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**Community Volunteer Fire Co 1  
Yorkana, Pennsylvania**

**Rural Water Supply Operations Seminar  
2-hr Water Supply Drill  
August 20, 2023  
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 Yorkana 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 York County and the surrounding area.

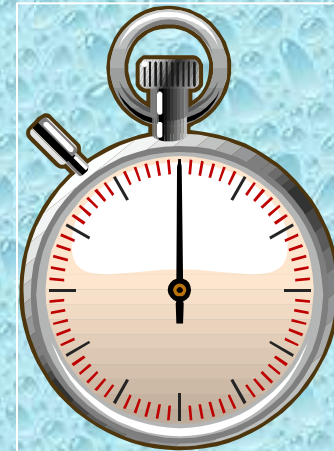
# The 2-hour Water Supply Drill

- The tanker shuttle drill was held on August 20<sup>th</sup> at East York 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

<b>Participants</b>				
<b>Department</b>	<b>Unit</b>	<b>Pump Size</b>	<b>Tank Size</b>	<b>Dump Tank</b>
Yorkana	Tanker 38	750 gpm	3200 gal	3500 gal
Yorkana	Engine 38	1000 gpm	450 gal	NA
SAFER	Tanker 13	1500 gpm	2500 gal	3000 gal
SAFER	Engine 13-2	1500 gpm	1500 gal	NA
Refton	Engine 59-2	1250 gpm	750 gal	NA
Refton	Tanker 59	1750 gpm	3500 gal	3000 gal
East Prospect	Attack 42	1000 gpm	500 gal	NA
Windsor	Tanker 37	1250 gpm	2000 gal	NA
New Bridgeville	Engine 39	1250 gpm	1000 gal	NA
Strinestown	Tanker 26	2000 gpm	3700 gal	3500 gal

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

# The Drill Begins



SAFER (Yoe) Engine 13-2 (1500 gpm) arrives at the dump site and prepares to get set-up as the dump site pumper. A 5" double-clappered Siamese was deployed to support a "rural hitch" operation while the dump site was built out.

# Dump Site Operations



SAFER Tanker 13 (2500 gallons) is seen here pumping off its water to the attack pumper which is about 600 ft away.

# Dump Site Operations



Engine 13-2 was able to deploy two, 6-inch suction lines into the primary dump tank which allowed it to pump and support the attack pumper while still supplying three jet siphons.

# Dump Site Operations



One of the suction lines was deployed through the drain sleeve and one was deployed over the tank frame..

# Dump Site Operations



Yorkana Tanker 38 is shown here pumping off its water into the Siamese while dump tank operations are being set up.

# Dump Site Operations



Crews work to build a jet siphon to transfer water from the farthest tank to the primary dump tank.

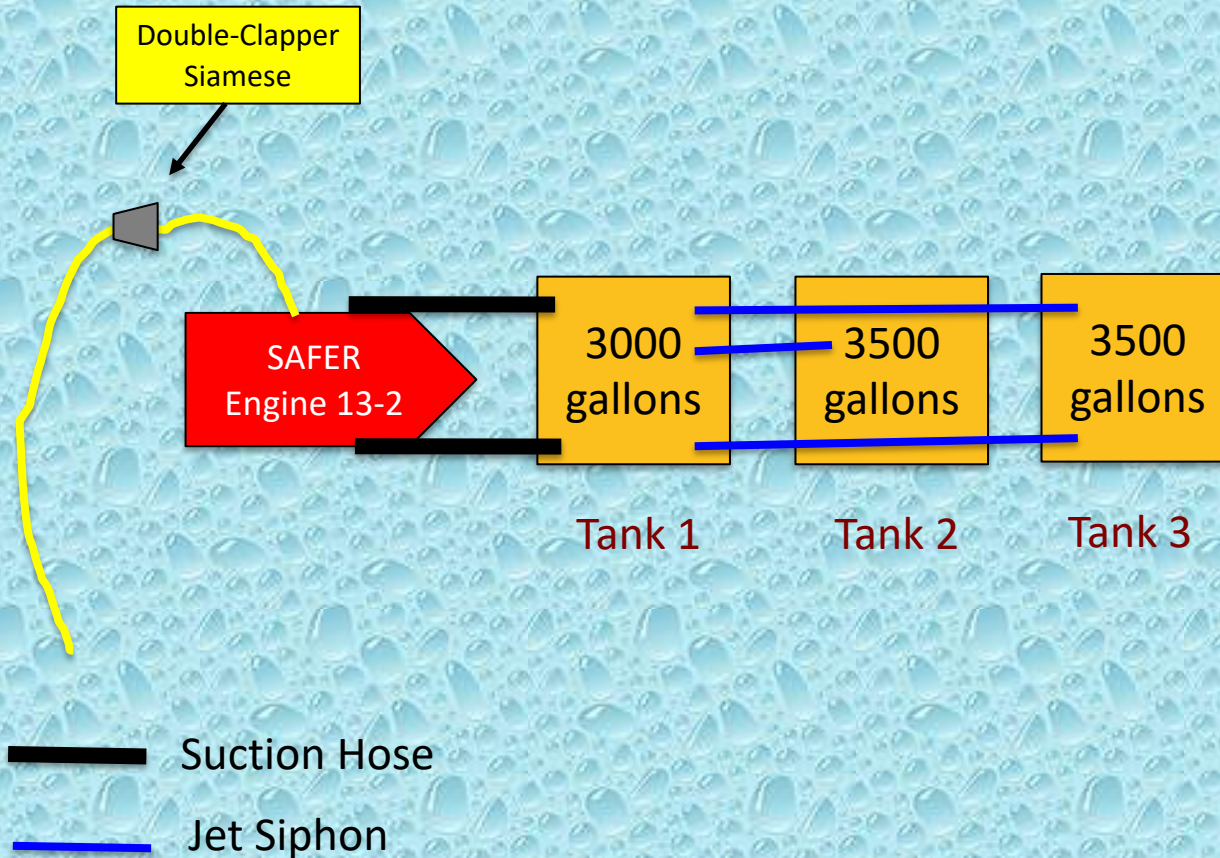
# Dump Site Operations



In the end, a three dump tank set-up was used to support a peak flow of 750 gpm...all supplied by one pumper.



# Dump Site Layout



# The Fill Sites

- For this drill – two fill sites were used; both were located at a boat launch in nearby Wrightsville on the Susquehanna River.
- The fill sites both provided about a 6.0-mile round trip for the units hauling water.
- The river had ample water volume to support the drill and access was not a problem.
- Two, 1,250 gpm pumpers were used at the boat launch to support the tanker loading stations.

# River Fill Site



Refton Engine 59 (1250 gpm) drafts from the river using a 6-inch suction line and a 2-1/2-inch suction line. They were able to load tankers at a rate in excess of 1000 gpm.

# River Fill Site



New Bridgeville Engine 39 (1250 gpm) drafted from the river using two, 6-inch suction lines and also loaded tankers at a rate in excess of 1000 gpm.

# River Fill Site



Depending on which fill site pumper was being used, tankers were either loaded using 3-inch hose, 4-inch LDH, or 5-inch LDH. Regardless of hose size, all tankers were loaded pretty darn fast!

# The Results

- The drill was stopped around the 2:00-hour mark.
- Water flow was interrupted a couple times for perhaps a minute or so at the most.
- Around the 20-minute mark a number of tankers had to leave the drill to respond to a nearby barn fire.
- An estimated 37,225 gallons of water were flowed during the drill producing an average flow rate of 425 gpm.
- For the last 20-minutes of the drill a flow of 750 gpm or greater was supplied to the attack pumper.

# The Lessons Learned

- At this drill, crews used a "rural hitch" arrangement to overcome a dump tank set-up problem that arose.
- The rural hitch was used for about 20 minutes and allowed for an interrupted flow to the attack pumper during that time period.

# 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 sufficient motor horsepower at the dump site allowed one rig to supply the entire operation.



# 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, the tankers did not all have the same fill connection which slowed down the turn-around a bit.
- However, the fill site crews did a great job of loading those tankers at rates in excess of 1000 gpm.

# 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 Community Volunteer Fire Co. 1 of Yorkana for sponsoring and hosting the seminar.



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