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Talbot County Volunteer Fire & Rescue Association
Queen Anne, Maryland

Rural Water Supply Operations Seminar
2-hr Water Supply Drill – 1000 GPM Club
April 7, 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

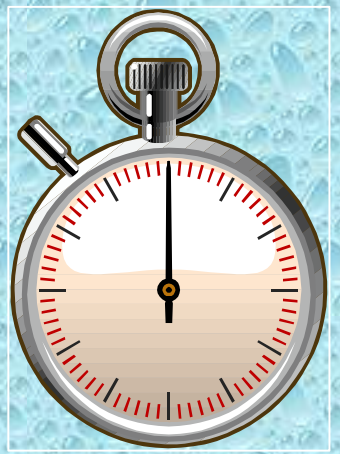
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Queen Anne-Hillsboro fire station.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Talbot County and the surrounding area.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on April 7th in Queen Anne at a local 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

- *The participants for the drill were from several different fire departments in the Talbot 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 Queen Anne area.*

Drill Participants

Department	Unit	Tank Size	Pump Size	Dump Tank
Queen Anne-Hillsboro	Engine 85	1000 gal	2000 gpm	NA
Queen Anne-Hillsboro	Tanker 86	3000 gal	2000 gpm	NA
Easton	Engine 67	1000 gal	1500 gpm	NA
Easton	Tanker 61	6000 gal	1500 gpm	NA
Oxford	Tanker 20	2700 gal	1250 gpm	2500 gal
St Michaels	Tanker 44	2500 gal	1250 gpm	2500 gal
Denton	Engine 302	750 gal	2000 gpm	NA
Goodwill	Tower 4	300 gal	2000 gpm	NA
Trappe	Tanker 36	3500 gal	1250 gpm	3500 gal
Goldsboro	Tanker 706	6400 gal	1250 gpm	NA
Tilghman	Tanker 74	3000 gal	1250 gpm	2500 gal
Ridgely	Tanker 406	1800 gal	750 gpm	3000 gal
Greensboro	Tanker 606	5200 gal	1000 gpm	NA
Queenstown	Engine/Tanker 3	3000 gal	1500 gpm	NA
Sudlersville	Tanker 6	3500 gal	1250 gpm	3500 gal
Cordova	Engine 54	1000 gal	1500 gpm	NA
Cordova	Tanker 53	3000 gal	1250 gpm	NA
Easton	Brush 66	500 gal	1000 gpm	NA
Queen Anne-Hillsboro	Brush 87	200 gal	250 gpm	NA

The Drill Begins

Centerville Tower 4 was pre-positioned before the drill began so that water flow could be measured once the flow became large. Queen Anne-Hillsboro Engine 85 arrived first and the crew stretched a 2-1/2-inch attack line for initial flow. Cordova Engine 54 arrived next and laid a 5-inch supply line from the park's entrance. The intent was for Engine 54 to assume the attack engine operation once the dump site was established.

Water Flow Started

A 250 gpm water flow was started from Engine 85 at the 5-minute mark using a Hose Monster flow diffuser. Flow was never interrupted for the remainder of the drill. Meanwhile, Engine 54 stretched a supply line to Tower 4 in preparation for transition to a large flow.

Dump Site Operations

Easton Tanker 61 arrived not long after flow was moved to 500 gpm around the 15-minute mark. Thus far, all water supply operations were using a nurse tanker operation supplying a double-clappered 5-inch siamese.

Dump Site Operations

The nurse tankers supplied the double-clappered siamese which in turn supplied Cordova Engine 54.

Dump Site Operations

A flow meter (calibrated) was placed in-line after the siamese as the means by which all flows would be recorded.

Dump Site Operations

At around the 18-minute mark the first dump tank was deployed as nurse tanker operations were still supporting the 500 gpm flow.

Dump Site Operations

At the 28-minute mark, flow was moved to 750 gpm using a combination of a dump tank operation and a nurse tanker operation.

Dump Site Operations

Crews worked to set-up a second, 3000-gallon dump tank in preparation for expanding the flow. The crews used a “through the drain sleeve” set-up for drafting from the first, 3000-gallon dump tank. Easton Engine 67 (1500 gpm) operated as the dump site engine.

Dump Site Operations

As tankers arrived on the scene they were directed to either pump off their water into the Easton 6000-gallon tanker or to dump their water into the dump tanks. Greensboro Tanker 606 (5200 gal) also supported the nurse operation.

Dump Site Operations

At the 41-minute mark, flow was moved to 1000 gpm as the dump site was now fully-operational.

Dump Site Operations

Flow was increased again at the 60-minute mark to 1250 gpm. Goldsboro Tanker 706 (6400 gal) was now being used as a nurse tanker. However, it supplied the primary dump tank by using a flow diffuser directly into the tank.

Dump Site Operations

At the 75-minute mark, flow was moved to 1430 gpm. Tower 4 was used to disperse the water and had been in use since the 750 gpm flow mark.

Dump Site Operations

Sudlersville Tanker 6 dumps its 3500 gallons while crews remove more suction hose in order to further expand dump site operations.

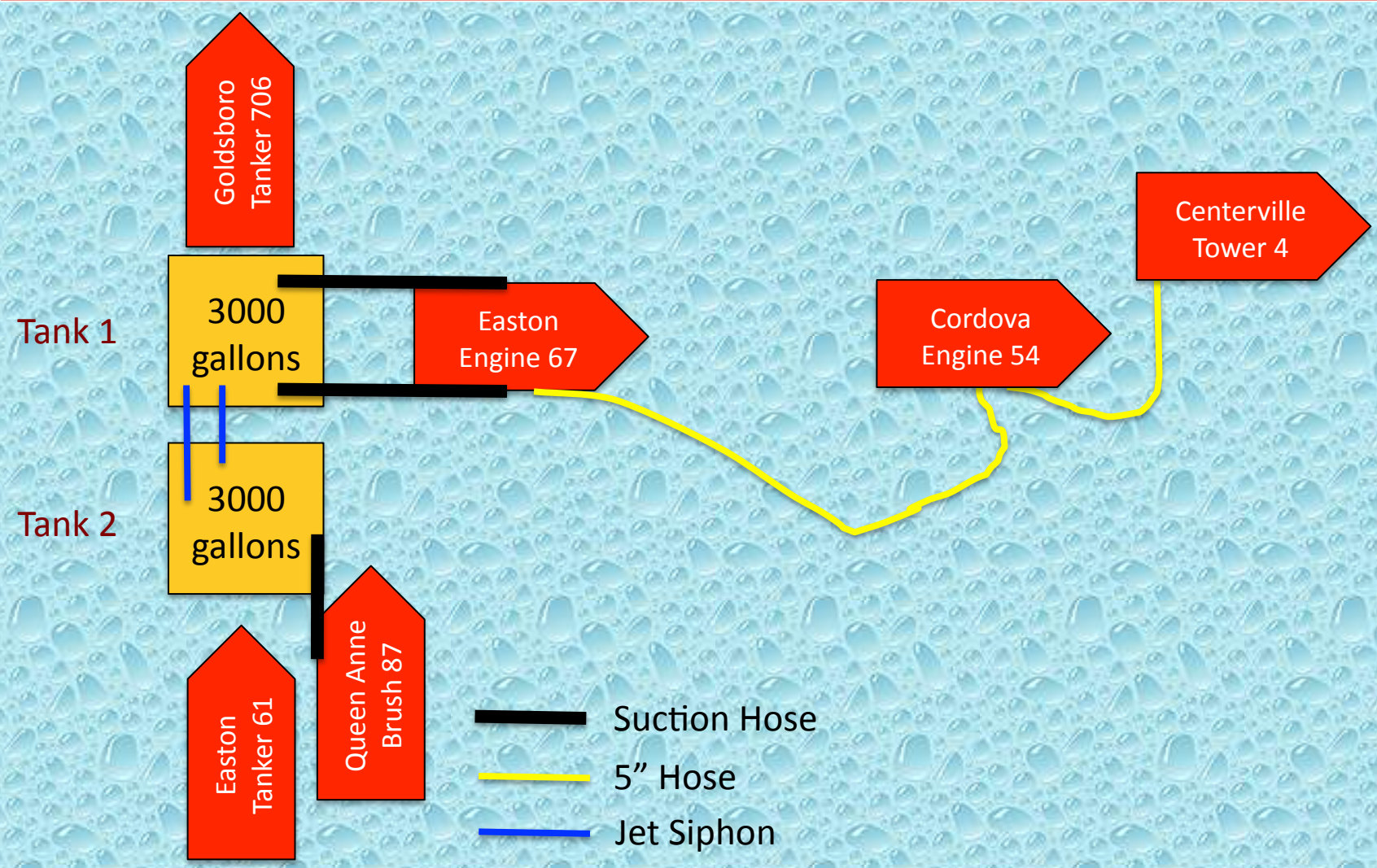
Dump Site Operations

At the 102-minute mark, a second, 6-inch suction line was deployed by Engine 67 which allowed the intake flow capacity to increase which allowed output to increase 1760 gpm at the 105-minute mark.

Dump Site Operations

Brush 87 was brought in to help run jet siphons so that the dump site pumper could focus on supplying the 1760 gpm to the aerial tower. The 250 gpm brush truck was able to support two jet siphons.

Final Dump Site Layout



The Fill Site

- For this drill – two fill sites were used. Both were located along Norwich Creek and were in close proximity to each other.
- The fill sites provided about a 2.7-mile round trip for the units hauling water.
- The creek provided ample water volume to support the drill and access was not an issue.
- A 2,000 gpm engine and a 1500 gpm engine/ tanker were used at the creek to support the tanker fill stations.

Fill Site Operations

Denton E302 drafts using dual, 6-inch suction lines and loads tankers at a rate of 1500 gpm.

Fill Site Operations

The fill site crews did a great job of keeping the roadway open to allow tankers to pass each other. When operating two fill sites close together, traffic management becomes a very important matter.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill.
- An estimated 123,100 gallons of water were flowed through the flow meter during the drill producing an average flow rate of 1,070 gpm.
- A peak flow of 1,760 gpm was sustained for the last 15-minutes of the drill.
- For the last 79-minutes of the drill a flow of 1,000 gpm or greater was supplied to the aerial tower.
- The performance resulted in the folks being awarded membership in the Got Big Water 1,000 GPM Club!

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 dump site arrangement allowed the dump site pumper to park off the main road and allowed for easy travel, side-dumping, and kept a lane of traffic open.

The Lessons Learned

- The tractor-trailer style tankers used in the nurse tanker mode made a big difference in supporting the continual flow at this operation.
- The Easton and Goldsboro tankers basically operated as four more 3,000-gallon dump tanks – each with their own pump. These tankers provided much needed water at critical times during the operation.

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.
- Many of the tankers were loaded at a 1500 gpm fill rate.

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 deployment of a second suction line allowed the 1500 gpm dump site pumper to increase its output capacity and support the 1760 gpm flow plus run a jet siphon.

The Lessons Learned

- The use of the 250 gpm brush truck to run a couple of jet siphons allowed the dump site engine to focus its work on supplying the 1760 gpm to the aerial tower.
- 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 Talbot County Volunteer Fire and Rescue Association for sponsoring and the Queen Anne-Hillsboro Volunteer Fire Company for hosting this seminar.

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This program was developed by
GBW Associates, LLC

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