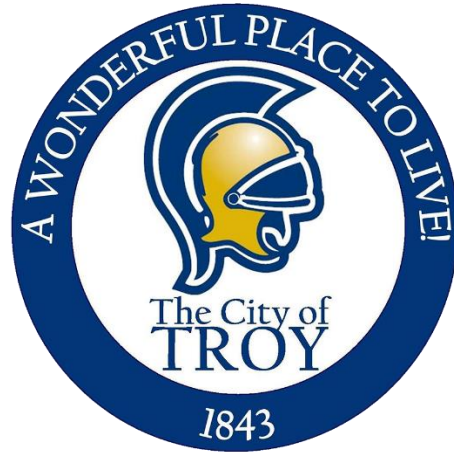


# THE CITY OF TROY



## WATER / SEWER DEPARTMENT CONFINED SPACE STANDARD OPERATING PROCEDURE

12/26/16

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## 1.1 Purpose

The purpose of this program is to ensure the protection of all employees of The City of Troy from the hazards associated with confined space entry. This document contains requirements for practices and procedures to protect employees from those hazards of entry into and work within confined spaces.

## 1.2 Definitions

### a) Confined or Enclosed Space

Confined space; has one or more of the following characteristics: contains or has the potential to contain a hazardous atmosphere; contains a material that has the potential to engulf an entrant; has walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant, has limited means of entry and exit, is not meant for continuous human occupancy; or contains any other recognized safety or health hazard, such as unguarded machinery, exposed live wires, or heat stress.

Examples of confined spaces include but are not limited to storage tanks, process vessels, bins, silos, boilers, ventilation or exhaust ducts, sewers, pipe chassis, underground utility vaults, tunnels, and pipelines.

### b) Enclosure / Enclosed

Surrounded by a case, cage, wall, or fence which will protect the contained equipment and prevent a person from accidental contact from live parts.

### 1.3 Entering Underground Structures / Enclosures

- a) Employees shall use gas/air monitoring devices when entering any confined space; IE: manholes, pump stations, chlorine stations, or any other area meeting the definition of a confined space as stated in section 1.1. Note/Exception: Chlorine rooms with active alarm/alert systems.
- b) Employees shall use fresh air ventilation fans and duct prior to and while work is being performed in a confined space. The space should be ventilated 10-15 Minutes prior to entry, especially in high heat conditions.
- c) When stairs are not available, ladders or other climbing devices shall be used to enter or exit manholes, subsurface vaults, or confined spaces that exceed 4 feet in depth. Employees shall not use cables or hangers as steps to climb in or out of manholes and/or confined spaces.
- d) When ladders are used to enter or exit any confined space the ladder shall be 3 rungs or 3 feet above the walking or working surface. The ladder shall be secured to the wall or walking/working surface.
- e) Equipment used to lower materials and tools must be capable of supporting the weight and shall be checked for defects before use. Employees working in manholes or other confined spaces shall stand clear of the area directly underneath openings while tools or materials are being raised or lowered.
- f) While employees are working in any confined space that contains energized electrical equipment or any other hazardous atmosphere or equipment, an employee (attendant) capable of rendering emergency assistance shall be on duty in the immediate vicinity of the space opening. This employee may not occasionally enter the confined space to provide assistance other than emergency situations.
- g) Conductive (metal) ladders and other materials shall not be used in confined spaces where live electrical hazards exist.
- h) In the case of an emergency inside of any confined space no employee shall enter the space to perform rescue. The employee(s) outside of the space shall call 911 for fire and EMS assistance. The Risk Management Coordinator shall also be notified.

## 1.4 Confined / Enclosed Spaces

- i) Employees shall use gas/air monitoring devices when entering any confined space; IE: manholes, pump stations, chlorine stations, or any other area meeting the definition of a confined space as stated in section 1.1. Note/Exception: Chlorine rooms with active alarm/alert systems.
- a) Employees shall use fresh air ventilation fans and duct prior to and while work is being performed in a confined space.
- b) Employees shall not smoke while opening vaults, manholes, transformers, switching cabinets, or any other area meeting the definition of a confined space.
- c) All confined spaces shall be tested for gas and other combustibles with a gas detection instrument before employees are allowed to enter.
- d) Gas/air detection instruments shall be left in a proper testing position/mode while work is being performed. Oxygen levels at 19.5% and above are considered a safe working environment. Any oxygen-deficient atmosphere (confined space) with an oxygen level less than 19.5 shall be considered hazardous to employee health and safety.
- e) Any confined space with an oxygen-enriched atmosphere with levels above 23.5% shall be considered hazardous to employee health and safety due to the high possibility of fire. These spaces should be ventilated with fresh air until the gas/air detection system shows safety atmospheric conditions.
- f) Fresh air ventilators shall be installed in the confined space prior to and while work is being performed to maintain sufficient levels of oxygen and to ventilate small amount of potential gas.
- g) At no time shall an employee enter or work in a confined space until gas and or oxygen levels are within a safe level.
- h) Manhole guards, barricades, cones, flaggers, flashing lights, and other traffic control devices shall be when confined spaces are in traffic areas or close to hazardous traffic areas where employees may come in contact with motor vehicles in motion. Employee shall follow standard operating procedures for work zone safety.

- i) "Hot work" such as welding shall not be performed in a confined space without the constant monitoring of the atmosphere as well as constant fresh air ventilation.
- j) Safety glasses, respirators, or any other necessary personal protective equipment deemed necessary shall be worn by any employee(s) working in any confined space.
- k) All manholes, or other ground openings shall be secured or closed when unattended by employees. If the hole or other ground opening cannot be secured or closed a cover must be erected to prevent falls, etc. The cover must be labeled "hole". The cover must be in place until permanent means of securing the opening can be made.
- l) Employees working in limited exit areas (such as manholes) where there is a likelihood of fires, escaping gas, toxic fumes or deficiency of oxygen, an employee shall wear a fall protection harness attached to a life line tripod rescue system. Employees shall not enter such a confined area unless a second person is stationed outside the exit and is prepared to render assistance.
- m) In the case of an emergency inside of any confined space no employee shall enter the space to preform rescue. The employee(s) outside of the space shall call 911 for fire and EMS assistance. The Risk Management Coordinator shall also be notified.