

**EASTERN MONTGOMERY COUNTY**  
**LARGE DIAMETER HOSE TASK FORCE**  
**STANDARD OPERATING PROCEDURES AND RESOURCES MANUAL**

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## **SECTION A**

# **EASTERN MONTGOMERY COUNTY LARGE DIAMETER HOSE TASK FORCE**

## **MISSION STATEMENT**

It is the intent of the Eastern Montgomery County Large Diameter Hose Task Force (LDHTF) is to effectively deliver a minimum of 1,000 gallons per minute over a distance of at least one mile to insure an adequate and consistent water supply to sustain fire fighting operations for extended durations.

## **INTRODUCTION**

The following companies make up the Eastern Montgomery County Large Diameter Hose Task Force.

Barren Hill Fire Company	Station # 29
Colmar Fire Company	Station # 12
Fort Washington Fire Company	Station # 88
Horsham Fire Company	Station # 15
North Penn Fire Company	Station # 62
Oreland Fire Company	Station # 700
Wissahickon Fire Company	Station # 7

## **LDHTF CONTACTS**

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## STANDARD OPERATING PROCEDURES

### SECTION B

- A. The LDH Task Force will be designated as **Water Supply** and the first arriving officer will establish that with Fire Command or the Incident Commander. The LDHTF will fit into the NIMS Incident Command System as a **“Task Force”**
1. **Responsibilities of the first arriving LDHTF Officer**
    - a. Locate Fire Ground Officer in Charge (OIC) or Incident Commander, and try to have a Liaison Officer assigned to the task force who knows the area and potential water sources.
    - b. Items to be considered
      - (1) Is LDH applicable?
        - (a) Time duration versus setup.
        - (b) Water source adequate?
        - (c) Water source accessible?
          1. If drafting operations are going to be required along a river, try to locate the draft site upstream from the fire ground to avoid debris floating downstream and clogging strainers.
      - (d) Is hose route feasible?
        - (i) Length
        - (ii) Elevation
        - (iii) Traffic
      - (e) Determine how water will be distributed.
      - (f) Is enough LDH equipment dispatched to complete task.
    - (2) LDHTF Water Supply Officer in charge should have the final say on the water source and if it is adequate.
2. **Start up procedures for the Water Supply Officer**
  - a. Advise County LDHTF has arrived on location and will be known as water supply. Confirm a radio channel with County and determine if it is monitored.

- b. Establish a staging area, assign Water Supply Staging Officer, and notify Montgomery County Radio of location of staging area.
- c. Identify source truck using 1500 GPM or larger pumper for hydrant or draft operations
  - (1) Drafting operation will require two source trucks and appliances; i.e., 5-inch wye.
    - (a) Drafting operation is to begin with one truck so there is no lengthy delay.
  - (2) Hydrant operation requires one source truck.
  - (3) NOTE: **No water will be crossed between draft and hydrant systems.**
- d. If additional equipment is required, notify County to dispatch alternate LDH Units from stations **7 - 12 - 15**.
- e. Hose lay to be made from water source to fire. Normal distance between trucks is **1,000 feet**.
- f. Pump start-up procedure
  - (1) In drafting operations once the source pumper is in position, the pump should be primed as soon as possible.
  - (2) After all connections have been made, each pump operator should notify the Water Supply Officer and verify the unit is ready for water.
  - (3) The Water Supply Officer will verify that no water is crossed from draft to hydrant.
  - (4) The Water Supply Officer will then tell the source pumper to begin to flow water after all pumpers are connected. As each pumper receives water, they should notify the OIC they have water.
  - (5) The Water Supply Officer will tell the pump operators to engage their pumps and at what pressures they should be pumping (if other than normal pressures are required).
- g. Standard discharge pressure: 130 pounds (discharge pressure not to exceed 180 pounds).  
Residual: 20 psi with minimum of 10 psi.
- h. Assign relay officer to oversee distribution to ensure an uninterrupted flow.

- i. Refer to Water Supply Officer Master Sheet
  - (1) List pumper sequence and as much information as possible.
  - (2) After water flow has been established and the operation is up and running:
    - (a) Note time of relay completion and water flow to fire ground.
    - (b) Take a setup reading for the Master Sheet
    - (c) Obtain intake and discharge readings from each unit on a regular basis.
  
- j. Multiple Relays
  - (1) If the situation warrants multiple relays that parallel each other and units are operating side by side the relays should be designated alphabetically – Example “Relay A” – “Relay B”.
  - (2) If the relays go in different directions to different sources they should be designated by the road or area where they are operating. Example – “Main Street Relay” – “Swamp Pike Relay”
  - (3) Try not to use the same name designator as the Fire Command or Incident Command to avoid confusion on the radio
  
- k. Obtain fuel supply
  - (1) Contact Fire Ground Commander or IC to coordinate fuel supply as soon as possible. Check the fuel level of all units in the relay. This should be done immediately after setup is complete to allow time to get a fuel unit to the scene.
  - (2) Determine how fuel truck will need to be routed to get to units. If hose bridges are needed look in Equipment Appendix to determine which units carry them
  - (3) If no fuel is available LDHTF operational duration will be four (4) hours or less.
  
- l. Identify location for LDHTF Water Supply Officer to set-up management team.
  
- m. Once a Water Supply Officer is established, all supervision will be coordinated with him.
  - (a) First arriving LDHTF officer may transfer Water Supply to an LDHTF Committee Member.

n. At the conclusion of the relay operations, the following procedures should be followed

- (1) Beginning with the unit closest to the fire ground, have the operators idle down and put their transmission in neutral. **Operators should not close any valves at this time.**
- (2) Work backwards one truck at a time towards the source truck, confirming with each unit that they are in neutral before going to the next.
- (3) When all units are idled down and all trucks are in neutral, the source pumper can shut off the water and all operators can secure their units and pick-up their hose.

o. Replacement of an Out of Service Engine

- (1) LDH unit should notify Water Supply OIC, when they think they have a problem and may have to shut down the engine. In the event that a unit should shut off during operations, operator should notify Water Supply OIC immediately.
- (2) Water Supply OIC shall instruct operator to switch over relay valve to allow water to bypass the unit.
- (3) Water Supply OIC shall instruct up stream pumper to increase his discharge pressure to 180# and advise downstream pumper that he will have to adjust discharge pressure to maintain 5 to 10# on his compound gauge.
- (4) Bring in standby pumper or dispatch LDHTF second call to fill in.
- (5) When replacement unit is in place and his pump is in gear have him slowly switch over relay valve to allow him to begin pumping on relay. Once he is up to normal pressure advise upstream and downstream pumpers to slowly return to their previous pressures.

p. Replacement of broken hose

- (6) Unit discharging into the broken hose (upstream engine) should immediately open his spare discharge and shut down broken line.
- (7) Notify all downstream engines to idle down and put pumps in neutral. Do not shut off any valves.
- (8) Have crews from the downstream and upstream units respond to the broken line with their standby sections of hose and install one or two sections as needed. Units shall advise Water Supply OIC as soon as repair is complete.

(9) OIC shall advise upstream engine to slowly open valve to supply line and slowly close off open discharge.

(10) Once down stream engines get water they should put their transmissions back in drive and resume pumping.

**SECTION C**  
**STANDARD OPERATING PROCEDURES**  
**RESPONDING LARGE DIAMETER HOSE UNIT**

**A. Officer/Driver**

1. Obtain exact location
  - a. Town and street address
2. Locate ADC map page and grid coordinates
3. Locate staging area
4. Call in service on normal fire region channel and then switch to assigned channel for LDHTF.
5. Attempt to coordinate route of travel with other responding units if possible; i.e., PA Turnpike, Route 309, etc. Also be aware of intersections where two responding units could cross paths.
6. Upon arrival in staging area, notify LDHTF Water Supply Officer and await further instructions.
7. Follow Water Supply Officers instructions concerning:
  - a. Assigned location for your unit
  - b. Length of lay (normal hose lay 1,000 feet)
    - (1) All hose is to be laid as close to the side of the road as possible, not to interfere with traffic.
    - (2) Upon completion of lay, install relay valve unless otherwise instructed by the LDH Commander. Try to keep relay valve out of lane of traffic if possible.
  - c. Special instructions
8. Provide whatever traffic control is necessary to protect personnel and equipment. All personnel should have reflective vests or gear on when working in an area with live traffic.
9. Upon connection of hoses, notify the LDH Commander.
10. Fully open all involved intake and discharge valves.

11. Put pump in gear with transmission in neutral.
  - a. All LDH engines will operate in volume unless instructed otherwise by Water Supply Officer.
12. If you are working from draft get as close to the water supply as possible. Maintain a small line (booster line preferable) flowing water back into the source to keep pump cool. Watch the water level in your booster tank to make sure it is not going down. If so, crack open tank fill valve to keep tank full.
13. Notify the Water Supply Officer when you have water.
14. When instructed by the Water Supply Officer, engage pump.
  - a. Normal discharge pressure will be 130 psi.
  - b. Maximum discharge pressure will be 180 psi.
  - c. Minimum residual pressure will be 10 psi.
  - d. Allow water flow to stabilize before making adjustments.
15. Driver is to fill out the sequence sheet to determine his truck placement in the relay.
16. Keep spare length of 5" hose available to repair any breaks in relay line.
17. Keep radio traffic to a minimum
18. Monitor all engine operating gauges.
19. Report all problems to the Water Supply Officer.
20. Maintain an uncapped discharge valve (minimum 2½ inches or larger) to divert water flow in case of emergency.
21. **Do not stop the flow of water** or shut down your truck unless instructed to do so by the OIC.
22. When instructed to idle engines and place transmission in neutral, do not close valves or disconnect any hoses unless instructed to do so by the OIC.

## STANDARD OPERATING PROCEDURES

### SECTION D

#### A. TROUBLE SHOOTING LDH PROBLEMS

##### **1. High Discharge Pressure Truck "A" - Low Residual Truck "B"**

- a. Check for partially closed intake valve on receiving pumper
- b. Make sure operator on truck "A" is reading Discharge Pressure not Engine Pressure.
  - (1) Make sure snubber valves on compound gauge is open on receiving truck.
- c. Check the length of hose between trucks.
- d. Physically check relay valve to insure it is connected properly.
- e. Check for too small a discharge feeding 5" line.
  - (1) Trucks without a 5" discharge must use an appliance with at least two lines (preferably three) feeding the appliance.
- f. Restricted intake screen on receiving pumper.
  - (1) Switch over relay valve to bypass truck, disconnect line from intake and check screen.
  - (2) Use caution to avoid having objects fall back into hose when draining and disconnecting.
- g. If all else fails lay another line and abandon existing line.

##### **2. Discharge Pressures high and Residual Pressures Low Across Relay.**

- a. Decrease flow to receiving pumper, gallonage is too high.
  - (1) Check loss from discharge to residual between pumps and divide by the amount of 100' lengths between trucks (1,000' would equal 10 lengths), this will give you the loss per 100'.
    - (a) If the loss equals approximately 10# per 100' the flow is 1,000 GPM.
    - (b) If the loss equals approximately 12-13# per 100' the flow is 1,250 GPM.

(c) If the loss equals approximately 15-16# per 100' the flow is 1,500 GPM.

(2) If receiving truck is supplying an appliance check the tip size and nozzle pressure.

(a)	TIP SIZE	NOZZLE PSI	GPM
	1 1/2"	80	600
	1 3/4"	80	800
	2"	80	1060
	2 1/4"	80	1350
	2 1/4"	100	1500

(b) For more information see Flow Chart in Appendix IV

### **3. Draft Pumper will not Flow Rated Capacity**

a. Check dump valve to make sure it is closed off.

(1) Close valve to dump valve if available.

(2) Plug valve with a pipe plug.

b. Make sure vertical lift is not in excess of 10' to 12'

(1) If vertical lift is over 10' - 12' you will have to use both pumpers to achieve desired flow, especially if more than 1,000 GPM is required.

c. Check for clogged intake screens or whirlpooling at strainer.

(1) If screen is clogged switch to second draft pumper and clean screen.

(2) If whirlpooling occurs strainer must be put lower in the water, or switch to a floating dock strainer. (See Appendix II page 7 for a list of Companies carrying these strainers)

d. Check for collapsed hard sleeves.

(1) Switch to second draft truck and replace sleeves. (See Section A for list of Companies carrying hard sleeves)

### **4. Draft Pumper Lost Prime While Pumping**

a. Check to see if booster tank is empty. If gauge reads full climb up and look into tank to make sure gauge is right. If tank is empty, use a line off 2<sup>nd</sup> draft truck to fill tank, reprime and crack open tank fill line to maintain water level in tank.

- b. Make sure strainer is clear and not obstructed with leaves or debris.
- c. Make sure fittings are tight on hard sleeves and gaskets are in place.
- d. You may have to disconnect hard sleeves and check strainer at pump.
- e. Make sure hard sleeves are in good condition and liner is intact.
- f. Make sure hard sleeves do not go up and over a guide rail or the side of a bridge where they can trap air.
- g. Make sure draft is taken from the side intakes and not a front or rear intake.