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Seneca County Office of Emergency Services
Seneca County, New York

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 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 Friday evening with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Lodi Fire Department.
- 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 Saturday with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Seneca County and surrounding areas.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 3rd at a fuel depot facility located adjacent to the Lodi firehouse.
- 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 sixteen 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 Seneca County.*

Drill Participants

FD	Unit	Pump	Tank
Lodi	Engine 802	1500 gpm	750 gal
Lodi	Tender 821	500 gpm	1800 gal
Interlaken	PT 501	1000 gpm	1000 gal
Interlaken	FA502	500 gpm	275 gal
Fayette	Engine 402	1500 gpm	500 gal
Fayette	Tanker 421	NA	2400 gal
Ovid	Engine 1102	1750 gpm	1000 gal
Ovid	ET 1101	1250 gpm	1500 gal
Border City	Tender 221	500 gpm	3000 gal
Magee	Tanker 921	500 gpm	2200 gal
Romulus	Tanker 1321	300 gpm	3000 gal
Enfield	Tanker 622	500 gpm	3000 gal
Varick	PT 1504	1500 gpm	2000 gal
Varick	PT 1502	1000 gpm	1600 gal
Varick	Brush 1544	350 gpm	300 gal
Varick	Engine 1501	1000 gpm	600 gal
Plainville	Tanker 1	1000 gpm	2350 gal

The Drill Begins



Lodi Engine 802 arrives on the scene and the stop watch is started. Crews have 5-minutes to lay a supply line and begin water flow.

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Dump Site Operations



Engine 802 laid 200 feet of 4-inch supply hose and got into position to pump a 5-inch line that was pre-connected to a Hose Monster flow diffuser equipped with a fixed pitot for accurate flow measurement.

Dump Site Operations



Lodi's tanker was the second unit to arrive on the scene and immediately set up to support the attack engine using a nurse tanker operation.

Dump Site Operations



At the 1:37-minute mark, the tanker is connected into the double-clappered siamese that was dropped by the attack engine.

Dump Site Operations



The use of the double-clappered siamese allows for the early use of a tanker in the “nurse” mode. The key is to have a reasonable size pump (500 gpm or larger) on the tanker so that water supply can be effective.

Dump Site Operations



The use of the double-clappered siamese is often called the “rural hitch” and it can be a very useful operation when arriving on the scene with limited staffing and an urgent need for water.

Water Flow is Started



A 250 gpm water flow was started at the 3:00 minute mark – which was two minutes early. Water flow was never interrupted during the remainder of the drill.

Dump Site Operations



While the Lodi tanker operator was busy supporting the attack pumper, Ovid FD Engine 1102 (1,750 gpm) arrived and began setting up for a dump tank operation.

Dump Site Operations



Not long after the 8-minute mark, the first dump tank (2,000 gallons) was down and in operation.

Dump Site Operations



More tankers began to arrive and operations were underway in preparation for moving the flow to 500 gpm at the 15-minute mark.

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Dump Site Operations



At the 15-minute mark, three dump tanks were down and in operation and the flow was moved to 500 gpm at the attack engine.

Dump Site Operations



The operation soon grew to a 4-dump tank set-up as tankers from the first Tanker Task Force began to arrive on the scene.

Dump Site Operations



At the 33-minute mark the flow was moved to 750 gpm and two fill sites were in full operation.

Dump Site Operations



The dump site soon became a very busy place with several tankers offloading at the same time. The flow increased once again at the 58-minute mark to 924 gpm.

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Dump Site Operations



With the flow increase also came the need to improve water transfer operations. Interaken's mini-attack unit (500 gpm) was brought in to run some of the jet siphons.

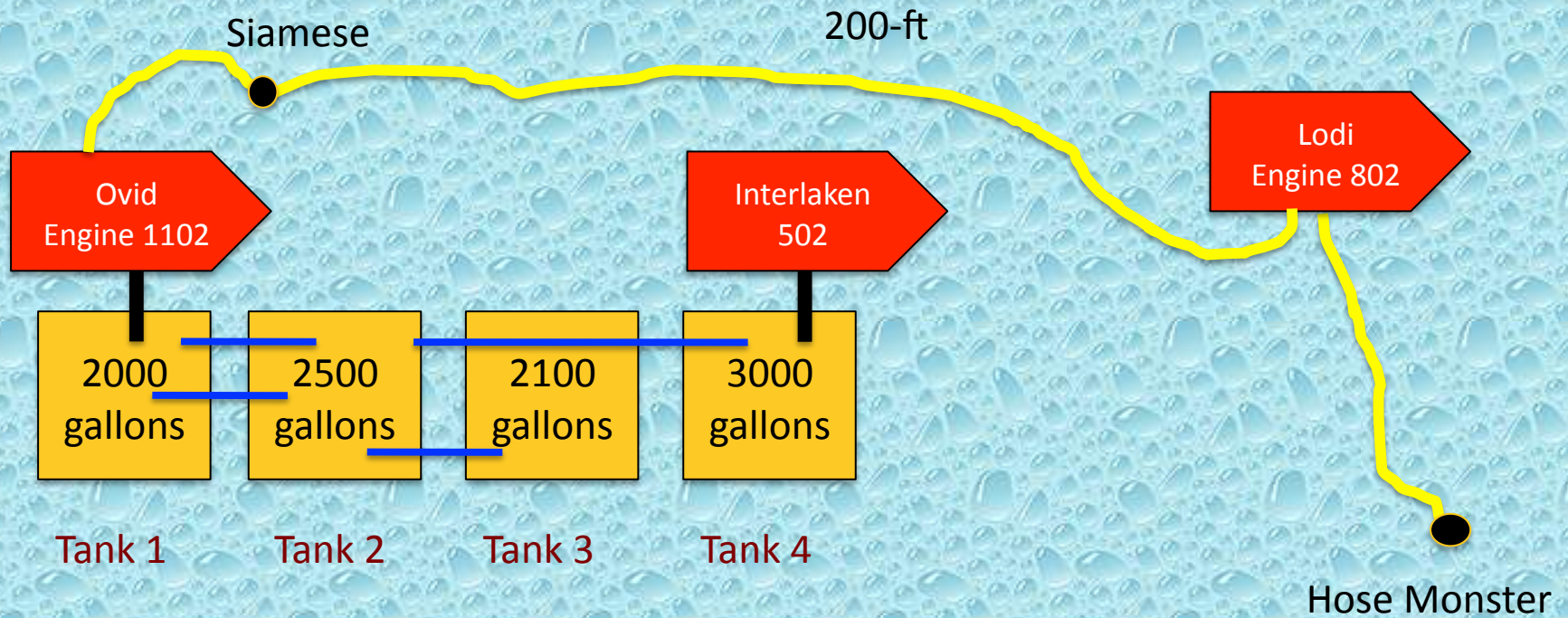
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Dump Site Operations



A final increase in flow occurred at the 67-minute mark when flow was pushed to 1,024 gpm – where it remained until the end of the drill.

Dump Site Layout



- Suction Hose
- 4" Hose
- Jet Siphon

The Fill Sites

- For this drill – two fill sites were used – each site utilized a pond as the water supply source.
- The first fill site was located at a man-made pond in downtown Lodi at the intersection of Church and Washington Streets.
- The pond was equipped with a dry fire hydrant and provided ample water volume to support the drill; access was not a problem.
- A single, 1,500 gpm pumper was used at the pond to support the tanker fill station.
- This fill site provided a 1.4-mile round trip for units hauling water.

The Fill Sites

- The second fill site was located at a pond on Smith Road and provided a 5.0-mile roundtrip for units hauling water.
- The site provided ample water volume to support the drill, however access was somewhat limited due to aquatic growth.
- A single, 1,000 gpm engine/tanker was used at the the pond to support the tanker fill station.

Church Street Fill Site



Fayette Engine 402 (1,500 gpm) responded as part of the 1st Alarm assignment and went directly to the Church Street pond to set up for loading operations. The first tanker was loaded and back at the dump site 24-minutes after the initial dispatch.

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Church Street Fill Site



Tankers were loaded using 4-inch LDH supplied through a jumbo-wye which was fed by a 5-inch line from Engine 402. The “loader” (valve guy) never left the jumbo wye. The “pit crew” made and broke fill connections and the loader simply opened the jumbo wye. Most IMPORTANTLY – only one tanker was filled at a time. Two could be connected – but only one loaded.

Church Street Fill Site



Traffic cones were used to mark where the loading crew wanted the incoming tankers to stop – very similar to “pit row” during a NASCAR race.

Smith Road Fill Site



The Smith Road site proved to be a little bit problematic because the pumper that was sent to set up the site did not arrive and an engine/tanker assumed the responsibility. Their problem was limited equipment for drafting and a pond that required 30 feet of suction hose in order to reach clean water.

Smith Road Fill Site



Drafting operations struggled some because of the limited availability of suction strainers and suction hose. The crew did a great job of “working with what they had” to load tankers.

The Results

- The drill was stopped at the 100-minute mark due to time constraints.
- Water flow was never interrupted!
- An estimated 73,983 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 763 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 the double-clappered siamese and Lodi's tanker in the nurse mode made a big difference in being able to support early operations while building to expand to greater flows.
- The fuel depot provided a realistic target hazard and there was ample space for this large operation: traffic flow was not a problem.

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, almost every fill line had the ability to load using 4-inch hose which made a huge difference in getting the tankers loaded and back on the road.
- These standardized fittings show a huge improvement in water shuttle operations and the folks in Seneca County have done a nice job of improving their tanker delivery capabilities.

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

- There was some variance in the size of suction hose carried on the apparatus and this proved problematic at the Smith Road fill site where a third length was needed but the wrong size kept showing up.
- 6-inch suction hose will work just fine on any pumper 1,000 gpm or larger – therefore, effort should be made for all rigs in a mutual aid setting to carry the same size suction hose.

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 Seneca County Office of Emergency Services and the Lodi FD for sponsoring and hosting the seminar.



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