



TOTAL COLIFORM BACTERIA

Significance of Laboratory Results

Bacteriological examinations of water are made to determine its suitability for drinking and general domestic use. Coliform bacteria are found in the feces of man and other warm-blooded animals, and so are present in sewage, surface water and shallow groundwater exposed to contamination. Though not necessarily disease producing in themselves, coliforms can be indicators of organisms that cause assorted gastroenteric infections including dysentery, hepatitis, typhoid fever, cholera, and others.

Our laboratory uses a presence/absence test for detection and identification of coliform bacteria and *E. coli*. Results from this method are reported as presence of coliform bacteria in 100 milliliters (mL) of sample. If coliform bacteria are not detected in the sample, ND (not detected) is reported.

If test results indicate the presence of coliform bacteria, use of the water for drinking should be stopped immediately and disinfected. Information on how to chlorinate and disinfect your water source is provided below. A retest of the water for bacteria is recommended after the chlorination procedure has been done. If the retest is still unsatisfactory, an investigation should be conducted to determine the source of contamination. Consult your local Public Health Official for assistance.

Disinfection of Wells and Water Systems

Contaminated wells, new wells or repaired wells and/or pipelines should be disinfected before the water is used for human consumption. Chlorine compounds are readily available and when used properly are very effective. **Warning: Chlorine is a hazardous chemical. All chlorine containing compounds should be handled with caution and all suggested safety precautions followed.**

The first step in disinfecting a well is to determine the volume of water in the well. The following table gives the volume per foot of depth of common well casing diameters:

Gallons of water/foot of depth for given well diameters

Diameter of well in inches	4	6	8	12	14	16	24	36	48
Gallons of water/foot of depth	0.65	1.5	2.5	4	6	10.5	23.5	53	94

The total gallons of water in the well is obtained by multiplying the gallons of water per each foot of depth times the number of feet of water standing in the well. For example: An 8-inch cased well with 10 feet of water should contain 25 gallons of water (10 x 2.5).

The second step is to determine the quantity of chlorine containing material required to disinfect the well. The percent chlorine in the compound determines how much material is required.

(over)

The following table shows the quantity of material required for various quantities of water in the well.

Quantity of chemical to use

Quantity of Water in Well	Laundry Bleaches	Chloride of Lime	50% Hypochlorite	70% Hypochlorite
50 gallons	7 oz.	1.5 oz.	1 oz.	0.5 oz.
100 gallons	14 oz.	3 oz.	2 oz.	1 oz.
150 gallons	21 oz.	4.5 oz.	3 oz.	1.5 oz.
200 gallons	28 oz.	6 oz.	4 oz.	2 oz.
300 gallons	42 oz.	9 oz.	6 oz.	3 oz.
For each additional 100 gallons add:	14 oz.	3 oz.	2 oz.	1 oz.

NOTE: Above quantities result in a disinfecting strength of approximately 50 parts per million.

1. Pour the chlorine into the well and mix by circulating water from house spigot or other location back into the well until the water from the hose has a strong chlorine odor or approximately 30 minutes.
2. Turn on all inside and outside taps until you smell chlorine coming out of tap, then shut off. Also flush toilets until you smell chlorine. This insures the disinfecting of the plumbing system and well.
3. Allow water to stand in pipes for a minimum of 6 to 24 hours. If heavily contaminated, leave for 48 hours.
4. After the 6-48 hours open all taps and flush toilets until the chlorine is undetectable. Resampling should now be done to verify disinfection.

Wells need to be protected from outside contamination. Disinfecting the well will not insure a good potable (drinking) water if the well construction is inadequate. The well casing should be covered and in good condition with no breaks or cracks. Shallow wells are more susceptible to contamination and should be sampled in times of heavy rains, snow melt, irrigation, or any event that may cause surface water to seep into the well.

NOTE: Caution should be used in discharging chlorinated water of disinfecting concentrations into septic tanks. Discharge chlorinated water onto a non-vegetated surface until all the chlorine smell is absent is preferred. If the water is run into a septic tank, the septic tank will need to be reactivated after 3-4 days (time for the chlorine to dissipate).

WY Dept. of Ag. Recommendations:

1. Have the total coliform run on your water at least twice each year, once in late spring and again in late fall.
2. Have a professional inspect the well once every 5 to 10 years or any time persistent bacteriological problems occur.
3. Keep all records and water reports on the well from the time of drilling to present. These records may prove useful in diagnosing and/or curing problems.

DISINFECTING WILL NOT MAKE WATER POTABLE IF THE CHEMICAL ANALYSIS IS NOT WITHIN RECOMMENDED LEVELS.

References: