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Oconee County Emergency Services
Westminster, South Carolina

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
March 11, 2018
Summary Report

The Purpose

- The purpose of the seminar and drill was to review the basics of rural water supply operations and to practice water supply operations in a non-hydranted setting.
- The drill also allowed mutual aid companies to work together in a real-life training situation.



The Seminar



- The 2-day seminar started on Saturday with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Westminster Fire Department.
- Once the classroom part was done, the seminar continued with several hours of practical work on fill-site and dump site operations.
- The program concluded on Sunday with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from the Oconee County region.

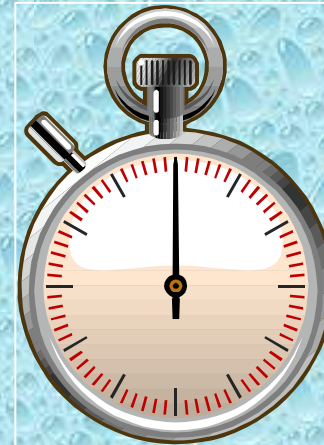
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on March 11th at the Hamilton Career Center in Seneca, SC.
- The drill attempted to replicate the 2-hour Water Supply Delivery Test used by ISO in their evaluation of fire department water supply capabilities.
- While everyone in the fire service may not agree on ISO's evaluation of fire department capabilities, the 2-hour test is still a reasonable standard by which fire departments can compare their water supply operations.



The ISO Test

- The ISO 2-hour Water Supply Delivery Test has three critical time segments:
 - 0:00 to 5:00 minutes
 - 5:01 to 15:00 minutes
 - 15:01 to 120:00 minutes



ISO Test *0:00 to 5:00 Minutes*

- A drill location is selected and the units due to respond on the first-alarm assignment are dispatched.
- Time starts when the first engine arrives on the scene and comes to a complete stop.
- There is no requirement to flow water during the first 5 minutes, but the crew must be prepared to flow water once the 5-minute mark is reached.



ISO Test *5:01 to 15:00 minutes*



- At the 5-minute mark, a flow of at least 250 gpm must be started - and it must be sustained.
- During the next 10-minutes, crews can work to further develop their water supply and increase their flow, however...
- At the 15-minute mark (5+10), whatever amount of water is flowing at that time must be maintained for the remainder of the 2-hour test.

ISO Test *15:01 to 120:00 minutes*

- Once the 15-minute mark has been reached, the remainder of the 2-hour test is really just about **sustaining** the flow.
- The ISO test includes the simulation of automatic mutual aid response and allows additional water supply units to arrive and assist in the delivery process as would happen on a real incident.
- The real advantage of the ISO test is that it gives a fire department the chance to see where improvements can be made in their water supply delivery process.



It is one thing to say that your fire department can deliver 500 gpm for two hours – it is another thing to prove it in a real-life drill scenario!

Water Supply Drill Participants



- *The participants for the drill were from several different fire departments and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in Oconee County.*

Drill Participants

- Pickett-Post Tanker 14
 - 250 gpm pump
w/1,800 gal tank
- Westminster Engine 63
 - 1,500 gpm pump
w/2,500 gal tank



Drill Participants

- Cleveland Engine 10
 - 1,250 gpm pump
w/1,000 gal tank
- Townville Tanker 17
 - 1,000 gpm pump
w/2,500 gal tank



Drill Participants

- Crossroads Tanker 13
 - 250 gpm pump
w/1,800 gal tank
- Oakway Tanker 1
 - 250 gpm pump
w/1,800 gal tank



Drill Participants

- Friendship Tanker 12
 - 250 gpm pump
w/1,800 gal tank
- Friendship Engine 12-1
 - 1,250gpm pump
w/1,000 gal tank



Drill Participants

- Keowee Ebenezer Tanker 11
 - 250 gpm pump
w/1,800 gal tank



The Drill Begins



Cleveland Engine 10 and Friendship Engine 12-1 arrived on the scene. Engine 10 laid out 300-feet of 5-inch supply line from the main parking area and Engine 12-1 set-up to supply Engine 10 using a dump tank operation. The stopwatch was started when the driver of Engine 10 applied the air brakes.

Attack Engine Set-up



The crew stretched 100-feet of 5-inch hose to a Hose Monster flow diffuser that served as the means by which all water flow would be measured. The diffuser simulated the use of a portable master stream device.

Water Flow Started



Water flow was started at the 5-minute mark at a rate of 250 gpm using the attack engine's tank water (1,000 gal). Meanwhile, the supply engine and first arriving tanker crews worked to get the dump site set-up and operational.

Dump Site Operations



Engine 12-1 did not have a high-flow discharge, so the crew used two, 2-1/2-inch hose lines to feed the 5-inch hose line that was supplying Engine 10. No LDH siamese was available, so a 2-1/2"x2-1/2"x5" wye with adaptors was used.

Dump Site Operations



At the 11:20-minute, dump tank operations were started. Two dump tanks were deployed but only one was brought on-line. As more tankers arrived, the second dump tank was brought on-line.

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Dump Site Operations



The dump site crew continued to expand operations by setting up a third dump tank. At the 24-minute mark flow was moved to 600 gpm.

Dump Site Operations



Water transfer operations became very important in order to help sustain the water supply to the attack engine. Two jet siphons were used to move water between dump tanks.

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Dump Site Operations



A TFT low-level strainer with jet siphon was used as one of the water transfer devices.

Dump Site Operations



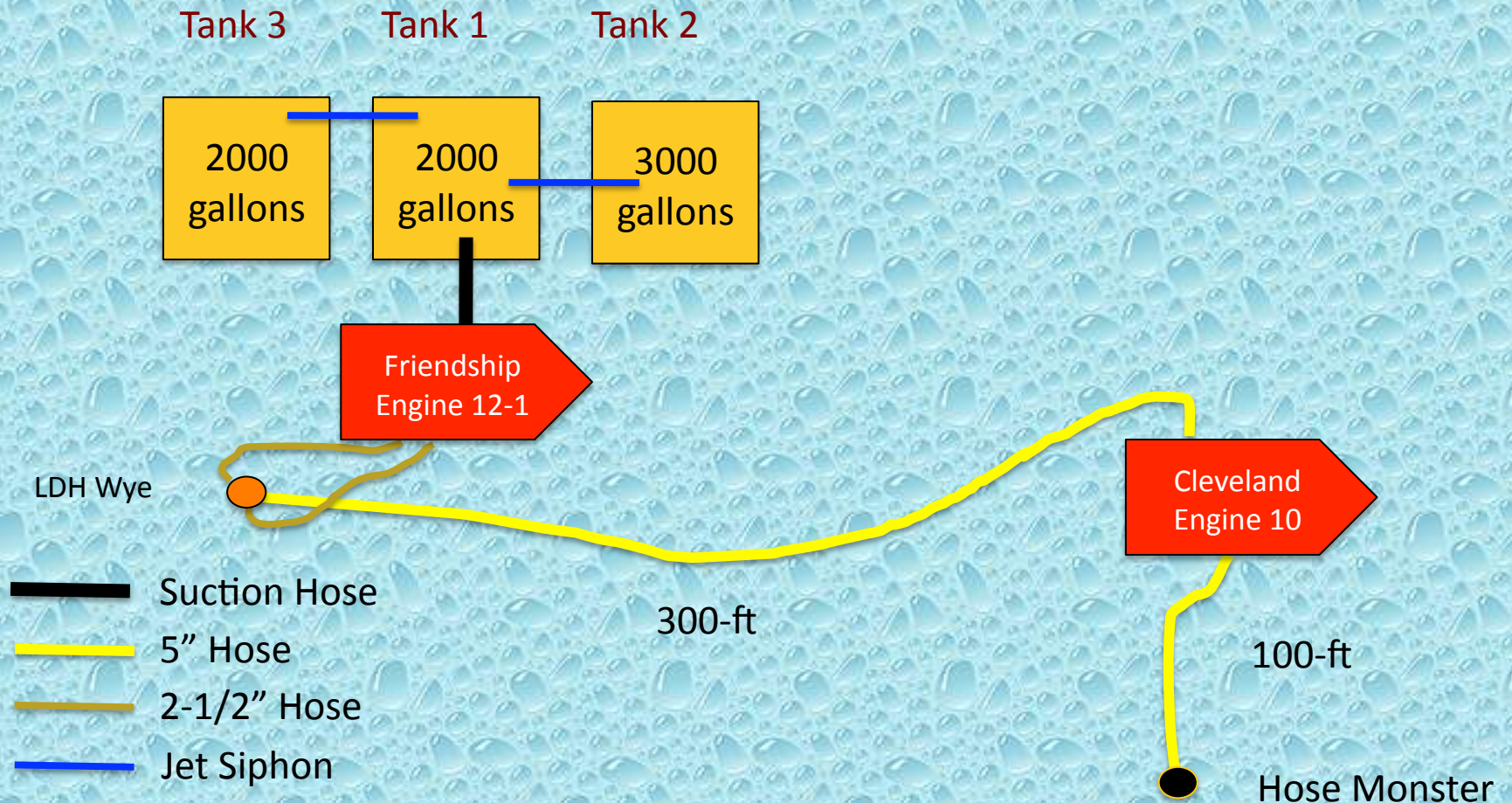
A Kochek low-level strainer with a built in jet siphon was also used as a water transfer device.

Dump Site Operations



At the 45-minute mark, flow was moved to 750 gpm and at the 90-minute mark, flow was moved to 1,000 gpm where it was maintained for the remainder of the drill.

Dump Site Layout



The Fill Sites

- For this drill – one fill site was used.
- The fill site provided a 4-mile roundtrip for the units hauling water and used Lake Keowee as the water source.
- The fill site was located at a boat ramp on South Cove Road and the lake provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the boat ramp to support the tanker fill station.

South Cove Fill Site



Westminster Engine 63 arrived at the fill site and the crew went to work to set up the fill site on the boat ramp.

South Cove Fill Site



The crew used a Fol-Da-Tank suction elbow to increase reach into the lake and to improve intake flow at the suction inlet.

South Cove Fill Site



To increase pump output, a “pony” suction was added using 3-inch suction connected to the pumper’s auxiliary suction inlet

South Cove Fill Site



Engine 63 supplied water via 200-ft of 5-inch LDH to an LDH manifold that was used as the control point for loading tankers.

South Cove Fill Site



Tankers were loaded using short lengths of 2-1/2-inch hose outfitted with camlock connections. Almost every tanker loaded at or near 1,000 gpm.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted once – for about 2-minutes - around the 9:30-minute mark due to the dump site not being fully operational yet.
- An estimated 92,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 811 gpm.

The Lessons Learned

- At this drill, the crews decided to move directly to a dump tank operation. This required them to really hustle in order to establish the dump site and be ready for the first tanker to dump its water.
- The dump site engine did not have a high-flow discharge so the crew had to supply the 5-inch LDH using dual, 2-1/2-inch lines connected to a 2-1/2" x 2-1/2" x 5" wye.
- No other LDH appliance was available at the time, so the decision to use the LDH wye was a good one since flow was expected to approach 1,000 gpm at some point in the drill.

The Lessons Learned

- A tanker fill-site needs to run like a NASCAR pit stop. Anything that slows down the loading of tankers is going to reduce the efficiency of the tanker shuttle.
- At this drill, almost every fill line had a cam lock-style connection which really made a difference in reducing the amount of time needed to connect fill lines.

The Lessons Learned

- Jet siphons, suction hose, and dump tanks are needed at most every dump tank operation – therefore, it is wise to carry those items on every tanker.
- The “bundling” of water hauling mutual aid resources has proven successful in many drills. The tanker task force concept again proved to be an effective process for requesting and using additional rural water supply resources.

The Lessons Learned

- Although most of pumpers and tankers could work with 5-inch LDH, there was a limited number of LDH valves and appliances available for use.
- Fortunately, the 2-1/2" x 2-1/2" x 5" wye (plus adaptors) were available at the dump site early – else, flow most likely would have been compromised later in the operation.

The Lessons Learned

- The fill site engine did an excellent job of accessing the lake by using the boat ramp.
- Folks working at the fill site also did a really good job of continually improving operations as more equipment and appliances arrived at the site.

Summary

- The drill was a success. For the new folks, they got to see how dump tank operations work.
- For the older, experienced folks, it was a chance to practice their “craft.”
- The success of the drill showed the importance of mutual aid response practices and procedures – and the importance of mutual aid interoperability.
- Many thanks to Oconee County Emergency Services for sponsoring and hosting this seminar.



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