

# Pinos Altos Volunteer Fire Rescue - Standard Operating Guidelines

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| Category: Operations            | <b>S.O.G. 5.4</b><br><b>Title: Hose Testing</b> |
| Section: Maintenance Operations |   |
| Subject: Hose Testing           |   |
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5.4.1 These guidelines apply to any scheduled Hose Testing planned and conducted by PAVFR. To the extent possible, Hose Testing should be used as a structure training exercises for department personnel.

5.4.2 The designated PAVFR Incident Commander (IC), Safety Officer (SO), and Chief will determine which specific steps in these guidelines will apply to an event based on the size and nature of the Hose Testing activities. Those items under General Guidelines marked with an \* are required for all activities under this SOG conducted by the department.

## 5.4.3 General Guidelines

5.4.3.1 Each Hose Testing must designate an Incident Commander and Safety Officer. \*

5.4.3.2 The IC should announce to the general membership and affected Battalion the selected date(s), alternate date(s) for the test, and the chosen or tentative test location at least two weeks in advance of the testing.

5.4.3.3 A minimum of six department personnel shall be on hand, depending on the number of vehicles and hoses involved in the testing. \*

5.4.3.4 Duties should be assigned each individual in attendance to maximize efficiency. (Tester Operator(s); Recording Secretary; Hose Layout, Tightening, Bleeding.) These and additional duties (hose inspection, removal, collection, re-laying, etc.) may be rotated throughout the test to insure cross-training.

## 5.4.4 Site Preparation Procedure

5.4.4.1 The IC or SO shall insure that the general location is clear and safe from hazards and a suitable hydrant and working hose testing device, with access to an electrical source, is available. In addition, sufficient water handling appliances, attachments, reducers, nozzles, gaskets and administrative and record keeping documentation and markers shall be on hand. \*

5.4.4.2 All attending personnel shall sign-in for the testing activity. The IC shall assign a Hose Testing Device Operator and a Recording Secretary, as well as other rotating duty assignments for the event. \*

5.4.4.3 The IC shall conduct a briefing of the scope of the activity and the general procedures for the test. \*

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- 5.4.4.4 The SO shall conduct a safety briefing to insure that appropriate PPE is worn by all personnel, including by not limited to helmets, gloves, and boots, and that radios are set to local frequencies. \*
- 5.4.4.5 All vehicles will be parked in a safe and convenient location in relation to the test device to insure that hoses can be removed, tested, dried and reinstalled on the vehicle.
- 5.4.4.6 The IC will insure that PA Dispatch is advised of testing and disposition of vehicles on site.

### 5.4.5 Test Set-up Procedure

- 5.4.5.1 Attach a 2 ½" hydrant gate or ball to the available hydrant and connect a recently tested length of 2 ½" feeder hose to the valve.
- 5.4.5.2 Prepare and connect the tester to the electrical source, insuring the switch is off and the electrical components are free from water contact.
- 5.4.5.3 Close all valves on the hose tester and attach the main 2 ½" feeder hose.
- 5.4.5.4 Close the hydrant gate/ball valve, open the hydrant, then the valve.
- 5.4.5.5 Remove some or all of the hoses to be tested from the vehicle(s) and visually inspect the hoses for obvious defects and/or damaged hose gaskets.
- 5.4.5.6 Deploy the hoses of similar size and type in either single lengths or combinations of lengths, not to exceed 300'. (50' to 250' is appropriate)  
*Note: Hoses of different sizes are tested at different pressures & for different durations. Separate tests will need to be performed. SEE Table below.*
- 5.4.5.7 Connect the hose lengths along a relative straight course and attach an appropriate nozzle or valve to the far end. Visually re-inspect the hoses. Insure the connections are tight and the hoses are marked with a ring around the area behind the collars to check for expansion from the connector.
- 5.4.5.8 Hose identification should be recorded prior to beginning the test.
- 5.4.5.9 Connect the near end to a suitable port on the hose testing device as directed by the Hose Testing Device Operator.

### 5.4.6 Standard Hose Testing Parameters

#### *Size/Pressure/Duration Chart*

| <u>Hose Size</u> | <u>Pressure</u> | <u>Duration</u> |
|------------------|-----------------|-----------------|
| 2 ½" hose        | 250 psi         | 5 minutes       |
| 1 ½" hose        | 250 psi         | 5 minutes       |
| 1" hose          | 150 psi         | 3 minutes       |

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### 5.4.7 Testing Procedure

- 5.4.7.1 All valves shall be opened and closed in a slow, smooth motion.
- 5.4.7.2 Personnel should position themselves on the left side, or preferably on the inside of any curves in the hose lay, to minimize dangers from hose bursts or spray and/or movement.
- 5.4.7.3 Open the main input valve on the hose tester. Bleed any air from the testers unused outputs, and close these valves.
- 5.4.7.4 **Open slowly**, one at a time, individual outputs to the hoses being tested to pressurize each length to the static pressure of the hydrant.
- 5.4.7.5 Using the far end nozzle or valve, bleed all air from each hose section, then close the far end nozzle/valve. Visually inspect the hose lengths for leaks, weeping, damage, and collar slippage. Tighten connections if necessary. Depressurize and remove any damaged hose. (See Damaged Hose Procedure below.)
- 5.4.7.6 Repeat for each hose or hose sections being tested.
- 5.4.7.7 **Close the main hose tester input valve.** Activate the hose tester motor, pressurize the system and all attached hose lengths to the size/pressure chart (see above), and then shut off hose tester motor.
- 5.4.7.8 Note the exact time (using a stop watch is preferred) and maintain pressure for the appropriate duration, restarting the motor if needed.
- 5.4.7.9 Examine each coupling for leaks or collar expansion. Any leaks, weeping, or bulges along the hose jacket, behind the collar, or noticeable collar expansion out from the coupling should be marked BAD. If a hose fails, shut-off the associated tester valve to that section and remove the hose. (See Damaged Hose Procedure Below). Replace the hose length, or reconnect the remaining lengths, and prepare the section for the next test sequence.
- 5.4.7.10 After the specified time period, the output valves from the hose tester should be closed and the pressure slowly release from each section by opening the far end nozzle/valve. The output valves on the tester can then be opened. All hoses that have passed the test should be logged-in as GOOD, marked with the month and year, disconnected, and laid-out on a slope to drain and dry.
- 5.4.7.11 Once sufficiently drained and dried (as time allows), all hoses should be re-stored on their assigned vehicle in the appropriate compartment using the specified hose lay pattern.

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### **5.4.8 Damaged Hose Procedure**

- 5.4.8.1 Damaged hose shall be recorded in the testing log and marked on the hose.
- 5.4.8.2 The hose section shall be donut rolled, with the male threaded end OUT to indicate a non-serviceable hose.
- 5.4.8.3 The damaged hose should be disposed of in an appropriate manner and a suitable replacement Hose should be assigned to the vehicle at the earliest opportunity to maintain the vehicle hose compliment.
- 5.4.8.3 The Battalion Chief and Procurement Officer should be notified of any needed replacement.