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Sherrills Ford – Terrell Fire & Rescue
Sherrills Ford, North Carolina

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
September 29, 2019
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

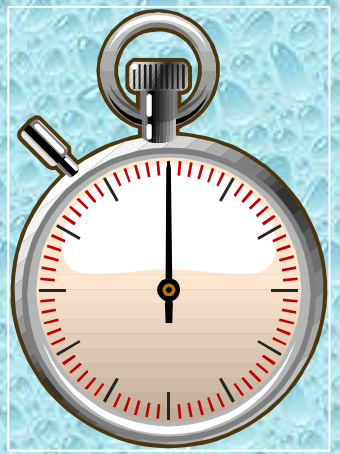
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at Sherrills Ford – Terrell Fire & Rescue Headquarters.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from the Catawba County region.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on September 29th at an undeveloped housing area in Sherrills Ford.
- 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 ISO no longer uses the physical demonstration of water supply delivery, the 2-hour test is still a reasonable standard by which fire departments can compare their water supply operations.
- *ISO now uses computer modeling to predict tanker shuttle flow capabilities.*

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

Participants				
Department	**Unit**	**Pump Size**	**Tank Size**	**Dump Tank**
Sherrills Ford - Terrell	Engine 1	1500 gpm	1000 gal	NA
Sherrills Ford - Terrell	Engine 3	1500 gpm	1000 gal	NA
Sherrills Ford - Terrell	Tanker 1	1500 gpm	3000 gal	3000 gal
Sherrills Ford - Terrell	Tanker 2	500 gpm	1800 gal	2100 gal
Sherrills Ford - Terrell	Tanker 3	500 gpm	1800 gal	2100 gal
Denver	Tanker 10	500 gpm	2000 gal	2100 gal (2)
Denver	Fire Boat 13	1500 gpm	NA	NA
Catawba	Engine 83	1500 gpm	1250 gal	2100 gal
Maiden	Engine 3	1500 gpm	1000 gal	NA
Claremont	Engine 72	1500 gpm	1000 gal	2100 gal
St Stephens	Engine 46	1500 gpm	1250 gal	NA

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

The Drill Begins

The drill began with Sherrills Ford-Terrell Engines 1 and 3 (both 1500 gpm) arriving on the scene and initiating a supply/attack engine operation. A 200-ft 5-inch supply line was deployed between the two engines. With a transition to a dump tank operation planned, the supply pumper positioned in the intersection.

Dump Site Operations

SFTFR Tanker 1 (3000 gal) was the first tanker to arrive. The crews deployed the tanker's 3000-gallon dump tank and transitioned to a dump tank operation began.

Dump Site Operations

Water flow had started at 250 gpm at the 5-minute mark of the drill and was moved to 500 gpm at the 15-minute mark. As additional resources arrived a second dump tank was deployed.

Dump Site Operations

Because of the tight quarters, crews went to work with chainsaws to clear more room for tanker maneuvering.

Dump Site Operations

SFTFR Tanker 3 offloads its 1800 gallons of water as two dump tanks are now in operation.

Dump Site Operations

At the 59-minute mark, three dump tanks were now in operation and water flow had never been interrupted. Water transfer operations were critical to the sustained flow at this drill.

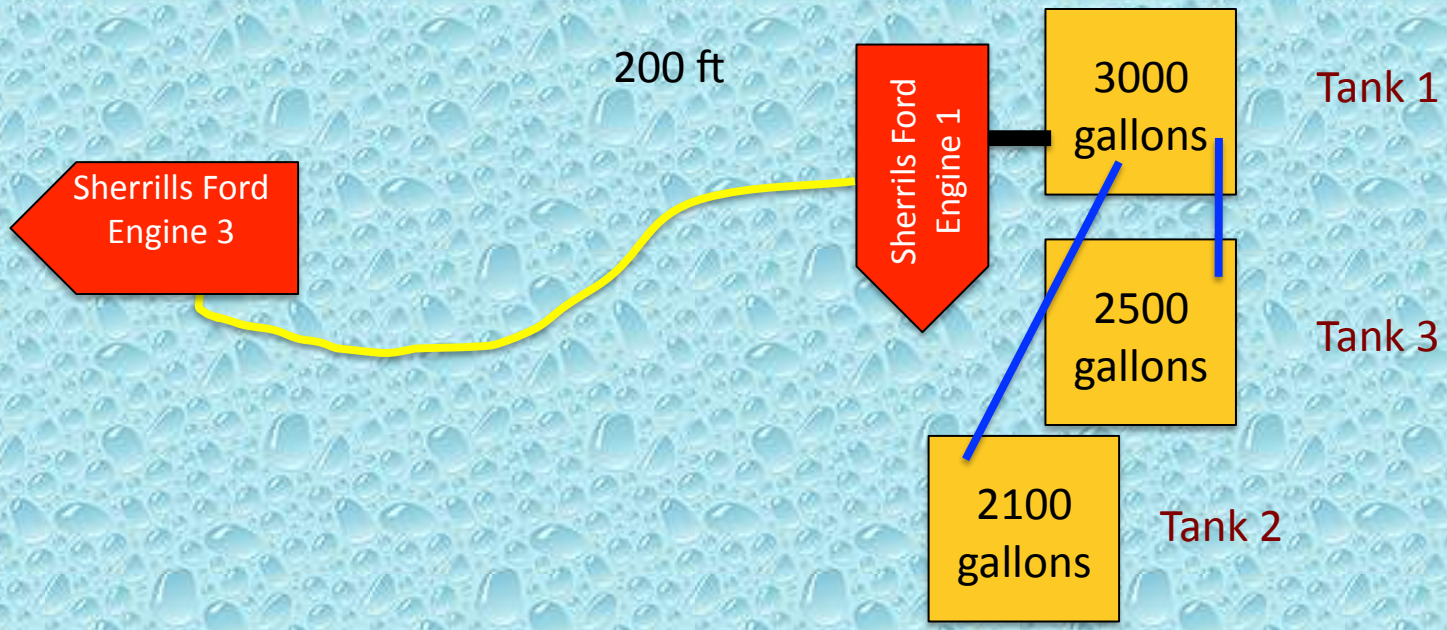
Dump Site Operations

At the 81:00 mark, flow was moved to 800 gpm and the 3-dump tank set-up was operating quite smoothly.

Dump Site Operations

The final set-up. Three dump tanks were positioned in a tight intersection on a narrow road so that two tankers could dump simultaneously. The operation required strong oversight by the dump site supervisor.

Dump Site Layout



Suction Hose

5” Hose

Jet Siphon

The Fill Sites

- For this drill – two fill sites were used – a large lake and a 30,000 gallon underground tank.
- The lake fill site provided about a 4-mile round trip for the units hauling water.
- The underground tank fill site provided about a 1.4-mile round trip.
- The tank fill site was limited in volume. Both fill sites had good access.

Lake Fill Site Operation

Denver FD's Fireboat 13 (1500 gpm) loaded tankers at greater than 1000 gpm load rate. 3-inch camlock style fittings were as fill connections.

Lake Fill Site Operation

The fireboat positioned just off-shore of the boat launch and supplied water back to the on-shore crew who then loaded tankers.

Tank Fill Site Operation

Maiden Engine 3 drafted from a 30,000-gallon underground tank and supplied water to the tanker loading station via 5-inch LDH.

Tank Fill Site Operation

The 3-person crew worked to load tankers using twin, smaller lines and 3-inch camlock style fittings.

The Results

- The drill was stopped at the 1:50-hour mark due to exhausting the water supply at the underground tank.
- Water flow was never interrupted until the final moments of the drill.
- An estimated 58,700 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 559 gpm.
- A peak flow of 800 gpm was attained during the last 29 minutes of the drill.

The Lessons Learned

- At this drill, road access was poor and simulated much of the response area around Lake Norman. Crews had to work extra hard to set up dump tank operations and control tanker travel routes.
- Two engines arrived first and had to support fire attack operations until a tanker arrived. Once the first tanker arrived, crews had a dump tank up and running in little time.

The Lessons Learned

- The dump site pumper was of sufficient capacity to support water supply to the attack pumper and run several jet siphons.
- The travel routes of tankers must always be evaluated for efficiency. At this drill, changing the approach of the tankers to the dump site made a big difference in dumping efficiency and allowed an increase in flow to the attack pumper.

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, most all tankers had the same fill connection so folks were able to get the tankers loaded and back on the road. In most cases fill rates exceeded 1,000 gpm.

The Lessons Learned

- The 1500 gpm fireboat made loading tankers quite easy. This type of resource is critical when protecting water front properties at lakes like Lake Norman. The ability to supply 5-inch LDH on the shore line makes the fireboat a formidable water supply unit.
- The underground tank provided the shortest travel distance but also had its supply exhausted before the drill ended. Thus, when using an underground tank as a primary water source, be sure to identify and develop a secondary source early in the incident.

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 – as well as adaptors.
- 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.

Drill Videos

Be sure to watch videos from the drill on the GotBigWater YouTube Channel.

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 Catawba Valley Community College for sponsoring the seminar and to Sherrills Ford – Terrell Fire & Rescue for and hosting this seminar.

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This program was developed by
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