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Warren County Fire Department
Warren County, Kentucky

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 17, 2026
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

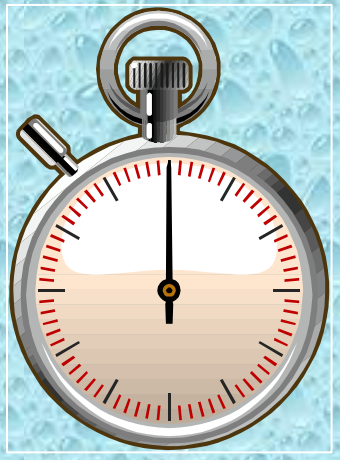
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Alvaton FD Station 3.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Warren County.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 17th at Basil Griffin Park.
- 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**
Alvaton	Engine 21	1250 gpm	1000 gal	None
Alvaton	Tanker 23	250 gpm	3000 gal	3000 gal
Auburn	Tanker 32	None	3000 gal	3000 gal
Hadley	Engine 86	1250 gpm	1650 gal	None
Plano	Tanker 97	1250 gpm	3000 gal	3000 gal
Smiths Grove	Tanker 33	250 gpm	3000 gal	3000 gal
Woodburn	Tanker 53	500 gpm	2000 gal	2100 gal
Gott	Engine 68	1250 gpm	1000 gal	None
Gott	Tanker 61	1250 gpm	3000 gal	3500 gal
Browning	Tanker 13	500 gpm	3000 gal	3000 gal
Richardsville	Tanker 41	1250 gpm	3000 gal	3000 gal

- *The participants for the drill were from several different fire departments in Warren County and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Alvaton area.*

The Drill Begins

The drill started with crews executing a rural hitch operation using a 5” double-clappered siamese. Plano Tanker 97 was the first-arriving tanker and went to work pumping one side of the Siamese. Initial flow was 250 gpm.

Rural Hitch Operations

Tanker 97 supplied the siamese using a 50-ft section of 3-inch hose and a 2-1/2”x 2-1/2”x5” gated wye appliance.

Dump Site Operations

As additional tankers arrived, they supported the siamese while crews worked to build out a dump tank operation.

Dump Site Operations

Hadley Engine 86 (1250 gpm) assumed the role of dump site pumper and set up to draft using the driver's side suction inlet and with dump tanks in front of the rig.

Dump Site Operations

At the 22-minute mark, the first load of water was dumped into the dump tanks and the transition to a dump tank operation was underway. Flow was moved to 500 gpm at the 28-minute mark.

Dump Site Operations

Two dump tanks were in operation by the 28-minute mark and work was underway to gather equipment to add a third dump tank.

Dump Site Operations

Additional tankers continued to arrive, and crews worked to stabilize the two-dump operation.

Dump Site Operations

Water transfer became a bit problematic around the 35-minute mark and crews worked to remedy the situation by making adjustment to the transfer devices.

Dump Site Operations

By the 80-minute mark, three dump tanks were in use and flow was 1,000 gpm

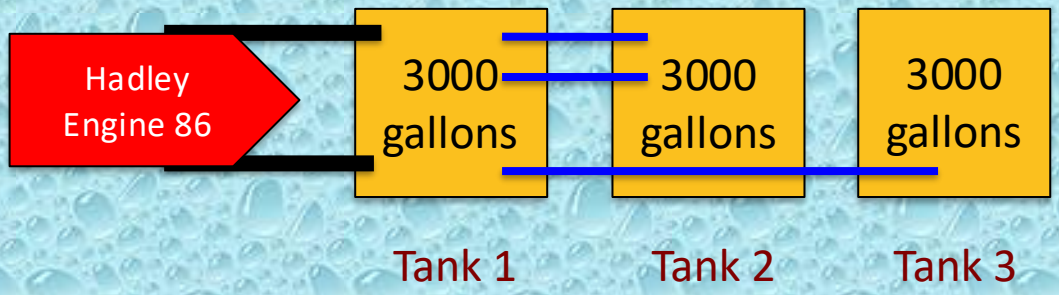
Dump Site Operations

Three jet siphon devices were used to handle the water transfer. With the 1000 gpm flow, the three transfer devices were affecting the performance of the 1250 gpm pumper, so crews worked to get a second, suction line in operation.

Dump Site Operations

Around the 90-minute mark, Engine 86 had twin, 6-inch suction lines in operation which helped with the water transfer device load.

Dump Site Layout



Suction Hose

Jet Siphon

The Fill Sites

- For this drill – two fill sites were used – both at the park lake.
- The sites provided about a 15-minute travel time for the units hauling water.
- Both sites had ample water volume to support the drill, and access was not a problem.
- A 1250 gpm pumper was used at each site.

Lake Fill Site #1

A TurboDraft CS was used at one of the fill sites as part of an ”open relay” set-up that loaded tankers at the 1000 gpm target fill rate. The TurboDraft was connected to a Fol-Da-Tank Float Dock Strainer.

Lake Fill Site #1

5-inch LDH was used to supply a three-way valve and twin, 3-inch lines were used to load the tankers.

Lake Fill Site #2

The second fill site used a TFT Loaw Level Strainer w/Float to access the lake water. This site also loaded tankers at the 1000 gpm target fill rate.

The Results

- The drill was stopped at the 105-minute mark.
- Water flow was interrupted once around the 35-minute mark to correct a water transfer issue.
- An estimated 61,750 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 657 gpm.
- For the last 41-minutes, a flow of 1000 gpm was supplied.

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 smooth for the most part.

The Lessons Learned

- As the flow increased, additional suction lines were added as were additional dump tanks.
- Water transfer became an issue that was addressed by adding the second, 6-inch suction line.
- The dump site pumper, Hadley Engine 86 was able to supply a peak flow of 1000 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.

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 Warren County Fire Department for sponsoring and the Alvaton FD for hosting the seminar.

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This program was developed by
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