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MSFA Rural Water Supply Committee

Spring 2010 Water Supply Drill
Smithsburg, Maryland
May 2, 2010

Content provided by Doug Alexander, MSFA Rural Water Supply Committee Chairman

Overview

- On May 2, 2010, the Smithsburg Community Volunteer Fire Company (Washington County, Maryland) hosted the 2010 Spring, Rural Water Supply Drill of the Maryland State Fireman's Association's *Rural Water Supply Committee*. This presentation is a brief summary of the drill.

The Purpose

- The purpose of the rural water supply drill was to allow the companies in the Washington County area to practice a large-scale tanker shuttle operation in a realistic, 1st due response area environment.
- The drill actually replicated the water supply scenario that had occurred at a fire at a nearby apple orchard facility.

The Goals

- To deliver water in an efficient and effect manner.
- To replicate the ISO 2-hour Water Delivery Test by sustaining at least a 500 gpm flow for 2-hours.
- To utilize different types of water supply set-ups at the tanker fill sites.
- To verify apparatus, equipment, and communications interoperability capabilities.

The Drill

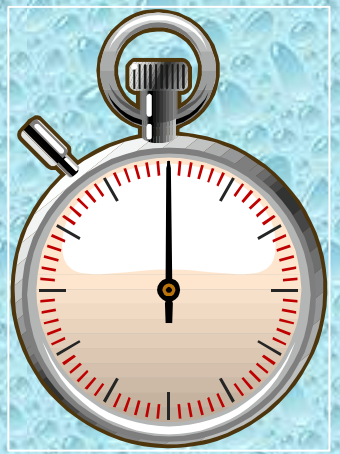
- The water supply drill was held on May 2, 2010, in Smithburg VFC's first-due area.
- The target hazard was a very large storage building at a large apple orchard facility. The storage building had actually been the site of an earlier fire and the crews were very familiar with the water supply problems that were about to be presented.

The Drill

- The drill replicated the 2-hour Water Supply Delivery Test used by ISO in their evaluation of fire department water supply capabilities.
- The ISO 2-hour test is a reasonable standard by which fire departments can compare their water supply operations.

The ISO Test

- There are three critical time segments of the ISO 2-hour Water Supply Delivery Test:
  - 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!

The Participants

- Pleasant Valley Tanker 6 – 1500 gpm, 3200 gallons
- Pleasant Valley Special Unit 6 – 1500 gpm, 500 gallons
- Winfield Tanker 14 – 1500 gpm, 3500 gallons
- Clinton Engine 825 - 2000 gpm, 500 gallons
- Clinton Water Supply 825 – 2000 gpm, 500 gallons
- Hyattstown Tanker 709 – 1500 gpm, 3500 gallons
- Laytonsville Engine 717B – 750 gpm, 500 gallons
- Laytonsville Tanker 717, 1250 gpm, 3500 gallons
- Independent Tanker 1 – 1250 gpm, 3000 gallon

The Participants

- Walkersville Engine/Tanker 114 - 1250 gpm, 2000 gallons,
- New Market Engine/Tanker 254 – 1250 gpm, 1500 gallon
- Wolfsville Engine 211 – 1000 gpm, 1000 gallons
- Wolfsville Engine/Tanker 212 – 1250 gpm, 2000 gallons
- Wolfsville Brush 216 – 500 gpm, 250 gallons
- Leitersburg Tanker 9 – 750 gpm, 2000 gallons
- Smithsburg Engine 72 – 1250 gpm, 1000 gallons
- Smithsburg Engine/Tanker 73 – 1250 gpm, 2000 gallons
- Smithsburg Engine 74 – 500 gpm, 500 gallons

The Drill Starts

Smithsburg Engine 72 arrives on the scene and starts the drill by laying out a 4-inch supply line.

The Dump Site

Meanwhile, Smithsburg's engine/tanker arrives and begins to set up for dump tank operations.

The Dump Site

With the clock now running, the attack pumper crew prepares to stretch an attack line for initial water flow. The crew also connects up the supply line so that they can transition to a water supply operation from the dump site pumper.

The Dump Site

Wolfsville E211 also laid a 4-inch supply line and prepared to move to master stream operations once an adequate water supply was established.

Water Flow Starts

Water flow was started at the 5:00 minute mark with 250 gpm through a 2-1/2-inch attack line.

Setting Up To Expand Flow

Engine 72's crew stretches a 4-inch line to support a master stream device so that flow can be increased at the 15-minute mark.

Use of LDH

The dump site was located several hundred feet from the attack pumper and the use of 4-inch hose improved the flow capability of the operation.

Flow Moves to 500 gpm

A large, flow diffuser equipped with a fixed pitot was used to measure flow at the attack engine. Here, the flow is moved to 500 gpm at the 15-minute mark.

The Dump Site

Clinton's E825 served as the dump site engine. The 2,000 gpm pumper was more than capable of supporting the needs of the attack engine.

Brush Truck Support

To provide additional support to dump site operations, Wolfsville's B216 (500 gpm) drafted from a nearby stream and fed Clinton's pumper.

Flow Moved to 1500 gpm

With both a tanker operation and a relay pumping operation supporting the fire attack, Wolfsville E211 placed its 1,000 gpm deck in service – thus moving the flow to 1,500 gpm.

The Dump Site

With the flow now at 1,500 gpm, the dump site became a very busy place. The site was located on a corner, just off of a bridge which made maneuvering a tanker a bit difficult.

The Dump Site

The positioning of the dump tanks next to a bridge made it difficult for the larger tankers to maneuver into position for offloading.

A Problem Occurs

At about 40-minutes into the drill, a coupling failed at the dump site and the crew had to work quickly to get the broken section of hose replaced.

A 3 Tank Operation

After a brief interruption in flow to replace the broken section of 4-inch hose, the operation was back up and running. The operation moved to a 3-tank set-up. In addition, the dump site pumper also received water from the nearby brush truck and from a 5-inch hose relay from a pond about 2,000 ft away.

The Dump Site

The key to the success at this dump site was the use of a large capacity pumper and large capacity dump tanks.

Fill Site Operations

- For the drill, there were three fill sites – two streams and a pond.
- The pond provided the farthest round trip.
- The primary issue was that a 500 gpm pumper was used as the fill site pumper at one of the streams (the closest one) and that hampered the fill rate.

Fill Site #1

Smithsburg Engine 74 (500 gpm) struggled to provide an effective fill rate even though they had good access to water.

Fill Site #1

In addition, Engine 74 was using 3-inch hose to fill tankers that had large direct fill lines – this also hampered the fill rate.

Fill Site #1

Fortunately, a rig with some 4-inch hose arrived and the fill site was able to change-over to a 4-inch fill line – thus improving the fill rates some.

Fill Site #2

National Institute of Health FD's hose trailer was used to provide 5-inch hose at Fill Site #2.

Fill Site #2

The water source for this fill site was a pond several hundred feet from the main road. The NIH rig was used to lay 5-inch LDH from the pumper at the pond to the main road where an LDH manifold was used at the loading site.

Fill Site #2

Clinton's Water Supply 825 used its 2,000 gpm pump to provide water for this fill site.

Fill Site #2

The water supply rig used a dry hydrant at the pond and was able to maintain a strong flow of water.

Fill Site #3

The 3rd fill site was supported by Pleasant Valley Special Unit 6 (1,500 gpm). The crew drafted from a stream and pumped water to the dump site through about 2,000 feet of 5-inch hose. They also filled tankers.

Fill Site #3

When not pumping to the dump site, the crew filled tankers using an LDH manifold and 5-inch hose.

The Results

- There were limited interruptions in flow throughout the drill.
- The average flow was just over 1,300 gpm for the drill, however at one point near the end of the drill the flow was 2,188 gpm
- The hose tender (trailer) was quite interesting. It was a good resource but seemed a bit slow to deploy. However, it did save a considerable amount of work in picking up the hose.
- Pleasant Valley with their Special Unit 6 pretty much conducted a clinic on how to use a pond. They probably provided nearly half of the water flowed one way or another. They managed to keep 1000 gpm flowing in the 5”line, and still fill a few small tankers. They were resourceful enough to use all 6 of their hard sleeves to reach the deep water in the pond so that they could maintain the high flow without issues.

The Results

- After the drill, lunch was provided by the fire company and a post drill analysis was held where everyone shared information on the positives and negatives experienced during the drill.
- Many thanks to everyone involved in making the Spring drill another success!

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For more information contact us at
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