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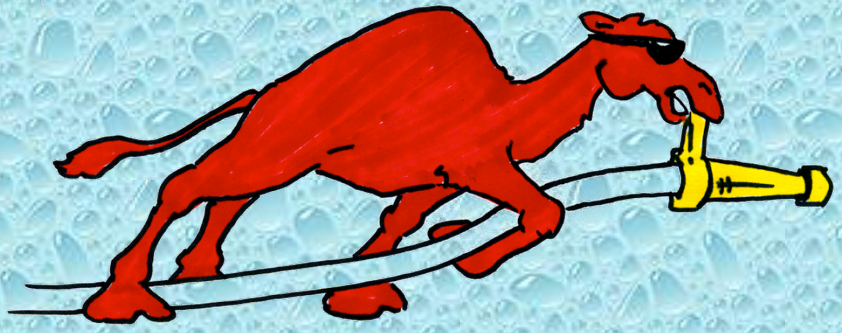


Chichester Firefighter's Association
Chichester, New Hampshire

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 19, 2013
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

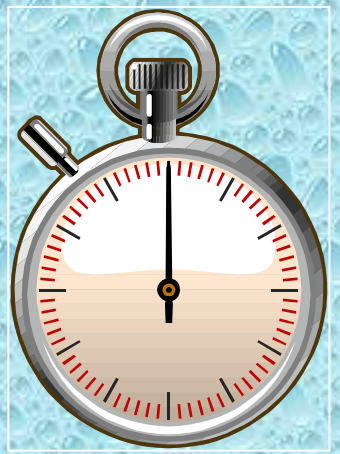
- The 2-day seminar started on Saturday with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Chichester Fire Department.
- Once the classroom part was done, the seminar continued with several hours of practical work on fill-site and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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 19th at the Chichester Central School.
- 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 twelve 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 Capital Area.*

Drill Participants

- Chichester 54-Engine-1
  - 1,500 gpm pump w/2,000 gal tank
- Chichester 54-Engine-3
  - 1,250 gpm pump w/1,000 gal tank

Drill Participants

- Chichester 54-Forestry-1
  - 475 gpm pump w/350 gal tank
- Wilmot 87-Tanker-2
  - 500 gpm pump w/1,750 gal tank

Drill Participants

- Auburn 55-Tanker-2
  - 1,500 gpm pump w/2,500 gal tank
- Epping Tank 1
  - 1,000 gpm pump w/2,000 gal tank

Drill Participants

- Hopkinton 60-Ladder-1

- Barnstead 6-Tanker-1
  - 1,500 gpm pump w/3,000 gal tank

Drill Participants

- Loudon 61-Tanker-1
  - 500 gpm pump w/3,000 gal tank
- Strafford 25-Engine-3
  - 1,750 gpm pump w/3,000 gal tank

Drill Participants

- Gilford 8-Tanker-1
  - 1,250 gpm pump w/2,600 gal tank
- Pittsfield 72-Engine-1
  - 1,500 gpm pump w/1,000 gal tank

Drill Participants

- Bow 52-Tanker 1
  - 1,000 gpm pump w/1,800 gal tank
- Northwood 71-Engine-2
  - 1,750 gpm pump w/1,800 gal tank

The Drill Begins

Crews were staged at the Chichester firehouse and then dispatched to the school to begin the drill. Chichester 54-Engine-3 was the first unit to arrive and laid a 300-ft supply line of 4-inch LDH. Once the pumper came to a stop, the stopwatch was started.

The Drill Begins

Chichester 54-Engine-1 was the next unit to arrive and immediately went into action completing the “rural hitch” in preparation for supporting the fire attack.

Dump Site Operations

While the attack pumper crew stretched a Blitzfire, Loudon's tanker arrived to support the rural hitch operation as well.

Dump Site Operations

With the clock running, the race is on to get the first dump tank set up. The first tank used was the one from 54-Engine-1 which shows the value of an engine/ tanker.

Dump Site Operations

Water flow is started from 54-Engine-1 to the attack pumper (54-Engine-3) even though the 5-minute mark has not yet been reached. The use of the double-clappered siamese provides flexibility in terms of nurse tanker (rural hitch) and dump site operations.

Dump Site Operations

With a water supply now in place (on-board tank water), the crews switched to deploying dump tanks.

Dump Site Operations

At around the 4-minute mark, two dump tanks were deployed but not yet in use.

Water Flow is Started

Water flow was started at the 5-minute mark using 54-Engine-3's pre-connected Blitzfire device. Flow was measured at 250 gpm.

Dump Site Operations

Wilmot 87-Tanker-2 was the first tanker to dump water into the dump tanks at the 7:35-minute mark. Meanwhile, Loudon's tanker continued to support the attack pumper via the rural hitch set-up.

Dump Site Operations

Hopkinton's 6-Ladder-1 arrived at around 8-minutes and took a position near the attack pumper in preparation for an expanded water flow operation.

Dump Site Operations

54-Engine-1's operator transitions to a drafting operation from the dump tank.

Water Supply Officer

Deputy Chief Edward Millette (Chichester FD) assumed the role of Water Supply Officer. The WSO role is important because it organizes the water supply function and relieves the Incident Commander from having to worry about which tanker goes to which fill site and so forth.

Dump Site Operations

With its 500 gpm pump, Loudon 61-Tanker-1 was able to do a nice job of supplying the rural hitch during the initial phase of this drill while dump tanks were being set-up.

Dump Site Operations

6-Ladder-1 began setting up next to the attack pumper. It was eventually supplied by a 4-inch line from the attack pumper.

Dump Site Operations

At 13-minute mark, three dump tanks were down and the operation moved from a nurse tanker operation to a dump site operation.

Dump Site Operations

Northwood's tanker dumped its water about 21:00 minutes into the drill. Water flow had been moved to 500 gpm at the 15:00-mimute mark, so all water was needed.

Dump Site Operations

With water leaving the dump tanks at 500 gpm, tankers had to be able to exceed that flow in terms off-loading. Barnstead's tanker is shown here dumping its water at over 1,000 gpm.

Dump Site Operations

With plans to increase the flow, Chichester's forestry unit was brought in to take over the control of jet siphons. This was a good use a smaller pumping unit (475 gpm) in order to allow the dump site pumper to focus on supplying the attack pumper.

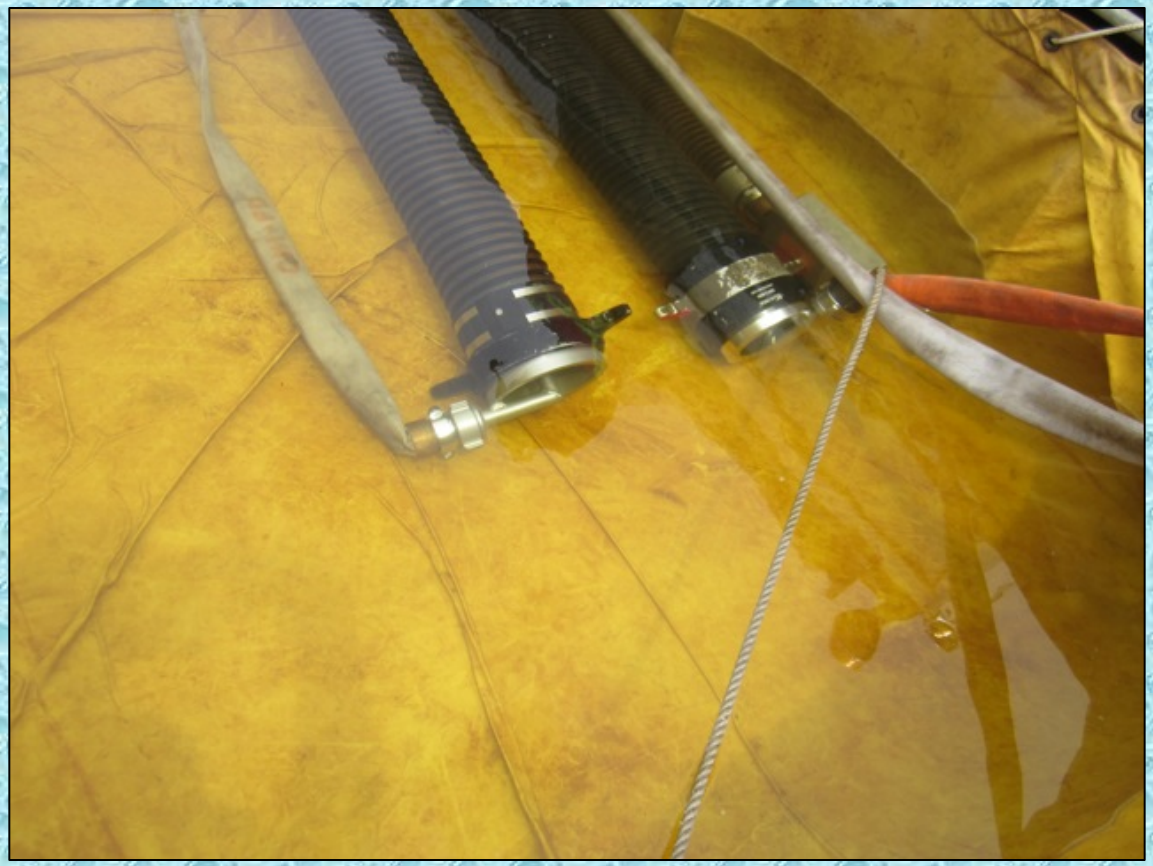
Dump Site Operations

Chichester 54-Engine-1's operator also took action to prepare for the expected increased flow by putting a second suction line into operation. This is a good example of why control valves are needed on suction inlets so that additional suction lines can be connected without having to shut down pumping operations.

Water Transfer Operations

With four dump tanks now in operation and the flow moved to 750 gpm, water transfer operations became critical.

Water Transfer Operations



Dual, jet siphons were used to help ensure that adequate water was transferring into the primary drafting tank.

Water Transfer Operations

The forestry unit drafted from the #3 dump tank and operated two jet siphons.

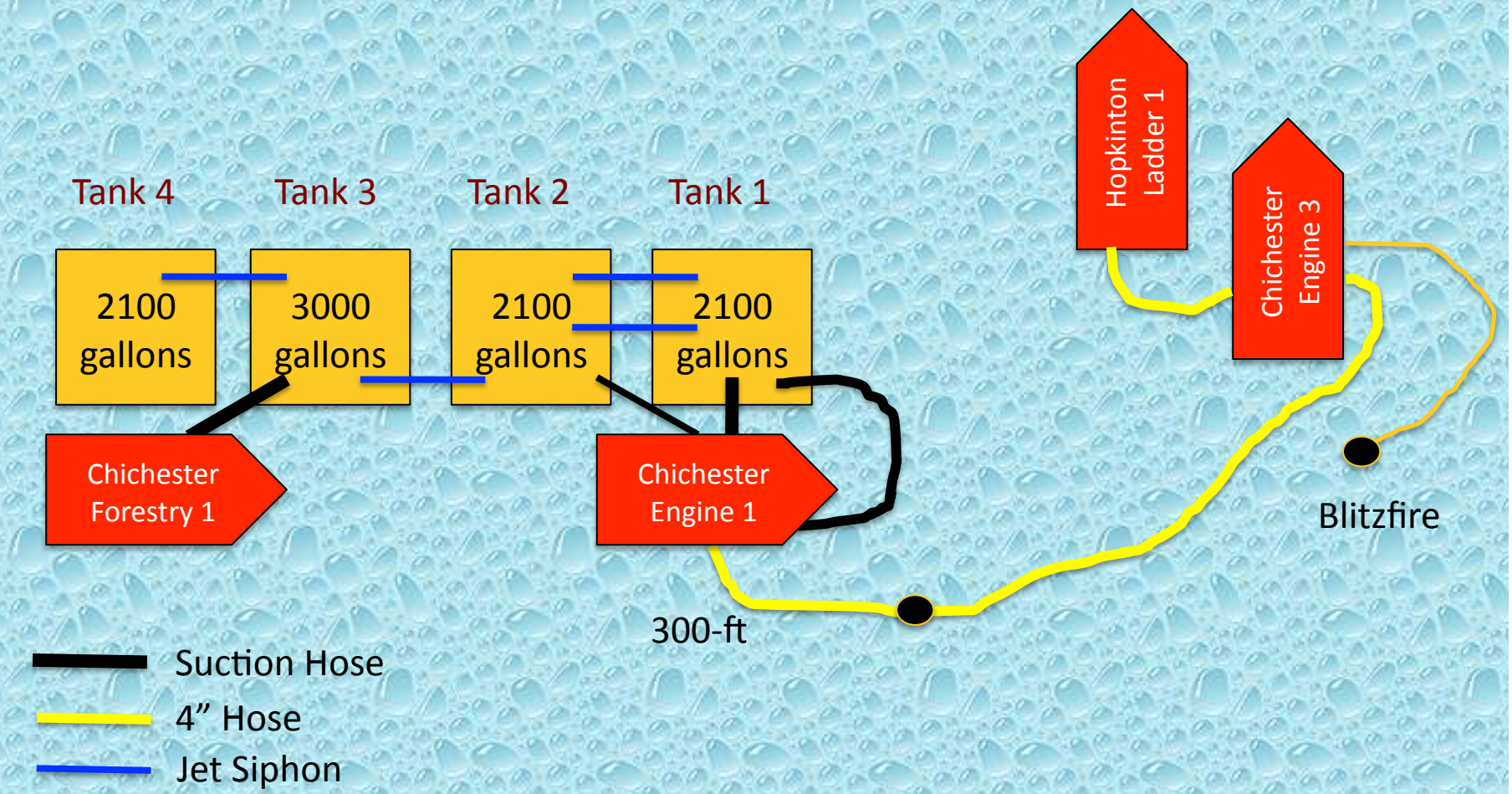
Water Flow Increased

At the 84-minute mark, the flow was pushed to 1,500 gpm where it was maintained for about 14 minutes before it had to be reduced to 1,200 gpm because of supply issues.

Dump Site Operations

The final set-up: four dump tanks sustaining a 1,200 gpm flow with no problem.

Dump Site Layout



The Fill Sites

- For this drill – one fill site was used - a pond on Deer Meadow Road not far from the school.
- The pond was large enough that two pumpers (1,500 gpm and 1,750 gpm) were used to operate independent fill sites.
- The fill site provided a 2-mile round trip for units hauling water.
- The pond provided ample water volume to support the drill and access was not a problem.

Fill Site Operations

Pittsfield 72-Engine-1's (1,500 gpm) crew worked fast to get the fill site up and running by the time the first empty tanker arrived.

Fill Site Operations

The Pittsfield crew was successful and was ready to accept the first arriving tanker – which was the Loudon tanker. 4-inch LDH was used to fill the tankers which ensured fill rates at over 1,000 gpm.

Fill Site Operations

Because of the somewhat narrow road and two fill site pumpers in operation, the tankers were staged until a loading spot became available.

Fill Site Operations

An LDH manifold was eventually placed into operation which freed up the pump operator from always having to open and close valves. The person operating the manifold became the “loader.”

Fill Site Operations

Northwood 71-Engine-1 (1,750 gpm) became the second fill-site pumper. The unit dumped its load of water at the dump site and set up to fill tankers once it arrived at the pond.

Fill Site Operations

The Northwood loading crew also used an LDH manifold as the control mechanism for filling tankers. With the manifold reversed, the 4-inch LDH fill line could be quickly drained.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was only interrupted once – for 60 seconds - at the 106-minute mark when a load of water was dumped in the "wrong" dump tank and could not be transferred fast enough back to the primary dump tank.
- An estimated 92,550 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 812 gpm.

The Lessons Learned

- The dump site was built very quickly because the dump site engine/tanker carried a dump tank, which meant that the crew did not have to wait on a tanker to show up in order to start setting up.
- Once again, this drill showed the value of the "rural hitch" in the early phases of a tanker shuttle operation. Two loads of water were "pumped off" to the attack engine before dump-and-run operations were ready. This reduced the urgency to get a drafting operation in place and allowed for an uninterrupted supply.
- The school 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 fill line had a 4-inch Storz connection which really made a difference in reducing the amount of time needed to connect fill lines.
- Standardized fill connections always speed up 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.
- 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

- When flows exceed 1,000 gpm, tanker dump operations need to be well coordinated at the dump site. When the flow was pushed to 1,500 gpm, one tanker inadvertently dumped its load into the wrong tank and suddenly, flow was interrupted for 60-seconds while that water was transferred back to the primary dump tank.
- Fortunately, this error was quickly identified and never arose again.

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 Chichester Fire Department for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

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