

SPRINGFIELD FIRE DEPARTMENT

Series 1100

Title:	Confined Space Operations	1101
Category:	Rescue Operations	7/2017

I. OBJECTIVE

- A. It will be the Standard Operating Guideline of the Springfield Fire Department that the following guidelines shall be adhered to when the department has any responses involving confined space operations.
- B. We recognize that very serious potential dangers are present on incidents which require fire department personnel to enter confined spaces to fight fires or to rescue persons in need of assistance. In order to operate safely in these situations, special precautions must be taken and must be rigidly enforced.

II. DEFINITION OF "CONFINED SPACE"

- A. A space that is large enough and so configured that an employee can bodily enter and perform assigned work, and;
- B. A space that has limited or restricted means for entry or exit. (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry), and;
- C. A space that is not designated for continuous employee occupancy.

III. PROCEDURE

- A. Confined space incidents may involve injured persons, persons asphyxiated or overcome by toxic substances, cave-ins or fires occurring within the space. Pre-incident planning is an important factor in dealing with these situations.
- B. Operations within confined spaces shall be approached with extreme caution. Direct supervision is required and all safety precautions and guidelines shall be rigidly enforced. Operations shall be conducted in a manner which avoids premature commitment to unknown risks.
- C. In order to provide adequate support for confined space incidents, command shall provide a minimum 2:1 ratio of personnel outside the confined space to support personnel working within. This shall include a stand-by rescue team with a 1:1 ratio to provide emergency assistance to the personnel in the confined space. This team shall be equipped with self-contained breathing apparatus and radio, and shall stand by to enter if needed. A staging area for treatment with ALS capabilities shall also be provided near the entrance/exit point.
- D. AIR MONITORING TESTS SHALL BE CONDUCTED TO DETERMINE THE LEL, CO, AND OXYGEN LEVELS **BEFORE** ANY ENTRY IS MADE BY DEPARTMENT PERSONNEL.
- E. The following levels shall be considered as immediately dangerous to life and health (IDLH) environments.
 - 1. Oxygen deficient < 19.5%
 - 2. Oxygen enriched > 23.0%
 - 3. Flammability at 10% of lower explosive limit (LEL)

REPEAT: ENTRY SHALL NOT BE MADE BY ANY PERSONNEL UNTIL AIR MONITORING TESTS HAVE BEEN CONDUCTED TO DETERMINE THE LEL, CO, AND OXYGEN LEVEL.

- F. Upon exiting the confined space, personnel shall be required to go to the rehabilitation division for monitoring of vitals and dehydration.
 - 1. In order to provide this capability, command is to ask dispatch for ALS medical units and a reasonable number of first responders to assist at any confined space operations.
 - 2. A safety officer must be appointed immediately to help oversee operations and to assist command with personnel accountability and suggestions to mitigate the problem.
- G. Before allowing personnel to enter a confined space, the officer in command must attempt to gather any available information about the nature of the situation or hazard, particularly as it pertains to the atmosphere inside the space.

THIS INFORMATION IS CRITICAL WHEN THE SITUATION INVOLVES UNCONSCIOUS VICTIMS OR PERSONS WHO MAY HAVE BEEN OVERCOME BY THE ATMOSPHERE INSIDE THE SPACE.

- H. Command must assume that an unsafe atmosphere exists within the confined space until/unless testing establishes it is safe. When test instruments are available, readings of oxygen concentration, explosive gas or vapor concentrations, carbon monoxide and hydrogen sulfide shall be taken before entering.
- I. All personnel entering the confined space or working within the Hot Zone shall use breathing apparatus. Either self-contained or airline supplied breathing apparatus may be used, depending on the nature of the situation. Command must evaluate the need for extended-duration breathing apparatus and make provisions for extra equipment when necessary.
 - 1. Breathing apparatus shall be used without exception in confined spaces until or unless analysis of the atmosphere confirms that it is safe to breathe.
 - 2. Personnel shall not remove face pieces or take any other action to compromise the effectiveness of their breathing apparatus while inside the confined space atmosphere.
 - 3. Protective clothing shall be worn as required by the situation, depending on an evaluation of the hazards and the products which may be inside the confined space.
- J. When feasible, command should establish a Ventilation Sector to begin operations directed at providing fresh air and/or exhausting contaminated air from the confined space. Any electrical or mechanical equipment taken inside the confined space, including lighting equipment, shall be an explosion-proof type, when any flammable hazard is suspected. When ventilating a confined space containing flammable vapors or gases, Ventilation Sector must consider the concentration in relation to the flammable limits.
 - 1. Command will assign a safety officer to assume these responsibilities from the initial stages of the incident. The safety officer shall evaluate the risks and enforce all safety requirements associated with the particular situation. If the safety officer judges that an operation is unsafe, the operation shall be suspended immediately.
 - 2. Command shall assure that personnel entering a confined space do not commit themselves to travel within the space beyond a point that provides sufficient air

reserve to return and exit safely, with at least a five (5) minute safety margin. The time available for operations inside shall be estimated based on air supply and monitored by personnel outside, as well as the entry team. Where feasible, lifelines and radios shall be used by personnel entering the confined space.

- K. A "confined space entry officer" shall be established at the entrance/exit to control access to the confined space. The entry officer shall record the names, assignments, entry times, and SCBA cylinder pressures of all personnel entering the confined space. The entry officer will maintain a time awareness of the expected exit time for each individual based on air supply at the time of entry and provide a warning at the predetermined time to begin exit guidelines. Warning will be provided by radio or other communications systems to the safety officer, command, and personnel inside.
1. When working in confined spaces with very restricted access or in environments that could provide for cave-ins, i.e., burial by product (such as grain), personnel shall wear a rescue harness or wrist straps to provide extrication by rope.
 2. A primary function of the confined space entry officer is to control the number of personnel and prevent crowding at the entrance to the confined space.