

HR LF	HR HF	<p align="center"><b>Massachusetts</b> <b>Fire District - 14</b> <b>Technical Rescue Team Confined Space Rescue</b> <b>TRT 3100-18-012</b></p>	<p align="center">Effective Date 10/17/2019</p>
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**I) PURPOSE/SCOPE/APPLICATION**

- A) The Purpose of this SOG is to establish guidelines for conducting confined space rescues. Because of the infinite number of potential sites and situations that could be encountered, this procedure will not define a specific evolution to use, but will give guidelines to follow for conducting safe and effective operations.
- B) This SOG shall cover Definitions, Safety Precautions, and All Phases of Operations,
- C) This Standard Operating Procedure shall apply to all members of the District 14 Technical Rescue Team.

**II) REFERENCE DOCUMENTS**

- A) N/A

**III) DEFINITIONS**

- A) **Confined Space**: Confined Space means a space that:
  - 1) Is large enough and so configured that an employee can bodily enter and perform assigned work
  - 2) Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits)
  - 3) Is not designed for continuous employee occupancy
- B) **Hazardous Atmosphere**: Hazardous atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (i.e., escape unaided from a permit space), injury, or acute illness from one or more of the following causes:
  - 1) Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LEL).
  - 2) Airborne combustible dust at a concentration that meets or exceeds its LEL.  
NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.

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- 3) Atmospheric oxygen concentration below 19.5% or above 23.5%.
  - 4) Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit. NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.
  - 5) Any other atmospheric condition that is immediately dangerous to life or health. NOTE: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200 of this Part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.
- C) **Immediately Dangerous to Life or Health (IDLH)**: IDLH means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space. NOTE: Some materials -- hydrogen fluoride gas and cadmium vapor, for example -- may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.
- D) **Oxygen Deficient Atmosphere**: Oxygen deficient atmosphere means an atmosphere containing less than 19.5% oxygen by volume.
- E) **Oxygen Enriched Atmosphere**: Oxygen enriched atmosphere means an atmosphere containing more than 23.5% oxygen by volume.
- F) **Permit-Required Confined Space (Permit Space)**: Permit Space means a confined space that has one or more of the following characteristics:
- 1) Contains or has a potential to contain a hazardous atmosphere
  - 2) Contains a material that has the potential for engulfing an entrant

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- 3) 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
- 4) Contains any other recognized serious safety or health hazard

**IV) SPECIALIZED ROLES AND RESPONSIBILITIES**

- A) All members should be responsible for enforcing this SOG.

**V) SAFETY**

- 1) Establish a secure perimeter around the hazard area
- 2) Ventilate the general area, if needed as determined by air monitoring equipment.
- 3) Ventilate the space. Continually assess the effectiveness of your ventilation process by:
  - (a) Atmospheric monitor readings
  - (b) Assessment of type and configuration of the space
- 4) If possible, open all additional openings in the space to assist with the ventilation process while assuring problems such as recirculation, short circuiting, chimney effect etc. are not occurring
- 5) Assure fire control measures, if needed
- 6) Eliminate all sources of ignition on-site

**VI) ENFORCEMENT**

- A) Failure to understand this Standard Operating Guideline may result in disciplinary action.
- B) Any deviation from this Standard Operating Guideline may require a written report to the Chief overseeing the team and or/the District 14 Chair.
- C) This policy is for internal use only and does not enlarge an employee's civil liability in any way. The policy should not be construed as creating a higher duty of care, in an evidentiary sense, with respect to third party civil claims against employees. A

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violation of this policy, if proven, can only form the basis of a complaint by this department for non-judicial administrative action in accordance with the laws governing employee discipline.

## **VII) STANDARD OPERATING GUIDELINE**

- A) First Arrival. The First arriving team member will assume role of Rescue Ops and will immediately report to Command for acknowledgement. This position can be passed once, only after the person assuming the position has been fully informed of the situations.
- B) Phase I: Scene Preparation
- 1) Size Up
    - (a) Upon arrival at a confined space incident the following information should be obtained:
      - (b) Type of confined space.
      - (c) Presence of product storage hazards.
      - (d) Locate the job responsible party or a reliable witness.
      - (e) Location and number of victims (Make verbal contact as soon as possible).
      - (f) Blue prints, maps, or sketches of the site
      - (g) Mechanisms of entrapment or nature of illness
      - (h) Number of entry points and locations
      - (i) Electrical/mechanical/chemical hazards.
  - 2) Phase II: Entry Preparation
    - (a) Unit Assignments for Confined Space Rescue
    - (b) Rescue Ops should be responsible for assigning:
      - I. A crew to perform rigging functions
      - II. A crew to perform the victim rescue/recovery function
      - III. A crew to perform support/supply functions

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IV. Personnel should be assigned to perform air monitoring in the area of the confined space. Typically this will be done by a person assigned to safety; however on large complex incidents this may require the establishment of an Air Monitoring Group. Air monitoring should be performed for the following conditions

- Oxygen-deficiency: less than 19.5% oxygen
- Oxygen-enrichment: greater than 23.5% oxygen
- Combustible Gases and Vapors (LEL): any atmosphere containing over 10% of lower explosive limit presents an explosion or fire hazard
- Toxicity: Carbon Monoxide over 35 ppm or Hydrogen Sulfide over 10 ppm

(c) All atmospheric readings should be recorded on a confined space rescue worksheet

(d) All Rescue team members will be fully briefed on their assignments after the Rescue Ops has consulted with the IC, an IAP has been formulated, and prior to the commencement of rescue operations. If the situation permits, a backup plan should be in place

(e) The following actions should be taken prior to entry into the confined space

I. Assure lock out, tag out, blank out procedures are complete

- All fixed mechanical devices and equipment capable of causing injury should be placed in a zero mechanical state (ZMS).
- All electrical equipment (excluding lighting) should be locked out in the open that all personnel who e padlock
- The key should remain with the person who places the lock on the equipment
- In cases where lock out is not possible, equipment should be properly tagged and physical security provided Toxicity:

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- II. Post non-essential personnel at those areas tagged and blanked or blinded
- III. Assure that all personnel who enter the site are equipped with proper PPE and SABA or SCBA
- IV. All entry personnel will have their vitals taken and recorded prior to entry if time permits
- V. Assure one (1) backup team for every entry team
- VI. No team should enter a space with electronic devices or other "non-intrinsically safe devices" unless approved prior to entry, based on atmospheric monitoring
- VII. Each entry team should be equipped with the following items
  - At least one member should have an intrinsically safe radio
  - Explosion proof lighting, volume or other explosion proof light
  - All electrical equipment (excluding lighting) should be locked out in the open that all personnel who e padlock
  - Proper protective gear as deemed necessary by Rescue Ops. At the very least each member should wear boots, gloves and helmet
  - Some form of rapid extrication/retrieval harness for a victim
  - Each member should wear a personal Class III harness
  - A victim SABA and supply line or SCBA, if applicable

### 3) Phase III: Entry

- (a) Once the best method and location for entry has been determined, teams should begin entry and reconnaissance/rescue/recovery operations in the space. A log should be maintained noting the entry times of all personnel
- (b) Entry decisions should be made based on known locations of victims, safety of the opening, atmospheric readings and ease of recovery points

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- (c) Teams should be limited to 30 minutes in any space to include entry and egress
- (d) Each team should be assigned to rehab upon removal from the space until re-hydrated and vital signs are within normal limits
- (e) Once inside the space
  - I. Assure adequate interior team communications
  - II. Assure adequate communications with the entry supervisor. IF visual/voice communication is not possible, rescue members should use OATH
    - O-OK (1 pull on rope)
    - A-Advance (2 pulls on rope)
    - T-Take up slack (3 pulls on rope)
    - H-Help (4 pulls on rope)
  - III. Mark, if necessary, with chalk, cylumes or other method, entry and movement patterns to assure egress
- (a) Once the victim has been located, decide
  - I. Is this a rescue or recovery?
  - II. If rescue, can a SABA or SCBA unit be placed on the victim?
  - III. Can the victim be easily moved towards the opening with current equipment carried by the team?
  - IV. Is an additional team needed to make the move?
- (b) Communicate your decision/needs to the Incident Commander
- (c) If the victim is to be moved through an opening which represents the only way out of the space, all team members should be stationed to the egress side of the hole/opening in case the victim becomes lodged. Always try to avoid being blocked in by a victim. If this is not possible, assure the following:

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- I. When the move is made, assure it is made quickly and smoothly, leaving the time the space is blocked for egress as minimal as possible
  - II. Assure that the exterior personnel, as well as interior teams, are aware of the move and a plan is agreed upon prior to blocking the space
  - III. Assure that all air lines and connections are clear of the victim and his movement path to assure that no airline problems develop as a result of the victim becoming entangled or pinching off the lines
- 4) Phase IV: Victim Removal
- (a) Once the victim is set for removal, assure the following
    - I. Attempt to maintain c-spine control if possible based on the space and the victim's condition
    - II. Use removal systems on the exterior that are applicable to the size and weight of the victim
    - III. Mechanical advantage systems are much preferred over manual hauling
    - IV. Do not use electric winches, etc., to remove victims
    - V. Decide if the victim is to be removed head first or feet first
    - VI. Avoid the use of wristlets on patients with burns to the extremities

**VIII) RECORDS, REPORTS, CHARTS, FORMS**

A) N/A

<p>Sog Review Dates:</p>
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