

coliform bacteria

Fecal coliform bacteria are naturally present in the human digestive tract but are rare or absent in unpolluted waters. Coliform bacteria should not be found in well water or other sources of drinking water. Their presence in water serves as a reliable indication of sewage or fecal contamination. Although coliform bacteria themselves are not pathogenic, they occur with intestinal pathogens that are dangerous to human health. This presence/absence total coliform test detects all coliform bacteria strains and may indicate fecal contamination.

The coliform test in this kit will indicate if you have above or below 20 coliform colonies per 100 mL of well or river water. **Even if the result of the coliform test for your well water is negative, this is not proof that your water is safe to drink. You should always have a professional lab test your drinking water for the presence of coliform bacteria.**

See chart for significant levels.

coliform bacteria	negative	3 (good)
	positive	1 (poor)

dissolved oxygen

Dissolved Oxygen (DO) is important to the health of aquatic ecosystems. All aquatic animals need oxygen to survive. Natural waters with consistently high dissolved oxygen levels are most likely healthy and stable environments, and are capable of supporting a diversity of aquatic organisms. Natural and human-induced changes to the aquatic environment can affect the availability of dissolved oxygen.

Dissolved Oxygen % Saturation is an important measurement of water quality. Cold water can hold more dissolved oxygen than warm water. For example, water at 28°C will be 100% saturated with 8 ppm dissolved oxygen. However, water at 8°C can hold up to 12 ppm of oxygen before it is 100% saturated. High levels of bacteria from sewage pollution or large amounts of rotting plants can cause the % saturation to decrease. This can cause large fluctuations in dissolved oxygen levels throughout the day, which can affect the ability of plants and animals to thrive.

dissolved oxygen	91-110% Sat	4 (excellent)
	71-90 % Sat	3 (good)
	51-70 % Sat	2 (fair)
	<50 % Sat	1 (poor)

nitrate

Nitrate is a nutrient needed by all aquatic plants and animals to build protein. The decomposition of dead plants and animals and the excretions of living animals release nitrate into the aquatic system. Excess nutrients like nitrate increase plant growth and decay, promote bacterial decomposition, and therefore, decrease the amount of oxygen available in the water.

Sewage is the main source of excess nitrate added to natural waters, while fertilizer and agricultural runoff also contribute to high levels of nitrate.

Drinking water containing high nitrate levels can affect the ability of our blood to carry oxygen. This is especially true for infants who drink formula made with water containing high levels of nitrate. **You should always have a professional lab test your drinking water for the presence of nitrate.**

nitrate	5 ppm	2 (fair)
	20 ppm	1 (poor)
	40 ppm	1 (poor)

pH

pH is a measurement of the acidic or basic quality of water. The pH scale ranges from a value of 0 (very acidic) to 14 (very basic), with 7 being neutral. The pH of natural water is usually between 6.5 and 8.2. Most aquatic organisms are adapted to a specific pH level and may die if the pH of the water changes even slightly.

pH can be affected by industrial waste, agricultural runoff, or drainage from improperly run mining operations.

pH	4	1 (poor)
	5	1 (poor)
	6	3 (good)
	7	4 (excellent)
	8	3 (good)
	9	1 (poor)
	10	1 (poor)

phosphate

Phosphate is a nutrient needed for plant and animal growth and is also a fundamental element in metabolic reactions. High levels of this nutrient can lead to overgrowth of plants, increased bacterial activity, and decreased dissolved oxygen levels.

Phosphate comes from several sources including human and animal waste, industrial pollution, and agricultural runoff.

phosphate	1 ppm	4 (excellent)
	2 ppm	3 (good)
	4 ppm	2 (fair)

temperature

Temperature is very important to water quality. Temperature affects the amount of dissolved oxygen in the water, the rate of photosynthesis by aquatic plants, and the sensitivity of organisms to toxic wastes, parasites and disease. Thermal pollution, the discharge of heated water from industrial operations, for example, can cause temperature changes that threaten the balance of aquatic systems.

temperature change	0 - 2°C	4 (excellent)
	3 - 5°C	3 (good)
	6 - 10°C	2 (fair)
	>10°C	1 (poor)

turbidity

Turbidity is the measure of the relative clarity of water. Turbid water is caused by suspended and colloidal matter such as clay, silt, organic and inorganic matter, and microscopic organisms. Turbidity should not be confused with color, since darkly colored water can still be clear and not turbid. Turbid water may be the result of soil erosion, urban runoff, algal blooms, and bottom sediment disturbances which can be caused by boat traffic and abundant bottom feeders.

turbidity	0 JTU	4 (excellent)
	>0 to 40 JTU	3 (good)
	>40 to 100 JTU	2 (fair)
	>100 JTU	1 (poor)

Questions I had:

Total: _____