CONFINED SPACE RESCUE

Effective:	June 29, 2018
Scheduled Review:	June 29, 2021
Replaces:	807 Confined Space Rescue
Approved:	Fire Chief Mike Kennedy

I. PURPOSE

Death and serious injury may occur in permit-required confined spaces (PRCS). The Ann Arbor Fire Department shall strive to maintain full compliance with MIOSHA Parts 90. (Confined Space Entry) and 490. (Permit-Required Confined Spaces) both adopt the Federal OSHA standard 1910.146 (Permit-Required Confined Spaces). This procedure will establish procedures for deployment of safe and effective confined space rescue operations.

Employees shall consider all operations within confined spaces to be immediately dangerous to life and health (IDLH). Operations within confined spaces shall be approached with extreme caution. Direct supervision is required and all safety precautions and procedures shall be rigidly enforced. Operations shall be conducted in a manner which avoids premature commitment to unknown risks.

II. PERMIT-REQUIRED CONFINED SPACE EVALUATION 1910.146 (C)(1)

The fire chief or designee (fire officers) is responsible for evaluating the workplace to determine if any permit spaces are present.

Per 1910.146 (c)(6), if there are any changes in a confined space classified as a non-permit space, then this space will be reevaluated to determine if it has become a permit-required confined space.

A *confined space* is a space which:

A. Is large enough and so configured that an employee can bodily enter and perform assigned work; **and**
B. 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. Is not designed for continuous employee occupancy.

If a space does not meet all three criteria, as stated above, then the space is not a confined space and 1910.146 does not apply. Bodily enter means that it is possible for an employee's entire body to enter the space. Continuous employee occupancy means that the space could be occupied during normal operations, not that it is always occupied.

A *permit-required confined space* is a *confined space* which has **one or more** of the following characteristics:

A. Contains or has a potential to contain a *hazardous atmosphere*; **or**
B. Contains a material that has the potential for engulfing an entrant; **or**
C. 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; **or**

D. Contains any other recognized serious safety or health hazard, e.g., electrical, mechanical, elevated temperature.

All italicized words are defined in 1910.146 (b) "Definitions."

A space cannot be a *permit space*, unless it is a *confined space*. For example, a tank of a very toxic material has a 12" diameter hatch that an employee could put their head through. This hatch is the largest opening in the tank. Since the opening is too small to bodily enter, this space cannot be a *confined space* and therefore cannot be a *permit space*. Of course, this does not mean that this tank poses no potential or actual serious hazard to employees. It only means that this particular standard does not apply to this space.

Non-Permit Confined Space: A confined space that does not contain, or with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm is a non-permit space.

Operations Level Space: Space is one that meets all of the following characteristics:

A. Large enough that a minimum of two rescuers can fit into the space to assess, treat, and package the patient.
B. The opening is large enough to allow the rescuers to enter with all of their PPE (including SCBA) on and properly secured.
C. All of the hazards can be controlled within the space.
D. The internal configuration is clear and unobstructed so that retrieval systems can be used and remain attached to all entrants.
E. The victim is visible from outside the space.

III. SIZE-UP AND ASSESSMENT

The Incident Commander should utilize the "Confined Space Command Worksheet" to guide the entire incident. The approach to the general incident location should be from an upwind direction.

Prior to operations and following establishment of command, the first arriving unit shall attempt to address the following:

A. What type of space is it?
B. Are there any residual hazardous products present? Obtain SDS.
C. Locate and secure the responsible job supervisor or reliable witness.
D. Determine the location and number of victim(s).
E. Obtain blue prints, maps, or have on site personnel draw a sketch of the site.
F. Determine the mechanisms of entrapment or injury.
G. Make a conscious decision as to rescue, or recovery.
    i. Does this incident fit the criteria for AAFD personnel to make entry?
    ii. Will the incident will require the response of the Washtenaw County Technical Rescue Team?
H. Determine number and location of entry/exit points.
I. Determine electrical, mechanical, or other hazards.
J. Assign aide or scribe to start documentation records.
K. Determine need for additional Advance Life Support (ALS) ambulance on scene for rescuers, and victims.

L. It is suggested that the Incident Commander organize the incident utilizing the following positions:
    i. Operations Officer will be responsible for developing the rescue plan and coordinating the actions of the Ground Crew and Entry Officers. The Operations Officer should use the "Operations Officer Check List" as a guide.
    ii. Ground Crew Officer will be responsible for continuously monitoring and recording air monitor readings outside and inside the space, maintaining ventilation, controlling energy, and all rope rigging. The Ground Crew Officer should ensure air quality readings are recorded every ten (10) minutes.

If personnel make entry into the space, the Entry Officer will be responsible for the entry crew, the rapid intervention crew, communications within the space, and patient packaging. The Entry Officer should use the "Entry Officer Worksheet" as a guide.

EMS Officer will prepare rehabilitation for the entry crew and treat the patient after they are removed from the space.

Safety Officer will be responsible identifying safety deficiencies and communicating them to the responsible officer.

The initial approach to the entry point shall be made by a fire fighter wearing a SCBA and using an air monitor.

Personnel shall attempt to evacuate the confined space, and deny entry until proper entry procedures have been established.

Hot and warm zones shall be established at 50 and 100 feet respectively.

AAFD personnel may make entry into a non-permit confined space.

If there are a minimum of five (5) technical rescue team members on-duty and present at the incident, then AAFD may initiate an offensive/interior rescue at an "operations-level" permit-required confined space incident. If an offensive/interior effort is being initiated at a permit required confined space, then the Incident Commander shall notify the Washtenaw County Technical Rescue Team. The Incident Commander may initiate the response of the Washtenaw County Technical Rescue Team.

If a minimum of five (5) technical rescue team members are not on duty, or the incident is beyond an "operations-level" event, personnel should perform all of the awareness-level actions as outlined until the Washtenaw County TRT resources to arrive. These tasks include site security, denying entry, air monitoring, ventilation, energy control, and general hazard mitigation.

The Operations Officer should conduct a briefing with all on-scene personnel, updating them on the:

A. Patient condition, location, and quantity

B. Configuration of the space
C. Points of entry
D. Tactical plan
E. Assignments
F. Hazards and general safety concerns
G. Emergency plan
H. Communication plan.

The Incident Commander should also determine the short term weather forecast, and consider its potential impact on the incident.

IV. SUSTAINED ACTIONS

Air quality should be monitored and recorded both inside the space and outside the opening of the space every ten (10) minutes. The air inside the space should be monitored at four foot intervals.

If entry is made, at least one entrant should have an air monitor attached to their harness.

All spaces should be ventilated with positive pressure techniques.

All hazardous energy within the space should be controlled.

If entry is made into a permit required confined space, rescuers that enter the space shall have a self-contained breathing apparatus, class III harness, and remain attached to a life safety rated retrieval line that is attached to a system capable of safely retrieving them from the space. Rescuers shall also use a life safety belay line if they are being suspended or raised on the retrieval line.

Times should be recorded for each rescuer's entry, each rescuer's exit, and the patient's removal.

V. TERMINATION

After the patient and rescuers have been removed from the space, the incident commander shall verify that all personnel are accounted for via a PAR.

A debriefing should be conducted after the patient is turned over to ALS. The debriefing shall quickly review the problem that led to the 911 call, objectives of the incident, determine if anyone is injured, and identify any safety concerns.

The incident commander should formally turn the responsibility for the space over to the owner of the space, and document the transfer.

Documentation should include a description of the space, number and location of the victims, victim profile, air quality readings, and all actions taken during the rescue/recovery operation. If the Washtenaw County Technical Rescue Team is utilized, the above documentation along with any incident costs shall be provided to the fire administration to assure cost recovery.