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Le Claire Fire Department
Le Claire, Iowa

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
March 29, 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

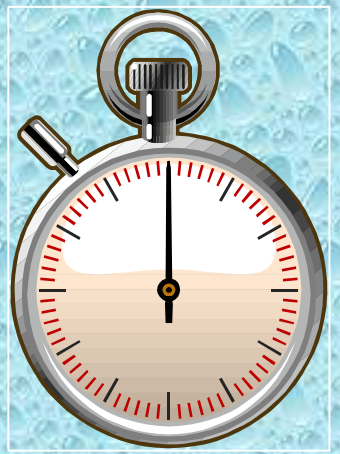
- The 2-day seminar started on Saturday with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Le Claire Fire Department.
- Once the classroom part was done, the seminar continued with several hours of practical work on fill-site and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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on March 29th at the Le Claire Quarry's, river barge unloading yard located along the Mississippi River.
- 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 eight 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 Le Claire area.*

Drill Participants

- Le Claire Engine 5
  - 1,000 gpm pump w/1,250 gal tank
- Le Claire Truck 1
  - 2,000 gpm pump w/300 gal tank

Drill Participants

- Le Claire Fire Boat 1
  - 750gpm pump
- Princeton Engine 3
  - 1,500 gpm pump w/2,500 gal tank

Drill Participants

- Princeton Tanker 5
  - 400 gpm pump w/2,000 gal tank

- Port Byron Engine 4162
  - 1,250 gpm pump w/1,500 gal tank

Drill Participants

- Port Byron Tender 4171
  - 750 gpm pump w/3,000 gal tank
- DeWitt Tanker 1
  - 500 gpm pump w/3,000 gal tank

Drill Participants

- Buffalo Tanker 1
  - 750 gpm pump w/2,000 gal tank
- McCausand Engine 2
  - 1,000 gpm pump w/3,000 gal tank

Drill Participants

- Dixon Tanker 1
  - 500 gpm pump w/3,000 gal tank

Preparation

Units staged in the parking lot behind the Le Claire fire station. Crews were briefed and units were prepared for dispatch using a 1st Alarm assignment plus two, Tanker Task Forces.

The Drill Begins

Le Claire Truck 1 (aerial tower) was the first-arriving unit at the barge yard and assumed the role as the attack pumper. Port Byron Engine 4162 arrived on-scene shortly thereafter. The stopwatch was started when the tower driver applied the air brakes.

Dump Site Operations

The engine and tower crews worked to get a 100-ft supply line of 5” hose in place while at the same time setting up the first dump tank. While these activities were in progress, Port Byron’s 3,000-gallon tender arrived – thus providing an additional dump tank.

Dump Site Operations

Engine 4162 began supplying water to the tower at the 5-minute mark at a rate of 250 gpm. Meanwhile, crews finished setting up the first dump tank.

Dump Site Operations

Right around the 9-minute mark, the first load of water (3,000 gallons) was dumped into the 3500-gallon dump tank and drafting commenced.

Dump Site Operations

Princeton Engine 3 dumps it 2500 gallons of water into the second dump tank as the “dump site begins to grow.”

Dump Site Operations

Units from the 1st Tanker Task Force (3 tankers) begin to arrive as the plan to move to a third dump tank takes shape.

Dump Site Operations

Things were a little tight around the 23-minute mark when no tankers were present at the dump site. Flow had been moved to 500 gpm about 8 minutes earlier, so water was soon going to be needed.

Dump Site Operations

Fortunately, the Port Byron tanker made its first return trip from the fill site and provided the much needed water to keep the flow going.

Dump Site Operations

Units from the 2nd Tanker Task Force (2 tankers) began to arrive and water supply operations started to stabilize. Flow was moved to 750 gpm at the 30-minute mark.

Dump Site Operations

Dewitt's tanker (3,000-gallons) dumps the first load of water into the fourth dump tank as operations continue to expand.

Dump Site Operations

At the 48-minute mark, flow was moved to 1,000 gpm and at the 50-minute mark, a second supply line was stretched to the tower (the white 2-1/2” hose).

Dump Site Operations

With flow now at 1,250 gpm, fewer tankers are seen at the dump site. Dixon's tanker is dumping its 3,000 gallons into the "primary" dump tank.

Dump Site Operations

Assistant Chief Chuck Mulvania (middle) commanded operations at the dump site and did a nice job of coordinating the movement and off-loading of tankers.

Dump Site Operations

The Port Byron engine driver added a length of 2-1/2” suction hose to “boost” intake capacity so that the 1,250 gpm pumper could support the 1,250 gpm flow plus three jet siphons.

Dump Site Operations

Dump site operations are well underway in this photo and supporting a 1,250 gpm flow. Crews worked very hard to keep the primary dump tank (3,500 gallons) full at all times – which made a huge contribution to the successful outcome.

Water Transfer Operations

A great looking jet siphon stream! Three jet siphons were used to make this dump site operation work. Two were operated by the Port Byron engine and one by the Le Claire tower.

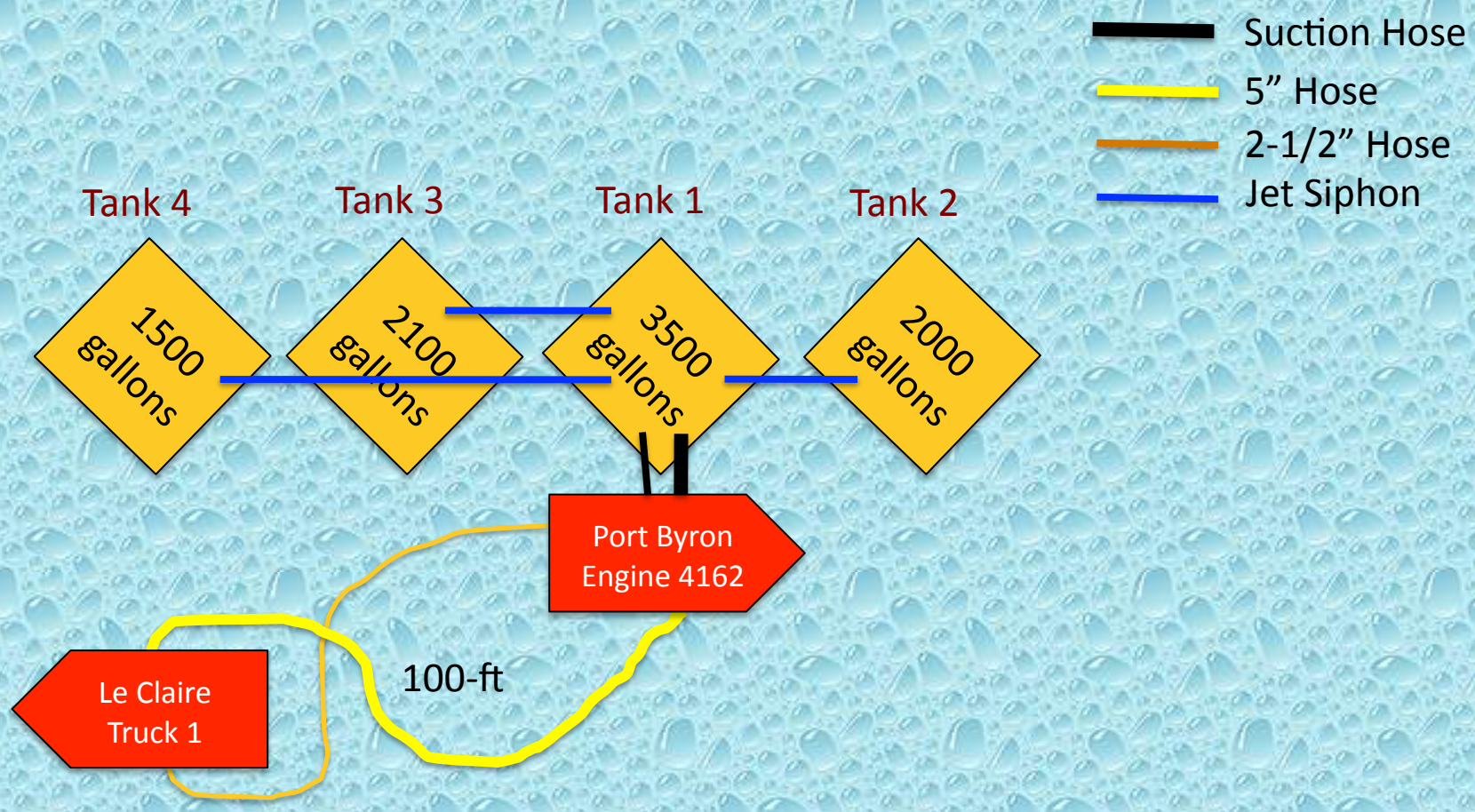
Dump Site Operations

Things looked very slim at the 92-minute mark – 1,250 gpm flow and no tankers dumping! Flow had to be cut back to 1,000 gpm until a tanker arrived.

Dump Site Operations

Fortunately, three tankers arrived about 3-minutes later and "all was well."
Water flow was never interrupted and never dropped below 1,000 gpm!

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used – both located at a public boat launch area in the City of Le Claire.
- Both fill sites provided a 2.4-mile roundtrip for the units hauling water and used the Mississippi River as the water source.
- The river provided ample water volume to support the drill and access was not a problem.
- A 1,000 gpm pumper and a 750 gpm fire boat were used to run the two independent fill stations.

Fill Site Operations

The fire boat and the pumper both took suction from the same boat ramp area. The pumper (Le Claire E5) had attempted to use a dry hydrant at the launch area but the pumper could not obtain a draft through the DFH – so the crew changed location.

Fill Site Operations

The fire boat drafted and supplied an LDH appliance via 100-ft of 5-inch hose. The boat was able to load tankers at a rate of at least 1,000 gpm because of the use of the 5-inch hose.

Fill Site Operations

The pumper drafted through 40-feet of 6-inch suction hose after abandoning the attempt at using the dry fire hydrant. The suction hose was outfitted with a barrel strainer that was tied off to the boat trailer in order to keep it up and off the bottom of the boat ramp.

Fill Site Operations

Most of the tankers had to be loaded using 2-1/2” hose because of a lack of fittings and adaptors. By keeping the 2-1/2” hose lines under 100-feet in length, fill times were acceptable when two fill lines were used.

Fill Site Operations

The fill site crews really hustled and helped keep the loading times down to a minimum.

Fill Site Operations

First-arriving crews worked very quickly and had this fill site operational in less than 10-minutes.

Fill Site Operations

Dewitt's tanker being loaded by the "pit crew." Each member of the 3-person team had an assignment and stuck to it.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted!
- An estimated 102,250 gallons of water were flowed through the aerial tower during the drill producing an average flow rate of 889 gpm for the two hours.

The Results

- More importantly, the crews sustained a flow of 1,000 gpm or greater for the last 60-minutes of the drill which allowed them to be awarded membership in the exclusive GBW Associates, LLC “1,000 GPM Club.”

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 moments and near the end of the drill.
- The use of the 2-1/2-inch “pony suction” allowed the 1,250 gpm Port Byron pumper to flow in excess of 1,500 gpm.
- The barge yard layout provided ample space for this large operation and 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 tanker required the use of a threaded fitting at the fill line connection. Threaded fittings take the most time to connect and disconnect. Departments should consider moving to Storz or camlock style fittings for all tanker fill operations.

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. At this drill, dump site crews had to wait the arrival of units from the 1st Tanker Task Force in order to acquire additional jet siphons.
- 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

- Although most of pumpers and tankers could work with 5-inch LDH, there was a very limited number of LDH valves and appliances available for use.
- When a water source such as the Mississippi River is available – forego the use of dry fire hydrants and get those pumpers right to the water's edge and use as many suction inlets as possible while minimizing lift.

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 Le Claire Fire Department for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

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