



Department Operations Policies & Procedures

DOPP #24

To: Water & Sewer Employees
From: David R. Warren, Director of Water & Sewer
Date: August 10, 1990
Revised:
Original: August 10, 1990
Subject: Confined Spaces Entry and Exit Policy

Purpose:

To conform with standards for safely entering confined spaces, the Department establishes these procedures to be followed by all employees at all time

Policy:

A CONFINED SPACE SHALL MEAN ANY SPACE HAVING LIMITED MEANS OF ENTRY AND EXIT, INSUFFICIENT NATURAL VENTILATION, COULD CONTAIN OR PRODUCE TOXIC OR FLAMMABLE GASES OR VAPORS OR BE DEFICIENT IN OXYGEN, AND IS NOT INTENDED FOR CONTINUOUS HUMAN OCCUPANCY. CONFINED SPACES INCLUDE, BUT ARE NOT LIMITED TO UNDERGROUND VAULTS, METER PITS, MANHOLES, STORAGE TANKS, TUNNELS, PIPELINES, PROCESS VESSELS, BOILERS, SILOS, TANK CARS, TUBES, DUCTS, SEWERS AND OPEN-TOP SPACES MORE THAN FOUR FEET DEEP.

Procedure:

Ø CONFINED SPACE ENTRY POLICY:

A. Supervisors designated by Division heads shall personally:

1. Approve work to be accomplished which necessitates entering a confined space or other enclosed hazardous space.
2. Approve procedures and work methods to be followed.
3. Examine and approve personal protective equipment

(hearing, eyewear, clothing, hard hats) to be worn and rescue equipment (breathing, retrieval) to be on hand.

4. Determine that personnel are familiar with the task to be accomplished, procedures to be followed, hazards involved, equipment to be used, precautions to be observed and signals and emergency measures to be utilized.
5. Determine that personnel are physically capable of accomplishing their assigned tasks.
6. Determine method and manner by which a confined space will be isolated, monitored, ventilated and entered.
7. Ascertain that the confined space has been suitably prepared for entry, personnel are adequately equipped, and area properly posted.

B. No one shall enter any confined spaces unless:

1. The confined space has an oxygen supply of at least 19.5 percent, flammable range less than 10 percent of the lower explosive limit, and toxic air pollutants below the threshold limit values.
2. All manholes or other openings on the confined space shall be opened and left open until the prescribed work has been completed and the inside of the confined space inspected to ensure tools, equipment and trash have been removed and that personnel have left the confined space.
3. If a manhole or confined space is four (4) feet or less in depth, the atmosphere shall be tested prior to entry, and shall be monitored constantly while personnel are within the structure. If the manhole or confined space is in excess of four (4) feet in depth, fall prevention and retrieval equipment must also be utilized as well as continuous atmosphere testing performed unless otherwise determined by the Safety Officer.

4. When entering a storage vessel, the vessel shall be isolated from all incoming product lines, interconnecting vent lines and tie lines and emptied to the greatest extent possible. This shall be done by blanking them off with blind flanges or by disconnecting the lines. Potable water lines that cannot be blind flanged shall be shut off on the inlet side and at one location on the outlet side. Since valves may leak, simply shutting off valves generally will be unsuitable. However, lockable valves shall be locked and tagged. Blind flanges shall be identified with tags or by using frying pan handle types. A checklist shall be provided to account for all blind flanges used. Gaskets shall be used with blind flanges.
 5. Low-point drain valves on confined spaces so equipped shall be left open. Drain fittings shall be removed.
- ü No person shall enter a confined space or other hazardous enclosed space unless all the necessary precautions indicated herein are followed and his/her immediate supervisor's permission has been obtained.
 - ü The buddy system shall be used. When one worker enters the confined space, one should remain outside. The outside worker shall be physically able (using provided retrieval equipment) and equipped to remove the inside worker from the confined space and perform CPR/first aid, if necessary. Further, communication signals between these employees shall be reviewed prior to entry.
 - ü The outside safety worker shall remain in position at all times where he/she can either see the worker in the confined space or receive communications that all is well. If the outside worker cannot see or communicate with the worker in the confined space, he/she shall investigate immediately and obtain assistance, if necessary.
 - ü The worker remaining outside the confined space shall be given no other duty which might divert his/her attention from the safety of the worker in the confined space. The outside worker shall not leave the site to obtain parts, tools, instructions or for any reason when such action will leave a worker alone in a confined space or other enclosed hazardous space.

- ü Personnel entering a confined space shall be sure there has been an adequate air purge of the confined space. Self-contained breathing apparatus shall be used in confined spaces where the possibility of an oxygen deficiency or high concentration of toxic gas may be present or may occur. Whenever gasoline-operated blowers, pumps or other such equipment are used near a confined space, they shall be located downwind of the confined space opening (or in another such manner) so that potentially harmful fumes do not enter the confined space.
- ü Bulky breathing apparatus such as large backpacks shall not be removed to enter a confined space through a restrictive opening. A manhole through which it is difficult to enter will provide difficulties when leaving, or for any emergency action. More suitable equipment (such as airline breathing apparatus) shall be used in such difficult situations.
- ü The outside worker shall keep a record of the time the other worker entered the confined space. If the confined space worker is using self-contained breathing apparatus, he/she shall be warned when his air supply approaches the point where it should be replenished. When a low air alarm sounds on a breathing apparatus, the worker will immediately leave the confined space and obtain a full apparatus.
- ü Man-rated retrieval equipment shall be provided outside the confined space attached to the confined space worker's body harness so that the outside safety worker can raise the confined space worker in an emergency. If there is no adequate structure outside the confined space from which the man-rated retrieval equipment can be hung, an approved tripod shall be erected over the manhole or confined space and the man-rated retrieval equipment shall be hung from the tripod. Retrieval equipment will NOT be hung from movable equipment such as a truck or backhoe.
- ü Rescue equipment shall be kept outside the confined space ready for use at all times.

- ü In an emergency, the outside worker shall immediately instruct the radio dispatcher to contact Emergency Communications for rescue assistance. The outside worker shall not enter the confined space until the dispatcher has confirmed that emergency assistance has been requested, and the outside worker has taken all safety precautions necessary including, but not limited to, testing the confined space, ventilating it and using all necessary personal protective equipment. To attract the other worker's attention, prearranged signals, a whistle or some type of electrical communication can be used. The outside worker shall not enter the confined space unless acceptable conditions exist as defined in III.B above.
- ü The number of workers in a confined space shall be kept to the absolute minimum necessary. One safety/backup worker shall be provided for each worker in the confined space.

Ø **DIVISION REQUIREMENTS:**

A. Training:

All divisions shall be responsible for ensuring that workers accomplish job tasks safely in confined spaces. Annually, each division shall prepare a listing of all its structures which are considered confined spaces, and submit the list by January 1 of each year to the Director's office for attachment to this policy and ensure that all employees have been provided a copy of this list. The first listing shall be prepared and distributed by September 1, 1990.

Further, each division shall conduct confined space entry, operation, exit, emergency evacuation and permitting training for all applicable employees at least every six months. No employee is to be assigned job duties involving confined spaces until the employee has received sufficient confined space training.

B. Certification and Permit Program:

The Director shall appoint qualified personnel to conduct annual training and certification programs to instruct, test and certify employees for confined space operation. Confined space employee certification categories shall be as follows:

- 1) Evaluator of Confined Spaces - Certified capability to evaluate confined space conditions and classify confined space into either Class A, B, or C (per Attachment 1) using both Draeger tube and electronic monitoring devices.

- 2) Confined Space Worker - Certified capability to both evaluate confined space conditions per IV.B.1. above, and prescribe and implement appropriate, safe, employee entry and operational procedures.
- 3) Confined Space Evacuator - Certified capability to perform functions identified in IV.B.1 & 2 above, and perform emergency notification, evacuation and CPR/first aid procedures.
- 4) Confined Space Trainer - Certified capability to perform all functions identified in IV.B.1, 2 and 3 above, as well as pass a confined space certification exam administered by the City Safety Officer.

C. Confined Space Participation:

Participation in job tasks involving entry of confined spaces shall be limited to employees who have achieved a passing score on certification exams 1 and 2 on the Certification and Permit Program, IV.B, above. All employees designated as confined space outside workers/safety buddy/observers shall be certified confined space evacuators per IV.B.3. above. Employees who have passed certification exam 4 are eligible to train and certify other employees for permit categories 1, 2 and 3. Only the division heads, safety officer and Director have authority to approve certification of employees in Category 4.

Whenever an employee reports to his/her supervisor that he/she believes inadequate precautions are being taken to ensure employee safety during a confined space operation, the supervisor shall immediately re-evaluate procedures to ensure that sufficient procedures are being followed. If the employee continues to believe that an unsafe condition exists, the supervisor shall stop the work and immediately contact the division head for final review.

Ø EMPLOYEE REQUIREMENT:

All employees are to take adequate precautions to prevent injury or death while working in confined spaces. Any employee who believes that adequate safety precautions are not being taken shall immediately report this to his/her immediate supervisor.

All employees shall conform with the specific confined space operation procedures established by their division head for specific types of confined spaces.

Ø RADIO DISPATCHER REQUIREMENT:

Whenever an employee requests emergency help relating to injury in a confined space, the radio dispatcher will immediately telephone 911 to obtain fire/ambulance rescue assistance.

The radio dispatcher will then notify the crew's superior, the division head and the Director's office of the incident.

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