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Baldwin County Fire Chiefs Association
Baldwin County, Alabama

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
February 19, 2017
Summary Report

The Purpose

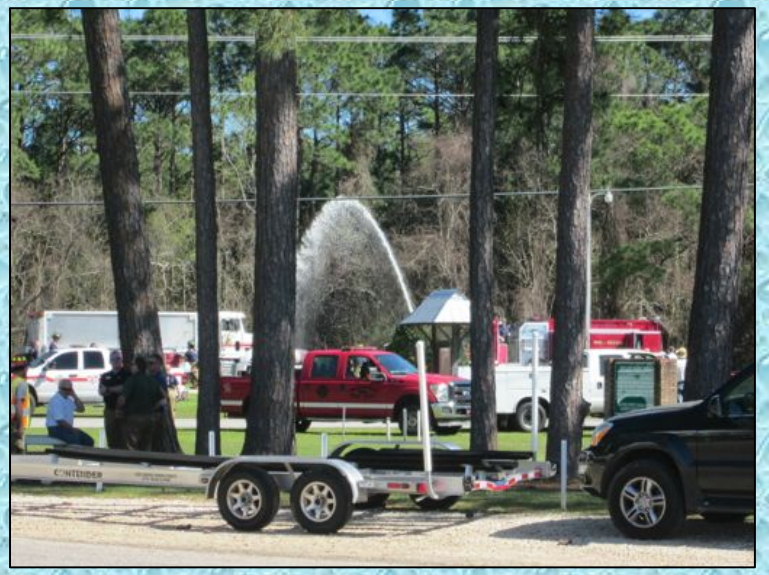
- The purpose of the seminar and drill was to review the basics of rural water supply operations and to practice water supply operations in a non-hydranted setting.
- The drill also allowed mutual aid companies to work together in a real-life training situation.

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 Barnwell fire station.
- 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 the Baldwin County area.

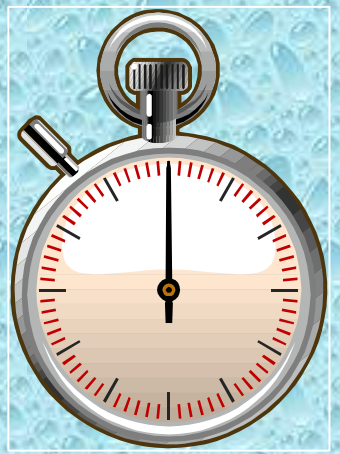
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on February 19th at a local park along Mobile Bay.
- 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 several different fire departments in the Baldwin 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 Barnwell area.*

Drill Participants

- Barnwell Engine 3874
  - 1,250 gpm pump w/1,000 gal tank

- Barnwell Engine 3875
  - 1,750 gpm pump w/1,250 gal tank

Drill Participants

- Bon Secour Engine 2454
  - 1,750 gpm pump w/1,000 gal tank
- Belforest Engine 6451
  - 1,500 gpm pump w/1,000 gal tank

Drill Participants

- Magnolia Springs Tanker 3453
  - 750 gpm pump w/2,500 gal tank
- Stapleton Tanker 7296
  - 3,500 gal tank

Drill Participants

- Foley Tanker
  - 1,250 gpm pump w/3,500 gal tank

- Perdido Tanker 8561
  - 2,500 gal tank

Drill Participants

- Josephine Tanker 3340
  - 1,000 gpm pump w/3,000 gal tank
- Josephine Tanker 3341
  - 1,000 gpm pump w/3,000 gal tank

Drill Participants

- Bon Secour Tanker 2453
  - 1,250 gpm pump w/3,500 gal tank
- Belforest Tanker 6458
  - 750 gpm pump w/3,000 gal tank

Drill Participants

- Loxley Tanker 6010
  - 1,250 gpm pump w/2,500 gal tank

Preparation

Units staged at the Barnwell fire station where they received drill assignments and a safety briefing.

The Drill Begins

Barnwell Engine 3874 was the first engine to arrive at the dump site followed by Barnwell Engine 3875. The two crews worked together to initiate fire attack operations using a portable monitor while having the second engine set-up as a "nurse tanker" until tankers arrived on location.

Dump Site Operations

With nurse operations underway, crews worked to get set up for dump site operations. Knowing that they were planning on moving "big water," the crews worked to build out two suction lines. The 1,750 gpm pumper had MIVs on each suction inlet which allowed this process to be successful.

Dump Site Operations

Magnolia Springs Tanker 3453 (2,500 gal) was the first tanker to arrive on the scene. Crews deployed the 4,000 gallon dump tank from the tanker.

Dump Site Operations

Barnwell Engine 3874 supplies its 1,000 gallons of water to Engine 3875 during the early moments of the drill.

Water Flow Starts

At the 5-minute mark, water flow started at 250 gpm using the water from the two, first-arriving engines.

Dump Site Operations

The Magnolia Springs tanker dumps the first load of water at the 7-minute mark and dump site operations commence.

Dump Site Operations

Stapleton Tanker 7296 was the next tanker to arrive at the dump site and was one of two vacuum tankers used in the drill.

Dump Site Operations

At around the 12-minute mark, three dump tanks were down and one was in operation. Tankers from the first tanker task force begin to arrive.

Dump Site Operations

At the 16-minute mark, water flow was moved to 500 gpm. Crews are seen here building a jet siphon for water transfer operations.

Dump Site Operations

The three dump tanks were spaced apart in anticipation of having to dump two or more tankers at the same time.

Dump Site Operations

With more than enough “water haulers” for the 500 gpm flow, the flow was moved to 1,000 gpm at the 30-minute mark and then again to 1,450 gpm at the 108-minute mark. Flow was never interrupted after an initial problem with a suction hose coupling was corrected.

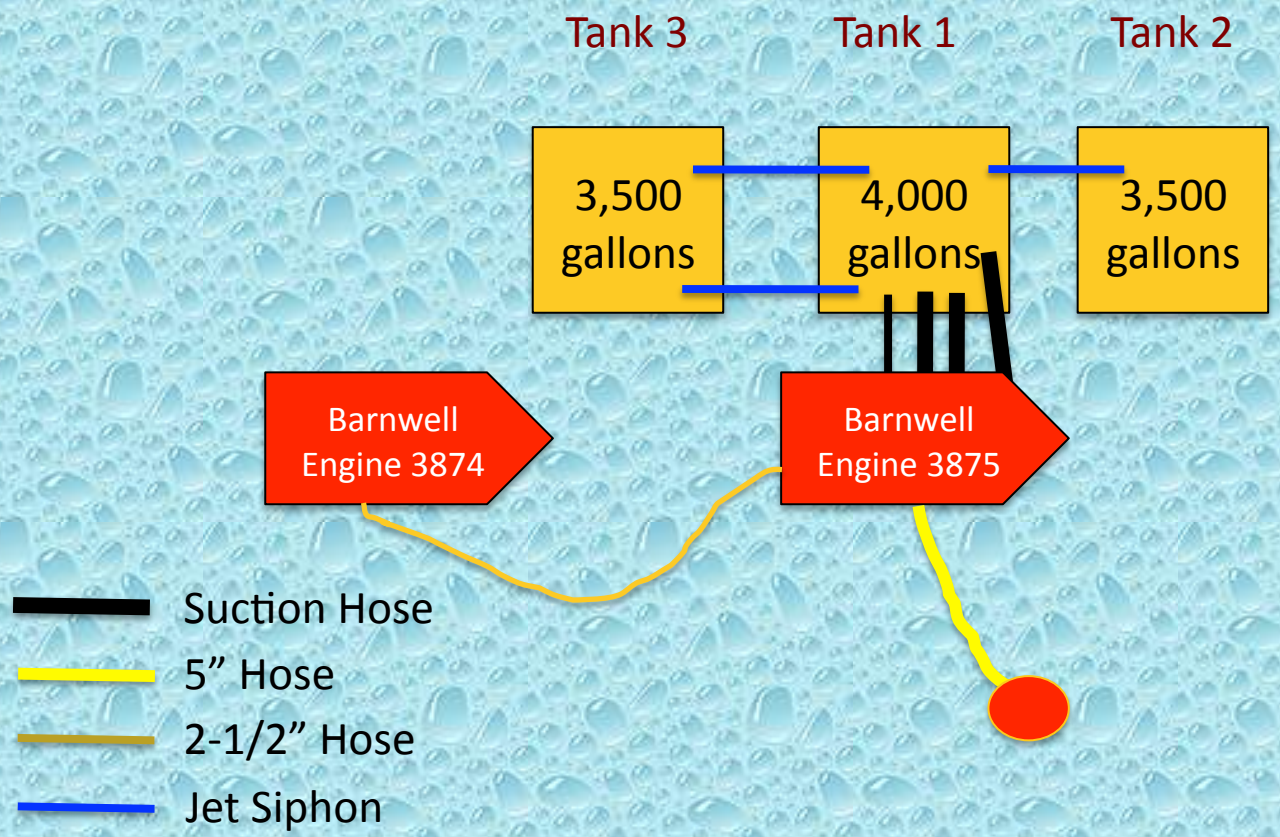
Dump Site Operations

At the peak of the drill, the dump site pumper was flowing 1,450 gpm while using four suction inlets and running three jet siphons.

Dump Site Operations

Running a fourth suction line through the pump operator's area….another reason to carry move than 20-ft of suction hose on a rural pumper.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used. Both sites used water from Mobile Bay and both sites were in close proximity to each other.
- A public boat launch was used to provide access for two pumpers, each which then supported a tanker loading site.
- The boat launch area provided ample water volume to support the drill and access was not a problem.

The Fill Sites

- A 1,500 gpm and a 1,750 gpm pumper were used to support the tanker fill stations.
- The two vacuum tankers self-loaded and thus did not need the support of a pumper.
- The fill sites were within a few hundred feet of the dump site, so a 7-minute time delay was used to simulate travel between the fill site and the dump site.

Pond Fill Site

The red pumper (1,750 gpm) on the left operated a tanker loading station in front of the pumper. The white pumper (1,500 gpm) supported the remote loading station.

Pond Fill Site

The pumper drafted from Mobile Bay and supplied a 5-inch line that in turn supplied a tanker loading station several hundred feet away.

Pond Fill Site

By moving this second loading station to a remote location, tanker congestion at the fill site was reduced.

Pond Fill Site

Crews had to use a variety of fill lines due to the different fill connections on the tankers. When possible, LDH was used to load the tankers.

Pond Fill Site

When not loading a tanker, water was diverted back in the Bay which made operations easier for the pump operator. This set up also allowed for quick diversion of pressure from the fill lines which allowed crews to disconnect faster.

Pond Fill Site

Those tankers that loaded with LDH loaded the quickest.

The Results

- The drill was stopped at the 110-minute mark due to time constraints.
- Water flow was interrupted only once during the entire drill – at the 14-minute mark for 90 seconds…due to a broken suction hose coupling.
- An estimated 102,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 999 gpm.

The Lessons Learned

- At this drill, the dump site pumper had electronically controlled suction inlet valves on all three, 6-inch suction inlets. This feature allowed for the addition of suction lines without having to shut down flow operations.
- The dump site pumper was a 1,750 gpm pumper which proved quite capable of supporting the 1,450 gpm flow plus running three jet siphons.

The Lessons Learned

- Dump tank arrangement is critical to successful dump site ops. At this drill, the 2nd and 3rd dump tanks deployed were arranged to allow three tankers to side dump at the same time if needed.
- Jet siphons consume pump capacity. Using a large capacity pumper as the dump site pumper made a big contribution to the success of this 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, there were different tanker fill connections which required adaptors and thus slowed down some of the fill operations.

The Lessons Learned

- Having a standardized fill connection for all tankers increases fill efficiency and decreases fill time.
- The two vacuum tankers truly demonstrated their ability to haul water. As the drill progressed, the vacuum tankers began passing the gravity tankers…all because of the reduced loading time of the vacuums.

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 the Baldwin County Fire Chiefs Association and the Barnwell VFD for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

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