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**Talleyville Fire Company
New Castle County, Delaware**

**Rural Water Supply Operations Seminar
2-hr Water Supply Drill
September 10, 2017
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 Talleyville 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 New Castle County and the surrounding area.

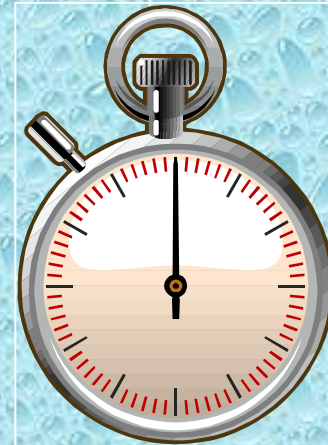
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on September 10th in Hockessin at an old mill 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 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



- The participants for the drill were from several different fire departments in the New Castle 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 Talleyville area.*

Drill Participants

- Talleyville Engine 25-5
 - 1500 gpm pump
w/1,000 gal tank
- Talleyville Engine 25-6
 - 1750 gpm pump
w/970 gal tank



Drill Participants

- Talleyville Quint 257
 - 2,000 gpm pump
w/540 gal tank
- Longwood Engine 25-1
 - 2,000 gpm pump
w/750 gal tank



Drill Participants

- Longwood Tanker 25-3
 - 1000 gpm pump
w/7800 gal tank
- Union Engine 21-1
 - 1,750 gpm pump
w/750 gal tank



Drill Participants

- Union Tanker 21
 - 1,250 gpm pump w/3000 gal tank
- Hockessin Tanker 19
 - 2,000 gpm pump w/2,500 gal tank



Drill Participants

- Concordville Tanker 59
 - 1,000 gpm pump w/2500 gal tank
- Avondale Tanker 23
 - 1500 gpm pump w/3500 gal tank



Drill Participants

- Honey Brook Tanker 33-5
 - 1500 gpm pump
w/3,000 gal tank



The Drill Begins



Talleyville Engine 25-5 was the first-arriving engine and set-up to support Talleyville's quint which was located about 600-feet back in the old mill complex. Tanker 59 arrived at about the same time and prepared to operate as a nurse tanker until a dump site could be set up.

Dump Site Operations



The first two arriving tankers operated in the nurse tanker mode as water flow operations commenced at 250 gpm at the quint. The quint was fed by a 5-inch supply line that was outfitted with a double-clappered siamese which allowed the tankers to pump off water until the dump tanks were ready.

Dump Site Operations



Once again, the use of a double-clappered siamese proved successful during the early minutes of a water supply drill involving tankers. The device allowed continuous flow to the attack piece while the dump tanks were set up.

Dump Site Operations



While the first tankers were pumping off their water, crews grabbed a dump tank and went to work setting up the dump site.

Dump Site Operations



The plan was to try the “single-lane” arrangement of dump tanks so folks worked to place dump tanks in front of Engine 25-5.

Dump Site Operations



Oxford Tanker 21 (3,000-gallons) carries dual dump tanks. So their arrival on the scene proved very beneficial in helping to set up the site. The two-person crew hustled to deploy both dump tanks as well as provide additional support equipment – and of course, 3000 gallons of water.

Dump Site Operations



The Oxford tanker carried a nice “dump site” kit which included a TFT low level suction strainer, a standard jet siphon, a ball (for vortex control) and some tie-down straps.

Dump Site Operations



A suction elbow was used on Engine 25-5 in order to keep the suction hose closer to the rig and to gain distance. The elbow is a “best practice” when looking to use the single-lane concept. And of course, it allows for improved flow because a main suction inlet is used in lieu of a front suction inlet.

Dump Site Operations



Tanker 21 dumps the first load of water and the operation is moved to a dump tank operation. Nurse tanker operations are stopped.

Dump Site Operations



With the first dump tank in operation, work now begins to bring the second tank on line.

Dump Site Operations



At the 17-minute mark, flow was moved to 500 gpm and the second dump tank was brought on-line. Tankers on the first, tanker task force began to arrive.

Dump Site Operations



At the 47-minute, Longwood Tanker 25-3 arrived on the scene bringing with it 7800-gallons of water and a 1000 gpm pump. The rig was set-up as a nurse tanker and fed lines back to the dump tanks to help keep the tanks full.

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Dump Site Operations



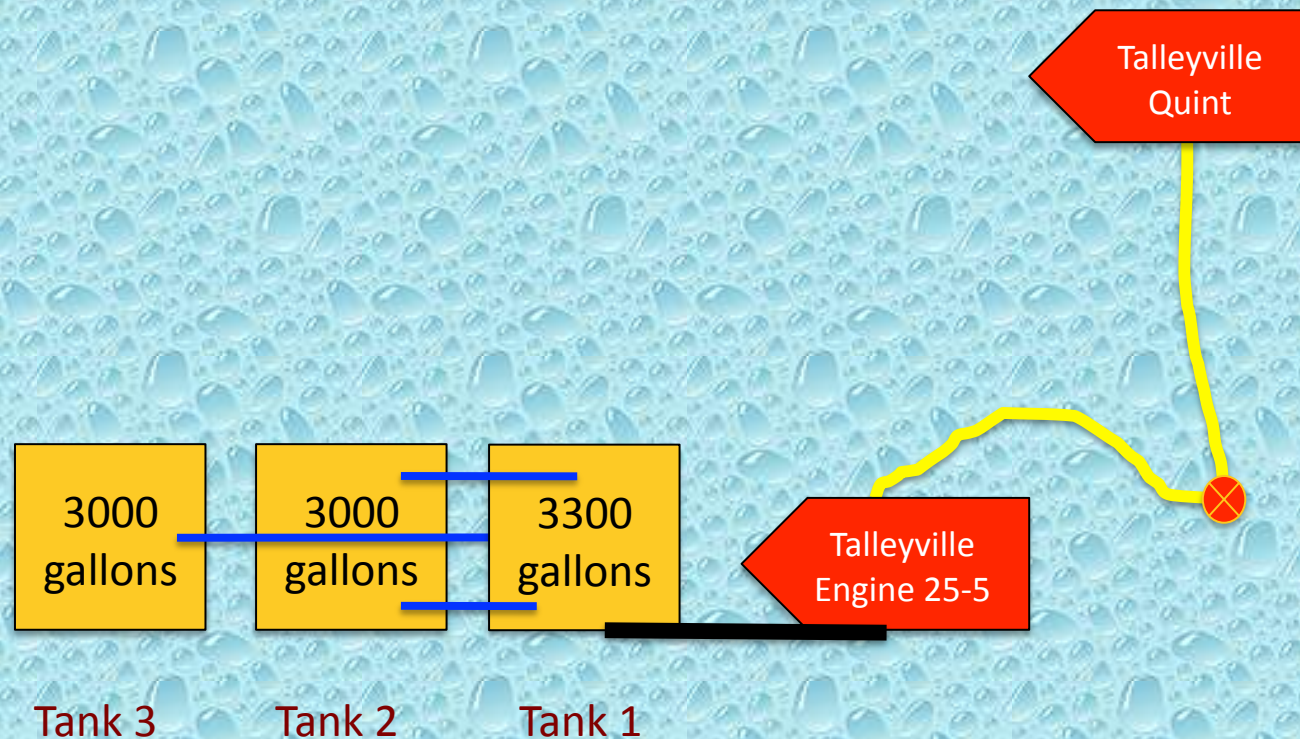
The operation peaked at 1100 gpm using three dump tanks. The single-lane arrangement seemed to work well and kept an entire lane of traffic open on the main road. The two supply lines seen in this photo are coming from the 7800-gallon tanker.

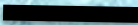

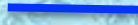
Dump Site Operations



The use of the tractor trailer tanker simulated a real-life mutual aid response time for the area. With its 1,000 gpm pump, the rig is quite capable of supporting a large scale water supply operation once it gets there. In addition, rigs that could not dump water pumped off their water into this big tanker, which really was a 7800-gallon reservoir.

Dump Site Layout



-  Suction Hose
-  5" Hose
-  Jet Siphon

The Fill Site

- For this drill – two fill sites were used. Both were located along a creek near a railroad crossing.
- The fill sites provided about a 4.3-mile round trip for the units hauling water.
- The creek provided ample water volume to support the drill and access was not much of a problem – other than the suction hose needed to reach the water..
- A 1,750 gpm and a 2,000 gpm pumper were used at the creek to support the tanker fill stations.

Fill Site Operations



Talleyville Engine 25-6 (1,750 gpm) drafts off a bridge and loads Oxford Tanker 21 using dual, 3-inch fill lines.

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Fill Site Operations



This loading station was supported by Longwood's Engine 25-1 – a 2,000 gpm pumper. The bridge was somewhat narrow, so fill site crews had to be careful not to block out units.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill.
- An estimated 82,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 724 gpm.
- A peak flow of 1,100 gpm was sustained for the last 7 minutes of the drill.

The Lessons Learned

- At this drill, a nurse tanker operation was used during the early moments of the drill which allowed the crews to set-up the dump site without the pressure of running out of water in a couple of minutes.
- The single-lane arrangement of dump tanks proved successful. The arrangement allowed for easy travel, side-dumping, and kept a lane of traffic open.

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, folks worked to use the same fitting to load all of the tankers – this made the loading very efficient.

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 Talleyville Fire Company for sponsoring and hosting this seminar.



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