



2-hr Tanker Shuttle Exercise
September 26, 2009
Summary Report



Overview

On September 26, 2009, the Laytonsville District VFD (Montgomery County, Maryland) hosted the 2009 Fall, Rural Water Supply Drill of the Maryland State Fireman's Association's *Rural Water Supply Committee*. This presentation is a summary of the drill.



The Purpose

- The purpose of the rural water supply drill was to allow the companies in the northeastern part of Montgomery County to practice a large-scale tanker shuttle operation in a realistic, 1st due response area environment.

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 September 26, 2009, in Laytonsville District VFD's first-due area.
- The target hazard was a large, commercial landscaping company complex with numerous structures and no municipal water system.
- 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.

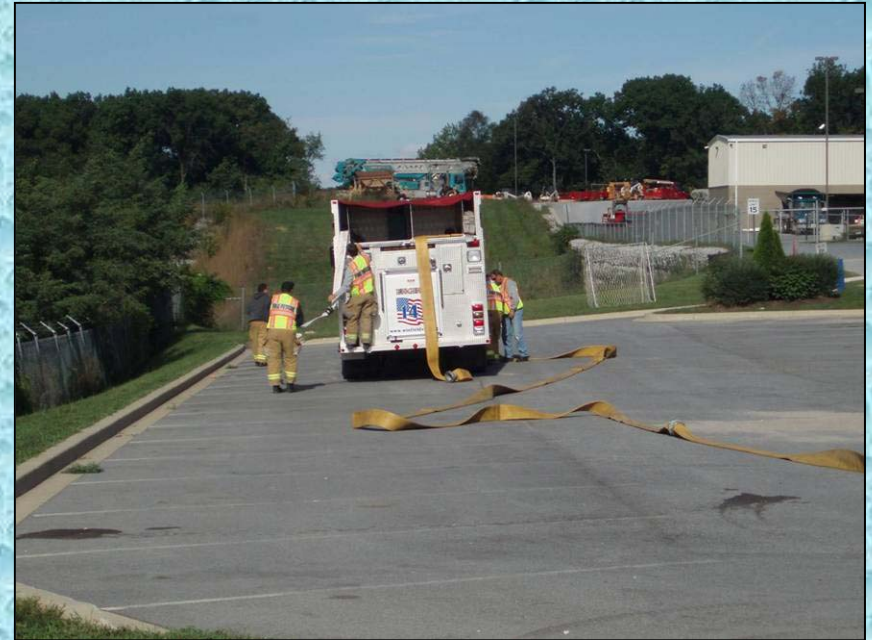
The Drill: A Review

- There are three critical time segments of the ISO 2-hour Test:
 - 0:00 to 5:00 minutes
 - 5:01 to 15:00 minutes
 - 15:01 to 120:00 minutes



The Drill: 0:00 to 5:00 Minutes

- A drill site is selected and the units due to respond on the first-alarm assignment for that site 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 when the 5-minute mark is reached.



The Drill: 5:01 to 15:00 Minutes



- At the 5-minute mark, a flow of at least 250 gpm must begin and 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, whatever the flow rate is at that time, that rate must be maintained for the remainder of the 2-hour test.

The Drill: 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.
- Most of these ISO drills include the simulation of mutual aid response and allow additional water supply units to arrive and assist in the delivery process as they would at a real incident.



The Participants

The participants for the Laytonsville drill came from seven Maryland counties and the apparatus was representative of the type of water supply support that would respond to a structure fire in the northeastern part of Montgomery County.

The Participants

- Laytonsville VFD
Engine/Tanker 717
 - 1,750 gpm pump
w/2,000 gal tank
- Laytonsville VFD
Tanker 717
 - 3,500 gal tank
w/1250 gpm pump



The Participants

- Laytonsville VFD
Engine 717B
 - 750 gpm pump
w/500 gal tank

- Montgomery County
Engine 713
 - 1500 gpm pump
w/750 gal tank



The Participants

- Pleasant Valley VFD (Carroll Co) Tanker 6
 - 3200 gal tank w/1500 gpm pump
- Montgomery County Reserve Engine 18
 - 1,250 gpm pump w/750 gal tank



The Participants

- Upper Montgomery County VFD Tanker 714
 - 3,500 gal tank w/1250 gpm pump

- Winfield VFD (Carroll County) Tanker 14
 - 3500 gal tanker w/ 1500 gpm pump



The Participants

- Sandy Spring VFD
Tanker 704
 - 3,500 gal tank w/1,250 gpm pump

- Hyattstown VFD
Tanker 709
 - 3,500 gal tank w/1,250 gpm pump



The Participants

- Clinton VFD (Prince Georges Co) Engine 251
 - 2000 gpm pumper

- Clinton VFD (Prince Georges Co) Water Supply Support 25
 - 2,000 ft 5-inch hose



The Participants

- 5th District VFD
(Howard Co) Tanker 5
 - 4000 gal tank w/ 1000 gpm pump

- 5th District VFD
(Howard Co) Engine 52
 - 1500 gpm pump



The Participants

- Benedict VFC
(Charles Co)
Tanker 5
 - 3,800 gal tank
w/1,000 gpm
- Wolfsville VFD
(Washington Co)
Engine Tanker 212



The Participants

- New Market VFD
(Frederick Co) Engine
154
 - 1250 gpm pump
w/2000 gal tank
- Burtonsville VFD
Engine 715
 - 1500 gpm pump w/500
gal tank



The Participants

- Mt Airy VFC (Carroll Co) Rescue 1
 - 1,500 gpm pump w/500 gal tank
- Pleasant Valley VFC (Carroll Co) Special Unit 6
 - 1,500 gpm pump w/500 gal tank



The Operational Briefing



Participants gathered in Laytonsville VFD's engine room for an operational briefing that included a review of the goals and objectives as well as a safety briefing.

Units Are Staged



Apparatus was staged across the street from the fire station at a local school. Units were dispatched in a response order that simulated a real incident in the Laytonsville response district.

The Drill Begins



After dispatched, units arrived on the scene and the drill began. MCFRS Reserve Engine 18 (white) was running as E701 and arrived on the scene first. The crew laid a 4-inch supply line and got ready to stretch an attack line. The timer started once the engine came to a stop.

The Drill Begins



Damascus E713 arrives and begins to set-up the dump site. Tanker 717 also arrives and prepares to support the operation with its 3,500 gallons.

The Drill Begins



The attack engine laid out using a double-clappered siamese and the dump site engine prepared to support that device.

Nurse Tanker Operations



Engine Tanker 717 (right) gets into position to operate as a nurse tanker until the dump site can get up and running.

Dump Site Set-up



E713's crew hustles to get the dump site ready to accept tankers arriving to dump their water.

Water Flow Begins



At the 2:24-minute mark (a bit early), water flow is started at 250 gpm through a 2-1/2-inch hand line.

Dump Site Set-up



The dump site engine's crew continues to work hard to set up the dump site. The 4-inch, blue supply line will be used to pump water from E713 to the attack engine.

Nurse Tanker Operations



With the dump site not yet operational, ET717 begins nurse tanker operations and supplies water to the attack engine.

Waiting on Water



With water flowing at 250 gpm, the attack crew and nurse tanker anxiously await the arrival of water from the dump site engine.

250 GPM



The 250 gpm flow continues uninterrupted thus far.

Attack Engine Operations



The operator of the attack engine must work closely with the operator of the nurse tanker in order to sustain the water flow.

Blitzfire Line is Stretched



In preparation for moving to a 500 gpm flow at the 15:00 minute mark, a TFT Blitzfire is deployed and fed by a 3-inch hose line.

Nurse Operations Continue



Engine Tanker 717 gives its water to the attack engine while still waiting on the dump site to become operational.

Incident Command



DC Burns assumes the command and establishes a stationary command post. Water Supply Operations are handled on a single talk group.

Dump Site Operations



There was some delay in getting the dump site up and running so nurse tanker operations are continuing while the folks troubleshoot the problem.

Two Dump Tanks



Two dump tanks are in operation and additional tankers begin to arrive to support the fire flow demand. The dump site engine encounters difficulty drafting and at the 12:28 minute mark – water flow is interrupted for about two minutes.

Dump Site Operations



Tanker 717 is shown here dumping its 3,500 gallons into a 4,000 gallon portable dump tank – which belongs to Tanker 717.

More Tankers Arrive



At the 16:00 minute mark, the flow is moved to 500 gpm and more tankers begin off-loading their water. Here, Sandy Spring Tanker 704 uses its rear dump to off-load.

Pumping It Off



A problem is encountered with the dump site engine again and they can no longer draft, so Tanker 704 has to switch to pumping off its water. The problem is that by using their rear dump instead of their side dump to offload, they now have the travel route blocked and no other tankers can dump. This causes a problem when the dump site pumper tries to resume drafting operations – there is no water in the primary dump tank.

Hydraulic Pump Used



Fifth District Engine 52 uses its portable, hydraulic pump to assist the draft pumper in obtaining a draft and supplying the attack pumper. The hydraulic pump is a unique device that has many applications in rural water operations.

Dump Site Engine Gets Supplied



Color-coded hose helps sort out this photo. The blue hose feeds the siamese going to the attack pumper. The red hose is a supply from Engine 52's hydraulic pump, the yellow hose feeding the siamese comes from the nurse tanker.

Canteen Service



Of course – any large scale FD operation needs support for the troops, so the Laytonsville canteen was on scene to provide food and beverage service to the participants.

More Tankers Arrive



**Upper Montgomery County VFD
Tanker 714**



**Winfield Community VFD
Tanker 14**

As the operation grows, more tankers arrive and get in line to dump their water.

Tie Up Those Drains



Dump tank drains often prove to be problematic when they are not properly secured. Fewer problems are encountered when drains are tied up on the inside of the tank instead of on the outside of the tank. When tied up inside, the water forces the drain closed.

Dump Site Operations



At around the 25:00 minute mark, a third dump tank is put into operation to support the flow.

Another Nurse Tanker



With Engine Tanker 717 out of water, Hyattstown VFD Tanker 709 is moved into position as the dedicated nurse tanker in case dump site operations are interrupted again.

Tanker 6 Offloads



Pleasant Valley Community VFC Tanker 6 drops its water into the third dump tank – a 3,500-gallon tank from Tanker 704.

Operation is Stabilized



With three dump tanks in use, the operation has stabilized and water flow to the attack pumper is consistent and reliable.

Fourth Tank Set Up



At the 35:00 minute mark, in preparation to move to a higher flow, a fourth dump tank (4,000 gallons) is set-up. It was originally placed next to the third tank but was moved to the other end in order to be closer to the draft pumper.

Flow Increased to 1,000 gpm



At 55:00 minutes, the flow is moved to 1,000 gpm using two devices.

A Five Dump Tank Operation



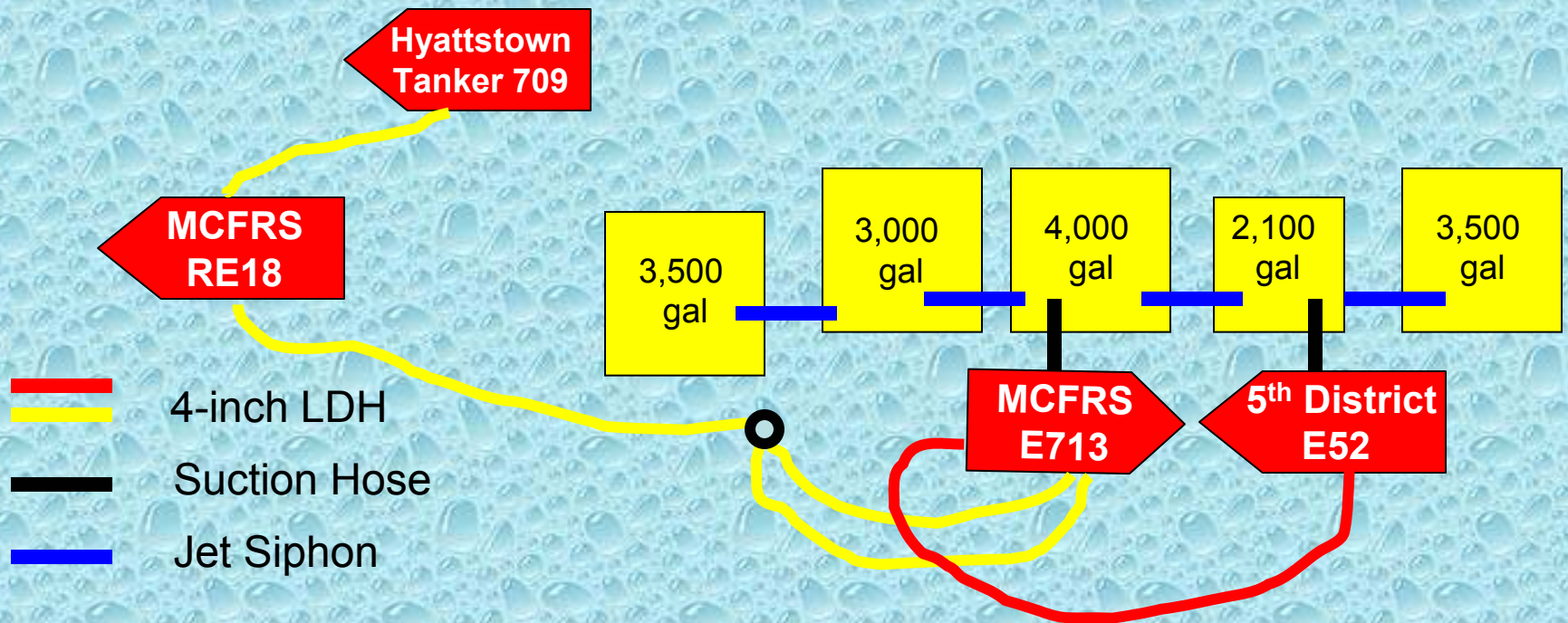
Around the 65:00 minute mark, a 5th dump tank (3,500 gallons) was added. The roof ladder shown above was used to gain some distance between tanks so that two, large tankers could off-load at one time.

The Dump Site: A Busy Place



At the 100-minute mark the flow was moved to 1,250 gpm and at the 110-minute mark, a second, 4-inch supply line was stretched to the attack pumper because the draft pumper could not supply that high of a flow through a single supply line.

Dump Site: Final Layout



The Fill Sites

- There were three fill sites used at this drill.
- Each fill site presented a different fill arrangement as well as round trip mileage.
- The fill sites included the use of fire hydrant, a stream, and a farm pond.

Bowman Acres Fill Site



Burtonsville VFD Engine 715 (1,500 gpm) was used as the pumper at this fill site. The crew hooked up the pumper to the hydrant and filled tankers using a 4-inch hose line. Note the use of the gate valve on the 2-1/2-inch hydrant outlet – this allows the addition of another supply line without shutting down the hydrant in order to make the connection.

Bowman Acres Fill Site



A 4-inch, jumbo wye was used to provide two, 4-inch lines for tanker fill operations.

Bowman Acres Fill Site



As can be seen on E715's intake gauge, this hydrant had plenty of water and pressure to support tanker fill operations.

Bowman Acres Fill Site



Pleasant Valley Tanker 6 arrives and gets set up to be filled by E715's crew.

Bowman Acres Fill Site



The 4-inch fill hose is connected to the tanker's large, direct fill line which allows for quick filling.

Annapolis Rock Fill Site



Two pumpers are set-up at this fill site which is located at a bridge over the Patapsco River.

Annapolis Rock Fill Site



Clinton VFD's 2,000 gpm pumper drafted from the river and used 5-inch hose to fill tankers.

Annapolis Rock Fill Site



The Clinton crew is well known for their water supply work and at this drill, they tried to replicate the work of a NASCAR pit crew.

Annapolis Rock Fill Site



The use of a large volume pump at the draft site maximizes the ability to fill tankers because the impact of lift is minimized.

Annapolis Rock Fill Site



The Clinton pumper drafted through 40-ft of hard suction and used a Kocheck floating barrel strainer.

Annapolis Rock Fill Site



Many departments have had success using Storz fittings on their suction hose. The Storz fittings with “long ear” handles reduce the “lining up” problems often associated with trying to make threaded connections on traditional suction hose.

Annapolis Rock Fill Site



The Clinton “pit crew” is shown here filling Sandy Spring’s tanker via a 5-inch fill hose.

Annapolis Rock Fill Site



Mt Airy VFC Rescue 1 (a 1,500 gpm rescue/engine) also drafted from the river and operated a second, independent fill site.

Annapolis Rock Fill Site



Rescue 1 drafted using 20-ft of 6-inch suction hose and a Kochek floating barrel strainer.

Annapolis Rock Fill Site



The Mt Airy crew then used a 5-inch hose as the fill hose for tanker filling operations.

Damascus Road Fill Site



This fill site was a large, farm pond that was located about 2,000 feet from the main entrance to the farm.

Damascus Road Fill Site



Pleasant Valley's Special Unit 6 (1,500 gpm) takes dual suction at the pond so that it can maximize its pumping capacity. Water was then pumped via a 5-inch hose to a LDH manifold for tanker fill operations.

Damascus Road Fill Site



Special Unit 6 used two, Kocheck floating barrel strainers for their drafting operation.

Damascus Road Fill Site



Laytonsville VFD Engine 717B (750 gpm) was also used at this site to support tanker fill operations. It drafted and supplied water via a 4-inch supply line.

Damascus Road Fill Site



Each pumper pumped through about 2,000 ft of hose to LDH manifolds where additional crew members filled tankers.

Damascus Road Fill Site



Winfield VFD Tanker 14 is shown here getting filled. By laying the LDH from the barn area to the pond, the need to maneuver tankers back to the pond was eliminated – thus improving tanker fill time.

Lunch!!!



Of course, what would a water supply drill be without some good food? The Laytonsville Auxiliary provided quite a spread for lunch. Once everyone ate, a review of the drill was conducted and units were released.

The Hosts



Much thanks to Chief Buddy Sutton and the members of the Laytonsville VFD for their planning and organization - and for being excellent hosts.

The Results

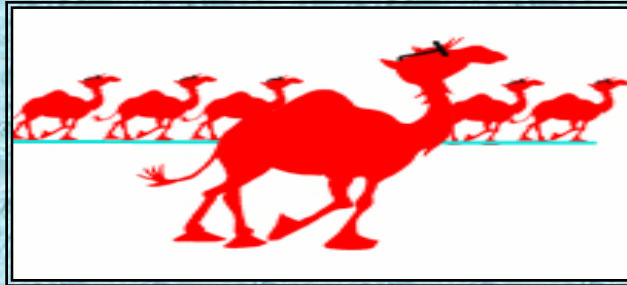
- The drill concluded after 120-minutes of operation.
- Unfortunately, water flow was interrupted at the 12:28-minute mark and was restored at the 14:33-minute mark.
- As with many real life, water supply operations, the difficulty occurred while trying to transition from nurse tanker operation to dump tank operation.
- And – as with many real life water supply operations, the crews worked through the problems and were able to develop a sustainable water flow.

The Results

- Approximately 92,375 total gallons were flowed during the 2-hour event (actually, 115.5 minutes due to interruption) which averaged out to about **800 gpm**.
- In addition, interoperability was superb – few adaptors were needed and when they were, they were readily available.

Summary

- Again, this drill emphasizes the importance of a smooth transition to dump tank operations when switching over from nurse tanker operations.
- Also once again, the drill showed the value of having large tankers available early in the response and the value of using multiple-dump tanks.
- All of the crews worked very well together and all of the apparatus proved quite capable of delivering water.
- Many thanks to the Laytonsville District VFD for hosting the program and providing an excellent facility for the briefings and refreshments.
- Finally, thanks is in order to the MSFA Rural Water Supply Committee for providing support for the drill.



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