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Albion Volunteer Fire Department
Albion, Pennsylvania

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 19, 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

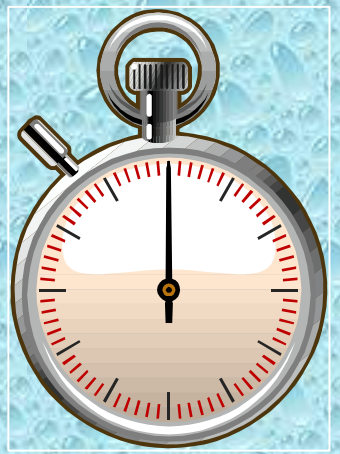
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Albion fire station.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 19th at a nearby airport that was not longer operational.
- 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 Erie 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 Albion area.*

Drill Participants

- Albion Engine 623
  - 1250 gpm pump w/2,000 gal tank
- Cranesville Engine 602
  - 1750 gpm pump w/1000 gal tank

Drill Participants

- Perry Hi-Way Engine 434
  - 1750 gpm pump w/1500 gal tank

- Perry Hi-Way Tanker 435
  - No pump w/1800 gal tank

Drill Participants

- Franklin Twp Engine 722
  - 1500 gpm pump w/1000 gal tank

- Franklin Twp Tanker 725
  - 750 gpm pump w/2000 gal tank

Drill Participants

- Springboro P/T 21-5
  - 1,000 gpm pump w/2000 gal tank
- Randolph Tanker 18-5
  - 1250 gpm pump w/2,000 gal tank

The Drill Begins

The drill began with Cranesville Engine 602 arriving on scene and laying out a 300-ft, 4-inch supply line in preparation for operating as the attack engine. Franklin Twp Engine 722 arrived shortly thereafter and began to set up as the supply pumper using a dump tank operation.

Dump Site Operations

The crew hustled to get the first dump tank set up so that water supply operations could get started as soon as possible.

Dump Site Operations

At the 5-minute mark, water flow was started at 250 gpm using a portable master stream device.

Dump Site Operations

At the 15-minute mark, two dump tanks were down but only one was in operation. Flow was moved to 500 gpm using the same portable master stream device.

Dump Site Operations

Engine 722 used a suction elbow so that maximum flow could be obtained even with the dump tanks placed in front of the pumper.

Dump Site Operations

As more tankers arrived the dump site operation continued to grow. The first tanker was back from the fill site around the 16-minute mark.

Dump Site Operations

By the 26-minute mark, three dump tanks were down with two in operation and flow was being maintained at 500 gpm.

Dump Site Operations

The second tanker returned from its first trip to the fill site and was able to off-load its water in little time.

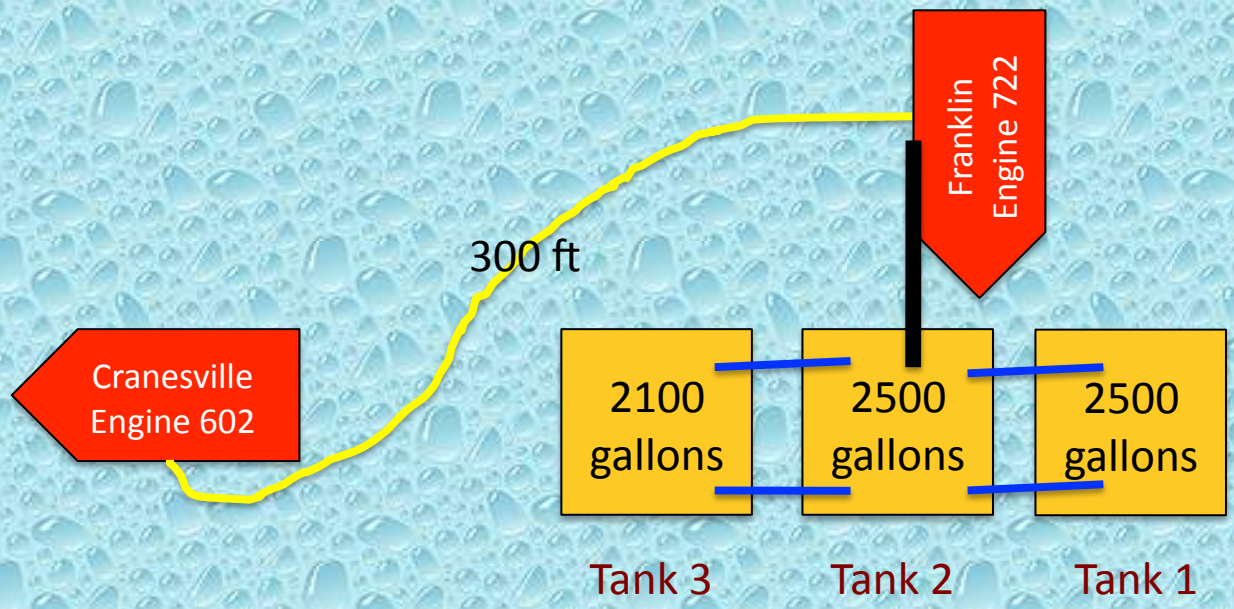
Dump Site Operations

At the 30-minute mark, flow was moved to 600 gpm using Engine 602's pre-piped deck gun. The portable master stream device was shut down.

Dump Site Operations

By the 60-minute mark, all three dump tanks were in operation and a peak flow of 800 gpm was attained.

Dump Site Layout



Suction Hose

4” Hose

Jet Siphon

The Fill Site

- For this drill – one fill site was used – a large pond on the airport property.
- The fill site provided about a 1.6-mile round trip for the units hauling water, however a 5-minute time delay was added in the route to simulate a longer travel distance.
- The pond provided ample water volume to support the drill and access was not a problem.
- A 1,250 gpm pumper was used at the pond to support the tanker fill station.

Fill Site Operations

Portable fire pumps and a dry fire hydrant were used to provide water supply to Albion Engine 623 (1250 gpm).

Fill Site Operations

An LDH manifold was used as the control point for loading tankers. The "loader" never left the manifold which allowed the pump operator to concentrate on drafting and the use of the portable fire pumps.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted for just a few seconds…once during the drill.
- An estimated 65,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 565 gpm.
- A peak flow of 800 gpm was sustained for the last 20 minutes of the drill.

The Lessons Learned

- At this drill, a nurse tanker operation was not used which meant that the dump site crew had to be good at setting up dump tank operations.
- The first dump tank was set up and ready for use by the time the attack engine was ready for water.

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, not all tankers had the same fill connection so folks worked to try and fill as efficiently as possible by dividing up the loading area into two stations…both supplied by Engine 623.

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 Erie County Firefighters Association and the Albion VFD for sponsoring and hosting this seminar.

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This program was developed by
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