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Queen Anne's County Fire & EMS Commission
Sudlersville, Maryland

Rural Water Supply Operations Seminar
2-hr Water Supply Drill – 1000 GPM Club
October 4, 2020
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

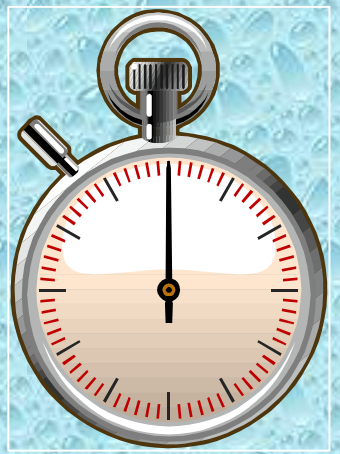
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Sudlersville VFC.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on October 4th at an old hunt club outside of Sudlersville.
- 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 Queen Anne's 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 Sudlersville area.*

Drill Participants

Participants				
Department	**Unit**	**Pump Size**	**Tank Size**	**Dump Tank**
Kent Island	Engine 14	2250 gpm	1000 gal	-
Queenstown	Engine Tanker 3	1500 gpm	3000 gal	-
Goodwill	Engine Tanker 4	2000 gpm	3000 gal	3000 gal
Church Hill	Engine 55	1500 gpm	750 gal	-
Crumpton	Engine Tanker 7	2250 gpm	3500 gal	-
Queen Anne-Hillsboro	Engine 85	1500 gpm	1000 gal	-
Queen Anne-Hillsboro	Tanker 86	1500 gpm	3000 gal	-
Easton	Engine 67	1500 gpm	1000 gal	-
St Michaels	Tanker 44	1250 gpm	2500 gal	2500 gal
Tilghman	Tanker 74	1250 gpm	3000 gal	2500 gal
Goldsboro	Tanker 706	1000 gpm	6000 gal	-
Millington	Tanker 2	1500 gpm	4000 gal	3500 gal
Millington	Engine 2	1500 gpm	1000 gal	-
Hartley	Tanker 51-5	2000 gpm	3500 gal	-
Cordova	Tanker 53	1250 gpm	3000 gal	-
Sudlersville	Tanker 6	1250 gpm	3500 gal	3500 gal

The Drill Begins

Kent Island Engine 14 arrives on the scene and lays a 5-inch supply back a long lane to a nearby pond. Once Engine 14 came to a stop the 2-hr timer began.

Dump Site Operations

Sudlersville Tanker 6 was the next unit to arrive on the scene and immediately operated as a nurse tanker and supplied the 5-inch siamese connected to Engine 14's supply line.

Dump Site Operations

Queen Anne-Hillsboro Engine 85 was next to arrive and began setting up for a dump tank operation while nurse tanker operations were underway.

Water Flow Started

At the 5-minute mark, water flow was started at 500 gpm using nurse tanker operations.

Dump Site Operations

As additional tankers arrived, the crews worked to get the dump site up and running.

Dump Site Operations

Around the 12-minute mark the operation switched to a dump tank operation and nurse tanker operations ceased.

Dump Site Operations

Units on the 1st Tanker Task Force begin to arrive on the scene and two dump tanks are now in operation.

Dump Site Operations

With a second Tanker Task Force now operating, flow was moved to 1050 gpm around the 47-minute mark.

Dump Site Operations

A 4-inch, in-line flow meter was used to measure flow during the drill.

Dump Site Operations

At the 70-minute mark, flow was moved to 1650 gpm for about 10-minutes before it was backed down to 1500 gpm for the remainder of the drill.

Dump Site Operations

Three portable monitor devices were used to discharge water at Engine 14's location.

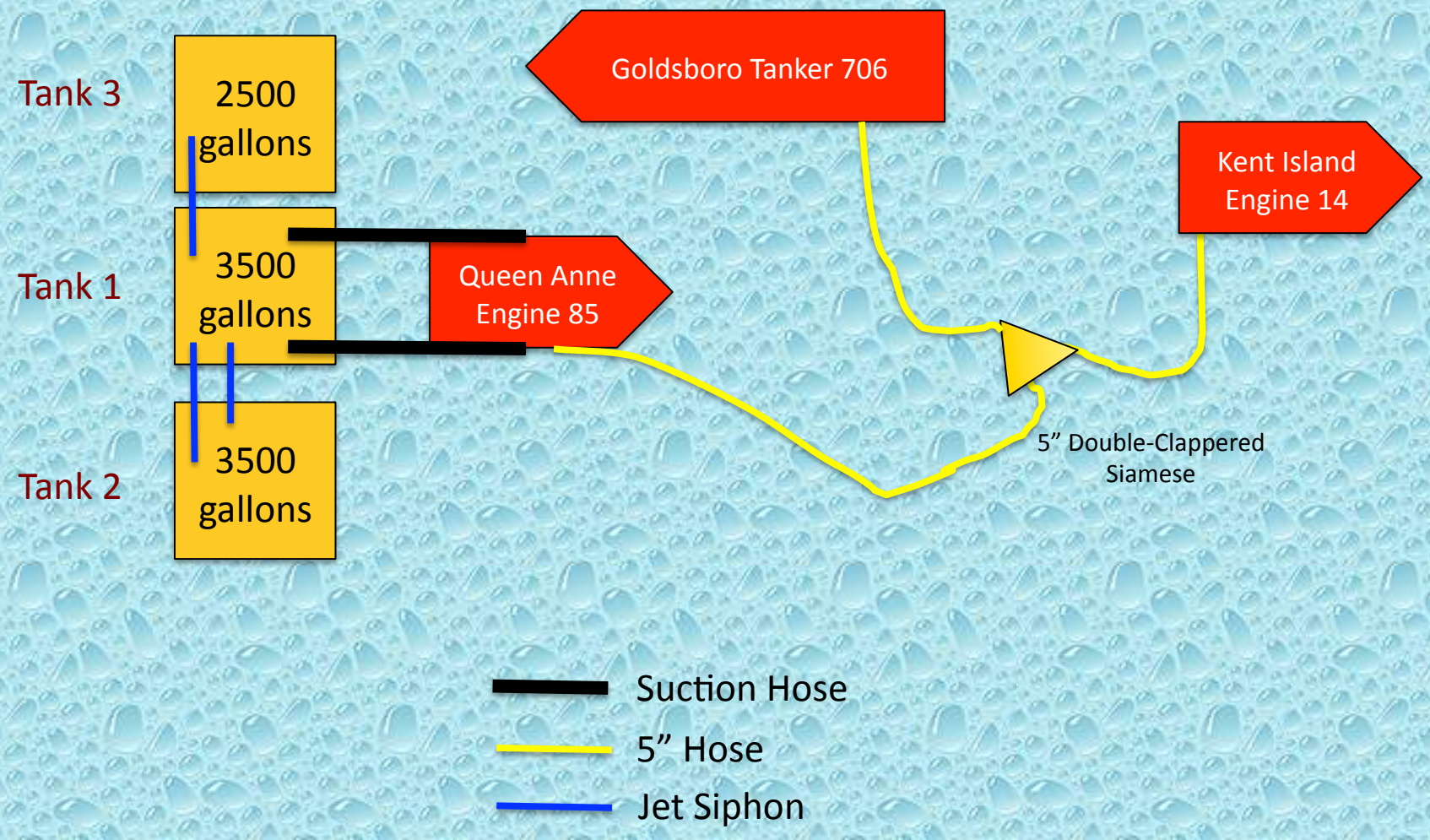
Dump Site Operations

Around the 75-minute mark, Goldsboro Tanker 706 (6,000-gal) was added to the operation as a back-up supply if needed should the dump tank operation run low. Tanker 706 supplied the siamese on Engine 14's supply line.

Dump Site Operations

Three dump tanks were eventually used to support the dump site operation.

Final Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used. Both used a nearby stream and were not far from each other.
- Both sites provided about a 3.0-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 1,500 gpm engine was used at each fill site to support the tanker fill stations.

Fill Site Operations

Churchville Engine 55 (1500 gpm) arrives at the first fill site and quickly works to get a tanker loading operation set up.

Fill Site Operations

The first fill site was operational by the time the first tanker (Tanker 6) arrived for loading.

Fill Site Operations

Crews did a good job of managing traffic flow….meaning that the road was always open to allow other tankers running the route to pass.

Fill Site Operations

Tankers were loaded at rates at or near 1000 gpm and each rig was back on the road as soon as possible.

Fill Site Operations

Millington Engine 2 (1500 gpm) operated the second fill site and loaded tankers at or near a 1000 gpm fill rate.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill.
- An estimated 121,650 gallons of water were flowed through the flow meter during the drill producing an average flow rate of 1,058 gpm.
- A peak flow of 1,650 gpm was sustained for about 10-minutes halfway through the drill.
- For the last 73-minutes of the drill a flow of 1,000 gpm or greater was supplied to Engine 14.
- The performance resulted in the participants 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 tanker used in the nurse tanker mode made a big difference in supporting the continual flow at this operation – especially once flow approached the 1500 gpm mark.

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 rates over 1000 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 Queen Anne’s County Fire and EMS Commission for sponsoring and the Sudlersville Volunteer Fire Company for hosting this seminar.

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This program was developed by
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