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Prudence Island Volunteer Fire Department  
Prudence Island, Rhode Island

Rural Water Supply Operations Seminar  
1-hr Water Supply Drill  
May 31, 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 company members 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 Farnham Farm.
- 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 1-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from the Prudence Island area.

# The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 31<sup>st</sup> in a residential area of the island.
- 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 the Prudence Island VFD and Bristol FD and the water hauling apparatus was representative of the type of water supply support that would initially respond to a structure fire on Prudence Island.*



# Drill Participants

- Prudence Island Engine 82
  - 1,250 gpm pump w/500 gal tank
- Prudence Island Tanker 1
  - 1,000 gpm pump w/3,500 gal tank





# Drill Participants

- Prudence Island Tanker 2
  - 300 gpm pump w/2,500 gal tank
- Prudence Island Brush Tanker 3
  - 250 gpm pump w/1,000 gal tank



# Drill Participants

- Unit 85
  - 750 gpm pump





# Preparation



Units staged at the Prudence Island fire station. Crews were briefed on the operation prior to the dispatch of units.

# The Drill Begins



Engine 82 arrived on the scene and proceeded to take a position in the driveway. Tanker 1 arrived on the scene not long after Engine 82 and took a position on the main road and began setting up for nurse tanker operations.



# Dump Site Operations



With nurse tanker operations underway using a 3-inch supply line from Tanker 1 to Engine 82, the crews began setting up for dump tank operations using Tanker 1's 4,000 gallon dump tank.

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# Dump Site Operations



Engine 82 started flowing 250 gpm at the 5-minute mark and at the 13-minute mark, the operation was ready to switch to a dump tank operation.



# Dump Site Operations



Tanker 2 arrived on the scene and immediately began dumping its 2,500 gallons. Crews removed Tanker 2's dump tank in preparation for expanding the water flow operation.

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# Dump Site Operations



In order to increase pumping capability, Engine 82's crew added a 2-1/2-inch suction line once drafting operations were underway.

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# Dump Site Operations



Tankers were delayed getting filled at the lone fill site, so water supply levels ran dangerously low at the dump site. Water flow was interrupted for about 2-minutes around the 30-minute mark in the drill.

# Dump Site Operations



By the time the first tanker made it back to the dumpsite, the operation was ready to expand to a two-dump tank operation.



# Dump Site Operations



Tanker 1 arrived back just in time. Its 3500 gallons of water were much needed. Brush Tanker 3 is seen in the background pumping off its water into the primary dump tank via 3-inch hose. BT3 has no dump valve on it.

# Dump Site Operations



The drill was run on a narrow road similar to many roads around the island. This set-up provided for a realistic test of equipment and personnel.



# Dump Site Operations



DC Kevin Blount served as the Incident Commander – and had to help out at the dump site as well due to limited staffing available.

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# Dump Site Operations



Engine 82's pump operator had to balance time between keeping the attack line working, drafting, and running the jet siphon in the dump tank.

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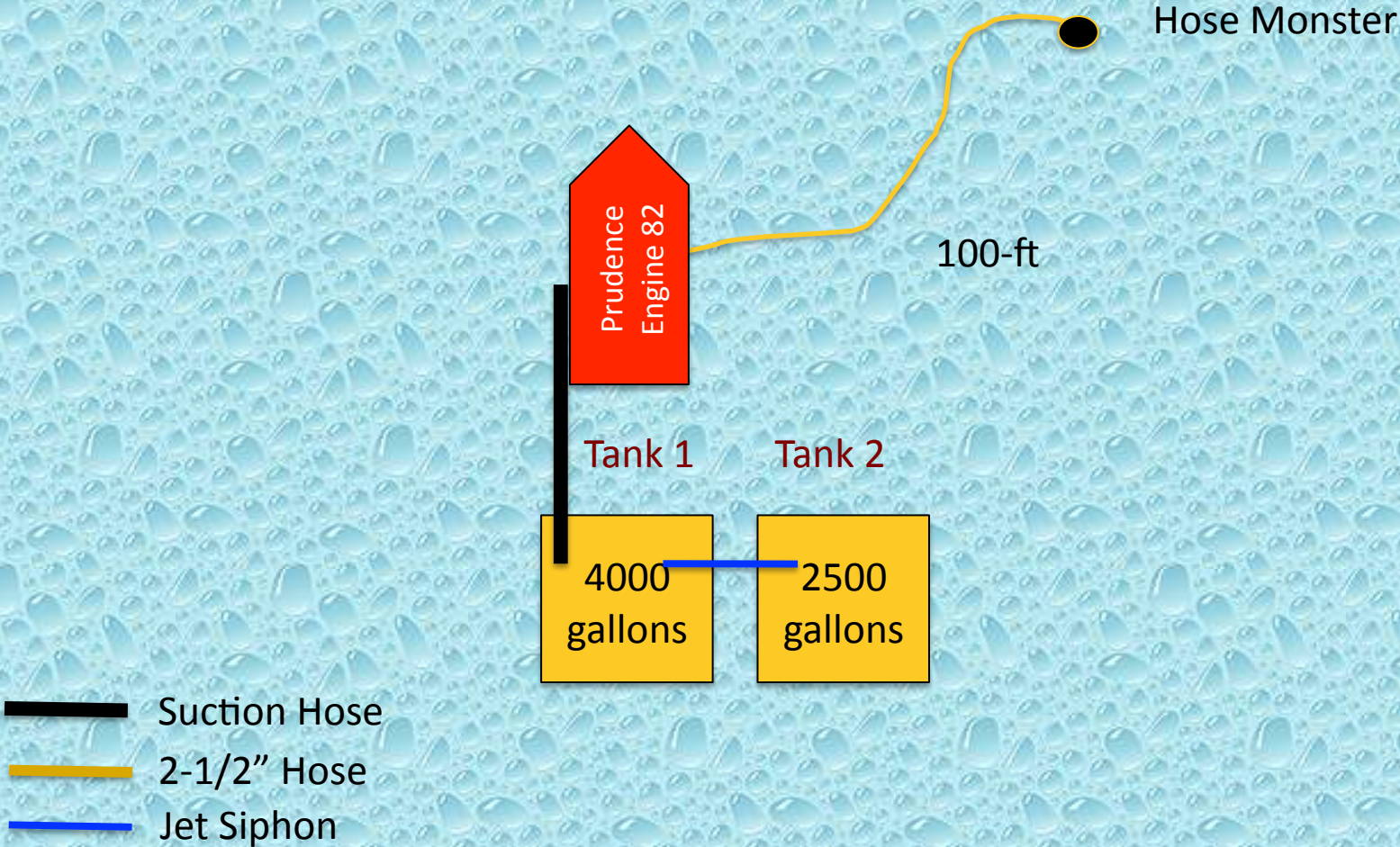
# Dump Site Operations



As the 1-hour mark approached, the 2-dump tank operation stabilized and water flow was no longer interrupted.

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# Dump Site Layout





# The Fill Site

- For this drill – only one fill site was used - a 15,000 gallon, above ground water storage tank.
- The fill site provided a 1.7-mile roundtrip for the units hauling water.
- Unit 85 with its 750 gpm pump was used to load tankers at this fill site.
- Access to the fill site area was somewhat limited and required about a 450-ft lay of hose to avoid having the tankers back down a long lane to load.

# Fill Site Operations



Unit 85 laid out about 450-feet of 3-inch hose. A control valve was placed near the end so that the tankers could be loaded without having the pump operator open and close valves. The use of 4" or 5" LDH would have improved the operation.



# Fill Site Operations



A traditional “looking” fire hydrant is connected to the 15,000-gallon above ground tank. Water comes out of the hydrant under head pressure from the tank, therefore the pump must be hooked up using suction hose.

# The Results

- The drill was stopped at the 1:00-hour mark when the water supply at the storage tank was exhausted.
- Water flow was interrupted twice – for about two minutes each time during the drill!
- An estimated 12,750 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 250 gpm.



# The Lessons Learned

- At this drill, the nurse tanker operation proved quite valuable. Water flow was started using the nurse tanker and then transitioned to a dump tank operation without an interruption in flow.
- The drill was very realistic in terms of personnel and equipment. There are only three tankers on the island – so folks have to be good at maximizing the use of those tankers.

# 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. The single, 3-inch fill line slowed the operation. Adding the second, 3-inch line improved time, but LDH would have made a huge difference.
- At this drill, all tankers had the same fill connection which sped up making and breaking the fill line connections.



# 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.
- In the end, the filling of tankers is what affected the overall success of the operation. The dump site set up was fine, the fill site operation needed to fill tankers faster – which the use of an LDH supply line and manifold would have sped that process up significantly. The lay of 3-inch hose was too long and too time consuming to build.

# 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 emergency response practices and procedures – and the importance of interoperability.
- Many thanks to Prudence Island Volunteer Fire Department for sponsoring and hosting this seminar.



# Drill Videos

**Be sure to watch videos from  
the drill on the  
GotBigWater  
YouTube Channel.**



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