

NEFTA INCIDENT MANAGEMENT PLAN SECTION 5

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5000. TRT Standard Operating Procedures

Preamble

The intent of these Standard Operating Procedures is to provide each member city with an understanding of the pre-arrival needs, mode of response, and the method of operation of the Technical Rescue Team (TRT). It is essential that each member city understand that this is a team effort, involving the cities as an entity and the TRT, coordinated for the mitigation of potentially life threatening rescues and recoveries. The areas of discipline include but are not limited to High Angle, Trench, Building or Structure Collapse, and Confined Space Rescue. Other emergencies might warrant the need for the TRT.

Definitions

Host City – This is the city/fire department that the TRT is currently housed in.

Team Member – Personnel who have been assigned by their member department to the TRT

Member City/Notifying Agency – Any City in or outside of NEFDA requesting a TRT response

(Technical definitions are found in NFPA 1670)

5101. TRT Member Cities Responsibilities:

1. Team members shall receive training to the technician level (meets or exceeds NFPA 1670) in confined space, collapse, high angle and trench rescue.
2. Member cities will certify those members who have satisfactorily completed the technical rescue training requirements that meet or exceed NFPA 1670.
3. Each member city shall appoint a team member to act as the cities TRT coordinator. This person is responsible for the training, attendance at called meetings, and to insure post response critiques are completed.
4. Each participating city shall maintain their minimum number of technician each shift.
5. Each member city is responsible for medical treatment, triage, and transportations within their jurisdiction. MICU should be on standby on all emergencies.
6. A medical surveillance program for TRT members will be instituted.

- a. All TRT members will be required to be medically certified as fit for participation in the program.
 - b. Annual medical exams will be provided and required for all TRT members.
 - c. Medical exams will be provided for any member when deemed necessary by the incident commander, due to an unusual exposure or other unusual circumstances.
 - d. The members department will appropriately maintain all medical records.
7. Each member city of the TRT shall maintain jurisdictional responsibility of their own incident. This responsibility will include:
- a. Ultimate authority of the incident scene.
 - b. Responsibility for financial obligation relative to rescue, and hazard mitigation, including but not limited to reimbursement to the TRT for any and all equipment and or supplies.
 - c. Scene safety for all participants and civilians.
 - d. Request for assistance from outside agencies and other city services.

5102. TRT Command Responsibilities

The following TRT Standard Operating Procedures are not intended to cast in concrete an ordered step by step method of handling rescue incidents, but rather as guidelines to follow.

- 1. The Incident Command System, as outlined by the National Fire Academy, shall be used at all Technical Rescue Emergencies that the team has been called to.
- 2. Incident Commanders shall insure a post response critique is conducted following all incidents where specific problems occurred, that need to be addressed.
- 3. An experienced TRT officer will be designated at the Rescue Sector, depending on the size of the incident to:
 - a. Assist the IC in developing an action plan. The action plan should consider the following:
 - i. Nature of emergency (rescue or recovery)
 - ii. Type of rescue required
 - iii. Location, number of victims, and types of injuries
 - iv. Equipment requirements
 - v. Environmental factors
 - vi. Size of command structure needed

- vii. Additional specialized equipment/skill required
- viii. Back up plan
- b. Assign an experienced TRT member as Safety Officer
- c. Assign personnel to needed functions, and sectors
 - i. Rescue Sector
 - ii. Staging Sector
 - iii. EMS Sector
 - iv. Accountability Sector
 - v. Rehab Sector

5103. Notification

Notification of the TRT shall be at the discretion of the member city's Incident Commander. The Incident Commander shall, upon determination of need, request a response from the TRT, specifying the appropriate level of response, and supply any available pertinent information.

There are two levels for response:

Light Rescue

- Confined Space
- High Angle

Heavy Rescue

- Collapse
- Trench

All TRT Cities will respond unless otherwise stated by the Notifying Agency.

Haltom City*

Hurst

Richland Hills

N. Richland Hills

* Host city

Grapevine*

Keller

Bedford

5104. Dispatching the TRT

The member city requesting the TRT for a response shall notify the host city communications center and **request a TRT response**. Redundancy in contacting TRT Cities should be expected.

Information needed by the Host City Dispatch

1. Name of city requesting assistance
2. Nature of incident (Confine Space, Collapse, High Angle, Trench)

3. Address of Incident
4. Mapsco page number and coordinate

Response code (Code 1 or Code 3 is this a rescue or recovery?)

Then the host city should call the other member cities' communications center with same information.

5105. TRT Incident Arrival

TRT should report to staging or operations depending on how far the Command System has been developed. The TRT will confirm the information from the briefing and begin to formulate a recommended course of action. The TRT will then take charge of the exclusion (Hot) zone, operating under the incident commander. The TRT will inform the Incident Commander of their recommended course of action. It shall be the responsibility of the Incident Commander to accept to or deny this course of action and/or recommendation.

5106. Incident Procedures

Confined Space Rescue

Without proper precautions and adequate protective equipment, a safe and efficient rescue cannot be performed. Rescues may be achieved when these precautions and equipment are not in place, however, both the rescuer and victim may be placed at risk. Our purpose is to limit this risk and achieve our goal as efficiently as possible.

1. Definitions

A. Confined Space:

I. Is a space that:

- a. Is large enough and so configured that an employee can physically enter and perform assigned work.
- b. Has limited or restricted means for entry or exit.
- c. Is not designed for continuous employee occupancy.

II. Includes but not limited to:

- a. Storage tanks, Process vessels, Pits, Silos, Vats, Sewers, Tunnels, Pipelines, Hoppers, Trench

B. Confined Space Hazards

- I. Although there are many hazards associated with confined space they can be divided into two major categories:
- II. Hazardous Atmosphere: Flammable, toxic, irritant and asphyxiation atmospheres.
- III. General Safety Hazards: Mechanical, physical, communications, and power hazards.

C. Hazardous Atmospheres

- I. Oxygen level – Atmosphere containing less than 19.5% oxygen are considered deficient. Atmospheres containing more than 23.5% oxygen are considered enriched.
- II. Flammability or Combustible gasses or Vapors – Atmospheres which may explode or ignite if a source of ignition is present or induced into the environment.
- III. Flammable gas, vapor, or mist in excess of 10% of its Lower Flammable limit (LFL or LEL).
- IV. Toxic Gasses and Vapors – Atmosphere containing contaminants that can cause serious injury or death even in low concentrations.

2. Action Plan

A. Rescue or Recovery

- I. An early decision must be made as to whether the operation will be run in the rescue or recovery mode.

B. Confined Space Response should include the following:

Light Rescue TRT

Heavy Rescue TRT

Hazmat 1

If closer HazMat 2 for Decon team

C. Confined Space Entry

- I. All too often lives are lost in an attempt to recover a body. This is unacceptable. The primary responsibility of all rescue members must be the safety of themselves and their team members.
- II. The victim should be removed only after the scene has been secured and the hazards identified.
- III. Retrieval systems should be in place before rescuers enter the confined space.
- IV. Protective clothing shall be worn as required by the situation. However, all rescuers who enter a confined space shall use a rescue harness with safety line attached.
- V. Breathing apparatus shall be used without exception in confined spaces until or unless analysis of the atmosphere confirms that it is safe.

- VI. Access in and around the space should be limited to only those rescue team members who have a particular task to perform.
- VII. Know the hazards of the space. Ensure that complete and proper documentation is obtained and the scene is secure (entry permit, MSDS sheets, emergency response guidebook, etc.)
- VIII. All confined spaces should be checked to ensure that all electrical and mechanical equipment has been shut off or some type of preventative system has been put in place. (lock-out tag-out, blinding and blanking etc.) If some type of system cannot be put in place, a firefighter will be posted at appropriate location(s) to ensure no systems will be energized.

D. Selection of Personnel

- I. The proper personnel shall be selected to make entry into the confined space. A minimum of two people should be assigned to make entry. All personnel on the entry team shall have vital signs taken and recorded prior to entry, if time permits.
- II. Command shall assign a Rescue Sector. Rescue Sector shall provide a minimum 2:1 ratio of personnel outside the confined space to support personnel inside. This shall include a standby Rescue team with a 1:1 ratio to provide immediate assistance to personnel in the confined space.
- III. All entry and back-up personnel should be properly trained in confined space rescue procedures and capable of carrying out the rescue/recovery.
- IV. Rescue Sector should be assigned to conduct the actual entry into the confined space.

E. Selection of Personal Protective Equipment

The proper level of personal protective equipment should be worn by all entry and back-up personnel. This shall include helmet, gloves, proper footwear, goggles, turnouts, Nomex or PBI jumpsuits, and a Class II harness as a minimum, Class III is recommended.

- I. Rescue Sector should determine this by consultation with safety sector.
- II. All entry and back-up personnel **shall** wear SABA (supplied air breathing apparatus) or SCBA when making entry into the confined space. When atmospheric can not be maintained at a safe working level. SABA is recommended.
- III. If entry personnel use an SCBA, they **shall** enter no farther than one half the amount of supplied air minus 500 lbs.

- IV. Entry personnel shall use personal air monitoring devices that monitor flammability and O₂ as a minimum.
- V. Entry personnel shall have a Class II or III harness on prior to entry. Class III harness shall be used if inversion of the rescuer is possible.

F. Orientation of Confined Space

- I. Prior to entry into the confined space, the Rescue Sector, with the help of the R.P. should obtain a blue print or diagram of the space. All entry and backup personnel should be made aware of the layout of the space to be entered.
- II. All entry and back-up personnel, Command and Safety shall be made aware of the action plan and the back-up plan prior to entry.
- III. Rescuer tag lines may or may not be appropriate in the confined space, depending on the specific layout. It could be an entanglement hazard.

G. Communication and Lighting

- I. If the confined space has a flammable atmosphere, entry personnel should have intrinsically safe or explosion proof communication equipment. If this equipment is not available Rescue Sector may decide to use a tag line for communication or a message relay person. Remember, these are Class I/Division A-D type atmospheres until proven otherwise.
- II. If the entry team is entering a dark confined space, Rescue Sector must ensure that the proper type of lighting is used. If explosion proof lighting is not available, then cyalume type lights must be used by the entry team.

- H. Ventilation – if there is only one entry point, ductwork should be place in the confined space and negative ventilation used. Positive pressure ventilation is recommended when there are two entry points.

3. Victim Contact

A. Victim Removal Equipment

- I. If possible, the entry team should bring a supply of breathable air for the victim.
- II. Pure oxygen shall not be used in a confined space that has a potentially flammable atmosphere. Rescuer should not remove their breathing apparatus and give it to the victim.

- III. Entry team should consider the necessary victim retrieval equipment prior to entry. This includes respiratory protection for the victim.
- B. Assessing condition of victim
 - I. Upon reaching the victim, entry personnel should do an immediate primary survey of the victim. If appropriate, treatment should be started immediately.
 - II. A quick but thorough secondary assessment of the victim should be done. If time permits, entry personnel should attempt to treat serious injuries prior to removal.
 - III. If indicated, complete C-spine precautions should be administered.
NOTE: Because of the difficulty removing the victim from the space, optimum C-spine precautions may not be possible.
 - IV. If the victim is conscious, he/she should be encouraged to wear the appropriate breathing apparatus.
- C. Patient Packaging
 - I. After treatment of immediate life threatening injuries, the victim(s) should be packaged up for removal from the space. This may include using a backboard, stokes basket, ked board, LSP half back, or some other similar device designed for extrication.
 - II. Prior to removal from the space, the entry team should secure any loose webbing, buckles, straps, or any other device that may hinder the extrication process.
- D. Victim Removal System
 - I. Prior to removal of victim, the entry team should have determined the appropriate method of extrication. This may include a vertical or horizontal haul system constructed of ropes, pulleys and other hardware, with a minimum of a 2:1 mechanical advantage.
 - II. As a general rule, entry personnel should never allow the victim between the rescuer and the point of egress.
 - III. At times, the situation may preclude the use of that procedure due to the fact that one rescuer may have to pull the victim while the other rescuer pushes the victim. **NOTE:** If the victim is deceased, Rescue Sector may want to leave the body and related equipment in place for investigative purposes.

3. Post Rescue

- A. Transfer to Treatment Sector

- I. Immediately after reaching the point of egress, entry personnel shall transfer the victim to treatment personnel.
- II. ALS level examination should be conducted on the victim.
- III. If the victim is contaminated from product inside the space, a Decontamination Sector and corridor shall be set up and used prior to treatment and/or transport of victim.

B. Termination

- I. Personnel accountability
- II. Remove tools and equipment used for rescue/recovery. If there has been a fatality, Rescue Sector may consider leaving tools and equipment in place for investigative purposes.
- III. If entry personnel and/or equipment have been contaminated during the rescue/recovery, proper decontamination procedures shall be followed prior to putting the equipment back in service.
- IV. Secure the scene. Prior to turning the property back over to the R.P., one final reading of atmospheres shall be taken and recorded. Command may consider activating the CID if the situation dictates it.
- V. Conduct debriefing.
- VI. Return to service.

4. Consider the Ambient Conditions

- A. Heat. Consider rotation of crews.
- B. Cold. Consider effects of hypothermia on victim and rescuers.
- C. Rain. Consider the effects of rain on the hazard profile.
- D. Time of Day. Is there sufficient lighting for operations extending into the night.
- E. Consider the effect on family and friends; keep family informed.
- F. Consider news media; assign a P.I.O.
- G. Command should call for an OSHA representative if there has been a serious injury or death.

Trench Rescue

PURPOSE

Trench Rescue Operations present a significant danger to fire department personnel and may involve complex requirements for shoring, hand tools, earth-moving equipment and other specialized resources. The safe and effective

management of these operations requires special considerations. Therefore, it shall be the policy NOT allow the entry of any personnel into an unsafe trench or excavation. This procedure identifies some of the critical issues which must be included in managing these incidents.

For the purpose of emergency response, an excavation shall be defined by any depression, hole, trench or earth wall, man-made or natural, of four feet or greater.

Cave-ins and collapses generally occur because of unstable soil conditions combined with improper or inadequate shoring. The potential for additional collapse must always be considered as a primary hazard and personnel must be aware that any action may disrupt the temporary stability and cause an additional collapse. The temporary stability, at any point in an operation, may be disturbed by removing soil or debris, by adding weight near the edge of an open cut, by vibration (such as vehicle movement), rain, or simply by the passage of time.

TACTICAL CONSIDERATIONS

Phase I Arrive on Scene. Take Command. Size-up.

- I. Arrival on scene
 - A. Spotting Apparatus. The first-in company should spot the apparatus at least 50 feet from the location of the trench failure. Command should dictate Level 1 staging at least 150 feet from the scene.
- II. The Primary Assessment
 - A. Command should determine exactly what has happened.
 - B. Assess the potential hazards to the rescuers.
 - C. Secure an RP (Responsible Party), job foreman, or witness to the accident.
 - D. Identify any language barriers that may be present between witness(es) and rescuers. If there are barriers, Command should call for bilingual individual to assist with communication with the witness(es).
 - E. An immediate assessment of the victim's injuries should be determined.
 - F. Determine how many victims are affected by the accident.
 - G. If no witness is present, Command may have to look for clues on the scene as to what has happened.
 - H. If there are victims, Command should determine how long the victim has been buried.
 - I. An early decision must be made as to whether this operation will be run in the rescue or recovery mode.

- III. The Secondary Assessment
 - A. Assess on-scene capabilities
 - B. Assess the need for additional resources
 - C. Assign a safety officer (Safety Sector)
 - D. Assign personnel

Rescue Sector, Rehab

Phase II Pre-Entry Operations

- I. Make the General Area Safe
 - A. Create a hot, warm and cold zone
 - 1. Hot zone extends 0-50 feet
 - 2. Warm zone extends from 50-150 feet
 - 3. Cold zone extends from 150-300 feet
 - B. Control traffic movement
 - 1. Shut down roadway
 - 2. Re-route all non-essential traffic at least 300 feet around the scene
 - C. Control the crowd
 - 1. Remove all non-essential civilian personnel to at least 150 feet from the incident
 - 2. Remove all non-essential rescue personnel at least 50 feet from the incident.
 - D. Shut down all heavy equipment operating within 300 feet of the collapse.
- II. Make the Rescue Area Safe
 - A. Control all hazards in the area, i.e., utilities, electric, gas, water.
 - B. De-water the trench if necessary
 - C. Monitor the atmosphere in the trench.
 - D. Ventilate the trench if necessary
 - E. Identify soil type and condition.

PHASE III Entry Operations

- I. Make the Trench Lip Safe
 - A. Approach the trench from the ends if possible
 - B. Look for unidentified hazards, (i.e., fissures, unstable spoil pile)

- C. Assess spoil pile for improper angle of repose and general leveling.
- D. Remove any tripping hazards (i.e., shovels, shores, tree roots).
- E. Provide level area for ground pads.

II. Make Trench Safe

Rescue will be responsible for entry operations. Rescue Sector shall ensure that all personnel operating in the hot zone are wearing steel-toed boots, helmet, eye protection, and gloves.

- A. Place ingress and egress ladders in trench. There should be at least 2 ladders placed in the trench no more than 50 feet apart.
- B. Decide on shoring system to be used, (i.e., hydraulic shore, pneumatic shore, timber shore)
- C. Create a safe zone in the un-collapsed portion of the trench (possibly from both ends). This shall be accomplished using an approved shoring system, i.e., pneumatic, hydraulic, timber.
- D. Remove the dirt from the collapsed zone. Rescuer shall remain in the safe zone while removing the dirt from the collapsed zone.
- E. Secure all unsecured utilities, pipe, or any other obstruction in the trench.

III. Victim Removal/Accidents without cave-in

- A. Create a safe zone around the victim
- B. Remove objects trapping the victim (i.e., pipes, lumber, machinery)
- C. Assess victim's condition
- D. Proper patient packaging.
- E. Remove victim from the trench (vertical haul, horizontal haul)

IV. Victim Removal/Accidents with cave-in

- A. Create a safe zone
- B. Begin dirt removal, operating from a safe zone (buckets, small shovels, by hand)
- C. Continue extending safe zone into collapse zone
- D. Continue dirt removal
- E. Uncover victim to below the diaphragm.
- F. Begin patient assessment if possible (ABC's)
- G. Begin ventilation if possible
- H. Completely uncover the victim
- I. Proper patient packaging

- J. Remove the victim from the trench (vertical haul, horizontal haul)
- V. Treatment
 - A. ABC's primary survey
 - B. C-Spine precautions
 - C. Secondary survey
 - D. Consider removing the victim from danger prior to providing definitive care
 - E. Follow local protocol

Phase IV Termination

- I. Prepare for Termination
 - A. Personnel accountability
 - B. Remove tools and equipment from trench. If there has been a fatality, Rescue Sector may consider leaving tools and equipment in place for investigative purposes.
 - C. Remove trench shoring system (last-in/first-out)
 - D. Re-stock vehicles
 - E. Consider debriefing
 - F. Secure the scene. This may include leaving the shoring system in place or covering the trench.
 - G. Return to service.

Additional Considerations

- I. Sectors Established
 - A. Safety Sector
 - B. Rescue Sector
 - C. Treatment Sector
 - D. Staging Sector
 - E. Rehab Sector
- II. Consider Ambient Conditions
 - A. Heat, consider rotation of crews.
 - B. Cold, consider the affects of rain or snow on the hazard profile.
 - C. Rain/Snow, consider the affects of rain or snow on the hazard profile.
 - D. Time of day, is there sufficient lighting for operations extending into the night.

- E. Consider the affect on family and friends; keep family informed
- F. Consider news media; assign a P.I.O.

Call for OSHA, command should consider calling an OSHA representative to the scene if there has been a serious injury or death.

Structural Collapse

Purpose

The purpose of this procedure is to establish guidelines for conducting building/structural collapse operations.

Tactical Considerations

Phase I - Arrive on-scene. Take command. Size-up

- I. Arrive on-scene
 - A. First arriving company officer should take command and begin an immediate size-up of the situation.
 - B. Spotting Apparatus. The first-in company should spot the apparatus in a position that it will not be affected by a secondary collapse of the structure. Consideration should also be given to traffic conditions and if they will be affected.
 - C. Staging. Command should institute Level 1 and Level 2 staging procedures immediately. The management of emergency and civilian traffic is critical from the onset of structural collapse operations.
 - D. Assess the need for additional resources. Command should immediately begin to assess the need for additional resources. If additional resources are necessary, Command should put in an early call for them. At that time, Command should identify a Level 2 staging area. If it is later determined that the additional resources are not needed, Command can return those units to service. Command should assess the need for outside heavy equipment early, and request mobile cranes, front-end loaders, etc., with large capacity. (Example 110-ton crane)
 - E. Assess the Hazards. Command should do an immediate hazard assessment or should delegate that responsibility to a Safety Sector officer. Some hazards associated with structural collapse are: potential for secondary collapse, explosion with fire due to broken gas and electrical lines, falling debris, toxic atmosphere, etc.
 - F. Secure the Hazards. Safety Sector should secure all hazards as soon as possible. This will include shutting off the utilities (i.e., gas, electrical, water). If it is not possible to secure all hazards, Command should notify all rescue personnel operating on scene of the hazards present.

During Phase I of structural collapse operations, Command must consider the fact that if strong control of the incident is not gained quickly, it could easily escalate into an out-of-control situation. A typical structural collapse operation will have a lot of unorganized, well-intentioned efforts by civilian personnel. This situation may make the entire operation unsafe. Command must focus attention early on building a good strong Command structure that will support a campaign operation.

Phase II – Pre-Rescue Operations

I. Removal of Surface Victims

Initial on scene companies should be directed in rescuing victims that can be seen on the surface. Rescuers must be aware of all the physical hazards present at the scene of a structural collapse.

II. Establish a perimeter

While initial rescue of surface victims is going on, Command should establish a perimeter around the whole collapse site and keep all incoming civilian personnel out of the immediate area.

III. Establish Victim Staging Area

Command should designate Treatment and Transportation Sectors. An area should be established away from the hazards of the collapse to account for, treat, and transport victims.

IV. Remove all Civilian & Non-Essential Rescue Personnel

After initial surface victim removal has been completed, Command should ensure that all personnel are removed from the collapse site. This will allow for the removal of all civilians and the re-grouping of rescue personnel so that a specific action plan can be instituted for the search and rescue of the remaining trapped victims. At this time, Command should order a PAR from sector officers.

Members previously operating in the collapsed structure should be quickly debriefed as to building layout and possible location of victims.

V. Establish Building Triage Team

After all personnel have been removed from the collapse site, Command should establish building triage teams. This may include structural engineers and/or fire/rescue personnel that are specifically trained in the recognition of structural collapse. Prior to these teams engaging in triage activity, Command shall notify them as to the specific action plan and building marking system. If there is a possibility of hazardous materials involvement, Command should assign a HazMat Technician to each building triage team.

Phase III Rescue Operations

I. Establish Action Plan for Search Teams

After all personnel have been removed from the collapse site and all personnel accounted for, Command shall establish a specific action plan for the search and

rescue of the remaining victims. This action plan shall be distributed to all rescue personnel that will be operating at the collapse site.

II. Establish Action Plan for Search & Rescue

Prior to beginning search and rescue operations, Command shall design specific search teams. This may include personnel with technical search equipment (i.e., acoustic, fiber optic, etc.), dog teams, or firefighter using the hailing (call-out) method of searching for victims. After the building triage teams have completed evaluations of buildings, the search teams will conduct searches of those buildings. Search teams should use standard building marking system after building has been searched. If building triage teams determine that the building is structurally unstable, search and rescue teams shall not enter until appropriate shoring and stabilization has been accomplished.

After the removal of all personnel from the collapse site and before resuming building triage and search, a lobby control shall be established and no personnel will return to the collapse site without going through lobby control.

III. Establish Rescue Teams

Rescue Teams will follow search teams that have searched previously triaged buildings. Each rescue team shall consist of at least two (2) trained members of the Technical Rescue Team. If there is a possibility of hazardous materials involvement, each rescue team shall have at least one (1) HazMat Technician with air monitoring equipment. Rescue teams are not to attempt rescue in a building that has been determined to be unsafe by the building triage teams. Command should assign each rescue team a specific radio designation.

IV. Locating Victims

After the search teams have searched a building and received a "positive" find (i.e., acoustic or fiber optic positive reading), the building should be verified again by another means if possible (i.e., search dogs or hailing system). If the building is known to have live victims trapped, rescue teams shall attempt to locate the victims. If the rescue team must support structural components of the building prior to entry, they shall do so and make the area as safe as possible.

V. Breaching Walls, Floors, and Roofs

If at all possible, rescue teams should attempt to gain access vertically. The horizontal breaching of walls should be done only if there is no other means to reach the void space that victims may be trapped in. Horizontal breaching of load bearing walls may precipitate a secondary collapse of the structure. The potential for secondary collapse is less if rescue teams breach structural load-bearing member, a specially trained structural collapse specialist (structural engineer, architect, technical rescue specialist) should approve and oversee the breaching operation. If the atmospheric conditions are not known in the room of desired entry, a "pilot" hole shall be punched to monitor the atmosphere prior to breaching operations.

VI. Confined Space Entry & Rescue

After the victim has been located, the rescue team should treat that space the victim is located in as a confined space. Rescue team members should proceed with the rescue, following confined space rescue operation guidelines. The rescue team leader shall designate the proper method of entry rescuers. All spaces shall be monitored for flammable, toxic, and oxygen deficient atmospheres before entry is made. All members making entry shall be on SCBA with appropriate tender to rescuer ration of 1:1.

VII. Rescue and Extrication of Victims

Once the rescue team has located the victim(s) an immediate assessment of the victim shall be done. Rescue teams should consider the after effect of lifting objects off of victims (i.e., crush syndrome). The rescuer shall determine the safest and most effective method of victim extrication. The rescue team leader shall ensure the safety of the extrication of the victim.

VIII. Transfer to Treatment Sector

Once the victim has been removed to a safe location, he/she shall be transferred to the Treatment Sector for ALS assessment.

IX. Removal of Rescue Team from the Building

After all located victims have been removed from the building, the rescue teams should “pull out” of the building and update the marking system. Rescue teams should keep in mind that any cribbing and shoring in place should be left in place. The removal of those systems could precipitate a secondary collapse.

Phase IV Selected Debris Removal

I. Locating Victims

If rescue teams have not been able to locate victims through other methods, then they should be located by removing debris. If there is a potential for live victims, rescue teams must be very careful when removing debris so as not to cause a secondary collapse or further injury to the victim(s).

If a victim location is known, either by family members of previously rescued victims, an attempt should be made to remove debris to reach that victim. In lightweight frame construction buildings, this could be accomplished by cutting and hand removing structural members. If the building is of reinforced concrete, it may require breaking large pieces into smaller and more manageable size pieces. This may also require the use of a crane to pick and move the structural components to reach potential victims.

Rescue team members should assist in the break-up and removal of structural components. A safety officer shall oversee all of these operations to ensure site safety for all operating personnel. If structural components are removed from the site, they should be marked in some way so as to I.D. them with the particular building for future investigative purposes.

As debris is removed, all operations should be stopped periodically to search (acoustic, dog team, hailing) for victims. After enough debris has been removed

to reasonably ascertain that there are not any victims, then search and rescue operations can be suspended in that building.

Phase V General Debris Removal/Termination

Prior to beginning Phase V, Command shall call for a **PAR**

After it has been determined that no victims could be found alive in the building, a general debris removal can begin. If there is a potential for deceased victims (901-H) to be trapped in the rubble, removal crews should be alert for signs of those deceased victims.

During general debris removal, if heavy equipment operators spot a sign of a deceased victim(s), a selected debris removal shall be conducted to remove the victim(s) respectfully. Coroner and/or other investigative personnel should be notified to handle the removal of the body(s).

As debris is removed, each dump truck load shall be marked as to the general area found and final location of the debris. This will help investigators to complete their investigations and reports.

Command may elect to turn general debris removal over to the Responsible Party for final disposition of the building. If this is done, the R.P. should be notified of the proper handling of debris for investigative purposes.

Prior to termination of the incident, Command shall account for all personnel that have been operating at the collapse site. Each company officer should ensure crew and equipment accountability before returning to service. If Command has not previously addressed the issue of C.I.S.D., he/she may consider doing so during the termination phase.

Additional Consideration

- A. Heat. Consider rotation of crews.
- B. Cold. Consider the affect of hypothermia on victims and rescuers
- C. Ambient Conditions. Consider the affects of rain or snow on the hazard profile.
- D. Time of Day. Consider having proper lighting on scene for night time operations.
- E. Consider the effect on family and friends; keep family informed.
- F. Consider news media; assign a P.I.O.

Rope Rescue

Purpose

The purpose of this procedure is to establish guidelines for conducting high angle Rope 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.

Definition

Rope rescue is defined as any rescue attempt that requires rope and related equipment to safely gain access to, and remove patients from, hazardous geographic areas with limited access such as mountains, high rise buildings, above or below grade structures, by means of rope system. Rope rescuers are divided into two general categories; non-technical and technical.

Non-technical evacuations are those of less than 40 degree inclination. Technical evacuations are considered those from 40 degrees to 90 degrees. Technical evacuations require the dispatch of the Technical Rescue Team (TRT). Technical rescues will be dispatched as HI (High Angle Incident).

Tactical Considerations

Phase I Arrive on-Scene. Take Command, Size-up.

- A. First Arrival. The first arriving company officer should assume Command after arriving on the scene.
- B. Secure Responsible Party or Witness. Command should secure a witness as soon as possible after arriving on scene. This will help in identifying the problem and locating the victim.
- C. Locate the Victim. In most cases, Command will have to send a recon team to the area of the victim to determine the exact location of victim and nature of injuries. Command may wish to designate this as Recon Sector. Recon Sector should have EMS equipment to begin to administer the first aid to the victim. If the terrain is greater than 60o inclination, Command may decide to wait until the TRT arrives with the proper equipment to reach the victim. Command may also choose to use a helicopter for aerial recon.
- D. Assess the Need for Additional Resources. Recon Sector should provide Command with enough information, or recommend the need for additional resources. Information that will be helpful in determining the need for additional resources would be: number of victims, location and condition of victims, estimated angle of terrain, distance to victim, and estimated time of extraction. Command should put in an early call for additional resources. If additional resources are not needed after a call has been put in, Command can return those units to service.
- E. Assess the Hazards. Command may wish to designate a Safety Sector to identify all potential hazards to rescuers. Safety Sector will be responsible for securing those hazards or making all

members aware of those hazards. Safety Sector shall also be responsible for assuring that all safety procedures are adhered to.

- F. Decide on Rescue or Recovery. Recon Sector should advise Command whether the operation will be conducted in the rescue or recovery mode. In the rescue mode personnel assigned to Recon Sector will be reassigned to Treatment Sector and Recon Sector will be terminated. If the operation is to be conducted in the recovery mode, Command may wish to leave the victim and any related equipment in place for investigative purposes.
- G. Decide on an Action Plan. With the recommendation from Treatment Sector, Command will have to decide on an action plan. Rescue Sector and Safety Sector shall be made aware of the specific action plan.

Deployment of the TRT personnel in the Action Plan needs to be monitored by Command to ensure trained TRT members are available to staff critical functions. Dependent on the incident, these would be in the following areas:

1. Rescue Team involving Rope rescue, helicopter rappel, and any climb requiring technical skills and/or training. TRT should include a Paramedic when possible.

Phase II Pre-Rescue Operations

- A. Make the General Area Safe. Command or his/her designee should begin to make the general area safe. This may include securing the area and not allowing civilian personnel into the area.
- B. Make the Rescue Area Safe. Command or his/her designee should make the immediate rescue area safe. This may include removing all civilian personnel and all non-essential rescue personnel from the area. If it is not possible to secure all the hazards in the immediate rescue area, all personnel operating in that area shall be made aware of those hazards.
- C. Pre-Rescue/Recovery. Depending on the action plan established, Command may want to establish a Rescue Sector. Rescue Sector will be responsible for gathering all equipment and personnel necessary to operate according to the action plan. Rescue Sector will assign rescue personnel to conduct the rescue, and support personnel to support the rescuers, during the actual rescue phase. Rescue Sector should have an alternative action plan should the first choice plan fail. This alternate plan should be communicated to all personnel operating in the rescue area.

Phase III Rescue Operations

After pre-rescue operations are complete, Rescue Sector shall put forth the action plan removal of the victim(s). Rescue operations should be conducted

with from low risk to high risk. Rescues should be conducted with the least amount of risk to rescuers necessary to rescue the victim. Low risk operations are not always possible but should be considered first. If the rescue of the victim(s) is only possible by means of a high risk operation, Rescue Sector shall communicate with Command the risk/benefit of the operation.

The order of rescue from low risk to high risk would be:

Talk the victim into self-rescue. If the victim is not exposed to a life threatening situation, it may be possible to talk the victim into self-extrication. If the victim is exposed to a life threatening situation, it may be best to advise the victim to stay in place until a rope rescue system can be set up.

For terrain less than 40 degree inclination, (non-technical) most first responders have the equipment and training to assist the victim down. If the victim is ambulatory, he/she can walk down with the assistance of rescuers. If the victim is injured or unable to assist in their own rescue, he/she should be packaged properly in a Stokes basket and carried to safety.

The Stokes Rescue should be conducted with a minimum of 4 litter bearers. Bearers should face the direction of travel during the extrication. If appropriate, a tag line should be attached to the litter for assistance through unstable areas.

For terrain of greater than 40 degree inclination, the TRT shall be called in to assist with the extrication. If the victim is ambulatory, he/she may be assisted down by rescuers with the use of a belay/tag line. If appropriate, rescuers should set up an anchor system for the belay. A body belay may also be used by rescuers, if appropriate.

If the victim is not ambulatory, rescuers shall build an anchor system and prepare for a steep angle evacuation. The patient shall be packaged properly in a litter and prepared for the extrication. There shall be at least 3 litter attendants assisting with the litter evacuation. Attendants should face the anchor during the evacuation and be clipped into the litter. A separate raising/lowering line and belay line shall be set up for raising or lowering during steep angle evacuations.

For evacuations greater than 60 degrees, the TRT shall conduct the evacuation. Evacuations greater than 60 degrees are considered high angle operations. The Rescue Sector officer, in conjunction with the Safety Sector, should decide the most appropriate method of extricate the victim. This may include putting the victim(s) in a harness and raising or lowering them, or packaging them in a litter for the raising and/or lowering.

In any case, a 15:1 safety factor shall be maintained and a double rope technique shall be used if at all possible. If possible, a separate anchor should be used for the working line and the belay line. Proper care shall be taken to assure that the victim will not come out of the harness or litter used to extricate him/her. Whichever method of Rescue is used, the Rescue Sector office shall ensure the overall safety of the raising/lowering system. Rescue Sector shall designate the tasks of individual rescuers during the operation.

Phase IV Termination

- I. Prepare for Termination
 - A. Personnel Accountability
 - B. Equipment accountability. If there has been a fatality, Rescue Sector may consider leaving equipment in place for investigative purposes.
 - C. Re-Stock vehicles
 - D. Consider debriefing
 - E. Secure the scene. Return to service.

Additional Consideration

- A. HEAT. Consider rotation of crews/
- B. COLD. Consider effects of hypothermia on victim and rescuers
- C. RAIN/SNOW. Consider the effects of rain on the hazard profile.
- D. TIME OF DAY. Is there sufficient lighting for operations extending into the night.
- E. Consider the effect on family and friends; keep family informed.
- F. Consider news media; assign a P.I.O.