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Jefferson County  
Volunteer Fire Chief's Association  
Charles Town, West Virginia

Rural Water Supply Operations Seminar  
2-hr Water Supply Drill  
March 22, 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 Citizens Fire Company in Charlestown WV.
- 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 Jefferson County, WV.

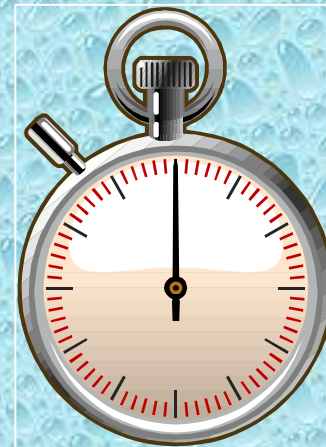
# The 2-hour Water Supply Drill

- The tanker shuttle drill was held on March 22nd along the Shenandoah 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 seven 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 Jefferson County.*

# Drill Participants

- Blue Ridge Mountain VFC Tanker 502
  - 1000 gpm pump w/3,500 gal tank (vacuum tanker)
- Blue Ridge Mountain VFC Tanker 503
  - 750 gpm pump w/3000 gal tank





# Drill Participants

- Shepherdstown Tanker 3
  - 500 gpm pump w/3000 gal tank
- Harpers Ferry (Friendship) Tanker 1
  - 750 gpm pump w/2200 gal tank



# Drill Participants

- Blue Ridge Mountain Engine 501
  - 1,500 gpm pump w/1000 gal tank
- Boyce Tanker 4
  - 1,000 gpm pump w/3700 gal tank (vacuum tanker)





# Drill Participants

- Bakerton E/T 7
  - 1250 gpm pump  
w/ 2000 gal tank
- Middleway Tanker 6
  - 350 gpm pump                      w/  
2,200 gal tank



# Drill Participants

- Citizens Eng. 2-1  
*(picture courtesy of Citizens VFC)*
  - 1500 gpm pump  
w/1,500 gal tank





# Preparation



Units staged in the parking lot at the Citizens VFC station. Crews were briefed and units were prepared for dispatch

# The Drill Begins



Citizens Engine 2-1 was the first-arriving unit at the dump site and assumed the role as the dump site pumper. The stopwatch was started when the Engine driver applied the air brakes. This unit also served as the attack pumper and supplied the hose monster through a length of 5". Tanker 1 and Tanker 502 were close behind.



# Dump Site Operations



The crew of Engine 2-1, Tanker 1 and Tanker 502 immediately went to work setting up the dump site.

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# The Dump Site

- The dump site quickly moved to a 4 tank operation. 3 tanks would have been fine for a level site – but this site was not level!



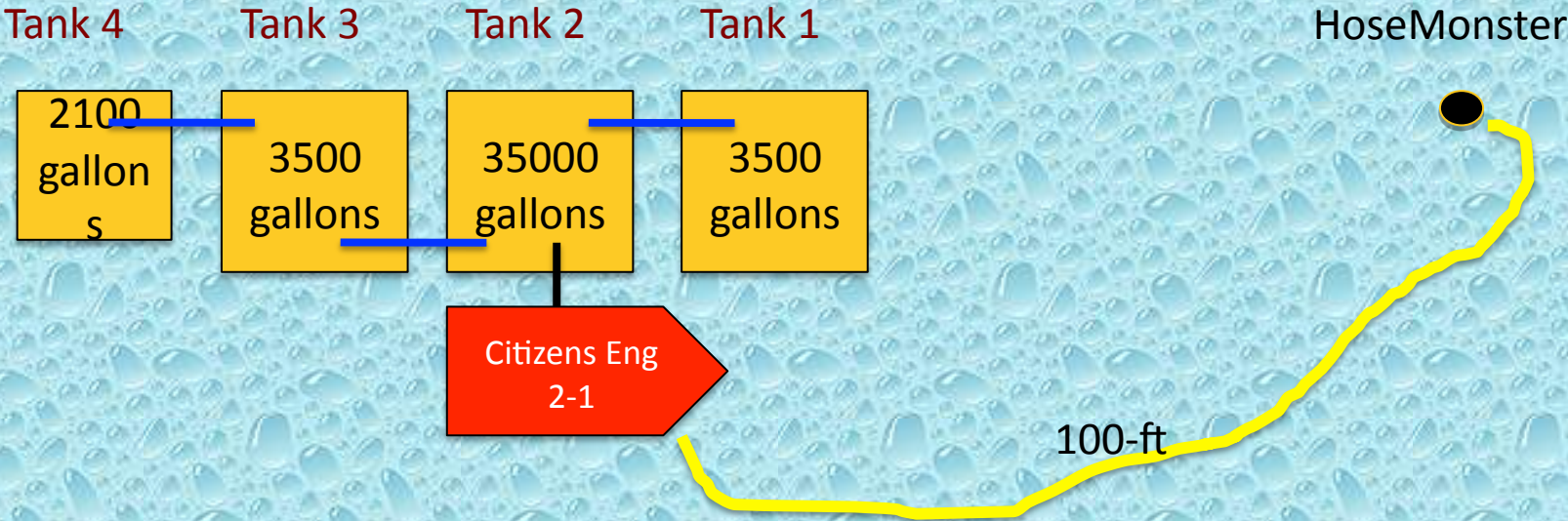


# Dump Site Lessons Learned

- Tanks need to be set up in a straight line – otherwise tanker drivers get mad.
- Don't move water more than once; in this case there were not enough hard sleeves.



# Dump Site Layout



- Suction Hose
- 5" Hose
- Jet Siphon



# The Fill Sites

- For this drill – two fill sites were used.
- The first fill site was located at a boat ramp on Bloomery Road and used the Shenandoah River as a source. This site provided a 3 mile round trip.
- The river provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the boat ramp to support the tanker fill station.
- The second site was used exclusively for a vacuum tanker and provided a two mile round trip. This site was also located on Bloomery Road closer to the dump site.

# The Fill Sites

- The first fill site engine laid a 4" hose to a manifold. The crews built out 3" & 4" lines from the manifold to fill the tankers.





# Fill Site Operations

- The fill site engine developed strainer issues due to leaves and other issues. The crews used an upside down low head strainer as an ad hoc pond strainer. Directing the circulation line over the strainer helped some. Tanker 502 was subbed in to assist and took over supplying the 4" line to the manifold.
- Taking a tanker out of line to fill other tankers sometimes has to be done. If possible, the tanker with the combination of the biggest pump and the smallest tank should be chosen.

# The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted twice for a total of four minutes.
- An estimated 56,500 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 509 gpm.



# 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 stages.
- The power plant parking lot area provided ample space for this 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, some fill ports had storz fittings and some had NSTs. The storz fittings clearly were easier to make and break.



# 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

- 6” hard sleeves were at a premium. One of the tankers was carrying 5” hard sleeves due to having a 1000 gpm pump. It is ok to carry a larger hard sleeve for this pump – and this would make these hard sleeves compatible with all the others in the county.
- Vacuum tankers when dumping under pressure, can easily move an empty dump tank several inches. Best practice would be to put a couple of inches of water in the dump tank under gravity, and then pressurize the stream.



# 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 Jefferson County Volunteer Fire Chief’s Association for sponsoring and hosting this seminar.



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