

CONFINED SPACE ENTRY PROGRAM



Stoughton Utilities

STOUGHTON UTILITIES SAFETY COMPLIANCE PROGRAM MANUAL			
Program Name	Confined Space Entry	Procedure No.	
Regulatory Reference	OSHA 29 CFR 1910.146, DCOMM 32.28, .29		
Date Created	January 25, 2001	Latest Revision	March 28, 2011
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1.0 POLICY AND SCOPE

It is the policy of Stoughton Utilities that all "Permit Required Confined Spaces" only be entered by trained employees in accordance with this procedure. All "confined spaces" are considered "permit required" unless otherwise designated. This procedure applies to all employees, visitors, vendors, and contractors.

2.0 PURPOSE

To ensure that all individuals entering confined spaces adhere to established safety practices and utilize required confined space entry equipment. This program complies with regulations set forth by Federal Occupational Safety and Health Administration (OSHA) 29 CFR 1910.146 and Wisconsin Department of Commerce Code 32.28 and 32.29.

3.0 GENERAL REQUIREMENTS

3.1 Workplace Evaluation

The Stoughton Utilities has identified confined spaces within Stoughton Utilities facilities. Some of these spaces meet the criteria of a permit-required confined space. Attachment B contains a list of confined spaces that are under the control of Stoughton Utilities. This list identifies which spaces are considered permit spaces.

The Stoughton Utilities informs exposed employees of the presence of permit required confined spaces by posting danger signs or by any other equally effective means.

When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the Stoughton Utilities reevaluates that space and, if necessary, reclassifies it as a permit-required confined space.

3.2 Employee Entry

Before an employee enters the space, the internal atmosphere is tested with a calibrated direct-reading instrument for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order.

3.3 Acceptable Atmospheric Levels

The following atmospheric levels must be present (except as discussed at item 3.6) to authorize entry into permit-required confined spaces:

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- a) Oxygen content between 19.5% - 23.5%; and
- b) Flammable gases and vapors below 10% of the LFL; and
- c) Toxic air contaminants as follows:
 - 1. Carbon monoxide levels below 35 parts per million (ppm); and/or
 - 2. Hydrogen sulfide levels below 10 ppm.

3.4 Sampling Device

3.4.1 Device Requirements

A direct readout device (Draeger X-am 2000) is used which simultaneously tests for the levels of the substances listed in section 3.3, without manual switching. The gas detector is stored in the office at the Wastewater Plant. This device is equipped with audible and visible warning device that indicates when an atmosphere of a confined space has:

- a) An oxygen content of less than 19.5% or greater than 23.5%;
- b) A combustible gas content of 10% or more of the lower explosive limit;
- c) A hydrogen sulfide content of 10 ppm or more, or a carbon monoxide content of 35 ppm or more.

3.4.2 Calibration

The device is calibrated per the manufacturer's recommendation or at least every six months and before each use. Calibration is conducted by Safety First, see Brian Erickson with any questions. Calibration information is contained in Attachment D.

The device is calibrated relative to the oxygen content of ambient air at the time of the sampling. Calibration of the sampling device relative to the oxygen content is to be performed where the 20.9% natural content of oxygen in the air is most likely to occur. This calibration is not to be performed near the opening of a confined space.

Sampling devices with a zero set are zeroed in a clean atmosphere before each sampling.

3.4.3 Use

The sampling device or an attached non-sparking probe is used to sample the confined space prior to entry. When entry is through a manhole, a probe is

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inserted through the pick hole of the cover, or the manhole is pried open on the downwind side to allow just enough room for insertion of the probe or the device.

3.5 Ventilation

If a confined space does not meet the requirements listed under 3.3, the space is ventilated and is entered only when atmospheric sampling indicates an atmosphere within acceptable limits, as defined in section 3.3. The atmosphere within the space is then continuously tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.

3.6 Supplied Air

If the space cannot be brought within the limits specified at section 3.3, the space may be entered if a self contained positive pressure-breathing apparatus is used. A Type C air line respirator with an escape air tank with an adequate supply of air to exit the confined space and a maximum of 300 feet of air line hose may also be used. An approved air-purifying respirator may be used in atmospheres that do not have the potential to be immediately dangerous to life or health.

3.7 Entry Prohibited Condition

A confined space with an atmosphere that is not within the limits specified at point 3.3(b) is not to be entered even if a respirator is used.

4.0 ENTRY PROCEDURES

The following are general entry requirements. Space specific procedures/permits have been created and can be found in Attachment E.

4.1 Performing Entry Into or Work in a Permit-Required Space

4.1.1 Confined Space Entry Permit Guidelines

- a) The process begins by obtaining a confined space entry permit.
- b) All employees who have a function in the process must be listed on the permit and the entry supervisor must sign the permit.
- c) The completed entry permit must be posted near the location of all entries.
- d) The permit is valid until the job is completed or the work crews or shifts change. A new work crew must complete their own permit before entering the confined space.

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- e) All equipment used for the confined space entry must be inspected prior to the entry to ensure that it is in working order.
- f) The completed permits must be retained on file for a minimum of one year.
- g) As part of the process, a pre-entry briefing should be held to ensure that all employees participating are knowledgeable about the entire procedure and the conditions that are present at the time of entry.
- h) If there are multiple employers working in a confined space they must coordinate their efforts and exchange information so that the work of one does not create a hazard for another.

4.1.2 Working in a Confined Space

- a) The atmosphere within the authorized entrant's immediate area is continuously monitored for oxygen, hydrogen sulfide, carbon monoxide and combustible gas and any other hazardous substance which the employer has reason to believe may be present in the confined space.
- b) Signals from the monitoring device will immediately indicate when the atmosphere is not within the air quality limits specified in section 3.3.
- c) While in a confined space, if the air quality falls outside any of the air quality limits specified in section 3.3, the authorized entrant is to immediately exit the confined space.
- d) Ventilation is not used in lieu of monitoring devices. An employee may not enter the space until forced ventilation has eliminated any hazardous atmosphere. When forced air ventilation is used, it is so directed as to ventilate the immediate areas where an authorized entrant is or will be present within the space and will continue until all entrants have left the confined space. The air supply for forced air ventilation is from a clean source and may not increase the hazards in the confined space. (Note, in a combustible atmosphere, static discharge from forced ventilation could become an ignition source)
- e) No employee may enter a confined space without at least one attendant stationed at the entrance of the confined space. A flagman who is directing traffic will not be assigned as an attendant. The attendant must be in place for the duration of the entry.
- f) When entry into a confined space is by means of a top opening (manhole), which is more than 5 feet deep, a mechanical retrieval device is available for rescue attempts prior to entry.
- g) While in a confined space, the attendant has voice or other means of communication with the attendant.
- h) An authorized entrant entering vertically into a confined space wears a full body harness secured to a retrieval line.

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4.2 Work Involving Multiple Employers

When working with another employer(s) where more than one employer performs confined space entry, the Stoughton Utilities:

- a) Apprises the other employer of the elements, including the hazards identified and each employers experience working in the space, that makes the space in question a confined space; and
- b) Coordinates entry operations with the other employer when personnel from both employers are working together in or near confined spaces.

5.0 RESCUE

When non-entry rescue is appropriate, the rescue procedure is provided on the permit for the space. See the space specific permits in Attachment E. If the space may require entry rescue, separate rescue procedures have been completed and are included in Attachment E.

Attachment I contains information on the outside rescue service and the evaluation of this service by the Stoughton Utilities using the criteria set forth in Appendix F of 1910.146. At the present time, rescue will be carried out in-house. If outside rescue services are contracted in the future, the evaluation will be carried out at that time.

6.0 TRAINING

6.1 Training Content

Affected employees are trained and equipped to recognize, understand and control the hazards that may be encountered in confined spaces. This training includes:

- a) Training on the entry procedure established by the Program.
- b) Training on the implementation and use of required respiratory protection as well as the training requirements in the Stoughton Utilities Respiratory Protection Program.
- c) Basic first aid and CPR for all authorized entrants and attendants.
- d) At least one rescuer certified in first aid and CPR.
- e) The duties of their assigned job - Authorized entrant, attendant and/or entry supervisor (See section 7.0).
- f) The contents of this Program.

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6.2 Training Requirements/Schedule

The training is conducted in a manner that establishes employee proficiency in the duties required by this Program and will introduce new or revised procedures, as necessary, for compliance with this Program. Training is provided:

- Before an employee is first assigned duties covered by this Program.
- Before there is a change in assigned duties covered by this Program.
- Whenever there is a change in confined space operations that presents a hazard about which an employee has not previously been trained.

Training related information is contained in Attachment K

6.3 Other Requirements

- Personal protective equipment required under this Program is provided by the Employer and used by affected personnel. Use is mandatory.
- Smoking within 10 feet of a confined space is prohibited.
- When entrance covers are removed, the opening is 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.
- Sampling devices and equipment are intrinsically safe for use in combustible atmospheres.
- Self contained positive pressure-breathing apparatus used in confined spaces has at least a 30-minute air supply rating. A Type C air line respirator used in confined spaces are equipped with an escape air tank with an adequate supply of air to exit the confined space and a maximum of 300 feet of air line hose.

6.4 Working in Streets

Work at confined spaces that are located in streets is performed in accordance with the following:

- A vehicle's beacon and 4-way flashers are activated upon approach to an entrance of a confined space.
- A vehicle is parked to permit traffic to flow in an unobstructed manner and, where possible, to provide protection for employees.
- A vehicle is parked so vehicle exhaust cannot accumulate in the confined space. If this is not possible, the vehicle's exhaust pipe is to be extended away from the confined space.
- The employee will wear an ANSI 107-2004 Class II traffic vest/or bright colored shirt during daylight hours. An ANSI 107-2004 Class III traffic clothing will be used prior to dawn and past dusk.

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7.0 DUTIES OF ASSIGNED PERSONNEL

7.1 Duties of Authorized Entrants

- a) Know the hazards which may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- b) Properly use equipment;
- c) Communicate with the attendant as necessary to enable the attendant to alert entrants of the need to evacuate the space;
- d) Alert the attendants whenever:
 - 1) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation; or
 - 2) The entrant detects a prohibited condition; and
- e) Exit from the confined space as quickly as possible whenever:
 - 1) An order to evacuate is given by the attendant or the entry supervisor;
 - 2) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
 - 3) The entrant detects a prohibited condition; or
 - 4) An evacuation alarm is activated.

7.2 Duties of Attendants

- a) Know the hazards which may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- b) Is aware of possible behavioral effects of hazard exposure in authorized entrants;
- c) Continuously maintains an accurate count of authorized entrants in the confined space and ensures that the means used to identify authorized entrants accurately identifies who is in the space;
- d) Remains outside the confined space during entry operations until relieved by another attendant; (Note, if trained and equipped properly, attendants can attempt entry rescues once they are relieved by another attendant)
- e) Communicates with authorized entrants as necessary to monitor entrant status and alert entrants of the need to evacuate the confined space;
- f) Monitors activities inside and outside the confined space to determine if it is safe for authorized entrants to remain in the space and orders the entrants to evacuate the space immediately under any of the following conditions:
 - 1) If the attendant detects a prohibited condition;
 - 2) If the attendant detects the behavioral effects of hazards exposure in an authorized entrant;
 - 3) If the attendant detects a situation outside of the confined space that could endanger the authorized entrants; or
 - 4) If the attendant cannot effectively and safely perform all the duties required;

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- g) Summon rescue and other emergency services as soon as the attendant determines that authorized entrants need assistance to escape from confined space hazards;
- h) Takes the following actions when unauthorized persons approach or enter a confined space while entry is underway:
 - 1) Warn the unauthorized person that they must stay away from the confined space;
 - 2) Advise the unauthorized person that they must exit immediately if they have entered the confined space; and
 - 3) Inform authorized entrants and the entry supervisor if unauthorized persons have entered the confined space;
- i) Perform non-entry rescues as specified by the rescue procedure; and
- j) Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

7.3 Duties of Entry Supervisors

- a) Know the hazards which may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- b) Verifies that all required tests have been conducted and that all required procedures and equipment are in place before allowing entry to begin;
- c) Terminates the entry when the entry operations have been completed or when a condition that is not allowed arises in or near the confined space;
- d) Verifies that rescue services are available and that the means for summoning them are operable;
- e) Removes unauthorized individuals who enter or attempt to enter the confined space during entry operations; and
- f) Determines, whenever responsibility for entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with the terms of this Program.

8.0 EMPLOYEE PARTICIPATION

Stoughton Utilities has consulted with affected employees and their authorized representatives on the development and implementation of all aspects of this permit-required confined space program.

All affected employees and their authorized representatives have access to this program at any time. The program is located in the **Employee Break Room (Contact: Scott Grady) and Wastewater Plant (Contact: Brian Erickson).**

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9.0 PROGRAM AUDIT

Compliance with this program is audited on an ongoing basis by all personnel and any deficiencies should be reported to the Program Coordinator. Annually, a formal audit is conducted by the Program Coordinator or his/her designee using canceled permits. All entries are reviewed and revisions made to the program as necessary as a result of this review. The results of this review are contained in Attachment H.