

www.GotBigWater.com



Candia FD
Candia, New Hampshire

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 16, 2021
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 Candia FD.
- 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 Candia and surrounding departments.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 16th at the Henry Moore School in Candia.
- 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

Department	Unit	Pump Size	Tank Size	Dump Tank
Candia	Engine 1	1250 gpm	1000 gal	
Candia	Engine 2	1500 gpm	1000 gal	
Candia	Tanker 1	1000 gpm	3500 gal	2500 gal
Strafford	Engine 2	1250 gpm	1000 gal	
Strafford	Engine 3	1750 gpm	3000 gal	3500 gal
Northwood	Tanker 1	500 gpm	2100 gal	2500 gal
Hooksett	Tanker 1	1250 gpm	2800 gal	3000 gal
Chichester	Engine 1	1250 gpm	2000 gal	2000 gal
Epsom	Tanker 1	1500 gpm	1750 gal	2100 gal
Chester	Tanker 1	1500 gpm	3000 gal	2500 gal
Auburn	Engine 2	1500 gpm	1000 gal	
Auburn	Tanker 2	1500 gpm	2500 gal	2500 gal
Manchester	Engine 7	2000 gpm	750 gal	
Manchester	Engine 10	2000 gpm	750 gal	
East Kingston	Engine 2	1750 gpm	1000 gal	
Bow	Tanker 1	1500 gpm	3000 gal	3000 gal

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

The Drill Begins



The drill began with Candia Engine 1 (left) arriving on the scene and laying a 400-ft 4-inch supply line. Candia Engine 1 and Tanker 1 arrived soon thereafter and crews worked to establish a nurse tanker operation using a “rural hitch” set-up.

Dump Site Operations



A double-clappered siamese was used on the end of the attack engine's 4-inch supply line.

Dump Site Operations



Tanker 1 co-located near the attack engine and supplied water via another double-clapped siamese until such time that Engine 2 switched over to a dump tank operation.

Dump Site Operations



At the 6:30-minute mark, water flow was started using a TFT Blitzfire from Engine 1 at a flow rate <500 gpm.

Dump Site Operations



Engine 2's crew set-up to draft using twin, 6-inch suction lines; one from the front suction inlet and one from the driver side suction inlet. All of the new pumper's suction inlets were equipped with control valves which made this maneuver quite easy.

Dump Site Operations



Additional tankers began to arrive on the scene and either supported the nurse tanker operation or helped get the dump site up and running.

Dump Site Operations



Knowing that they wanted to increase water flow, crews began to gather equipment needed to eventually get to a 3-dump tank arrangement.

Dump Site Operations



At the 20-minute mark, three dump tanks were down and one was in operation. Water flow was 500 gpm.

Dump Site Operations



Strafford Engine 3 was the first tanker to return from the fill site and did so around the 26-minute mark.

Dump Site Operations



At the 60-minute mark, flow was moved to 920 gpm and all tankers were now hauling water in the shuttle.

Dump Site Operations



At the 62-minute mark flow was increased to 1000 gpm and three dump tanks were now in operation.

Dump Site Operations



Water transfer operations were critical to the success of the operation. Three jet siphons were used to moved water to the primary drafting tank.

Dump Site Operations



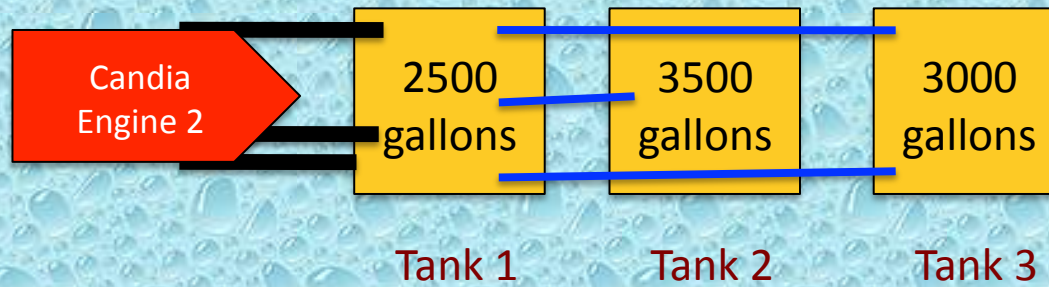
Around the 90-minute mark, a third suction line was added at Engine 2 which helped gain extra water for supplying Engine 1 while not working as hard to also supply the three jet siphons.

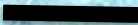
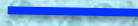
Dump Site Operations



In the end, Engine 1 (1500 gpm) was able to draft through three, 6-inch suction lines, operate three jet siphons, and supply 1,000 gpm to the Engine 1 (attack engine).

Dump Site Layout



 Suction Hose
 Jet Siphon

The Fill Sites

- For this drill – two fill sites were used – one a pond and one a stream.
- The fill sites both provided about a 3.0-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 2,000 gpm pumper and a 1,500 gpm pumper were used to support the tanker fill stations.

Fill Site Operations



Manchester Engine 7 (2000 gpm) and Manchester Engine 10 (2000 gpm) worked to load tankers at the pond fill site.

Fill Site Operations



Candia Tanker 1 is shown being loaded at the pond fill site. Tankers at this site were loaded at 1000+ gpm using 4-inch LDH.

Fill Site Operations



Auburn Engine 2 (1500 gpm) drafted off a bridge to access the stream. The crew loaded tankers using 4-inch LDH and at a rate in excess of 1000 gpm.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted once during the drill around the 89-minute mark.
- An estimated 80,000 gallons of water were flowed through Engine 1 during the drill producing an average flow rate of 723 gpm.
- A peak flow of 1,000 gpm was achieved during the second half of the drill.

The Lessons Learned

- At this drill, crews flawlessly executed the rural hitch...including the transition to dump tank operations
- As more apparatus arrived on the second and third alarms, crews worked to stockpile equipment in preparation for moving to a 3-dump tank operations.

The Lessons Learned

- Triple, 6-inch suctions were used on the dump site engine so as to maximize water intake and minimize the need for another unit to run jet siphons.
- The use of a suction elbow and valved suction inlets allowed the dump site pumper to easily add more suction lines without interrupting water flow.

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 all 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 Candia Fire Department for sponsoring and hosting this seminar.



www.GotBigWater.com

*This program was developed by
GBW Associates, LLC
Copyright © 2021
No part may be used or copied
without expressed written consent.*

*For more information contact us at
thebigcamel@gotbigwater.com*