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Lakes Region Mutual Fire Aid Association
Wentworth, New Hampshire

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 17, 2015
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

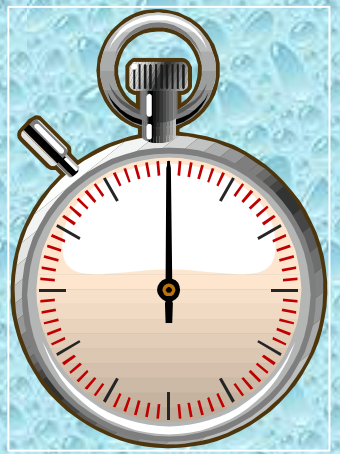
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Wentworth Elementary School.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from the Lakes Region and the Twin State mutual aid areas.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 17th in Wentworth at King Forest Industries - a large saw mill.
- 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 requires fire departments to demonstrate the 2-hours test, the test is still a reasonable standard by which fire departments can compare their water supply operations. (ISO now uses a computer model.)

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

- *The participants for the drill were from ten different fire departments in the Lakes Region and Twin State mutual aid areas, and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Wentworth area.*

Drill Participants

Department	Unit	Pump	Tank
Wentworth	42 Engine 1	1000 gpm	1000 gal
Wentworth	42 Engine 3	1000 gpm	1000 gal
Piermont	Tanker 1	500 gpm	1800 gal
Hebron	37 Engine 3	1250 gpm	1000 gal
Rumney	38 Engine 3	1250 gpm	1000 gal
Warren	40 Engine 2	1250 gpm	1000 gal
Orford	Engine 3	1250 gpm	1000 gal
Haverhill	Tanker 3	1250 gpm	1800 gal
Chichester	54 Engine 1	1500 gpm	2000 gal

The Drill Begins

Wentworth 42 Engine 3 was the first-arriving unit and assumed the role as the attack pumper. The plan was to use a “rural hitch” operation initially and then transition to a dump tank operation. The stopwatch was started when the pumper driver applied the air brakes.

Dump Site Set-up

The attack pumper crew stretched a 4-inch line to a HoseMonster flow diffuser which was used to accurately measure the water flow during the drill.

Dump Site Set-up

Taken at around the 3-minute mark, the photo shows Wentworth 42 Engine 3 (right) setting up as the dump site engine. The engine is ready to pump into a 4” double-clappered siamese (rural hitch) while the dump tanks are being set up.

Dump Site Set-up

Water flow was started just a few moments after the 5-minute mark. The initial flow was set to 250 gpm.

Dump Site Set-up

Additional units begin to arrive and are directed to support the rural hitch until the dump site can be made operational.

Dump Site Operations

One of the issues that arose early in the drill was the lack of a low level strainer for use in the dump tank. The dump site engine had to use a floating barrel strainer from about 15 minutes until a low level strainer arrived on a tanker. The floating barrel kept wanting to turn over, so the float was taken off.

Dump Site Operations

Many of the water hauling rigs could only dump from the rear, so dump tanks were arranged to accommodate that off-loading method.

Dump Site Operations

A low level strainer arrived on Piermont's tanker and it was quickly exchanged with the barrel strainer.

Dump Site Operations

Chichester's 2,0000-gallon engine/tanker was the first tanker back from a fill-site at around the 34-minute mark. The engine/tanker's water was much needed by the time the rig got back to the dump site.

Water Transfer Operations

With multiple dump tanks in use, water transfer operations became important in order to support the operation.

Water Transfer Operations

Two, 6-inch Kochek Holley Pipes were used as the initial transfer devices for the second dump tank that was placed in operation. The pipes worked really well.

Dump Site Operations

With the operation shifted to a dump tank operation, use of the rural hitch ceased – however, it was kept in place in case it was needed (double-clappered siamese in photo on the right). In the mean time, a pump-off pipe (photo on the left) was used to allow engines to pump off their water directly into a dump tank. This allowed each engine to get back on the road sooner to get another load of water.

Dump Site Operations

The pump-off line was kept in place (100-ft of yellow 4-inch) throughout the drill - as was the rural hitch. This provided good redundancy in terms of choices for off-loading engines.

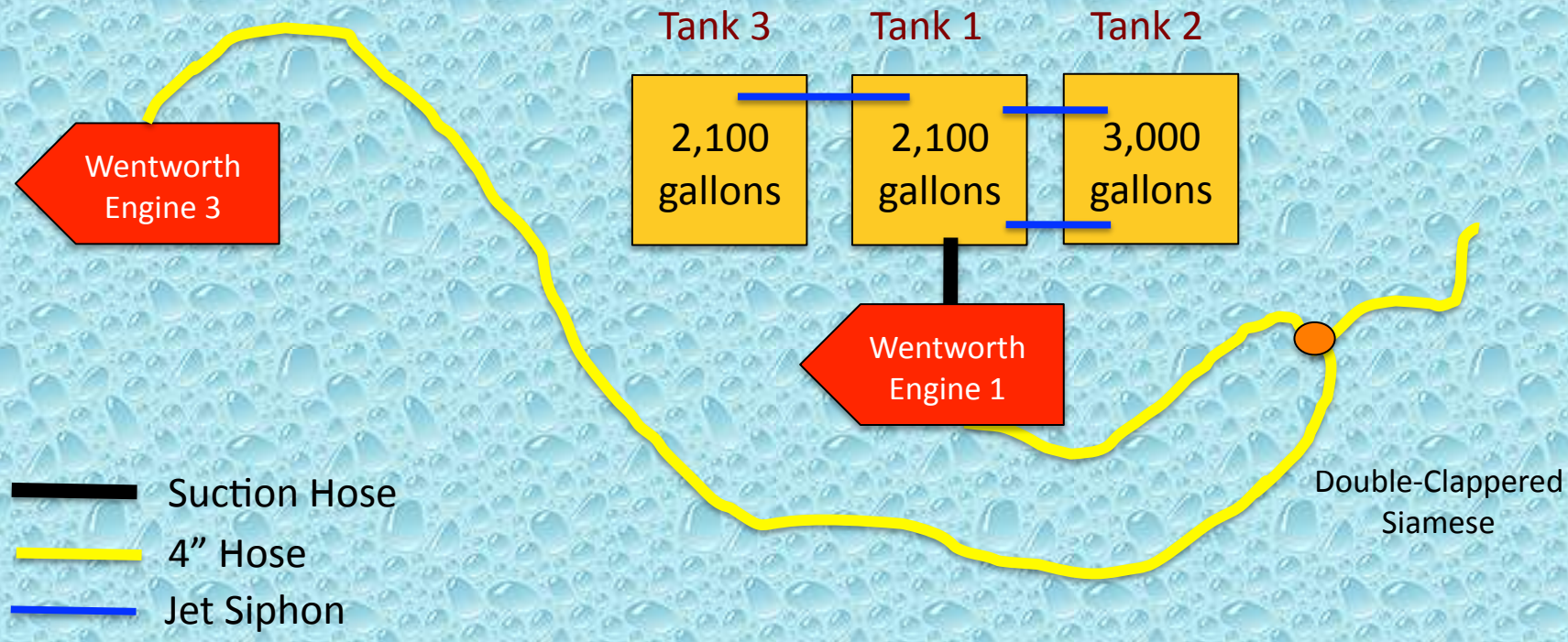
Dump Site Operations

With the third tank in place, the operation stabilized and flow was never interrupted from this point until the end of the drill.

Dump Site Operations

The final set-up. All three tanks are full of water and the flow has moved to 500 gpm for the final 30-minutes of the drill.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used.
- The first fill site was located south of the dump site at a dry fire hydrant along Route 25 at the Baker River,
- The site provided about a 4-mile round trip for the units hauling water.
- The river provided ample water volume to support the drill and access was not a problem.
- A single, 1,250 gpm pumper was used at the river to support the tanker fill station.

The Fill Sites

- The second fill site was located north of the dump site at a large pond.
- This site provided a 3.2-mile round trip for the units hauling water.
- The pond provided ample water volume to support the drill and access was not a problem.
- This fill site was equipped with a 6-inch dry fire hydrant – and crews used a portable pump to assist.
- A single, 1,250 gpm pumper was used at the pond to support the tanker fill station.

Baker River Fill Site

Orford Engine 3 (1,250 gpm) was used to draft from the river via a dry fire hydrant and supply 4-inch LDH to load tankers. A jumbo wye was used as the control valve for loading the tankers.

Pond Fill Site

Warren Engine 2 (1,250 gpm) was used to draft from the pond using a dry fire hydrant and supply a TFT LDH manifold which controlled the 4-inch lines used to load tankers.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted a couple of times during the first hour due to a delay getting a fill site up and running and a limited number of tankers hauling water.
- At the peak of the drill, the crews were able to sustain a 500 gpm flow.

The Lessons Learned

- Once again, the “rural hitch” was very useful during the early stages of the drill.
- The crews did a good job of transitioning from the rural hitch to a dump site operation without ever interrupting water flow.
- The decision to use an “off-load” pipe at the dump site allowed engines to pump off their water into a dump tank instead of using the rural hitch once the dump tank operation was under way.

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.
- Both fill sites were set up for efficiency!
- At this drill, almost every fill line had a Storz-style connection which really made a difference in reducing the amount of time needed to connect fill lines.

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.
- The "bundling" of water hauling mutual aid resources has proven successful in many drills. The tanker task force concept again proved to be an effective process for requesting and using additional rural water supply resources.

The Lessons Learned

- Portable fire pumps can add value to a drafting operation and at this drill, the portable pump used at the pond helped bolster the operation.

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 Lakes Region Mutual Fire Aid Association and the Wentworth VFD for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

For more information contact us at
thebigcamel@gotbigwater.com