www.GotBigWater.com

Lakes Region Mutual Fire Aid Association
Gilmanton, New Hampshire

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
October 21, 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

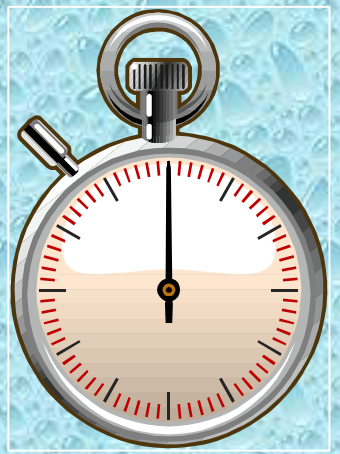
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Gilmanton FD's Iron Works station.
- Once the classroom part was done, the seminar continued with 7 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Lakes Region Area with two guests from Hillsborough County, Florida.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held in the Town of Gilmanton at the Hidden Valley Boy Scout Reservation on October 21st.
- 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 nine different fire departments in the Lakes Region Area (plus two from the Tampa, FL area), and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Gilmanton area.*

Drill Participants

- Gilmanton 9-Engine-2
  - 1,250 gpm pump w/1,000 gal tank
- Gilmanton 9-Engine 3
  - 2,000 gpm pump w/2,500 gal tank

Drill Participants

- Gilmanton 9-Tanker-2
  - 1,750 gpm pump w/2,500 gal tank

- Chichester 54-Engine-2
  - 1,250 gpm pump w/1,000 gal tank

Drill Participants

- East Andover 32 Engine 1
  - 1,250 gpm pump w/1,000 gal tank
- Strafford 25 Engine 2
  - 1,250 gpm pump w/1,000 gal tank

Drill Participants

- Strafford 25 Engine 3
  - 1,750 gpm pump w/3,000 gal tank
- Barnstead 6 Tower 1
  - No pump or tank

Drill Participants

- Loudon 61 Tanker 1
  - 500 gpm pump w/3,000 gal tank
- Wolfeboro 99 Engine 2
  - 1,250gpm pump w/3,000 gal tank

Drill Participants

- Effingham 2 Engine 2
  - 1,500 gpm pump w/3,000 gal tank
- Tilton 21 Tanker 1
  - 1,500gpm pump w/2,500 gal tank

Drill Participants

- Alton 1 Engine 2
  - 2,000 gpm pump w/2,500 gal tank

Preparation

Units staged in the parking lot at the Boy Scout camp and received a briefing on the drill. Assignments were made and crews mounted their rigs and were ready for dispatch.

The Drill Begins

Gilmanton 9-Engine-2 was the first-arriving unit and assumed the role as the attack pumper. The 4-person crew divided up tasks and deployed an attack line and a 4-inch supply line. The stopwatch was started when the pumper driver applied the air brakes.

Dump Site Set-up

The supply line was equipped with a clappered siamese valve so that nurse-tanker operations (Rural Hitch) could be used if needed. The use of the valve permits tankers to support the fire attack while a dump site is being established.

Dump Site Set-up

Gilmanton 9-Tanker-2 was the next unit to arrive and its crew began gathering the needed items to set up the dump site.

Nurse Tanker Operations

Gilmanton 9-Engine-3 arrived next and got into position to supply its 2,500 gallons of water to the attack pumper via the clappered siamese.

Water Flow Begins

Water flow was started at the 5:00 minute mark at a rate of 250 gpm. A Hose Monster flow diffuser was used to accurately measure the flow during this part of the drill.

Dump Site Set-up

The first dump tank was set-up by the 6:00-minute mark and ready to receive water.

Nurse Tanker Operations

The Rural Hitch was ready to supply the attack pumper also around the 6:00-minute mark.

Dump Site Set-up

Gilmanton 9-Tanker-2 gets ready to dump its water into the dump tank. The problem is that no dump site pumper has arrived yet – so dumping the water into the tank would result in trapped water that no one could use.

Command

A command post was established and Captain Bryan Boyajian assumed the role of Incident Commander.

Dump Site Operations

Strafford 25-Engine-3 arrived and assumed the role of the dump site pumper. The 1,750 gpm pumper was going to be needed if a 1,000 gpm flow was to be attained.

A Puppy Dawg Arrives!

Barnstead's 6-Tower-1 (a gorgeous Mack Aerialscope) arrived next and got into position to operate a 1,000 gpm aerial stream once the dump site operation was ready to support such a flow.

Dump Site Operations

Around the 13:00-minute mark, 25-Engine-3 started drafting from the dump tanks and the operation was switched from a nurse tanker operation to a dump tank operation.

Dump Site Operations

With the first dump tank in operation, the crews now go to work getting ready to set up a second tank knowing that they want to get to that 1,000 gpm flow.

Water Transfer Operations

With water transfer operations now underway, water flow was moved to 630 gpm at the 16:30-minute mark.

3rd Tank Down

At the 22:00-minute mark, a third dump tank was deployed and awaited water. Note – no tankers are seen dumping – this was a critical point early in the drill.

Dump Site Operations

Three dump tanks were now in operation around the 34:00-minute mark. Crews had to hustle to keep the primary dump tank full.

Dump Site Operations

At the 60:00-minute mark, water flow was moved to 750 gpm and flow was switched from the Hose Monster to 6-Tower-1's elevated master stream which was equipped with a fixed pitot tube and gauge for accurate flow measurement. Water flow was moved to 800 gpm at the 75:00-minute mark.

Dump Site Operations

With the dump site now in full operation, the Rural Hitch equipment was left connected in case a problem occurred at the dump site. This practice is certainly one of the "best practices" out there for ensuring an uninterrupted water flow once dump site operations are underway.

Water Flow is Increased

At the 83:00-minute mark, 25-Engine-3 deployed a second suction hose so that flow could be increased. The pumper is equipped with suction inlet control valves, so adding the second suction occurred without having to shut down water flow. Once the second suction was operational – flow was moved to 980 gpm. At the 85:00-minute mark, the flow was moved to 1,000 gpm where it remained through the remainder of the drill.

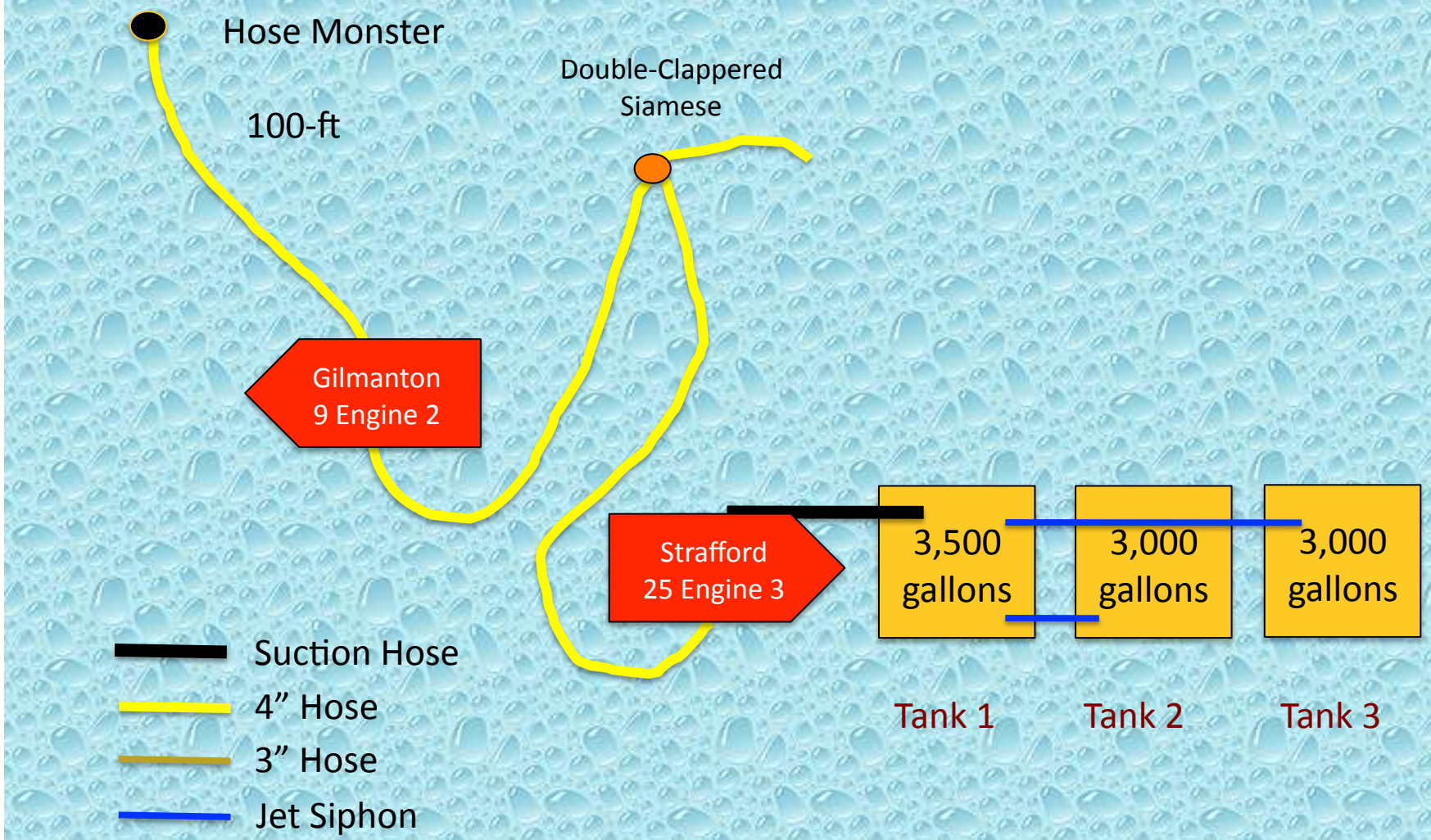
Water Transfer Operations

With the flow now at 1,000 gpm, water transfer operations became critical.

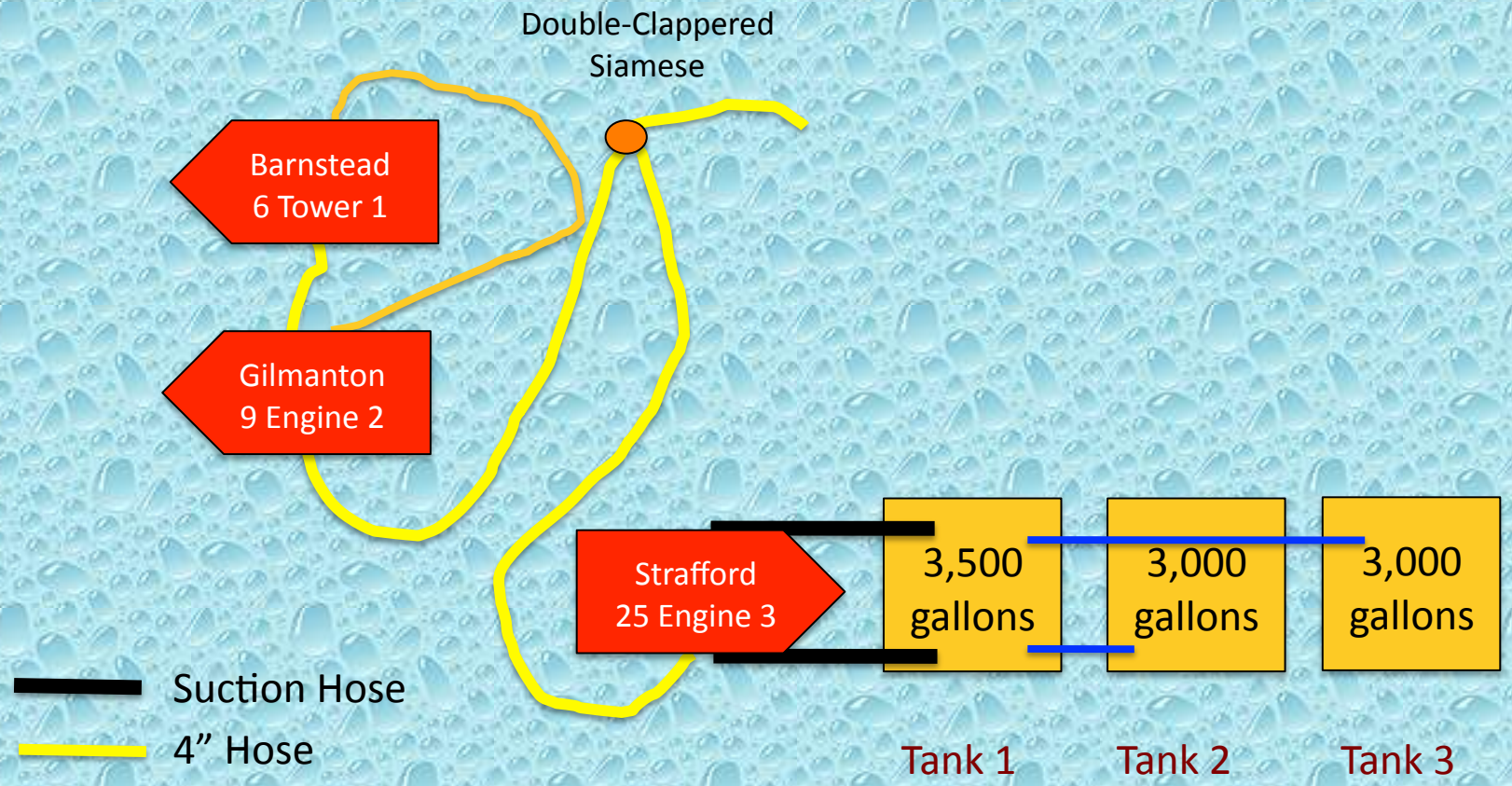
Cutting It Close!

With just 5-minutes left in the drill, water levels were very low. Fortunately, Loudon 61-Tanker-1 arrived just in time to offload its 3,000 gallons of water and keep the flow going!

Initial Dump Site Layout



Final Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used.
- Both sites were located in the same general area in the scout camp but operated independent of each other.
- The first fill site was located at a small pond and provided about a 2-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 pumper was used at the pond to support the tanker fill station.

The Fill Sites

- The second fill site was located near the first site and also provided a 2-mile round trip for the units hauling water.
- The site used a large lake 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, 1,250 gpm pumper was used at the pond to support the tanker fill station.

Fill Site Operations

Chichester 54-Engine-2 was used as the pumper for the 1st fill site. The 2-person crew really hustled and was able to get the fill site up and running in about 5-minutes after arrival.

Fill Site Operations

The pumper drafted from the pond and supplied water back to the tanker loading area using 4-inch hose and a manifold.

Fill Site Operations

About 30-feet of suction hose was needed to reach an adequate water depth.

Fill Site Operations

Several hundred feet of 4-inch hose was used between the Chichester pumper and the loading site – which once again shows the value of using LDH in the rural setting.

Fill Site Operations

An older style Jaffrey manifold valve was used as the tanker loading valve. The valve was supplied via 4-inch LDH and in turn, tankers were loaded using 4-inch LDH.

Fill Site Operations

East Andover 32-Engine-1 arrived on the scene and went to work setting up the second, tanker loading station.

Fill Site Operations

The pumper laid out several hundred feet of 4-inch LDH to supply the loading manifold.

Fill Site Operations

A dry fire hydrant was used to access the lake water.

Fill Site Operations

The parking lot provided plenty of room for the two loading stations to operate without interfering with each other.

Fill Site Operations

A fill station needs to operate much like a "NASCAR pit stop." The "loader" operates the manifold and fills one tanker at a time – meanwhile, the next tanker gets connected in preparation for filling.

Fill Site Operations

A problem occurred at the manifold being supplied by the East Andover pumper. The valve would not close all the way, so corrective action was needed to fix the problem. An LDH hose clamp was used as the flow control device – not ideal – but it worked given the resources that were available.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted only once during the entire drill – at the 9:50-minute mark for 42 seconds.
- An estimated 84,715 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 741 gpm.

The Lessons Learned

- At this drill, the dump site was not set-up quite as had been planned – but that is a "real life" scenario.
- Crews worked hard and were able to make the dump site functional and in the end, the site supported a 1,000 gpm flow!
- The main issue at the dump site was the limited access for tankers to dump which often resulted in one tanker blocking the egress of another tanker – again – a real-world scenario.

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

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

- LDH manifolds and control valves are easily effected by sand and grit. At this drill, one of the manifolds had a valve stuck in the partially open position.
- LDH manifolds should be cleaned, maintained, and tested on a regular basis.

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 Lakes Region Mutual Fire Aid Association and the Gilmanton FD for sponsoring and hosting this seminar.

www.GotBigWater.com

For more information contact us at
thebigcamel@gotbigwater.com