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Stanley Fire Department
Stanley, Iowa

Rural Water Supply Operations Seminar
Tanker Shuttle Drill – November 11, 2012
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

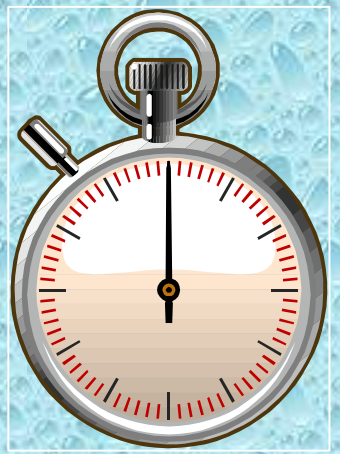
- The seminar started with a 4-hour session to review the basics of rural water supply operations.
- The review session was held at the Stanley Fire Department located in Stanley, Iowa.
- Seminar topics included fire flow demand, types of water hauling vehicles, dump site operations, fill-site operations, tanker shuttle operations, and drafting.
- Seminar participants were from the northeast Iowa area.
- Instructors for the program were Mark Davis and Alan Butsch.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held in Stanley along a rural road just west of town.
- 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 ISO 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 eleven different fire departments in the Stanley area. The water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in northeast Iowa.*

Drill Participants

Department	Unit	Pump	Tank
Stanley	Engine 511	1000 gpm	1000 gal
Stanley	Engine 512	1000 gpm	3000 gal
Stanley	Tanker 514	None	2500 gal
Palo	Tanker 340	750 gpm	2000 gal
Monona	Tanker 74	350 gpm	2000 gal
Floyd	Tanker 862	1250 gpm	3400 gal
Postville	Tanker 5	1250 gpm	2000 gal
Independence	Tanker	500 gpm	2000 gal
Denver	Tanker	500 gpm	2000 gal
Hazelton	Engine	1000 gpm	1000 gal

The Drill Begins

The drill was started and the crew from Postville began setting up the dump site. The goal was to use a new design of dump tank provided by Fol-Da-Tank.

Dump Site Set Up

The new dump tanks are rectangular in shape – thus allowing them to be placed in front or behind a pumper. The suction elbow helps reduce the width "profile" of the operation.

Dump Site Operations

With the first dump tank in position. Monona's tanker offloads its 2,000 gallons of water.

Dump Site Operations

The 2,000-gallon rectangular dump tank fits nicely along the narrow road and in front of the pumper.

Dump Site Operations

More tankers are shown arriving and waiting to offload their water as water flow is started at 398 gpm.

Dump Site Operations

An interesting feature of the Monona tanker is that the tank body can be lifted about 18-inches in the front – this helps offload the water faster as the level in the tank gets lower.

Single-Lane Tank

Along with the single-lane dump tank, a special suction hose connection was provided that allowed suction hose to be connected directly to the tank. In conjunction with using the suction elbow, this feature keeps the suction hose out of the roadway.

Single-Lane Tank

On the inside of the dump tank, a low-level strainer is attached to the pass-through fitting.

Dump Site Operations

The single-lane set-up is a great idea for use on the narrow roads often found in rural America.

Dump Site Operations

At around the 9:30-minute mark, Stanley FD's tanker arrives and offloads its water while the dump site crew works to set up a second 2,000-gallon dump tank.

2nd Tank Deployed

The second tank is also a rectangular shaped tank and is positioned in the same, single-lane fashion as the first tank.

Dump Site Operations

At the 12:55-minute park, water is dumped into the second tank and it is time to commence water transfer operations.

Water Transfer Operations

An 8-inch Kochek Holley tube was used as the initial transfer device for moving water from the second tank to the primary tank.

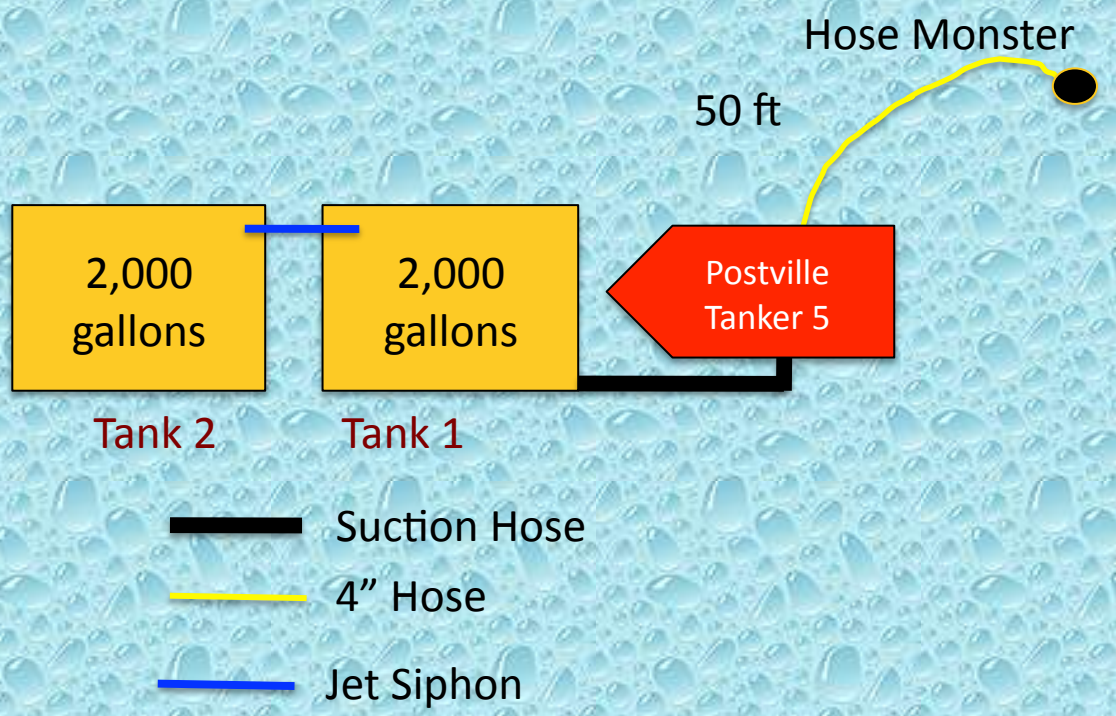
Water Transfer Operations

The decision was made to change out the Holly Tube for a jet siphon and suction hose arrangement. A length of 6-inch suction hose was taken from the Postville pumper.

Water Transfer Operations

Because the two dump tanks were about 20 inches apart, the suction hose worked better than the Holley Tube – which required the tanks to be closer together.

Dump Site Layout



The Fill Site

- For this drill, one fill site was used.
- The site was Buffalo Creek at the point where it crossed under 130th Street.
- This site provided a 9.2-mile round trip for the units hauling water.
- The creek provided adequate water volume to support the drill - however, access and lift was a bit of an issue.
- Two pumpers were used at the fill site; one to operate three, Turbo Draft devices, and one to operate a tanker loading station.

Fill Site Operations

With the drill underway, the fill site crew hustles to get the fill site established. As you can see – the weather has started to turn nasty (35 degrees and sleet).

Fill Site Operations

Because of limited access for pumpers, the decision was made to use three, Turbo Draft devices to supply water back to a dump tank from which the second pumper would draft and then fill tankers.

Fill Site Operations

The Turbo Drafts are lowered into the creek one at a time.

Fill Site Operations

Deploying the three Turbo Draft devices took longer than expected and thus delayed the set up of the fill site.

Fill Site Operations

One Turbo Draft provided the water to the supply pumper so that it could run the other two Turbo Draft devices. This also did not go as smooth as planned – but in the end, water was able to be moved in order to fill tankers.

Fill Site Operations

A dump tank was set-up so that the Turbo Drafts could dump water into the tank and the fill pumper could draft and fill tankers.

Fill Site Operations

With the dump tank now being filled, the tanker loading operation could be started.

Fill Site Operations

Two pumpers shared the same dump tank. The pumper in the foreground (Hazelton) operated the Turbo Draft devices.

Fill Site Operations

An LDH manifold was outfitted with five, 4-inch fill lines, each equipped with a cam lock style fitting.

Fill Site Operations

The loading manifold was supplied by a 6-inch hose line which was supplied by a single pumper.

Fill Site Operations

Monona's 2,000-gallon tanker is ready to be loaded using dual, 4-inch fill lines.

Fill Site Operations

Stanley's 2,500-gallon tanker is filled using a single, 4-inch fill line through a Fireman's Friend check valve.

Fill Site Operations

Floyd FD's tanker is connected and awaits water from the loading manifold operator.

The Results

- The drill was stopped at the 1-hour mark because of time constraints and nasty weather.
- Water flow was interrupted several times for a variety of reasons – but mainly because the fill site was delayed in getting set up.
- A total flow calculation was not done; nor was an average flow calculation.
- However, at one point in the drill, flow was sustained at 488 gpm for about 10 minutes – but again, filling tankers became the issue.

The Lessons Learned

- There was quite a delay in getting the fill site up and running – it took almost 45 minutes before tanker loading could begin.
- Part of the problem was participant unfamiliarity with the use of the Turbo Draft devices.

The Lessons Learned

- Interoperability is important at a large, water hauling event. It is critical that tankers and fill site pumpers have the correct fittings to minimize fill connection times.
- At this drill, tanker fill connections varied some, but cam lock adaptors were provided to each tanker which made a huge reduction in the time needed make and break connections.

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.
- While the Holley Tube water transfer device can certainly move some water, it requires the dump tanks to be very close together in order for the discharged water to make it into the targeted tank.

The Lessons Learned

- The rectangular dump tanks certainly provided an interesting "twist" to setting up a dump site – especially on a narrow road.
- Tankers should be marked on all four sides with their unit numbers. When operating at large, mutual aid incidents, group supervisors and command staff may not recognize a tanker – so identification markings are important.

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 Stanley Fire Department for sponsoring and hosting this seminar and to the Fol-Da-Tank Company for providing the Single-Lane Tanks.

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This program was developed by
GBW Associates, LLC

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