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Crawford County Fireman's Association
West Mead Township, Pennsylvania

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
September 28, 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 West Mead VFD #2 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 Crawford County and the surrounding area.

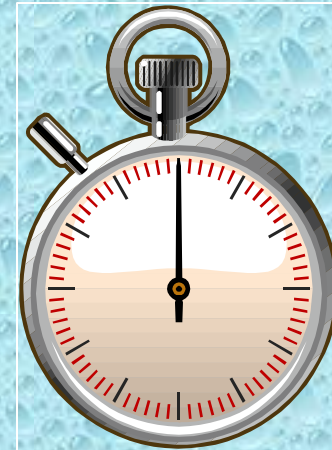
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on September 28th at the Woodcock Lake Park.
- 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	Tank Size	Dump Tank
Utica	Tanker 27	1500 gpm	2800 gal	NA
Vernon Central	Tanker 23-5	1500 gpm	2500 gal	2500 gal
Cochranton	Tanker 4-25	2000 gpm	2500 gal	2500 gal
Hayfield	Tanker 12-5	1500 gpm	3000 gal	NA
Fredonia	Tanker 97	1500 gpm	2000 gal	2000 gal
Hempfield	Tanker 94	1500 gpm	2000 gal	2500 gal
West Mead #1	Engine 28-12	1500 gpm	1000 gal	NA
West Mead #1	Engine 28-13	1500 gpm	1000 gal	NA
West Mead #1	Tanker 28-15	1500 gpm	2500 gal	2500 gal
Greenwood	Engine 40-12	1500 gpm	1800 gal	NA
West Mead #2	Engine 29-1	1500 gpm	1000 gal	NA
West Mead #2	Rescue 29-8	1500 gpm	1000 gal	NA
Randolph	Tanker 18-5	1250 gpm	2000 gal	NA
Corry	Tanker 665	1500 gpm	3000 gal	2500 gal
East Mead	Tanker 985	NA	2500 gal	2500 gal x2

- The participants for the drill were from several different fire departments in the Crawford 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 West Mead Township area.*

The Drill Begins



The drill started with crews executing a rural hitch operation using a 4" double-clappered siamese. West Mead #2 Rescue Engine 29-8 arrived on the scene and laid out several hundred feet of 5-inch supply hose and went to work as the attack pumper. At the 5-minute mark, Rescue Engine 29-8 began water flow at 250 gpm.

Rural Hitch Operations



The end of the 5-inch supply line was outfitted with a double-clapped Siamese and crews used a “rural hitch” operation to supply water to the attack engine.

Rural Hitch Operations



Vernon Central Tanker 23-5 was the first tanker to support the rural hitch operation at the 8-minute mark.

Rural Hitch Operations



At the 15-minute mark, water flow was moved to 500 gpm using the rural hitch. As additional crews arrived, work began on building out a dump tank operation.

Dump Site Operations



West Mead #2 Engine 29-1 took position as the dump site engine and crews worked to get two dump tanks up and running. Meanwhile, tankers supported the rural hitch until the dump tanks were ready.

Dump Site Operations



At the 44-minute mark, the changeover to dump tanks was underway and the rural hitch operation was stopped.

Dump Site Operations



At the 60-minute mark, flow is moved to 1000 gpm and a fourth dump tank is brought on-line.

Water Transfer Operations



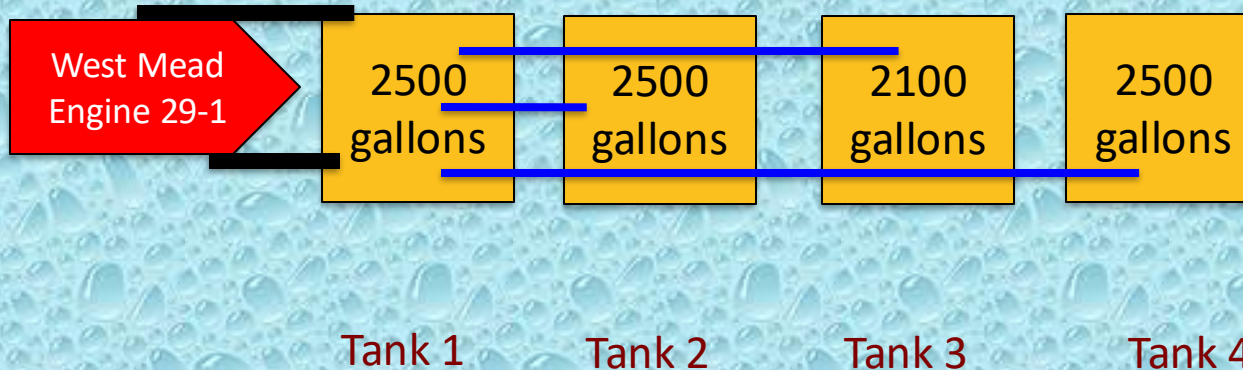
As flow increased, water transfer operation became critical. Engine 29-1 was able to deploy a second, 6-inch suction which provided additional intake capacity to help run the additional jet siphon devices.

Dump Site Operations



East Mead Tanker 985's vacuum tanker offloads its 2500 gallons. Around the 105-minute mark, flow was moved to 1250 gpm where it was sustained for the remainder of the drill.

Dump Site Layout



— Suction Hose
— Jet Siphon

The Fill Sites

- For this drill – one fill site was used – a boat launch area at Woodcock Creek Lake.
- The fill site provided about a 2.2-mile round trip for the units hauling water.
- The lake had ample water volume to support the drill, and access was not a problem.
- A 1500 gpm pumper was used at the fill site to load tankers.
- East Mead's vacuum tanker self-loaded at the same boat launch area.

Lake Fill Site



West Mead #1 Engine 28-12 arrived at the boat launch area and went to work setting up to draft and building out a tanker loading station.

Lake Fill Site



Engine 28-12 was able to deploy twin suction lines and support two loading stations.

Lake Fill Site



Of special note, the lone vacuum tanker (East Mead 895) had plenty of room to self-load on the boat launch area and get back on the road in little time.

The Results

- The drill was stopped at the 2-hour mark.
- Water flow was interrupted for about 2 minutes around the 61-minute mark during transition to dump tank operations.
- An estimated 87,750 gallons of water were flowed through the attack pumper during the drill producing an average flow rate of 768 gpm.
- For the last 15-minutes, a flow of 1,250 gpm or greater 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.
- Crews executed the rural hitch operation without issue and were able to support a flow near 750 gpm by pumping off water.

The Lessons Learned

- As the flow increased, additional suction lines were added, as were additional dump tanks.
- 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 dump site pumper, Engine 28-12 was able to supply a peak flow of 1250 gpm to the attack engine and feed water to three jet siphons.

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, most tankers loaded using the same fill connection which allowed for quicker turn-around times at the loading site.

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.
- Vacuum tankers are very efficient water haulers and at this drill, East Mead's 2500-gallon tanker did a great job of self-loading and delivering water to the dump site.

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 Crawford County Fireman’s Association for sponsoring and the West Mead #2 VFD for hosting the seminar.



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