

Relay Drill After Action Report



MCFRS Battalion 5
“C”

April 24, 2012

Purpose of Drill

- Practice setting up and operating a relay
- Assess our ability to pump 1000 gpm to the Dayspring Church Farm.
- Assess placement of layout points.



Dayspring Church Farm

- Multiple buildings with small group lodging.
- The Inn and the Lodge both accommodate about 18 people.
- Closest hydrant on main road – could be over 3000' away.



Drill Setup

- Units staged on Neelsville Church Road.
- E722 took first due and laid out 1700' from a pre-designated lay out point. This was 700' more than planned. This provided good information to adjust the layout point.
- E735 took 2nd due and laid out 600' from a second designated layout point and picked up E722's line.
- E729 took 3rd due, laid out 350' from the road and picked up E735's line.
- E734 completed the split with 250' and took the hydrant on Neelsville Church Road.





1st 2nd 3rd 4th

Results

- Flow was established in 8 minutes; however E722 was unable to open their intake due to the incoming pressure (both relay and head); this was communicated back down the line and all engines went to idle and the intake was opened.
- An initial flow of 500 gpm was established.
- Units were able to supply each other with sufficient flow and pressure.
- The relay units averaged an intake of 20 psi and a discharge of 150 to 180 psi. This is in line with what our pump capacities and LDH relief valves are able to accommodate.

Results

- The flow rate was raised to 800 gpm, dropping E722's intake pressure to 0 to 15 psi. Everyone else tried to raise their pump pressures to compensate but the lay proved too long; 800 gpm over 1700' can be expected to create a friction loss of approx. 230 psi.
- The flow rate of 800 gpm was sustained for another 10 minutes and no other issues occurred.

Humat valve used as a relay valve

- Personnel were shown the use of the humat as a relay valve. Use of the humat valve in this manner requires a 4.5" male NST to 4" Storz adaptor - which we carry as part of our soft sleeve configuration.
- By leading off with the clappered siamese side of 4" (R bed) and then connecting to the humat and L bed, an initial responding engine could lay 2000' of 4" and still be assured an initial flow of 500 gpm - and the ability to boost that flow once another engine arrives in place at the humat.

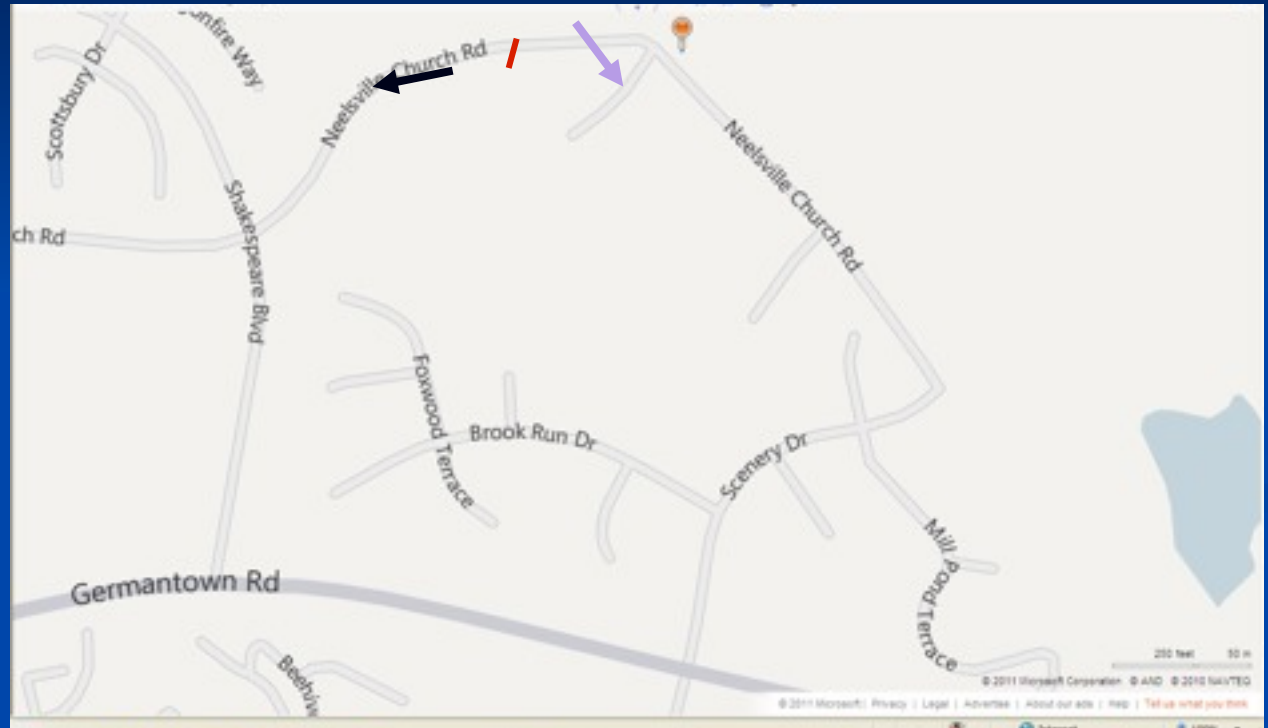


Traffic control

Neelsville Church Road was blocked west of Church Bend Court.

Traffic was very light and no complaints were received.

MCPD did not show up but was not needed.



Radio

- Incident Channel 71G was used without any problems reported.

Relay Theory in MC

- Maximum Total Distance?
- Optimal distance between engines?
- Where does biggest pump go if possible?
- If we plan to use more than 1000' which hose bed should we lead off with?
- Do you fill hose with tank water????
- Do we have other options besides 4 inch hose?



Distance....

Maximum Relay Lengths (Feet) ¹³⁻⁴

Flow in gpm	Hose size in inches						
	One 2½	One 3	One 4	One 5	Two 2½	One 2½ & One 3	Two 3s
250	1,440	3,600	13,200	33,000	5,760	9,600	14,400
500	360	900	3,300	8,250	1,440	2,400	36,000
750	160	400	1,450	3,670	640	1,050	1,600
1000	90	225	825	2,050	360	600	900
1250	50	140	525	1,320	200	375	500

Lessons learned

- Personnel took care to move the hose to the side of the lane - but the 2nd and third due engines wound up blocking the lane entirely. It is important to try to plan relay points to get the relay engines out of the roadway. It is also important that it be communicated which side of the roadway the hose should be moved to.
- When the hose was charged, it moved into the roadway at some points. Incoming units should expect this.
- Units should expect that despite best efforts to set up the hose out of the way that it will be difficult to get other heavy apparatus up a narrow country driveway. Therefore it would be better to move the first due special service and tanker in before allowing the other engines to set up the relay. Allowing the tanker in first would provide you 4000 gallons or so to use prior to getting the relay going - and provide an extra pump in case the first due engine has an issue.