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Lane Fire Authority
Veneta, Oregon

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
May 4, 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 the Lane Station 101.
- 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 Lane County and the surrounding area.

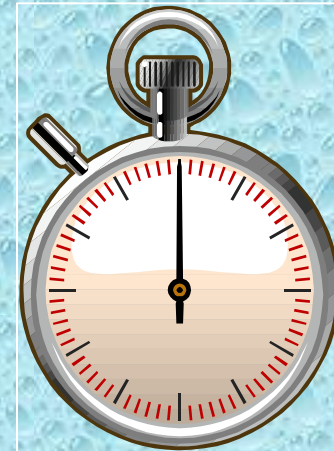
The 2-hour Water Supply Drill

- The tender shuttle drill was held on May 4th at Fern Ridge Lake recreational area.
- 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 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 |
| Lane | Engine 105 | 1250 gpm | 1000 gal | NA |
| Lane | Engine 112 | 1250 gpm | 750 gal | NA |
| Lane | Engine 121 | 1500 gpm | 750 gal | NA |
| Lane | Tender 102 | 500 gpm | 3000 gal | 3000 gal |
| McKenzie | Tender 1612 | 1000 gpm | 2600 gal | 3000 gal |
| Corvalis | Tender 143 | 1000 gpm | 3000 gal | 3000 gal |
| Siusaw | Tender 631 | 750 gpm | 2000 gal | 2100 gal |
| Siusaw | Tender 635 | 750 gpm | 2000 gal | 2100 gal |
| | | | | |
| | | | | |

- The participants for the drill were from several different fire departments in the Lane 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 Veneta area.*

The Drill Begins



Lane Tender 102 (3000 gal/500 gpm) arrives on location and begins supplying water to the double-clappered Siamese which in turn feeds a TFT Blitzfire which is simulating an attack pumper.

Dump Site Operations



As crews work to begin setting up a dump site, McKenzie Tender 1612 arrives and supports the other side of the Siamese.

Dump Site Operations



Around the 12-minute mark, the 1st dump tank was brought on-line and nurse tender operations were no longer needed.

Dump Site Operations



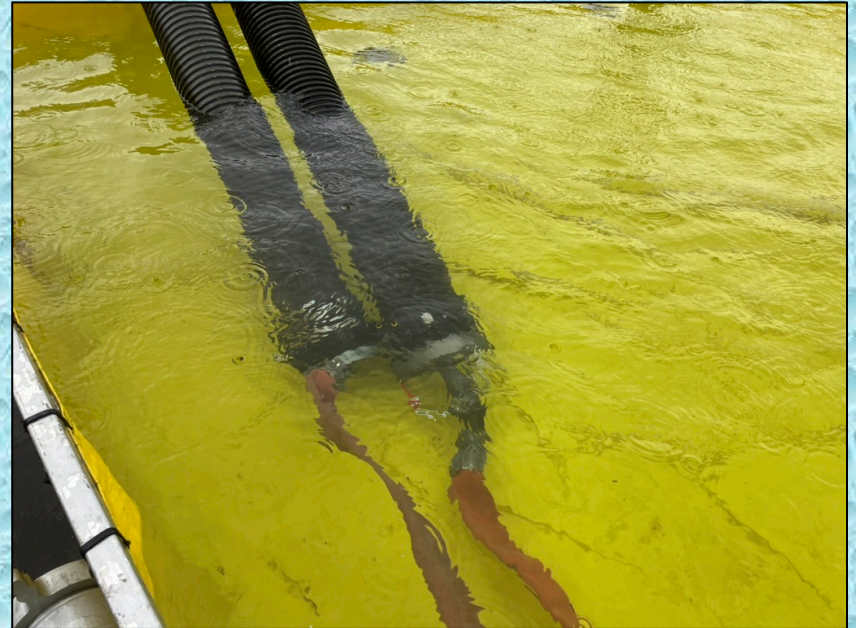
The crews chose to try a “through the drain sleeve” maneuver and placing the dump tanks in front of the pumper.

Dump Site Operations



Around the 29-minute mark, two dump tanks were down and in operation and flow was around 500 gpm.

Dump Site Operations



As with any dump tank operation, water transfer is important. Crews at this drill placed two jet siphons in service pretty quickly to support the two dump tank arrangement.

Dump Site Operations



A couple of good looking jet siphons moving water from one, 3000-gallon dump tank to the primary, 3000-gallon dump tank..

Dump Site Operations



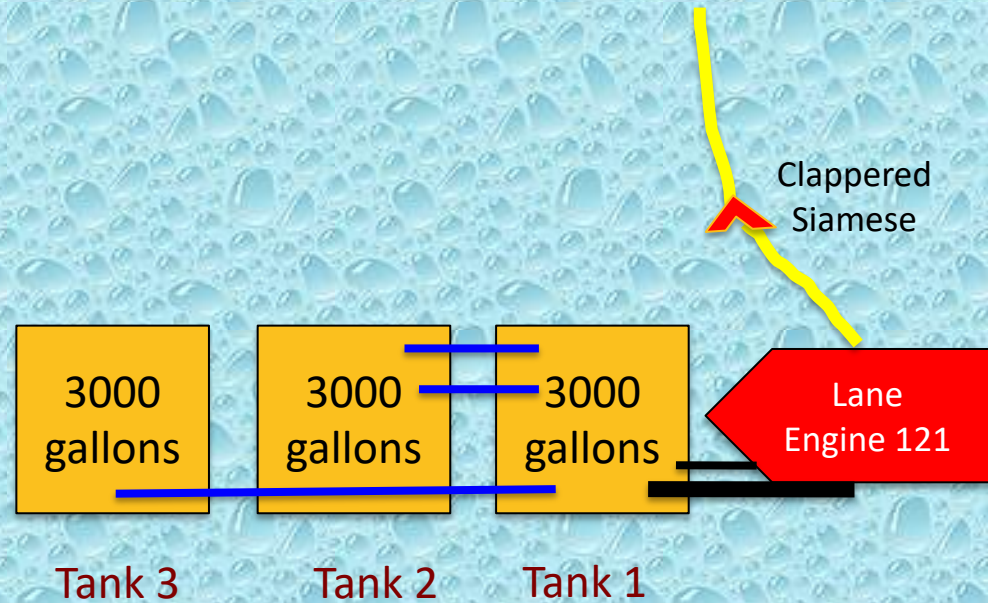
To ensure proper management of water transfer, one person was put in charge of operating the jet siphon devices. This was done remote from the pump operator by using a gated wye supplied by a single, 2-1/2-inch line.

Dump Site Operations



About one hour into the drill a 3-inch suction line (pony suction) was added to the dump site pumper and this increased input which in turn reduced the demand placed on the pumper by the three jet siphons.

Dump Site Layout



- Suction Hose
- Jet Siphon

The Fill Site

- For this drill – one fill site was used; a boat launch on Fern Ridge Lake.
- The fill site provided about a 2.2-mile round trip for the units hauling water.
- The lake had ample water volume to support the drill and access was not a problem.
- A 1250 gpm pumper was used at the boat launch to support the tender loading station.

Fill Site



Lane Engine 112 (1250 gpm) positioned on a boat launch ramp and took draft to support the tender loading station.

Fill Site



The fill crews built out two loading stations so that they could be more efficient in positioning, connecting, and loading the tenders.

Fill Site



The tenders did not all have the same fill connection so it took awhile to sort out the best way to supply water to those direct fill lines. By the end of the drill, operations were going pretty smooth.

The Results

- The drill was stopped at the 90-minute mark due to time constraints.
- Water flow was interrupted once for about 50 seconds during the transition to dump tank operations.
- An estimated 39,580 gallons of water were flowed during the drill producing an average flow rate of 459 gpm.
- For the last 10-minutes of the drill a flow of 600 gpm or greater was supplied to the attack pumper.

The Lessons Learned

- At this drill, crews chose to use a nurse tender operation right from the beginning.
- The nurse tender operation allowed the simulated attack pumper to flow water uninterrupted while a dump site operation was being set up.
- The use of a double-clapped Siamese made this transition process seamless.

The Lessons Learned

- As the flow increased, additional suction lines (3-inch) were used to improve intake so that the flow could increase without impacting jet siphon operations.
- However, without a second 6-inch suction the dump site pumper was going to soon run out of pumping ability given the flow and jet siphon demands.

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, not all tenders had the same fill connection which slowed some of the rigs down getting loaded and back on the road to the dump site.

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 strike team 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 Region 5 Training Association for sponsoring and to the Lane Fire Authority for hosting the seminar.



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