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Department of Emergency Management
Onondaga County, New York

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
October 2, 2016
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 the participants to practice deploying and operating as a Water Supply Task Force in an unfamiliar area.

The Seminar

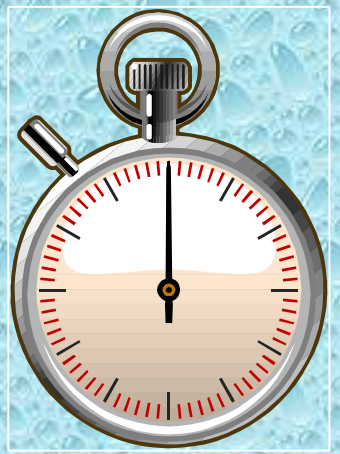
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Plainville fire station.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on October 2nd in Dewitt at a shopping mall.
- 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 2-Hour Test

- The 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



2-hr 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.

2-hr 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.

2-hr 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 2-hr 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 2-hr 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 several different fire departments in the Onondaga County region and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Plainville area.*

Drill Participants

- Plainville Engine 3
  - 1,500 gpm pump w/1,000 gal tank
- Plainville Engine 4
  - 1,750 gpm pump w/1,500 gal tank

Drill Participants

- Plainville Tanker 1
  - 1,000 gpm pump w/2,350 gal tank
- Lysander Engine 1
  - 1,500 gpm pump w/2,000 gal tank

Drill Participants

- Lysander Tanker 1
  - 500 gpm pump w/2,000 gal tank
- Baldwinsville Engine 7
  - 1,500 gpm pump w/1,000 gal tank

Drill Participants

- Granby Center Tanker 51
  - 500 gpm pump w/2,000 gal tank
- Memphis Tanker 23
  - 2,000 gal tank

Drill Participants

- Sennett Tanker/Pumper 3
  - 1,500 gpm pump w/1,500 gal tank

- Weedsport Tanker 1
  - 1,500 gpm pump w/2,200 gal tank

Drill Participants

- Wolcott Tanker 11
  - 2,000 gal tank

- Firovac Vacuum Tanker
  - 1,000 gpm pump w/3,000 gal tank

Drill Participants

- ConquestTanker/Pumper 3
  - 1,000 gpm pump w/1,500 gal tank

Preparation

Units assembled at the Plainville fire station where they received an operational briefing and prepared for deployment to a simulated event 25 miles away in Dewitt.

The Drill Begins

The units on the Water Supply Task Force caravanned to the drill site. Plainville Engine 4 was the first-arriving unit. The drill was held in the parking lot of the shopping mall and traffic cones were used to simulate a two-lane road. The timer was started when Engine 4 came to a stop and the parking brake was set.

Dump Site Operations

The plan was to use a four-dump tank set-up to supply water to an aerial tower (already on scene). The dump tanks were to be arranged using the "single-lane" layout with two tanks to the rear of Engine 4 and two tanks in front.

Dump Site Operations

The first dump tank (2,100 gal) was deployed to the rear of Engine 4 (1,750 gpm) and suction was set-up to the pumper's 6-inch rear intake.

Dump Site Operations

Additional tankers from the Water Supply Task Force began to arrive. Each tanker arrived prepared to dump water and provide a dump tank.

Dump Site Operations

At the 5-minute mark, a second dump tank (2,500 gal) was deployed and crews continued to build out the dump site.

Dump Site Operations

Meanwhile, two dump tanks (2,100 gal red and 2,500 gal yellow) were deployed in front of Engine 4 and the pumper's front suction inlet (5" pipe) was used.

Dump Site Operations

Arriving crews worked to build out the 4-dump tank operation. Meanwhile, two fill sites were under construction using other pumpers from the Water Supply Task Force. At the 11-minute mark, a 500 gpm flow to the tower was started.

Dump Site Operations

Shown here at the 18-minute mark, tankers are now dumping water while crews continue with the build out operations.

Dump Site Operations

The Firovac vacuum tanker offloads its 3,000 gallons of water. Water transfer operations are now also underway.

Dump Site Operations

At the 38 minute mark, water flow was moved to 750 gpm and all four dump tanks were in operation.

Dump Site Operations

Around the 41-minute mark, the direction of travel was changed so that the tankers could dump off the driver side of the rig. This change reduced the amount of time spent at the dump site.

Dump Site Operations

At the 45-minute mark, flow was moved to 1,050 gpm and then at the 55-minute mark, flow was moved to 1,550 gpm – which was the peak flow for the drill.

Dump Site Operations

The singe-lane arrangement worked well, even with the four, square dump tanks. Engine 4 was able to support the 1,550 gpm flow and operate two jet siphons at the same time.

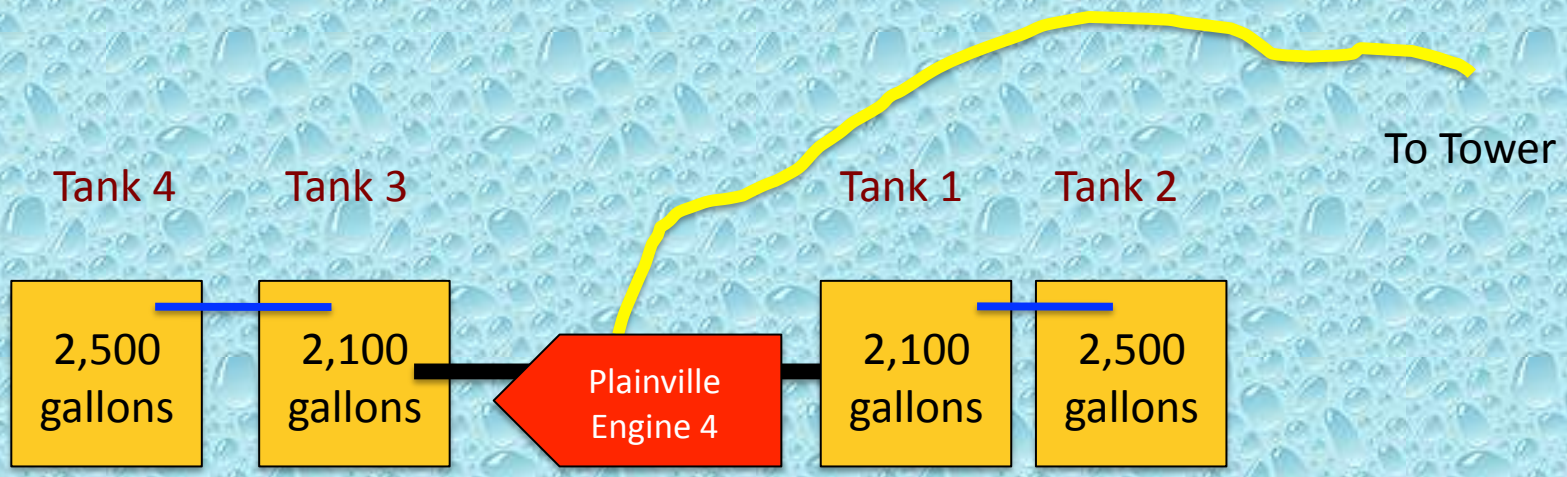
Dump Site Operations

By drafting out of the rear and front intakes simultaneously, only two jet siphons were needed for the four dump tank operation.

Dump Site Operations

The Water Supply Task Force was able to arrive on scene, establish a 500 gpm flow within 11 minutes, and eventually support a 1,550 gpm flow using 10 tankers.

Dump Site Layout



Suction Hose

5” Hose

Jet Siphon

The Fill Sites

- For this drill – two fill sites were used – both located to the east of the dump site.
- The first fill site set up was located at Cedar Bay along the Old Erie Canal and provided a 2.2-mile round trip for the units hauling water.
- The canal provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the canal to support the tanker fill station.

The Fill Sites

- The second fill site was located at a pond on Cedar Bay Road and provided a 3.4-mile round trip for the units hauling water.
- The site used a large pond that 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.

Canal Fill Site

Baldwinsville Engine 7 (1,500 gpm) drafted from the canal and supplied a loading station that loaded tankers using 5-inch LDH.

Canal Fill Site

Water access was good, although vehicle access was a bit limited. Thirty feet of 6-inch suction hose was needed to access the water.

Canal Fill Site

The crew set up to draft using one of the side suction inlets, thus giving the 1,500 gpm pumper the best chance of success for maximizing output.

Canal Fill Site

One crew member was assigned to the “loader” position. It was his job to control the flow of water to the tankers as they loaded.

Pond Fill Site

Plainville Engine 3 (1,500 gpm) gained access to this large pond and supplied water to the loading site using 300 feet of 4-inch LDH.

Pond Fill Site

The pumper carried sufficient lengths of suction hose to reach the pond and the crew was able to set up operations without incident.

Pond Fill Site

The loading crew set up the loading station in a parking lot that provided room for the tankers to load while being out of the traffic flow on the main road.

Pond Fill Site

Tankers were loaded using 4-inch LDH. The crew had to get a bit creative…they built out a "valve" system that allowed water flow to be shifted once a tanker was loaded.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted only once during the entire drill – at the 111-minute mark for 3-minutes.
- An estimated 123,000 gallons of water were flowed to the aerial tower during the drill producing an average flow rate of 1,162 gpm.

The Lessons Learned

- The purpose of this drill was to practice the concept of using a Water Supply Task Force to support attack operations at a large scale fire event.
- Three pumpers, ten tankers, and a command officer were used to deliver a 1,500 gpm+ flow using two fill sites.
- The drill also illustrated the use of the “single-lane” dump tank arrangement. Four, square dump tanks were aligned using the principle of staying in one lane of traffic – this arrangement worked well due to the pumper and operator assigned to the dump site.

The Lessons Learned

- The 1,750 gpm pumper operating at the dump site had sufficient pump capacity to support the 1,550 gpm peak flow while running two jet siphons.
- The pumper's rear and front suction inlets could be controlled remotely by the pump operator, thus the single-lane arrangement worked well.

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, most all of the tanker fill connections were the same which allowed for quick turn around times at the fill sites.

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 Water Supply Task Force 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 Onondaga County Department of Emergency Management for sponsoring and the Plainville FD for hosting this seminar.

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This program was developed by
GBW Associates, LLC

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