



# Water Tender Operations

## Course Plan

### Course Details

- Certification:** Fire Apparatus Driver/Operator – Water Tender
- CTS Guide:** Fire Apparatus Driver/Operator – Water Tender (August 2015)
- Description:** This course provides information on water tender preventive maintenance and operations. Topics include routine tests, inspections, and servicing functions unique to a water tender; maneuvering and positioning a water tender at a water shuttle fill site; and establishing, maneuvering, and positioning at a water shuttle dumpsite. This course is based on the 2014 edition of *NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications*.
- Designed For:** Career and volunteer fire service personnel who drive and operate a water tender
- Prerequisites:** Hold a valid Class C Firefighter Endorsed driver's license (minimum)  
Successfully completed OSFM Fire Fighter I training  
Fire Apparatus Driver/Operator 1A (2008 or 2015 version)  
Fire Apparatus Driver/Operator 1B (2008 or 2015 version)  
Completed a minimum of four (4) hours driving a water tender  
Completed the activities from Driver/Operator 1A while driving a water tender
- Standard:** Complete all activities and skills  
Complete the summative test with a minimum score of 80%
- Hours:**
- |             |       |
|-------------|-------|
| Lecture:    | 6:30  |
| Activities: | 4:00  |
| Skills:     | 20:30 |
| Testing:    | 1:00  |
- Hours (Total):** 32:00
- Maximum Class Size:** 30

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**Instructor Level:** This course requires one (1) primary instructor and sufficient assistant instructors to meet the skills ratio

**Instructor/Student Ratio:** Lecture: 1:30 Skills: 1:10

**Restrictions:** Sufficient fire apparatus and adequate space to accommodate the students in the class and the required skills

**SFT Designation:** CFSTES

### Required Resources

#### Instructor Resources

To teach this course, instructors need:

- *Fire Apparatus Driver/Operator*, Second Edition, Jones & Bartlett, ISBN: 9781284026917  
*or*  
*Pumping and Aerial Apparatus Driver/Operator Handbook*, Third Edition, IFSTA, ISBN: 9780879395711
- Maintenance and inspection forms
- Manufacturer's specifications and requirements

#### Online Instructor Resources

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

- Water Tender Operations required activities

#### Student Resources

To participate in this course, students need:

- *Fire Apparatus Driver/Operator*, Second Edition, Jones & Bartlett, ISBN: 9781284026917  
*or*  
*Pumping and Aerial Apparatus Driver/Operator Handbook*, Third Edition, IFSTA, ISBN: 9780879395711
- Personal protective clothing

#### Facilities, Equipment, and Personnel

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

- Standard learning environment or facility
- Writing board or paper conference pads
- Markers and erasers
- Computer or tablet with presentation or other viewing software
- Amplification devices
- Projector and screen

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- Sufficient water tenders to accommodate the students in the class
- Pumping apparatus
- Tools and equipment for inspection and testing
- Fill site location
- Dumpsite location
- Fire hose
- Soft and hard suction supply hose
- Portable water tanks
- Low-level strainers

## 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. What is a formative test? What is a summative test?

#### Activities

1. To be determined by the instructor.

### Topic 1-2: Fire Apparatus Driver/Operator – Water Tender Certification Process

#### Terminal Learning Objective

At the end of this topic, a student will be able to identify the courses and requirements for the Fire Apparatus Driver/Operator – Water Tender certification, and be able to describe the certification task book and testing process.

#### Enabling Learning Objectives

1. Identify the courses required for Fire Apparatus Driver/Operator – Water Tender certification

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- Fire Apparatus Driver/Operator 1A: Driver/Operator
  - Fire Apparatus Driver/Operator 1B: Pumping Apparatus Operations
2. Identify any other requirements for Fire Apparatus Driver/Operator – Water Tender certification
    - OSFM certified Fire Fighter I
    - Experience
      - Have a minimum of one (1) year full-time, paid or volunteer/part-time experience in a California fire department as a water tender driver/operator
  3. Describe the certification task book process
    - Complete all prerequisites and course work
    - Submit application and fees to request certification task book
    - Complete all job performance requirements included in the task book
    - Must have identified evaluator verify individual task completion via signature
    - Must have Fire Chief or authorized representative verify task book completion via signature
    - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training
  4. Describe the certification testing process
    - Complete course work
    - Schedule online certification test
    - Schedule skills evaluation test

### Discussion Questions

1. What is the experience requirement for Fire Apparatus Driver/Operator – Water Tender certification?

### Activities

1. To be determined by the instructor.

## Unit 2: Preventive Maintenance

### Topic 2-1: Perform and Document Routine Tests, Inspections, and Servicing Functions Unique to Water Tenders

#### Terminal Learning Objective

At the end of this topic, a student, given a water tender, tools and equipment, maintenance and inspection forms, manufacturer's specifications and requirements, inspection forms, and policies and procedures of the jurisdiction, will be able to perform and document routine tests, inspections, and servicing functions unique to a water tender, in addition to those in NFPA 1002 Paragraph 4.2.1, to verify their operational status.

#### Enabling Learning Objectives

1. Recognize manufacturer specifications and requirements
2. Review policies and procedures of the jurisdiction, including documentation requirements

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3. Describe water tender systems and components
  - Foam system (if applicable)
  - Pumping system (if applicable)
  - Rapid dump system (if applicable)
  - Water tank and other extinguishing agent levels (if applicable)
4. Use tools and equipment
5. Inspect a water tender
6. Recognize system problems and out-of-service criteria
7. Correct any deficiency noted according to policies and procedures and/or manufacturer specifications and requirements

### Discussion Questions

1. What equipment or components are unique to a water tender?
2. What should be inspected on a rapid dump system?
3. What other extinguishing agents may exist on a water tender?

### Activities

1. Divide students into small groups. Have each group perform a water tender inspection using a form provided by the instructor and present their findings.

**CTS Guide Reference:** CTS 1-1

## Unit 3: Operations

### Topic 3-1: Operate a Water Tender

#### Terminal Learning Objective

At the end of this topic, a student, given a water tender, applicable laws and regulations, policies and procedures of the jurisdiction, predetermined route off of a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, will be able to operate a water tender in compliance with all applicable jurisdictional rules and regulations and operational limitations of the apparatus.

#### Enabling Learning Objectives

1. Recognize water tender resource typing
2. Explain the effects on vehicle control of braking reaction time and load factors
3. Explain the effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force
4. Review policies and procedures of the jurisdiction
5. Describe the principles of skid avoidance, night driving, shifting, and gear patterns
6. Discuss negotiating intersections, railroad crossings, soft shoulders, grade, and bridges
7. Describe weight and height limitations for both roads and bridges
8. Describe automotive gauges and their operation
9. Explain operational limits
10. Discuss off-pavement water tender emergencies
11. Operate passenger restraint devices
12. Maintain safe following distances

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13. Maintain control of the water tender while accelerating, decelerating, and turning, given road, weather, and traffic conditions
14. Operate the water tender under adverse environmental or driving surface conditions
15. Use automotive gauges and controls

### Discussion Questions

1. How do you determine if a bridge is safe to cross?
2. What are some ways to estimate slope in the field?
3. When should you inhibit exhaust regeneration?
4. When should you engage your front axle?
5. When do you lock your rear axle?
6. How does the use of the auxiliary brake differ between on- and off-pavement driving?
7. What tactics can you use while encountering uneven road surface to maintain control?
8. What is the safe following distance on a mid-slope road?

### Activities

1. Divide students into small groups. Have each group research accidents involving water tenders. Have each group identify and discuss hazards and mitigation techniques and present their findings to the class.
2. Activity 3-1-1: Operate a Water Tender Off-pavement

**CTS Guide Reference:** CTS 2-1

## Topic 3-2: Maneuver and Position a Water Tender at a Water Shuttle Fill Site

### Terminal Learning Objective

At the end of this topic, a student, given a water tender, fill site location, and one or more supply hose, will be able to maneuver and position a water tender at a water shuttle fill site, without striking any objects or stretching additional hose, and attach supply hose to the intake connections.

### Enabling Learning Objectives

1. Describe local procedures for establishing a water shuttle fill site
2. Discuss the correct positioning of a water tender at a water shuttle fill site
3. Identify locations of the water tank intakes on the water tender
4. Determine a correct position for the water tender
5. Maneuver the water tender into the correct position
6. Avoid obstacles to operations

### Discussion Questions

1. What are some obstacles that might be encountered at a water shuttle fill site?
2. Why does the driver/operator need to complete a walk-around before leaving the fill site?
3. How do you determine reference points when positioning at a fill site and what is the advantage of doing so?

### Activities

1. Present pictures of potential water shuttle fill site locations and have the student discuss the pros and cons of the site.

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2. Activity 3-1-1: Maneuver and Position a Water Tender at a Water Shuttle Fill Site

**CTS Guide Reference:** CTS 2-2

### Topic 3-3: Establish a Water Shuttle Dumpsite

#### Terminal Learning Objective

At the end of this topic, a student, given one or more water tenders, two or more portable water tanks, low-level strainers, water transfer equipment, fire hose, and pumping apparatus, will be able to establish a water shuttle dumpsite by keeping the draft tank full at all times, emptying the dump tank, and transferring the water from one tank to the next.

#### Enabling Learning Objectives

1. Describe local procedures for establishing a water shuttle dumpsite
2. Describe the principles of water transfer between multiple portable water tanks
3. Deploy portable water tanks
4. Connect and operate water transfer equipment
5. Connect a strainer and suction hose to the fire pump

#### Discussion Questions

1. What considerations should be taken when setting up the traffic pattern for a dumpsite?
2. What types of surfaces should be avoided for a dumpsite?
3. What are the consequences of ground saturation?
4. What are the consequences of using muddy/contaminated water?
5. What are the considerations for a long-term dumpsite?

#### Activities

1. Divide students into small groups. Have each group select a location from a map provided by the instructor and diagram a dumpsite. A spokesperson for each group will present their diagram to the class.
2. Activity 3-2-1: Establish a Water Shuttle Dumpsite

**CTS Guide Reference:** CTS 2-4

### Topic 3-4: Maneuver and Position a Water Tender at an Established Water Shuttle Dumpsite

#### Terminal Learning Objective

At the end of this topic, a student, given a water tender, dumpsite, and portable water tank, will be able to maneuver and position a water tender at an established water shuttle dumpsite and discharge all of the water from the water tender into the portable tank without striking any object at the dumpsite.

#### Enabling Learning Objectives

1. Describe local procedures for operating a water tender at a water shuttle dumpsite
2. Identify locations of the water tank discharges on the water tender
3. Discuss the correct positioning of a water tender at a water shuttle dumpsite
4. Determine a correct position for the water tender
5. Maneuver the water tender into the correct position
6. Avoid obstacles to operations

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7. Operate the fire pump or rapid water dump system

### Discussion Questions

1. What are some safety considerations for using a rapid dump system?
2. What are some considerations for setting up for a water dump?

### Activities

1. To be determined by the instructor.
2. Activity 3-3-1: Maneuver and Position a Water Tender at an Established Water Shuttle Dumpsite

**CTS Guide Reference:** CTS 2-3

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### Time Table

Segment	Lecture Time	Activity/Skills Time	Total Unit Time
<b>Unit 1: Introduction</b>			
Topic 1-1: Orientation and Administration			
Lecture	0:30		
To be determined by the instructor			
Topic 1-2: Water Tender Certification Process			
Lecture	0:30		
To be determined by the instructor			
<b>Unit 1 Totals</b>	<b>1:00</b>	<b>0:00</b>	<b>1:00</b>
<b>Unit 2: Preventive Maintenance</b>			
Topic 2-1: Perform and Document Routine Tests, Inspections, and Servicing Functions Unique to Water Tenders			
Lecture	1:00		
Recommended by State Fire Training		1:00	
<b>Unit 2 Totals</b>	<b>1:00</b>	<b>1:00</b>	<b>2:00</b>
<b>Unit 3: Operations</b>			
Topic 3-1: Operate a Water Tender			
Lecture	2:00		
Recommended by State Fire Training		1:00	
Activity 3-1-1: Operate a Water Tender Off-pavement		*	
Topic 3-2: Maneuver and Position a Water Tender at a Water Shuttle Fill Site			
Lecture	1:00		
Recommended by State Fire Training		0:30	
Activity 3-2-1: Maneuver and Position a Water Tender at a Water Shuttle Fill Site		*	
Topic 3-3: Establish a Water Shuttle Dumpsite			
Lecture	1:00		
Recommended by State Fire Training		1:30	
Activity 3-3-1: Establish a Water Shuttle Dumpsite		*	
Topic 3-4: Maneuver and Position a Water tender at a Water Shuttle Dumpsite			
Lecture	0:30		
To be determined by the instructor			

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Segment	Lecture Time	Activity/Skills Time	Total Unit Time
Activity 3-4-1: Maneuver and Position a Water Tender at an Established Water Shuttle Dumpsite		*	
<b>Unit 3 Totals</b>	<b>4:30</b>	<b>3:00</b>	<b>7:30</b>
<b>Lecture, Activity, and Unit Totals:</b>	<b>6:30</b>	<b>4:00</b>	<b>9:30</b>

### Course Totals

Total Lecture Time (LT)	6:30
Total Activity Time (AT)	4:00
Total Skills Practice Time (ST)	*20:30
Total Testing Time (TT)	1:00
<b>Total Course Time</b>	<b>32:00</b>

Note: Skills time will vary depending on the number of students in the program. It is important to remember that the suggested skill hours are for 30 students.