www.GotBigWater.com

Union Fire Company No. 1
Oxford, Pennsylvania

Rural Water Supply Operations Seminar
2-hr Water Supply Drill – 1000 GPM Club
July 15, 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

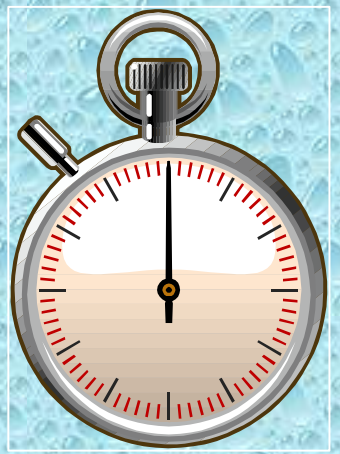
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the visitor center of the Herr's Snack Factory.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from southern Chester County and surrounding area.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on July 15th on the grounds of the Herr's Snack Factory.
- 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 southern Chester 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 Oxford area.*

Drill Participants

- Union Engine 21-1
  - 1500 gpm pump w/1000 gal tank
- Union Engine 21-2
  - 1750 gpm pump w/1000 gal tank

Drill Participants

- Union Engine 21-4
  - 1250 gpm pump w/1,000 gal tank

- Union Tanker 21
  - 1250 gpm pump w/3000 gal tank

Drill Participants

- Avalon Tanker 23
  - 2000 gpm pump w/3500 gal tank

- Cochranville Engine 27-1
  - 1500 gpm pump w/800 gal tank

Drill Participants

- West Grove Engine 22-2
  - 2000 gpm pump w/1000 gal tank
- Po-Mar-Lin Tanker 36
  - 1500 gpm pump w/3000 gal tank

Drill Participants

- Concordville Tanker 59
  - 1000 gpm pump w/2500 gal tank
- Kennett Tanker 24
  - 2000 gpm pump w/3000 gal tank

Drill Participants

- Longwood Tanker 25
  - 1500 gpm pump w/3000 gal tank
- Cochranville Tanker 27
  - 2000 gpm pump w/3000 gal tank

Drill Participants

- Hockessin Tanker 19
  - 2000 gpm pump w/2500 gal tank
- Quarryville Tanker 57
  - 2000 gpm pump w/3500 gal tank

Drill Participants

- West Grove Tanker 22
  - 1250 gpm pump w/3000 gal tank

The Drill Begins

Oxford Engine 21-4 (left 1250 gpm) was the first-arriving engine and set-up to support Oxford Ladder 21 which was located about 600-feet away in a field. Oxford Engine 21-2 (right 1750 gpm) arrived and set up to supply water to Engine 21-4 via 500 ft of 5-inch LDH. Engine 21-4 supplied Ladder 21 using 5-inch LDH.

Dump Site Operations

West Grove Tanker 22 was the second tanker to arrive on the scene and operated as a nurse tanker by feeding one side of the 5-inch double-clappered siamese. A 500 gpm flow at Ladder 21 was started at the 5-minute ….which was double the 250 gpm ISO test requirement.

Dump Site Operations

The first two dump tanks (red) set up came from Oxford Tanker 21, which was the first-arriving tanker. Carrying dual dump tanks allowed the crews to make a rapid build out of the dump site in preparation for a large flow operation.

Dump Site Operations

Cochranville Tanker 27 was part of a one of three, Tanker Task Forces used at this drill. The “bundling” of water hauling resources clearly is a “best” practice when it comes to automatic mutual aid requests and responses. Having these bundles pre-loaded in CAD saves time and gets groups of units on the road faster.

Dump Site Operations

At the 30-minute mark flow was moved to 750 gpm and three dump tanks were in use…two, 3000-gallontanks and one, 4000-gallon tank. Water transfer became very important. Two very nice looking jet siphon streams are seen in this photo.

Dump Site Operations

At the 48-minute mark, flow was moved to 1,000 gpm and four dump tanks were now in operation. With all of the tankers being large capacity, side dumping tankers, it was important to space out the third and fourth dump tanks so that two tankers could dump at the same time. This is a great example of the need to carry extra suction hose…which everyone did!

Dump Site Operations

Another view of the dump site. At the 70-minute mark flow was moved to 1600 gpm and the dump site pumper was close to maximizing output since it was also supplying all jet siphons.

Dump Site Operations

At the 90-minute mark, the flow was moved to 1750 gpm. In order to support that flow, Engine 21-4 (1250 gpm pumper) operated its deck gun and pumped the ladder truck (not shown). The 600-ft, 5-inch LDH hose line supplying Engine 21-4 was close to maximum flow…consideration was given to adding another supply line but with time running short, no change was made.

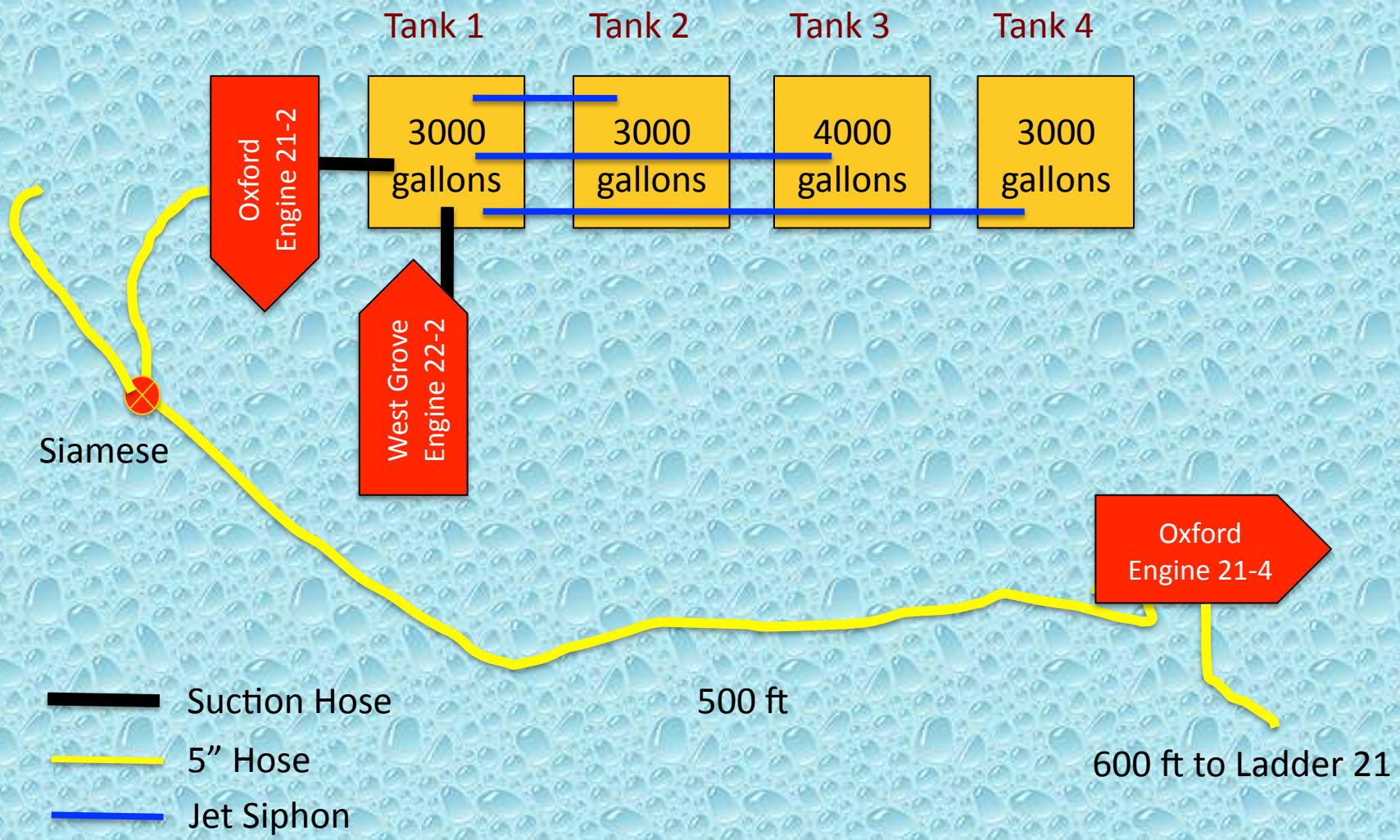
Dump Site Operations

In the end, flow was never once interrupted. Three jet siphons were needed to support the operation and water was never moved more than once from any dump tank. The success of this high performing dump site was attributed to large pumps, a high-performing suction strainer (TFT), and standardized hose and fittings.

Dump Site Operations

To maintain the 1750 gpm flow, West Grove Engine 22-2 (2000 gpm yellow) was used to run two of the three jet siphons…thus freeing up pump capacity on the Oxford engine. Engine 22-2 drafted from the primary dump tank to obtain its water supply.

Dump Site Layout



The Fill Site

- For this drill – two fill sites were used. Both used the same pond located on the Herr's complex.
- The fill sites provided about a 3.4-mile round trip for the units hauling water.
- The pond provided ample water volume to support the drill and access was not much of a problem.
- Two, 1500 gpm pumpers were used at the pond to supply independent loading stations.

Fill Site Operations

Oxford Engine 21-1 (1,500 gpm) arrives at the fill site and positions to get set up to load tankers by the time the first tanker arrives.

Fill Site Operations

Cochranville Engine 27-1 positioned to use dual, 6-inch suctions to supply water for the second tanker loading station.

Fill Site Operations

Much of the success of the drill was contributed to the folks loading tankers. Every tanker (10 in all) all loaded using the same method and same fill connection. The two fill sites loaded tankers at rates in excess of 1000 gpm and the sites operated like NASCAR pit stops.

Fill Site Operations

Each fill site pumper supplied water to an LDH manifold and did so using 5-inch LDH. From the manifolds, each tanker was loaded using dual, 3-inch lines equipped with Storz quick-connect couplings.

Fill Site Operations

Both loading stations were located along the same road so traffic control was important as was tanker parking so that full tankers could pass tankers being loaded.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill.
- An estimated 133,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 1,156 gpm.
- A peak flow of 1,750 gpm was sustained for the last 30 minutes of the drill.
- The performance resulted in the folks being awarded membership in the Got Big Water 1,000 GPM Club!

The Lessons Learned

- At this drill, a nurse tanker operation was used during the early moments of the drill which allowed the crews to set-up the dump site without the pressure of running out of water in a couple of minutes.
- Flow was started at 500 gpm at the 5-minute mark; which was double the ISO performance requirement.

The Lessons Learned

- A 1750 gpm and a 2000 gpm pumper were used at the dump site to keep the supply going. They helped pump 1750 gpm through 500 feet of 5-inch LDH to a 1250 gpm pumper which then pumped 1750 gpm through two devices.
- Big pumps at the water source support big flows.

The Lessons Learned

- All ten tankers were big and all had the ability to dump quickly or pump off quickly if needed.
- The use of the clappered siamese was important to the success of the drill because it allowed the dump site to be shut down for a couple minutes to reposition the dump site pumper. All while tankers pumped off water to through the siamese.
- Every piece of apparatus in the drill carried 6-inch suction hose…and plenty of it. There were no shortage of adaptors or LDH appliances.

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, every tanker loaded in the same manner using 3-inch fill hose equipped with Storz fittings.
- Tankers were clearly loaded in excess of 1000 gpm without exceeding 100 psi inlet pressure.

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 Union Fire Company No. 1 for sponsoring and hosting this seminar.

www.GotBigWater.com

This program was developed by
GBW Associates, LLC

For more information contact us at
thebigcamel@gotbigwater.com