

 The logo of the Fresno Fire Department is a red Maltese cross with a gold border. The word "FRESNO" is written in red, arched letters at the top. "EST." is written in small black letters above the center. "FFD" is written in large, bold, gold letters in the center. "1877" is written in red below the center. "FIRE" is written in red, arched letters at the bottom.	<p><b>STANDARD OPERATING PROCEDURES</b></p> <p><b>TACTICAL OPERATIONS</b></p> <p><b>202.14d WATER RESCUE</b></p> <p><b>EFFECTIVE: AUGUST 2009</b></p>
--	---

## WATER RESCUE

### Goals

1. To save and protect lives
2. To mitigate any hazardous conditions

### Objectives

1. Life safety
2. Hazard mitigation

### Typical Assignment

1. One engine company
2. One truck company
3. Rescue 204
4. Engine 4
5. Truck 4
6. Battalion chief
7. One ambulance

Upon confirmation of a water rescue, the incident commander shall request the following additional resources, as needed:

1. Additional units: Fire, mutual aid, EMS
2. US&R coordinator
3. Police
4. Public information officer
5. Fresno Swift Water/Flood Rescue Task Force 1

## PERSONAL PROTECTIVE EQUIPMENT

Protective clothing shall be worn as required by the situation, depending on evaluation of the hazards. The following is the appropriate level of protection to be utilized in water rescues for first responders:

1. Personal floatation device with whistle
2. Steel-toed boots
3. Grass pants or regular duty pants
4. Regular short sleeved shirt or grass jacket
5. Rescue helmet if available – do not wear fire helmet

All members operating within 15 feet of the waters edge must wear personal protective equipment (PPE).

The following is the appropriate level of protection to be utilized in water rescues for Urban Search and Rescue (US&R) members:

1. Rescue helmet – do not wear a fire helmet
2. Wetsuit or dry suit
3. Personal floatation device with knife and whistle
4. Booties and/or tennis shoes

A higher level of protective clothing may be utilized at the direction of the incident commander, if conditions warrant.

## DIVE TEAM STANDARD OPERATING PROCEDURES

### Team Responsibilities

- Perform water-related rescues.
- Perform underwater search, rescue, and/or recovery operations involving victims, evidence, and other property.
- Cooperate in any mutual-aid response with other agencies as approved by the Fire Chief.

### Team Organization

The daily staffing for the dive team will consist of two certified divers, two diver tenders, and a dive operations supervisor. There shall be at least one dive team coordinator. The coordinator will divide team management responsibilities into training, equipment maintenance, and records. Coordinator should be, at minimum, a certified Open Water SCUBA Instructor certified by PADI or NAUI.

## DIVING CONTROL (SAFETY) BOARD

There shall be a Diving Control Board. The Board shall consist of the dive team coordinator, the US&R coordinator, and three members of the dive team.

The Diving Control Board shall have the authority to approve and monitor diving projects, review and revise the diving safety manual, assure compliance with the manual, certify the depths to which a diver has been trained, take action for unsafe practices, and assure adherence to the buddy system (a diver is accompanied by, and in continuous contact with, another diver, either in water or tethered to a diver tender with a stand-by diver fully dressed and ready to enter the water immediately).

The Diving Control Board shall review each dive incident and prepare an incident analysis for the dive team to review including any recommended changes to policy, procedures, or equipment.

## DIVE TEAM CALLS

### Drowning

Possibility of Saving a Life – Submersion is reported to be less than one hour: Engine 4, Truck 4, Rescue 4, an engine company, and a battalion chief shall be dispatched to the scene code 3. The dive team coordinator will be notified and respond to the scene if unusual circumstances exist or at the discretion of the incident commander. At least one EMS unit shall be provided as a stand by for dive team members' safety.

### Special Operation SCUBA Services

No Impending Threat to Human Life – Recovery, evidence search, public service, etc. Engine 4, Truck 4, Rescue 4, and a battalion chief shall be dispatched to the scene code 2. The team shall evaluate conditions prior to diving to determine the risk versus benefit of the operation. Operations deemed too hazardous for the skills and abilities of team members shall not be attempted. The dive team coordinator will be notified and respond to the scene if unusual circumstances exist or at the discretion of the incident commander. At least one EMS unit shall be provided as a stand by for dive team members' safety.

There should be a minimum of two divers and two certified diver line tenders on scene for dive operations. Under no circumstances are divers allowed in the water without a backup safety diver and a tender.

Rescue Mode – To be used when there is a chance a life may be saved, involves quick decisions, brief witness interviews, and prompt search patterns. Per Fresno

County EMS protocols, all bodies of water in Fresno County are considered cold water. Rescue efforts should be conducted for at least one hour.

Recovery Mode – to be used when victim has been in water for over an hour, recovering articles, or vehicles. Recovery mode searches are conducted at a slower pace.

If an operation is initiated in rescue mode and becomes a recovery, the transition should be made subtly.

## DIVE OPERATIONS

The first priority in any operation is safety. The risk versus benefit factors should be considered before any operation is initiated.

Divers shall evaluate conditions prior to entering the water. Any diver may elect not to dive for any operation and for any reason without question.

The maximum diving depth shall be 50 feet with a possible additional 10-foot extension as directed by the dive operations supervisor.

The maximum dive time shall be 20 minutes with a possible 5-minute extension as directed by the dive operations supervisor.

All divers shall be equipped with the following equipment BEFORE entering the water.

### SCUBA

- BCD with power inflator (integrated weights if equipped)
- 3000 psi rated 80 cubic feet tank with a minimum of 2800 psi
- Regulator with gauges (depth, pressure, time)

### Surface Supplied Air

- Supplied air harness with quick releases and bail out system

## ALL DIVING OPERATIONS

- Exposure protection, which shall consist of a dry- or wetsuit
- Three cutting tools (with at least two shears or wire cutters) in the golden triangle area, nothing on the legs
- Pony bottle with regulator and quick release harness/holder

- Fins (may be omitted if tethered diving in swift currents where use would be hazardous)
- Weight belt with a standard buckle. The belt should not be obstructed from quick release by the buoyancy compensator or any other piece of equipment. Integrated weight-belt systems should be inspected and tested prior to entry.

Swift water diving operations require overweighting the diver to conduct searches. At no time shall any diver conduct swift water diving operations without training conducted by a diving instructor in swift current, including emergency weight release and equipment escapes.

- Chest harness for tethered diving. All divers shall be tethered before entering the water.
- Face mask or full face mask if diver has been trained on full face mask use.

#### Night Operations

- Primary waterproof handheld flashlight
- Backup waterproof handheld flashlight
- Cyclyme light stick attached to first stage regulator

Dive operations will be directed by a dive operations supervisor. The dive operations supervisor should be a team coordinator or a senior diver first on scene. The dive operations supervisor will advise, inform, and coordinate with the incident commander any actions planned or deemed appropriate. The 90 percent safety diver will also act as safety officer for the diving operation or may assign the function to another team member.

The dive operations supervisor will determine the diving mode and initiate the search. The dive operations supervisor will determine a Dive or No Dive situation.

All team members (when not suited out to dive) will wear approved personal flotation devices within 10 feet of water during an operation.

All members performing tending shall be properly trained as a diver tender.

The following minimum information should be logged for every sub-surface operation in each diver's logbook:

- Total psi used
- Total time diving and total in-water time
- Post-dive vital signs/neuro check
- Depth, current, other conditions

- Surface air consumption rate
- Respirations per minute (recorded every five minutes)
- Weight, suit, cylinder used
- Tender name, signature

## DIVE SEARCH PROCEDURES

All divers will be briefed on the operational plan prior to the operation being initiated. The dive operations supervisor will assign a primary diver, a backup diver, and dive tenders for each diver.

No diver shall enter the water until both the primary and safety divers are suited and all equipment is checked and line tenders are ready.

Any diver in the water will be line tended so as to have direct communication with the tender using common signals.

Vehicle searches in swift water are a hazardous operation. Swift water can cause a vehicle to shift unexpectedly entrapping the diver. The stability of the vehicle shall be evaluated before a search or rescue is performed. Surface swimmers may be utilized for a hasty search/rescue and vehicle stabilization. The vehicle shall be stabilized by a tag line prior to rescue if determined necessary by the diving operations supervisor. Caution shall be exercised when approaching a submerged vehicle. No diver shall conduct a vehicle search, which has not been properly trained and evaluated by the diving team coordinators.

Line signals:

One pull – Tender to Diver – Are you OK?

One pull – Diver to Tender – OK

Two pulls – Tender to Diver – Stop and face the line

Two pulls – Diver to Tender – Facing line, awaiting directions

Three pulls – Tender to Diver – Change direction

Three pulls – Diver to Tender – Target located

Four pulls – Tender to Diver – Surface

Four pulls – Diver to Tender – Emergency – Send help

**ANY TIME THE LINE GOES SLACK; AN EMERGENCY IS DECLARED AND ACTED UPON.**

Upon surfacing, all divers will give the “Diver OK” hand signal. IF THERE IS NO “DIVER OK” SIGNAL, AN EMERGENCY IS DECLARED AND ACTED UPON.

Line tenders, or an assigned record keeper, will advise the dive operations supervisor of dive times, diver's psi, air consumption rate, dive depths, and other information important to the operation.

Upon completion of any operation, all equipment will be cleaned and stored appropriately.

## DIVE TRAINING

Active divers must:

- Pass the US&R swim test.
- Be able, after sufficient training, to demonstrate competency in all areas of Public Safety SCUBA operations.

Note: Competency will be demonstrated and documented by the use of skill sheets, logbooks and written test evaluations to be developed by the Dive Team Coordinators. This documentation will become a part of each member's training file.

All members of the dive team shall have access in the station library to a logbook and a diving safety manual. The diving safety manual shall include at a minimum: Procedures covering all operation specific to US&R SCUBA, procedures for emergency care including recompression and evacuation, and criteria for diver training and certification. All US&R divers shall be responsible for logging all dive and dress-outs.

## MAINTAINING ACTIVE DIVER STATUS

All members of the dive team shall attend team training sessions. In addition, active divers shall make a minimum of six approved annual dives, which should include environments commonly encountered in public safety diving: swift water, limited visibility, and night.

All active divers shall take and pass an annual physical.

## COMMAND STRUCTURE

The first officer to arrive at the scene shall assume command of the incident and shall be the incident commander until relieved by a higher ranking officer or a more qualified officer.

### Primary Assessment

1. Scene safety
  - a. Are members and others in the area in a safe location?
    - (1) Are they out of the path of moving/rising water?
    - (2) What are the current weather conditions?
    - (3) Are they away from any hazards?
2. What happened? What events led up to the rescue problem?
  - a. Find a witness.
  - b. Is the victim stationary or moving with the current?
  - c. What is the point last seen (PLS)?
3. What is the condition of the victim?
  - a. Level of consciousness?
  - b. Injuries?
  - c. How long since last contact?
  - d. Multiple victims?
4. What are the immediate hazards to the victim(s) and rescuers?
  - a. What are the volume and velocity of the water?
  - b. What are the depth and temperature of the water?
  - c. What hazards are approaching from upstream?
    - (1) Debris
    - (2) Other persons/boats
  - d. What hazards are downstream?
    - (1) Debris
    - (2) Low-head dam



- (3) Low obstructions
- (4) Strainers
- e. What hydraulic effects are present?
  - (1) Drop off
  - (2) Low-head dam
  - (3) Smooth walls
  - (4) Strainers
- 5. Is this a rescue or a body recovery?
  - a. Weigh risks against benefits and potential for a successful rescue operation.

### First-Arriving Company

Upon arrival, the first company officer shall establish command and initiate the following actions:

1. Isolate and deny further entry into or near the water hazard.
2. Establish communications with the victim as soon as possible.
  - a. Can the victim be talked into self rescue?
  - b. Is it safe to do so?
3. Confine the search area.
  - a. Send an engine to the furthest downstream point the patient could have reached.
4. Attempt non-entry rescue (if possible).
  - a. Reach: Best for use when the victim is not moving.
    - (1) Use a long object such as a pike pole for the victim to grab onto.
    - (2) It is preferred an object is used rather than a hand to avoid being pulled into the water.
    - (3) Use ground ladders to provide footing on slopes/inclines.
    - (4) Assure solid footing is established for all rescuers.
  - b. Throw: Use a throw bag for the victim to grab and pendulum swing them to the side.
    - (1) Be aware of downstream hazards.
    - (2) Assure solid footing is established for all rescuers.
5. Consider need for additional equipment
  - a. Balance of US&R assignment (if not already dispatched)

- b. Special Calling additional units if multiple victims are involved
- c. Mutual-aid resources available
  - (1) Fresno County Sheriff's Office – river boats
  - (2) Fresno Police Department/California Highway Patrol (CHP)/Sheriff helicopters
  - (3) American Ambulance STAR Team

### Secondary Assessment

Before any rescue is attempted, command must determine as much information as possible.

1. What is the gender and age of the victim?
2. Is the victim a good swimmer?
3. Is the victim wearing a personal flotation device (PFD)?
4. What is the victim's condition? (Exhausted, hypothermic, altered, etc.)
5. Does the victim have something sturdy to hang on to?

### First Arriving US&R Company

Upon arrival, establish communications with command and re-assess the situation.

1. Establish a perimeter and control zones.
  - a. Hot Zone: Area involving the victim; the most hazardous area.
    - (1) Only certified members wearing rescue PPE should enter the water to perform swift water rescues.
  - b. Warm Zone: Area that could potentially become hazardous and involve a rescuer or bystander.
    - (1) Area immediately adjacent (within 15 feet) to the water's edge.
  - c. Cold Zone: Area that is a safe distance from the water and could not quickly become hazardous.
    - (1) Safe for media, family, bystanders, etc.
2. Create an incident action plan.

### Chief Officer

Upon arrival, battalion chief shall:

1. Consult with the incident commander regarding status of incident.

2. Assume command of incident
3. Redirect strategy mode as required
4. Consider additional resources
5. Direct or redirect actions of on-scene companies
6. Direct or redirect actions of incoming companies
7. Provide logistical support
8. Establish rehabilitation/rotation of companies as necessary

## SPECIAL-CALL/MULTIPLE-ALARM COMPANIES

Unless otherwise directed, officers of special-called or multiple-alarm companies shall stage apparatus well clear of incident site and report to the incident commander for instructions.

## PRE-WATER RESCUE

1. Begin assigning incident command system (ICS) positions as identified in this procedure.
  - a. Incident command
  - b. Safety officer
  - c. Public information officer
  - d. Logistics officer
    - (1) Coordinates requests for rescue equipment.
    - (2) Coordinates with other agencies.
  - e. Liaison officer
    - (1) Acts as a technical liaison to facility personnel.
      - (a) Flood control district
      - (b) Fresno irrigation district
  - f. Operation officer
    - (1) Develops a complete rescue plan including:
      - (a) Access
      - (b) Packaging
      - (c) Retrieval
    - (2) Coordinates rescue efforts.
  - g. Upstream lookout(s)
  - h. Informs operations of hazards entering the rescue area from upstream.
  - i. Downstream group(s)

- (1) Established at bridges/overpasses downstream
  - (2) Throw bags available for secondary rescue attempts
  - (3) Tension diagonals placed for snaring and swinging victims
- j. Rescue group
- k. Retrieval group
- (1) Place those with experience/training in these positions.
- l. Medical group
- (1) Advise incident commander on rehabilitation and other rescuer needs as a result of cold water, etc.
  - (2) Coordinate with ambulance provider
2. Conduct a safety check on all rescue group personnel.
  3. Conduct a pre-rescue briefing.

## WATER RESCUE

1. Reach: Best for use when the victim is not moving.
  - a. Use a long object such as a pike pole for the victim to grab onto.
  - b. Never attempt to reach the victim with your hands.
  - c. Use ground ladders to provide footing on slopes/inclines.
2. Throw: Use a throw bag for the victim to grab and pendulum swing them to the side.
3. Row/boat operations
  - a. Reaching the victim with a boat is the preferred method.
4. Go
  - a. Rescuer entry into the water
  - b. Use of fins and a board is recommended if possible
5. Helicopter
  - a. Not within the scope of the Department's US&R team at this time.

## SUPPORT FUNCTIONS

1. Communication systems

- a. Whistle communications are the most appropriate for the high noise created by rushing water.

OK/ATTENTION - 1 Whistle  
MOVE UPSTREAM - 2 Whistles  
MOVE DOWNSTREAM - 3 Whistles  
HELP - 3 Whistles repeated rapidly

- b. Looking downstream, right is “river right” and left is “river left”
- c. One hand on head is OK
- d. One hand up is HELP

## 2. Lighting

- a. Lighting should be provided for all nighttime operations.
- b. Portable lighting can be provided by all Department trucks and Rescue 4.
- c. Headlamps are on all Department trucks in the OES box and Rescue 4.
- d. Light sticks are on all Department trucks in the OES box and Rescue 4.

## 3. Rope systems

### a. Tyrolean

- (1) Similar to a Telfer, incorporates a pulley, which can be positioned over a victim.
- (2) Use for swiftwater rescues
- (3) This system stresses the rope; it should be inspected after each use.

## Rescue Assessment

1. Have a complete plan for access, packaging, and retrieval.
2. First aid
  - a. Complete a brief assessment of injuries.
  - b. Be aware of injuries and protect as appropriate.
  - c. Protect C-spine as possible.
3. Packaging
  - a. A stokes or SKED basket works best in almost all situations.
4. Transfer victim to medical division for further care and transportation.

5. Secure incident

- a. Leave equipment in place if needed for investigation.
- b. Consider a debriefing for rescue personnel.
- c. Post incident analysis shall be conducted.

Rescue Objective

It is the intention of this Department to provide specially trained and certified members for technical rescue operations. Those functions involving the highest risk should be performed by members with the highest level of training. All Department members must realize technical rescue operations significantly increase the potential for injury or death to rescue members. Therefore, every attempt shall be made to notify and assign available rescue specialists to any technical rescue operation.

However, it is not the intention of this procedure to unilaterally preclude any members, who are not technical rescue team members, from attempting a rescue operation. Under the following conditions a technical rescue may be attempted:

1. An accurate primary assessment (size-up) has been completed
2. Risks/benefits assessment has been identified and **all** rescue personnel are apprised of hazards
3. Action plan includes contingency plan and back up teams
4. All standard operating procedures have been followed
5. All possible safety precautions have been taken
6. All attempts to obtain technical assistance have been made
7. Use of protective equipment