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Prospect Fire Department
Prospect, Maine

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
October 4, 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

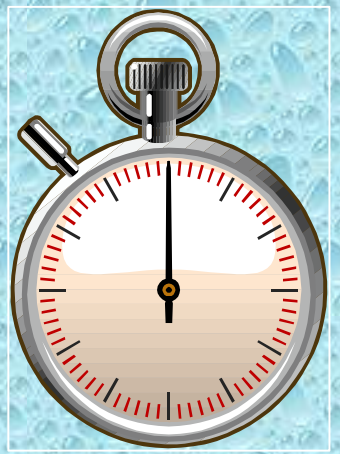
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Prospect fire station.
- Once the classroom part was done, the seminar continued with 7 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held in Prospect at a boat launch area along the South Branch Marsh River on October 4th.
- 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 seven different fire departments in the Waldo 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 Prospect area.*

Drill Participants

- Prospect Engine-1
  - 1,500 gpm pump w/1,000 gal tank
- Prospect Engine 3
  - 1,000 gpm pump w/1,550 gal tank

Drill Participants

- Prospect Tanker 2
  - 3,000 gal tank

- Frankfort Village Truck 1
  - 1,500 gpm pump w/2,500 gal tank

Drill Participants

- Searsport Engine 1
  - 1,000 gpm pump w/750 gal tank

- Searsport Engine 3
  - 1,250 gpm pump w/1,000 gal tank

Drill Participants

- Searsport Tanker 1
  - 3,500 gal tank
- Searsport Tanker 2
  - 4,850 gal tank

Drill Participants

- Stockton Springs TP2
  - 500 gpm pump w/1,500 gal tank

- Stockton Springs TP4
  - 1,000 gpm pump w/1,800 gal tank

Drill Participants

- Stockton Springs Tanker 8
  - 3,800 gal tank
- Wintersport Engine 4
  - 1,250 gpm pump w/3,000 gal tank

Drill Participants

- Belfast Tanker 5
  - 1,500 gpm pump w/2,500 gal tank

Preparation

Units staged at the Prospect fire station where they received drill assignments and a safety briefing.

The Drill Begins

Searsport Engine 3 was the first-arriving unit and assumed the role as the attack pumper. The 4-person crew divided up tasks and deployed two attack lines. Prospect Engine 1 arrived next and reverse laid a 4-inch supply line to the dump site area. The stopwatch was started when the Searsport engine driver applied the air brakes.

Dump Site Operations

As additional units arrived on the scene, folks helped set up dump tanks. In the meantime, Engine 1 was prepared to supply tank water to Engine 3 through the 300 ft of 4-inch supply line.

Water Flow Started

Two, 1-3/4-inch attack lines were used to flow water at the 5-minute mark. The combined flow was 250 to 300 gpm. Tank water from the two engines was used to initiate this flow.

Dump Site Operations

With Engine 1 now ready to draft (note suction inlet control valve), Prospect Engine 3 dumps its water into the dump tank..

Dump Site Operations

Soon after, more tankers began to arrive as crews moved to expand the dump site operation.

Incident Command

Chief Terry (Prospect FD) assumed the command and was supported by folks operating in the Waldo County IMAT Command Post.

Incident Command

Waldo County IMAT personnel brought their Mobile Command Post and assisted the Incident Commander in managing the drill. This was an excellent opportunity for the two agencies to practice their interoperability skills.

Dump Site Operations

Prospect Tanker 2 was the next tanker to dump its water. Most of the tankers participating in the drill could only dump from the rear, so the arrangement of the dump tanks became important.

Dump Site Operations

Prospect Engine 1 operated as the dump site pumper. The crew used a length of 2-1/2-inch suction hose to bolster the intake capability of the pumper. The single-4" supply line proved restrictive at 750 gpm, the addition of the 2-1/2" supply line to the attack pumper allowed the flow to move to 1,100 gpm.

Dump Site Operations

As the dump site was expanded to a 3-tank operation, the outer tanks were placed in a diamond shape to better accommodate the rear-dumping tankers. Plus, all tankers entered the dump site from the same direction.

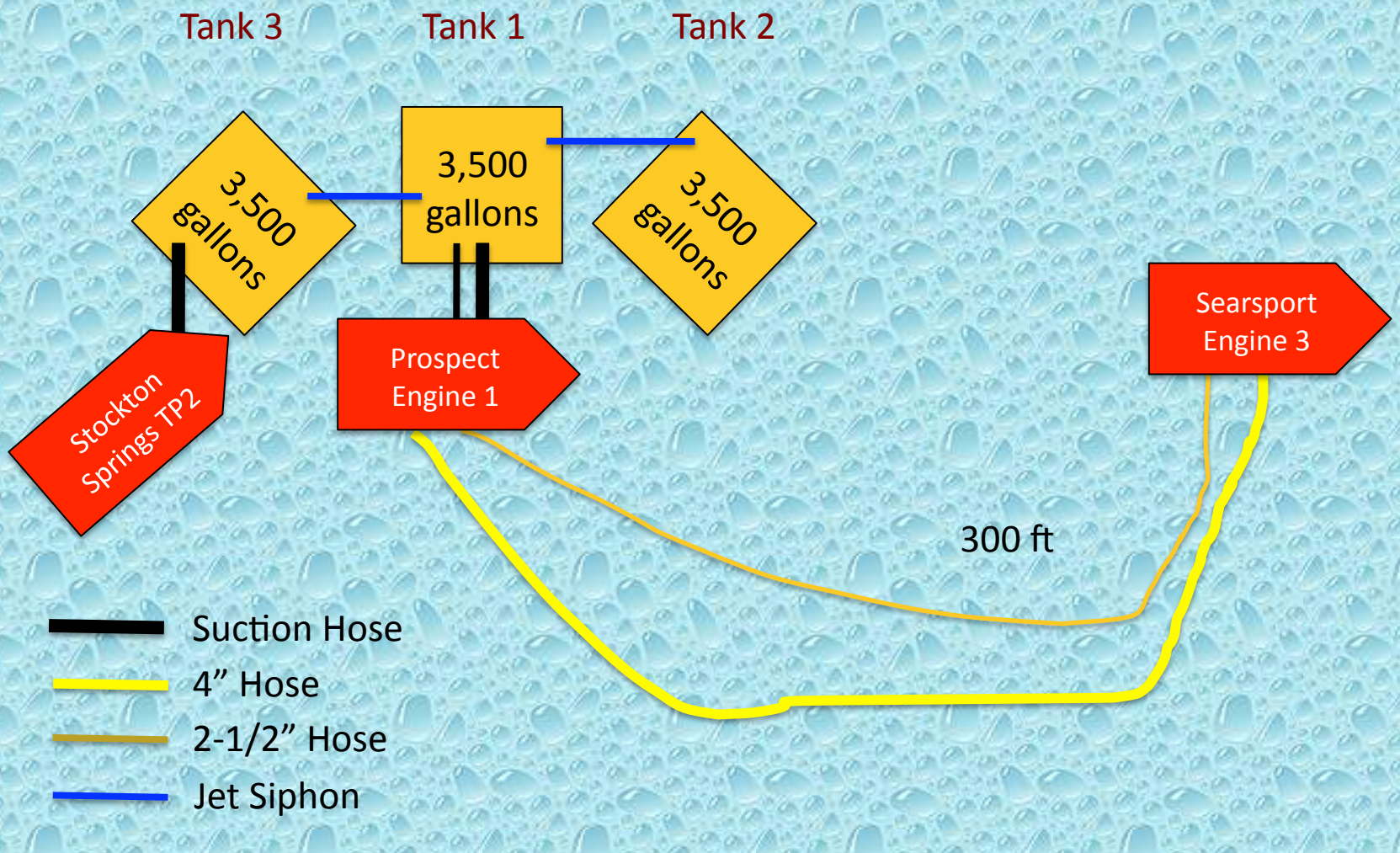
Water Transfer Operations

Because the dump site pumper was having trouble supplying the attack pumper and running the jet siphons (pump capacity and pressure), Stockton Springs TP2 (500 gpm) was pulled from hauling water and put into operation running jet siphons. This reduction in tankers hauling water actually increased the flow delivery to 1,100 gpm – sometimes, that is what is needed for success.

Dump Site Operations

In the end, the dump tank arrangement allowed three tankers to dump simultaneously and the use of the Stockton tanker/pumper to run jet siphons allowed the Prospect pumper to commit entirely to supporting the attack pumper.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used. One to the north and one to the south of the dump site.
- The first fill site set up was located at a pond south of the dump site and provided about a 2.8-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, 1,250 gpm tanker/pumper was used at the pond to support the tanker fill station.

The Fill Sites

- The second fill site was located on Marsh Stream in Frankfort Village to the north of the dump site and provided a 4-mile round trip for the units hauling water.
- The site used a large stream that provided ample water volume to support the drill and access was not a problem.
- This fill site was equipped with a 6-inch dry fire hydrant.
- A single, 1,000 gpm pumper was used at the pond to support the tanker fill station.

Pond Fill Site

The pond had plenty of water access and availability to support a large scale loading operation. Wintersport Engine 4 (1,250 gpm) is shown here arriving at the fill site as the fill site pumper.

Pond Fill Site

The crew went right to work setting up for drafting operations and laying out fill lines for loading tankers. The site was up and running by the time the first empty tanker arrived.

Pond Fill Site

Searsport Tanker 1 (3,500 gal) is shown being loaded in this photo. LDH was used to reduce loading time and to achieve the 1,000 gpm minimum load rate.

Pond Fill Site

Stockton Springs Tanker 8 (3,800 gal) is shown here being loaded – also through LDH.

Marsh Stream Fill Site

Searsport Engine 1 (1,000 gpm) was used as the pumper at this fill site. The crew really hustled and was able to get the fill site up quickly. Drafting through the dry fire hydrant proved problematic and the crew was only able to support about a 650 gpm fill rate.

Marsh Stream Fill Site

4” LDH was used to load tankers at this fill site. When possible, only the smaller (single-axle) tankers traveled to this fill site for loading.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted only once during the entire drill – at the 73-minute mark for 60 seconds.
- An estimated 101,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 886 gpm.

The Lessons Learned

- At this drill, an attack pumper and a supply pumper were used at the dump site. This arrangement allowed for each pump operator to focus on just one area of operation – attack ops or supply ops.
- The supply pumper had a butterfly valve on the driver side suction inlet which allowed the operator to begin water flow using the onboard tank water while crews set up for drafting.

The Lessons Learned

- Dump tank arrangement is critical to successful dump site ops. At this drill, the 2nd and 3rd dump tanks deployed were arranged to better accept rear-dumping tankers.
- Jet siphons consume pump capacity. Shedding the jet siphon operation to the Stockton tanker/pumper allowed the flow to be increased to the attack pumper.

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, there were different tanker fill connections which required adaptors and thus slowed down some of the fill operations.
- Having a standardized fill connection for all tankers increases fill efficiency and decreases fill time.

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 tanker task force concept 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 Prospect FD for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

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