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**Kendall County Fire Chiefs
Kendall County, Texas**

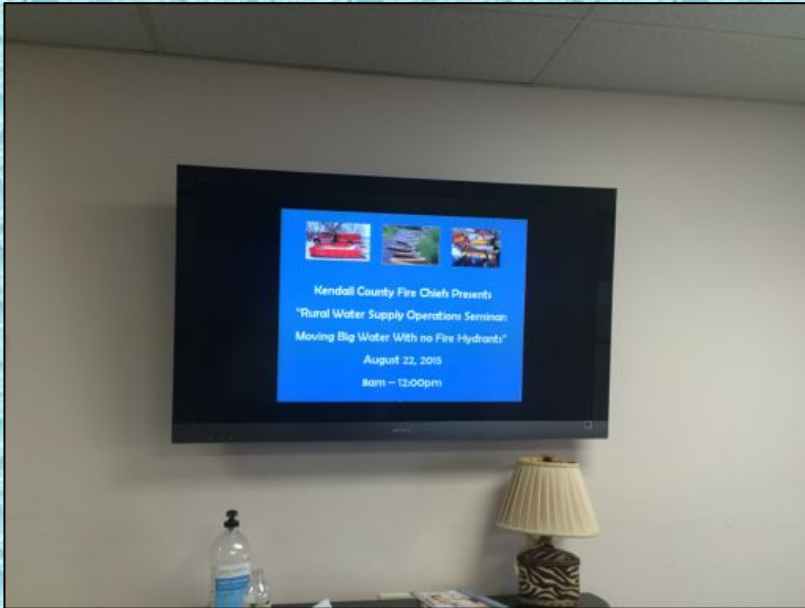
**Rural Water Supply Operations Seminar
2-hr Water Supply Drill
August 23, 2015
Summary Report**

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 City of Boerne Civic Center.
- Once the classroom part was done, the seminar continued with several 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 Kendall County and surrounding areas.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held at Boerne City Lake Park on August 23rd.
- 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 everyone in the fire service may not agree on ISO's evaluation of fire department capabilities, the 2-hour test is still a reasonable standard by which fire departments can compare their water supply operations.



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 18 different fire departments in Kendall County and the surrounding area. The water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Kendall County.

Drill Participants

- Boerne Engine 47
 - 1,250 gpm pump
w/750 gal tank
- Boerne Tender 46
 - 1,250 gpm pump
w/2,500 gal tank



Drill Participants

- Sisterdale Engine 65
 - 1,250 gpm pump
w/1,000 gal tank
- Sisterdale Tender 68
 - 500 gpm pump
w/2,200 gal tank



Drill Participants

- Kendalia Engine 77
 - 1,250 gpm pump
w/1,000 gal tank
- Kendalia Tender 75
 - 1,000 gpm pump
w/2,000 gal tank



Drill Participants

- Alamo Springs Tender 95
 - 500 gpm pump
w/2,000 gal tank
- Bastrop Tender 243
 - 1,000 gpm pump
w/2,000 gal tank



Drill Participants

- Waring Engine 86
 - 1,000 gpm pump
w/1,500 gal tank
- Waring Tender 85
 - 500 gpm pump
w/2,000 gal tank



Drill Participants

- Comfort Tender 57
 - 500 gpm pump
w/2,500 gal tank
- Elm Pass Tender 910
 - 500 gpm pump
w/1,800 gal tank



Drill Participants

- County Roads Dept. Unit 9
 - No pump
w/6,000 gal tank
- County Roads Dept. Unit 144
 - No pump
w/4,000 gal tank



The Drill Begins



Kendalia Engine 77 (1,250 gpm) was the first-arriving unit and assumed the role as the attack pumper. Folks went to work setting up a portable monitor and a dump tank from the first-arriving tender – Boerne Tender 46 (2,500 gal). The stopwatch was started when the pumper came to a stop. Water flow was started at 350 gpm at the 2:30-minute mark.

Dump Site Set-up



With the first dump tank in operation, the next dump tank was acquired from the second arriving tender – Sisterdale Tender 68 (2,200 gal).

Dump Site Operations



Comfort Tender 57 (2,500 gal) was the third tender to arrive on the scene. Crews were ready to use its water as soon as it arrived. The second dump tank was set-up and outfitted with a jet siphon device.

Dump Site Operations



With the second dump tank now in service, tenders from the initial dispatch began returning from the fill site.

Dump Site Operations



Around the 30-minute mark, four dump tanks were down, but only two were in operation as crews waited to acquire more jet siphon devices.

Flow is Increased



Flow was increased to 500 gpm at about the 34-minute mark. An adjustable gallonage portable monitor was used as the water flow device for the drill.

Dump Site Operations



With the flow at 750 gpm and with a plan to move to 1,000 gpm, Boerne Engine 47 was brought in to help run jet siphons. The engine drafted from the 4th dump tank and supported the operation of two additional jet siphons.

Water Transfer Operations



A TFT low level strainer being used as a jet siphon was equipped with a 25-ft section of 5-LDH in lieu of suction hose. The set-up worked just fine.

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Water Transfer Operations



The 5-inch LDH was stretched over a 24-ft ground ladder. The ladder allowed the transfer of water from the 4th tank directly to the primary dump tank without first passing through the 3rd tank.

Water Transfer Operations



The 5-inch LDH was secured to the tip of the ladder and seemed to work just fine in supporting the water transfer operation.

Dump Site Operations



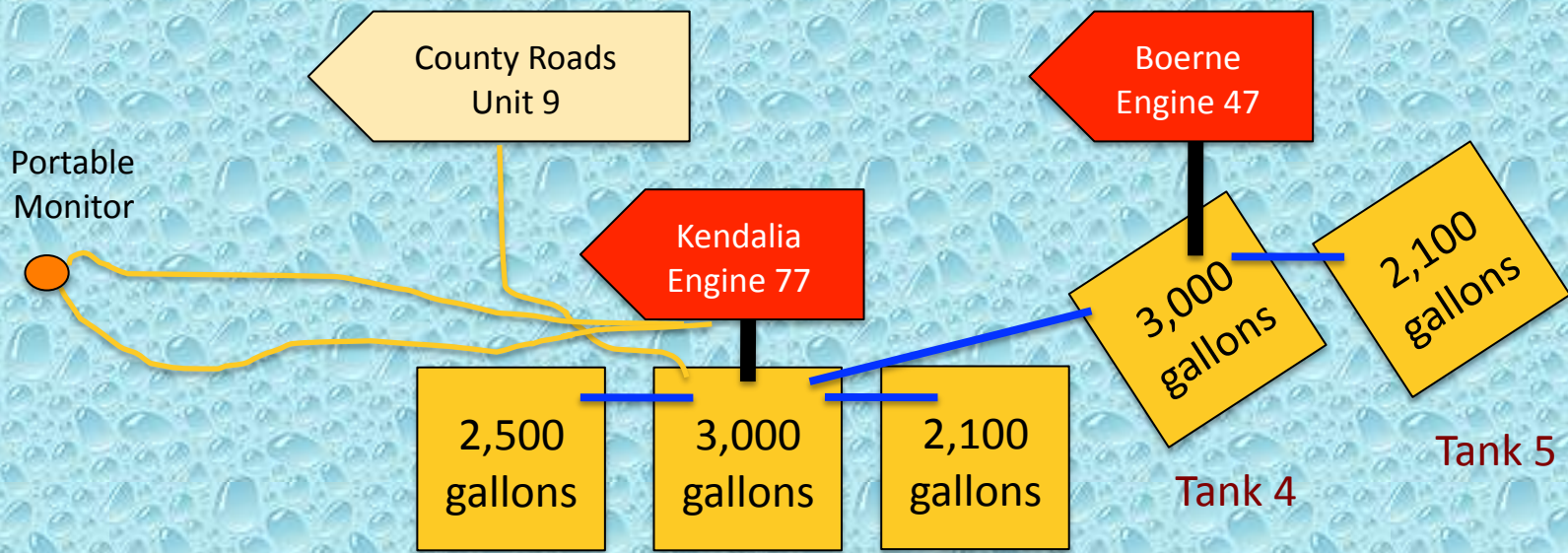
Flow was moved to 1,000 gpm at the 84 minute mark. Unit 9 arrived with its 6,000 gallons of water and prepared to support the operation by offloading into the primary dump tank using a nurse tender operation.

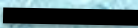
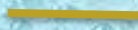
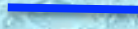
Dump Site Operations



The final set-up, five dump tanks, two engines, and one 6,000-gallon nurse tender supported a 1,000 gpm flow.

Dump Site Layout



-  Suction Hose
-  2-1/2" Hose
-  Jet Siphon

The Fill Sites

- For this drill – one fill site was used – Boerne Lake.
- The lake was large enough and access good enough at the boat ramp that two fill stations were established to load tenders.
- The fill site provided about a 1-1/2 mile round trip for the units hauling water.
- The lake provided ample water volume to support the drill and access was not a problem.
- A 1,000 gpm and a 1,250 gpm pumper were used at the lake to load tenders.

Fill Site Operations



Waring Engine 86 (1,000 gpm) backed down the boat ramp and Sisterdale Engine 65 (1,250 gpm) nosed-into the lake. Each pumper drafted and supported its own tender loading station.

Fill Site Operations



Multiple suction lines were used in order to bolster pump capacity so that tenders could be loaded at 1,000 gpm.

The Results

- The drill was stopped at the 1:45-hour mark.
- Water flow was interrupted only once for a few seconds during the drill.
- An estimated 65,000 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 639 gpm.

The Lessons Learned

- At this drill the dump site crews did a nice job of building out the 5-tank dump site in an orderly fashion.
- Even though the tanks were in place, additional tanks were not brought on line until the initial tanks were working without incident.
- In the end, the dump site operation was able to support a 1,000 gpm flow.

The Lessons Learned

- The main issue at the dump site was the 1,250 gpm pump capacity of the dump site pumper. As the flow approached 1,000 gpm, it became more difficult for the 1,250 gpm to support the 1,000 gpm flow and operate the multiple jet siphons.
- Using a second pumper to support jet siphon operations made a huge difference and allowed the 1,000 gpm goal to be reached.

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, adaptors were needed to load several of the tenders. The situation improved as time went on and the adaptors were located.
- The fill site crews did a nice job of continually working to improve their loading operations.

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.
- 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 the Kendall County Fire Chiefs and the Boerne FD for sponsoring and hosting this seminar.



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