

**Southwest United Fire Districts**  
**Division of Training**



**In-Service Training Program**

**Apparatus Operator  
Refresher Training Program**



## Southwest United Fire Districts Apparatus Operator Recertification Program **Single Engine / Single Line Operation Refresher Evolution #1**

Objective: Charging single handlines at correct pressure using booster tank water to correct GPM's at correct discharge pressure without noticeable changes in pressure (+ / - 10psi) and change over to supplied water source (hydrant) without noticeable changes in pressure ( + / - 10psi) using relief valve and feathering of valves as indicated.

Purpose: To gain experience in the techniques of gating and feathering of valves in order to achieve proper engine pressure for all lines.

Description of Evolution:

1. Place engine on hydrant supply using soft suction.
2. Lay out specified hoselines and correct nozzles from engine.
3. Pump operator will charge line using tank water
4. Lines should flow correct pressure within 10 psi of calculated pressure.
5. Relief valve is set at correct pressure.
6. Supplied source is introduced to system.
7. Tank is topped off and tank valve closed
8. Supply to line to correct pressure and flow using only pressurized intake source.

Standard: **Pump operator shall charge lines slowly without creating water hammer to within 10 psi of calculated pressure. No calculation of hoseline shall take longer than 1 minute. When all three lines are properly charged, relief valve will be set to maintain pressure.**

### **Sample Hose layout**

200' of 1 3/4" with a 7/8" smoothbore nozzle

Hose layout to be determined by instructor





## Southwest United Fire Districts Apparatus Operator Recertification Program Single Engine / Multiple Line Operations Refresher Evolution #2

Objective: Charging multiple handlines of different lengths, diameters, and GPM's at correct discharge pressure without noticeable changes in pressure (+ / - 10psi).

Purpose: To gain experience in the techniques of gating and feathering of valves in order to achieve proper engine pressure for all lines.

Description of Evolution:

1. Place engine on hydrant supply using soft suction.
2. Lay out specified hoselines and correct nozzles from engine.
3. Pump operator will charge lines from smallest to largest.
4. Lines should flow correct pressure without loss of pressure as additional lines are charged to within 10 psi of calculated pressure.
5. Relief valve is set at correct pressure.

Standard: **Pump operator shall charge lines slowly without creating water hammer to within 10 psi of calculated pressure. No calculation of hoseline shall take longer than 1 minute. When all three lines are properly charged, relief valve will be set to maintain pressure.**

Notes: Instructor should vary length of hand lines for each pump operator completing evolution so that no two operators use same calculations. (add or remove lengths of line or change nozzle types)

\*Complete the 2 1/2" hoseline portion with both smooth and combo nozzles.

200' of 1 3/4" with a 7/8" smoothbore nozzle

100' of 1 1/2" with a combination nozzle

300' of 2 1/2" hoseline with 1 1/8" smooth bore nozzle



← **Sample Hose Layouts**



## Southwest United Fire Districts Apparatus Operator Recertification Program **Relay Operations Refresher Evolution #3**

Objective: Flow large volumes of water between two engines simulating large lead-out operations.

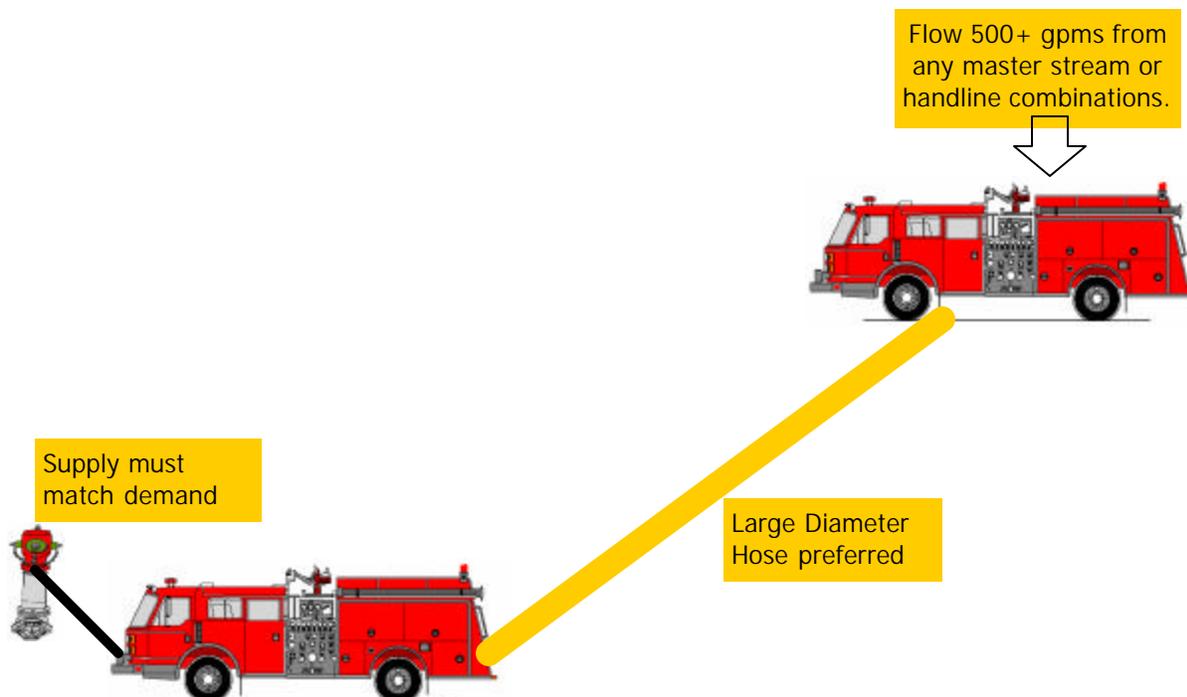
Purpose: To gain experience in relay pumping operations using large diameter hose evolutions.

Description of Evolution:

1. Place engine #1 at a simulate fire scene and prepare to flow large gpm master streams.
2. Second engine will drop a supply line consistent with department sog and lay line (either forward or reverse; reverse preferred) to water supply.
3. Water supply will be established after hydrant is flushed, supply being sent via dropped line at correct pressure and gpm to engine #1.
4. Evolution will be completed when instructor/officer is satisfied with outcome.
  - A. Evolution is not timed, performance is judged by correct gpm and discharge/intake pressures relevant to flow at engine #1.

Standard: Pump operators will utilize correct friction loss and flow requirements for scenario presented. Flow should be measured using pitot gauges or other calculating device.

Notes: At various times during flow, instructor/officer should vary the flow requirements at engine #1. Increase and decreases of at least 100gpm should be utilized. Make sure proper radio communications between engines takes place.





## Southwest United Fire Districts Apparatus Operator Recertification Program Drafting Operations Refresher Evolution #4

Objective: Supply a fire attack operation utilizing portable tanks and tanker shuttle system.

Purpose: To gain experience in securing water supply and drafting water from a static source.

Description of Evolution:

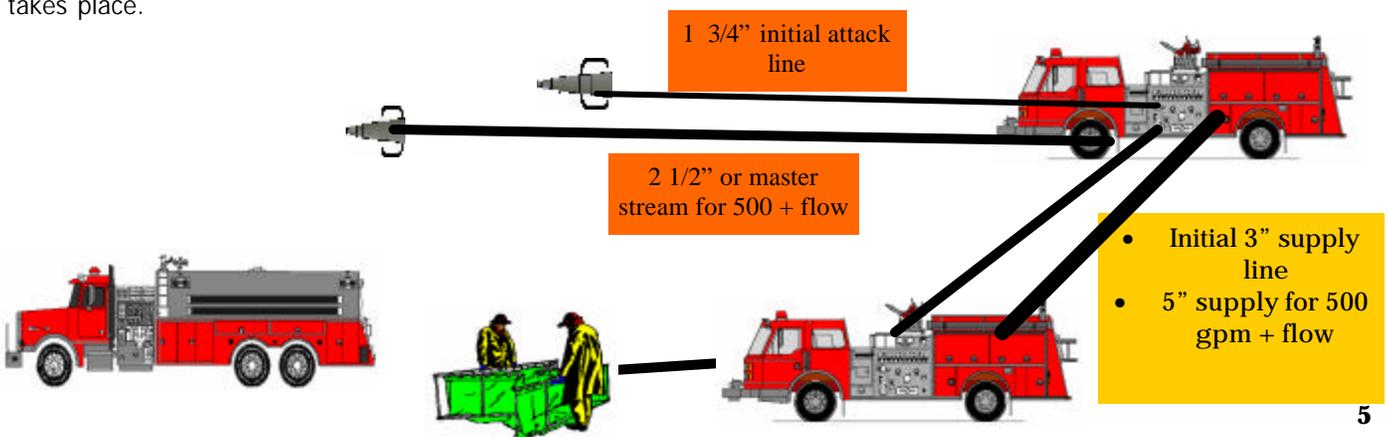
1. Place engine #1 at a simulated fire scene and prepare to flow attack handlines at 100 gpm within 5 minutes of arrival.
2. Position engine #2 at a drafting site suitable for tanker operation and portable tank useage. Supply attack engine through 3" line with tank water within 3 minutes of arrival.
3. Position drafting tank and drafting equipment into proper places and dump water into tank
  - Secure ends of equalizer sleeves with clamps (clamp as close to tank as possible)
  - Point equalizer sleeves in uphill position from primary tank
  - Secondary tanks should be positioned in an uphill fashion to allow gravity feed
4. Secure draft using positive displacement pump (primer) or "hot draft" technique
5. Fill booster tank and supply attack engine.
6. Shut down tank to pump and supply water from static source, booster tank to remain in reserve.
7. Increase flow to 750 gpm when 2 or more tanks are full (use 1dh or 2nd 3" line to match relay flow)

Tanker Operation:

1. Position apparatus according to water supply officer or 2nd engine operator for quick dump operation.
2. Place portable tank on tarp, assist in set-up and connection of suction and low profile strainer.
3. Dump water from largest volume discharge available if possible.
4. Operate apparatus safely to refill site and prepare hydrant
  - Open and flush hydrant
  - Set up a large diameter refill line and auxiliary 3" lines in opposite directions from each other
  - Fill apparatus and return to dump site
5. Evolution will be completed when instructor/officer is satisfied with outcome.
  - A. Evolution is not timed, performance is judged by correct gpm and discharge/intake pressures relevant to flow at engine #1.
  - B. Preferred GPM flows are 100 gpm within 5 minutes / 500 gpm within 10 min / 750 or greater after 15 minutes or secure tanker set-up

Standard: Pump operators will utilize correct friction loss and flow requirements for scenario presented. Flow should be measured using pitot gauges or other calculating device.

Notes: At various times during flow, instructor/officer should vary the flow requirements at engine #1. Increase and decreases of at least 100 gpm should be utilized. Make sure proper radio communications between engines takes place.





## Southwest United Fire Districts Apparatus Operator Recertification Program Standpipe / Sprinkler Operations Refresher Evolution #5

**Objective:** To supply water to a sprinkler / standpipe Siamese connection using one engine and typical supply line hoses.

**Purpose:** To gain experience in securing a water supply, supplying proper pressure to a Siamese connection, calculating friction loss factors and supply of proper gpm to elevated floors.

### Description of Evolution:

1. Place engine at simulated fire scene and prepare to flow supply line to Siamese inlet.
2. Secure a positive water supply to engine.
3. Place appropriate lengths of hose to Siamese connection from the engine. A single line may be permitted for initial operation.
4. Determine internal characteristics of structure, i.e. sprinkler only, standpipe only or combination system.
5. Determine where hoselines will be flowing if applicable and calculate correct discharge pressure from engine.
6. Charge supply line at correct pressure to Siamese, monitor effectiveness of flow via interior operations sectors.

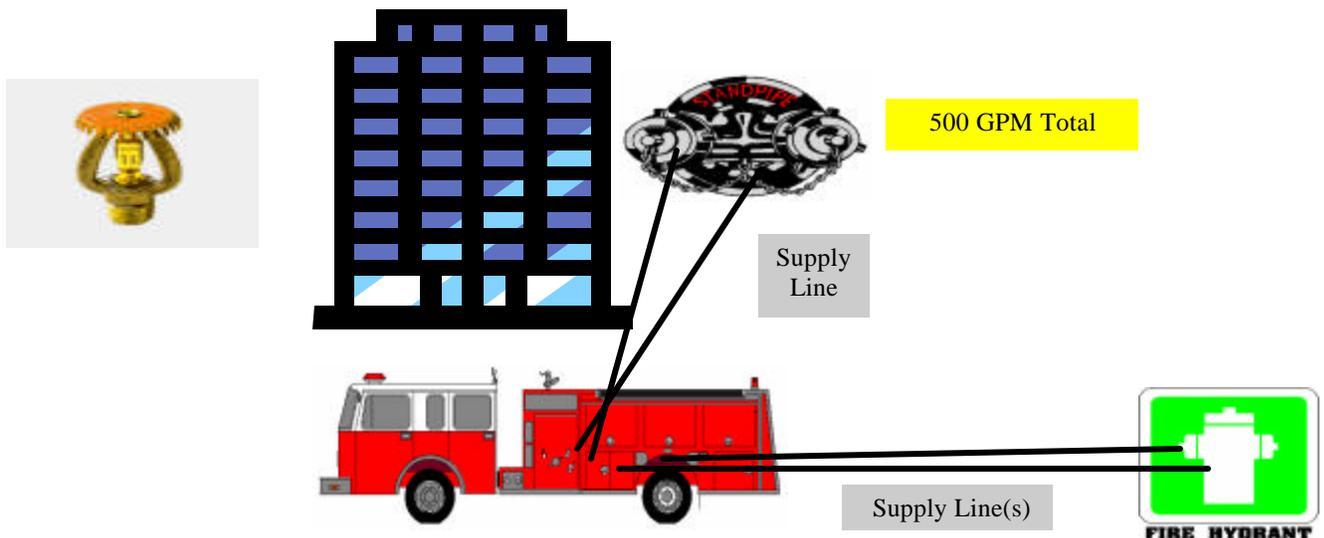
### Evaluation Options

1. Identify the components of the high rise pack. (Length, hose size, nozzle type, accessory equipment, and identify each components friction loss factor.)
2. Discuss or demonstrate the trouble shooting operations if interior / exterior riser components fail.
3. Discuss the friction loss factors in the entire system.

**Standard:** Pump operator will utilize correct friction loss and flow requirements for scenario presented. Flow should be measured using pitot gauges or other calculating devices. Evolution should be completed within 4 minutes.

**Notes:** Optimal flow rates of 500 gpm would be preferred in a real fireground application but could be difficult to reproduce in training scenarios.

**References:** SUFD NFPA 1410 Evolutions Module 12  
Department SOG for High Rise or Sprinkler/Standpipe Operations



Using a simulated sprinkler system, one engine, one supply line for hydrant hook-up and supply line(s) for siamese connection, company shall establish a water supply to standpipe/sprinkler connection within 4 minutes.



## Southwest United Fire Districts Apparatus Operator Recertification Program **Foam Operations Refresher Evolution #6**

Objective: To perform the proper sequence of steps to safely place an initial foam line in service, using units and staffing of the average number of personnel that ordinarily respond. Water supply shall be established with a 5" suction hose {minimum} using a hydrant water source.

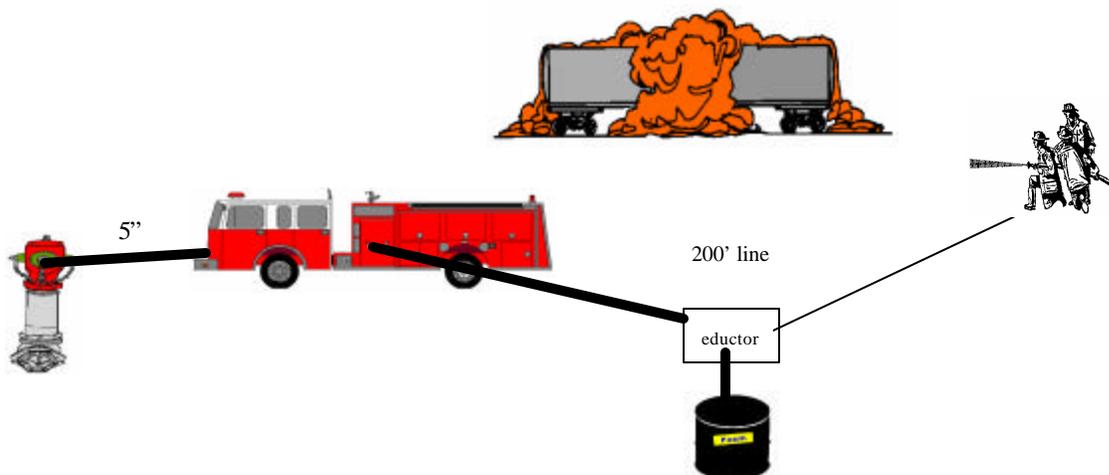
Purpose: To demonstrate the ability to create a single line foam stream using an in-line eductor and foam nozzle (or attachment).

### Description of Evolution:

1. Deploy {minimum} of 200' of 1 3/4" hose for foam line.
2. Engine shall be on water supply (hydrant) within 4 minutes of flowing water.
3. Attach in-line eductor no further than 100' from eductor position.
4. Secure foam concentrate (training foam acceptable) and open container.
5. Flow water through hoseline.
6. Place pick-up tube into container.
7. Change selector to foam, select appropriate % for evolution (3%)
8. Apply foam blanket according to IFSTA essentials or dept. SOG.
9. Shut down all lines, clean foam equipment according to manufacturer recommendations.

Standard: Pump discharge pressure should be 200 psi at eductor. Evolution should be completed in 4 minutes or less.

Notes: Check dept. SOG and manufacturer recommendations on pump discharge pressures prior to completing this evolution. **Clean all equipment thoroughly.**





## Southwest United Fire Districts

### Apparatus Operator Recertification Program

# Road Test

## Refresher Evolution #7

**Objective:** To provide for annual road test evaluation of a driver operators ability to operate units assigned in a non-emergency capacity over a given road course providing specific evaluation criteria within road course.

**Purpose:** To ensure basic skill level maintenance levels are established and maintained to improve operator and passenger safety during vehicle travel.

Description of Evolution:

1. Demonstrate pre-trip inspection procedures for apparatus.
  - Daily / weekly / monthly check procedures
  - Documentation of check-out procedures
  - Safety related behaviors prior to operation
2. When instructed by evaluator (or designee) operator will operate vehicle over assigned road course.
3. Complete road course as instructed and return apparatus to service.

**Standard:** Apparatus operator will be evaluated according to JPR schedule on rating of 1 to 5 points with 5 being the highest level of performance. A minimum score of 3 will be required on each apparatus assigned to operate. Scores of 1 or 2 will require additional training and re-evaluation.

**Notes:** Department will assign apparatus required for road test according to "like-apparatus" principle. If vehicle are significantly different in specification, operation, age or other factor, then each vehicle must be road tested. If vehicles are significantly alike, 1 road test per type of apparatus may be assigned.

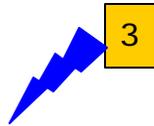
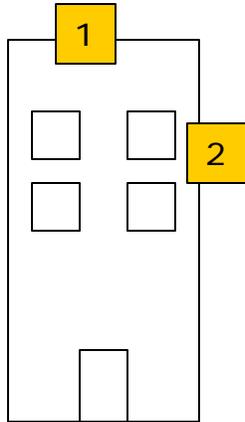
Unit #		
	Date	Rating
Vehicle Startup + Prestart		
Familiarity w/controls & gauges		
Smooth & efficient acceleration		
Correct use of clutch & gears		
Smooth, efficient braking		
Down shifting technique*		
Proper use of auxiliary braking devices*		
Correct cornering technique		
Ability to back vehicle		
Frequent use of mirrors		
Frequent check of gauges		
Adheres to safety procedures		
Responds appropriately to evaluators commands		
Reacts appropriately to changes in conditions		
Pump operations evaluation completed		
General ability to operate and knowledge of unit		
Evaluators Initials / Total Points		

Performance Evaluation Key
<b>1</b> Unacceptable Additional Training Required
<b>2</b> Performance meets JPR's but inconsistently <i>Training recommended</i> Complete PIA
<b>3</b> Performance meets JPR's
<b>4</b> Performance meets and <u>occasionally exceeds</u> JPR's
<b>5</b> Performance <u>consistently exceeds</u> JPR's

**Sample Evaluation Key and Criteria**



## Southwest United Fire Districts Apparatus Operator Recertification Program **Aerial Ladder Operations Refresher Evolution #8**



### **Evolutions**

1. Set-up for Rescue
2. Set-up for Roof Access
3. Set-up for Master Streams

Objective: Operate aerial ladder device in a variety of emergency operations situations

Purpose: To gain experience in operations using aerial devices.

Description of Evolution:

1. Apparatus will be properly positioned for placement to assigned evolution objective; master stream, window operations, roof access.
2. Operator will set all jacks according to SOG's.
3. Operator will set-up aerial device according to SOG's.
4. Operator will raise, rotate and extend ladder toward objective in as few motions as possible.
5. Ladder will be positioned for work according to objective
6. Apparatus will be placed back into service.
7. Evolution will be completed when instructor/officer is satisfied with outcome.
  - A. Performance is judged by correct apparatus placement, set-up of aerial ladder, use of device and overall safety of the evolution performed.

Standard:

1. Check proper chocking of apparatus
2. Check for safe elevation for set-up
3. Sets jacks and pads correctly
4. Proper switchover of hydraulic system
5. Checks for overhead obstructions before moving ladder
6. Properly unbeds ladder from nested position
7. Raise, rotate and extend ladder to objective\*  
\*Less than 5 operations to objective preferred

Notes: At various times during evolution, instructor/officer should add additional operational objectives to the evolution to complete all three tasks. Each task is measured individually. **All manufacturer recommendations for operations must be adhered to during all phases of the operation.**