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South Onondaga Volunteer Fire Department
South Onondaga, New York

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
August 3, 2014
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

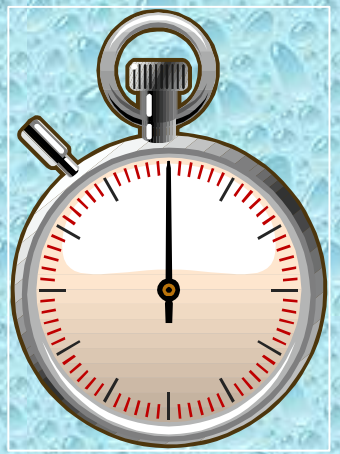
- The 2-day seminar started on Saturday with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the South Onondaga VFD station.
- Once the classroom part was done, the seminar continued with several hours of practical work on fill-site and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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on August 3rd at the South Onondaga fire station.
- 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 everyone in the fire service may not agree on ISO's evaluation of fire department capabilities, the 2-hour test is still a reasonable standard by which fire departments can compare their water supply operations.

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 five different fire departments and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the South Onondaga area.*

Drill Participants

- South Onondaga Engine 2
  - 1,250 gpm pump w/1,000 gal tank

- South Onondaga Engine 6
  - 1,500 gpm pump w/1,000 gal tank

Drill Participants

- South Onondaga Tanker 5
  - 1,250 gpm pump w/2,500 gal tank

- Otisco Rescue Pumper 2
  - 1,500 gpm pump w/750 gal tank

Drill Participants

- Otisco Tanker 1
  - 500 gpm pump w/2,500 gal tank

- Otisco Tanker Pumper 1
  - 1,500 gpm pump w/1,500 gal tank

Drill Participants

- Navarino Tanker 1
  - 1,500 gpm pump w/1,900 gal tank
- Onondaga Nation Tanker 1
  - 2,000 gal tank

Drill Participants

- Sentinel Heights Tanker 2
  - 1,000 gpm pump w/2,000 gal tank

The Drill Begins

Engine 6 and Tanker 5 arrived on the scene and the timer began when the engine came to a stop. They then had 5-minutes before a flow of 250 gpm had to be started.

Dump Site Operations

The crews quickly went to work getting the first dump tank set up before water flow had to be started. The plan was try and avoid using a nurse tanker operation.

Dump Site Operations

The first dump tank was down within about 2-1/2 minutes and Tanker 5 was in position to dump its water.

Dump Site Operations

Shortly after the 4-minute mark the first dump tank was in operation and the second one deployed – but not yet ready for use.

Water Flow Started

At the 5-minute mark, water flow was started at 250 gpm using Engine 6's on-board tank water for about 30 seconds and then the operations transitioned to drafting from the dump tanks.

Dump Site Operations

At the 10:29 minute mark, both dump tanks are in operation and preparations are underway for increasing the flow to 500 gpm at the 15-minute mark.

Dump Site Operations

Engine 6's crew decided to set up to use both their front suction and officer's side suction inlets in order to eventually support a larger flow later in the drill.

Dump Site Operations

Otisco Tanker 1 is shown arriving with its second load of water. Three dump tanks are down but only two are in operation at this time.

Dump Site Operations

Navarino Tanker 1 arrived as part of the first Tanker Task Force and was the first tanker to dump its water into the third dump tank.

Dump Site Operations

At around the 39-minute mark, the flow was been increased to 750 gpm and a problem arose in that Engine 6 was struggling to run the four jet siphons. Otisco Rescue Pumper 2 was positioned to draft and begin supporting jet siphon operations.

Dump Site Operations

Otisco Tanker 1 is shown here dumping another load of water. The tanker was one of three, large capacity tankers hauling water at this drill.

Water Transfer Operations

As the number of jet siphons increase, so do the pressure and capacity demands that are placed on the pumper. These two jet siphons are moving water – just not as much as they can. There needs to be a "full" stream coming out of each suction hose. When pressure was increased – the flow got much better.

Water Transfer Operations

Otisco Rescue Pumper 2 drafts from the third dump tank and supports two of the four jet siphons. By inserting this pumper into the operation, flow was able to be increased to 1,000 gpm.

Dump Site Operations

At the 50-minute mark, the three tank operation has stabilized and preparations are made to increase the flow to 1,000 gpm at the one-hour mark.

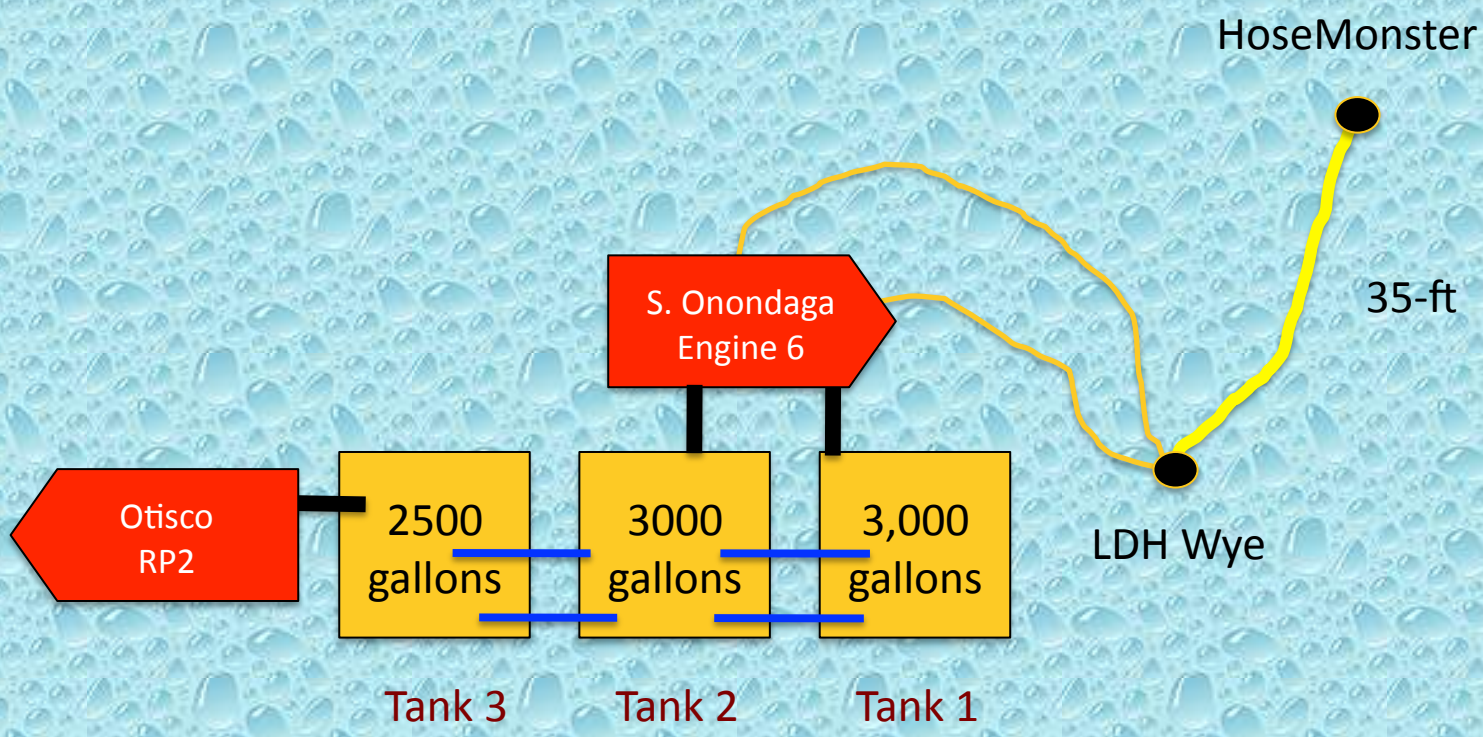
Dump Site Operations

To assist with the 1,000 gpm flow, Engine 6 added a third suction line using 2-1/2-inch suction hose connected to the driver's side auxiliary suction inlet.

Flow Increased to 1,000 gpm

Flow was moved to 1,000 gpm without incident and the goal was to sustain the 1,000 gpm mark for the remainder of the drill.

Final Dump Site Layout



Suction Hose

4" Hose

Jet Siphon

The Fill Sites

- For this drill – one fill site was used.
- This lone fill site was located on Red Mill Road at the crossing over the West Branch Onondaga Creek.
- This location provided a 1.4-mile round trip for the units hauling water.
- The creek provided sufficient water supply for the shuttle and was located in an area that provided reasonable access for the tankers.
- A single, 1,250 gpm pumper was used at the creek to support tanker loading.

Fill Site Operations

South Onondaga Engine 2 is shown here just moments after arriving at the fill site location. The crew is working hard to have the site ready by the time the first empty tanker arrives.

Fill Site Operations

Some of the crew members help set up for drafting out of the creek while others help get the two, 4-inch lines ready for tanker loading.

Fill Site Operations

Because of the somewhat narrow road and the pumper having to set up on a curve, the 4-inch lines were run to the rear of the pumper and were built in staggered lengths to allow tankers to position without blocking out others.

Fill Site Operations

Traffic cones were used to mark off the road so that tankers could position in the best spot for loading.

Fill Site Operations

Sentinel Heights' 2,000 gallon tanker gets filled in just about 2-minutes using a single, 4-inch fill line.

The Results

- The drill was stopped at the 2-hour mark and water flow was only ever interrupted one time – at the 104-minute mark for about two minutes.
- An estimated 89,500 gallons of water were flowed during the drill producing an average flow rate of 792 gpm.

The Lessons Learned

- At this drill, the dump site was set-up very quickly and crews were able to initiate flow without the use of a nurse tanker operation – although, a tanker was in position to serve as a nurse tanker if needed.
- The parking lot layout provided ample space for this shuttle operation and traffic flow was not a problem.
- The use of dual suctions by the dump site pumper allowed for sufficient intake to support the initial and intermediate flows.

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, the fill site crew did a great job of keeping up with the pace. There was only one fill site in operation – which meant that all members of the loading crew had to be "on their game" at all times.

The Lessons Learned

- Once again, this drill illustrated the value of using LDH to load tankers. The 1,250 gpm had no problem filling tankers at over 1,000 gpm – all because of the use of 4-inch hose and standardized fittings.
- The use of threaded connections on direct fill lines can slow down an operation. The Storz fittings used at this drill reduced the amount of time spent making and breaking fill line connections.
- 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.

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 South Onondaga VFD for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

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