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Williamsport Volunteer Fire & EMS
Williamsport, Maryland

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
November 13, 2016
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 the participants to practice water supply delivery in a mutual-aid setting.

The Seminar

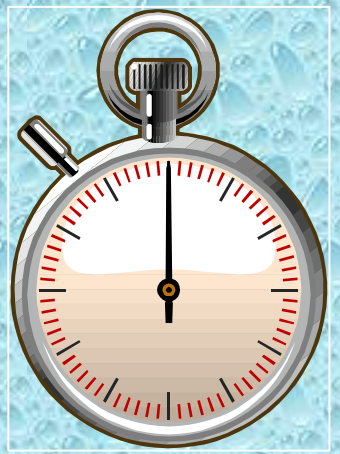
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Williamsport fire station.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.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

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on November 13th at a recycling center.
- 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 2-Hour Test

- The 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 Washington 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 Williamsport area.*

Drill Participants

- Williamsport Engine 21
  - 2,000 gpm pump w/750 gal tank
- Williamsport Engine 24
  - 750 gpm pump w/250 gal tank

Drill Participants

- Clearspring Engine 4-1
  - 1,500 gpm pump w/1,000 gal tank
- Clearspring Tanker 4
  - 1,000 gpm pump w/3,000 gal tank

Drill Participants

- Clearspring Tanker 4-1
  - 750 gpm pump w/2,000 gal tank
- Potomac Valley Engine/ Tanker 11
  - 1,500 gpm pump w/1,000 gal tank

Drill Participants

- Boonsboro Engine/Tanker 8
  - 1,500 gpm pump w/1,500 gal tank
- Mt Aetna Tanker 16
  - 1,000 gpm pump w/2,000 gal tank

Drill Participants

- Fairplay Tanker 12
  - 1,250 gpm pump w/1,500 gal tank
- Maugansville Tanker 13
  - 1,250 gpm pump w/3,000 gal tank

Drill Participants

- Wolfsville Engine/Tanker 212
  - 1,500 gpm pump w/1,500 gal tank
- Hagerstown Engine 4
  - 1,500 gpm pump w/500 gal tank

Drill Participants

- Purcellville Engine 602
  - 1,250 gpm pump w/750 gal tank
- Middletown Tanker 7
  - 1,250 gpm pump w/3,000 gal tank

Preparation

Units staged at a local park in Williamsport where they ate lunch, received drill assignments and completed a safety briefing.

The Drill Begins

Williamsport Engine 21, Purcellville Engine 602, and Clearspring Tanker 4 were the first arriving units at the recycling center. The crews split up and went to work setting up a nurse tanker operation for the first part of the drill. Engine 21 functioned as the attack pumper and laid a 4-inch supply line.

Dump Site Operations

Engine 602 begins setting up the dump site. A 4-inch double-clappered siamese was used on the end of Engine 21's supply line in order to support a nurse tanker operation that could eventually transition to a dump site operation without interruption of water flow.

Water Flow Starts

At the 5:00 minute mark, water flow was started at 250 gpm using a HoseMonster flow diffuser device supplied by Engine 21.

Dump Site Operations

Additional tankers were bundled in “tanker task forces.” Units on the first tanker task force are shown arriving at the dump site and staging. Meanwhile, an engine company has reported to the first fill site and begun setting up to load tankers.

Dump Site Operations

Maugansville Tanker 13 (3,000 gal) was the first tanker to dump a load of water. Clearspring Tanker 4 (3,000 gal) pumped off its first load of water using the "rural hitch" set up.

Dump Site Operations

As the dump site was brought on line, the dump site engine set up to supply the other side of the double-clappered siamese – thus completing the transition.

Dump Site Operations

At the 16-minute mark, the flow was moved to 500 gpm and a dump site operation was completely underway. The nurse tanker line was left in place in case it might be needed later.

Dump Site Operations

Crews set up a three-dump tank operation with multiple jet siphon transfer devices.

Dump Site Operations

Units on the second tanker task force are seen staged in the background as flow continues at 500 gpm through the flow diffuser.

Dump Site Operations

Clearspring Tanker 4-1 (2,000 gal) could only dump from the rear, thus it positioned past the last dump tank and backed up to the tank so that the side dumping tankers would not be blocked out.

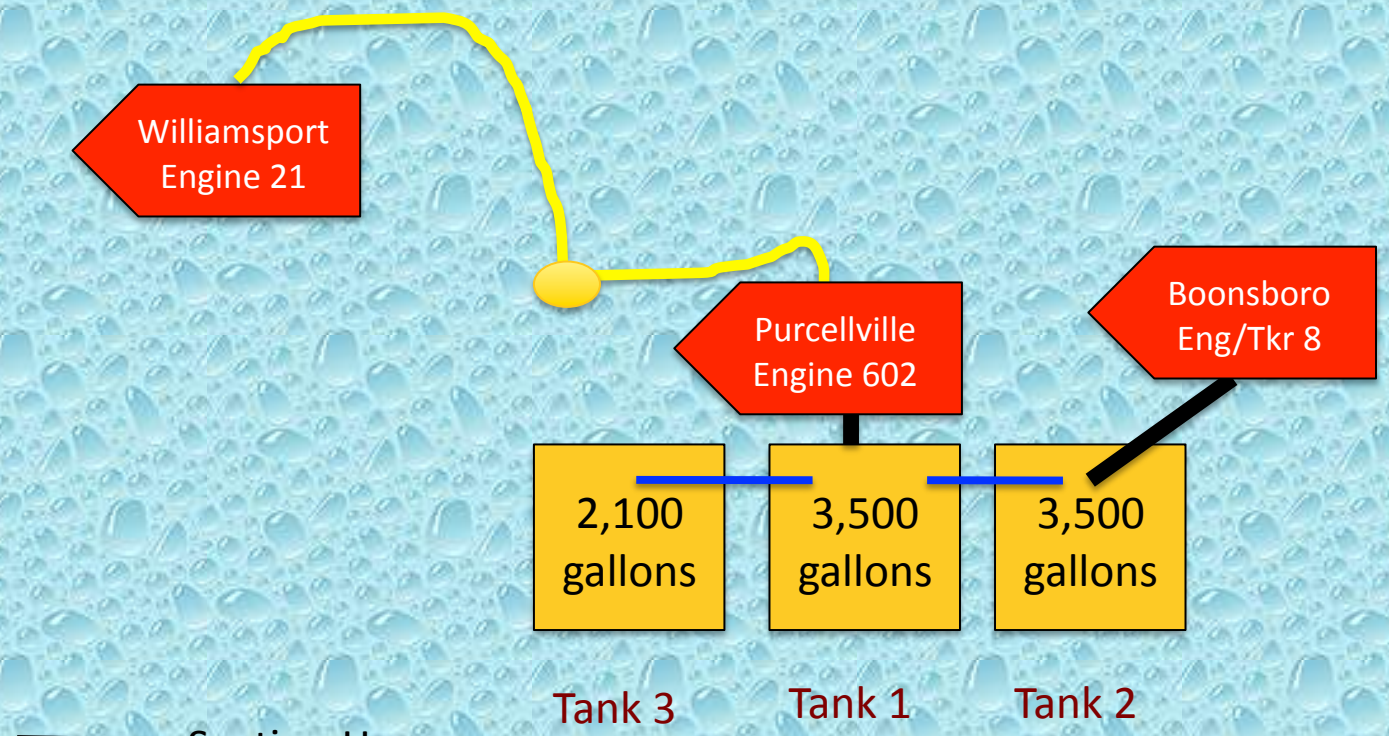
Dump Site Operations

The next time Tanker 4-1 arrived at the dump site, they pumped off their water using the clappered siamese because another rear dumping tanker was using the offloading spot.

Dump Site Operations

In the end, the dump site operation was able to reach a peak flow of 750 gpm at times. However, struggles at one of the fill sites limited the dump site ability to support the peak flow with any regularity.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used. One to the east and one to the west of the dump site.
- The first fill site was set up on Rockdale Road at a creek west of the dump site and provided about a 4.8-mile round trip for the units hauling water.
- The creek provided ample water volume, however access and quality was a problem.
- A 1,500 gpm pumper and a 750 gpm pumper were used at the creek to support the tanker fill station.

The Fill Sites

- The second fill site was located at a fire hydrant near Route 40 east of the dump site and provided about a 3.8-mile round trip for the units hauling water.
- The site used a traditional fire hydrant that provided ample water volume to support the drill and access was not a problem.
- A single, 1,500 gpm pumper was used at the pond to support the tanker fill station.

Creek Fill Site

Clearspring Engine 4-1 (1500 gpm) and Williamsport Engine 24 (750 gpm) were assigned to build out a fill site at this creek.

Creek Fill Site

While water quantity was ample, quality was poor due to depth and debris. The crews at this site struggled to keep suction strainers clear of debris. They still were able to load tankers throughout the 2-hr drill – just well below the 1,000 gpm loading goal.

Creek Fill Site

Engine 24's crew is seen here working to get a suction line out into an adequate depth of water.

Hydrant Fill Site

The hydrant fill site worked just fine and was able to load tankers and easily meet the 1,000 gpm loading rate.

The Results

- The drill was stopped at the 115-minute mark due to time constraints.
- Water flow was interrupted once during the drill – at the 20-minute mark for about five and half minutes.
- The flow interruption was the result of water transfer operation issues at the dump site and tanker loading rate issues at the creek fill site.
- Flow peaked at 750 gpm a few times during the drill.

The Lessons Learned

- At this drill, an attack pumper and a supply pumper were used at the dump site. This arrangement allowed for each pump operator to focus on just one area of operation – attack ops or supply ops.
- The use of the clappered siamese and the nurse tanker during the first ten minutes of the drill proved critical to establishing and supporting the initial flow.

The Lessons Learned

- Dump tank arrangement is critical to successful dump site ops. At this drill, the dump tanks were arranged to support side dumping tankers. The few tankers that had to dump off of the rear were able to access the end dump tank and not block out other units.
- Jet siphons consume pump capacity. Shedding the jet siphon operation to the Boonsboro engine/tanker aided the 1,250 gpm dump site pumper in being able to support the attack pumper.

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 all of the tanker fill connections were the same.
- Having a standardized fill connection for all tankers increases fill efficiency and decreases fill time.

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.

The Lessons Learned

- Drafting operations from static water sources require good access, good water quality, and adequate capacity.
- The creek fill site at this drill had limited access to good quality water and that proved problematic the entire time – thus severely limiting the loading rate of tankers at that 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 Williamsport Volunteer Fire and EMS for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

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