TOPIC: Requirements for Private Vehicles Used As Water Tenders

TIME FRAME: 15 Minutes

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will describe the types, sizes and construction of water tenders.

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- Appropriate visual aids and audio visual equipment

REFERENCES:

- IFSTA, Water Supplies for Fire Protection, 4th Edition, Chapter 7
- IFSTA, Fire Department Pumping Apparatus, 7th Edition, Chapter 4

PREPARATION: Often the only means of supplying water to rural fires in California is by means of water tenders. In order to establish an effective water shuttling operation, the right equipment must be ordered. Water tenders must be capable of performing the task at hand.

PRESENTATION	APPLICATION

I. WATER TENDER TYPES (I.C.S.)

A. Type I

1. Capacity - minimum 1000 gallons
2. Pump - minimum 300 G.P.M.

B. Type II

1. Capacity - minimum 1000 gallons
2. Pump - none needed

II. CONSTRUCTION CHARACTERISTICS

A. Chassis

1. Sufficient to carry intended load

B. Tanks

1. Normal capacity 1000-6000 gallons
2. Baffles
   a. To prevent water surging
   b. Should not unnecessarily slow loading and off loading operations
3. Vents
   a. To prevent pressure build up and possible tank rupture when filling or relay pumping.
   b. To prevent negative pressure and possible tank collapse when off loading.
4. Water level indicator
   a. Visual sight tube

PRESENTATION	APPLICATION

b. Electronic meter

5. Water inlets

a. Top fill

(1) Permanently mounted intake

(a) Generally fills faster

(b) Less personnel needed

(c) Safer

(2) Handheld fill

(a) Slower fill rate

(b) Person needed to control fill hose

(c) Less safe

(d) More tank turbulence

b. Bottom fills

(1) Fast fill rate

(a) Back pressure increases as tank fills and slows filling operation

(b) Less personnel needed

(c) Safest

(d) Reduced turbulence

6. Discharges

a. Pump discharges

(1) Relatively fast due to large size

PRESENTATION	APPLICATION

(2) Variable pressure and volume

(3) Versatile

(a) Offload to distant site

(b) Offload to higher elevation

(4) Should be equipped with standard thread types and discharge sizes

b. Dump valve or gravity flow

(1) Offload rate depends on size of dump valve

(a) 2 1/2" valve - 187 G.P.M.

(b) 4" valve - 478 G.P.M.

(c) 6" valve - 1074 G.P.M.

(d) 8" valve - 1910 G.P.M.

(e) 10" valve - 2970 G.P.M.

(2) Stream shaper may be required to hit portable tank

(3) Limited operational capacity

(a) Can't deliver uphill

(b) Can't deliver at a distant site

III. FACTORS TO CONSIDER WHEN ORDERING

A. Water Flows Required

B. Turn Around Time from Water Supply Point to Offload Site

C. Terrain Over Which Water Tender Must Operate

PRESENTATION	APPLICATION

1. Hillside
2. Canopy
3. Road size/condition
4. Bridge restrictions

D. Proper Plumbing and/or Adapters

E. Necessity for Pump

1. How large a pump

IV. WATER TENDER ALTERNATIVES

A. Street Washers/Flushers

B. Milk Trucks

C. Construction Equipment

D. Portable Tanks

E. Do Not Use Vehicles Which Haul Hazardous Materials or Contaminated Liquids Which Might Adversely Affect Pumps.

SUMMARY:

Vehicles used as water tenders may be of any size or configuration. Depending on needs and local conditions appropriate vehicles can normally be ordered.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).