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Auburn and Chester Fire Departments
Auburn, New Hampshire

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
April 12, 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

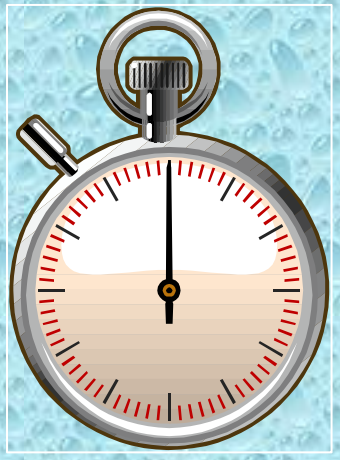
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Auburn FD Station 1.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Auburn and Chester as well as the surrounding mutual aid region.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on April 12th in a nearby industrial 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**
Auburn	Engine 2	1500 gpm	1000 gal	NA
Auburn	Tanker 1	1500 gpm	2500 gal	2500 gal
Auburn	Tanker 2	1500 gpm	2500 gal	2500 gal
Derry	Engine 4	1500 gpm	2500 gal	2500 gal
Candia	Tank 1	1250 gpm	3500 gal	2500 gal
Hooksett	Engine 5	1500 gpm	1000 gal	NA
Londonderry	Tanker 1	1250 gpm	3000 gal	3000 gal
Bedford	Engine 3	1500 gpm	2500 gal	3500 gal
Chester	Tank 1	1500 gpm	3000 gal	3500 gal
Litchfield	Engine 4	1250 gpm	1250 gal	NA
Sandown	Tank 1	500 gpm	3500 gal	NA
Raymond	Tank 1	1500 gpm	2500 gal	NA

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

The Drill Begins

The drill started with crews executing a rural hitch operation using a 4” double-clappered siamese. Candia Tank 1 was the first-arriving tanker and went to work pumping one side of the Siamese. Initial flow was 300 gpm.

Rural Hitch Operations

Auburn Tanker 2 was next to arrive followed by Derry Engine 4. The crews kept supporting the rural hitch while awaiting the decision to transition to a dump tank operation.

Dump Site Operations

Just after the 15-minute mark, Auburn Engine 2 (1500 gpm) arrived and the crew went to work setting up for dump tank operations. Meanwhile, additional tankers kept arriving and supporting the rural hitch – which was critical to keeping the water flow sustained.

Dump Site Operations

Around 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 then moved to 500 gpm.

Dump Site Operations

Candia Tank 1 was the first tanker back from the fill site and dumped its water before heading for another load. Two dump tanks were now in operation.

Dump Site Operations

As dump tank operations progressed, water transfer became important. Engine 2 was able to support the fire flow and operate all of the jet siphon devices.

Dump Site Operations

Around the 60-minute mark, work was begun on a third dump tank.

Dump Site Operations

At the 75-minute mark, three dump tanks were now in operation and flow was moved to 750 gpm.

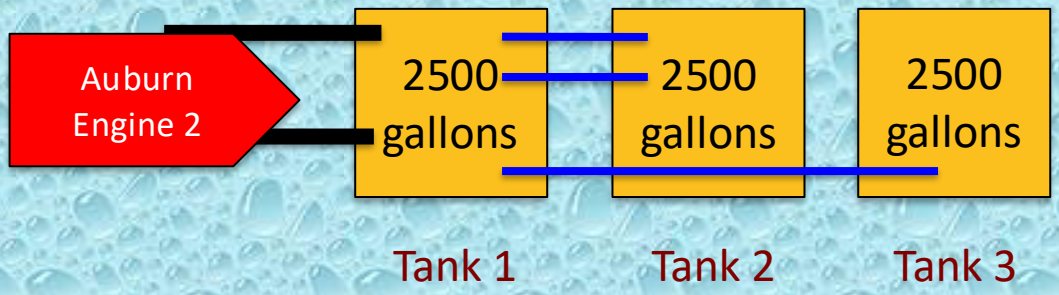
Dump Site Operations

With flow now at 750 gpm, dumping and transferring became critical elements in sustaining an uninterrupted flow.

Dump Site Operations

At the 75-minute mark, Engine 2 now had two, 6-inch suction lines in operation. The front suction was brought on as the second suction. This helped improve the pumper's capability.

Dump Site Layout



Suction Hose

Jet Siphon

The Fill Sites

- For this drill – two fill sites were used – one a dry fire hydrant on Cohas Brook and one a municipal fire hydrant on Beaver Brook Road.
- The DFH site provided about a 6-mile round trip and the fire hydrant about a 1.6-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 1250 gpm pumper was used at the DFH and a 1500 gpm pumper was used at the fire hydrant.

Dry Fire Hydrant Fill Site

Litchfield Engine 4 (1250 gpm) drafted at the dry fire hydrant and supported tanker loading operations back out on the cul de sac.

River Fill Site

Hooksett Engine 5 (1500 gpm) used a municipal fire hydrant to obtain water for loading tankers.

The Results

- The drill was stopped at the 2-hour mark.
- Water flow was interrupted once around the 43-minute mark to correct a water transfer issue.
- An estimated 65,750 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 592 gpm.
- For the last 32-minutes, a flow of 850 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 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, Auburn Engine 2 was able to supply a peak flow of 850 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.
- Water transfer operations are critical to the success of any dump tank operation. At this drill, the third dump tank was eliminated from the set-up and flow was able to increase to 850 gpm. All because of water transfer ability.

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 Auburn and Chester Fire Departments for sponsoring and the Auburn FD for hosting the seminar.

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This program was developed by
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