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**Kutztown Community Fire Company  
Myerstown, Pennsylvania**

**Rural Water Supply Operations Seminar  
2-hr Water Supply Drill  
June 2, 2019  
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 Kutztown Community Fire Co.
- 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 Berks and Lebanon Counties.



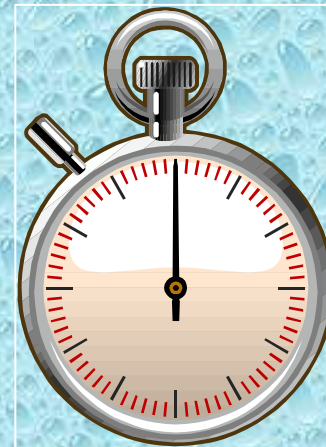
# The 2-hour Water Supply Drill

- The tanker shuttle drill was held on June 2<sup>nd</sup> at the Kutztown Community Fire Company.
- 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>
Kutztown	Engine 32	1500 gpm	1500 gal	NA
Kutztown	Pumper/Tanker 32	1500 gpm	2250 gal	2500 gal
Goodwill	Pumper/Tanker 30	1250 gpm	2000 gal	2500 gal
Goodwill	Tanker 30	1250 gpm	3000 gal	(2) 2500 gal
Cleona	Wagon 8	1500 gpm	750 gal	NA
North Annville	Tanker 7	1250 gpm	3500 gal	3000 gal
Frystown	Engine/Tanker 53	1500 gpm	2500 gal	2500 gal
Frystown	Quint 53	1500 gpm	NA	NA
Prescott	Tanker 29	1500 gpm	3500 gal	3500/4000
Prescott	Tanker 29-1	1250 gpm	4000 gal	NA
Prescott	Engine 29	1500 gpm	750 gal	NA
Schaefferstown	Tanker 35	1000 gpm	4000 gal	5000 gal
Mt Zion	Engine 40	1250 gpm	750 gal	NA
Mt Zion	Tanker 40	NA	3000 gal	(2) 3000 gal
Rural Security	Engine/Tanker 43	1250 gpm	2500 gal	2500 gal
Neversink	Tanker 14	1500 gpm	3000 gal	4000 gal

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

# The Drill Begins



The drill began with Kutztown Pumper/Tanker 32 arriving on scene and laying out a 300-ft, 5-inch supply line in preparation for operating as the attack engine. Kutztown Engine 32 arrived shortly thereafter and began to set up as the supply engine.



# Dump Site Operations



Goodwill Tanker 30 arrived next and crews went to work getting a dump site set up while preparing for nurse tanker operations. At the 5-minute mark, a 250 gpm water flow was started using PT32's tank water.

# Dump Site Operations



Two dump tanks are down and ready for water. However, a nurse tanker operation is still underway. Changeover will occur shortly.



# Dump Site Operations



At the 15-minute mark flow is moved to 500 gpm using a nurse tanker operation and the dump site pumper is now ready to obtain a draft and switch the operation to a dump tank operation.

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# Dump Site Operations



A problem soon arose with Engine 32's LDH discharge and the crew had to switch over to supplying a 5-inch LDH manifold in order to keep water flowing. Quick action prevented any interruption in flow.

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# Dump Site Operations



By the 39-minute mark, flow had moved to 600 gpm and the first tanker had returned from a fill site.

# Dump Site Operations



As flow moved to 975 gpm at the 43-minute mark, water transfer operations became very important.



# Dump Site Operations



One vacuum tanker (Mt Zion Tanker 40) helped haul water during the drill and is seen here off-loading its 3,000 gallons of water.

# Dump Site Operations



By the 90-minute mark flow had moved to 1600 gpm and four dump tanks were in operation.



# Dump Site Operations



With the flow at 1600 gpm, Frystown Quint 53 was used to help “get rid” of the water. Kutztown E32 supplied Kutztown PT32 which then supplied Q53.

# Dump Site Operations

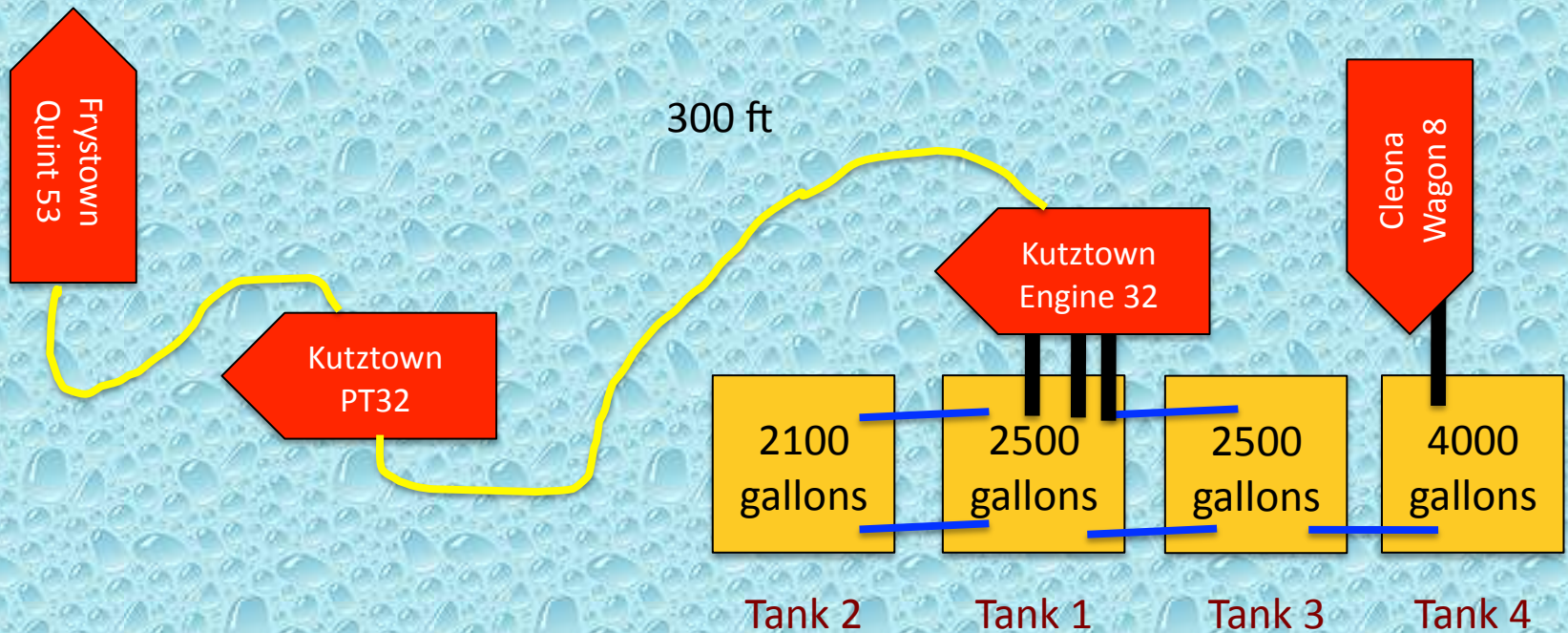


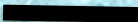


Kutztown Engine 32 ended up using three suction intake lines in order to better support the water supply effort. Cleona Wagon 8 was used to help run jet siphons.

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# Dump Site Layout



-  Suction Hose
-  5" Hose
-  Jet Siphon

# The Fill Sites

- For this drill – two fill sites were used – a large pond and a large stream.
- The pond fill site provided about a 4.6-mile round trip for the units hauling water.
- The stream fill site provided about an 8.4-mile round trip.
- Both fill sites had ample water volume to support the drill and access was not a problem.
- A 1,500 gpm pumper was used at both sites to support the tanker fill stations.



# Pond Fill Site Operation



A large pond at Dutch Valley Food Distributors was used as the primary water supply site for tanker loading operations.

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# Pond Fill Site Operation



A 5-inch LDH supply line provided water to an LDH manifold from which crews loaded tankers at a rate exceeding 1000 gpm.



# Stream Fill Site Operation



The secondary fill site was located at stream with excellent water access. A single pumper was used at this fill site to draft and supply an LDH manifold for loading operations.

# Fill Site Operations



The fill site crew did a good job of setting up to load tankers that had different fill connections.



# The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill, however flow did have to be reduced twice while crews worked to overcome a mechanical problem and a water transfer problem.
- An estimated 79,300 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 688 gpm.
- A peak flow of 1600 gpm was sustained for the last 30 minutes of the drill.

# The Lessons Learned

- At this drill, a nurse tanker operation was used to support operations while crews set up the dump site.
- A double-clappered siamese was used with the nurse tanker operation and this allowed for easy, uninterrupted transition to the dump tank operation once that pumper came on line.



# The Lessons Learned

- The dump site pumper suffered a mechanical issue with its LDH discharge early in the drill. Fortunately, a 5-inch LDH manifold was readily available and crews quickly supplied the manifold using multiple smaller lines.
- The dump site pumper eventually used three suction intake lines (two 6" and one 3") to meet the capacity demands of flowing 1600 gpm and running a couple of jet siphons.
- A second pumper was brought in to run two jet siphons thus freeing up some capacity for the dump site pumper.

# 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, not all tankers had the same fill connection so folks worked to try and fill as efficiently as possible. In most cases fill rates exceeded 1,000 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 Kutztown Community Fire Company for sponsoring and hosting this seminar.



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