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Shelby County EMA & Alabama Fire College
Shelby County, Alabama

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 21, 2017
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

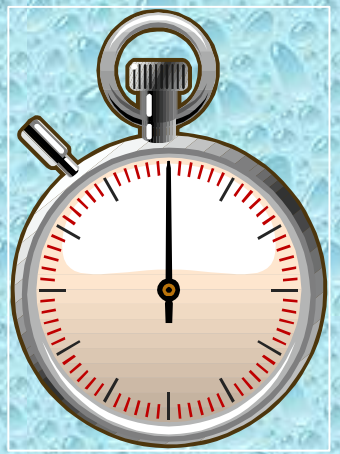
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Pelham Civic Center.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Shelby County and surrounding areas.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 21st at the Pelham Civic Center Complex.
- 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

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

Drill Participants

- Brierfield Engine 203
  - 1,500 gpm pump w/475 gal tank
- Brierfield Tanker 200
  - 3,000 gal tank

Drill Participants

- Brierfield Tanker 206
  - 1,000 gpm pump w/2,500 gal tank
- Pelham Engine 93
  - 1,500 gpm pump w/1, gal tank

Drill Participants

- Alabaster Engine 13
  - 200 gpm pump w/2,600 gal tank

- Four Mile Tanker 263
  - 1,250 gpm pump w/2,000 gal tank

Drill Participants

- Brierfield Engine 801
  - 1,000 gpm pump w/750 gal tank
- County 17 Tanker 213
  - 1,500 gpm pump w/2,000 gal tank

Drill Participants

- West Shelby Engine 242
  - 1,000 gpm pump w/750 gal tank

- Pea Ridge Tanker 101
  - 300 gpm pump w/1,800 gal tank

The Drill Begins

Brierfield Engine 801 was the first unit to arrive on the scene. Time was started when the engine came to a complete stop. The crew stretched a portable monitor in preparation for the 250 gpm flow at the 5-minute mark.

Dump Site Operations

Brierfield's Tanker 206 was next to arrive. The unit set up for nurse tanker operations while crews deployed the dump tank.

Dump Site Operations

Four Mile Tanker 263 arrived and a second dump tank was deployed. Water flow was started at 250 gpm at the 5-minute mark.

Dump Site Operations

The first load of water was dumped into the dump tanks while Tanker 206 continued to operate in the nurse tanker mode. Flow was moved to 500 gpm at the 16-minute mark.

Dump Site Operations

Two dump tanks were in operation by 19-minute mark and additional tankers began arriving.

Dump Site Operations

Pelham Engine 93 arrived on the scene and pumped off its water into the primary dump tank using 100-ft of 3-inch hose.

Dump Site Operations

A dump tank signage system was deployed to help tanker drivers know which tank to offload water into. The signs were provided courtesy of Stan Merrett of ETT, LLC.

Dump Site Operations

A good looking jet siphon discharge stream. Water transfer operations became important as flow increased throughout the drill.

Dump Site Operations

At the 56-minute mark, flow was moved to 800 gpm and three dump tanks were in operation. At the 85-minute mark, a 1,000 gpm flow was attempted, however the dump site pumper could not hit that mark and flow all of the jet siphons as well.

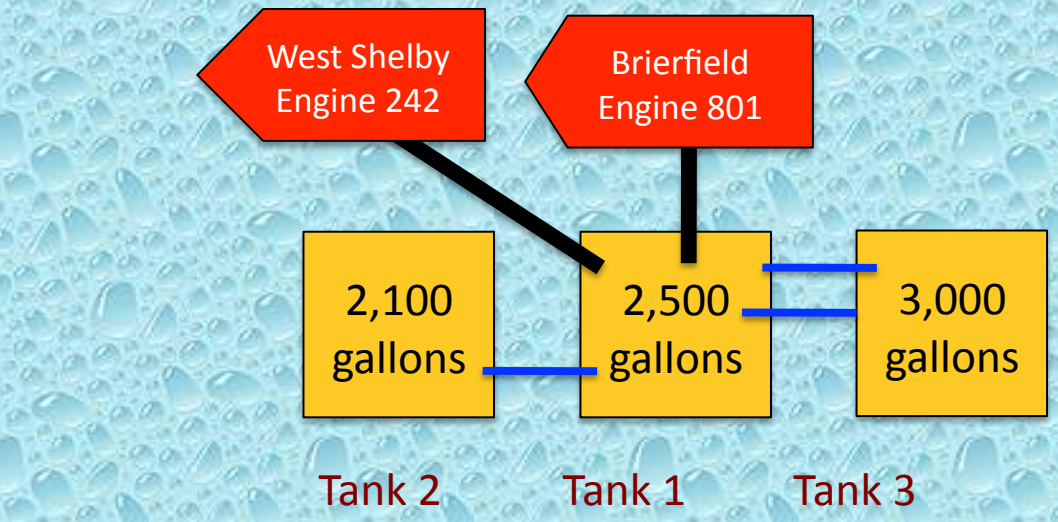
Dump Site Operations

At the 90-minute mark, West Shelby Engine 242 was pulled from hauling water and put into operation supplying jet siphons. Flow was then moved to 1000 gpm without any problems.

Dump Site Operations

The final set-up…three dump tanks….1000 gpm flow. Engine 801 focused on flowing the 1000 gpm master stream and Engine 242 operated the jet siphons.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used.
- Both sites provided about a 2.0-mile round trip for units hauling water.
- The first fill site was located along Shoal Creek at one end of the Civic Center parking lot.
- From the dump site, the tankers ran a 2.0-mile loop to the fill site.
- The creek provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the creek to support the tanker fill station.

The Fill Sites

- The second fill site was located at a fire hydrant on the Civic Center campus.
- Once loaded, tankers ran a 2.0-mile loop to the dump site.
- The fire hydrant provided ample water volume to support the drill and access to the site was not a problem.
- A single, 1,500 gpm pumper was used at the fire hydrant to support the tanker fill station.

Shoal Creek Fill Site

Brierfield Engine 203 (1,500 gpm) drafted from the creek and supplied water to an LDH manifold on 5-inch supply hose. The creek provided plenty of water, even though access was a bit limited.

Shoal Creek Fill Site

Engine 203 with a crew of four persons used 50-feet of 6-inch suction hose to reach the creek. A Kochek floating barrel strainer was used on the suction hose.

Shoal Creek Fill Site

Engine 203's crew then built out a "loading" station using 5-inch LDH and several LDH appliances. One person served as the "loader" and never left that position as the remaining crew members handled all making and breaking of hose connections.

Hydrant Fill Site

Alabaster Engine 13 operated this tanker fill site using a high-flow fire hydrant. The hydrant supplied the 1500 gpm pumper that in turn loaded tankers via 5-inch LDH.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted once at the 17-minute mark for about 1-minute due to a jet siphon issue.
- An estimated 75,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 660 gpm during the 2-hr event.

The Lessons Learned

- Once again, the nurse tanker operation was critical to the success of the operation – especially during those early few moments when rigs were still arriving on the scene.
- The nurse tanker set-up allowed the dump site engine and crew some additional time to get that first dump tank set-up for an efficient operation.

The Lessons Learned

- It is important to not offload water into a dump tank until that water can be moved or used. The interruption in flow at this drill was due to not having a jet siphon ready for use when water was dumped.
- Using engines to shuttle water is not always efficient. But, when water is badly needed, knowing how to offload those engines while not blocking out tankers is an important skill.

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, the fill sites were set up to load each tanker in an efficient and effective manner.
- Standardized fill connections in a mutual aid group is clearly a “best practice” when it comes to tanker shuttle operations.

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.

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 Shelby County EMA and the Alabama Fire College for sponsoring and hosting this seminar.

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This program was developed by
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