



COUNTY OF ORANGE

HEALTH CARE AGENCY

ENVIRONMENTAL HEALTH

WATER WELL DISINFECTION AND TESTING AFTER A WILDFIRE

Fire-Damaged Properties – INDIVIDUAL WATER WELLS

Individual water wells may be contaminated as a result of fire damage to well system equipment and piping, including the need to access the well casing or replace water lines to the well. Once all repair work is completed to the well and water lines, the well should be disinfected and water samples taken to a State Certified Laboratory for testing.

- Exposed piping, electrical supply lines, storage tanks and other surface exposed components of the water supply system may be damaged or destroyed by fire. **It is strongly suggested** that water well disinfection procedures (see below) be implemented after repairs to the potable water distribution system have been completed. It is also recommended that a water sample be taken and submitted to a state certified laboratory for analysis (see list below). This is to ensure that any contamination that may have entered the well as a result of the damage has been mitigated.

WATER WELL DISINFECTION

Disinfection involves eight steps:

1. A chlorine solution containing at least 50 mg/L (or parts per million) available chlorine is added to the well. The table below lists quantities of various chlorine compounds required to disinfect 100-foot (30-meters) of water filled casing at 50 mg/L for diameters ranging from 2 to 24 inches (50 to 600 millimeters). Chlorine concentration can be easily measured with a simple pool test kit, if available.
2. If the well pump requires removal for repair or replacement, the pump and discharge pipe should be washed with a chlorine solution as it is lowered into the well.
3. After it has been placed into position, the pump should be turned on and off several times (e.g. "surged") so as to thoroughly mix the disinfectant with the water in the well. Repeat this procedure several times at one-hour intervals.
4. Pump until the water discharge has the odor of chlorine. The chlorinated water should be pumped through the entire distribution system.

5. The well and associated piping should be allowed to stand without pumping for at least 24-hours.

Diameter of Casing In. (mm)	(70%) Calcium Hypo chlorite	(25%) Chloride of Lime	(5.25%) Sodium Hypo chlorite (Liquid Measure)
2 (50)	¼ oz. (7 g)	½ oz. (14 g)	2 oz. (59 ml)
4 (100)	1 oz. (28 g)	2 oz (57 g)	9 oz (266 ml)
6 (150)	2 oz. (57 g)	4 oz. (113 g)	20 oz. (0.6 l)
8 (200)	3 oz. (85 g)	7 oz. (0.2 kg)	2 ½ pts (1.0 l)
10 (250)	4 oz. (113 g)	11 oz. (0.3 kg)	3 ½ pts (1.7 l)
12 (300)	6 oz. (0.2 kg)	1 lb. (0.45 kg)	5 pts (2.4 l)
16 (400)	10 oz. (0.3 kg)	2 lb. (0.9 kg)	1 gal (3.8 l)
20 (510)	1 lb. (0.45 kg)	3 lb (1.4 kg)	1 2/3 gal (6.3 l)
24 (610)	1 ½ lb (0.7 kg)	4 lb. (1.8 kg)	2 1/3 gal (98.8 l)

6. The water shall then be pumped to waste until the presence of chlorine is no longer detectable. The absence of chlorine is best determined by testing for available chlorine residual using a test kit designed for this purpose.

Disposal of the waste should be away from trees, shrubs, or lawns and into storm sewers, drainage ditches, etc. Note that heavily chlorinated water should not be disposed of through the plumbing systems of homes that utilize individual sewage disposal systems (septic tanks). Such strong disinfectants could neutralize the bacteria needed to stabilize the sewage and also could damage the soil absorption system.

7. (Optional) A bacteriological sample should be taken and submitted to a laboratory for examination.
8. If the laboratory analysis shows the water is not free of bacterial contamination, the disinfection procedure should be repeated. Depending on the level of contamination, it may be necessary to use a higher concentration chlorine solution (several times that shown in the table). The water should be retested. If the repeated attempts to disinfect the well are unsuccessful, a detailed investigation to determine the cause of the contamination should be undertaken.

When small individual domestic wells to be treated are of unknown depth or volume, at least one pound (0.45 kilograms) of calcium hypo chlorite (70% available chlorine) or two gallons (7.51 liters) of unscented household bleach (sodium hypochlorite), such as Clorox or Purex, may be used in lieu of chemicals shown in the table referenced above.

Please Note:

- Some authorities recommend a minimum concentration of 100 mg/L. To obtain this concentration, double the amounts shown.
- Examples of trade names are: HTH, Perchloron, Pittchlor, etc.
- When dry chlorine is used, dry product should be mixed with water prior to use.

State Certified Private Laboratories for Drinking Water

Below is a listing of state certified laboratories for drinking water and/or wastewater analysis. The following list is provided for information only. The County of Orange does not endorse the businesses listed. A more comprehensive listing can be found at <http://www.dhs.ca.aov/os/ls/ELAP/html/lablist.htm>.

Associated Laboratories
806 N. Batavia Street
Orange, CA 92926
(714) 771-6900

Sierra Analytical
26052 Merit Circle
Laguna Hills, CA 92653
(949) 348-9389

Cal Science Environmental
7440 Lincoln Way
Garden Grove, CA 92841
(714) 895-5494

Truesdail Laboratories
14201 Franklin Avenue
Tustin, CA 92780
(714) 730-6239

Crosby Laboratories
1101 Richfield Road
Placentia, CA 92870
(714) 572-3270

Clinical Laboratory of San Bernardino.
21881 Barton Road
Grand Terrace, CA 92313
(909) 825-7693