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**Winfield Community Volunteer Fire Department
Winfield, Maryland**

**Rural Water Supply Operations Seminar
2-hr Water Supply Drill
November 14, 2021
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 a nearby church social hall.
- 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 Carroll County and the surrounding area.



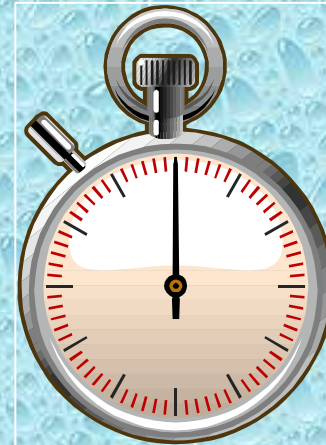
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on November 14th at Century High 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 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	Assignment
Winfield	Engine 142	1500 gpm	1000 gal	2nd Due Engine
Winfield	Tanker 14	1500 gpm	3500 gal	1st Due Tanker
Gamber	Engine 131	1250 gpm	1000 gal	1st Due Engine
Sykesville	Engine 124	1500 gpm	1500 gal	3rd Due Engine
New Windsor	Engine 101	2000 gpm	1000 gal	4th Due Engine
Reese	Engine/Tanker 94	1500 gpm	2000 gal	2nd Due Tanker
New Windsor	Brush 105	1000 gpm	300 gal	1st Water Supply
Mt Airy	Tanker 1	1500 gpm	3500 gal	1st Tanker TF
Pleasant Valley	Tanker 6	1500 gpm	3200 gal	1st Tanker TF
Urbana	Tanker 23	1250 gpm	3000 gal	1st Tanker TF
Pleasant Valley	Special Unit 6	1500 gpm	500 gal	1st Tanker TF
Wolfsville	Tanker 21	1250 gpm	3000 gal	2nd Tanker TF
Lineboro	Tanker 7	1500 gpm	3000 gal	2nd Tanker TF
Harney	Engine/Tanker 112	1500 gpm	2500 gal	2nd Tanker TF

- The participants for the drill were from several different fire departments in the Central Maryland region and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Winfield area.*

The Drill Begins



Gamber Engine 131 arrives on the scene and lays out several hundred feet of 4-inch LDH supply line. The unit will serve as the attack pumper at this drill.

Dump Site Operations



Winfield Tanker 14 (3500 gal) was the next rig to arrive on the scene and they prepared to initiate a nurse tanker operation to supply Engine 131.

Dump Site Operations



Winfield Engine 142 was the third unit to arrive on the scene and that crew worked with Tanker 14 to complete the nurse tanker operation and then begin building out a dump tank operation. Water flow was started at 250 gpm at the 5:00 minute mark using an attack line off of Engine 131.

Dump Site Operations



Tanker 14 (1500 gpm/3500 gal) supplied Engine 131's double-clapper siamese... aka "a rural hitch" operation. Meanwhile, Engine 142's crew grabbed the two dump tanks off of Tanker 14 and went to work building out a dump site in anticipation of a much larger fire flow.

Dump Site Operations



The rural hitch provided sufficient water supply to the attack pumper and allowed time to get the dump site set up.

Dump Site Operations



One goal of the drill was to use a “single-lane” dump tank arrangement in front of the dump site pumper.

Dump Site Operations



Reese Engine/Tanker 94 (2000 gal) was the next water hauling rig to arrive and they set up to pump the rural hitch if needed....in case the dump tanks were not ready yet.

Dump Site Operations



At the 15-minute mark flow was moved to 500 gpm and a two-dump tank operation was under way. Urbana Tanker 23 from the 1st Tanker Task Force is shown here arriving at the dump site and preparing to dump its water.

Dump Site Operations



Two dump tanks in operation with flow just above 500 gpm and about 34-minutes into the drill.

Dump Site Operations



By the 68-minute mark, four dump tanks were down and the flow had moved to 1000 gpm.

Dump Site Operations



This tanker really needs to “cut and run” for a another load of water. There is no need to wait for all of the water to leave this tanker.....get on the road for another load...especially since there are tankers waiting behind this one to dump their water.

Dump Site Operations



An equipment cache built out at the dump site. One never knows what one might need....gathering “stuff” in advance is part of the build out planning process. All of this stuff came on one tanker!

Dump Site Operations



At the 75-minute mark, flow was moved to 1200 gpm where it was sustained for the remainder of the drill. A HoseMonster flow diffuser was used to measure the flow.

Dump Site Operations



With four dump tanks in operation, water transfer became really important to sustaining the supply to the attack pumper.

Dump Site Operations



A little bit of creativity allowed one 3-inch line to supply and support the operation of three jet siphon water transfer devices.

Dump Site Operations



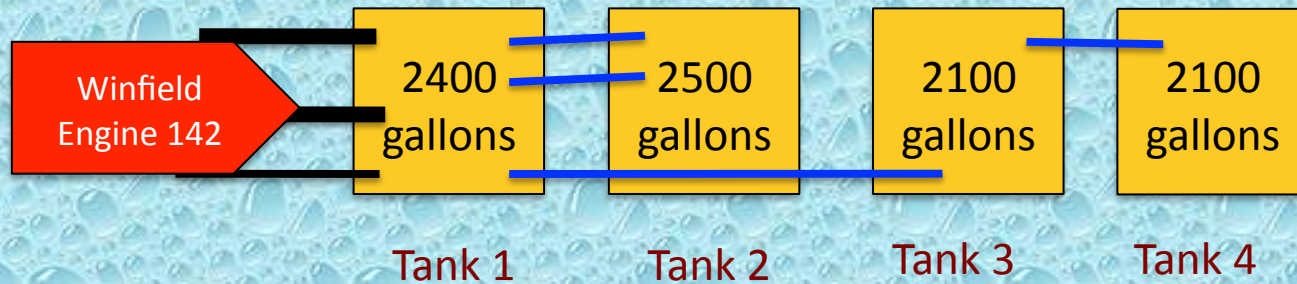
Engine 142 ended up drafting through three, 6-inch suction inlets which allowed the pumper to easily support the 1200 gpm flow to the attack pumper and supply all of the jet siphon devices. The Hale Qmax 1500 gpm powered by a 500 hp motor provided plenty of “pump” for this operation.

Dump Site Operations



A nice overhead shot of the final set-up at the dump site. The spacing of the dump tanks in the single-lane arrangement was critical to allowing two tankers to dump simultaneously.

Dump Site Layout



— Suction Hose
— Jet Siphon

The Fill Sites

- For this drill – two fill sites were used; both at a nearby pond.
- The fill sites both provided about a 2.0-mile round trip for the units hauling water.
- The pond had ample water volume to support the drill and access was not a problem.
- Two water supply units were used at the pond; one a 1000 gpm mini-pumper and one a 1500 gpm pumper.

Pond Fill Site



The pond was constructed for storm water management and fire protection for a local industrial park. It was renovated in 2019 and a new dry fire hydrant was installed as well as a new paved access road.

Pond Fill Site



Pleasant Valley Special Unit 6 (1500 gpm) drafted directly out of the pond. New Windsor Brush 105 (1000 gpm) drafted from the dry fire hydrant. Both used LDH to load the tankers.

Pond Fill Site



Special Unit 6 was able to load tankers at rates in excess of 1000 gpm using 5-inch LDH and.

Pond Fill Site



Brush 105 was able to load tankers at rates just under 1000 gpm using 4-inch LDH.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was only interrupted once for about 40 seconds around the 19-minute mark in the drill.
- An estimated 90,000 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 784 gpm.
- A peak flow of 1,200 gpm was achieved during the last 45-minutes of the drill.

The Lessons Learned

- At this drill, crews chose to use a nurse tanker operation from the very beginning.
- The nurse tanker operation provided time to get the first dump tank set up without having to worry about running out of water in a minute or two.
- The use of the double-clappered siamese made the transition to dump tank operations very easy.

The Lessons Learned

- As the flow increased, additional suction lines were used to improve intake so that the flow could increase without impacting jet siphon operations.
- The use of a large body pump powered by a big motor at the dump site allowed one rig to supply the entire operation.
- The use of rectangular dump tanks allowed for a single-lane configuration which was one of the primary goals of the drill.

The Lessons Learned

- The single, 4-inch line supplying the attack pumper proved to be a limiting factor in the peak flow achieved; a second supply line would have improved flow.
- 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, most all of the tankers had the same fill connection which allowed the rigs to get filled and be back on the road in little time.

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 Winfield Community Volunteer Fire Department for sponsoring and hosting the seminar.



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