

www.GotBigWater.com



**Eureka Volunteer Fire Department
Stewartstown, Pennsylvania**

**Rural Water Supply Operations Seminar
2-hr Water Supply Drill – 1,000 GPM Club
October 23, 2016
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 scenario.



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 Eureka fire station.
- Once the classroom part was done, 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 the Stewartstown area.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on October 23rd in Stewartstown at a recreational complex.
- 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 2-Hour Test

- The 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 several different fire departments in the southern 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 Stewartstown area.*

Drill Participants

- Eureka Engine 54-4
 - 2,250 gpm pump w/750 gal tank
- Eureka Tanker 54
 - 1,500 gpm pump w/4,000 gal tank



Drill Participants

- Jarrettsville Engine 714
 - 1,250 gpm pump
w/1,000 gal tank
- Jarrettsville Supply 781
 - 1,500 gpm pump
w/300 gal tank



Drill Participants

- Maryland Line Tanker 454
 - 750 gpm pump
w/2,600 gal tank
- Jefferson Tanker 47
 - 1,500 gpm pump
w/2,100 gal tank



Drill Participants

- Lineboro Tanker 7
 - 1,500 gpm pump
w/3,000 gal tank
- Lineboro Engine/Tanker 73
 - 1,250 gpm pump
w/1,500 gal tank



Drill Participants

- Felton Tanker 43
 - 1,500 gpm pump
w/2,000 gal tank
- Bethlehem Twp Engine 1712
 - 2,000 gpm pump
w/1,000 gal tank



Drill Participants

- Winterstown Tanker 45
 - 1,000 gpm pump
w/2,500 gal tank
- Fawn Grove Tanker 56
 - 1,500 gpm pump
w/2,500 gal tank



Drill Participants

- Fawn Grove Engine 56-1
 - 1,000 gpm pump
w/375 gal tank



Preparation



Units staged at the Eureka fire station where they received drill assignments and a safety briefing.

The Drill Begins



Jarrettsville was the first-arriving unit and assumed the role as the attack pumper. The crew helped lay out a supply line. The stopwatch was started when the engine driver applied the air brakes.

Dump Site Operations



Engine 54-4 was the next unit to arrive followed by Fawn Grove's tanker. The tanker crew is shown here setting up to support a nurse tanker operation which would support the attack pumper during the early phase of the drill.

Dump Site Operations



Tanker 54 (4,000 gal) arrived next and deployed its 4,000 gallon dump tank.

Dump Site Operations



Fawn Grove's Tanker 56 supplied Jarrettsville Engine 714 while the crews from Engine 54-4 and Tanker 54 worked to set up a dump site operation.

Dump Site Operations



At the 5-minute mark, a 600 gpm water flow was started using a nurse tanker operation.

Dump Site Operations



Jefferson Tanker 47 arrived next and supported the nurse tanker operation by pumping into the clapped siamese.

Dump Site Operations



Around the 7-minute mark, two dump tanks were down and one was in operation. Movement was underway to transition from nurse tanker operation to a dump tank operation.

Dump Site Operations



As units from the first tanker task force arrived on the scene, folks helped set up dump tanks as tankers continued to support the nurse tanker operation.

Dump Site Operations



With sufficient tanker resources on site to support the 600 gpm flow using a nurse tanker operation, the dump site crew is taking the time to set up a four, dump tank site in anticipation of supporting a 1,000 gpm+ flow later.

Dump Site Operations



Dump tank placement is critical at every dump site and it is important to take the time to ensure adequate placement.

Dump Site Operations



The red 5-inch hose is the supply line from the dump site engine (Eureka Engine 54-4) that is feeding the attack engine – Jarrettsville Engine 714.

Dump Site Operations



The second dump tank is brought on line as additional tankers from the tanker task force arrive at the dump site.

Dump Site Operations



Lineboro Tanker 7 (3,000 gals) was the last tanker to position to support nurse tanker operations. Once the two dump tanks were operational, Tanker 7 broke free and dumped its load of water into the dump tanks.

Dump Site Operations



Tanker 54 was the first tanker to return from the fill site. At this point, 4-dump tanks were now in operation and the flow was holding steady at 600 gpm.

Dump Site Operations



Engine 54-4 (2,250 gpm) is shown here drafting from four dump tanks simultaneously.

Dump Site Operations



Engine 54-4 has the ability to take suction from four different 6-inch suction inlets – which it did during this drill.

Dump Site Operations



Dump tank drains that use the “rope and dog leash clip” system work best when the drain is tied up on the inside of the tank. Leaking water like this in October is not much of a problem...February...might be a problem.

Dump Site Operations



At the 54-minute mark, five dump tanks are now in operation. The problem is that there are no tankers in sight.

Dump Site Operations



Fortunately, tankers began to arrive back at the dump site and at the 60-minute mark flow was moved to 1,100 gpm where it was sustained for the remainder of the drill.

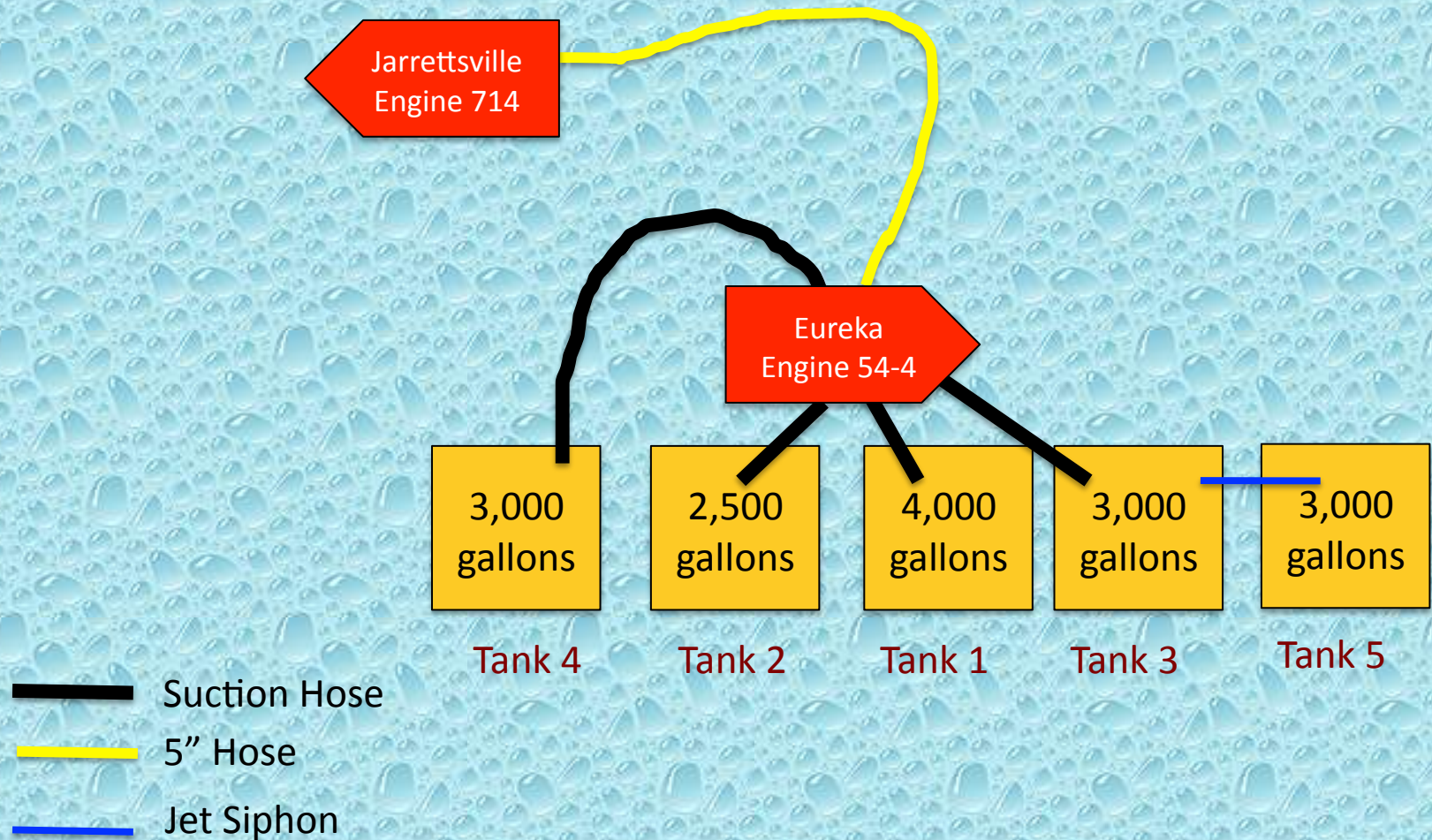
Dump Site Operations



At the 105-minute mark, operations continued uninterrupted even though one of the fill sites lost a loading station. But...by not ever running out of water once during the drill AND by flowing 1,000 gpm or more during the second hour, the participants were awarded 1,000 GPM Club Status!

Copyright 2016 - GBW Associates, LLC - Stewartstown, Pennsylvania - October 2016

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used. Both sites used a pond and both provided about a 3-mile roundtrip for units hauling water.
- The first fill site set up was located at a pond on Zeigler School Road.
- The pond provided ample water volume to support the drill and access was not a problem.
- Two engines – a 2,000 gpm and a 1,000 gpm were used at the pond to support two, tanker fill stations.

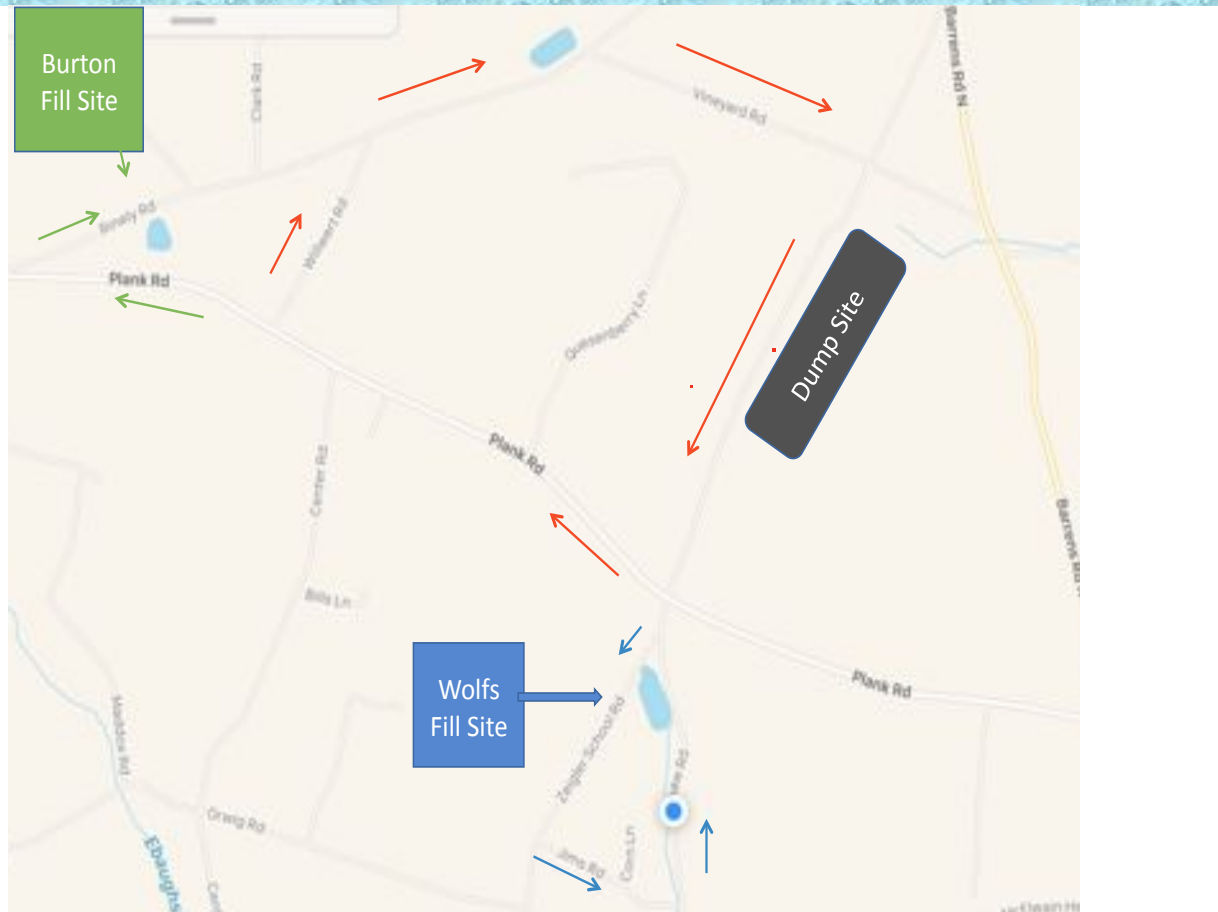
The Fill Sites

- The second fill site was located on Rinely Road at a farm pond.
- The site used a large pond that provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the pond to support the tanker fill station.

The Fill Sites

Base Loop
(Red):
R on Plank,
R on Willvert
R on Rinely
Fill at Cooper
R on Vineyard
R on Z School
Dump

Burton Fill
(Green):
R on Plank
R on Rinely
Fill at Burton
R on Vineyard
etc.



Wolf's Fill Site



The pond had plenty of water access and availability to support a large scale loading operation. Two pumpers set up drafting operations and were able to load three tankers at one time.

Wolf's Fill Site



Bethlehem Twp Engine 1712 (2,000 gpm) was able to draft using three suction inlets and support two tanker loading stations supplied by 5-inch LDH.

Wolf's Fill Site



Fawn Grove's supply pumper (1,000 gpm) operated a second, tanker loading station at the pond.

Burton's Fill Site



Jarrettsville Supply 781 (1,500 gpm) was the lone pumper at the second fill site. They drafted through two suction inlets and fed a loading station out on the "hard road."

Burton's Fill Site



The loading station was fed via 300-ft of 5-inch LDH. An LDH manifold and jumbo wye were used to control loading operations. The arrangement allowed for a large "drain" once tankers were full.

Burton's Fill Site



The pond had plenty of water access and availability to support a large scale loading operation.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the the entire drill.
- An estimated 99,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 861 gpm.

The Lessons Learned

- At this drill, an attack pumper and a supply pumper were used at the dump site. This arrangement allowed for each pump operator to focus on just one area of operation – attack ops or supply ops.
- The supply pumper had four suction inlets all capable of individual control and individual priming. This allowed the operator to control drafting operations at each individual dump tank.

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 were a limited number of different style tanker fill connections which reduced the number of adaptors needed and thus allowed fill operations to go smoothly.
- Having a standardized fill connection for all tankers increases fill efficiency and decreases fill 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 Eureka VFD for sponsoring and hosting this seminar.



www.GotBigWater.com

*This program was developed by
GBW Associates, LLC
Copyright © 2016
No part may be used or copied
without expressed written consent.*

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