

**SUBJECT:** CONFINED SPACE OPERATIONS**SECTION:** 303.11**REVISED:** FEBRUARY 17, 2009**PAGE(S):** 4

## PURPOSE

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To provide guidelines during entry and rescue operations in a confined space.

## ASSESSMENT

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Upon arrival at confined space OIC should establish command and make an assessment of the confined space based on the following points:

- A. Assess type of space.
- B. Assess product storage hazards.
- C. Locate and secure job foreman or a reliable witness.
- D. Determine location and number of victims.
- E. Obtain blue prints, maps or have site personnel draw sketch of the site.
- F. Determine any mechanisms of entrapment or nature of illness.
- G. Make a conscious decision as to whether this is a RESCUE or RECOVERY operation.
- H. Determine number of entry points and locations.
- I. Determine electrical, mechanical, chemical and any additional hazards.
- J. Obtain permit entry form if available.
- K. Start documentation on confined space rescue form.
- L. Additional manpower or equipment needed:
  - 1. Reading Fire Department Recall with Evendale FD
  - 2. Hamilton County USAR team (Hamilton County Dispatch)
  - 3. The following departments have confined space equipment: Sycamore

## SITE SAFETY

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- A. Provide scene security and perimeter control. Establish the incident command system per the department SOG.
- B. Monitor atmosphere outside and inside confined space (if possible prior to ventilation). Do not sacrifice ventilation for monitoring.
- C. Ventilate space and area as soon as possible using positive pressure or combination of positive pressure and exhaust.
- D. Open all additional appropriate openings into space to assist with ventilation.

- E. Begin space isolation by lock out, tag out or blocking. All fixed mechanical devices and equipment capable of causing injury shall be placed in zero mechanical state.
- F. Assure that fire control measures are taken. Eliminate sources of ignition.

## **ENTRY PREPARATION**

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- A. Assure lock out, tag out and blank out procedures are complete.
- B. All fixed mechanical devices and equipment capable of causing injury shall be placed in zero mechanical state (ZMS).
- C. All electrical equipment (excluding lighting) shall be locked out in the open (off) position.
- D. All atmospheric readings shall be recorded on the rescue entry permit.
- E. In event atmospheric readings become unsafe to conduct operations, all entry teams will be removed from the space until such time that conditions are improved.

## **ATMOSPHERIC MONITORING**

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- A. Atmospheric monitoring shall occur prior to and during all entries into a confined space.
- B. It should be stressed that lack of positive alarm level readings does not eliminate the requirement for proper respiratory protection.
- C. Monitoring should be accomplished at all levels of the space.
- D. All atmospheres shall be tested for:
  - 1. Oxygen deficiency-less than 19.5%.
  - 2. Oxygen Excess- greater than 23.0%.
  - 3. Toxicity- any limit above the Permissible Exposure Limit (PEL).
  - 4. Flammability- at 10% of the Lower Explosive Limit (LEL).

## **ENTRY**

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- A. Once the best method and location for entry has been determined, teams can begin entry into space for reconnaissance, rescue or recovery operations.
- B. Entry decisions shall be made based on known locations of victims, safety of the opening, atmospheric readings and ease of recovery.
- C. If possible, attempt two prong attack to reach victim(s) if their location is known or suspected.
- D. Prior to entry, each team member shall be logged on a rescue entry permit with time of entry noted.
- E. Teams shall be limited to fifteen (15) minutes in any space with a standard SCBA (45 minute bottle) and thirty (30) minutes with a SABA- Thirty minutes should be the maximum allowed time in a space during operations.

- F. If you must remove your SCBA to enter space, ENTRY SHALL NOT BE PERMITTED.
- G. When entering with standard SCBA, go no more than twenty-five (25) feet from entrance in a horizontal direction.
- H. Assure one (1) back up team for every entry team.
- I. Always work in teams of two (2).
- J. Each entry team shall be equipped with the following:
  - 1. Communication equipment
  - 2. Lighting
  - 3. Atmospheric monitor
  - 4. Proper protective gear
  - 5. An entry/egress line shall accompany team
  - 6. A victim retrieval system and SCBA/SABA for victim
- K. If the entry team must enter a vertical shaft of greater than eight (8) feet, each member must wear a personal harness and be attached to a fall arresting system upon entering.
- L. Post non-essential personnel at tagged utilities for monitoring purposes.
- M. Once inside the space:
  - 1. Assure adequate interior team communications
  - 2. Markings can be made to assure egress
  - 3. Move towards the suspected victim(s) as a team
  - 4. Beware of elevation differences and unstable footing
- N. Once the victim(s) have been located, decide:
  - 1. Is this rescue or recovery?
  - 2. If rescue, can SCBA/SABA unit be placed on the victim(s)?
  - 3. Can the victim(s) be easily moved toward the opening?
  - 4. Is an additional team needed?
  - 5. Communicate decisions to outside command.
- O. Once the victim has been attached to a removal system
  - 1. Assure that all team members are stationed to the egress side of the victim (in event the victim becomes blocked).
  - 2. Always try to avoid being blocked in by the victim.
  - 3. Assure that the move is made quickly and smoothly.
  - 4. Assure that the outside personnel are aware of the egress plan.

## **SAFETY CONSIDERATIONS**

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- A. If rigging, hauling or use of rope hardware is needed in the space, assure only aluminum or non-sparking carabineers and hardware are used.
- B. In the event an airline or SABA failure occurs, the entire team shall leave the space immediately until the problem is remedied.
- C. Never leave a partner in trouble unless you must clear a path for his/her egress.

## TERMINATION

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- A. Assure that all teams have a confirmed PAR
- B. Inventory and inspect all equipment.
- C. Place damaged equipment out of service
- D. Secure entry points and contact responsible party to assure no entry.