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West Branch Fireman's Association
Montoursville, Pennsylvania

Rural Water Supply Operations Seminar
2-hr Water Supply Drill – 1,000 GPM Club
September 22, 2024
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

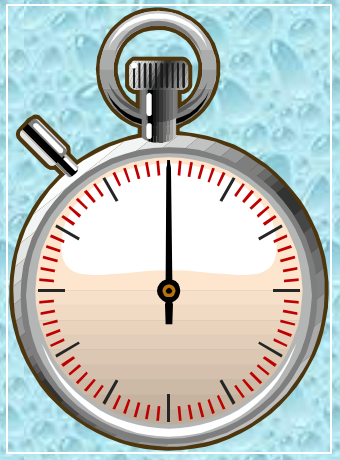
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Montoursville fire station.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on September 22nd at the Mill Street Recreation Area.
- 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

Participants				
Department	**Unit**	**Pump Size**	**Tank Size**	**Dump Tank**
South Williamsport	Tanker 9-7	2000 gpm	2000 gal	NA
Hughesville	Tanker 24	500 gpm	2000 gal	2100 gal
Hughesville	Brush 24	500 gpm	250 gal	NA
Old Lycoming	Engine Tanker 24	2000 gpm	1500 gal	NA
Montoursville	Tanker 20	2000 gpm	1500 gal	2100 gal
Eldred Twp	Tanker 22	1500 gpm	1500 gal	2100 gal
Waterville	Engine 128	1500 gpm	320 gal	NA
Waterville	Tanker 128	1500 gpm	1500 gal	2500 gal
Nippenose Valley	Tanker 6	1000 gpm	2500 gal	3000 gal
Nisbet	Tanker 7	750 gpm	3000 gal	3000 gal
Plunketts Creek	Tanker 25	NA	3000 gal	3000 gal (2)
Washington Twp	Tanker 21	500 gpm	3000 gal	2100 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 drill started with crews executing a rural hitch operation using a 5” double-clappered siamese. Tanker 20 arrived on the scene and laid out 200-feet of 5-inch supply hose and went to work as the attack pumper. At the 1:20 minute mark, Tanker 7 (3000 gal) arrived and began supplying the rural hitch.

Dump Site Operations

Tanker 6 was the next arriving tanker around the 5-minute mark and set-up to support the 500 gpm rural hitch operation by connecting to the other side of the siamese.

Dump Site Operations

Additional tankers continued to arrive and support the 500 gpm rural hitch operation by pumping the siamese as needed.

Dump Site Operations

At the 25-minute mark, Engine/Tanker 14 (2000 gpm) arrived and the crew went to work setting up a dump site operation. Meanwhile, tankers continued to support the 500 gpm rural hitch.

Dump Site Operations

Tankers continue to support the rural hitch while crews work to build out the dump site.

Dump Site Operations

At the 35-minute mark, the dump site is operational as Tanker 25 offloads the first load of water. Flow is moved over from the rural hitch to a dump tank operation and maintained at 500 gpm.

Dump Site Operations

Around the 50-minute mark flow is moved to 600 gpm and two dump tanks are up and running. Engine/Tanker 14 now has two, 6-inch suction lines in place.

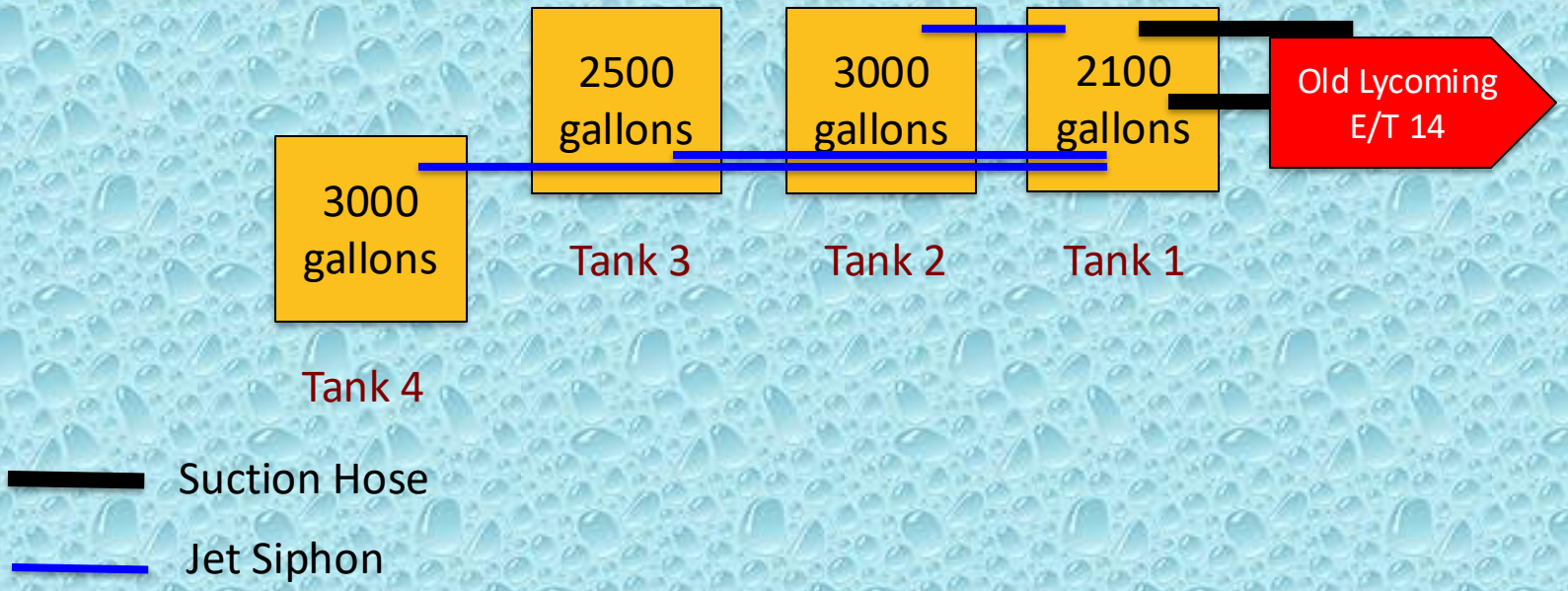
Dump Site Operations

Around the 55-minute mark, crews deployed a 300 gpm portable pump down into a nearby creek and supplied water back to one of the dump tanks.

Dump Site Operations

Flow was moved to 1000 gpm at the 60-minute mark and then to 1500 gpm at the 90-minute. A 4-dump tank operation supported the flow….which was never once interrupted.

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 1500 gpm pumper was used at each fill site to load tankers.

River Fill Site

Eldred Tanker 22 (1500 gpm) drafted from the river at this boat launch and supplied an LDH manifold which in turn supported two loading stations.

Creek Fill Site

Waterville Engine 128 (1500 gpm) drafted from the creek at this roadside pull-off and supplied water for two loading stations. One for Plunketts Creek's vacuum tanker and one for the remaining tankers.

Creek Fill Site

A 3000-gallon dump tank was used to support the vacuum tanker loading operation. Engine 128 supplied water to the dump tank and kept it full until the arrival of the vacuum tanker. The vacuum tanker then self-loaded and headed back to the dump site. Engine 128 then refilled the dump tank in preparation for the return trip.

The Results

- The drill was stopped at the 2-hour mark.
- Water flow was never interrupted!
- An estimated 105,250 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 888 gpm.
- For the last 60-minutes of the drill a flow of 1,000 gpm or greater was supplied.
- For the last 30-minutes, a flow of 1,500 gpm or greater was supplied!
- The performance resulted in the participants being awarded membership in the Got Big Water 1,000 GPM Club!

The Lessons Learned

- At this drill, crews chose to use a rural hitch operation to get things started.
- Using the rural hitch gave the crews time to get a dump tank set-up without the added pressure of having to draft and flow water right away.
- Once the first dump tank was up and running the operation ran flawlessly.

The Lessons Learned

- As the flow increased, additional suction lines were added as were additional dump tanks.
- The use of a large body pump powered by sufficient motor horsepower at the dump site allowed one rig to supply the entire operation.
- The dump site pumper, Engine/Tanker 14 was able to supply a peak flow of 1500 gpm to the simulated fire ground and feed water to three jet siphons.

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 was some variance in how the tankers loaded – meaning the fill connection. Had fill connections been the same for every tanker, flow most certainly could have been higher at the dump site.

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.
- Vacuum tankers are very efficient water haulers and at this drill, Plunketts Creek's 3000-gallon tanker most likely hauled more loads of water than any other rig.

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 West Branch Fireman’s Association for sponsoring and the Montoursville FD for hosting the seminar.

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This program was developed by
GBW Associates, LLC

For more information contact us at
thebigcamel@gotbigwater.com