

Santa Barbara City Fire Department - Standard Operating Procedures Training Operations		Code: T-II-18
Foam Operations		
Chpt: II Hose Lays	Revised: 3/21/13	Pages: 3

I. PROCEDURE

A. All engines have the ability to deliver foam on flammable liquid fires. The foam eductors work on a venturi principle and must have very close to the proper operating pressure to work effectively (200 psi). TFT nozzles must be opened full throttle to accomplish the 95 gpm needed past the eductor. Adjustable gallonage nozzles need to be set at 95 gpm.

B. Foam concentrate is added at the eductor to make a foam solution in the hose. At the nozzle air is added to the solution to produce finished foam.

C. The eductor must be set for the proper foam concentrate being used. The concentrate may be used in a 6% or a 3% solution. At 6% it is an ATC (Alcohol type concentrate) for use on polar type (water miscible) flammable liquids. At 3% it is used on "ordinary" flammable liquids (nonpolar or nonwater miscible), such as petroleum products. This same concentrate may also be diluted at 1% to be used as a wetting agent. Check the setting against the percentage being used before placing into position. Each 5 gallon can will last approximately ONE MINUTE on 6% concentrate and approximately TWO MINUTES on 3% concentrate.

D. On full throttle, a TFT adjusted to a 10-15 degree pattern will produce 5-8 gallons of finished foam for every gallon of AFFF foam solution used. For better aeration, the foam stream should be bounced off of a wall or the pavement. The NFPA Handbook 16th Edition recommends that the more gently the foam is applied, the more rapid the extinguishment and the lower the total amount of concentrate required.

E. The NFPA 16th edition also states that "successful use of foam is dependent upon the rate at which it is applied." The minimum recommended application rate is 1 gpm solution per 10 square feet. Increasing this rate will generally reduce knockdown time; however, if application rates are less than 1 gpm solution per 10 square feet, extinguishment time will be prolonged or may not be accomplished at all. "If application rates are so low that the rate of foam loss by heat or fuel attack equals or exceeds the rate of foam application, the fire will not be controlled or extinguished." (NFPA 16th Ed.)

F. How much foam is needed to control an incident? Using the 1 gpm/ 10 square feet formula with an example, it can be easily calculated.

G. A flammable liquid spill fire covers a 100' x 30' area, 3,000 square feet.

1. 3,000 square feet divided by 10 (1 gpm per 10 square feet).
2. 300 gpm needed for knockdown x20 minutes of maintenance.

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3. 6,000 gallons of solution needed for the incident x 0.03 (multiplied by 3% or 6%).
4. 180 gallons of concentrate needed, (divided by 5 equals 36 cans of concentrate), to control, extinguish and maintain this incident.

H. The maintenance of a good foam blanket is imperative. Foam needs to be reapplied every 5-8 minutes. (Of course you need not flow 300 gpm for 20 minutes straight, but this figure gives a secure advantage.) Finished foam has a quarter life of drain time, which is relative to its expansion. You cannot count on the finished foam being effective after 5-8 minutes, even if it "looks good."

I. The standard preconnect hose lays are used with the following adjustments.

II. 150' AND 275' PRECONNECT WITH FOAM EDUCTOR

A. CAPTAIN: Order (Take-off, 150' or 275' preconnect with foam eductor)

1. PRIOR TO PULLING PRECONNECT
2. Give Order to Engineer and Firefighter
3. Disconnect preconnect from outlet
4. Receive Eductor from Firefighter
5. Connect Eductor to outlet
6. Connect Preconnect to Eductor
7. Lay Preconnect from Eductor
8. Adjust nozzle to 95 GPM setting if not using a task force tip
9. Give order to charge the preconnect line

B. ENGINEER:

1. Set controls for pumping from tank to preconnect
2. Set pump pressure required to maintain 200 PSI at the eductor
3. Go to rear of apparatus and check eductor for proper setting for percentage foam being used.
4. Charge preconnect on Order from Captain
5. Check discharge pressure when nozzle is flowing

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6. Obtain additional cans of foam from compartment
7. Change pick-up tube to new cans promptly
8. NOTE: 6% lasts only ONE MINUTE per can and 3% TWO MINUTES per can

C. FIREFIGHTER:

1. Receive order from Captain
2. Obtain Eductor from compartment
3. Give Eductor to Captain
4. Obtain can of foam compartment
5. Place foam on tailboard
6. Open can and place pickup tube in can
7. Report to Captain

III. EDUCTOR SPECIFICATIONS

- A. Manufacturer: Western Fire Equipment
- B. #1 Model No. #2 14467
- C. 1 Inlet/Outlet 1 1/2" 1 1/2"
- D. 1 Design Flow Preset 95 GPM
- E. 1 Recommended Pressure at Eductor 200 PSI
- F. 1% Selector Dial for Concentrations 1%, 2%, 3%, 6%
- G. 1 Clear Siphon Pickup Tube 30" Long