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Upper Valley Mutual Aid Association
Fairlee, Vermont

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 18, 2025
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

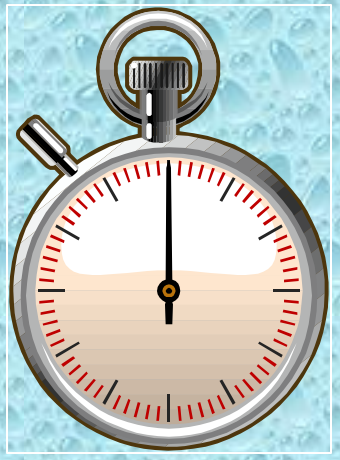
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Fairlee fire station.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 18th at the Aloha Hive Camp.
- 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**
Fairlee	Engine 5	1250 gpm	1250 gal	NA
Fairlee	Tanker 3	NA	1850 gal	2000 gal
Orford	Tanker 2	1500 gpm	1500 gal	2500 gal
Groton	Tanker 1	1250 gpm	2500 gal	2500 gal
Hartland	Tanker 2	500 gpm	2000 gal	1500 gal
West Fairlee	Engine 2	1000 gpm	1250 gal	NA
Ryegate	Tanker 1	250 gpm	3000 gal	3500 gal
Lyme	Engine 1	1500 gpm	1000 gal	NA
Plainfield	Tanker 1	1000 gpm	3000 gal	3000 gal

- *The participants for the drill were from several different fire departments in the Upper Valley Mutual Aid Association region and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Fairlee area.*

The Drill Begins

The drill started with crews executing a rural hitch operation using a 4” double-clappered siamese. Fairlee Engine 5 arrived on the scene and laid out 400-feet of 4-inch supply hose and went to work as the attack pumper. Shortly thereafter, Groton Tanker 1 (1250gpm/2500gal) arrived and began supplying the rural hitch.

Dump Site Operations

Plainfield Tanker 1 (3,000 gal) was the next arriving tanker and went to work supporting the rural hitch operation.

Dump Site Operations

Around the 22-minute mark, operations transitioned to a dump tank operation. Orford Tanker 2 (1500 gpm/1500 gal) served as the dump site pumper.

Dump Site Operations

With the flow at 500 gpm, work gets underway around the 50-minute mark to move to a 3-dump tank operation.

Dump Site Operations

By the 60-minute mark, three dump tanks were in operation and two jet siphons were used to transfer water.

Dump Site Operations

The dump site pumper supplied the attack pumper (Fairlee Engine 5) through a few hundred feet of 4-inch supply hose.

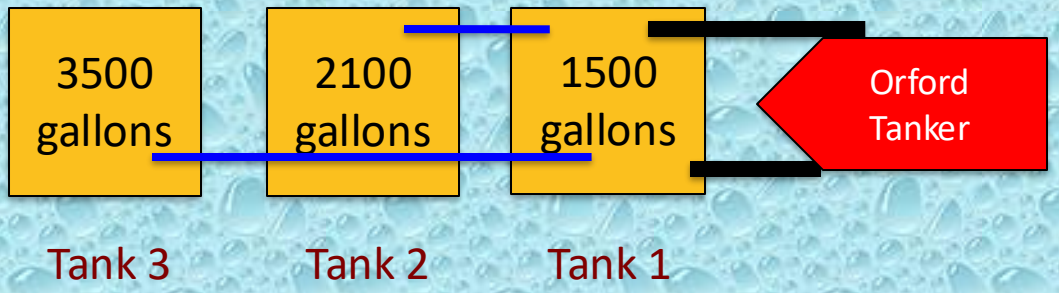
Dump Site Operations

Two, ground-based monitors were used to discharge water back into the lake. Fairlee Engine 5 supplied both monitors.

Dump Site Operations

By the 90-minute mark, flow was moved to 1000 gpm and Orford Tanker 2 had twin, suction lines in operation.

Dump Site Layout



Suction Hose

Jet Siphon

The Fill Sites

- For this drill – one fill site was used – a dry fire hydrant site along the shore of Lake Fairlee.
- The fill site provided about a 1.5-mile round trip for the units hauling water.
- The site had ample water volume to support the drill, and access was not a problem.
- A 1500 gpm and a 1000 gpm pumper were used at the fill site to load tankers.

Lake Fill Site

Lyme Engine 1 (1500 gpm) drafted from the dry fire hydrant and the lake and then supplied an LDH manifold which in turn supported the loading station.

Lake Fill Site

West Fairlee Engine 2 (1000 gpm) drafted from the lake also and supplemented Lyme Engine 1's capability.

Lake Fill Site

Tankers were loaded using 4-inch LDH and were loaded at the target rate of 1000 gpm.

The Results

- The drill was stopped at the 2-hour mark.
- Water flow was briefly interrupted twice during the first 15-minutes of the operation.
- An estimated 65,750 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 577 gpm.
- For the last 60-minutes of the drill a flow of 1,000 gpm or greater 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 and dump tanks were added to the operation.
- The dump site pumper, Orford Tanker 2 was able to supply a peak flow of 1000 gpm to the attack engine and feed water to two 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.
- 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 plenty of 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 Upper Valley Mutual Aid Association for sponsoring and the Fairlee VFD for hosting the seminar.

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