

	<h1><b>COMMERCE FIRE DEPARTMENT</b></h1>
	<h2>Standard Operating Guidelines</h2>
	<b>Subject:</b> Pumping Operations
	<b>Reference Number:</b> 2.05
	<b>Effective Date:</b> 1/9/2014 <b>Last Date Revised:</b> 9/1/2015
<b>Approved By:</b> Chief Kevin Dean	

**Purpose:** The purpose of this standard is to provide guidance and safety for the various pumping operations that may be implemented at incident scenes in order to supply extinguishing agent to incident scene operations. Furthermore, to increase firefighter safety and further decrease property damage from fire and fire suppression operations. The Incident Commander or Commanding Officer shall to the best of his ability determine the most effective use during fire suppression efforts.

### **Terminology:**

1. Drafting - The process of delivering water from a static source such as a pond, lake, basin, pool, or portable tank to the fireground via water supply hose lines.

2. Relay Pumping -The process of delivering water to the fireground when two (2) or more pumpers are placed within the supply hose lay with the discharge of one (1) pumper supplying the next in line.

3. Shuttle Pumping - The process of delivering water to the fireground by use of another pumper (other than the attack pumper) or tanker that must physically transport water from a separate source to the fireground. The “shuttled” water is then pumped into a water supply hose line (minimum 3”) connected to a gated suction valve feeding directly into the attack pumper.

#### 4 Tandem Pumping:

a. Dual Pumping: The process of delivering water to the fireground by placing a second pumper at the hydrant and making connections to both pumpers steamer - steamer.

b. Short Relay: The process of delivering water to the fireground by placing a second pumper a short distance from the first pumper in relay and taking advantage of centrifugal forces that will allow for the assist in pressure from the first to the second pumper.

5. Class A Foam – Is a synthetic detergent that affects the physical properties of water, thereby enhancing its ability to extinguish fires. Foam solution is created when 0.1% or greater foam concentrate is added to water. The concentrate acts by reducing surface tension of water and enabling it to penetrate materials more effectively.

6. Compressed Air Foam System (CAFS) - Is a balanced volume of compressed air into the foam solution while it is still within the plumbing of the apparatus, the foam solution then goes through the hose line which provides the mechanical agitation or scrubbing, thus creating what is referred to as a “high-energy” hose stream. The bubbles produced enhance the

firefighter's capabilities of water by increasing the surface area of water, thereby, increasing the steam conversion and allowing for greater absorption of heat and carbonized particles.

7. Wet foam - Created by decreasing the amount of air introduced into the foam solution will yield wet, sudsy foam with a quicker drain time. Wet foam is high in water content and will provide greater protection against thermal insult. This shall be used during any interior firefighting operations.

8. Dry Foam - Created by increasing the amount of air introduced into the foam solution will yield dry "shaving cream" foam with a slower drain time. Dry foam is desirable for pre-treating or protecting exposures. Dry foam will readily cling to vertical surfaces, remain in place longer, and act as an insulation blanket against thermal exposure. Dry foam will not provide adequate thermal protection to crews who are attempting to fight structure fires from offensive, interior positions.

### **Probable Unit Assignments:**

The following probable unit assignments are provided for general guideline, an Incident Commander shall retain the discretion to re-assign units to different tasks as he/ she considers appropriate for the incident. In the absence of a directive from an Incident Commander, the Commanding Officer aboard incoming pumpers shall follow these unit assignment guidelines.

1. First arriving fire unit shall position for an offensive attack.
2. Second arriving unit shall prepare for water supply from a source ( static or pressure ) and make preparations to deliver water to the fireground ( attack pumper, F.D. connection, other as directed ).
3. Third arriving fire unit shall prepare for rescue, ventilation, or assist with offensive operations as directed.

### **Operational Objectives:**

Below are listed objectives that may be met by pumping apparatus of this department. (These objectives are not listed in a priority manner.)

1. Pumping From Draft
2. Dual Pumping
3. Short Relay Pumping
4. Relay Pumping
5. Shuttle Pumping
  - a. During pumping operations, the apparatus operator (s) shall remain with the pumper (s) to monitor all gauges with the exception of life safety issues that command the operator's immediate attention. Use of mobile radios, portable radios, and monitoring pagers should be made by the apparatus operator (s) to keep in contact with the fireground.

## **Standard Hose Loads:**

*NFPA 1901, Standard for Fire Apparatus*, requires pumpers to carry no less than 15 feet of (soft) suction (> 4.5" I.D. by department standards) or 20 feet of large intake hose (hard suction), 1200 feet of 2.5" or larger supply hose, and 400 feet of 1.5", 1.75", or 2.0" pre-connected hose line for attack hose. All apparatus of this department shall be loaded with the following hose loads in an effort to standardize units:

1. Supply Hose: All pumpers will be loaded with 1000 feet of 5-inch hose and 800 feet of 3-inch hose. The supply hose will be loaded onto the hose bed with the female or generic coupling coming off the unit first in preparation for a forward hose lay. All supply hose beds will be loaded in a flat load style.

2. Pre-connected Hose: Pre-connected hose that is loaded in the cross lay sections of the apparatus shall be a minimum of 200 feet of 1.75-inch hose, per cross lay. The cross lay sections shall be loaded in the "Triple Layer" style hose load. Apparatus that are designed with a pre-connect mounted in the front bumper shall be loaded with a minimum of 100 feet of 1.75 inch diameter hose. A pre-connected 2.5-inch hose shall be flat loaded on each unit's hose bed. This pre-connected section shall be 200 feet in length and offer a gated smooth bore nozzle at the discharge end.

a. All pre-connected hose length that offer a "fixed" gpm nozzle shall be pre-set at a 95 gpm flow rate and a 30-degree water discharge pattern. "Variable" gpm nozzles shall be pre-set with the same 30-degree water discharge pattern.

3. Each pumping apparatus shall carry the following additional hose:

a. Two (2) fifty foot sections of 1.75-inch hose.

b. One (1) "high rise pack" that is made up of 100 feet of 1.75-inch hose and nozzle.

c. One (1) 25-foot section of 3-inch hose, also called a "squirrel tail".

d. One (1) 25-30 foot section of 5-inch hose, also called a "squirrel tail".

e. Two (2) 10 foot sections of 3-inch hose (Blue)

## **Conclusion:**

Water supply is as important as any portion of fire suppression operations. As always, early consideration must be given as to how water supply is delivered to the fireground. Whenever possible, a "Water Supply Officer" shall be designated by the Incident Commander and be given the responsibility for the safe and efficient operation of water supply.