

[www.GotBigWater.com](http://www.GotBigWater.com)



Shelby County EMA & Alabama Fire College  
Shelby County, Alabama

Rural Water Supply Operations Seminar  
2-hr Water Supply Drill – 1,000 GPM Club  
June 7, 2015  
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 Shelby County Fire and EMS Training Center in Calera, AL.
- 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.

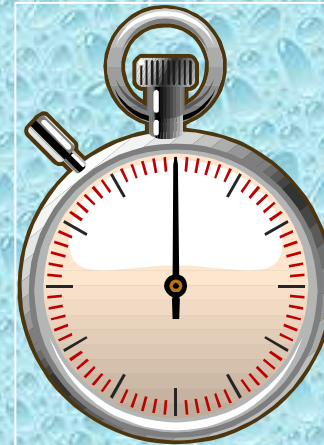
# The 2-hour Water Supply Drill

- The tanker shuttle drill was held on June 7th in Calera.
- 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 requires fire departments to demonstrate the 2-hours test, the test is still a reasonable standard by which fire departments can compare their water supply operations. (ISO now uses a computer model.)



# 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
- Four Mile Engine 261
  - 1,250 gpm pump  
w/1,000 gal tank



# Drill Participants

- Four Mile Tanker 262
  - 200 gpm pump  
w/2,600 gal tank
- Four Mile Tanker 263
  - 1,250 gpm pump  
w/2,000 gal tank



# Drill Participants

- West Shelby Engine 241
  - 1,000 gpm pump  
w/750 gal tank
- Fairview Tanker 81
  - 500 gpm pump  
1,800 gal tank



# Drill Participants

- Kingdom Tanker 272
  - 1,500 gal tank
- Calera Engine 21
  - 1,500gpm pump w/1,000 gal tank



# Drill Participants

- Pea Ridge Engine 101
  - 1,000 gpm pump  
w/1,000 gal tank
- Pea Ridge Tanker 101
  - 1,800 gal tank



# Drill Participants

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





# The Drill Begins



Calera Engine 21 was the first-arriving unit and assumed the role as the attack pumper. The 3-person crew divided up tasks and deployed an attack line and a 5-inch supply line. The stopwatch was started when the engine driver applied the air brakes. The nurse tanker is seen in the photo on the right (white tanker).

# Dump Site Operations



The supply line was equipped with a 5" x 2-1/2" "water thief" type of appliance. The intent was to use the valve during the initial phase of the drill so that a nurse tanker operation could support the attack engine while a dump site was set up.

# Water Flow is Started



Water flow was started at 250 gpm at the 5-minute mark and was never interrupted for the remainder of the drill. In fact, the crews hit the 1,000 gpm flow mark at the 1-hour mark and sustained that flow for the remaining hour.

# Dump Site Operations



Pea Ridge Engine 101 (1,000 gpm) was used as the dump site engine and its crew went to work setting up as fast as possible for a dump tank operation. Without a high-flow discharge, the engine had to pump several smaller lines into an LDH manifold which supplied the 5-inch hose going to Calera Engine 21.

*Copyright 2015 - GBW Associates, LLC - Shelby County, Alabama - June 2015*

# Dump Site Operations



Brierfield Tanker 200 (3,000 gallons) was the first large capacity tanker to arrive at the dump site. Crews grabbed the dump tank off of this tanker while the driver dumped water. Flow was moved to 500 gpm at 13-minute mark, two minutes ahead of schedule.

# Dump Site Operations



Brierfield's Tanker 206 was next to arrive – bringing 2,500 gallons of water. By the 17-minute mark, two dump tanks were down and one in operation.

# Dump Site Operations



In order to prepare for the 1,000 gpm flow, the Pea Ridge engine needed to take in more water. Two, 2-1/2" suction lines were added to the operation which allowed the engine to achieve the 1,000 gpm flow and still run a jet siphon.

# Dump Site Operations



The dump site operation was well-coordinated. The travel direction of tankers was changed in order to improve “movement” efficiency.



# Dump Site Operations



Four Mile Engine 261 (1,250 gpm) was brought in to support the operation by running jet siphons. The engine drafted from one dump tank and then ran several jet siphons, thus allowing Pea Ridge Engine 101 to concentrate on just supplying the attack pumper.

*Copyright 2015 - GBW Associates, LLC - Shelby County, Alabama - June 2015*

# Dump Site Operations



The dump site grew to a 4-tank operation as all efforts were put forth to achieve the 1,000 gpm flow.

# Flow Increased



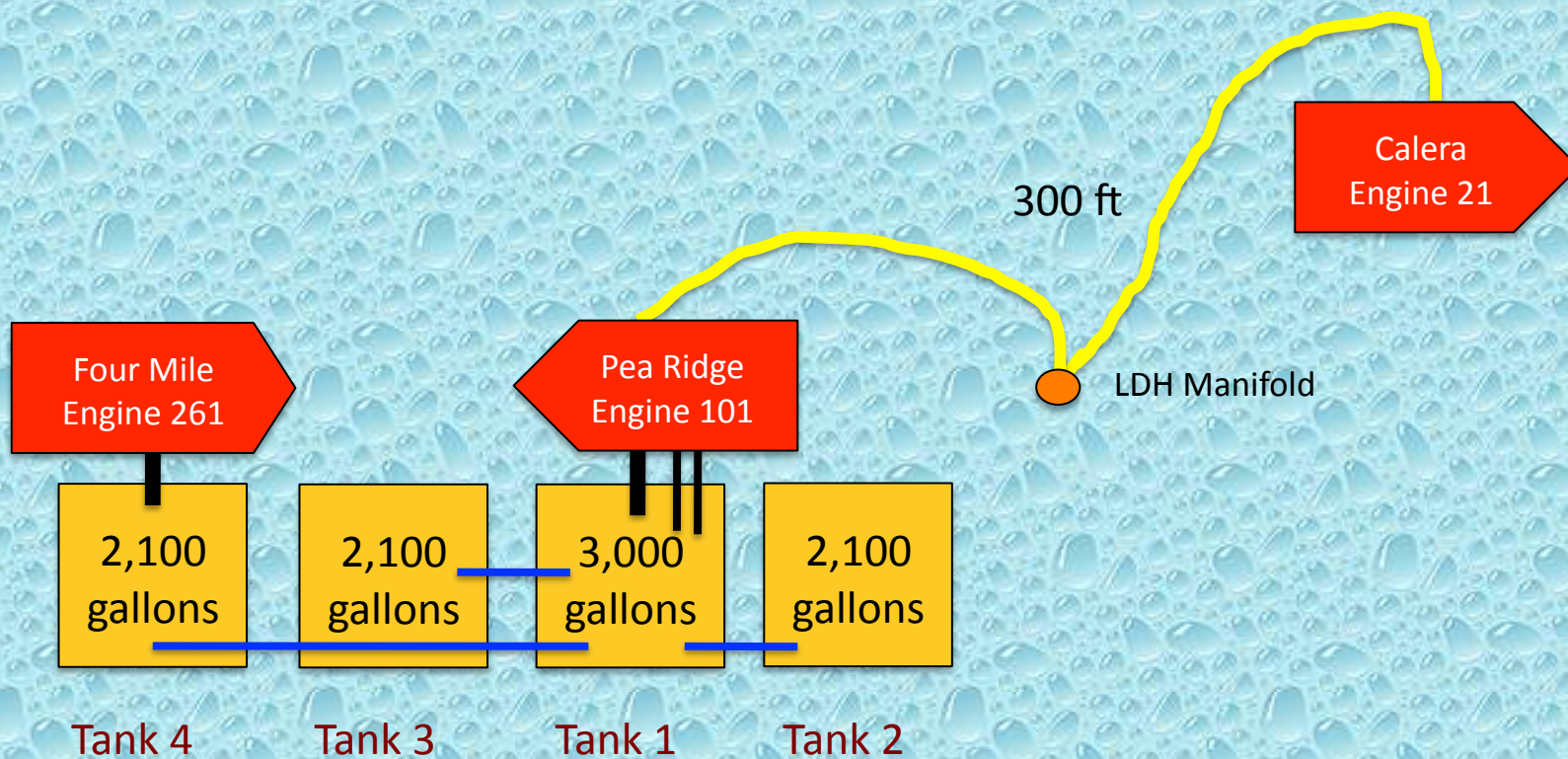
At the 1-hour mark, the flow was moved to 1,000 gpm where it stayed for the remaining hour of the drill..

# Dump Site Operations



With the flow now at 1,000 gpm, the dump site became a very busy place that required close coordination in order to sustain the flow.

# Dump Site Layout



- Suction Hose
- 5" Hose
- Jet Siphon

# The Fill Sites

- For this drill – two fill sites were used.
- Both sites were located near a local campground but operated independent of each other.
- The first fill site was located at a small lake in the campground and provided about a 2-mile round trip for the units hauling water.
- The lake provided ample water volume to support the drill and access was not a problem.
- A single, 1,000 gpm pumper was used at the lake to support the tanker fill station.

# The Fill Sites

- The second fill site was located about ¼-mile from the first site and also provided a 2-mile round trip for the units hauling water.
- The site used a municipal fire hydrant that provided less than 1,000 gpm water flow to support the drill. Access to the hydrant was not a problem.
- The crew used an open relay operation to load tankers at the desired 1,000 gpm rate..
- A single, 1,500 gpm pumper was used at the hydrant to support the tanker fill station.

# Lake Fill Site



West Shelby Engine 241 (1,000 gpm) drafted from the lake and supplied water to an LDH manifold on 5-inch supply hose. The engine did not have a high-flow discharge, so two smaller lines had to be used to support the 5-inch LDH.



# Lake Fill Site



Tankers were loaded using 5-inch LDH when possible – this made for a quick turn-around and was critical to supporting the 1,000 gpm flow.

# Hydrant Fill Site



Brierfield Engine 203 (1,500 gpm) drafted water from a dump tank which was filled using water from the fire hydrant. This allowed the tankers to be loaded faster than if they simply connected directly to the fire hydrant.

*Copyright 2015 - GBW Associates, LLC - Shelby County, Alabama - June 2015*

# Hydrant Fill Site



Traffic management was important at this fill site because tankers traveling to and from the lake fill site had to pass by the fire hydrant fill site.

# The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted.
- An estimated 85,500 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 741 gpm during the 2-hr event.
- More importantly, the crews supported a 1,000 gpm flow for the last hour of the drill and they were awarded “1,000 GPM Club” status!

# The Lessons Learned

- This was the group's fourth attempt at an uninterrupted 2-hour tanker shuttle and they were very successful.
- The nurse tanker operation was critical to the success of this drill – especially during those early few moments when rigs are 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

- 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 Storz-style connection which really made a difference in reducing the amount of time needed to connect fill lines.
- 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.

# The Lessons Learned

- High-flow discharges are an important feature on pumpers that support LDH operations. When a pumper does not have an LDH discharge, then it is important to carry an appliance and short lengths of hose that can be used to supply high-flows using multiple discharges.
- The use of the two, 2-1/2" "pony" suctions made a huge difference in the performance of the 1,000 gpm dump site pumper.



# The Lessons Learned

- The use of the “open relay” at the fire hydrant fill site allowed tankers at that fill site to be loaded at rates over 1,000 gpm. This was also critical to the success of the shuttle operation.

# 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.



[www.GotBigWater.com](http://www.GotBigWater.com)

*This program was developed by  
GBW Associates, LLC  
Copyright © 2015  
No part may be used or copied  
without expressed written consent.*

*For more information contact us at  
[thebigcamel@gotbigwater.com](mailto:thebigcamel@gotbigwater.com)*