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Montoursville FD
Montoursville, Pennsylvania

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
November 8, 2020
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

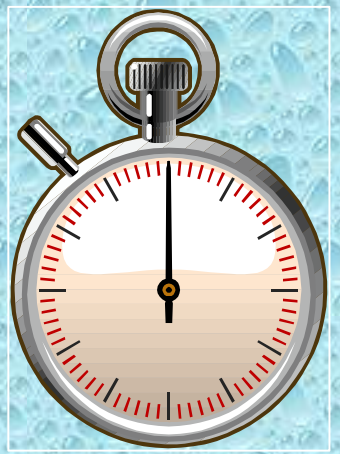
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Montoursville FD.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on November 8th near the airport in Montoursville.
- 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 tender 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

Department	Unit	Pump Size	Tank Size	Dump Tank
Montoursville	Engine 20	2000 gpm	500 gal	
Montoursville	Tanker 20	2000 gpm	1500 gal	
Englesmere	Tanker 51	1500 gpm	2500 gal	3000 gal
Mildred	Tanker 58	500 gpm	2500 gal	3000 gal
Picture Rocks	Tanker 26	500 gpm	2500 gal	3000 gal
Pennsdale	Tanker 23	2000 gpm	2500 gal	2500 gal
Heburn Twp	Tanker 15	1750 gpm	2500 gal	2500 gal
Plunketts Creek	Tanker 25	NA	3000 gal	3000 gal
Tunkhannock	Tanker 7	500 gpm	3000 gal	
Warrior Run	Tanker 9-1	1750 gpm	2500 gal	2500 gal
Woodward Twp	Tanker 2	1000 gpm	3000 gal	
Hepburn Twp	Engine 15	1500 gpm	750 gal	
Pennsdale	Engine 23	1500 gpm	1000 gal	
Jersey Shore	Engine 1-45	1500 gpm	750 gal	

- *The participants for the drill were from several different fire departments in the Lycoming 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 Montoursville area.*

The Drill Begins

The start of the morning was delayed some due to a mutual aide structure fire to which a number of units had to respond. By the time the drill was ready to start, units began returning and "hopped in the shuttle" as they arrived. Engine 1-45 (right) operated as the attack engine and Rescue Engine 20 took a position to start dump tank operations.

Dump Site Operations

Part of the challenge of the dump site was that it was located on a curve. The first dump tank was down and operational around the 6-minute mark…but not until it was turned a bit for better tanker access.

Dump Site Operations

Montoursville Rescue Engine 20 used twin suction lines in the first dump tank in hopes of grabbing as much intake water as possible.

Dump Site Operations

At the 8-minute mark, flow was started at 500 gpm at the attack engine. A Hose Monster flow diffuser was used to measure the flow.

Dump Site Operations

As additional tankers arrived on the scene the crews worked to build out the dump site. By the 14-minute mark, three dump tanks were deployed and one was in operation.

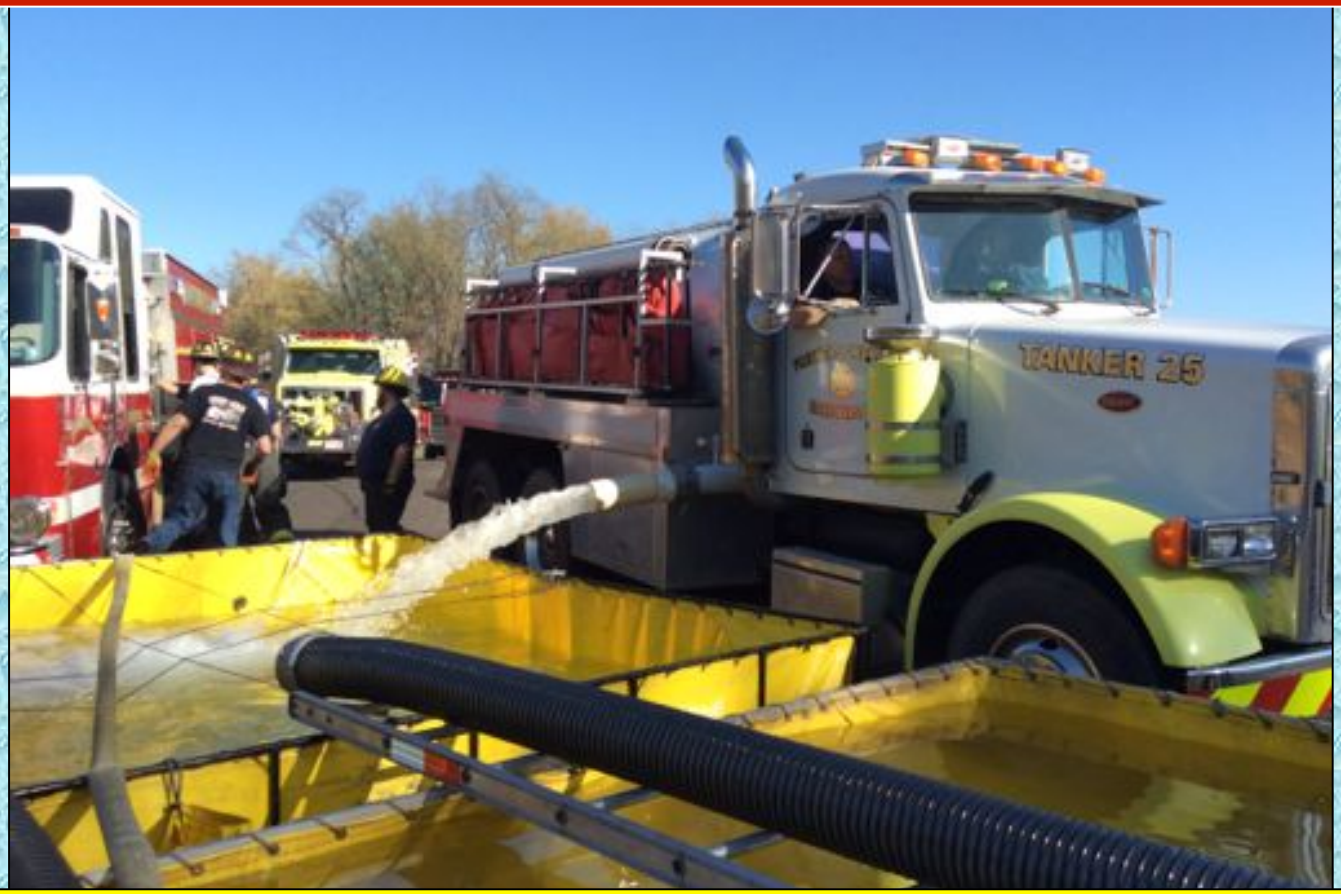
Dump Site Operations

Water transfer operations were critical to keeping flow moving. A total of three jet siphons and a portable pump were used to transfer water between dump tanks.

Dump Site Operations

By the 60-minute mark, four dump tanks were in use and flow was at 750 gpm.

Dump Site Operations



The curve certainly proved challenging to the large, side dumping tankers….but everyone seemed to adjust after a couple of runs.

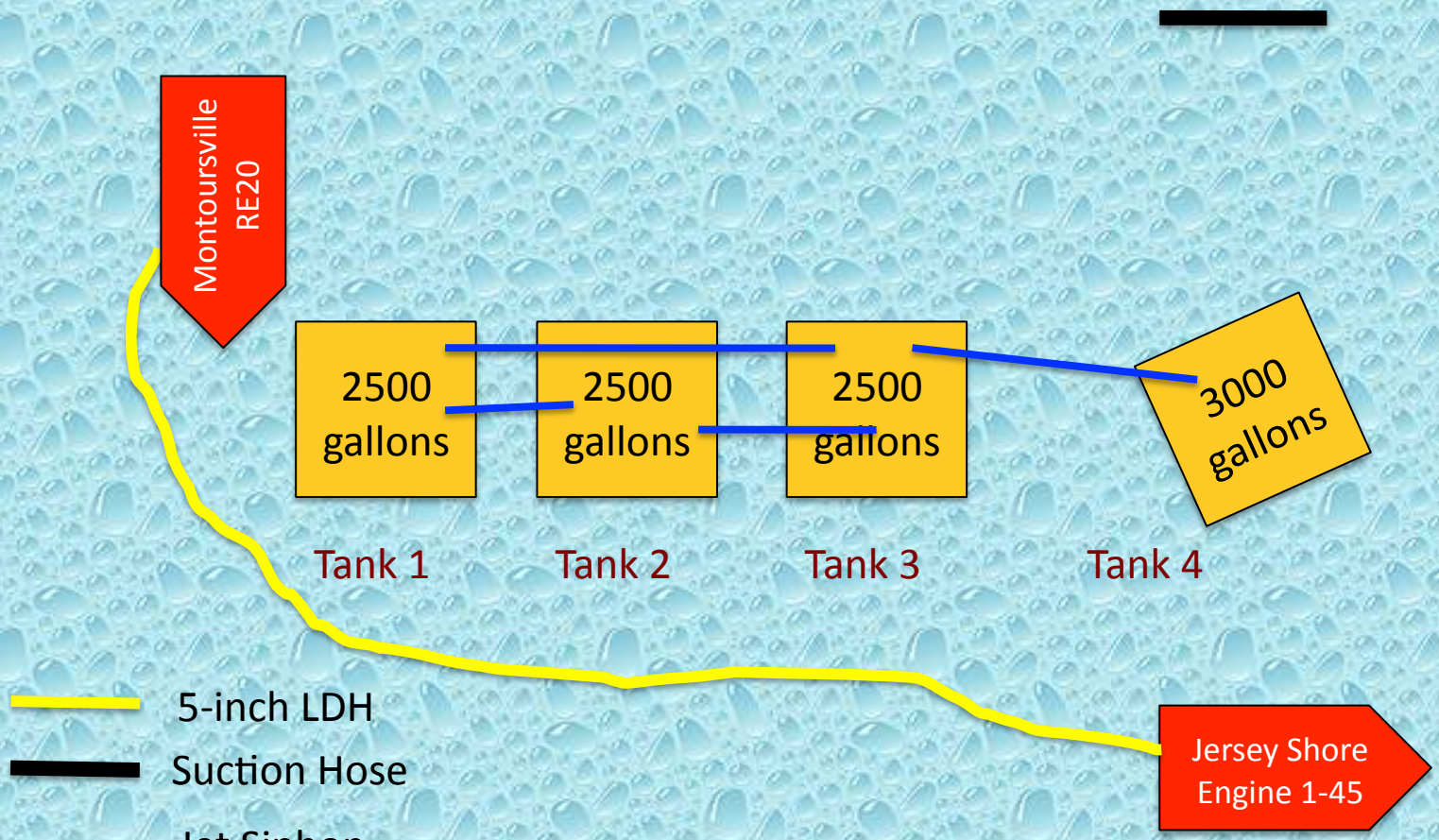
Dump Site Operations

In the second half of the drill, Pennsdale Tanker 23 was taken out of the shuttle and used as a nurse tanker to provide support during times when no tanker was available to dump. A double-clappered siamese was added at the dump site engine to facilitate this operation.

Dump Site Operations

Control of the individual jet siphons was “removed” from the dump site pump operator by using a gated wye to control the water transfer devices. This allowed the pump operator to focus solely on drafting and supplying the attack engine.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used – one on Loyalsock Creek and one on the West Branch of the Susquehanna River.
- The fill sites both provided about a 2.0-mile round trip for the units hauling water.
- Both sites had ample water volume to support the drill and access was not a problem.
- A 1,500 gpm pumper was used at each site to support the tender fill station.

Boat Launch Fill Site

Heburn Twp Engine 15 (1500) drafted from the river and supplied water via 5-inch LDH to a manifold which then was used to load tankers.

Boat Launch Fill Site

The LDH manifold was outfitted with a couple of different size fill lines to accommodate the variances in fill connections on the tankers. The loader person never left the manifold and simply opened and closed valves as needed to load the tankers.

Creek Fill Site

Pennsdale Engine 23 (1500 gpm) drafted from the creek and loaded tankers. Extra suction hose was needed to reach usable water.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted a couple of times due to some issues with water transfer operations.
- Once the water transfer problems were corrected and the second fill site became operational, the operation was able to support a 750 gpm flow without any interruption.

The Lessons Learned

- A tender fill-site needs to run like a NASCAR pit stop. Anything that slows down the loading of tenders is going to reduce the efficiency of the tender shuttle.
- At this drill, not all of the tenders had the same fill connection which slowed some of the rigs getting filled and getting back on the road.

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 tender – as well as adaptors.
- The "bundling" of water hauling mutual aid resources has proven successful in many drills. The tender 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 Montoursville Fire Department for sponsoring and hosting this seminar.

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This program was developed by
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