



## ADMINISTRATIVE PRACTICES MANUAL

### SAFETY MANUAL – CONFINED SPACES:

#### 1.0 Scope and Application

Dane County has developed the following program to protect employees who must work in confined spaces that contain serious safety and/or health related hazards. Only authorized employees may enter a confined space. This policy complies with Chapter SPS 332 (Public Employee Safety and Health) of the Wisconsin Administrative code as promulgated by the Wisconsin Department of Safety and Professional Services and 29 CFR 1910.146 (Confined Spaces) promulgated by the U.S. Occupational Safety and Health Administration.

#### 2.0 Responsibilities

Risk Management: Support and management of this policy.

- Consult with affected employees and their authorized representatives on the development and implementation of all aspects of the permit space program.
- Performs annual review of programs effectiveness.

Department Heads: Implementation of policy.

- Identify all confined spaces in their department that employees may enter and ensure they are labeled and/or communicated to employees.

Supervisors: Ensure policy is adhered to by all employees.

- Acts as Entry Supervisor.
- Conducts pre-entry briefings.
- Authorizes Entrants and Attendants.
- Authorizes entry permits.
- Maintains entry safety equipment.

Employees: See specific requirements for Attendant and Entrant responsibilities.

All employees are responsible for complying with the requirements contained in this policy. Failure to abide by these requirements may subject the employee to disciplinary action, up to and including discharge.

#### 3.0 Departmental Polices and Requirements

This policy represents minimum confined space entry requirements. Departments having employees who work in confined spaces such as Highways, Parks and Facilities Management will develop specific entry procedures for each type of confined space that their employees may enter, including sewers.

#### 4.0 Definitions

**Confined Space:** Any space that meets the following three criteria:

- Is large enough and so configured that an employee can bodily enter the space and perform assigned work and;
- Has limited or restricted means for entry and exit (e.g. tanks, vessels, tunnels, pits, etc.) and;
- Is not designated for continuous human occupancy.

*Confined space examples include tanks, pits, vats, crawl spaces, tunnels, sewers, etc...*



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**Permit Required Confined Space:** A confined space that contains any of the following conditions:

- 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 by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard (e.g. physical, mechanical, electrical, etc.)

*Permit required confined spaces typically include sewers, tanks, pits, boilers, chimneys.*

### 5.0 Training

Training will be provided so that all employees who are authorized to enter and work in confined spaces acquire the understanding, knowledge, and skills necessary for the safe performance of their duties assigned under this policy. Training will be provided to each affected employee at the following intervals:

- Before the employee is first assigned duties under this section;
- Before there is a change in assigned duties;
- Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;
- Whenever the Supervisor has reason to believe either that there are deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

All employees will be informed by the Supervisor at the time of hire that they are not allowed to enter a confined space for any reason unless they are specifically authorized and have received the training described above.

### 6.0 Documentation Requirements

Copies of all confined space entry permits are to be maintained on file for a period of one (1) year by the Supervisor of each department that performs confined space entries. Training certifications are to contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification must be available for inspection by employees and their authorized representatives. Supervisors will keep on file records of calibration for all atmospheric test meters showing when the unit(s) was last calibrated.

### 6.0 General Requirements

- a) Each Department Head shall evaluate the work space and equipment used within their department to identify permit required confined spaces.
- b) The department will be responsible for marking all building type permit required confined spaces. All other departments are responsible for marking their respective permit required confined spaces. Markings shall read: DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER or similar verbiage. Markings are not required if equally effective means of identifying permit required confined spaces are made available to employees. For example, marking would not be required for sewer manholes if the Department institutes a program that



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ensures all employees are made aware that sewers are considered to be permit required confined spaces.

- c) Department Heads shall specify which employees or which job classifications are authorized to enter confined spaces.
- d) If an injured Entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information will be made available to the medical facility treating the exposed Entrant.
- e) All designated Entrants and Attendants will be trained in first aid, CPR and be enrolled in the County's Bloodborne Pathogens program.
- f) A confined space is considered to be entered if any part of the body breaks the plane to the opening of the confined space.
- g) Alternate entry procedures for spaces only containing an actual or potentially hazardous atmosphere are not allowed. All entries for permit required confined spaces must follow the permit required entry procedures contained in this policy.
- h) Risk Management will review entry operations whenever the County has reason to believe that the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized.  
NOTE: Examples of circumstances requiring the review of the permit space program are: any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program. Risk Management / Safety Coordinator will also perform a standard annual review of the effectiveness of the confined space program by reviewing all entry permits that were issued in the prior twelve (12) month period.
- i) No eating, drinking or smoking are allowed in any confined space.
- j) Welding, cutting or brazing shall be performed in accordance with the County's Welding and Cutting Policy.
- k) All confined space test meters will be calibrated as per the manufacturer's recommendations and records shall be maintained showing the date the unit was last calibrated.

### 8.0 Entrant Duties

Entrants shall be responsible for:

- Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- Properly using safety and monitoring equipment;
- Communicating with the Attendant as necessary to enable the Attendant to monitor Entrant status and to enable the Attendant to alert Entrants of the need to evacuate the space if necessary.

Additionally, the Entrant is responsible for alerting the Attendant whenever the Entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or the Entrant detects a prohibited condition. The Entrant will exit the permit space as quickly as possible whenever:

- An order to evacuate is given by the Attendant or the entry Supervisor,
- The Entrant recognizes any warning sign or symptom of exposure to a dangerous situation,
- The Entrant detects a prohibited condition, or
- An evacuation alarm is activated.



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### 9.0 Attendant Duties

Attendants may not enter a confined space for any reason or perform any duties that might interfere with the Attendant's primary duty to monitor and protect the authorized Entrants. Attendants may perform non-entry type rescues as described in this policy. Attendants are responsible for:

- Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- Being aware of possible behavioral effects of hazard exposure in authorized Entrants;
- Continuously maintaining an accurate count of authorized Entrants in the permit space and ensuring that the means used to identify authorized Entrants accurately identifies who is in the permit space;
- Remaining outside the permit space during entry operations until relieved by another Attendant; communicating with authorized Entrants as necessary to monitor Entrant status and to alert Entrants of the need to evacuate the space if necessary;
- Monitoring activities inside and outside the space to determine if it is safe for Entrants to remain in the space and ordering the authorized Entrants to evacuate the permit 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 hazard exposure in an authorized Entrant;
  - 3) If the Attendant detects a situation outside the space that could endanger the authorized Entrants; or
  - 4) If the Attendant cannot effectively and safely perform all of his or her duties.
- Summoning rescue and other emergency services as soon as the Attendant determines that authorized Entrants may need assistance to escape from permit space hazards;
- Taking the following actions when unauthorized persons approach or enter a permit space while entry is underway:
  - 1) Warning the unauthorized persons that they must stay away from the permit space;
  - 2) Advising the unauthorized persons that they must exit immediately if they have entered the permit space; and
  - 3) Informing the authorized Entrants and the entry Supervisor if unauthorized persons have entered the permit space.

### 10.0 Entry Supervisors

Supervisors are designated as Entry Supervisors. Entry Supervisors must:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- Terminate the entry and cancel the permit if prohibited conditions develop;
- Verify that rescue services are available and that the means for summoning them are operable;



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- Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and
- Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

### 11.0 Retrieval Equipment and Non-Entry Rescues

To facilitate non-entry rescues, retrieval systems or methods shall be used whenever an authorized Entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the Entrant. Retrieval systems must meet the following requirements.

Each authorized Entrant is required to use a chest or full body harness, with a retrieval line attached at the center of the Entrant's back near shoulder level, above the Entrant's head, or at another point which the Supervisor can establish presents a profile small enough for the successful removal of the Entrant. Wristlets may be used in lieu of the chest or full body harness if the Supervisor can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.

The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

Attendants may perform non-entry rescues provided that the entry Supervisor is alerted immediately and it is safe to retrieve the Entrant from the space. Attendants are not to enter the confined space for any type of rescue attempt. Attendants will alert all unauthorized personnel that may be near the space to not attempt an entry rescue as it could be dangerous to life and health and only qualified rescuers can enter such spaces.

### 12.0 Rescue And Emergency Services

Department Heads will make arrangements with local emergency responders for confined space rescues by evaluating the rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified. Additionally, they will evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing Entrants from the particular permit space or types of permit spaces identified.

Department Heads will select a rescue team or service from those evaluated that:

- Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
- Is equipped for and proficient in performing the needed rescue services;

Department Heads will also inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.



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Preference will be given to the local fire department who meets the above qualifications and their use shall be documented in writing. In the event that no fire department is equipped to meet the above requirements, the Department Head shall consult with Risk Management to locate a suitable private rescue service.

### 13.0 Contractors

If a contractor is used to enter a confined space, the Dane County Supervisor in charge of the project will:

- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section;
- Apprise the contractor of the elements, including the hazards identified and the County's experience with the space, that make the space in question a permit space;
- Apprise the contractor of any precautions or procedures that the County or Department has implemented for the protection of employees in or near permit spaces where contractor personnel will be working;
- Coordinate entry operations with the contractor, when both County personnel and contractor personnel will be working in or near permit spaces; and Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

### 14.0 Permit Required Confined Space Entry Procedures

Entry Supervisors will provide at least one Attendant outside the permit space into which entry is authorized for the duration of entry operations. Attendants are only allowed to oversee the Entrant(s) to a single confined space and may not monitor more than one space at a time. Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed. When entrance covers are removed, the opening shall 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.

Before an employee enters the space, the internal atmosphere shall 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. Testing can be performed by the Entrant, the Attendant or the Entry Supervisor provided that they have been trained to use the test meter and interpret the results. The space will also be evaluated for physical and other hazards.

Entry Supervisors will reevaluate the permit space in the presence of any authorized Entrant or that employee's authorized representative who requests that the County conduct such reevaluation because the Entrant or representative has reason to believe that the evaluation of that space may not have been adequate. Additionally the entry Supervisor will immediately provide each authorized Entrant or that employee's authorized representative with the results of any testing conducted.

Testing of the space shall be performed without entering the space. Entrants or their authorized representative will be provided an opportunity to observe the pre-entry testing. There may be no



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hazardous atmosphere within the space whenever any employee is inside the space. Hazardous atmosphere is defined as a concentration in excess of the OSHA permissible exposure limit, ACGIH threshold limit value or a concentration that is known to be immediately dangerous to life and health. Continuous forced air ventilation shall be used, as follows:

- An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;
- The forced air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees have left the space;
- The air supply for the forced air ventilation shall be from a clean source and may not increase the hazards in the space.
- The atmosphere within the space shall 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, shall be provided with an opportunity to observe the periodic testing required by this paragraph.

If a hazardous atmosphere is detected during entry:

- Each employee shall leave the space immediately;
- The space shall be evaluated to determine how the hazardous atmosphere developed; and
- Measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

The Entry Supervisor will verify that the space is safe for entry and that the pre-entry measures required above have been taken, through a written permit system. The permit must be signed before entry is allowed. Electrical systems or components that present a possible safety hazard within a confined space will be locked out according to the County's lockout procedure before entering the space.

### 15.0 Permit System

Entry Supervisors must sign a permit authorizing entry into a permit required confined space. A permit form is contained in the appendix. Before entry begins, the entry Supervisor identified on the permit shall sign the entry permit to authorize entry. The completed permit shall be made available at the time of entry to all authorized Entrants or their authorized representatives, by posting it at the entry portal or by any other equally effective means, so that the Entrants can confirm that pre-entry preparations have been completed. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit. The entry Supervisor will terminate entry and cancel the entry permit when:

- The entry operations covered by the entry permit have been completed; or
- A condition that is not allowed under the entry permit arises in or near the permit space.

The entry Supervisor will retain each canceled entry permit for at least one (1) year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.



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### 16.0 Openings and Obstructions

Openings into the confined space shall be kept free from obstructions at all times, such as, but not limited to, hand tools and debris. Openings shall be guarded and barricaded when opened to prevent unauthorized employees or personnel from entering the confined space and to prevent objects or debris from falling into the confined space. All guarding shall be accomplished by the use of any of the following barrier methods only and shall be installed such that unauthorized individuals cannot accidentally walk, fall in, or otherwise enter the space without having to physically remove, defeat and/or bypass the barrier that is used:

- Yellow caution tape wrapped around the opening.
- Vertical poles with associated yellow chain linked fencing placed around the opening.
- Orange or yellow traffic cones placed around the opening.

Types of barrier guarding that are not allowed (i.e., use of chairs, tables, trashcans, etc.)

### 17.0 Vehicle Traffic Area Entry Requirements

Confined space entries into confined spaces located in vehicle traffic areas need to be identified and additionally protected by ensuring all of the following actions are performed (These are in addition to those requirements under "Openings and Obstructions" discussed above):

- A vehicle must be parked near the manhole in such a way as to protect the space opening and in such a manner as to not totally obstruct the flow of traffic;
- Vehicle's four way flashers and yellow strobe lights shall be on at all times;
- Traffic cones shall be placed near the entry to channel traffic;
- Barricades and signs shall be used when appropriate in high traffic areas;
- Vehicles exhaust fumes shall be directed away from the entry point;
- All employees above ground shall wear appropriate high visibility safety colored vests and Entrant's safety rope shall be attached to a tripod winch. Attendant shall use radio communication to communicate with Entrant and off-site supervisory personnel. Flagmen directing traffic shall not serve as an Attendant.
- Entrants and Attendants who work on highways, roads, streets or their easements shall wear traffic safety vests or use clothing or equipment that provides similar protection.

### 18.0 Sewer Entries

All sewer entries will be performed in accordance with the requirements of this and all other applicable County Safety Policies. Department Heads will develop specific sewer entry work procedures to supplement the requirements of this policy. Such practices will address at a minimum:

- Unique hazards associated with the sewer to be entered.
- Type of sewer system to be entered.
- Surge flow and flooding.
- Introduction of contaminants.
- Special Equipment.

**End Policy**