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# Monroe Township Fire Department
# Toddville, Iowa

## Rural Water Supply Operations Seminar
## 2-hr Water Supply Drill
## June 10, 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

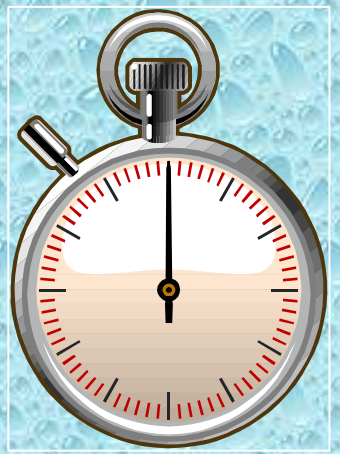
- The 2-day seminar started with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at Monroe Twp FD's Station 2.
- Once the classroom part was done, the seminar continued with 8 hours of practical work on fill-site and dump site operations.
- The program concluded with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from Linn County and the surrounding area.

# The 2-hour Water Supply Drill

- The tanker shuttle drill was held on June 10th at a sand and gravel business in Monroe Township.
- 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 Linn 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 Monroe Township area.*

# Drill Participants

- Monroe Engine 228
  - 1,250 gpm pump w/1,000 gal tank

- Monroe Engine 224
  - 1,250 gpm pump w/1,000 gal tank

# Drill Participants

- Monroe Tanker 220
  - 500 gpm pump w/2,000 gal tank

- Monroe Engine 226
  - 1000 gpm pump w/650 gal tank

# Drill Participants

- Center Point Tanker 140
  - 250 gpm pump w/2,000 gal tank
- Robins Tanker 360
  - 1,250 gpm pump w/2,000 gal tank

# Drill Participants

- Robins Pumper Tanker 366
  - 1,250 gpm pump w/1,000 gal tank
- Palo Tanker 345
  - 1,250 gpm pump w/3,000 gal tank

# Drill Participants

- Hiawatha Engine 286
  - 2,000 gpm pump w/1,500 gal tank


- Walker Tanker 300
  - 250 gpm pump w/3,000 gal tank

# The Drill Begins


Monroe Engine 228 was the first unit to arrive followed closely by Monroe Tanker 220. The engine was set-up to serve as both the attack engine and the dump site engine. A nurse tanker operation was used to supply Engine 228 during the initial operations. The timer was started when Engine 228's operator applied the parking brake.

# Dump Site Operations

The crews stretched a 100-ft, 2-1/2-inch attack line and fed an Elkhart portable monitor. Meanwhile, other folks worked to get the first dump tank set up while the nurse tanker supported the fire attack.

# Dump Site Operations


Robins Tanker 360 was the second tanker to arrive at the dump site and the first tanker to dump its water. Operations soon switched to a dump tank operation and the nurse tanker was cut loose to begin shuttling water.

# Dump Site Operations

As additional tankers arrived on the Tanker Task Force, crews worked to set up a second dump in preparation for increasing the flow to the ground monitor.

# Dump Site Operations

Water flow was moved to 500 gpm at the ground monitor and the pressure was now put on the fill sites to keep the tankers loaded and on the road.

# Dump Site Operations

The dump site crew chose to set up the dump tanks in front of Engine 228 and used a Fol-Da-Tank suction elbow to help improve suction hose deployment.

# Dump Site Operations


Hiawatha Engine 286 responded with the second Tanker Task Force and is shown here dumping its first load of 1500 gallons.

# Dump Site Operations


Knowing that they would most likely need to dump two tankers simultaneously, the dump site crew spaced the third dump tank several feet from the second tank and used a ground ladder to bridge the gap.

# Dump Site Operations

Center Point Tanker 140 dumps its first load of 2000 gallons as part of the second Tanker Task Force. Meanwhile, the dump site crew works to build a jet siphon so that the third dump tank can be made operational.

# Dump Site Operations

Three dump tanks are now in operation and the flow is moved to 750 gpm using two, portable ground monitors.

# Dump Site Operations

One of the unintended challenges that arose was the placement of the dump tanks. While not severe, the grade of the road reduced the usable capacity of each dump tank.

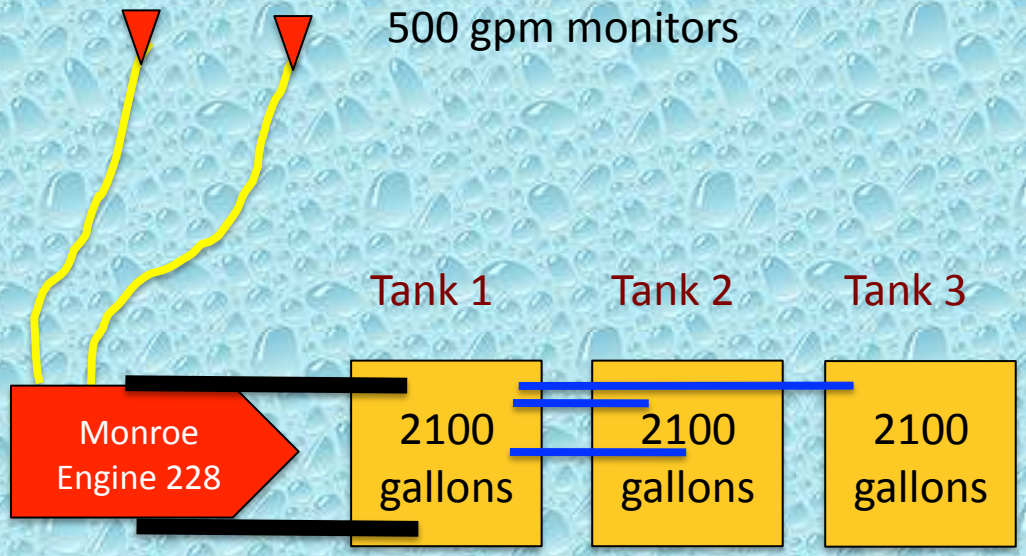
# Dump Site Operations

Engine 228 (1250 gpm) worked hard to pump 750 gpm and supply three jet siphons. A second suction line was connected to the pumper. A length of 4-1/2-inch suction hose was connected to the pumper's front intake in order to increase flow intake.

# Dump Site Operations


Three jet siphons were used to transfer water to the primary dump tank from the other two dump tanks thus allowing the 750 gpm flow to be pumped uninterrupted.

# Dump Site Layout




Suction Hose

3” Hose

Jet Siphon

# The Fill Site

- For this drill – two fill sites were used. Both were co-located along the shore of the sand pit's lake.
- The fill sites provided about a 3.0-mile round trip for the units hauling water.
- The lake provided ample water volume to support the drill, however apparatus access was somewhat limited due to soil stability.
- A 1,250 gpm and a 1,000 gpm pumper were used at the lake to support the tanker fill stations.

# Fill Site Operations


The first fill site set up required the use of a number of devices and equipment… thus the crew had to hustle in order to be ready for the first tanker.

# Fill Site Operations

Monroe Engine 224 operated the first fill site by using a combination of a portable pump and a Turbo Draft to supply water back to a dump tank in an open relay format. The engine then drafted from the dump tank and loaded tankers.

# Fill Site Operations


One firefighter was used as the “loader” and had the sole job of operating the control valve supplying water to the tankers.

# Fill Site Operations

Monroe Engine 224 ran a similar fill site operation using this CET portable floating pump and another Turbo Draft to supply an open relay set-up.

# The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was never interrupted once it was started.
- An average flow rate of about 500 gpm was sustained for most of the drill. It took a little while before the fill sites performed at their peak.
- A peak flow of 750 gpm was sustained for the final 30 minutes of the drill.

# The Lessons Learned

- At this drill, a nurse tanker operation was used during the early moments of the drill which allowed the crews to set-up the dump site without the pressure of running out of water in a couple of minutes.
- The single-lane arrangement of dump tanks proved successful. The arrangement allowed for easy travel, side-dumping, and kept a lane of traffic open.

# 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, both fill sites used alternative means of accessing the water source which forced them to be creative with their apparatus and portable equipment.
- Portable pumps and Turbo Draft both showed their value in rural water supply 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 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 Chief Kale McBurney and the Monroe Township Fire Department for sponsoring and hosting this seminar.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