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Seneca County Office of Emergency Services
Seneca County, New York

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
September 9, 2012
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

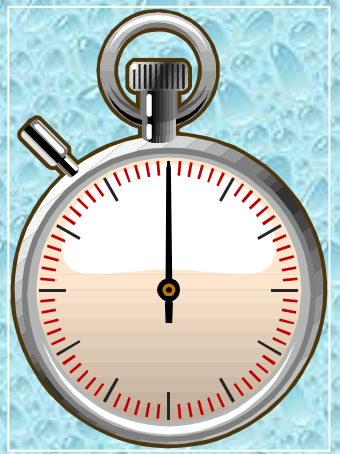
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Ovid FD.
- Once the classroom part was done, the seminar continued with 7 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Seneca County.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held in the Town of Ovid at the South Seneca High School on September 9th.
- 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 ISO 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 nine different fire departments in Seneca County, and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Ovid area.*

Drill Participants

- Ovid Engine 1101
  - 1,250 gpm pump w/1,500 gal tank
- Ovid Engine 1102
  - 1,750 gpm pump w/1,000 gal tank

Drill Participants

- Lodi Engine 802
  - 1,500 gpm pump w/1,000 gal tank
- Lodi Tanker 821
  - 500 gpm pump w/1,800 gal tank

Drill Participants

- Canoga Tanker 321
  - 500 gpm pump w/2,400 gal tank
- Fayette Tanker 421
  - 250 gpm pump w/2,400 gal tank

Drill Participants

- Border City Engine 205
  - 1,500 gpm pump w/1,000 gal tank

- Border City Tanker 221
  - 500 gpm pump w/3,000 gal tank

Drill Participants

- Romulus Tanker 1321
  - 250 gpm pump w/3,000 gal tank
- Varick Engine 1502
  - 1,500gpm pump w/2,500 gal tank

Drill Participants

- Oaks Corners Engine 3211
  - 1,500 gpm pump w/1,000 gal tank

Preparation

Units began the drill at the Ovid fire station where a briefing was given. Crews then boarded their rigs and waited for the dispatch of the event.

The Drill Begins

With everyone ready, the drill was started. Ovid Engine 1102 and Border City Engine 205 respond as the first units on the drill.

Dump Site Set-up

The timer was started when Ovid Engine 1102 came to stop. Crews immediately went to work stretching the initial attack line and getting set-up to move to a dump tank operation.

Dump Site Set-up

Between the two engines, there was 2,500 gallons of water to use before a dump tank operation would be needed.

Water Flow Begins

At the 5:00 minute mark, water flow was started at 334 gpm. A Hose Monster flow diffuser device with a built-in pitot was used to accurately measure the flow.

Dump Site Operations

At the 7:30-minute mark, Lodi Tanker 821 arrived and crews begin to set-up a second dump tank in preparation for expanding the operation.

Dump Site Operations

Border City Tanker 221 is shown here off-loading its 3,000 gallons of water as folks begin to set up water transfer devices.

Dump Site Operations

The dump site pumper is now supplying the attack pumper and dump tank operations are underway.

Dump Site Operations

At the 9:42-minute mark, a third dump tank was deployed but not placed into operation. It still needed a water transfer device.

Dump Site Operations

A Tanker Task Force has been requested. Hopefully, they arrive soon as there are no tankers dumping!

Dump Site Operations

At around 16-minutes, tankers from the second Tanker Task Force arrived just in time because the flow had been increased to 504 gpm at the 15-minute mark.

Dump Site Operations

Dump site personnel take equipment from Fayette's tanker so that they can improve water transfer operations between the tanks.

Water Transfer Operations

Water transfer operations are now fully operational and plans are underway to increase the flow.

Water Transfer Operations

With the goal to move to a 4-dump tank operation, crews work to assemble addition water transfer devices. The plan is to jump the third tank using two sections of hard suction hose and a jet siphon.

Dump Site Operations

Around the 26-minute mark, Lodi Tanker 821 is back from the fill site, making it the first tanker back from being loaded.

Dump Site Operations

At the 55-minute mark, flow was moved to 752 gpm with hopes of making it to 1,000 gpm.

Dump Site Operations

Border City's tanker offloads another load of 3,000 gallons. There were a couple of issues with the water transfer process – but they were worked out.

Dump Site Operations

At one point, it got dangerously close to running out of water in the primary drafting tank, but the crews resolved the jet siphon problems and water flow was not interrupted.

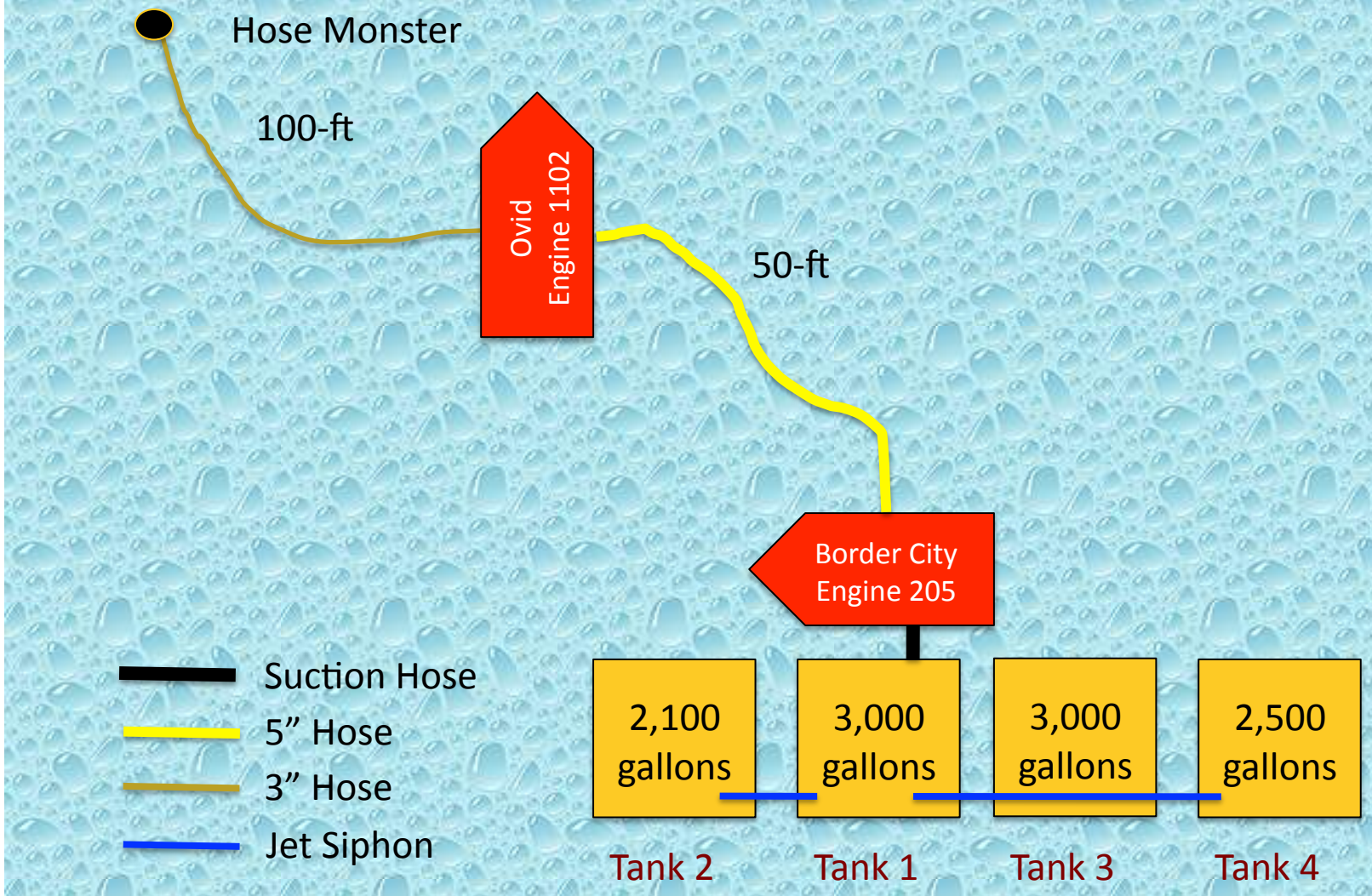
Dump Site Operations

Fayette's tanker offloads its 2400 gallons of water into the primary drafting tank.

Dump Site Operations

At the 90:00-minute mark, the flow was moved to 1024 gpm where it remained through the end of the drill.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used.
- Both sites used ponds equipped with dry fire hydrants as their water supply sources.
- The first fill site was located at a pond on Smithtown Building Road and provided about a 6-mile round trip for the units hauling water.
- The pond provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the pond to support the tanker fill station.

The Fill Sites

- The second fill site was located on Log City Road and provided a 7.2-mile round trip for the units hauling water.
- This pond also provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the pond to support the tanker fill station.

Smithtown Fill Site

Lodi Engine 802 (1500 gpm) established a tanker loading station at a pond on Smithtown Building Road. The pond was equipped with a 6-inch dry fire hydrant and provided plenty of water for filling tankers.

Smithtown Fill Site

Lodi's crew did a great job of getting the fill site set up in time to handle the first tanker. The fill site was ready to go at the 10:24-minute mark.

Smithtown Fill Site

The crew used LDH as the tanker fill line. The step ladder was used to aid in connecting to the dry fire hydrant.

Smithtown Fill Site

The use of LDH to load tankers can really cut down on the fill time when compared with using 2-1/2-inch hose – even if the tanker does not have an LDH direct fill intake.

Smithtown Fill Site

Since E802 only had one, high-flow discharge, the second tanker fill line was created by manifolding two, 3-inch lines together using a 3-way valve.

Log City Fill Site

The Log City fill site was located at a farm and required the use of several hundred feet of 4-inch LDH so that tankers did not have to travel the farm lane to get loaded.

Log City Fill Site

This fill site was the second site to open and required coordination between the pumper and the fill crew. The folks working here did a nice job of filling tankers. The use of 5-inch LDH would have improved the pumper's capability, however, the site was still pretty efficient in its operation.

Log City Fill Site

Oaks Corners Engine 3211 (1500 gpm) was used as the supply pumper at this fill site. The farm pond was outfitted with a 6-inch dry fire hydrant.

Log City Fill Site

Crews work to fill Fayette's Tanker 421. The use of the LDH manifold simplified the filling operation by placing control of the flow at the loading station instead of at the pump panel several hundred feet away.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill!
- An estimated 80,540 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 700 gpm.

The Lessons Learned

- At this drill, all components seemed to work very well together. The only issue that arose was the inability to transfer water fast enough between the dump tanks once the 1,000 gpm benchmark was reached.
- There were some differences in the pressures needed to make the jet siphons work efficiently and that resulted in giving the pump operator some difficulties. It all got worked out in the end, but at one point, water levels were close to being exhausted in the primary dump tank.
- A unit should have been moved into position to draft and operate jet siphons. The problem of course was that there no "extra" units.

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 fill lines had Storz-style connections which really made a difference in reducing the amount of time needed to connect fill lines.

The Lessons Learned

- When using LDH without a high-flow discharge, take the time to combine (or manifold) multiple small lines into the LDH as opposed to connecting the LDH to a 2-1/2-inch outlet. At low flow rates, the small outlet will work, but as flows reach pump capacity, flow restriction will occur and changing hose layouts may not be able to be done without shutting down pumping operations – so plan ahead!
- At this drill, the Lodi fill-site pumper did a nice job of using LDH without a high-flow discharge. The crew used a manifold to maximize the pump's discharge outlets.

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

- Tankers should be marked on all four sides with their unit numbers. When operating at large, mutual aid incidents, group supervisors and command staff may not recognize a tanker – so identification markings are important.

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 Ovid FD for sponsoring and hosting this seminar.

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This program was developed by
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