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**Gibraltar Fire Company #1  
Robeson Township, PA**

**Rural Water Supply Operations Seminar  
2-hr Water Supply Drill  
October 13, 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 Gibraltar Fire Company.
- 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 throughout Berks County.



# The 2-hour Water Supply Drill

- The tanker shuttle drill was held on October 13<sup>th</sup> at the Robeson Township Maintenance Building.
- 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 nine 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 Berks County.*

# Drill Participants

- Gibraltar Engine/Tanker 23
  - 1,500 gpm pump  
w/1,500 gal tank
- Gibraltar Rescue Engine 23
  - 2,000 gpm pump  
w/1,000 gal tank



# Drill Participants

- Gibraltar Tanker 23
  - 2,000 gpm pump w/3,500 gal tank & twin 2100 dump tanks
- Exeter Tanker 25
  - 1,000 gpm pump w/3,000 gal tank



# Drill Participants

- Geigertown “Friendship” Tanker 24
  - 1,000 gpm pump w/3,200 gal tank
- Cumru Tanker 42
  - 500 gpm pump w/3,500 gal tank



# Drill Participants

- West End Engine/Tanker 57
  - 1,500 gpm pump  
w/ 2,500 gal tank
- Monarch Tanker 6
  - 1,000 gpm pump  
w/3,000 gal tank



# Drill Participants

- Lower Alsace Engine 4-1
  - 1,500 gpm pump w/1,250 gal tank
- Mt. Penn Engine 1
  - 1,500 gpm pump w/750 gal tank



# Drill Participants

- Geigertown Engine/Tanker 24
  - 1,250 gpm pump  
w/1,800 gal tank
- New Berlin Tanker 17-7
  - 500 gpm pump  
w/3000 gal tank  
(no picture available)



# Preparation



Units staged in the parking lot at the Gibraltar FC. Crews were briefed and units were prepared for dispatch



# The Drill Begins



Engine Tanker 23 was the first-arriving unit and assumed the role as the attack pumper. The unit laid out 100-feet of 5-inch supply line from the main parking area. The stopwatch was started when the Engine driver applied the air brakes. At the five minute mark, the crew started flowing 250 gpm through a Hose Monster – a flow diffuser/measuring device that simulates a master stream device.

# Dump Site Operations



Meanwhile, Rescue Engine 23 was the next unit to arrive on the scene and immediately went to work setting up the dump site with the assistance of Tankers 23 and 24. Tanker 24 nursed RE23 while the crews set up the dump tanks.

# Dump Site Operations



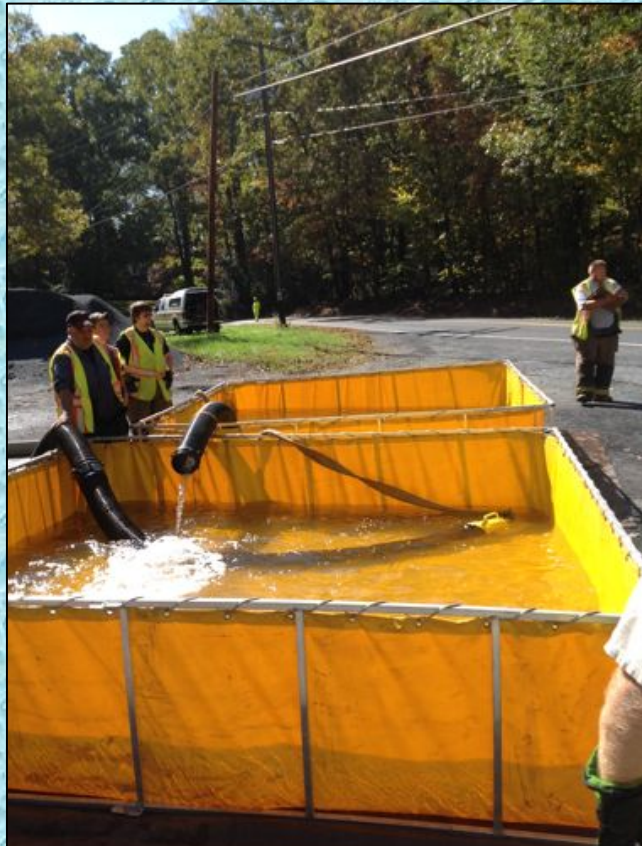
The crews chose to start with a two tank operation.

# Dump Site Operations



RE23 elected to draft using two suction inlets; two hard sleeves were used from the driver's side intake with the assistance of a 6" suction elbow, and one hard sleeve was used from the front intake. Both intakes had suction control valves which came in handy later.

# Dump Site Operations



Two dump tanks in operation. The jet siphon has just been turned off. Note that the crew has positioned the low level strainer away from the jet siphon and in the lowest corner of the dump tank.

# Dump Site Operations



At the 15-minute mark the flow was increased to 500 gpm and more tankers started to arrive. Berks County does not dispatch tanker task forces – instead they dispatch a whole zone of tankers – which means you may get 16 tankers on your fire all at once. Since most of the county depends on volunteer personnel, this ensures that even if one or two tankers fail to respond, there is still a credible amount of water coming.

# Dump Site Operations



With the arrival of more tankers, the crews put a third dump tank into operation. Note the use of the ladder to support the jet siphon's hard sleeve.

# Dump Site Operations



The crews did a good job of supporting the flow and the flow was again increased until it reached 1200 gpm.



# Dump Site Operations



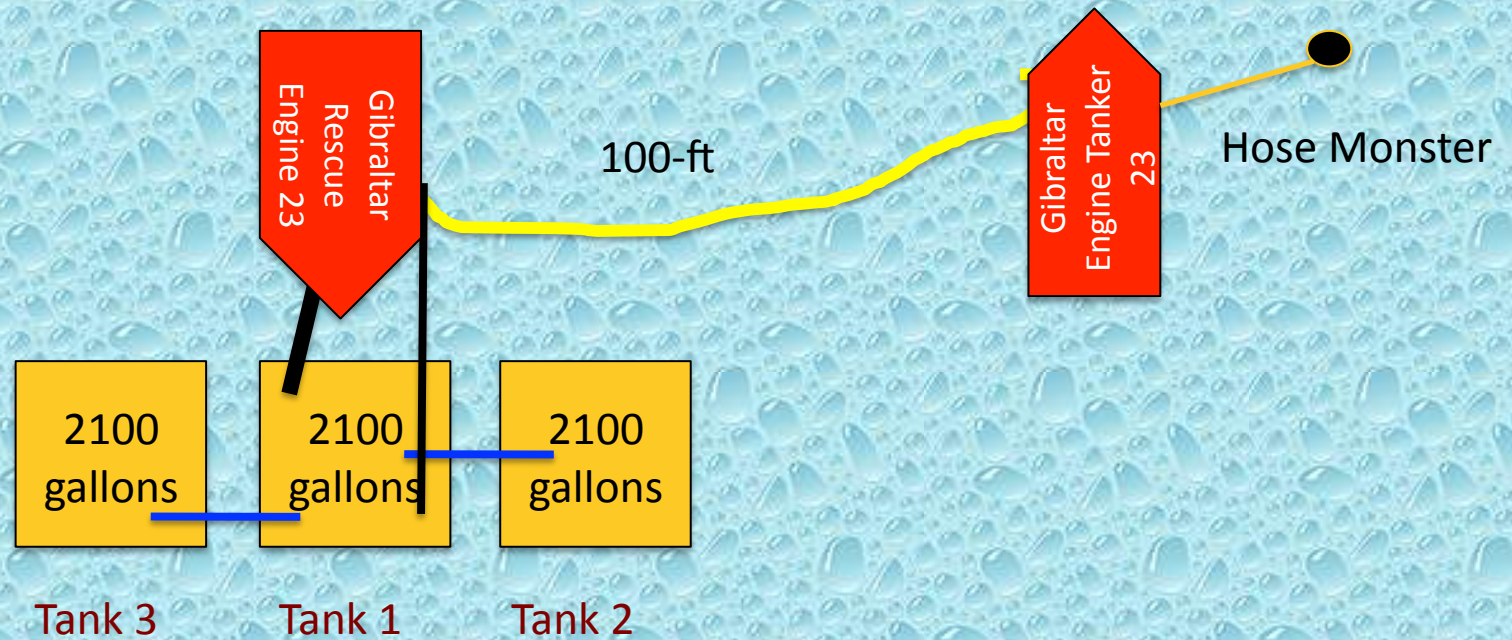
At 1200 gpm, RE23 lost its draft due to the main tank running empty. This was rectified quickly by an incoming tanker, but the crew struggled to re-establish the draft. It turned out that the auxiliary intake used to intake water from the nurse tanker – was left open. The crew figured this out but struggled to get air out of the sleeve going over the side. These problems were worked out and were a great learning experience for the new pump operator learning his craft.

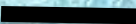
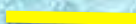
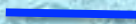
# Dump Site Operations



The 1,200 gpm flow was maintained for almost the rest of the drill. With five minutes left in the drill, the dump site ran out of water. It turns out that all of the tankers had ended up at one fill site – and a traffic jam had ensued. Since the drill was almost over anyway, it was decided to call it a day.

# Dump Site Layout



-  Suction Hose
-  5" Hose
-  Jet Siphon

# The Fill Sites

- For this drill – two fill sites were used.
- Both fill sites provided about a 4-mile roundtrip for the units hauling water.
- The first fill site was located at a pond at the corner of Beaver and Rock Hollow Roads.
- The second fill site was located at a creek near the intersection of Rock Hollow and Hay Creek Roads.

# Fill Site Operations



The crew from Engine 4-1 had this site set up fairly quickly. A ladder was used to try to keep the barrel strainer out of the muck.

# Fill Site Operations



The crew set up a 5" line to a reversed 5" water thief to allow the crews to control the flow and drain the line to the tanker quickly.

# Fill Site Operations



The site was able to fill at about 1,000 gpm. We're not sure the tankers got completely filled since they were sitting on a hill. The fill site crew did have to clean off the strainer occasionally due to vegetation in the pond.

# Fill Site Operations



The second fill site needed three hard sleeves to overcome a 16' lift off of a bridge. The crew from Engine 1 used a ladder to brace the sleeves.



# Fill Site Operations



Here you can see the ladder used to keep the hard sleeve from being swept underneath the bridge. Even though this was a 16' lift – this big pump was able to deliver 1,000 gpm to fill tankers – which is why rural FDs should buy big pumps.

# Fill Site Operations



The crews set up a 5" line and two, 3" fill lines. They were set up in front of the engine to keep a driveway behind them clear.

# The Results

- The drill was stopped at the 1:55-hour mark.
- An estimated 80,525 gallons of water were flowed through the attack engine during the drill producing an average flow rate of 732 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.
- The use of the Rescue Engine at the dump site made a big difference in being able to support the higher flows later in the drill.
- The town building parking lot provided ample space for this large operation and traffic flow was not a problem.

# The Lessons Learned

- Air leaks will really mess up your drafting operation.
- The use of a nurse tanker early on in the operation will buy you time to set up your dump 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

- Although most of pumpers and tankers could work with 5-inch LDH, there was a very limited number of LDH valves and appliances available for use.
- You need to pay attention to transferring water to the primary drafting tank – at higher flows a 2,100-gallon tank will empty quick.

# 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 Gibraltar Fire Co. for sponsoring and hosting this seminar.





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