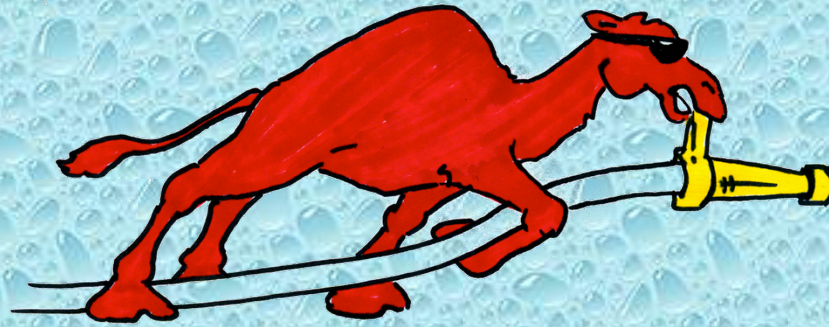


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Tri-Mountain Training Group
Weston, Vermont

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 22, 2022
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 Weston Rod and Gun Club.
- 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 Weston and the surrounding area.

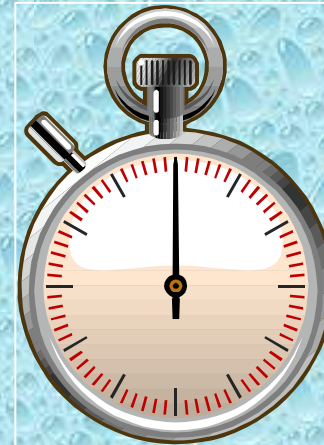
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 22nd in nearby Londonderry.
- 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
Weston	123 Engine 1	1500 gpm	1000 gal	NA
Weston	123 Tanker 1	750 gpm	2000 gal	2100 gal
South Londonderry	121 Engine 1	1500 gpm	1000 gal	NA
South Londonderry	121 Engine 2	1500 gpm	1000 gal	1500 gal
Londonderry	120 Engine 1	1000 gpm	1000 gal	NA
Londonderry	120 Engine 3	1000 gpm	1500 gal	1500 gal
Proctorsville	60 Tanker 1	500 gpm	3000 gal	2500 gal
Ludlow	59 Engine 4	1000 gpm	3000 gal	2500 gal
Peru	122 Engine 1	1500 gpm	1000 gal	2100 gal
Windham	126 Engine 1	1000 gpm	1500 gal	NA
Windham	126 Tanker 1	750 gpm	2000 gal	2100 gal
Winhall	124 Tanker 1	750 gpm	3000 gal	2500 gal

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

Drill Participants

- Weston Engine 1
 - 1500 gpm pump
w/1000 gal tank

- Weston Tanker 1
 - 750 gpm pump
w/2000 gal tank



Drill Participants

- S. Londonderry Engine 1
 - 1500 gpm pump
w/1000 gal tank

- S. Londonderry Engine 2
 - 1500 gpm pump
w/1000 gal tank



Drill Participants

- Londonderry Engine 1
 - 1000 gpm pump
w/1000 gal tank
(www.firenews.org photo)
- Londonderry Engine 3
 - 1000 gpm pump
w/1500 gal tank



Drill Participants

- Proctorville Tanker 1
 - 500 gpm pump
w/3000 gal tank

- Ludlow Engine 4
 - 1000 gpm pump
w/3000 gal tank



Drill Participants

- Peru Engine 1
 - 1500 gpm pump
w/1000 gal tank
- Windham Engine 1
 - 1000 gpm pump
w/1500 gal tank



Drill Participants

- Windham Tanker 1
 - 750 gpm pump
w/2000 gal tank
- Winhall Tanker 1
 - 750 gpm pump
w/3000 gal tank



The Drill Begins



Londonderry Engine arrives on the scene and lays dual lines (4" and 2-1/2") in preparation for operating as the attack pumper. Meanwhile, Weston Engine 1 arrives on the scene and begins work on setting up as the dump site pumper.

Dump Site Operations



Once in position, Londonderry Engine 1 goes to work as the attack pumper and the crew deploys a TFT Blitzfire. A second Blitzfire is eventually deployed to support higher total flows.

Dump Site Operations



A 250 gpm flow was started at the the 5:00 minute mark using Engine 1's tank water.

Dump Site Operations



Meanwhile, back at the dump site crews worked to build out a dump tank operation and supply a 4-inch "rural hitch" feeding the attack pumper. Flow was moved to 500 gpm at the 15-minute mark.

Dump Site Operations



Dump site crews work to build additional jet siphons. As the flow increased at the attack pumper, the ability to transfer water at the dump site became more important.

Dump Site Operations



All water for the entire drill was supplied by Weston Engine 1 (dump site) pumping a 4-inch and a 2-1/2-inch supply line (500 ft) to Londonderry Engine 1.

Dump Site Operations



Folks set-up the dump site in a “single-lane” arrangement and used a Fol Da Tank suction elbow to facilitate drafting from the rear of Weston Engine 1.

Dump Site Operations



A 6-inch, Kochek Holley Transfer Pipe was the first water transfer device deployed and worked fine in moving water between the first two dump tanks.

Dump Site Operations



Weston Engine 1 (1500 gpm) had plenty of pump capacity to support the fire flow demand and supply the water transfer devices. A second, 6-inch suction line was added around the 37-minute mark and flow was moved to 750 gpm.

Dump Site Operations



Weston Tanker 1 (2000 gal) side dumps its load of water. The single lane tank arrangement made tanker off-loading operations very easy for the side dumping tankers.

Dump Site Operations



Ludlow Engine 3(3000 gal) offloads its water. Dump site operations have now moved to a 3 dump tank operation.

Dump Site Operations



A few of the tankers could only dump off the rear of the rig. Windham's rig is seen here backed up to the last tank and dumping off its rear chute.

Dump Site Operations



The black line on the dump chute is the water level mark at which the driver closes the valve and heads for another load of water.

Dump Site Operations



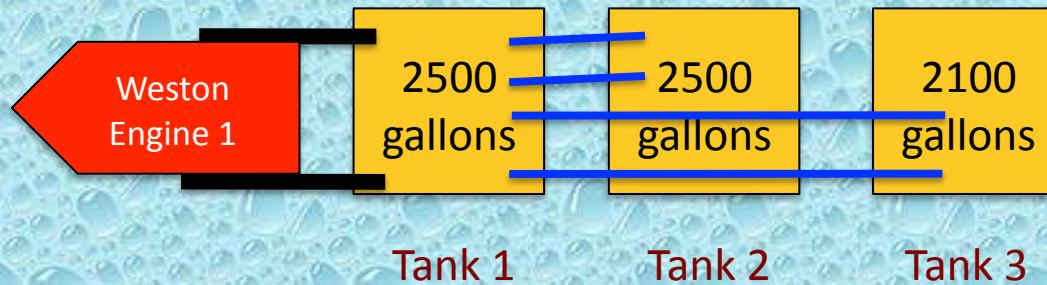
At the 60-minute mark, flow was moved to 1000 gpm and fill site crews had to work really hard to get the tankers loaded and back enroute to the dump site.

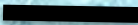
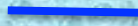
Dump Site Operations



At one point, only rear dumping tankers had arrived at the dump site; this posed a positioning problem. However, once a side dumping tanker arrived the rear dumping tankers were moved out of position to allow the side dumpers access to the tanks. The process was well-orchestrated and did not prove a problem.

Dump Site Layout



-  Suction Hose
-  Jet Siphon

The Fill Sites

- For this drill – two fill sites were used; one a river and the other a pond.
- The river fill site provided about a 0.6-mile round trip for the units hauling water.
- The pond fill site provided about a 3.6-mile round trip for the units hauling water.
- A 1000 gpm pumper supported by two, portable pumps was used at the river fill site.
- A 1500 gpm pumper was used at the pond.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was only interrupted once or twice for just a couple of seconds.
- Flow was reduced to 800 gpm at the 90-minute due to the fill sites being unable to support the flow.
- An estimated 86,000 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 748 gpm.
- A peak flow of 1,000 gpm was achieved for about 40-minutes during the drill.

The Lessons Learned

- At this drill, crews chose to use a nurse tanker operation from the very beginning.
- The nurse tanker operation provided time to get the first dump tank set up without having to worry about running out of water in a minute or two.
- The use of the double-clappered siamese made the transition to dump tank operations very easy.

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 a big motor at the dump site allowed one rig to supply the entire operation.
- The single-lane dump tank configuration worked well for tanker off-loading operations.

The Lessons Learned

- The fill sites proved to be the limiting factor at this drill. The smaller capacity pumper at the river fill site struggled to load tankers at the desired 1000 gpm fill rate.
- 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.

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 Tri-Mountain Training Group for sponsoring and the Weston VFD for hosting the seminar.



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