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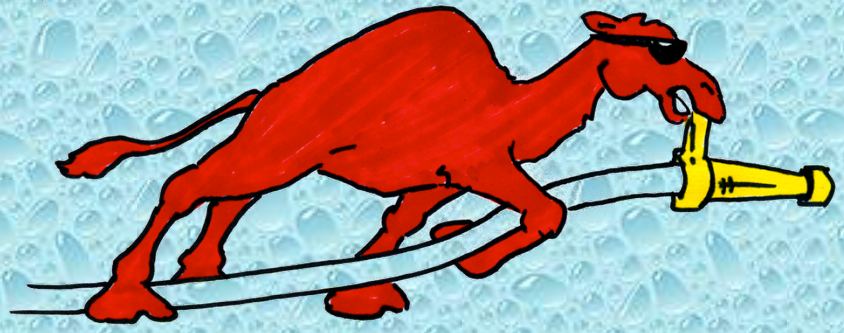


McCurtain County Firefighters Association
Broken Bow, Oklahoma

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
March 10, 2013
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

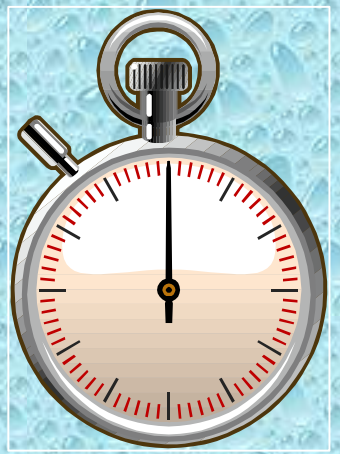
- The 2-day seminar started on Saturday with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the McCurtain County Training Center in Broken Bow.
- Once the classroom part was done, the seminar continued with several hours of practical work on fill-site and dump site operations.
- The program concluded on Sunday with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from McCurtain County.
- Instructors for the seminar were Mark Davis and Alan Butsch.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on March 10th at Broken Bow City Lake Park in Broken Bow, OK.
- 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 eight different fire departments and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in McCurtain County.*

Drill Participants

- Ringold Truck 5
  - 150 gpm pump w/2,500 gal tank
- Ringold Truck 7
  - 150 gpm pump w/2,500 gal tank

Drill Participants

- Garvin Engine 533
  - 1,250 gpm pump w/1,000 gal tank
- Broken Bow Tanker 2
  - 750 gpm pump w/5,000 gal tank

Drill Participants

- Eagletown Tanker 1
  - 150 gpm pump w/3,000 gal tank
- Ringold Truck 1
  - 1,500 gpm pump w/750 gal tank

Preparation

Units received a briefing at the training center and then staged in a parking lot nearby the park and awaited dispatch.

The Drill Begins

Units were dispatched and the stopwatch was started when the first arriving pumper came to a stop. Ringold's Truck 1 served as the attack/dump site pumper and the crew went to work getting set-up for dump tank operations. Ringold Truck 7 was the first-arriving tanker.

Dump Site Set-up

The set up of the first dump tank is one of the most critical phases of dump site operations because once the tank is down and full of water, moving it is no longer much of an option. The crew here discusses tank location.

Attack Line Stretched

Meanwhile, a portable monitor is deployed in preparation for water flow operations.

Dump Site Set-up

As noted already, dump tank placement is critical. This 3,500-gallon dump tank had to be carefully positioned so that tankers could drive past the site.

Dump Site Set-up

At the 2:52-minute mark, Truck 7 dumps its 2,500 gallons of water and the dump site pumper obtains a draft.

Water Flow is Started

Water flow is started at 250 gpm at the 4:27-minute mark and now the goal is not to interrupt the flow.

A 2nd Dump Tank

Knowing that the goal is to increase flow, a second dump tank is deployed as soon as possible. Truck 7's 3,000-gallon dump tank is shown being set up after the tanker dumped its water into the first dump tank.

Dump Site Operations

Around the 9-minute mark, Broken Bow Tanker 2 arrives and begins to offload its 5,000 gallons of water. Meanwhile, the dump site crew begins to assemble the items needed to transfer water between dump tanks.

Dump Site Operations

Ringold Truck 5 dumps its 2,500-gallon of water as effort is underway to place the second dump tank into operation.

Dump Site Operations

At the 11:25-minute mark, two dump tanks are now in operation. Note the "good looking" water transfer operation in place.

Water Flow is Increased

At 19:00 minutes, the water flow was increased to 500 gpm where it was maintained for over one-hour before being increased.

1st Tanker is Back

At 23-minutes, the first tanker has returned from the fill site – which is pretty good timing. However, it is important to note that the fill site was only within a 2-mile round trip.

Water Flow Measurement

Flow measurement for the drill used a hand-held pitot tube along with smooth bore nozzle tips.

3rd Dump Tank

Around the 27:00-minute mark, a third dump tank is placed in preparation for expanding the flow.

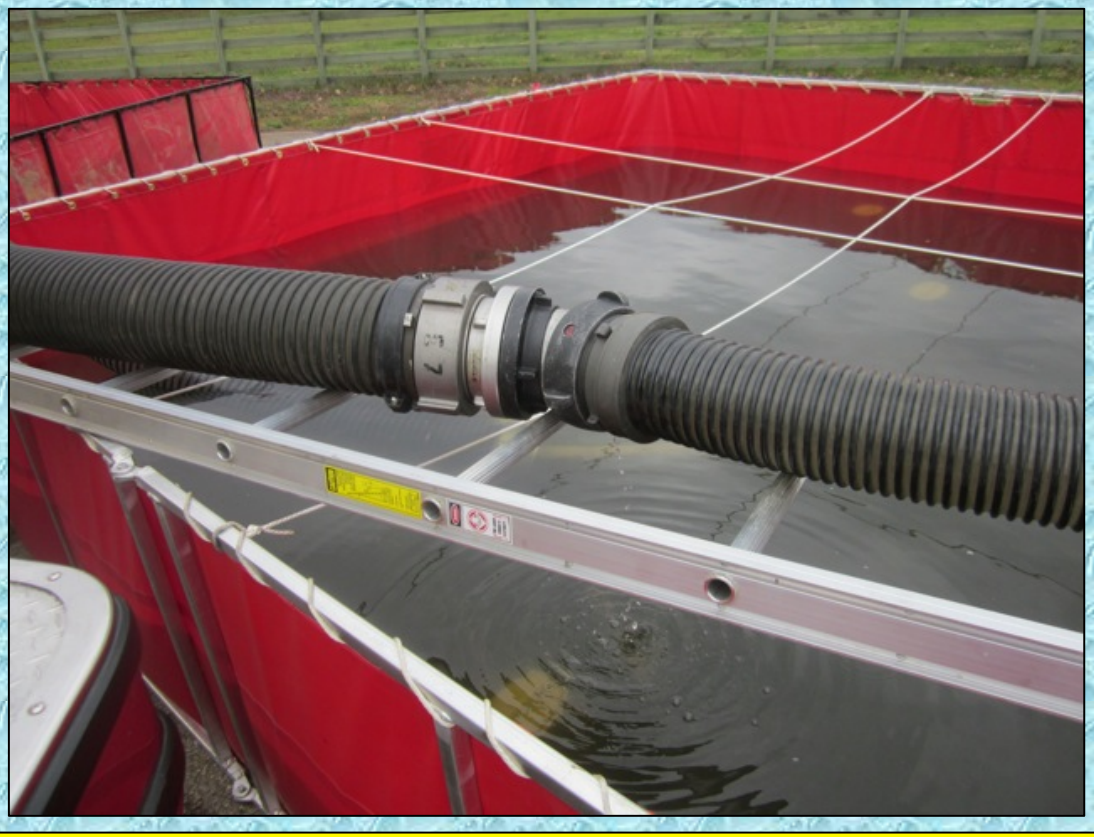
Dump Site Operations

The third dump tank was not placed into operation until the correct water transfer equipment was available.

Water Transfer Operations

The plan was to transfer water from the 3rd dump tank directly into the 1st dump tank by "jumping" the second tank. To make this work, extra suction hose was needed. The problem that arose was that one section of hose was 5" and the other 6" in diameter. Thus – folks had to be a bit creative on adaptor use.

Water Transfer Operations



While not perfect, the two adaptors worked and the transfer device was ready for use.

Water Transfer Operations

With two jet siphons now in use, the flow was moved to 800 gpm at around the 83:00-minute mark.

Dump Site Operations

With the third dump tank now in operation, there was plenty of water in storage on site at any given time and water flow was never interrupted.

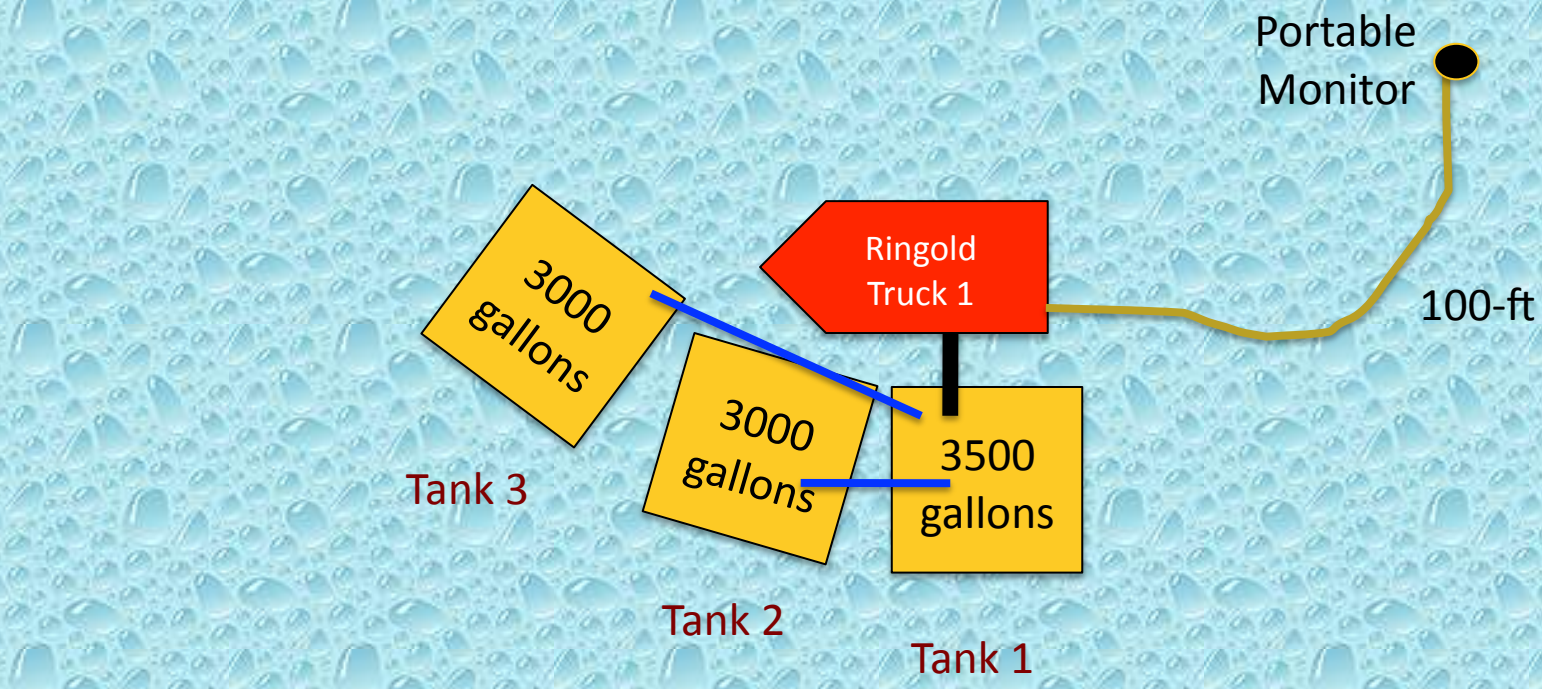
Dump Site Operations

Jumping the 2nd dump tank really made a big difference in managing the water transfer operations at this drill.

Dump Site Operations

A critical point was reached about 20-minutes from the end of the drill. The flow was 800 gpm and there were no tankers dumping water or waiting to dump water. However, about two minutes later, a tanker arrived and flow continued interrupted.

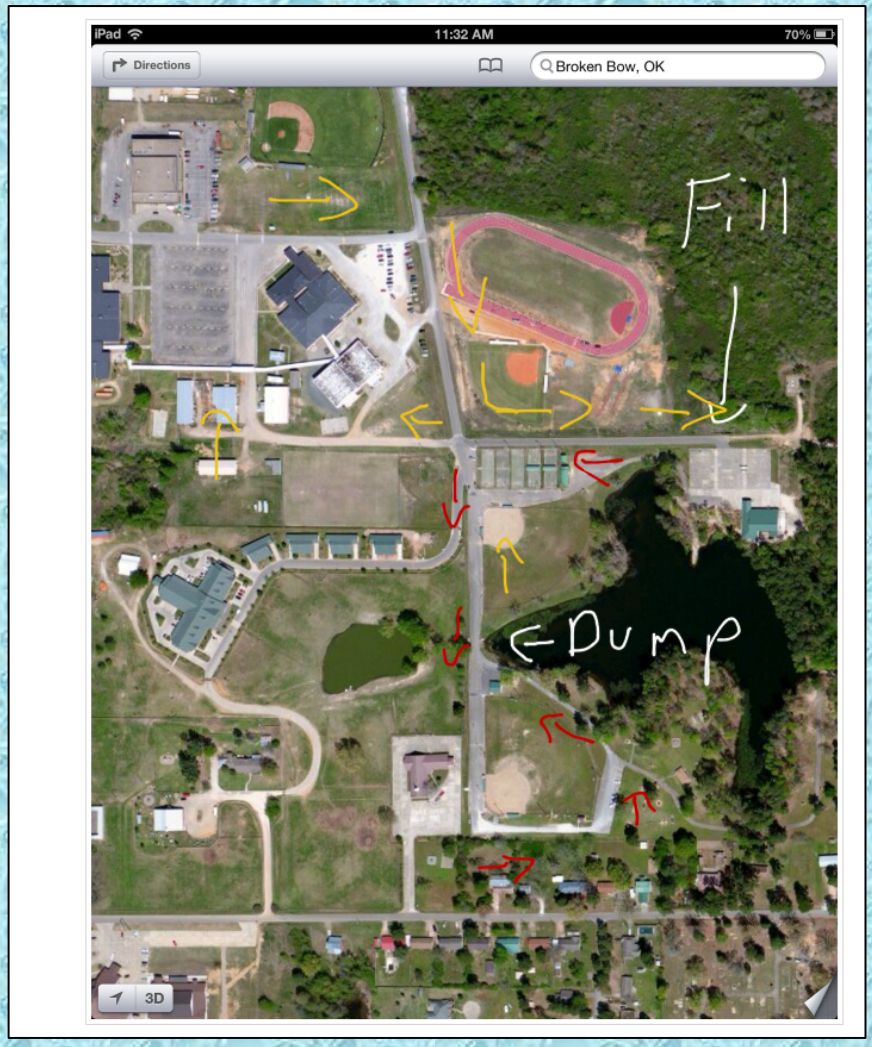
Dump Site Layout



The Fill Sites

- For this drill – one fill site was used.
- The fill site was Broken Bow City Lake and provided about a 1-3/4-mile roundtrip for the units hauling water.
- The fill site required a pumper to locate near the lake's shoreline and draft directly from the lake.
- The lake provided ample water volume to support the drill and access was not a problem.
- A single, 1,250 gpm pumper was used to support the tanker fill station.

The Drill Site



The park provided a nice area where students could view both parts of the tanker shuttle operation. Plus, the water was put back into the source from where it was taken.

Fill Site Operations

Gavin Engine 533 rolls into the fill site area with the goal of having a fill site set up by the time the first tanker arrives for filling.

Fill Site Operations

With limited suction hose onboard the pumper needed to be positioned close to the shoreline.

Fill Site Operations

When additional suction hose arrived, the crew went right to work setting up the drafting operation.

Fill Site Operations

A folding ladder was used to keep the barrel strainer off the bottom of the lake so that flow would not be obstructed.

Fill Site Operations

The lake provided plenty of water for the operation and the parking lot provided plenty of room for maneuvering the tankers.

Fill Site Operations

The general goal of a tanker fill site is to load tankers at a rate of at least 1,000 gpm. Ringold Truck 7 is shown here getting into position for loading.

Fill Site Operations

One issue that can arise at a loading site is the need for adaptors because of the different types of tanker fill connections. A good tanker fill site has an entire allotment of adaptors ready for use by the loading staff.

Fill Site Operations

Two, 3-inch fill lines were used to load some of the tankers at this fill site. Later in the drill, a change-over to LDH helped to speed up the operation.

Fill Site Operations

It is all about the teamwork at a tanker fill site. Loading a tanker should run much like a NASCAR pit stop!

The Results

- The drill was stopped at the 105-minute mark due to time constraints.
- Water flow was never interrupted!
- An estimated 53,463 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 527 gpm.

The Lessons Learned

- At this drill, the dump site was set-up very quickly and crews really hustled to sustain the water flow in the early stages.
- Placing the 2nd and 3rd dump tanks in a diamond shape made a big difference because all of the tankers could only dump from the rear .
- The need for adaptors at the dump site reinforced the importance of carrying multiple adaptors on every pumper.

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, there were a variety of fill connections that required the use of various adaptors.
- Mutual aid FDs should strive to select one size and type of tanker fill connection so that time is not lost making and breaking connections at the fill 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 tanker.
- 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.

The Lessons Learned

- There was limited use of large diameter hose (LDH). The use of LDH can really improve tanker fill times as well as overall pumping operations at either end of the shuttle operation.
- When using LDH, it is important that pumpers be outfitted with appropriate valves and adaptors to make the use of LDH as efficient as possible.

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 McCurtain County Firefighters Association for sponsoring and hosting this seminar.

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For more information contact us at
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