

www.GotBigWater.com



District 7 Fire Rescue
Bexar County, Texas

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 24, 2024
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 District 7 Fire Rescue Station 116.
- Once the classroom part was over, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tender shuttle exercise and program review.
- Seminar participants were from Bexar County and the surrounding area.

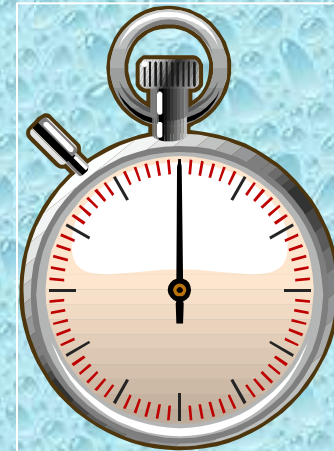
The 2-hour Water Supply Drill

- The tender shuttle drill was held on May 24th at Station 116.
- 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 tender 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

Participants				
Department	Unit	Pump Size	Tank Size	Dump Tank
District 7	Engine 115	1500 gpm	750 gal	NA
District 7	Engine 116	1500 gpm	750 gal	NA
District 7	Tender 115	1000 gpm	2000 gal	2100 gal
Bexar ESD#2	Tender 124	1500 gpm	3000 gal	3000 gal
Bexar-Bulverde	Tender 104	2000 gpm	3000 gal	4000 gal
Medina ESD#1	Tender 8110	500 gpm	3000 gal	3000 gal
Medina ESD#1	Tender 8115	1000 gpm	3000 gal	3000 gal
Bexar ESD#8	Engine 181	1250 gpm	1000 gal	NA
Leon Springs	Engine 133	1000 gpm	2000 gal	2500 gal
Helotes	Tender 138	500 gpm	2200 gal	2500 gal
Boerne	Tender 49	500 gpm	2000 gal	2500 gal

- The participants for the drill were from several different fire departments in the Bexar 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 District 7 area.*

The Drill Begins



District 7 Engine 116 (1500 gpm) arrives on the scene and the crew goes to work setting up for dump tank operations.

Dump Site Operations



Water flow got started around the 2-minute mark but then got interrupted for a bit while crews finished the drafting set up.

Dump Site Operations



By the 8-minute mark, the first dump tank is in operation and water flow is restored to 300 gpm at a Mercury nozzle. A second dump tank is also deployed.

Dump Site Operations



Around the 13.5-minute mark a TFT low level strainer replaced the initial strainer to improve the intake into the pumper. This made a big difference later on when the pump had to pump 800 gpm plus supply three jet siphons.

Dump Site Operations



Around the 15-minute mark, flow was moved to 500 gpm and work was underway to expand the dump site some more..

Dump Site Operations



By the 26-minute mark, the second Tender Task Force was dispatched and four dump tanks were now down...three were in operation.

Dump Site Operations



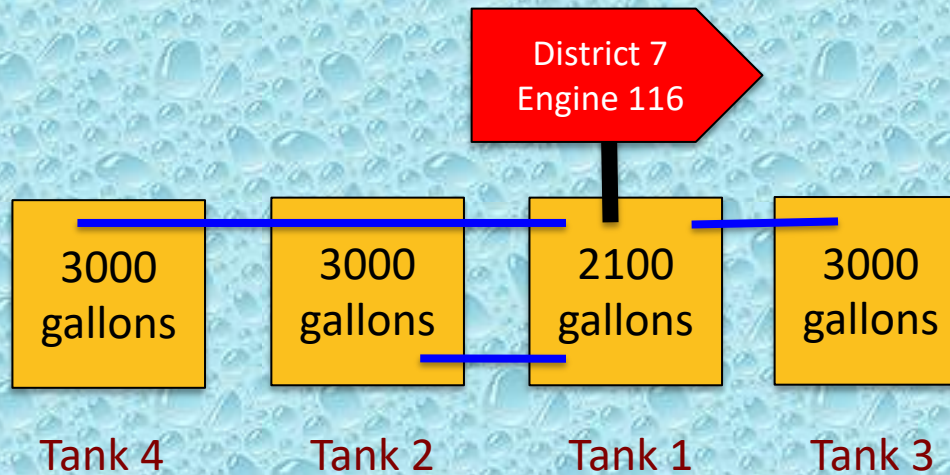
At the 45-minute mark flow was moved to 800 gpm using Engine 116's pre-piped deck gun.

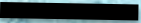

Dump Site Operations



The final layout. Four dump tanks, two fill sites, and eight tenders were used to support the 800 gpm flow at this drill.

Dump Site Layout



 Suction Hose
 Jet Siphon

The Fill Sites

- For this drill, two fill sites were used; both were pressurized fire hydrants.
- A third fill site...a creek...was abandoned due to insufficient water volume.
- The fill sites provided around a 3-mile and 6-mile round trip for the units hauling water.
- The hydrants had ample water to support the operations.
- A 1250 gpm and a 1500 gpm pumper were used to supply the tender loading sites.

Hydrant Fill Site #1



Bexar ESD#8's Engine 181 (1250 gpm) served as the fill site pumper at the first loading station. The pressurized hydrants provided plenty of water to support the operation.

Hydrant Fill Site #1



When possible, the crews tried to use LDH to load the tenders at the 1000 gpm target fill rate.

Creek Fill Site



A nearby creek was a planned third fill site but it did not work out due to low water level at the time of the drill.

Hydrant Fill Site #2



After the creek fill site was abandoned District 7's Engine 115 relocated to another fire hydrant and set-up a tender loading site there.

The Results

- The drill was stopped at the 115-minute mark.
- Water flow was interrupted twice for just a about a minute each time: once during the initial set-up and once much later when a jet siphon broke.
- An estimated 73,000 gallons of water were flowed through Engine 116 during the drill producing an average flow rate of 680 gpm.
- For the last 48-minutes of the drill a flow of 800 gpm or greater was supplied.

The Lessons Learned

- At this drill, crews chose to deploy a dump tank as soon as possible in lieu of a nurse tender operation.
- The development of a dump tank operation was hindered for a couple minutes while the crew had to overcome a drafting issue.
- Once the first dump tank was up and running the operation ran almost flawlessly.

The Lessons Learned

- As the flow increased, the dump site crew changed out the suction strainer to a top-performing low-level strainer in order to allow maximum water into the pumper using the one intake.
- The use of a large body pump powered by sufficient motor horsepower at the dump site allowed one rig to supply the entire operation.

The Lessons Learned

- A tender fill-site needs to run like a NASCAR pit stop. Anything that slows down the loading of tenders is going to reduce the efficiency of the tender shuttle.
- At this drill, there was some variance in how the tenders loaded – meaning the fill connection. This slowed the filling operation some.

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 tender – as well as adaptors.
- The “bundling” of water hauling mutual aid resources has proven successful in many drills. The tender 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 District 7 Fire Rescue for sponsoring and hosting the seminar.



www.GotBigWater.com

*This program was developed by
GBW Associates, LLC
Copyright © 2024*

*No part may be used or copied
without expressed written consent.*

*For more information contact us at
thebigcamel@gotbigwater.com*