

Ensuring Your Drinking Water Is Safe By...

- Providing drinking water sampling and analysis for rural water users at no charge.
- Testing 250 sites across three counties to make certain groundwater quality is safe from contaminants.



*Protecting Lives
Protecting Property
Protecting the Future*

More Information About Nitrate in Drinking Water

The nitrate standard is established to protect infants less than one year old who consume water mixed with formula or directly. Nitrate has caused methemoglobinemia (infant cyanosis) or blue baby disease in infants less than 6 months old who have been given water or formula mixed with water high in nitrate.

Pregnant women, those expecting to become pregnant, and nursing women should also avoid water above this standard (10ppm) because of possible effects on conception and abortion. As with other environmental factors, there is a wide range in sensitivity between individuals so not all would develop the same symptoms from exposure to high nitrate.

Concentrations more than twice the standard (20mg/l) are an unreasonable risk to health and should be corrected when possible.

Livestock, as a rule, are less sensitive to poor water quality than people. However, livestock are more likely to receive continued high nitrate from feed. For healthy people, nitrate in food is seldom as much concern because people usually have greater variety

Risk increases with concentration and exposure, as with most contaminants. Usually the young and pregnant, ruminant animals, milking animals, and horses are most at risk for adverse effects. Nitrate concentrations in water more than four times the drinking water standard are only safe for animals not at risk and when it is known that feed is not high in nitrate.

Protecting Your Drinking Water



Drinking Water Quality Information Summer 2009



Upper Republican Natural Resources District

What's In Your Water?

Did you know that your drinking water could be impacting your health? While public water supplies are routinely monitored, water quality in private wells is left to the well owner or well water user.

Important factors for safe drinking water from private wells are well location out of pollutant pathways, well construction that meets current standards, site management to protect wells from contamination, and annual well maintenance. Water tests are recommended as part of an annual maintenance program for private wells.

Let's take a look at some common drinking water contaminants:

Microorganisms

Microorganisms are a class of contaminants including bacteria, protozoa, viruses, fungi and worms. Because they can reproduce and grow in water, or in a host once ingested, microorganisms are responsible for the majority of illness, disease and death associated with polluted drinking water.



Total Coliform

The test for total coliform bacteria has long been the standard test for microbiological safety. The presence of coliform bacteria in a water supply means disease-causing organisms

may be present. When a test is positive for total coliform, it is recommended to test for fecal coliform or E. coli.

Authorities suggest testing wells for total coliform at least four times a year. Any time a bacteria test is positive for total coliform, fecal coliform or other bacteria, carefully check the well for possible entry points, and shock chlorinate the well.

Fecal Coliform, or E. coli

Fecal coliform, or E. coli, is the principal bacteria in the digestive tract of warm blooded animals. When water systems test positive for E. coli, this indicates that there are defects in the well, allowing entry of animal manure or sewage waste.

If E. coli is found in your water supply, water should not be used for drinking, bathing, or in the kitchen until the defect in the well or other source of contamination is corrected, the system is thoroughly shock chlorinated and follow up water tests are negative.

Inorganic Chemicals

Inorganic chemicals are present in all drinking water; levels of these chemicals are influenced by the soil, rock, minerals and pollutants that have been in contact with the water.

Lead

Exposure to lead in water can lead to serious health problems; damage can occur in the brain, kidneys, nervous system and red blood cells. Children, infants and fetuses are especially vulnerable to the effects of lead.

Lead rarely occurs naturally in drinking water; the contamination often occurs at some point in the water delivery system. If test results indicate the presence of lead and the source is identified, appropriate steps should be taken. Options include removing the lead source, managing the water supply use for drinking and cooking by flushing water with high lead concentrations from the water system, using water treatment equipment, or using an alternative water source.

Nitrate

Simply put, nitrate is the nitrogen portion of the nitrate ion. When present in drinking water, it can present a health risk—regularly testing water can help manage that risk.

Most often, nitrate presence in a water source is the result of pollution from fertilizer or human or animal waste. If your drinking water exceeds the acceptable nitrate standard, safety options are to use an alternate water supply or treat the water. Treatment options include distillation, reverse osmosis, or ion exchange.

Other Water Quality Parameters

This category includes several items, some of



which are considered nuisance contaminants, but do not affect health and are considered secondary standards. These parameters are alkalinity, hardness and hydrogen sulfide. Unlike many of the inorganic chemicals that cannot be detected by the sense, these contaminants usually are recognized directly or indirectly through observed effects.

For More Information

Detailed information on drinking water contaminants and well testing can be obtained by contacting Heather Francis at the Upper Republican Natural Resources District, (308) 882-5173 or heatherfrancis@urnrd.org.

Information in the brochure obtained from the University of Nebraska and Kansas State University.