

Bacteriological Water Potability Tests

Cost: \$21

To submit: Samples are accepted 7:30 a.m. to 4:00 p.m. Monday-Thursday.

Due to test time requirements samples will not be accepted on Fridays or on a weekday before a holiday. For your convenience, a calendar for the year is available on our website:

www.elpasocountyhealth.org/service/water-quality

For results: Results for samples submitted are available by 4:00 p.m. the next day.

If this water test is related to a real estate loan, please check with your financial institution for what they require. Please print and press hard when filling out this lab request form. **Read all directions before taking sample.**

To Collect a Sample:

1. **You must obtain** a bottle from the lab at El Paso County Public Health.
2. **Do not rinse bottle;** the substance in the bottle preserves water in a state suitable for this test. Use only the bottle issued by this laboratory for sampling.
3. **Obtain sample from a stationary faucet** (often in a bathtub) without an aerator or screen. Try to avoid taking samples from the following: swinging taps, taps with aerators, outside taps, hot water taps. Prepare sample site for collection by flaming or cleaning the tap by using a small brush and bleach to clean the opening where water leaves the faucet.
4. **Run cold water at least five minutes before taking a sample.**
5. **Fill the bottle to or above the line** and replace lid at once. Do not touch the inside of the lid or bottle.
6. **Sample must be received by our lab within 24 hours of sampling.**
7. **Refrigerate sealed bottle until delivery to the lab.**

Reasons for Sample Rejection:

- Time between sample collection and receipt by laboratory exceeded
- Presence of disinfectant in sample noticed, e.g., odor
- Evidence of freezing
- Use of a container not approved by the laboratory for the purpose intended
- **Insufficient sample volume, e.g., <100 mL (fill bottle above 100mL line; over-filled is acceptable, under-filled will be rejected)**
- Presence of interfering contaminants noticed, e.g., hydrocarbons, cleaners, heavy metals, etc.
- Sample temperature exceeding the maximum allowable

To Obtain Results:

Results are available by 4:00 p.m. on the day after receipt in the lab. All results will be emailed and you may call for results. If you have any questions, or for results, please call (719) 578-3120.

Standards:

No specific regulations or laws exist that govern private well water quality. It is the policy of El Paso County Public Health to evaluate private water well supplies by the same standards used by the state to evaluate public drinking water. Those standards indicate that the presence of coliform (potentially harmful bacteria) will cause a water sample to fail. Often the conditions that cause a sample to fail can be corrected through chlorination.

To Chlorinate Water Supply Wells

Determining Amount of Chlorination for Your Well

Table I

Casing Diameter (Inches)	Gallons of Water in 1 Foot of Casing	Casing Diameter (Inches)	Gallons of Water in 1 Foot of Casing
2	0.16	18	13.21
4	0.65	24	23.50
5	1.02	30	36.72
6	1.47	36	52.87
8	2.61	42	71.97
10	4.08	48	94.00
12	5.88		

Table II

Gallons of Water in Well	Laundry Bleach	Chlorinated Lime	High Test Hypochlorite
5	5.5 oz.	1.2 oz.	.5 oz.
50	56 oz.	12 oz.	4 oz.
100	112 oz.	24 oz.	8 oz.
150	168 oz.	36 oz.	12 oz.
200	224 oz.	48 oz.	16 oz.
300	336 oz.	72 oz.	24 oz.
Each additional 100 Gallons add:	112 oz.	24 oz.	8 oz.

Bacterial contamination of well water can come from many sources. The most common include repairing the pump or casing without follow-up chlorination, surface water entering pump or casing, poor construction of the well, or leaks in the well or well casing. Shock chlorination of the well may eliminate the bacterial contamination, but well rehabilitation may be necessary if contamination continues to occur (as in a rusted or leaking casing).

To determine the amount of chlorine needed to shock chlorinate your well, first determine the approximate volume of water contained in your well. Determine the volume of water in your well by multiplying the depth of your well times the amount of water in one foot of casing (Table I).

Well Depth x Gallons of Water in 1 Foot of Casing (see Table I) = Volume of Water in Well

Once you have determined the volume of water in your well, refer to Table II to determine the amount of chlorine compound required to shock chlorinate your well.

Forms of Chlorine Used in Shock Chlorination

Format

Liquid

Powder or Tablet

Form

Powder or Tablet

Form

Chemical Mixture

Laundry Bleach (Sodium Hypochlorite, 5.25%)

Chlorinated Lime (Chloride of Lime, 25-30%)

High-Test Hypochlorate (Calcium Hypochlorite, 65-75 %)

Treatment of Casing and Drop Pipe

During the shock chlorination process it is necessary to thoroughly wet down the inside of the well casing and drop pipe. This can be accomplished by one of the three methods mentioned below:

- If liquid bleach is used, mix the recommended amount (Table II) to at least 10 gallons of water. Pour down the inside of the casing, thoroughly wetting down everything inside the casing.
- If powdered or tablet chlorine is used, dissolve the recommended amount (Table II) in a small quantity of water, then add the clear solution to a larger quantity of water (at least 20 gallons). Pour this solution into the casing, thoroughly wetting down everything inside the casing.
- If a hose will extend from a nearby hydrant or faucet to the well casing, pour the recommended amounts of chlorine (Table II) into the casing and wash down the inside of the casing with the hose. Make sure the chlorine solution in the well is coming through the hose during the wash-down procedure. Pumping the solution into the casing will help to mix the chlorine solution with the standing water in the well.

Once the chlorine is thoroughly mixed with the water in the well casing, allow it to stand for about six to 12 hours. At the end of the six- to 12-hour period, all faucets should be allowed to run until a strong odor of chlorine is observed at each faucet, then turn off the faucets and allow the water to stand in the pipes for one hour.

Flushing the System

Begin flushing the system by running all outside faucets until you no longer smell chlorine. Run this water into the street or onto an area where there is no lawn or flowers, such as a rock area. You may severely damage lawns, landscape plantings, flowers or septic tanks with heavily chlorinated water. Once you have removed most of the chlorine at the outside faucets, go into the house and run all inside faucets. If you have a septic tank or leaching field, you may want to dechlorinate the water at the drain by using approximately two (2) ounces of sodium bisulfite for every gallon run. Sodium bisulfite can be purchased at hardware stores. Hot water heaters should be drained after a well is treated with chlorine. If possible, run a hose from the water heater outside to an area that does not contain lawn or other sensitive plants.

Chlorination Instruction Video: <https://www.youtube.com/watch?v=MZJ6FxK6cwk>

CAUTION

- Do not flush more than 100 gallons of chlorinated water from the system into the septic system.
- Avoid draining heavily chlorinated water to lawns and do not allow puddles to form.
- Do not chlorinate carbon or charcoal filters because this will deplete their capacity.
- During the seven- to 13-hour procedure, purchase water for drinking, cooking and laundry. Do not use well water for drinking or cooking while chlorine level is exceptionally strong.
- All concentrated chlorine solutions are corrosive and care should be taken to avoid splashing them onto skin or into eyes. Skin areas or eyes contacted by the disinfection solution should be flushed immediately with clean water.
- Never mix chlorine solutions with compounds containing acids or ammonia to improve their cleaning ability because toxic gases will form.

Frequently Asked Questions

What do the results mean?

If coliform bacteria are present in your drinking water, your risk of contracting a water-borne illness is increased. Although total coliforms can come from sources other than fecal matter, a positive total coliform sample should be considered an indication of pollution in your well. Positive E.coli results should be considered indication of fecal pollution in your well.

What should be done if coliform bacteria are detected in a well?

When coliforms have been detected, repairs or modifications of the water system may be required. Drinking bottled water is advised until disinfection and retesting can confirm that contamination has been eliminated. A defective well is often the cause when coliform bacteria are found in well water. Water storage systems, e.g. cisterns, can also be the source of the problem.

What exactly *are* total coliform bacteria and why do we test for them in our drinking water?

Total Coliform bacteria are part of a family of bacteria called, Enterobacteriaceae, or Enterics, for short. Coliform bacteria have some interesting characteristics that allow us to use them as *indicator organisms*. In this case, a coliform present sample in drinking water *indicates* that the source is, or recently has been infiltrated by surface water. We use coliforms to help us determine this, because coliform bacteria are found throughout the environment, as well as on most plant material.

When we find coliform bacteria in your drinking water sample, as stated above, it simply indicates that the source is, or recently has been compromised by surface water. We're not so concerned about the coliform bacteria themselves, but the "red flag" if you will, is that we don't know what else may have gotten in your drinking water system via the same route that the coliform bacteria entered.

Escherichia coli (E. coli)= is the major species in the fecal coliform group. Of the five general groups of bacteria that comprise the total coliforms, only E. coli is generally not found growing and reproducing in the environment. Consequently, E. coli is considered to be the species of coliform bacteria that is the best indicator of fecal pollution and the possible presence of pathogens.

Coliform Bacteria= "coliform" is a general term for types of bacteria that are present in the environment but should not be present in the closed system of a well. Most coliform bacteria do not cause disease. The presence of any coliforms in drinking water suggests that there may be disease-causing agents in the water as well. Coliform can also be found in the aquatic environment, in soil and on vegetation.

The El Paso County Public Health Laboratory is certified to test for bacterial contamination, for information on additional testing refer to our website:

<http://www.elpasocountyhealth.org/service/water-quality>

For information and guidance on other water tests refer to the Colorado Department of Public Health and Environment's website:

<http://www.colorado.gov/cs/Satellite/CDPHE-Lab/CBON/1251594505186>