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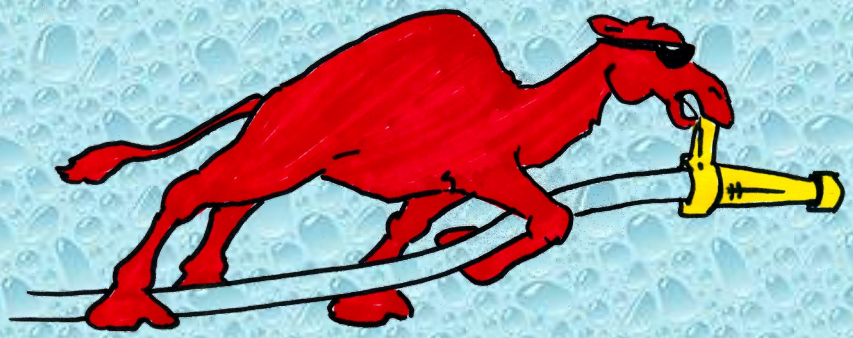


Wheatland County Fire Services
Strathmore, Alberta

Rural Water Supply Operations Seminar
July 23, 2023
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 Wheatland County Services Complex.
- 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 tender shuttle exercise and program review.
- Seminar participants were from Wheatland County.

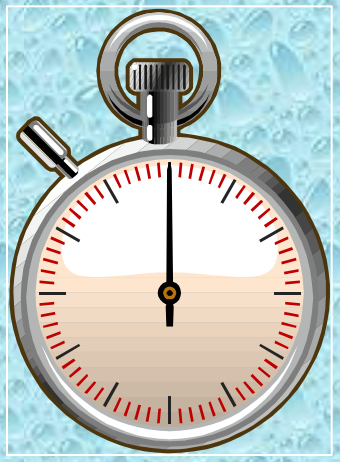
The 2-hour Water Supply Drill

- The tender shuttle drill was held on July 23rd on Range Road 230 in Standard, Alberta.
- The drill attempted to replicate the 2-hour Water Supply Delivery Test used by ISO (USA) 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 Fire Underwriters Survey's (CA) Superior Tanker Shuttle Service rating uses testing practices similar to ISO.

The ISO Test

- The ISO (USA) 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 950 lpm (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 2000 lpm (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**
Standard	W75 (Engine)	1000 gpm	1000 gal	NA
Standard	W71 (Tender)	500 gpm	2000 gal	2500 gal
Standard	W77 (Tender)	500 gpm	2500 gal	3000 gal
West Wheatland	Engine 9	1250 gpm	1000 gal	NA
West Wheatland	Tender 9	1250 gpm	3000 gal	3000 gal
Rosebud	W63 (Tender)	1250 gpm	3000 gal	3000 gal

- *The participants for the drill were from several different fire departments in Wheatland County and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in the Standard area.*

The Drill Begins

West Wheatland Engine 9 arrives on the scene followed closely by Standard W-77. Crews go immediately to work deploying W-77's dump tank in preparation for being ready to flow water at the 5-minute mark.

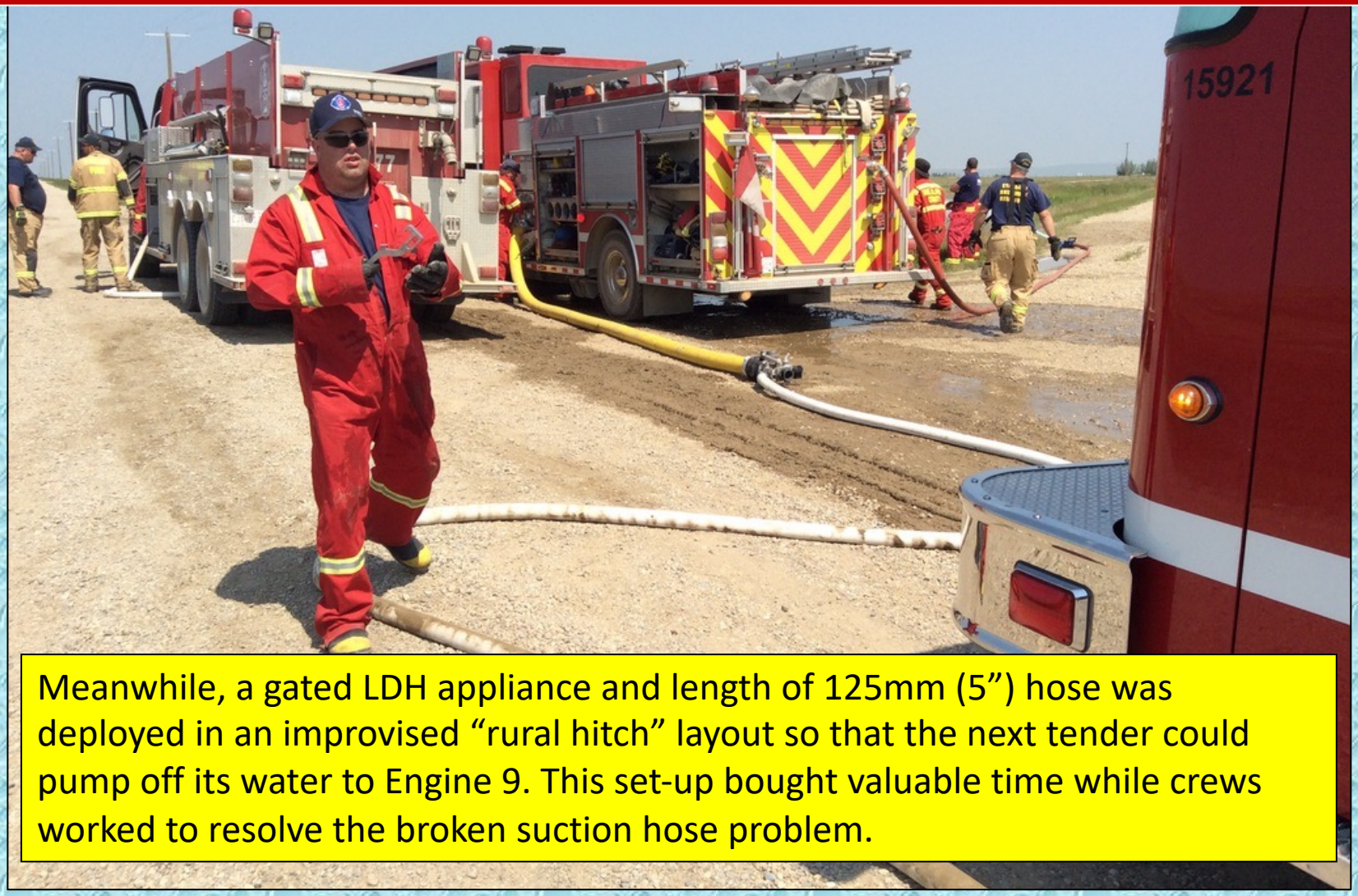
Dump Site Operations

Rosebud W-63 is the next tender to arrive and takes a position to dump its water. The engine crew works to execute a “through the drain sleeve” maneuver with the suction hose and strainer.

Dump Site Operations

Water flow is started at 1000 lpm (250 gpm) at the 5:00-minute mark using a TFT Blitzfire and suddenly the suction hose connection fails at the pump panel. Because the suction inlet had a control valve, the operator was able to quickly switch to on-board tank water.

Dump Site Operations



Meanwhile, a gated LDH appliance and length of 125mm (5”) hose was deployed in an improvised “rural hitch” layout so that the next tender could pump off its water to Engine 9. This set-up bought valuable time while crews worked to resolve the broken suction hose problem.

Dump Site Operations

Engine 9's operator also deployed a 65mm (2.5") suction line to supplement his overall flow ability.

Dump Site Operations

By the 38-minute mark, two dump tanks were now in operation and flow was moved to 2000 lpm (500 gpm).

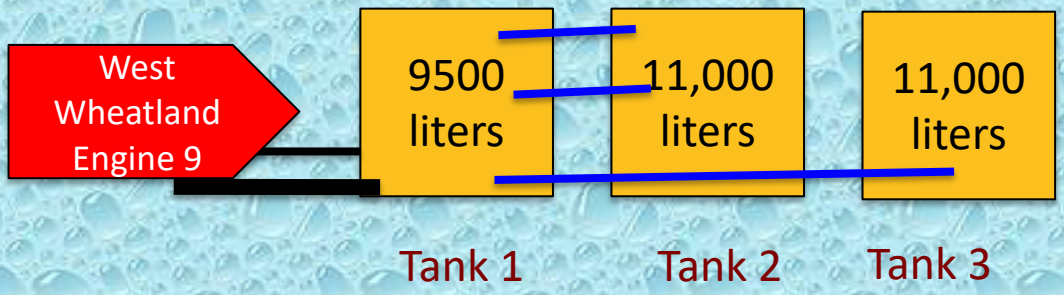
Dump Site Operations

Around the 53-minute mark, crews were working to set-up a third dump tank. Part of the challenge was locating the right pieces to build out sufficient jet siphon transfer devices.

Dump Site Operations

At the 72-minute mark, three dump tanks were now in operation and water flow moved to 2800 lpm (750 gpm) using Engine 9's pre-piped deck gun.

Dump Site Layout



Suction Hose

Jet Siphon

The Fill Sites

- For this drill – one fill site was used; an irrigation canal on Range Road 230.
- The fill site provided about a 6.2-kilometer round trip for the units hauling water.
- The canal had ample water volume to support the drill and access was not a problem.
- A 4,000 lpm pumper was used at the canal to support the tender loading station.

Canal Fill Site

Rosebud W63 was the first unit to arrive at the fill site. Since no pumper was yet available at the fill site to help, the tender crew set-up to self-load using their mid-ship pump and 150mm (6”) suction hose.

Canal Fill Site

Standard W75 (4000 lpm/1000 gpm) arrived at the irrigation canal fill site after the departure of the Rosebud tender and the crew went to work setting up to draft and to build out a tender loading station. They used their 125mm (5”) suction hose and a floating barrel strainer to access the canal water.

Canal Fill Site

The fill site crew built out the loading area so that two, 65mm (2.5”) lines equipped with camlock style connections could be used to load the tenders as they arrived.

Canal Fill Site

The loading station became very efficient and the crew deployed an additional suction line (65mm) to increase the supply to the pumper.

The Results

- The drill was stopped at the 2:00-hour mark.
- Water flow was interrupted once for about 3-minutes around the 90-minute mark when a jet siphon control device broke.
- An estimated 233,000 liters of water were flowed during the drill producing an average flow rate of 2025 lpm.
- For the last 20-minutes of the drill a flow of 2,850 lpm was sustained uninterrupted.

The Lessons Learned

- At this drill, crews chose to go straight to a dump tank operation from the very beginning.
- However, when the suction hose failed, they had to quickly switch to a nurse-tender operation which was then used for about 22-minutes while the broken suction hose was replaced.
- The use of two different style suction hose fittings (Storz and NH) created the delay in changing out the broken section of suction hose as adaptors had to be located.

The Lessons Learned

- Fortunately, the dump site pumper (Engine 9) had suction inlet control valves on all of its intakes which allowed the operator to switch to a nurse tender operation without loosing water flow.
- Engine 9's quick-thinking operator also placed in-service a 65mm suction line to supplement the nurse tender operation while the crews worked to replaced the broken 125mm suction hose.

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 of the tenders had the same fill connection which slowed down getting some of those rigs back on the road.

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.
- In remote areas where tenders may have to load themselves, it is best practice to send a pumper to help at that loading site. Standard W75's pumper and crew made a huge difference at this drill getting the tenders loaded faster and back on the road to the dump site.

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 standardized response practices and procedures – and the importance of mutual aid interoperability.
- Many thanks to Wheatland County Fire Services for sponsoring and hosting the seminar.

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This program was developed by
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