. Required personal protective equipment shall be issued to all team members.
- e. Rescue personnel shall be advised of the site location and any additional information helpful for rescue operation.

10. ATMOSPHERIC MONITORING

- a. Test the confined space for oxygen content.
- b. Test the confined space for combustible atmosphere.
- c. Test the confined space for known and potential toxic contaminants.

Only individuals trained in atmospheric monitoring may conduct these tests.

11. PREPARING THE SITE

- a. The confined space entry site shall be isolated from the surrounding area by using barricades, ropes, and/or tape.
- b. The confined space shall be drained, cleaned, and ventilated or purged as needed to prevent flammable, toxic, and corrosive hazards.

- c. All electrical, mechanical and pneumatic energy sources shall be isolated as defined in the Lockout/Tagout Program (Control of Hazardous Energy Sources).
- d. All personnel required to wear respirators must be properly trained (as defined in the Respiratory Protection Program).
- e. Provide continuous ventilation as required.
- f. Non-sparking tools and explosion proof equipment shall be used when working in a potentially combustible atmosphere.
- g. Gas cylinders used for cutting or burning shall always be positioned outside of the confined space.
- h. A stand-by SCBA (safe-contained breathing apparatus) shall be on location.
- i. Personal protective equipment, including lifelines, winches, and harnesses shall be issued as required.

12. SAFEGUARDING

- a. Personal protective equipment shall be used at all times as required.
- b. Harnesses, lifelines, and winch shall be used as appropriate.
- c. The Authorized Attendant shall at all times keep a log of the Authorized Entrants working inside the confined space.
- d. The Authorized Attendant must maintain constant contact with the Authorized Entrants.
- e. The Authorized Attendant shall take necessary precautions and measures to keep unauthorized individuals from entering the confined space area.
- f. The Authorized Attendant shall have the authority to initiate evacuation procedures in the event that conditions on the outside or inside of the confined space changed and pose a hazard.
- g. Authorized Entrants shall evacuate the confined space when:
 - i. Authorized Attendant orders evacuation.
 - ii. Automatic alarms sound. (i.e. atmospheric monitor)
 - iii. Authorized Entrants believe they are in danger.

13. EMERGENCY PROCEDURES

- a. In the event that a worker is unable to evacuate the confined space, the Authorized Attendant shall contact emergency rescue personnel immediately via radio.
- b. The Authorized Attendant and any other personnel on the outside of the confined space shall attempt to hoist the worker out by using the lifeline.

UNDER NO CIRCUMSTANCES SHALL THE AUTHORIZED ATTENDANT
OR UNTRAINED RESCUE PERSONNEL ENTER THE CONFINED SPACE

REFERENCES

Most recent version of the Occupational Safety and Health Standard, "Permit Required Confined Spaces", 29 CFR 1910.146.

TSU Respiratory Protection Program

TSU Lockout/Tagout Program

APPENDIX A
CONFINED SPACE CHECKLIST

CONFINED SPACE CHECKLIST

Date of Entry: _____

Time: _____

Date of Completion: _____

Time: _____

Site Location (Identity): _____

I. PURPOSE OF ENTRY INTO SPACE

II. SITE PREPARATION

- | | | | |
|----|---|--------|--------|
| 1. | Work area isolated with signs/barriers? | Y_____ | N_____ |
| 2. | All power sources tagged/locked/tried? | Y_____ | N_____ |
| 3. | All input discharge lines capped/plugged? | Y_____ | N_____ |
| 4. | Contents drained/flushed/neutralized? | Y_____ | N_____ |
| 5. | Space cleaned of contaminate/purged? | Y_____ | N_____ |
| 6. | Space ventilated before entering? | Y_____ | N_____ |

III. ATMOSPHERIC TESTING (pre-entry)

- | | | | | |
|----|---|----------------|-------------|-----------------|
| 1. | Has all test equipment been calibrated? | Y_____ | N_____ | |
| | | Reading | Time | Initials |
| 2. | Oxygen Content: | _____% | _____ | _____ |
| 3. | Flammable Concentration: | _____ %LFL | _____ | _____ |
| 4. | Toxic Concentration: | _____ PPM | _____ | _____ |
| 5. | Toxic contaminant: | _____ PEL | _____ | _____ |
| 6. | Temperature Inside Space | _____ | _____ | _____ |

IV. EMERGENCY RESCUE PROCEDURES

- PHONE 911 ()
- RADIO CHANNEL () # _____
- PAGE PHONE () # _____

Type of emergency/rescue equipment required: _____

V. SAFETY EQUIPMENT REQUIRED FOR ENTRY (check those required)

- | | |
|------------------------|-------------------------|
| SCBA () | Protective Clothing () |
| Respirator () | Escape Harness () |
| Fire Extinguisher () | Lifeline () |
| Tripod Escape Unit () | Gloves () |

Additional requirements: _____

Portable atmospheric monitor required? Y_____ N_____

VI. HOT WORK

To be performed: Y_____ N_____

Type: _____

VII. SIGNATURES

I CERTIFY THAT I HAVE INSPECTED THE WORK AREA FOR SAFETY AND REVIEWED ALL PRECAUTIONS RECORDED ON THE CONFINED SPACE CHECKLIST.

Person Authorizing Entry x _____

Supervisor x _____

Entrants(s) x _____

x _____

x _____

x _____

Attendant(s) x _____

x _____