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West Carlisle Fire/EMS
West Carlisle, Texas

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
November 11, 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

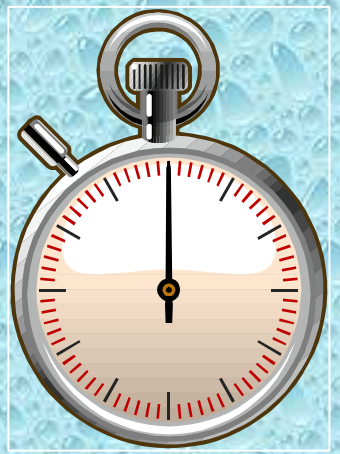
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Frenship ISD administrative center.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from West Carlisle and the surrounding area.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on November 11th in West Carlisle at a former military base.
- 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 West Carlisle region and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the West Carlisle area.*

Drill Participants

- West Carlisle Engine 1
  - 1500 gpm pump w/1,000 gal tank
- West Carlisle Tanker 1
  - 250 gpm pump w/1500 gal tank

Drill Participants

- West Carlisle Tanker 2
  - 250 gpm pump w/1500 gal tank

- West Carlisle Tanker 3
  - 250 gpm pump w/1500 gal tank

Drill Participants

- Levelland Tanker 9
  - 250 gpm pump w/4000 gal tank
- Shallowater Engine 1
  - 1500 gpm pump w/1000 gal tank

Drill Participants

- New Deal Tanker 4
  - 250 gpm pump w/2100 gal tank

- Idalou Tanker 1
  - 500 gpm pump w/2100 gal tank

Drill Participants

- Woodrow Tanker 1
  - 500 gpm pump w/3000 gal tank

- Ransom Canyon Tanker 1
  - 500 gpm pump w/1800 gal tank

The Drill Begins

West Carlisle Engine 1 arrives on the scene and the clock is started. Crews chose to move right to a dump tank operation, thus they had to be quick at getting that set up.

Dump Site Operations

At the 3-minute mark, the first dump tank (1500 gal) was deployed and ready to accept water. The pumper had a suction inlet control valve, thus water flow could be started using onboard tank water if needed.

Dump Site Operations

West Carlisle Tanker 3 dumps its 1500 gallons of water as the benchmark for starting water flow rapidly approaches.

Dump Site Operations

Water flow was started at the 5-minute mark at a rate of 250 gpm using a portable ground monitor.

Dump Site Operations

With the arrival of the second West Carlisle tanker, crews work to deploy a second dump tank (1500 gal).

Dump Site Operations

Dump site operations at the 6-minute mark; two tanks down and one in operation. Water flow remains at 250 gpm.

Dump Site Operations

West Carlisle's third tanker arrives on the scene and dumps its water. Crews will grab the 1500-gal dump tank in a few minutes.

Dump Site Operations

Idalou Tanker 1 arrives on the first Tanker Task Force and offloads its 2100 gallons into the third dump tank.

Dump Site Operations

Three dump tanks now in operation. Flow was moved to 500 gpm at the 20-minute mark.

Dump Site Operations

New Deal Tanker 4 arrives as part of the second Tanker Task Force and dumps its first load of 2100 gallons of water.

Dump Site Operations

At the 44-minute mark a fourth dump tank (2100 gal) is brought on line and flow is moved to 600 gpm.

Dump Site Operations

Woodrow Tanker 1 arrives as part of the last Tanker Task Force and dumps its 3000-gallons of water.

Dump Site Operations

Engine 1 is seen here at the 70-minute mark drafting through three suction lines (6”, 5”, and 2-1/2”). At the 90-minute mark flow was moved to 800 gpm.

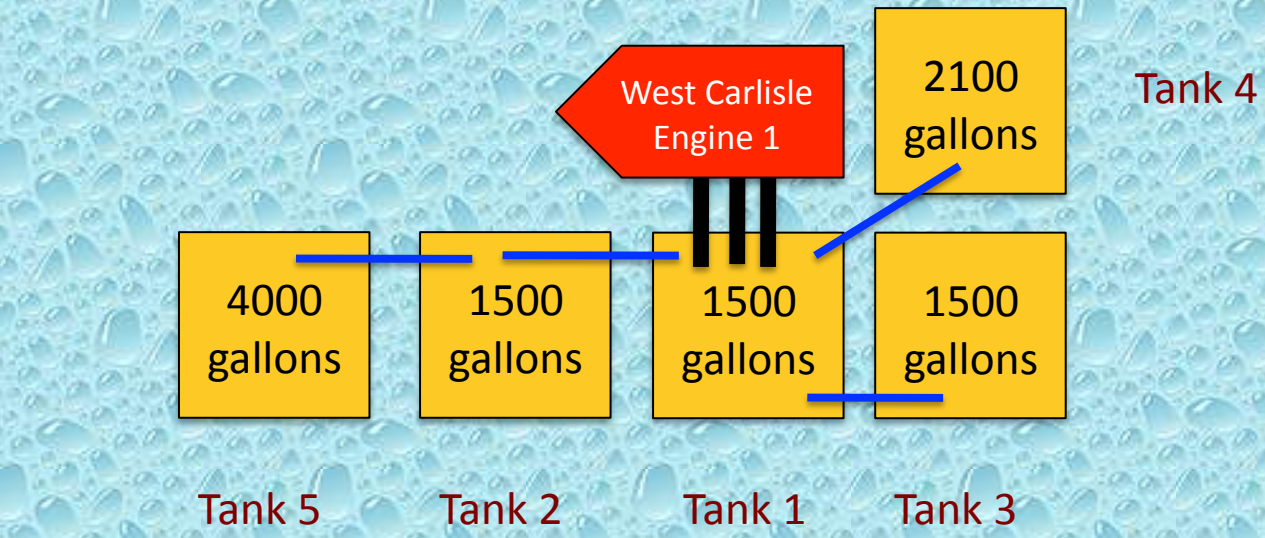
Dump Site Operations

As flow increased, so did the demand for water transfer between the tanks. Especially since the primary drafting tank was only 1500 gallons in capacity.

Dump Site Operations

Levelland Tanker 9 dropped their 4,000-gal dump tank and at the 100-minute mark, flow was moved to 1000 gpm. The larger dump tank helped get the two bigger tankers back on the road faster each time through the dump site.

Dump Site Layout



The Fill Site

- For this drill – two fill sites were used. Both were municipal fire hydrants located on the former Army base.
- The fill sites provided about a 1.8-mile round trip for the units hauling water.
- The hydrants provided ample water volume to support the drill and access was not much a problem.
- Initially, tankers self-loaded at the hydrants. Eventually, an engine was assigned to help with the loading process.

Fill Site Operations

West Carlisle Tanker 3 was the first tanker to arrive at the fill site and had to self-load using a short length of 2-1/2-inch hose.

Fill Site Operations

As additional tankers arrived at the fill site, folks worked to improve self-loading operations by using various appliances and LDH.

Fill Site Operations

Ball valves were the first items added to the self-loading operations. The valves were placed on the hydrant so that the hydrant could remain in the open position.

Fill Site Operations

Eventually, Shallowater Engine 1 (1500 gpm) arrived at the fill site and the operation was switched over to allow the engine to load tankers at a faster rate.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted during the entire drill although flow fluctuated some a few times.
- An estimated 63,850 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 555 gpm.
- A peak flow of 1,000 gpm was sustained near the end of the drill.

The Lessons Learned

- At this drill, nurse tanker operations were not used, thus the crews had to be really good at deploying the first dump tank.
- The first three dump tanks deployed were all 1,500 gallon tanks. During the period where flow was 500 gpm or less, the dump tank size did not matter much.
- As flow approached the 1000 gpm point, drafting from a 1500 gallon dump tank proved challenging.

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.
- Standardized fill fittings would reduce overall fill times and get tankers back on the road.
- At this drill, all tankers did not load using the same fittings…this slowed down the fill times.

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 West Carlisle Fire/EMS for sponsoring and hosting this seminar.

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This program was developed by
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