Date: March 1, 2019

To: Ronny J. Coleman, Chairman
    Statewide Training and Education Advisory Committee (STEAC)
c/o State Fire Training

From: Joe Bunn and Kevin Conant, Fire Service Training Specialist III

SUBJECT/AGENDA ACTION ITEM:
FSTEP – River/Flood Rescue Technician

Recommended Actions:
Approval of the River/Flood Rescue Technician FSTEP Curriculum

Background Information:
This curriculum was presented at the October 12, 2018 STEAC Meeting. This is the second reading of this curriculum. As of this date, we have not received any feedback or input on this new curriculum.

This course may be new to some STEAC members, however this curriculum has been utilized for training throughout the State of California since 2015. This course originally was developed and facilitated under a firefighter grant through Office of Emergency Services (OES). This project is a joint effort between the California Office of the State Fire Marshal (OSFM), State Fire Training (SFT), the Office of Emergency Services, Fire and Rescue Branch and CAL FIRE, Training Center (Ione). This curriculum was put into the developmental format that all FSTEP and Certification Trainings Standards utilize for SFT. The goal is to make this course available to the Fire Service as soon as possible keeping in mind respect for the process and wanting buy in for all the stakeholders throughout the State of California.

The concept of developing new FSTEP course curriculum is with the purpose of continuing education and professional development, which was approved by STEAC on April 18, 2014. Accordingly, stakeholders identified the need for the creation of numerous courses. The River/Flood Rescue Technician Course is just one of several
Therefore, a cadre of experienced subject matter experts with extensive technical expertise in the area of River/Flood Rescue as it relates to operations were selected from various agencies and backgrounds with the mission to create the content for this FSTEP course.

**Cadre Leadership**

Joe Bunn, Fire Service Training Specialist III, Deputy Chief (ret) US&R CA-TF8, Kevin Conant, Fire Service Training Specialist III, Battalion Chief (ret), US&R CA-TF3, Laura Garwood Meehan, Cadre Editor, Sacramento State.

**Development Cadre Members**

Billy Milligan, Firefighter, Riverside City Fire Department, Aide Barbat, Battalion Chief, San Diego Fire Rescue, Patrick Costamagna, Captain, Sacramento Fire Department, John Brenner, Captain (retired), Sacramento Fire Department, James Colston, Battalion Chief, San Marcos Fire Department, Robb Eichelberger, Lifeguard Sergeant, San Diego Fire Rescue, Zachary Boyd, Engineer, Kern County Fire Department, Paulo Brito, Engineer, San Jose Fire Department

Several of the cadre members are SFT Registered Instructors and all have extensive operational experience with special operations incidents as it relates to search and rescue operations in the River/Flood environment. The development of the material required one multi-day session for this curriculum. Because these are FSTEP Course Plans, the development of a Certification Training Standards (CTS) was not required. However, Terminal Learning Objectives (TLO) were established from the authority from the below standards that typically would be in the CTS. The majority of the TLO’s and the supporting Enabling Learning Objectives (ELO) were developed from the authority of standards NFPA 1670 Standard on Operations and Training for Technical Search and Rescue Incidents (2017), and NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2017.) Additionally, NFPA Standards were considered such as 1500, 1521,1561 with observance to ICS 420-1, Field Operations Guide, ICS-SF-SAR-020-, Swiftwater/Flood Search and Rescue Recommended Training, Skills and Equipment List (current edition) and several others references aided as supporting documents when creating the Course Plans.

The breakdown of the FSTEP course is as follows:

<table>
<thead>
<tr>
<th>River/Flood Rescue Technician</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Didactic/Lecture</td>
<td>10:00 Hours: Minutes</td>
</tr>
<tr>
<td>Activities and Testing</td>
<td>30:00 Hours: Minutes</td>
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<tr>
<td>Course Hour Totals</td>
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**Analysis/Summary of Issue:**

Following is an analysis of this new FSTEP course.

1. Neither the old legacy SFT Fire Officer or Chief Officer courses, nor the NFPA Fire Officer I-IV standards addressed the specific hazards and risks faced by an initial
incident commander at the scene of any technical search and rescue incident nor any River/Flood or water rescue operations. The only curriculum developed in regards to command and control of special operations is the SFT course, Incident Management of Special Operations, which was created to provide awareness level training for incident commanders in recognizing and managing the initial actions of the technical search and rescue incident safely. This course is highly recommended for any new to special operators that may have the responsibility of command and control of a River/Flood incident. Any career or volunteer fire service officer will benefit greatly from the design and content of that course as it relates to search and rescue in the River/Flood environment.

2. Planning and Logistics are a huge piece to this course. The number of instructors to students with activities and the environment to support the River/Flood search and rescue operations with all the safety elements involved. The site location is the key to success in this course. It is imperative to be able to demonstrate, facilitate and test all participants in the skills necessary to meet the standards set forth in the course plans.

3. In addition, this course suggests like any water rescue course that all students have completed OSFM Open Water Rescuer – Basic or equivalent prior to taking this course. The other options are the AHJ (Authority Having Jurisdiction) has a standard swim test that meets or exceeds the International Association of Dive Rescue Specialists (IADRS) Annual Watermanship Test. This prerequisite should not be an option in any water course this one included.

4. The instructors for this course need an extensive background in water rescue as it relates to the River/Flood environment. Strong experience in search and rescue techniques in this environment using and operating with all the equipment and PPE necessary to be in this environment is critical. Safety is paramount and having qualified instructor’s limits exposure to incidents in any water environment.

5. The core content utilizes the authority NFPA 1006, 1670 standards, as well as 1500, 1521,1561 and the above documents mentioned as supporting documents for the development of this course.
Course Details

Description: This course provides preparation for participants to demonstrate competency in dynamic water rescue. It will familiarize participants with the dynamic water environment and experience and prepare them to safely execute simple to complex rescue techniques.

Designed For: Public safety members with river and flood rescue responsibilities

Authority: Office of the State Fire Marshal


Prerequisites: Low-Angle Rope Rescue Operations (LARRO, 2010)

Incident Command Systems 200 (Basic ICS)

State Fire Training Auto Extrication (1996), SFT Vehicle Extrication (2015), or AHJ equivalent

Corequisites: None

Standard: Complete all activities

Hours: Lecture: 10:00

Activities: 30:00

Hours (Total): 40:00

Maximum Class Size: 24

Instructor Level: Primary
River Flood Rescue

**Instructor/Student Ratio:** 1:8 activities, 1:24 lecture

**Restrictions:** It is recommended that participants have completed the requirements of the authority having jurisdiction’s (AHJ’s) swim test.

**SFT Designation:** FSTEP
Required Resources

Instructor Resources

To teach this course, instructors need:

- ICS-SF-SAR-020-1, Swiftwater/Flood Search and Rescue Recommended Training, Skills, and Equipment List (current edition)
- ICS-US&R 120-2, Swiftwater/Flood Search and Rescue Operational Systems Description and Law Enforcement Mutual Aid Plan (current edition)
- DOT-ERG Emergency Response Guidebook (current edition)
- CAL-OES River Flood Rescue Technician (current edition)

Online Instructor Resources

The following instructor resources are available online at http://osfm.fire.ca.gov/training/SFTCurriculum:

- The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act)
- DOT-ERG Emergency Response Guidebook (current edition)
- CAL-OES River Flood Rescue Technician (current edition)

Student Resources

To participate in this course, instructor may require students to use:

To participate in this course, students need:

- CAL-OES River Flood Rescue Technician (current edition)
- Personal protective equipment mandated by instructor

Facilities, Equipment, and Personnel

The following facilities, equipment, or personnel are required to deliver this course:

Facilities

- Classroom of adequate size and capability (audio/visual aids) to support classroom training
- Wash areas
- Bathrooms
- Rehabilitation area
- Safe and adequate parking

Site Requirements

- The requesting agency assumes all responsibility, liability, and maintenance for the engineering design, strength, stability, and adequacy of all props including anchor points and tie offs.
- The requesting agency further assumes all responsibility, liability, and maintenance for all tools, equipment, and supplies used at the site for the delivery of RFRT classes. This includes, but is not limited to, props, ropes, rescue hardware and software.
- Before conducting any training in the water, you as the instructor are responsible for ensuring the safety of everyone involved in the training exercise.
- Students should never be put into a position where they must act as the sole rescuers of other students. The very fact that they are taking your class implies that their level of knowledge is not sufficient to operate without direct supervision.
- You should arrive early at the training site to conduct an assessment of conditions. This should consist of a moving body of water suitable for safe water rescue training. The body of water should be no more complex than a class III and should provide a means for safe and effective rescue of both students and instructors. There should be suitable water depth and consistency to perform all required tasks. The bank of the body of water should provide a safe means of ingress and egress. The area of training must be thoroughly familiar to the instructors and all hazards identified and mitigated. You need to scout the training area for hazards such as strainers, sweepers, exposed rebar or other debris that could snag a student. You should assess the area for foot and body entrapment hazards such as underwater ledges and submerged debris and logs. The training area should be preplanned for where the “no go” zone is located. You should have an idea of what the projected water levels should be, and if the waterway is influenced by dam release or prone to sudden changes due to hydroelectric activities or
precipitation. Ideally the training area should offer a variety of water features so you can take the students through all the skills. The area may have a rapid current and with wave trains. Areas with large holes or other dangerous currents should be avoided. You must always be in a position from which you can rescue your students. Drills, simulations, or training areas where students cannot be rapidly rescued are not suitable and must be avoided.

- There are several websites that will assist with monitoring water flows. The weather needs to be monitored for potential impact on water flows.
- Be cautious when training in small waterways and creeks. These bodies of water do not usually carry heavy flows of water and often are strainer choked and full of debris. Do a complete and comprehensive survey before training in these bodies of water.
- Irrigation canals and any manmade dams must also be carefully scrutinized. These structures often have debris such as rebar and rip rap in them that are hazardous to swimmers. They can also have rapidly changing water levels.
- Low Head Dams are extremely hazardous and should never be used for training purposes. They offer no way out, and rescue is difficult at best. Training in and around them is inviting disaster.

**Equipment**

Note: When class capacity will exceed 8 students, it is the responsibility of the lead primary instructor to facilitate and manage additional equipment needs based on site constraints and the ability to simultaneously conduct hands-on training with multiple groups and meet the curriculum requirements. The equipment list below is for each 8-student group.

- First aid equipment (AHJ) BLS minimum
- 1 Backboard (long)
- 8 Throw bags
- 4 Rescue boards
- 4 Fins (sets)
- 4 Rescue PFDs (type V, good operational condition)
- 2 Boats (inflatable raft or IRB, types used in AHJ), minimum 12’ but ideally 14’
- 16 Paddles
- 2 Pike poles (6’–8’)
- 1 Strainer (manmade or natural, must be safe)
- 4 Descent control devices (figure 8 plates, brake bar racks, 3D, and scarab are all acceptable)
- 40 Carabiners (locking)
- 2 Anchor plate
- Edge protection (manufactured or improvised)
- Mechanical rope ascenders (optional)
- 4 Load releasing devices (commercial or field-assembled from 1” tubular webbing)
4 Low stretch/static kernmantle rescue ropes 150’ continuous minimum (12.5 mm)—two to three times the span of the gap
2 Low stretch/static kernmantle rescue ropes 20’ (12.5 mm)
- Pickets, steel or equivalent (optional)
- Sledgehammer (optional)
- 10 Prusik loops, short (8mm)
- 10 Prusik loops, long (8mm)
- 6 Pulleys (Prussik minding)
- 1 Rescue litter
- 8 Webbing, green, 1” x 5’
- 8 Webbing, yellow, 1” x 12’
- 8 Webbing, blue, 1” x 15’
- 8 Webbing, orange, 1” x 20’
- Line capture device (optional)
- 1 Mechanical line throwing device
- Drone (optional)
Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective
At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives
1. Identify facility requirements
   • Restroom locations
   • Food locations
   • Smoking locations
   • Emergency procedures
2. Identify classroom requirements
   • Start and end times
   • Breaks
   • Electronic device policies
   • Special needs and accommodations
   • Other requirements as applicable
3. Review course syllabus
   • Course objectives
   • Calendar of events
   • Course requirements
   • Student evaluation process
   • Assignments
   • Activities
   • Required student resources
   • Class participation requirements

Discussion Questions
1. To be determined by the instructor

Activities
1. To be determined by the instructor
Unit 2: River Flood Rescue

Topic 2-1: Managing a Water Rescue Incident

Terminal Learning Objective
At the end of this topic, given a variety of water rescue scenarios, the standards, and the policies and procedures of the AHJ, a student will be able to describe the components of managing a water rescue incident.

Enabling Learning Objectives
1. Describe the scope and practice and standards
2. Describe rescue priorities
   - Low to high risk
   - Rescue vs. recovery
3. Describe legal considerations and practices
4. Describe the relevant components of the Incident Command System
5. Describe FIRESCOPE ICS-US&R 120-1, 120-2, ICS-SF-SAR-020-1 Operational System Description
6. Describe the actions taken to terminate and demobilize an incident

Discussion Questions
1. When is it appropriate to control or modify the control zones?
2. What are some key ICS positions?
3. What needs to be done to

Activities
1. The instructor must create an activity directing students to review an incident action plan (IAP).
2. The instructor must create an activity directing students to organize and manage a rescue incident including demobilization and termination.

Instructor Notes
1. The instructor will continually refer students to the IAP throughout the course.

Topic 2-2: Describing Dynamic Hydrology

Terminal Learning Objective
At the end of this topic, given a variety of water environments, a student will be able to describe dynamic hydrology as it relates to rivers, channels, and floods.

Enabling Learning Objectives
2. Describe the forces of dynamic water
3. Describe how to determine current speed
4. Describe how to determine cubic feet of water per second in a given river/channel
5. Describe river orientation
6. Identify river/channel features created by moving water
7. Classify rivers
8. Define the following terms:
   - Upstream
   - Downstream
   - River right
   - River left
   - Volume (cubic feet per second)
   - Laminar flow
   - Helical flow
   - Eddies
   - Eddy line
   - Strainers
     - Sieves
   - Pillows
   - Upstream and downstream
   - Low-head dam
   - Hole
     - Smiling/closed
     - Frowning/open
   - Hydraulic
   - Standing waves (haystacks)
   - Aerated water
   - Current vector

Discussion Questions
1. How does cubic feet per second (cfs) impact water hydrology?

Activities
1. The instructor must create an activity directing students to identify hydrologic features.

Instructor Notes
1. If the topic is taught in a classroom, it is recommended that the instructor use videos among the visual aids.

Topic 2-3: Evaluating Hazards and Identifying Safe Current Vectors and Safety Zones

Terminal Learning Objective
At the end of this topic, given a variety of water environments, a student will be able to evaluate hazards in moving water, identify safe current vectors for navigation, and locate safety zones.
River Flood Rescue

Enabling Learning Objectives
1. Identify and describe hazards associated with river and flood rescue
2. Identify safe navigation current vectors
3. Identify areas and features that are safe zones in dynamic water environments

Discussion Questions
1. Where are safe zones typically located?
2. When assessing a waterway, what are the most dangerous hazards?

Activities
1. The instructor must create an activity directing students to provide a safety briefing describing the hazards present.

Instructor Notes
1. If the topic is taught in a classroom, it is recommended that the instructor use videos among the visual aids.

Topic 2-4: Managing and Performing a Victim Search

Terminal Learning Objective
At the end of this topic, given a dynamic water emergency, a student will be able to describe the management of and perform a victim search.

Enabling Learning Objectives
1. Describe search fundamentals
   • LAST
   • PLS
   • POD
2. Describe witness management
3. Identify different tools used for searches
4. Describe reconnaissance, hasty (rapid), primary, and secondary search
5. Perform reconnaissance, hasty (rapid), primary, and secondary searches

Discussion Questions
1. What are the differences between the types of searches?
2. What are the elements required for an effective preplan?

Activities
1. The instructor must create an activity directing students to participate in a variety of searches.

Instructor Notes
1. The types of searches are delineated in FIRESCOPE ICS-USAR 120-1.
2. The different types of searches may be land based or water based.
3. One night search is highly recommended.
4. The instructor may have the students evaluate the IAP from earlier in the course as well as maps or other documents.
Topic 2-5: Identifying and Managing a Victim

Terminal Learning Objective
At the end of this topic, given a dynamic water emergency, a student will be able to identify and manage a victim.

Enabling Learning Objectives
1. Describe victim behavior
2. Describe management of family and bystanders
3. Describe medical considerations
4. Demonstrate water rescue c-spine techniques
5. Demonstrate a contact swim with a combative victim
6. Demonstrate a towed swim with a victim

Discussion Questions
1. When does a victim become a patient?
2. What are some methods for handling a combative victim?
3. What are the contact swim priorities?
4. What are the options for and risks involved with immobilizing a patient?

Activities
1. The instructor must create an activity directing students to perform a contact swim, c-spine management, and a towed swim.

Instructor Notes
1. None

Topic 2-6: Describing and Using Multiple Communication Forms

Terminal Learning Objective
At the end of this topic, given an incident, whistles, and hand signals, a student will be able to describe and use multiple forms of communication used for dynamic water operations.

Enabling Learning Objectives
1. Describe the difficulties of communications in water rescue environment
2. Describe forms of communication and their use
3. Demonstrate forms of communication

Discussion Questions
1. What are the various hand signals or signaling devices?
2. What are barriers involved with each type of communication?

Activities
1. The instructor must create an activity directing students to demonstrate hand signal and whistle use.

Instructor Notes
1. The instructor should refer to the required text, CAL-OES River Flood Rescue Technician.
River Flood Rescue

Topic 2-7: Describing Floods, Hazards, and Evacuation Procedures

Terminal Learning Objective
At the end of this topic, given a variety of incidents, the ICS 420-1 Field Operations Guide, and the DOT-ERG, a student will be able to describe types and causes of floods and describe hazards and evacuation procedures associated with flood rescue operations.

Enabling Learning Objectives
1. Describe types of floods
2. Describe the evolution of a flood
3. Describe utility hazards in flood environments
4. Describe hazardous material exposure, protection, and decontamination
5. Describe flood search, rescue, and evacuation procedures
6. Describe management of pets and livestock

Discussion Questions
1. What types of floods are common in your jurisdiction?
2. What are common types of hazardous materials that a rescuer may be exposed to?
3. What is your AHJ’s plan for dealing with household pets and service animals?

Activities
1. To be determined by instructor.

Instructor Notes
1. Decontamination procedures are described in FIRESCOPE ICS-SF-SAR 020-1.

Topic 2-8: Describing Rescue of Vehicle Occupants

Terminal Learning Objective
At the end of this topic, given a scenario involving a vehicle in dynamic water, a student will be able to describe the procedures and hazards associated with rescuing occupants.

Enabling Learning Objectives
1. Describe sizing up the factors and hazards relating to a vehicle in moving water
   - Velocity
   - Depth
   - Width
   - Bottom composition
   - Speed of car when it enters the water
   - Angle of car when it enters the water
   - Number and condition of occupants
   - Describe vehicle stability in dynamic water
2. Describe rescue considerations
   - In-water techniques
   - Shore-based techniques
3. Describe victim management
River Flood Rescue

Discussion Questions
1. How would low- to high-risk rescue techniques apply in water vehicle rescue?
2. How do factors such as flow and bottom composition impact the incident?
3. How can removing victims affect vehicle stability?

Activities
1. The instructor must create an activity simulating a vehicle stranded in different moving water situations, directing students to rescue vehicle occupants.

Instructor Notes
1. None

Topic 2-9: Demonstrating Boat Rigging, Handling, Navigation, and Emergency Procedures

Terminal Learning Objective
At the end of this topic, given a nonmotorized rescue boat and equipment, a student will be able to describe and demonstrate rigging and basic handling of, navigation with, and emergency procedures for nonmotorized rescue boats.

Enabling Learning Objectives
1. Describe different types of nonmotorized rescue boats, including but not limited to:
   • Rafts
   • IRBs
   • Jon boats
2. Describe the components of a boat
3. Describe boat positions
4. Describe navigation options
5. Describe emergency procedures
   • Crew and victim retrieval
   • Parbuckling
   • Boat wraps
6. Demonstrate how to paddle and maneuver a boat
7. Demonstrate how to right a flipped boat
8. Demonstrate how to unwrap a pinned boat

Discussion Questions
1. What are the pros and cons of each type of rescue boat?

Activities
1. The instructor must create an activity directing students to demonstrate rigging, boat handling, navigation, and emergency procedures.

Instructor Notes
1. The instructor may choose to cover recreational boating accidents.

Topic 2-10: Using Personal Protective Equipment
Terminal Learning Objective
At the end of this topic, given personal protective equipment (PPE) and United States Coast Guard (USCG) standards for personal flotation devices (PFD), a student will be able to identify, don, doff, and maintain PPE for water rescue operations.

Enabling Learning Objectives
1. Describe the types and use of PPE
2. Describe USCG standards for PFD
3. Describe the different types of PFD
4. Describe donning and doffing of PPE
5. Demonstrate donning and doffing of PPE
6. Describe proper care and maintenance of PPE

Discussion Questions
1. What types of PPE are appropriate for different types of water environments?
2. How do you care for and maintain PPE?
3. What is the most important piece of PPE?

Activities
1. The instructor must create an activity directing students to select, don, doff, inspect, and demonstrate maintenance of PPE.
2. The instructor must create an activity directing students to perform a PPE check.

Instructor Notes
1. The instructor should ensure students know how to select the correct PPE for different tasks.

Topic 2-11: Operating Basic Rescue Equipment

Terminal Learning Objective
At the end of this topic, given rescue equipment, a victim, and a dynamic water environment, a student will be able to identify and operate basic equipment used for water rescue operations.

Enabling Learning Objectives
1. Describe the equipment used in water rescue
2. Describe the use and limitations of each type of equipment
3. Demonstrate the use of each piece of equipment
5. Describe safety considerations when using each piece of equipment
6. Describe maintenance and storage of each piece of equipment

Discussion Questions
1. What types of equipment are used in dynamic vs. static water conditions?
2. What are the differences of equipment carried between the different types of resources described by ICS FOG?
River Flood Rescue

Activities
1. The instructor must create an activity directing students to select, inspect, and demonstrate the use and maintenance of water rescue equipment.
2. The instructor must create an activity directing students to perform throw bag drills in accordance with NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2017).

Instructor Notes
1. This topic must be conducted in a dynamic water environment.

Topic 2-12: Performing Dynamic Water Rescue Skills

Terminal Learning Objective
At the end of this topic, given a dynamic water environment, PPE, a victim, and rescue equipment, a student will be able to perform rescue skills.

Enabling Learning Objectives
1. Demonstrate how to swim in dynamic water
2. Describe the techniques used for water rescue incidents
3. Select the proper technique for each rescue situation
4. Describe and demonstrate rescue swimmer techniques
   - Basic swim
   - Ferry angle
   - Strainer
   - Eddy hopping
   - Surfing
5. Describe and demonstrate shallow water crossings
6. Describe and demonstrate use of quick release buckle systems (blowout drill)
7. Describe and demonstrate tethered swimmer operation
8. Describe and demonstrate board rescues
9. Describe and demonstrate foot and body entrapment rescue techniques

Discussion Questions
1. How do you select a rescue technique based on rescue priorities?

Activities
1. The instructor must create an activity directing students to perform a dynamic water rescue swim.
2. The instructor must create an activity directing students to demonstrate quick release buckle system use, tethered swimmer operations, shallow-water crossings, board rescues, and foot and body entrapment rescue techniques.
3. The instructor must create an activity directing students to navigate a strainer.

Instructor Notes
1. The instructor must ensure students perform all the tasks delineated in the enabling learning objectives.
Topic 2-13: Demonstrating Technical Rope Rescue Skills

Terminal Learning Objective
At the end of this topic, given a dynamic water environment, PPE, a victim, and rescue equipment, a student will be able to describe and perform technical rope rescue skills.

Enabling Learning Objectives
1. Describe the technical rope rescue systems used for dynamic water rescue incidents
   - Line-crossing equipment and techniques
2. Select the proper system for each rescue situation
3. Describe and demonstrate tethered boat techniques
   - Two-point
   - Other techniques
4. Describe and demonstrate the use of tension diagonal for victim retrieval
5. Describe and demonstrate the use of a rescue boat on highline systems

Discussion Questions
1. Under what circumstances would multiple tethered boat techniques be required?

Activities
1. The instructor must create an activity directing students to demonstrate a line crossing.
2. The instructor must create an activity directing students to demonstrate a tension diagonal.
3. The instructor must create an activity directing students to demonstrate boat-tether techniques.
4. The instructor must create an activity directing students to demonstrate a boat on a highline system.

Instructor Notes
1. The instructor must teach at least the two-point tether. If time allows, teach one-point, three-point, and/or four-point.
2. The instructor may choose to have students describe and demonstrate the use of a rescuer on highline systems.

Time Table

<table>
<thead>
<tr>
<th>Segment</th>
<th>Lecture Time</th>
<th>Activity Time</th>
<th>Total Unit Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1: Introduction</td>
<td></td>
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<tr>
<td>Topic 1-1: Orientation and Administration</td>
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<tr>
<td><strong>Unit 2: River Flood Rescue</strong></td>
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<tr>
<td>Topic 2-1: Managing a Water Rescue Incident</td>
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<tr>
<td>Activity 2-1a: Reviewing an IAP</td>
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<td>Activity 2-1b: Organizing and Managing an Incident</td>
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<td>Topic 2-2: Describing Dynamic Hydrology</td>
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<td>Activity 2-2: Identifying Hydrologic Features</td>
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<tr>
<td>Topic 2-3: Evaluating Hazards and Identifying Safe Current Vectors and Safety Zones</td>
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<td>Topic 2-4: Managing and Performing a Victim Search</td>
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<td>Activity 2-4: Searching</td>
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<td>Topic 2-5: Identifying and Managing a Victim</td>
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<td>Activity 2-5: Performing In-Water Victim Management</td>
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<td>Topic 2-6: Describing and Using Multiple Communication Forms</td>
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<td>Activity 2-6: Using Hand Signals and Whistles</td>
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<td>Topic 2-7: Describing Floods, Hazards, and Evacuation Procedures</td>
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<td>Activity 2-7: To be determined by the instructor</td>
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<td>Topic 2-8: Describing Water Vehicle Rescue</td>
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<td>Activity 2-8: Rescuing Vehicle Occupants</td>
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<td>Topic 2-9: Demonstrating Boat Rigging, Handling, Navigation, and Emergency Procedures</td>
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## River Flood Rescue

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<td>Topic 2-11: Operating Basic Rescue Equipment</td>
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<td>Activity 2-12c: Navigating a Strainer</td>
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<td>Topic 2-13: Demonstrating Technical Rope Rescue Skills</td>
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<td>Activity 2-13a: Performing Line Crossing</td>
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<td>Activity 2-13b: Demonstrating a Tension Diagonal</td>
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<td>Activity 2-13c: Demonstrating Tethering Techniques</td>
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<td>Activity 2-13d: Demonstrating Highline Systems</td>
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### Course Totals

| Total Lecture Time (LT) | 10:00 |

[Month Year]
River Flood Rescue

<table>
<thead>
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Acknowledgments

State Fire Training gratefully acknowledges the following individuals and organizations for their diligent efforts and contributions that made the development and publication of this document possible.

Cadre Leadership

**Kevin Conant**  
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*Fire Service Training Specialist III, State Fire Training*

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*Fire Service Training Specialist III, State Fire Training*

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*Sacramento State University*

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**Patrick Costamagna**  
Captain, *Sacramento Fire Department*
Robb Eichelberger  
*Lifeguard Sergeant San Diego Fire Rescue*

Billy Milligan  
*Firefighter, Riverside City Fire Department*

**Partners**

State Fire Training also extends special acknowledgement and appreciation to the Conference and Training Services Unit with the College of Continuing Education at California State University, Sacramento, for its ongoing meeting logistics and curriculum development support, innovative ideas, and forward-thinking services. This collaboration is made possible through an interagency agreement between CAL FIRE and Sacramento State.
River Flood Rescue

Student Task Book

[Month Year]

Candidate: Click here to enter text.

SFT ID Number: Click here to enter text.

Fire Agency: Click here to enter text.

Issued By: Click here to enter text.

Issue Date: Click here to enter text.


Published by:
State Fire Training, 2251 Harvard Street, Suite 400, Sacramento CA 95815
(916) 568-2911

Cover photo courtesy of [name, organization]
Table of Contents

Purpose and Process ................................................................. Error! Bookmark not defined.
Course Task Book Requirements .............................................. Error! Bookmark not defined.
  Experience .............................................................................. Error! Bookmark not defined.
  Position .................................................................................. Error! Bookmark not defined.
Course Performance Requirements .......................................... Error! Bookmark not defined.
Candidate Verification ............................................................... 12
Review and Approval ................................................................ 13
Signature Verification ............................................................... 14
Purpose and Process

The State Fire Training student task book is a performance-based document. It lists the Classroom, Experience or Position, and Job Performance requirements for course completion.

Purpose

Task Book focuses on a single State Fire Training course and identifies the minimum requirements necessary to perform the duties of the course. Completion of this student Task Book verifies that the candidate has the required experience, holds the required rank or position, and has demonstrated the job performance requirements necessary to obtain that course completion certificate.

Responsibilities

Registered Instructor Responsibilities

A Registered instructor will only issue the Task Book after verifying the candidate has:

- Low-Angle Rope Rescue Operations (LARRO, 2010)
- Incident Command Systems 200 (Basic ICS)
- State Fire Training Auto Extrication (1996), SFT Vehicle Extrication (2015), or AHJ equivalent
- It is recommended that participants have completed the requirements of the authority having jurisdiction’s (AHJ’s) swim test.

Candidate Responsibilities

The candidate is the individual pursuing course completion. All candidates shall:

- Complete the Experience, Position, and Job Performance Requirements.
- Sign and date the Candidate verification statement with an original wet-ink signature.
- Retain a copy of the completed student Task Book.

Evaluator Responsibilities

An evaluator is any Registered Instructor at the course conducted in accordance to the Course Plan.

A task book may have more than one evaluator. All evaluators shall:

- Complete a block on the Signature Verification page with an original wet-ink signature.
- Review and understand the candidate’s task book requirements and responsibilities.
- Verify the candidate’s successful completion of one or more job performance requirements through observation or review.
- Sign all appropriate lines in the task book with an original wet-ink signature to record demonstrated performance of tasks.
Completion Process

When you receive your Task Book:

1. Thoroughly review the Experience, Position, and Job Performance Requirements segments to make sure that you understand them.
2. Complete the Experience segment.
3. Complete the Position segment.
4. Complete each requirement in the Job Performance Requirements segment and ensure that an evaluator signs and dates each one to verify completion.
Task Book Requirements

Experience

The candidate meets one of the following requirements for experience.

☐ A minimum of two years’ full-time paid experience in a California fire agency.

or

☐ A minimum of four years part-time paid or volunteer experience in a California fire agency.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Agency</th>
<th>Start Date</th>
<th>End Date</th>
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Please attach additional pages if more space is needed to document experience.

Position

The candidate meets the following qualifications for position. Performing in an acting capacity does not qualify.

Held the position of fire fighter or performed rescue duties within a California fire agency

<table>
<thead>
<tr>
<th>Position</th>
<th>Agency</th>
<th>Appointment Date</th>
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<tbody>
<tr>
<td>[Insert position]</td>
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</table>
Job Performance Requirements

All job performance requirements must be performed in accordance with the standards of the authority having jurisdiction (AHJ) or the National Fire Protection Association (NFPA), whichever is more restrictive.

Managing a Water Rescue Incident

Describe the components of managing a water rescue incident, given a variety of water rescue scenarios, the standards, and the policies and procedures of the AHJ. (OSFM)

Date Completed ____________________________ Evaluator Verification ____________________________

_____ Describe the scope and practice and standards.

_____ Describe rescue priorities:

- Low to high risk
- Rescue vs. recovery

_____ Describe legal considerations and practices.

_____ Describe the relevant components of the Incident Command System.

_____ Describe FIRESCOPE ICS-US&R 120-1 and 120-2 Operational System Description.

_____ Describe the actions taken to terminate and demobilize an incident.

Describing Dynamic Hydrology

Describe dynamic hydrology as it relates to rivers, channels, and floods, given a variety of water environments. (OSFM)

Date Completed ____________________________ Evaluator Verification ____________________________

_____ Describe the forces of dynamic water.

_____ Describe how to determine current speed.
Describe how to determine cubic feet of water per second in a given river/channel.

Describe river orientation.

Identify river/channel features created by moving water.

Classify rivers.

Define the following terms:

- Upstream
- Downstream
- River right
- River left
- Volume (cubic feet per second)
- Laminar flow
- Helical flow
- Eddies
- Eddy line
- Strainers
  - Sieves
- Pillows
- Upstream and downstream
- Low-head dam
- Hole
  - Smiling/closed
  - Frowning/open
- Hydraulic
- Standing waves (haystacks)
- Aerated water
- Current vector

Evaluating Hazards and Identifying Safe Current Vectors and Safety Zones

Evaluate hazards in moving water, identify safe current vectors for navigation, and locate safety zones, given a variety of water environments. (OSFM)

Identify and describe hazards associated with river and flood rescue.
Identify safe navigation current vectors.
Identify areas and features that are safe zones in dynamic water environments.

Managing and Performing a Victim Search

Describe the management of and perform a victim search given a dynamic water emergency. (OSFM)

Date Completed
Evaluator Verification

Describe search fundamentals:
- LAST
- PLS
- POD

Describe witness management.
Identify different tools used for searches.
Describe reconnaissance, hasty (rapid), primary, and secondary search.
Perform reconnaissance, hasty (rapid), primary, and secondary searches.

Identifying and Managing a Victim

Identify and manage a victim, given a dynamic water emergency. (OSFM)

Date Completed
Evaluator Verification

Describe victim behavior.
Describe management of family and bystanders.
Describe medical considerations.
Demonstrate water rescue c-spine techniques.
Demonstrate a contact swim with a combative victim.
Demonstrate a towed swim with a victim.

**Describing and Using Multiple Communication Forms**

Describe and use multiple forms of communication used for dynamic water operations, given an incident, whistles, and hand signals. (OSFM)

Date Completed

Evaluator Verification

Describe the difficulties of communications in water rescue environment.

Describe forms of communication and their use.

Demonstrate forms of communication.

**Describing Floods, Hazards, and Evacuation Procedures**

Describe types and causes of floods and describe hazards and evacuation procedures associated with flood rescue operations, given a variety of incidents, the ICS FOG, and the DOT-ERG. (OSFM)

Date Completed

Evaluator Verification

Describe types of floods.

Describe the evolution of a flood.

Describe utility hazards in flood environments.

Describe hazardous material exposure, protection, and decontamination.

Describe flood search, rescue, and evacuation procedures.

Describe management of pets and livestock.

**Describing Rescue of Vehicle Occupants**

Describe the procedures and hazards associated with rescuing occupants, given a scenario involving a vehicle in dynamic water. (OSFM)
Describe sizing up the factors and hazards relating to a vehicle in moving water:

- Velocity
- Depth
- Width
- Bottom composition
- Speed of car when it enters the water
- Angle of car when it enters the water
- Number and condition of occupants
- Describe vehicle stability in dynamic water

Describe rescue considerations:

- In-water techniques
- Shore-based techniques

Describe victim management.

**Demonstrating Boat Rigging, Handling, Navigation, and Emergency Procedures**

Describe and demonstrate rigging and basic handling of, navigation with, and emergency procedures for nonmotorized rescue boats, given a nonmotorized rescue boat and equipment. (OSFM)

Describe different types of nonmotorized rescue boats, including but not limited to:

- Rafts
- IRBs
- Jon boats

Describe the components of a boat.
_____ Describe boat positions.

_____ Describe navigation options.

_____ Describe emergency procedures:
- Crew and victim retrieval
- Parbuckling
- Boat wraps

_____ Demonstrate how to paddle and maneuver a boat.

_____ Demonstrate how to right a flipped boat.

_____ Demonstrate how to unwrap a pinned boat.

### Using Personal Protective Equipment

Identify, don, doff, and maintain PPE for water rescue operations, given personal protective equipment (PPE) and United States Coast Guard (USCG) standards for personal flotation devices (PFD). (OSFM)

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<tr>
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_____ Describe the types and use of PPE.

_____ Describe USCG standards for PFD.

_____ Describe the different types of PFD.

_____ Describe donning and doffing of PPE.

_____ Demonstrate donning and doffing of PPE.

_____ Describe proper care and maintenance of PPE.

### Operating Basic Rescue Equipment

Identify and operate basic equipment used for water rescue operations, given rescue equipment, a victim, and a dynamic water environment. (OSFM)
River Flood Rescue

Job Performance Requirements

Date Completed ______________________  Evaluator Verification _______________________

_____ Describe the equipment used in water rescue.

_____ Describe the use and limitations of each type of equipment.

_____ Demonstrate the use of each piece of equipment.


_____ Describe safety considerations when using each piece of equipment.

_____ Describe maintenance and storage of each piece of equipment.

Performing Dynamic Water Rescue Skills

Perform rescue skills, given a dynamic water environment, PPE, a victim, and rescue equipment. (OSFM)

Date Completed ______________________  Evaluator Verification _______________________

_____ Demonstrate how to swim in dynamic water.

_____ Describe the techniques used for water rescue incidents.

_____ Select the proper technique for each rescue situation.

_____ Describe and demonstrate rescue swimmer techniques:

   • Basic swim
   • Ferry angle
   • Strainer
   • Eddy hopping
   • Surfing

_____ Describe and demonstrate shallow water crossings.
_____ Describe and demonstrate use of quick release buckle systems (blowout drill).

_____ Describe and demonstrate tethered swimmer operation.

_____ Describe and demonstrate board rescues.

_____ Describe and demonstrate foot and body entrapment rescue techniques.

**Demonstrating Technical Rope Rescue Skills**

Describe and perform technical rope rescue skills, given a dynamic water environment, PPE, a victim, and rescue equipment. (OSFM)

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<th>Date Completed</th>
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_____ Describe the technical rope rescue systems used for dynamic water rescue incidents:

- Line-crossing equipment and techniques

_____ Select the proper system for each rescue situation.

_____ Describe and demonstrate tethered boat techniques.

  - Two-point
  - Other techniques

_____ Describe and demonstrate the use of tension diagonal for victim retrieval.

_____ Describe and demonstrate the use of a rescue boat on highline systems.
Candidate Verification

**Candidate**

*Candidate: ____________________________*

Candidate’s Printed Name

I, the undersigned, am the person applying for course completion. I hereby certify under penalty of perjury under the laws of the State of California, that completion of all experience, position, and job performance requirements made herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documents may be cause for rejection or revocation.

_________________________________________
Candidate’s Signature

_____________________
Date
Review and Approval

Course Completion Certificate Issued

I verify that the candidate has met all requirements for this course completion certificate.

State Fire Training Registered Instructor Printed Name

SFT Number

State Fire Training Registered Instructor Signature

Date

FINAL
Signature Verification

The following individuals have the authority to verify portions of this task book using the signature or initials recorded below.

Name: ___________________________  (print)
Job Title: __________________________ (print)
Organization: ______________________ (print)
Signature: __________________________ (sign)

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Initials: _____ (initial)
River/Flood Rescue Technician
Implementation of New Curriculum

This document is intended to provide information for all State Fire Training (SFT) stakeholders on the new River/Flood Rescue Technician (2018) curriculum. The development of this curriculum was a collaborative effort with the Office of the State Fire Marshal, State Fire Training; the Office of Emergency Services, Fire and Rescue Division; and CAL FIRE, Training Center (Ione) to develop a number of water-based rescue curriculums requested by STEAC stakeholders. The curriculum was developed and formatted into the SFT curriculum development model. Stakeholders are encouraged to study this information carefully and seek clarification from SFT if questions arise.


FULL IMPLEMENTATION .......................................................... Effective July 1, 2019

River/Flood Rescue Technician (2019) Timeline

- Transition Period
- July 1, 2019
- Full Implementation

Cal OES – River/Flood Rescue Technician (2015)
River/Flood Rescue Technician (2019)
INSTRUCTOR REQUIREMENTS ........................................................ Effective July 1, 2019

Current SFT Registered Instructors that are instructors for the OES (Office of Emergency Services) Course titled: River/Flood Rescue Technician (2015) are authorized to teach River/Flood Rescue Technician (2018).

New instructors for River/Flood Rescue Technician (2018) shall meet the SFT requirements for Registered Instructor and shall be required to either take the course or apply for a Pace II review of their instructor qualifications, including appropriate education and practical experience relating to course content.

Additionally, a new instructor of the FSTEP course River/Flood Rescue Technician (2018), the following shall apply:

1. Position and Professional Experience:
   a. Held a permanent position within a Recognized Fire Agency in California for a minimum of three years or;
      Worked in a volunteer position or paid call firefighter with a Recognized Fire Agency in California for a minimum of five years.
   b. Must have specific expertise in Technical Rescue as it relates to the River/Flood environment.

SFT STAFF COORDINATION

These FSTEP courses are new to State Fire Training.

POTENTIAL AGENCY IMPACTS

Fire agencies utilizing the existing CAL OES (Office of Emergency Services) River/Flood Rescue Technician should have little or no impacts making the transition from that course to the new update curriculum format for training or operational implementation.

NOTE: A Special attention should be paid to these new updated FSTEP courses, are NOT included in any of SFT certification tracks at this time.

Accredited Regional Training Programs (ARTP), Accredited Local Academies (ALA), community colleges and all other local delivery venues need to review the curriculum and seek approval from their curriculum committee/program sponsor, as appropriate.