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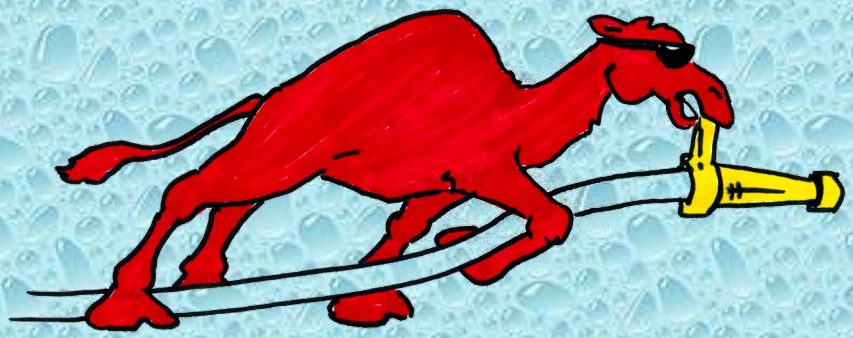


Cumberland/Oxford Fire Chief's Association
Harrison, Maine

Rural Water Supply Operations Seminar
May 21, 2023
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

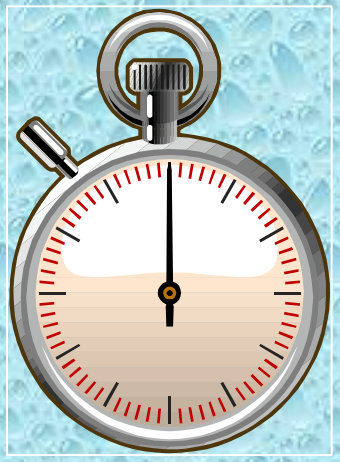
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Harrison fire station.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 21st at a local recreational complex.
- 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**
Harrison	Engine 2	1500 gpm	3000 gal	3000 gal
Denmark	Engine 3	1500 gpm	400 gal	NA
Brownfield	Engine 1	1500 gpm	400 gal	NA
Bridgton	Engine 4	1500 gpm	1500 gal	NA
Bridgton	Tank 4	NA	3500 gal	3500 gal
Brownfield	Tank 2	1000 gpm	3000 gpm	3000 gal
Casco	Tank 66	1250 gpm	3000 gal	(2) 3000 gal
Denmark	Tank 7	750 gpm	3000 gal	3000 gal
Fryeburg	Tank 92	1000 gpm	2800 gal	3000 gal
Naples	Tank 1	750 gpm	3000 gal	(2) 1500 gal
Sweden	Tank 2	500 gpm	3300 gal	3000 gal
Paris	Tank 1	500 gpm	2250 gal	2500 gal

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

The Drill Begins

Harrison Engine 2 arrived on scene and immediately went to work setting up to supply a simulated fire attack (HoseMonster) using the rig's 3000 gallons of water. While 200-ft of 4-inch LDH was being stretched another crew worked to deploy the Engine's 3000-gallon dump tank in preparation for dump tank ops.

Dump Site Operations

Crews work to get the first dump tank set up. Meanwhile, water flow was started at 250 gpm at the 5-minute mark using Engine 2's onboard water tank.

Dump Site Operations

The first load of water is dumped into the first dump tank at around the 10-minute mark and drafting operations commence very soon afterward..

Dump Site Operations

Around the 15-minute mark two dump tanks are down but only one in operation. Bridgton Tank 4 (3500 gal) dumps its first load of water.

Dump Site Operations

By the 20-minute mark flow is moved to 500 gpm Three dump tanks are down and two are in operation.

Dump Site Operations

As additional tankers arrive the third dump tank is brought on-line. Flow is moved to 900 gpm around the 54-minute mark.

Dump Site Operations

Around the 70-minute mark, work begins on setting up a fourth dump. Tankers are beginning to arrive back at the dump site at a more regular pace.

Dump Site Operations

Dumping into the primary dump is not the preferred choice but there were a couple times that was needed in order to maintain water flow. An additional jet siphon was placed in-service which resolved the issue.

Dump Site Operations

Bridgton Tanker 4 was the only vacuum tanker in the shuttle and did a great job hauling water during the drill.

Dump Site Operations

Because water transfer operations are so important at a large operation like this one person was placed in charge of controlling two of the jet siphon devices. This person never left his post and made sure that the primary dump tank was kept full of water.

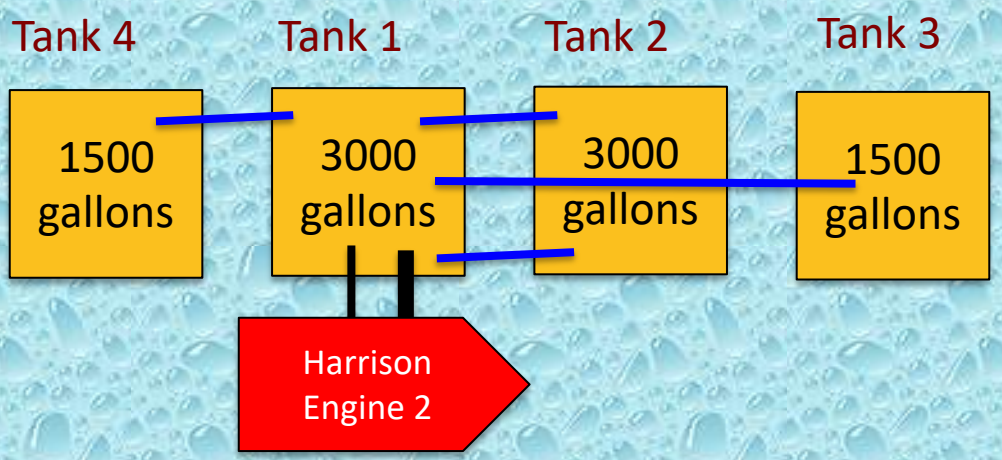
Dump Site Operations

Engine 2 (1500 gpm) eventually placed a 2-1/2-inch suction line in-service which allowed the rig to support a 1000 gpm flow while pumping four jet siphon devices.

Dump Site Operations

The four-dump tank operation was able to support a 1000 gpm flow starting at the 75-minute mark. That flow was sustained for the remainder of the drill.

Dump Site Layout



Suction Hose

Jet Siphon

The Fill Sites

- For this drill – three fill sites were used; Crystal Lake, Island Pond, and Woodsum Brook.
- The Crystal Lake fill site provided the longest round trip for the units hauling water – 6.6 miles.
- All three sites had ample water volume to support the drill and access was not a problem.

Crystal Lake Fill Site

Denmark Engine 3 (1500 gpm) served as the primary engine at this fill site and was located near a boat launch area.

Woodsum Brook Fill Site

Bridgton Engine 4 (1500 gpm) drafted and supplied from Woodsum Brook on Summit Hill. This fill site was the closest to the dump site.

Island Pond Fill Site

Brownfield Engine 1 (1500 gpm) drafted from the pond to support this tanker loading site.

The Results

- The drill was stopped at the 105-minute mark.
- Water flow was interrupted once for about 2-1/2 minutes at the 7-minute mark when Engine 2 had to switch over to drafting operations.
- An estimated 68,925 gallons of water were flowed through during the drill producing an average flow rate of 710 gpm.
- For the last 30-minutes of the drill a flow of 1,000 gpm or greater was maintained.

The Lessons Learned

- At this drill, crews chose to use a large capacity engine/tanker as the dump site pumper.
- This arrangement allowed the fire attack to commence at 250 gpm while a transition to a dump tank operation commenced.
- However, because Engine 2 had no suction inlet control valve on the driver side, water flow was interrupted while the crew switched over to drafting.

The Lessons Learned

- As the flow increased, additional suction lines were used to improve intake so that the flow could increase without impacting jet siphon operations.
- 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 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, most of the tankers had the same fill connection which allowed the rigs to get filled and be back on the road in little time.

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.
- 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.

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 Cumberland/Oxford Fire Chief’s Association and the Western Maine Firefighters Association for sponsoring the seminar and to the Harrison Fire Department for hosting the seminar.

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This program was developed by
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