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Preston Volunteer Fire Company
Preston, Maryland

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
August 25, 2024
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 Preston fire station.
- Once the classroom part was over, the seminar continued with 8 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 Caroline County and the surrounding area.

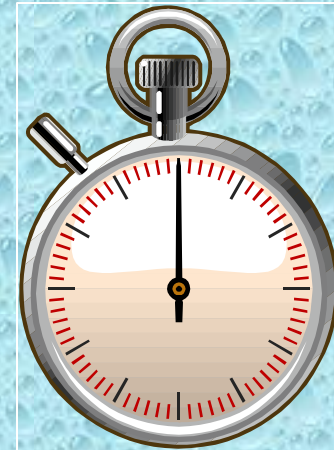
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on August 25th a few miles outside of town on a rural road.
- 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 ISO no longer uses the physical demonstration of water supply delivery, the 2-hour test is still a reasonable standard by which fire departments can compare their water supply operations.
- *ISO now uses computer modeling to predict tanker shuttle flow capabilities.*



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

Participants				
Department	Unit	Pump Size	Tank Size	Dump Tank
Preston	ET201	1500 gpm	2800 gal	NA
Preston	E204	1500 gpm	1000 gal	NA
Preston	T202	750 gpm	2000 gal	NA
Secretary	ET16-1	1250 gpm	2500 gal	NA
Cambridge	Engine 1-2	2250 gpm	750 gal	NA
Ridgely	ET402	2000 gpm	2500 gal	NA
Denton	E302	2000 gpm	750 gal	NA
Denton	T300	1500 gpm	3500 gal	3000 gal
Queen Ann Hillsboro	E85	1500 gpm	1000 gal	NA
Queen Ann Hillsboro	T86	1500 gpm	3000 gal	NA
Hurlock	ET6-1	1500 gpm	2500 gal	3000 gal
Easton	E67	1500 gpm	2000 gal	NA
Easton	T61	1250 gpm	6000 gal	NA
Federalsburg	T106	1500 gpm	4000 gal	NA

- The participants for the drill were from several different fire departments in the Caroline 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 Preston area.*

The Drill Begins



Preston Tanker 202 (2000 gal) was the first unit to arrive on the scene and the driver went right to work supplying a “rural hitch” layout to a simulated attack pumper. Flow was started as 250 gpm around the 2:45-minute mark.

Dump Site Operations



Federalsburg Tanker 106 (4000 gal) was the second arriving tanker and took position to supply the other side of the double-clappered siamese and take over supplying the attack pumper once Tanker 202 was out of water.

Dump Site Operations



Easton Tanker 61 (6000 gal) arrived around the 20-minute mark and took over supplying the siamese. As additional tankers arrived, they pumped off their water into Tanker 61 using a siamese on Tanker 61.

Dump Site Operations



By the 41-minute mark water flow was moved to 1000 gpm using Tanker 61 as the primary supply to the attack pumper. Plans were then underway to transition to a dump tank operation.

Dump Site Operations



Around the 45-minute mark work began on setting up a 2-dump tank off-loading site.

Dump Site Operations



While crews worked on setting up the 2-dump tank operation tankers continued to arrive and pump off their water to Tanker 61 who then supported flow to the attack pumper.

Dump Site Operations



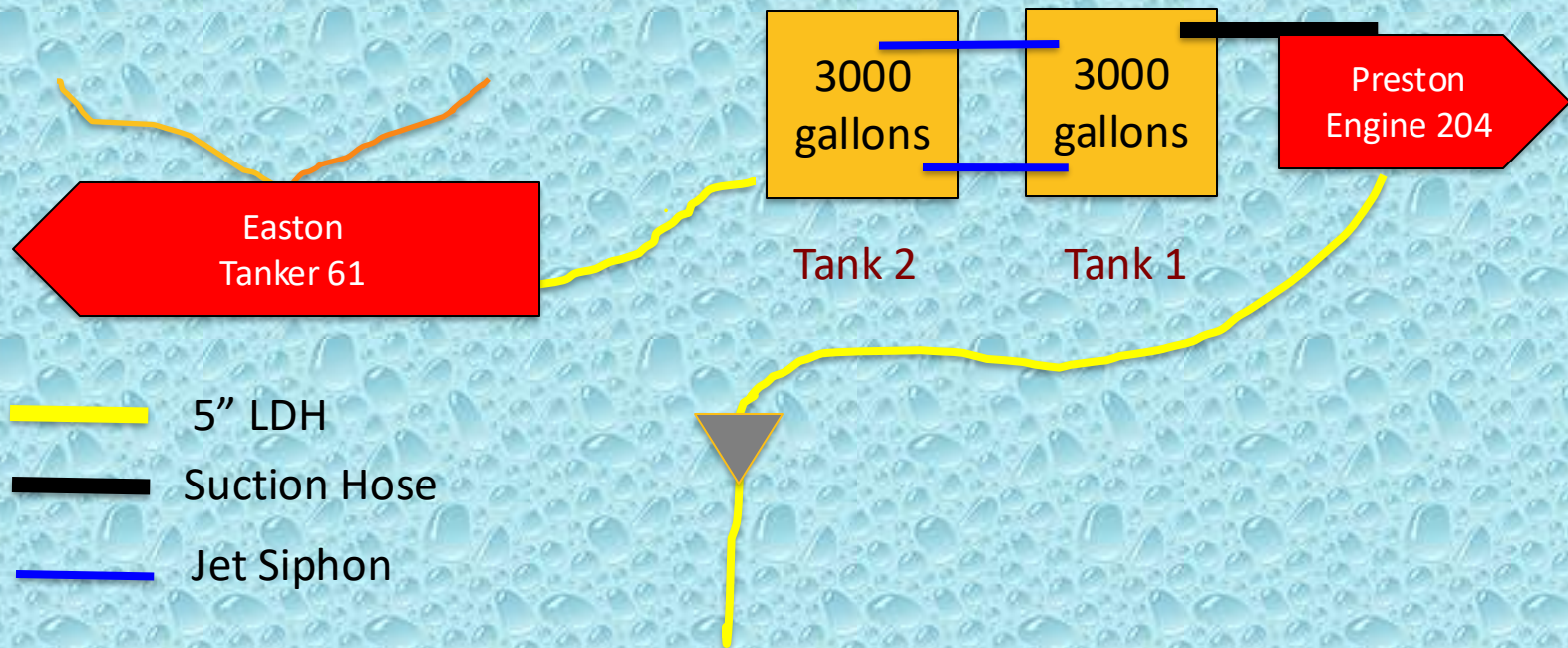
Once the dump site was up and running, tankers that could dump water did so in the dump tanks and tankers that could only pump off did so into Tanker 61. Tanker 61 then supplied water to one of the dump tanks.

Dump Site Operations



The operation was able to support a 750 gpm sustained flow; a peak flow of 1,067 gpm was achieved for a few minutes.

Dump Site Layout



The Fill Sites

- For this drill, two fill sites were used; one was a creek, the other an irrigation system.
- The creek fill site provided around a 3-mile round trip for the units hauling water; the irrigation system a 4.8-mile round trip.
- The sites had sufficient water to support the operations.
- A 1500 gpm pumper was used to supply the loading site at the creek and no pumper was used at the irrigation system.

Creek Fill Site



Engine 85 (1500 gpm) drafted from the creek and supplied several lines for loading tankers out on the main road.

Irrigation System Fill Site



The irrigation system was fed by a stationary fire pump at a nearby creek and water was diverted from the system to the tankers using a valving arrangement on one of the system supply outlets..

The Results

- The drill was stopped at the 90-minute mark.
- Water flow was interrupted a few times due to difficulties obtaining a draft at the creek fill site.
- An estimated 46,400 gallons of water were flowed during the drill producing an average flow rate of 649 gpm.
- A peak flow of 1,067 gpm was sustained for about 10-minutes.

The Lessons Learned

- At this drill, crews chose to implement a rural hitch operation followed by a nurse tanker operation using the tractor-trailer tanker.
- The development of a dump tank operation began about 45-minutes into the drill when flow needed to go above Tanker 61's pumping ability.
- The dump tank arrangement was capable of more flow than what was achieved; fill site difficulties caused interruption of flow.

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 was some variance in how the tankers loaded – meaning the fill connection. This slowed the filling operation some.

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 Preston VFC for sponsoring and hosting the seminar.



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*For more information contact us at
thebigcamel@gotbigwater.com*