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Wildcat Township Volunteer Fire Rescue
Windfall, Indiana

Rural Water Supply Operations Seminar
2-hr Water Supply Drill – 1000 GPM Club
August 19, 2018
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

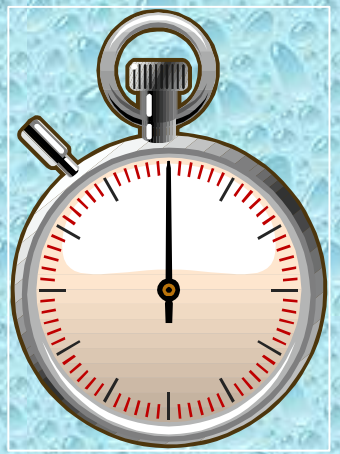
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Wildcat Twp Volunteer Fire Rescue station in Windfall, Indiana.
- Once the classroom part was done, the seminar continued with 8 hours of practical work 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 Tipton County and surrounding area.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on August 19th at a local wind farm business in Wildcat Township.
- 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 Tipton 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 Wildcat Township area.*

Drill Participants

- Wildcat Engine 61
  - 1250 gpm pump w/1000 gal tank
- Wildcat Tanker 63
  - 750 gpm pump w/3000 gal tank

Drill Participants

- Madison Engine 51
  - 1250 gpm pump w/1000 gal tank
- Madison Tanker 53
  - 750 gpm pump w/3000 gal tank

Drill Participants

- Atlanta Engine 351
  - 1250 gpm pump w/1000 gal tank
- Duck Creek Engine 881
  - 1250 gpm pump w/1000 gal tank

Drill Participants

- Sharpsville Engine 41
  - 1250 gpm pump w/1000 gal tank

No Photo Available

- Cicero Tanker 24
  - 500 gpm pump w/3000 gal tank

Drill Participants

- Kempton Tanker 33
  - 900 gpm pump w/4000 gal tank
- Sharpsville Tanker 43
  - 250 gpm pump w/3000 gal tank

Drill Participants

- Sheridan Tanker 61
  - 500 gpm pump w/3000 gal tank
- Bass Lake Tanker 14-85
  - 750 gpm pump w/3000 gal tank

The Drill Begins

Units staged at the Wildcat Twp Volunteer Fire Rescue station in Windfall. After a safety briefing, crews were assigned to apparatus and awaited dispatch. All radio communications were handled by County EMA folks.

Drill Begins

The scenario presented was that of a mutual aid response to a large fire where ladder pipe operations were awaiting the establishment of a tanker shuttle operation. Madison Engine 51 and Wildcat Tanker 63 were the first units to arrive on the scene and went to work building out a dump site operation.

Dump Site Operations

Wildcat Ladder 62 was pre-positioned for elevated master stream operations. A length of 5-inch LDH equipped with a clappered siamese was laid out by the ladder crew in preparation for the arrival of the engines and tankers. Engine 51 set up to supply the siamese using dual, 3-inch lines.

Dump Site Operations

Crews worked very hard to get the first dump tank up and running by the 5-minute mark. They chose to place the first dump tank (3000 gal) in front of Engine 51 and used a suction elbow to assist in that process.

Dump Site Operations

A Fol-Da-Tank low-level strainer was used as the suction strainer. The plan was to support the ladder truck with a 1,000 gpm flow so the dump site crew knew that they had to plan for the expansion of the system.

Dump Site Operations

At the 5-minute mark, water flow was started to the ladder truck at 500 gpm using a single, 3000-gal dump tank as supply.

Dump Site Operations

The drill used the Tanker Task Force concept. After the 1st Alarm units were working for 10-minutes, a Tanker Task Force was dispatched. Units on that Tanker Task Force are shown above arriving on the scene and staging.

Dump Site Operations

By the 29-minute mark, three dumps were in operation and 1-minute later, flow to the ladder truck was moved to 800 gpm.

Dump Site Operations

Crews deployed a fourth dump tank around the 45-minute mark and worked to get sufficient water transfer devices in operation. Sharpsville Engine 41 was brought in to support the jet siphon use by taking over pumping some of the jet siphons so that the dump site pumper could free up pump capacity to better support the ladder truck.

Dump Site Operations

At the 59-minute mark, flow was moved to 1,000 gpm. Bass Lake's vacuum tanker is shown in this photo off-loading its water. A short length of 5-inch LDH was used in lieu of suction hose on one of the jet siphons.

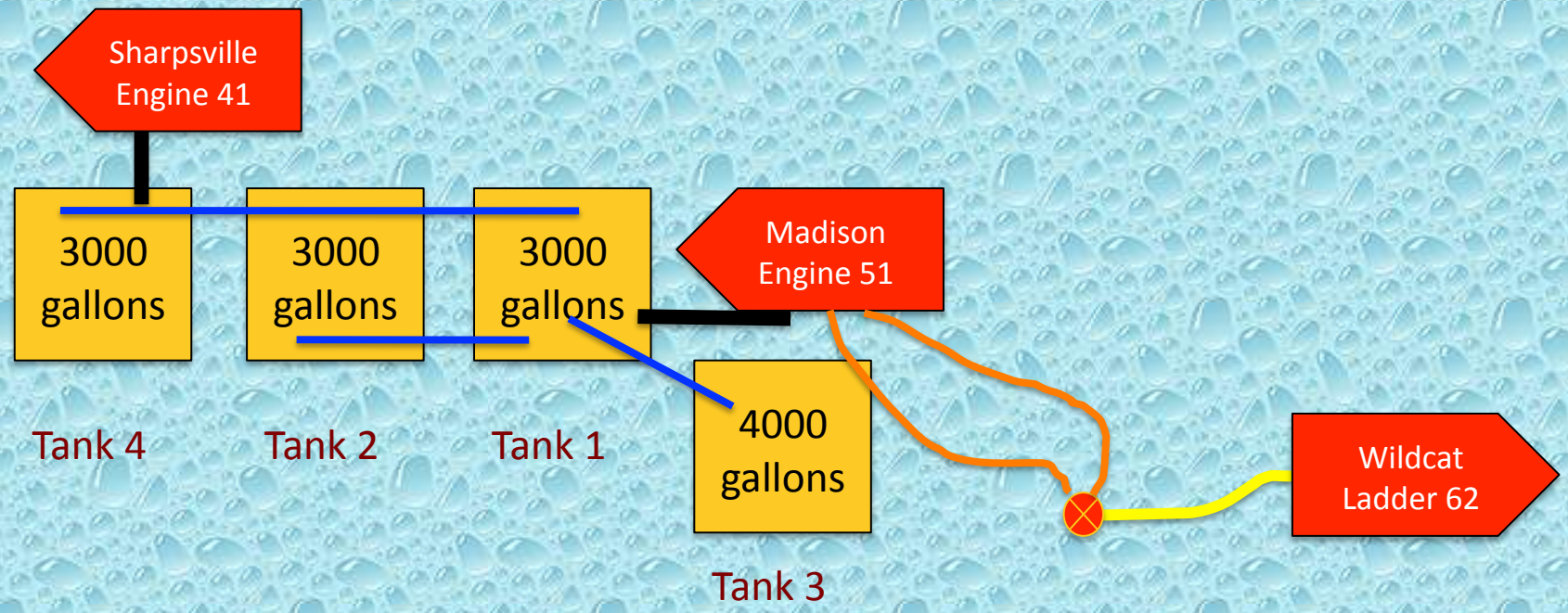
Dump Site Operations

At the 70-minute mark, flow was moved to 1,100 gpm where it was maintained for the remainder of the drill.

Dump Site Operations

The water transfer process at the drill became very critical to the success. Jet siphons and suction hose were limited in quantity so folks had to be somewhat creative in keeping the water transferring fast enough.

Dump Site Layout



The Fill Sites

- For this drill – two fill sites were used. One was a stream, the other a fire hydrant.
- The stream fill site provided about a 5.4-mile round trip for the units hauling water.
- The stream provided ample water volume to support the drill but access was a bit of a challenge.
- Two, 1250 gpm pumpers were used at the stream fill site to operate a single loading station.

The Fill Sites

- The hydrant fill site was located in town and provided about a 3.4-mile round trip for the units hauling water.
- The hydrant provided ample water volume to support the drill and access was not a problem.
- A 1250 gpm pumper was used at the hydrant to operate a single loading station.

Stream Fill Site

Wildcat Engine 61 was set up near the road and was supplied by Duck Creek Engine 881 through 500-ft of 5-inch LDH. Because flow was reduced by the front suction inlet on the Duck Creek engine, the Wildcat engine set up a dump tank and used a modified open relay to supply water for loading tankers at the 1000 gpm rate.

Stream Fill Site

Incoming tankers were loaded using either dual, 2-1/2-inch lines or a single, 5-inch line.

Stream Fill Site

The Bass Lake vacuum tanker self-loaded each time simply by accessing the water in the 3,000 gallon dump tank.

Stream Fill Site

Most of the tankers hauling water were loaded using dual, 2-1/2-inch lines controlled at Engine 61's pump panel.

Hydrant Fill Site

Atlanta Engine 351 used a Windfall fire hydrant as the water supply and loaded tankers using dual, 3-inch lines. They were able to load tankers at over 1,000 gpm.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill.
- An estimated 101,700 gallons of water were flowed through to the ladder truck during the drill producing an average flow rate of 884 gpm.
- For the last 61-minutes of the drill a flow of 1,000 gpm or greater was supplied to the ladder truck.
- The performance resulted in the folks being awarded membership in the Got Big Water 1,000 GPM Club!

The Lessons Learned

- At this drill, crews worked really fast to get the first dump tank down and in operation.
- Flow was started at 500 gpm at the 5-minute mark; which was double the ISO performance requirement.
- All of the tankers hauling water were 3,000-gallon capacity or larger.
- All of the dump tanks used were 3,000-gallon capacity or larger.

The Lessons Learned

- Suction hose was at a premium at the drill. It is best that rural pumpers and tankers carry extra suction hose as it is almost always needed at the dump site or a fill site.
- Large diameter hose clearly makes an impact on pumping operations. The use of 5-inch LDH at the stream fill site helped minimize the loss of flow from the supply 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, tanker loading connections varied, which slowed down operations in the beginning. Standardized fill connections make a big difference in reducing loading time.

The Lessons Learned

- LDH appliances are an important component of using LDH in water supply operations. Extra appliances should be carried on tankers when possible.
- Vacuum tankers are very effective in the water hauling process. At this drill, an open-relay was used to support self-loading by the vacuum tanker.

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 Tipton County Foundation for sponsoring and the Wildcat Twp Volunteer Fire Rescue for hosting this seminar.

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This program was developed by
GBW Associates, LLC

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