

Salt River Fire Department Operating Guidelines

Swift Water Rescue

June 2000

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SCOPE

This procedure applies to all members of the Salt River Fire Department that are responsible for response to water rescue/recovery incidents.

PURPOSE

The purpose of this procedure is to identify considerations and provide guidelines for conducting water rescue/recovery operations.

Water rescue incidents generally occur because victims either knowingly enter the water or otherwise find themselves in the water and are unable to remove themselves. Water rescue operations present a significant danger to rescue personnel. The safe and effective management of these operations may require basic to very specialized considerations.

DEFINITIONS

HORIZON

The apparent intersection of the earth and sky as seen by an observer. Personnel in the water must constantly watch the horizon line downstream. If it appears to disappear, it is certain there is a drop-off ahead. Personnel in the water must exit immediately.

HYPOTHERMIA

Abnormally low body temperature. Hypothermia is considered to be a hazard, especially considering that most flood problems occur during the winter and spring months when ambient temperatures are low and water temperatures are even lower because of melting snow. A good rule-of-thumb: Stay out of current that is over your knees.

Temperature Useful Work / Unconsciousness

40 degrees Fahrenheit 7.5 minutes / 30 minutes

50 degrees Fahrenheit 15 minutes / 60 minutes

60 degrees 30 minutes / 120 minutes

RIVER LEFT/RIGHT

As one faces downstream the side on the left is considered “river left,” and the right side “river right”.

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STRAINERS

A buildup of debris such as trees and logs which restrict the downstream flow. It is dangerous due to the undertow which may cause entrapment and drowning (fallen and submerged trees are primary killers during floods).

WATER CHARACTERISTICS

Hydrology is the study of water flow and the natural forces associated with its movement. Three characteristics of "swiftwater" are: It is powerful; It is relentless; It is predictable. Water is relentless because, unlike ocean waves that break and give the swimmer a breather, river waves offer no break. Once the pressure is applied to the body, it stays until the victim is freed.

Water is predictable to a trained and experienced person and it is this predictability that gives rescuers the edge.

Common hazards associated with water rescue/recovery operations include: water volume, velocity, temperature, floating debris, unusual drop-offs, hydraulic effects and depth of water.

PREPLANNING

First Responders should be aware of potential water rescue/recovery problems. This includes times of the year when there is a greater potential for problems, specific locations where incidents have occurred in the past, and locations where incidents are more likely to occur (recreational site, etc.).

ARTIFICIAL LAKES

Lakes at golf courses and commercial areas should be preplanned for access entrances, areas of concern, and potential incidents.

CANALS

Emergency responders should have knowledge of all canal systems within their area. Some appear to be slow moving and non-threatening, while others flow very swiftly and have many hidden hazards.

FLOOD CONTROL PROJECTS

These projects present a real challenge to rescuers. They are specifically designed to carry large volumes of water during heavy rains. Besides the hazard of large volumes of fast moving water, most projects have very difficult access to the water's edge. Pre-designated staging area should be established prior to emergency operations.

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RIVERS

Rescuers should have knowledge of rivers that flow through their jurisdiction. Rescuers should have pre-planned staging, upstream, downstream, river right and river left areas. Tactical options should be planned so that a minimum amount of time is spent setting up during real emergencies.

WASHES

Washes should be pre-planned when they are dry. This is especially true where roads cross them. During heavy rains, there is always a possibility for flash floods. This presents a challenge because citizens will ignore warning barricades and drive across flooded roads. When this occurs, victims become stranded in the middle of the wash. If the current is deep enough and strong enough, the vehicle could be turned upside down and the victim swept downstream.

TACTICAL CONSIDERATIONS

PHASE 1 SIZE-UP

I. PRIMARY ASSESSMENT

- A. Command should assign someone to secure an R. P. or witness to the accident, to determine exactly what happened. This will help in identifying and locating the problem.
- B. Assess the need for additional resources including requesting a Technical Rescue Team and call for them early.
- C. Decide if the operation will be rescue or recovery.
- D. Identify immediate hazards and make an assessment of the hazards present to the rescuers. Command should assign a "Safety" Sector to accomplish this assignment.
- E. Determine victim(s) information.
 - Point last seen
 - Time of accident/injury
 - Time victim was last seen
 - Number of victims
 - Description of vehicle and victims
- F. Determine an action plan. Based on the rescue or recovery mode of operations, Command should establish an action plan that is communicated to all personnel involved in the rescue.

II. SECONDARY ASSESSMENT

A. On-Scene Personnel

1. Determine if there is an adequate number of trained personnel, on scene, to do the rescue/recovery in a safe manner.
2. Determine if the Technical Rescue Team and/or Dive Team should respond. Ideally, they should have been dispatched initially.

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3. Assign a Technical Sector Officer (TSO) from a Technical Rescue Team to oversee all of the rescue efforts and to be the technical liaison to Command.
4. Consider the effect of temperature extremes on personnel, and consider early rotation of personnel operating on scene.

B. Equipment

Determine if the proper equipment is on scene to complete the operation. This may include:

1. Technical Rescue Team support in providing:
 - Supplied air breathing apparatus or remote air;
 - Victim removal systems/equipment,
 - Swiftwater personnel protective equipment and
 - Throw bags/rescue lines.
2. Plan
 - Establish a written “search plan”, using a tactical worksheet.
 - Prepare drawing(s) of the rescue area.
 - Activate a systematic search
 - Share learned information with relief crew(s)
 - Extended operations require transfer of command and “search plan”.
 - Establish formal command post.

PHASE 2 PRE-RESCUE OPERATIONS

I. MAKE THE GENERAL AREA SAFE

- A. Assign and provide accountability.
- B. Secure the area and provide site control.
- C. Assign an Upstream Sector to spot floating hazards.
- D. Consider assigning a helicopter the task of aerial recon for spotting hazards.

II. MAKE RESCUE AREA SAFE

- A. Lobby Sector should be established at the entrance/exit of the rescue area.
- B. Assign Safety the responsibility of assuring that all personnel working around the waters edge have the proper protective equipment including personal floatation devices (PFDs), water rescue helmet, or appropriate SCUBA gear during dive rescue/recovery operations. If at all possible, the hazards in the rescue area should be secured.

III. PRE-RESCUE/RECOVERY

- A. Consider assigning Extrication Sector. This sector would be responsible for removing the victim and providing the necessary support to accomplish this safely.

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- B. Consider assigning Medical Sector. This sector would be responsible for assessing patient needs and providing treatment and transportation.

PHASE 3 RESCUE OPERATIONS or VICTIM REMOVAL

I. EXTRICATION SECTOR RESPONSIBILITIES

- A. Complete a risk versus benefit model on the victim. When actions are directed towards the rescue of a victim that has a high probability of survival, rescuers may be subjected to high-risk environments. It is reasonable to face calculated risks in order to save a life. When actions are directed toward the rescue of victims who have a low probability of survival, rescuers may be subjected to moderate risk environments. When actions are directed towards body recover, rescuers should be subjected only to low risk environments. Risk nothing for people and property that have already been lost.
- B. Ensure that properly trained personnel are designated to make the rescue.
- C. Assure that for every person involved in the rescue, there is at least one rescuer ready as a back up. EXAMPLE: Two rescuers; two back-ups.
- D. Rescue options will be considered in order from low to high risk.

"Reach-Throw-Row-Go-Helo" shall be the proper order of execution to effect rescue.

Reach- the victim with whatever means possible (pike pole, ladder, stick, rope, inflated fire hose).

Throw- utilizing the rope bags, throw the rope to the victim and then pendulum belay the victim to shore.

Row- utilizing a boat that may be available at the scene. Personnel familiar with boat operations must be utilized.

Go- utilizing a rescuer in the water to complete the rescue.

Helo- utilizing a helicopter to accomplish the rescue. Even though helicopters are considered high-risk operations, they are a great way to pull the victim out of the water if they are stranded on a fixed object in the water.

When conducting water rescue/recovery operations, the Technical Rescue Team may be dispatched to assist and evaluate the situation. They may be canceled enroute if they are not needed.

II. DOWNSTREAM SECTOR RESPONSIBILITIES

- A. Assign personnel downstream with throw bags, preferably on both sides (river right and river left).
- B. Be prepared to rescue victims and rescuers that may be swept downstream.

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- C. Personnel should place themselves in a position that will allow the rescuer to belay the victim into a safe location.

III. UPSTREAM SECTOR RESPONSIBILITIES

- A. Observe for obstacles and/or hazards that may be floating downstream and may hinder the rescue operation.
- B. Observe for the water level rising or falling.

IV. RIVER RIGHT/LEFT SECTOR RESPONSIBILITIES

- A. Execute the plan in the safest possible manner.
- B. Provide necessary assistance on the opposite bank from the operation side.

V. ASSESSING THE VICTIM

Once the rescuer(s) have reached the victim, they should do an immediate assessment of the victim; physical condition, a quick assessment of the ABC's and the exact method of entrapment. If the victim is conscious, the rescuer should determine if the victim can assist in their own rescue. If the victim is unconscious, the rescue must be quick. If it has been determined to be an underwater or recovery operation, a dive team shall be requested.

VI. TREATMENT

As soon as the victim is brought to safety, an assessment should be done by ALS personnel to identify treatment and transportation needs.

PHASE IV TERMINATION AND DECOMMITMENT

Command should begin termination as soon as possible after the victim has been removed from the water. This shall include securing all the equipment used for the rescue and personnel accountability. This may also include witnesses, photo's victim's personal affects or equipment used in the rescue. One company should stand by for rescue if a tow truck operator is utilized to remove a submerged vehicle. Command should also consider activating the CISD for extraordinary or extended operations.

I. PREPARATION FOR DECOMMITMENT

- A. Personnel accountability.
- B. Remove equipment used for rescue/recovery.
- C. Secure the scene.
- D. Consider debriefing.
- E. Return to service.

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ADDITIONAL CONSIDERATIONS

- A. HEAT. Consider rotation of crews.
- B. COLD. Consider the affects of hypothermia on victim and rescuers.
- C. RAIN. Consider the affects of rain or 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. Consider victim's assistance.
- F. Consider news media; assign a PIO.
- G. Coordinate operations with Police Department.