

**SUBJECT:** TRENCH OPERATIONS**SECTION:** 303.06**REVISED:** NOVEMBER 1, 2005**PAGE(S):** 3

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## PURPOSE

To provide guidelines during entry and rescue operations during trench emergencies

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## POLICY

The Reading Fire Department shall respond to all trench incidents within jurisdiction. The Incident commander shall determine rescue or recovery, and actions to be taken based on manpower, equipment available and level of training of personnel. Any operations in excavations greater than 15 feet deep should be attempted only after consultation with a qualified engineer.

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## REFERENCE

1. *IMS Model Procedures Guide for Structural Collapse and US&R Operations, 1<sup>st</sup> edition, 1998.*

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## PROCEDURE

### I. Assessment

- A. Upon arrival at an excavation emergency, the OIC should establish command and make assessment based on the following points:
  1. Nature of problem- EMS call within trench or entrapment.
  2. Locate site foreman and crew, collect information and assess rescue needs and operational goals.
  3. Determine the need for lockout/tag out or supporting exposed utilities.
  4. Notify necessary resources such as sewer, water or electrical service to respond.
- B. Control access to the area. Establish a hot zone. Hot zone should be established with caution tape or similar barrier to restrict access to rescue area to those actively involved in rescue operations. A staging area for equipment such as trench tools should be established near the trench for convenience but not too close as to cause problems from noise or vibration from generators or saws being operated in tool staging area. Responding emergency apparatus should be staged a minimum of 150 feet away with the trench equipment approximately 100 feet away from the trench. When possible these vehicles should be shut off to reduce vibration hazards.

- C. Approach from end of the excavations/trench. Ground pads should be installed by first crew to safeguard the working areas around the trench. This may occur prior to barrier tape, restricting access. A minimum of one ladder should be taken to trench during first approach to provide self rescue.
- D. Determine the size and the bottom excavation both before and after the collapse.
- E. Determine the need for spoil pile removal. Spoil; pile should be two feet away from trench lip.
- F. Confirm number and location of people trapped, and whether it may be rescue or recovery.
- G. Determine sources of vibration that may effect the rescue site.
- H. Determine what additional resources will be needed:
  - 1. Reading Fire Department Recall with Evendale FD
  - 2. Hamilton County USAR Team
  - 3. Green Township Trench trailer
  - 4. Anderson Township Trench team
  - 5. Delhi Fire Department Trench trailer

## II. Operations

- A. No personnel shall enter an unprotected trench for any reason. All trench/excavations will be made safe/protected prior to entry. Only personnel actively involved in rescue should be in hot zone. Trenches less than five feet deep can be entered after the following have been completed:
  - 1. Heavy equipment shut off
  - 2. Ground pads applied to edges
  - 3. Two ground ladders for egress
  - 4. Utilities controlled
  - 5. Atmosphere monitored
  - 6. Spoil pile retained
- B. The officer in charge of operations should be positioned at the end of the trench.
- C. Ladders should be placed at both ends of trench to provide egress.
- D. Atmosphere should be monitored for O<sub>2</sub>, LEL, CO. Any deviation from normal readings and ventilation should be initiated.
- E. Superimposed loads such as sidewalks, buildings, trucks, back hoes etc. shall be removed or supported by suitable extra shoring and bracing. Removal should occur only if necessary to perform rescue or if item presents larger hazard than its removal would.
- F. Support systems will be installed and removed in manner that protects rescuers from cave-ins. Support systems will be installed to resist sudden or other hazardous movements of lateral loads.
- G. Trench jacks and or cross bracing should be placed in true horizontal position in vertical alignment, and be secured to prevent sliding, falling or kick out.

- H. Vertical bracing should be no more than two feet from surface and bottom and no more than four feet apart.
- I. The victim should be supported with the necessary medical treatment to maintain stability. Plans should be made for victim removal upon extrication.
- J. All materials and equipment used for rescue and shoring shall be in good servicable condition. Timber used shall be sound and free of defects.
- K. Rescuers working in bell bottom pier holes and other similar deep confined footing areas shall wear harness with attached life safety line. Rope should be attended at all times. This is not intended to pull on trapped rescuers.
- L. Methods should be used to control hazards and water infiltration into excavation.
- M. All equipment and tools should be staged away from trench lip to protect rescuers equipment from falling into the excavation.

### **III. General**

- A. Structural firefighting gear is not suitable for trench rescue. Recommended protection: Helmet, eye protection, ordinary duty uniform, leather gloves, leather work boots.
- B. A safety officer should be appointed by the operations officer. The operations officer should serve as safety officer until he/she appoints one.
- C. Before equipment removal, visual documentation should be accomplished to maintain a record of event. All equipment should be removed in reverse order of installation. Safety shall be the primary concern with no personnel put at risk to recover equipment.
- D. Notification of enforcement agencies should include OSHA and Plumbing Inspector as applicable.