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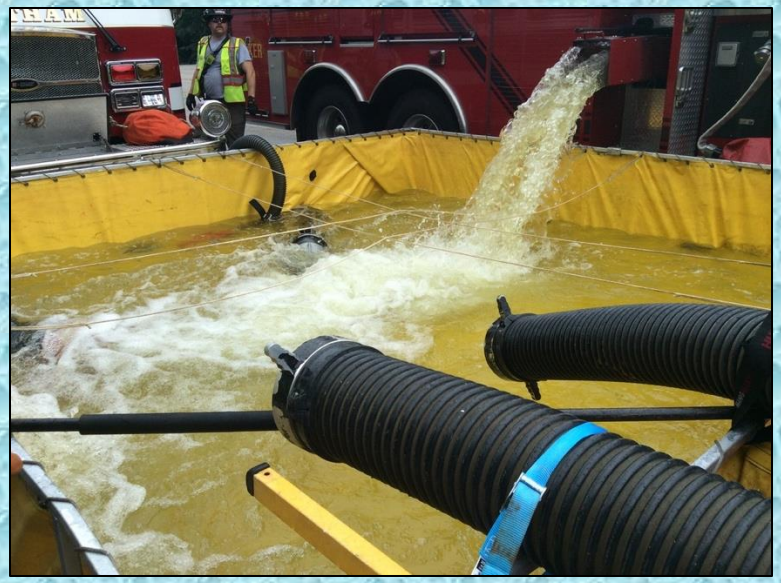
Stratham Volunteer Fire Department
Stratham, New Hampshire

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
August 18, 2024
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

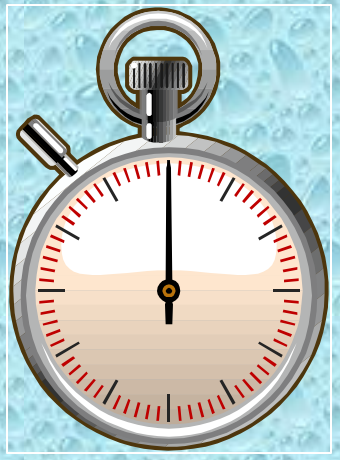
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Stratham fire station.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on September 18th at a nearby school.
- 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**
Stratham	Engine 3	1500 gpm	1000 gal	NA
Stratham	Tanker 8	2000 gpm	3000 gal	3000 gal
Hampton Falls	Tanker 4	1250 gpm	2500 gal	2500 gal
Brentwood	Engine 1	1500 gpm	2500 gal	2500 gal
East Kingston	Engine 2	1750 gpm	1000 gal	NA
East Kingston	Tanker 1	1750 gpm	3000 gal	3000 gal
Newmarket	Tanker 4	1500 gpm	2500 gal	3000 gal

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

The Drill Begins

The drill began with executing a “rural hitch” operation to a simulated attack pumper. Stratham Tanker 8 arrives first and begins pumping off its 3000 gallons of water into the clappered-Siamese.

The Drill Begins

New Market Tanker 4 (3000 gal) was next to arrive around the 5-minute mark and connected to the other side of the siamese and prepared to take over rural hitch operations once Tanker 8 was empty.

Dump Site Operations

East Kingston Tanker 1 (3000 gal) was next to arrive and took Tanker 8's position on the rural hitch as Tanker 4 began pumping off water. Engine 3 had just arrived and crews were beginning to build out a dump site.

Dump Site Operations

Engine 3's (1500 gpm) crew begins setting up for dump tank operations. Water flow was moved to 500 gpm at the 10:45 minute mark using the rural hitch.

Dump Site Operations

Crews were able to get two, 3000-gallon dump tanks down in a “single-lane tank” arrangement.

Dump Site Operations

At the 20-minute mark, the first load of water was dumped into a dump tank and the transition to dump tank operations was complete. Flow remained at 500 gpm.

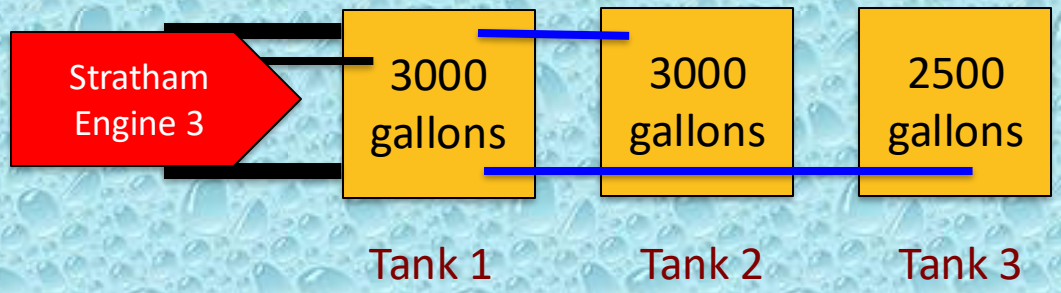
Dump Site Operations

As tankers arrived at the dump site they no longer pumped the rural hitch; they all dumped their water into dump tanks.

Dump Site Operations

Engine 3 was eventually able to get three suction lines in operation and support two jet siphon devices. A peak flow of 750 gpm was achieved during the last 20 minutes of the drill.

Dump Site Layout



Suction Hose

Jet Siphon

The Fill Sites

- For this drill – one fill site was used, a nearby pond located in a residential area.
- The pond was outfitted with a dry fire hydrant and provided about a 2.0-mile round trip for the units hauling water.
- The pond provided ample water volume to support the drill and access was not much of a problem.
- A 1750 gpm pumper was used at the fill site to support the tanker loading operation.

Pond Fill Site

East Kingston Engine 2 (1750 gpm) took suction at the dry fire hydrant and loaded tankers using 4-inch LDH

Pond Fill Site

All of the tankers loaded using 4-inch LDH which helped keep the turn-around time relatively short at this loading site.

The Results

- The drill was stopped at the 106-minute mark.
- Water flow was interrupted a couple of times during the drill.
- An estimated 54,875 gallons of water were flowed through Engine 3 during the drill producing an average flow rate of 550 gpm.
- For the last 20-minutes of the drill a flow of 750 gpm or greater was supplied.

The Lessons Learned

- At this drill, crews chose to use a rural hitch operation for the first 30-minutes of the drill; a simulation of their day-to-day procedures.
- The development of a dump tank operation was hindered for about a minute while the transition was made from the rural hitch.
- Once the first dump tank was up and running the operation ran almost flawlessly.

The Lessons Learned

- The use of a large body pump powered by sufficient motor horsepower at the dump site pumper allowed one rig to supply the entire operation.
- The challenge of having a couple rear-dumping only tankers was overcome by having those tankers pull past the last dump tank and back up into the end for off-loading.

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 all tankers loaded pretty efficiently given the use of 4-inch LDH.

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 Stratham Volunteer Fire Department for sponsoring and hosting the seminar.

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For more information contact us at
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