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Sennett & Aurelius Fire Departments
Sennett, New York

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
September 27, 2015
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 Sennett VFD, Station 2. Great meals were provided by the Aurelius VFD.
- 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 Sennett, Aurelius and surrounding communities in Cayuga and Onondaga counties, New York.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on September 27th in Sennett. A strip mall about 2 miles away from the FD was chosen as the "target hazard".
- 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 12 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 Cayuga County. Units were staged at Sennett Sta. 2 in preparation for the drill.*

Drill Participants

- Plainville Tanker 1
  - 1,000 gpm pump with 2,350 gal tank
- Sennett Engine 1
  - 1,750 gpm pump with 750 gal tank

Drill Participants

- Aurelius Engine 2
  - 1,500 gpm pump w/ 750 gal tank
- Aurelius Tanker 1
  - no pump
  - w/1,800 gal tank

Drill Participants

- Sennett TP1
  - 1000 gpm pump w/1500 gal tank
- Sennett TP 3
  - 1500 gpm pump w/1500 gal tank

Drill Participants

- Port Byron TP1
  - 1500 gpm pump w/ 1,500 gal tank

- Fleming RP1
  - 1750 gpm pump w/ 500 gal tank

Drill Participants

- Sennett E2
  - 2000 gpm pump with 1000 gal tank

- Fleming TP-2
  - 1500 gpm pump w/ 1,600 gal tank

Drill Participants

- Throop TP1
  - 1250 gpm pump w/ 3500 gal tank
- Ira Tanker 1
  - No pump w/ 2,000 gal tank

Drill Participants

- New Hope TA1
  - no pump w/ 3,500 gal tank
- Sempronius TA1
  - No pump w/ 3,000 gal tank

Drill Participants

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

- South Onadaga TA 5
  - 1,000 gpm pump w/ 3,000 gal tank

Drill Assignments

First Alarm

Sennett	E1	Dump Site
Aurelius	E2	Attack
Fleming	RP1	Fill Site 1
Sennett	E2	Fill Site 2
Sennett	TP1	
Sennett	TP3	
Prt Byron	TP1	

Tanker Box 1

Aurelius	TA1
Plainville	TA1
Otisco	TA1
Fleming	TP2
Throop	TP1

Tanker Box 2

New Hope	TA1
Senpronius	TA1
S. Onadaga	TA5
Ira	TA1

The Drill Begins

Aurelius Engine 2 was the first-arriving unit at the store and assumed the role as the attack pumper. The stopwatch was started when the Engine driver applied the air brakes. This unit laid out 600' of 5" hose from the dump site.

Attack Engine Set-up

The crew stretched 25-feet of 4-inch hose to a Hose Monster flow diffuser that served as the means by which all water flow would be measured. The diffuser simulated the use of a portable master stream device. However, the first 10 minutes of water flow was done by handline at 250 gpm.

Dump Site Set-up

Sennett E211 and some tankers were the next units to arrive on the scene and immediately went to work setting up the dump site. Note the hose to the attack engine placed out of the way. There was not much room for the dump site due to unexpected parking for the storefront church on Side A of the structure.

Dump Site Set-up

The dump site crew decided to set up the tanks in a diamond fashion so as to allow for rear dumping as well as side dumping.

Dump Site Set-up

At the 15-minute mark, three dump tanks were down and the dump site was fully operational. The parked cars starting clearing out – and dump site operations were well underway with multiple tankers being able to dump.

Dump Site Set-up

With the addition of a fourth dump tank and a third siphon water transfer operations became an issue due to the fire flow demands of the attack pumper combined with the required flows of the jet siphons.

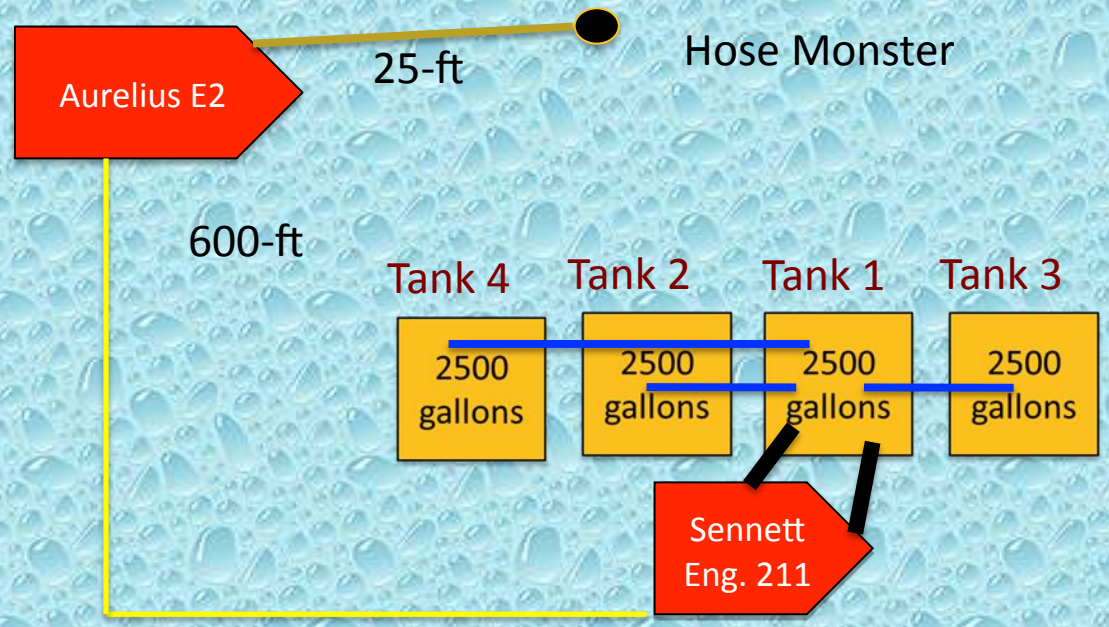
The dump site crew elected to solve the flow problem by adding another set of hard sleeves to the front suction of the dump site pumper.

Remember, not all low level strainers will give you full pump capacity due to flow limitations.

Water Transfer Operations

The flow from this jet siphon is a good, solid stream of water – which is exactly what is needed. Note the ladder spanning the tanks in the last slide - moving the water once is the most efficient way to manage multiple tanks.

Dump Site Layout



Suction Hose

5” Hose

4” Hose

Jet Siphon

The Fill Sites

- For this drill – two fill sites were used.
- The first fill site was by the Sherriff's Office at a spring fed pond .
- The pond provided ample water volume to support the drill and access was not a problem.
- The second fill site was a pond at a private residence.
- At both sites crews laid out a couple hundred feet of LDH to support fill operations.

Fill Site 1

The crew from Fleming worked very quickly and had this fill site operational in about 10-minutes. This engine has a 1750 gpm pump but the crew realized a much lower flow due to the use of the front intake. With the use of the second "pony" suction this engine was able to fill at close to 1000 gpm.

Fill Site 1

The crew stretched LDH to a gated wye and established two fill lines. They filled one tanker at a time but were able to hook up to the next one so no time was wasted between fills. A second manifold was used to help drain the LDH between tanker fills but this device was leaking and taken out of service due to safety concerns. However, the stretch did prove useful to get the tankers off the main road but allowed them to make a nice traffic flow and not have to turn around.

Fill Site 2

The crew from Sennett E2 struggled due to constant strainer clogging issues. This could have been remedied by a circulating line that was pointed at the strainer to keep the "gack" away. This engine fed an LDH line that terminated in a manifold with several fill lines at the end of the driveway.

Use of manifolds

The yellow hose here is coming from the fill site pumper; the red ones are going to the tankers. Use of the 2.5” outlets on this water thief can create dramatic turbulence and friction loss.

It might have been better to run a single, LDH line off of the 5” port. Better yet, turn the manifold around and use the 2.5” outlets as drains.

The Results

- The drill was stopped at the 2:00-hour mark.
- Once it started, water flow was never interrupted! The drop tanks emptied a couple of times but the attack and dump site engine carried on with booster tank water long enough for reinforcements to arrive.
- An estimated 81,250 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 707 gpm.

The Lessons Learned

- At this drill, the dump site was set-up very quickly and crews really hustled to sustain the water flow in the early stages.
- The use of LDH at the fill sites allowed tankers to keep driving forward; which saves time .
- The parked cars in the lot did restrict the space for this operation but positioning the tanks in a diamond and coordinating traffic flow made this operation go fairly smoothly.

The Lessons Learned

- Air leaks and strainer issues during drafting can really create problems. The lack of a circulating line at Fill Site 2 contributed to a lot of ongoing issues. Basic drafting knowledge is essential.
- At higher flows you are really going to notice if the siphon flow and/or suction volume is inadequate. The crew did well by adding more suction lines when needed.
- At Fill Site 1, the initial selection of the front intake proved problematic for maintaining a 1000 gpm fill rate – on a 1750 gpm pumper. The simple addition of a pony suction on an auxillary port helped some.

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.
- Lots of manpower at both fill sites helped quite a bit in making fill line connections etc.

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.
- 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.

The Lessons Learned

- At Fill Site 1 a TFT manifold with slow closing valves proved to be a great way for safely controlling fill lines.
- The crews learned to work through problems like dumping in the wrong tank and the use of a flow limiting low level strainer.

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 Sennett and Aurelius Fire Departments for sponsoring and hosting this seminar.

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This program was developed by
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