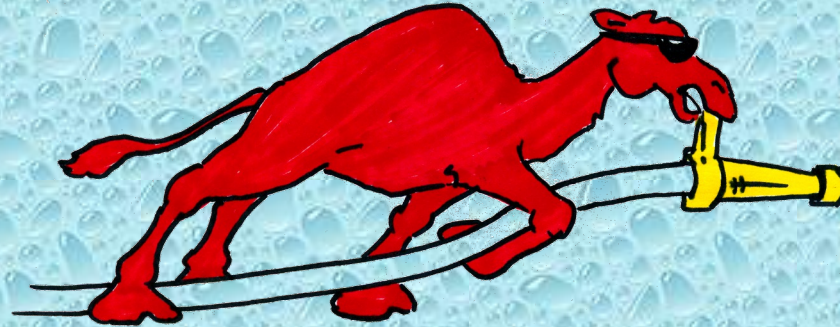


www.GotBigWater.com



Catawba Valley Community College
Catawba County, North Carolina

Rural Water Supply Operations Seminar
May 7, 2023
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 St Stephens fire station.
- 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 tanker shuttle exercise and program review.
- Seminar participants were from Catawba County and the surrounding area.

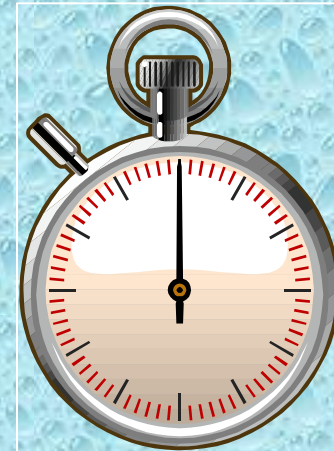
The 2-hour Water Supply Drill

- The tanker shuttle drill was held on May 7th at a nearby boy's camp along Lake Hickory.
- 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

Participants				
Department	Unit	Pump Size	Tank Size	Dump Tank
Oxford	E132	1500 gpm	1000 gal	NA
Maiden	Tanker 1	500 gpm	1800 gal	2100 gal
Catawba	Engine 83	1500 gpm	1250 gal	2100 gal
Conover	Engine 4	1500 gpm	1000 gal	NA
Newton	Engine 5	1500 gpm	1500 gal	1500 gal
Denver	Tanker 10	500 gpm	2000 gal	(2) 2100 gal
Mountain View	Tanker 126	500 gpm	1500 gal	1500 gal
Oxford	Marine13	300 gpm	NA	NA
Sherrils Ford	Tanker 1	1000 gpm	2100 gal	2100 gal
St Stephens	Engine 42	1500 gpm	1000 gal	NA
St Stephens	Tanker 46	1000 gpm	2000 gal	2100 gal

- The participants for the drill were from several different fire departments in the Catawba 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 St Stephens area.*

The Drill Begins



Conover Engine 4 arrives on the scene as the attack pumper and lays out a 5-inch LDH supply line.

Dump Site Operations



St Stephens Engine 42 arrives next and goes to work setting up to supply Conover Engine 4. The initial plan was to use tank water (1000 gal) until a dump site could be set up.

Dump Site Operations



At the 5-minute mark, water flow was started at 250 gpm. At the 8-minute mark, the 1st dump tank is in operation.

Dump Site Operations



Additional tankers begin to arrive and off-load their water as the operation transitions to a dump tank operation. Flow was moved to 500 gpm around the 15-minute mark.

Dump Site Operations



With the flow now at 500 gpm and operations moved to a dump tank set-up, Oxford Marine 13 was dispatched to assist with water supply operations.

Dump Site Operations



A supply line holder is placed on the primary dump tank in anticipation of Marine 13 supplying water from Lake Hickory to the dump site. Even though Marine 13 was limited in pump capacity, its contribution really made a difference in sustained water flow in between the arrival of tankers.

Dump Site Operations



Marine 13 (300 gpm) took draft from Lake Hickory and supplied water up the shoreline to the dump site..

Dump Site Operations



The use of a gate valve on the supply line holder allowed the folks at the dump site to control water flow into the primary dump if needed. It was never needed.

Dump Site Operations



Maiden Tanker 1 engages the jet dump feature on the 8-inch dump and very quickly offloads its water. This jet dump was quite impressive!

Dump Site Operations



Around the 38-minute mark two dump tanks were in use and a third was being set up..

Dump Site Operations



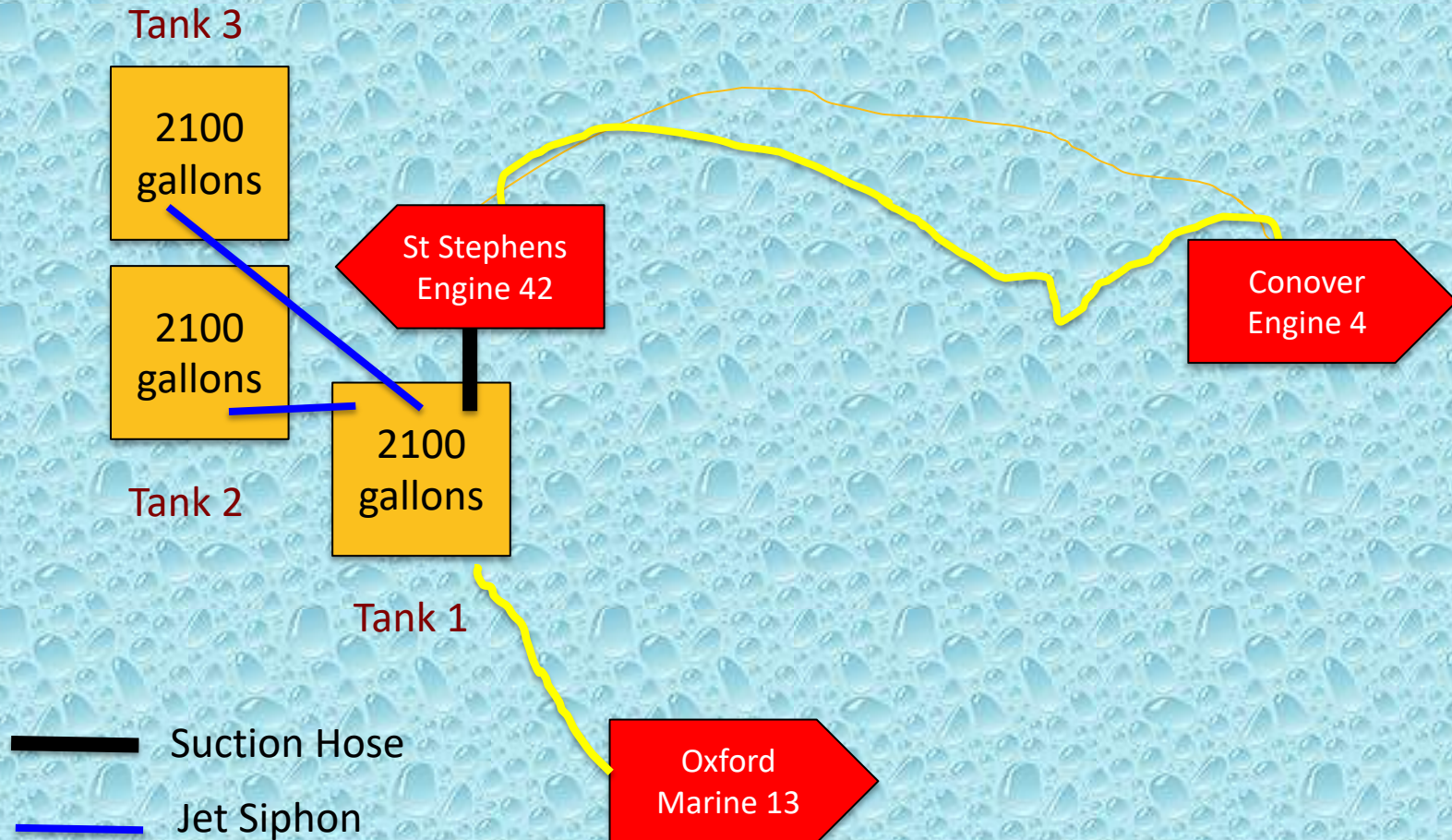
Control of the jet siphon water transfer devices was moved remote from the dump site pump operator in order to have better control over the water transfer process.

Dump Site Operations



Around the 58-minute mark flow was moved to 600 gpm and then again to 850 gpm at the 69-minute mark. A three-dump tank arrangement was used to support those flow increases...as was the continued operation of Marine 13.

Dump Site Layout



The Fill Sites

- For this drill – one fill site was used, a municipal fire hydrant located in the parking lot of a retail store on Saint Peters Church Road.
- The fill site provided about a 4.4-mile round trip for the units hauling water.
- The fire hydrant had ample water volume to support the drill and access was not a problem.
- A 1,500 gpm pumper was used at the fire hydrant to support the tanker loading station.

Hydrant Fill Site



Oxford Engine 132 (1500 gpm) obtained water from the fire hydrant and then loaded tankers at the 1,000 gpm target fill rate.

Hydrant Fill Site



A good example of "connecting two but loading one" at the fill site. The hydrant supply was not capable of a 2,000 gpm flow (as few fill sites are) so the crews did a good job of focusing on filling one tanker at a time at the 1,000 gpm fill rate.

The Results

- The drill was stopped at the 74-minute mark due to a mechanical issue with the dump site pumper.
- Water flow was never interrupted during the drill.
- An estimated 29,450 gallons of water were flowed through through the attack pumper during the drill producing an average flow rate of 427 gpm.
- For the last 6-minutes of the drill a flow of 850 gpm was supplied to the attack pumper.

The Lessons Learned

- At this drill, crews chose to use a supply pumper/attack pumper arrangement from the very beginning.
- The two-pumper arrangement (both with 1,000 gallon tanks) provided time to get the first dump tank set up without having to worry about running out of water in a minute or two.

The Lessons Learned

- As the flow increased, a small fireboat (300 gpm) was used to supplement water flow into the primary dump tank.
- The dump tank arrangement proved a bit tricky as tankers ended up having to back into position to off-load their water. This slowed down the dump process.

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 tankers had the same fill connection which allowed the rigs to get filled and be back on the road in little 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.

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 Catawba Valley Community College for sponsoring and St Stephens Fire Department for hosting the seminar.



www.GotBigWater.com

*This program was developed by
GBW Associates, LLC
Copyright © 2023*

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

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