

BODEGA BAY FIRE PROTECTION DISTRICT  
**STANDARD OPERATING GUIDELINES**

WRITTEN BY: J.Perucchi      APPROVED BY:       NUMBER: 56

SUBJECT: Hydrant Maintenance Program

DATE: 5-28-08

## Hydrant Maintenance

In addition to Flow Testing hydrants there are some important procedures that need to be done annually in order to keep the fire hydrant in working order. The following must be done every year in the month of May and maintained throughout the growing season.

- Grass, shrubs and any vegetation must be cleared around the hydrant. A weed-eater, clippers, and round-up may be used for this procedure. There must be 3 feet of clearance around the hydrant to access the outlets and to open the valve nut using a hydrant wrench. There must be clearance in the front of the hydrant all the way to the street.
- Caps must be removed and inspected. Make sure caps can be removed easily. The threads should be cleaned with a wire brush. Lubrication (food quality grease) should be applied to threads. Replace caps hand tight.
- Fire Hydrant paint should be inspected and re-painted if needed. (Note: Contact PUD if hydrant needs more work)
- Confirm placement of blue reflective marker in roadway, replace as needed.
- Operate valves; leave all caps in place (**Do not flow water**) and *slowly* open valves fully then shut down the hydrant. Operation of hydrant and valves will also be conducted during flow testing.

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## **Flow Testing Hydrants**

### **Why Flow test Hydrants?**

- To determine if the hydrant can safely provide enough water to fight fires.
- To determine if applicable insurance and fire code requirements are met.
- To determine the available (static) pressure on a water line.
- To determine the amount of remaining (residual or dynamic) pressure on a water line when a hydrant is used.
- To determine the flow pressure of water discharging from the hydrant.

### **How can flow and pressure data benefit your water system?**

- Comparing pressure readings on a regular basis can help locate sources of water loss.
- Evaluating flow tests can help uncover closed or damaged valves.
- Maintaining hydrant flow records enables your system to implement a hydrant color coding program that can prevent water system damage and provide critical water availability information to firefighters.

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## **Keeping Hydrant Records**

Keeping hydrant records allows the Fire Department to track all the hydrants and identify different statistics about each hydrant. We enter the data collected about each hydrant into the Fire House reporting program log. This allows the information to be maintained year after year.

### **Data Points Needed for Record**


- **Hydrant Location**
- **Wet or Dry Barrel**
- **Hydrant Make**
- **Hydrant Pressure (PSI)**
- **Hydrant GPM**

We will gather this information doing our annual maintenance and participating in the Flow Testing process.

We will also make notes about new hydrants, re-painted hydrants and out of service or defective hydrants.

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## Hydrant Flow Testing Equipment

To conduct a flow test you will need:

- A hydrant Pressure Gauge
- A Pitot (PEE-TOE) Gauge
- Diffuser
- A working partner

A hydrant pressure gauge is simply a standard pressure gauge that has been tapped to a hydrant cap. It also has a small petcock nozzle to allow air and water to escape. It is used to measure the static and residual pressures during the flow test.

A Pitot gauge measures the total pressure of flowing water. It has a blade, a tube, a velocity pressure gauge and petcock to release air pressure. The blade is eased into the center of the water stream and held steady at least 1¼ inches from the nozzle opening. It must be held steady to get an accurate measurement. The water must be clear, sand and particles can damage the Pitot blade. The air chamber on the blade must be empty, open the petcock until any air has escaped and then close it before taking the pressure reading.

A partner is necessary because an accurate flow test is performed simultaneously using two separate but closely located hydrants.

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## **The Seven Steps of Proper Hydrant Operation**

1. Unscrew an outlet cap with an operating wrench
2. Attach a hose or diffuser
3. Open the hydrant main valve. Use a hydrant wrench to slowly turn the operating nut. **Count off one second for each quarter turn.**
4. Slowly turn the operating nut to close the hydrant. **Count off one second for each quarter turn.**
5. Remove the hose or diffuser
6. **Dry Barrel-** Make sure the barrel has drained properly. Place your hand over the open nozzle. You should feel a slight suction through the nozzle as the barrel drains.  
  
**Wet Barrel-** Make sure the main valve is completely closed. Place your hand over the open nozzle. You should feel no pressure.
7. Lubricate and replace nozzle cap by hand. Use the operating wrench to tighten the cap  $\frac{1}{4}$  turn.

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## **Steps for Flow Testing a Single Hydrant**

It may not be as accurate as a standard two hydrant flow test, but the following steps can be used by one person to conduct a single hydrant flow test.

**\*Note\*** Always use a diffuser. Pay attention to your surroundings. Pay attention to where water is running. Use sandbags or other devices to divert water so you do not ruin landscapes or flood garages/homes. No Flow testing on trash collecting days.

1. Install a hydrant pressure gauge on one of the outlet nozzles.
2. Slowly open the hydrant 3-5 turns.
3. When all air has escaped, close the pressure gauge petcock.
4. Slowly open the hydrant completely.
5. Read and record the static pressure.
6. Slowly close the hydrant most of the way- leave the pressure gauge on the nozzle.
7. Remove the second nozzle cap and slowly reopen the hydrant completely
8. When the water is flowing clearly, ease the Pitot tube blade into the center of the stream. Read and record the flow pressure from the pitot gauge.
9. While the water is still flowing, record the remaining, residual pressure from the gauge on the other discharge.
10. Slowly close the hydrant, remove the pressure gauge and replace the nozzle caps.

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## Steps for Conducting a Hydrant Flow Test

**\*Note\*** Always use a diffuser. Pay attention to your surroundings. Pay attention to where water is running. Use sandbags or other devices to divert water so you do not ruin landscapes or flood garages/homes. No Flow testing on trash collecting days.

1. Select a hydrant for use to test the static and residual pressure. This will be the "Test Hydrant".
2. Send a partner with a pitot gauge to the first downstream hydrant. This will be the "Flow Hydrant".
3. Install a hydrant pressure gauge on the "Test Hydrant". Make sure the petcock on the gauge is open.
4. Slowly open the "Test Hydrant" 3-5 turns.
5. When all air has escaped and a steady stream of water is flowing from the petcock nozzle, close the petcock.
6. Slowly open the "Test Hydrant" completely
7. Read the "Test Hydrant" pressure gauge and record the static pressure.
8. Signal your partner to slowly open the "flow hydrant". When the water is flowing clearly, your partner should take a reading with the pitot gauge.
9. As your partner is reading the pitot gauge at the "flow hydrant" read and record the residual pressure at the "test hydrant".
10. When the pressure and flow readings are recorded, have your partner slowly (using the 4 second rule; 1 sec. for each 1/4 turn) close the "flow hydrant" and replace the nozzle cap.
11. Once the static pressure at the "test hydrant" has been returned to normal, slowly close the hydrant, remove the pressure gauge and replace nozzle cap.