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**Modena Volunteer Fire Company
Modena, Pennsylvania**

**Rural Water Supply Operations Seminar
2-hr Water Supply Drill
October 12, 2025
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 conference center of the closed Brandywine Hospital.
- 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 northern Chester County and the surrounding area.

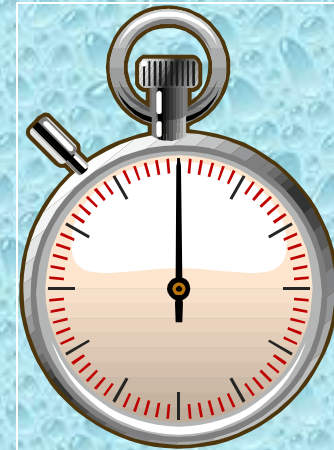
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on October 12th at the closed Brandywine Hospital.
- 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 (gpm)	Tank Size (gallons)	Dump Tank (gallons)
Good Will	T52	1250	3000	3500
Honey Brook	E33-5	2000	3000	3500
Keystone Valley	T8	1500	3200	3000
Modena	SQ37	1500	1000	
Modena	T37	1250	3000	3000
Wagontown	E35	1500	750	
Wagontown	T35	1000	3000	

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

The Drill Begins



The drill started with crews executing a rural hitch operation using a 5" double-clappered siamese. SQ37 (1500 gpm) arrived on the scene and laid out 200-feet of 5-inch supply hose and went to work as the attack pumper. At the 5 minute mark, Tanker 37 (3000 gal) arrived and began supplying the rural hitch.

Dump Site Operations



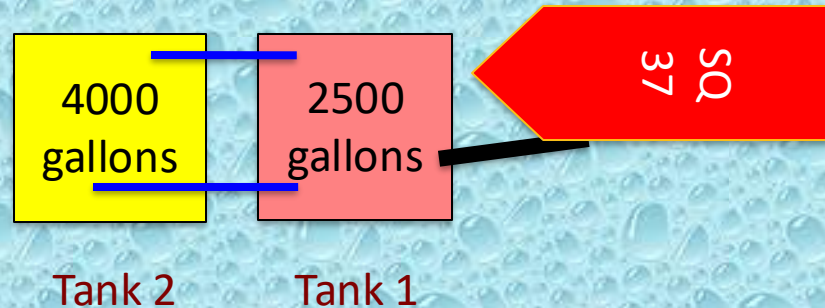
Tanker 52 was the next arriving tanker around the 8-minute mark and set-up to support the 500 gpm rural hitch operation by connecting to the other side of the siamese. The rural hitch operation continued for about 33 minutes and water supply was never interrupted. This gave crews time to set up the dump tanks.

Dump Site Operations



At the 36 minute mark, the operation switched over to dump tanks, in order to achieve higher flows. A 2 tank operation was used. There was a pause switching over due to how the initial supply line had been connected but this was soon corrected. Peak flow from the operation was 925 gpm.

Dump Site Layout



— Suction Hose
— Jet Siphon

The Fill Site

- For this drill – no static source was available and crews utilized a hydrant at the rear of the hospital.
- The fill site provided about a mile round trip for the tankers hauling water. Some time was needed at the fill site to turn tankers around.
- The hydrant had adequate volume and pressure to support a 1000 gpm fill site.
- A 1500 gpm pumper (Wagontown E35) was used at the fill site to load tankers. Two fill lines were set up to cut down time coupling and uncoupling tankers.

The Fill Site



E35 used all available water from the hydrant via a heavy water hook-up and supplied an LDH manifold which in turn supported two loading stations. This saves valuable time as when the first tanker is loaded and full, the crews can immediately start filling up the second tanker, which has already been hooked up. It is not necessary to get the first tanker uncoupled and out of the way before the filling starts for the 2nd tanker.

The Results

- The drill was stopped short of the 2-hour mark due to the water tank on the property running out of water.
- An estimated 55,00 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 712 gpm.
- For the last 30-minutes of the drill a flow of 925 gpm was supplied.

The Lessons Learned

- At this drill, crews chose to use a rural hitch operation to get things started.
- Using the rural hitch gave the crews time to get a dump tank set-up without the added pressure of having to draft and flow water right away.
- Tankers pumped off on the right to take advantage of high flow discharges, but then reversed direction to dump off of the left, so that the drivers had an easier time spotting the dump tanks.

The Lessons Learned

- The dump site pumper, SQ37 was able to supply a peak flow of 925 gpm to the simulated fire ground and feed water to two jet siphons. At this point, this 1500 gpm pumper cavitated. A low level strainer of approximately 1250 gpm capacity was the bottleneck. An option would have been to just take the strainer off, since the water being delivered was very clean.

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, all tankers filled the same way, which made life easier for the fill site crew.

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. A couple of tankers had gear boxes made up that could be left at the dump site to assist with the operation.

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 Modena Fire Department for hosting the seminar.



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