

HOW TO TEST YOUR WELL WATER AND UNDERSTAND THE RESULTS



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All water from natural sources contains some impurities which may adversely affect its suitability for drinking. It is therefore important to test well water periodically to determine its quality.

The purpose of this publication is to describe recommended water sampling procedures, and to aid interpretation of the routine water chemistry analysis results from the Nevada State Health Laboratory.

ROUTINE WATER CHEMISTRY ANALYSIS

The most common analysis conducted is the chemistry analysis called "Routine Domestic Analysis." The Bureau of Health Protection Services recommends this analysis be performed every three years. Many water characteristics are evaluated by this test to determine if the water meets State standards.

SAMPLING PROCEDURE FOR WATER CHEMISTRY*

The proper collection, handling and preservation of a water sample is crucial for an accurate water test. To get an accurate reading of your water's chemical make-up, follow these steps:

- Purchase a 1/2 or 1 gallon container of distilled water. Once the contents have been used, prevent contamination by leaving the container empty and recapping it.
- Label the container with permanent ink, writing your name, address and phone number.
- To ensure an accurate reading, your water system must be operating long enough to remove water from within the well casing. The length of time needed to clear the casing will vary, but generally running the outside irrigation system for 4 hours will be sufficient. Running water outside the house rather than inside will prevent overloading of the septic system. New wells or water systems not in use for several weeks may require longer pumping periods prior to collecting a water sample.
- Fill the distilled water bottle with water taken from the faucet used to flush the system. Do not use a garden hose unless it too was used to flush the system.

HAVING YOUR WATER TESTED

Water testing is done by the Nevada State Health Laboratory, Nevada Division of Health. Cost of the routine water chemistry analysis will vary, so ask for rates in advance.

A completed form must accompany your water sample. This form is available from County Public Works Departments or Bureau of Health Protection Services offices located throughout Nevada. Water samples sometimes can be delivered or mailed to the office nearest you (see list) or directly to the State Lab in Reno. Check with the regional office for their procedure for mailing.

Call the lab for special instructions for collecting bacteria or lead/copper samples.

UNDERSTANDING TEST RESULTS

Congress passed the Safe Drinking Water Act in 1974. It requires the U.S. Environmental Protection Agency (EPA) to set limits or standards for contaminant concentrations that may pose a health hazard in public drinking water. There are two categories of drinking water standards: Primary or Maximum Contaminant Level and Secondary or Secondary Maximum Contaminant Level. Primary standards (Table 1) are the highest allowable concentrations of contaminants based on health considerations. Secondary standards (Table 2) regulate contaminants that cause offensive taste, odor, color, corrosivity, foaming, and staining. Primary and secondary standards do not apply to individual private wells, but serve as a guide to ensure safe drinking water for these systems. Table 3 provides the "action" levels for lead and copper, which are guidelines to trigger preventive measures. Additional information included on the lab analysis form is shown in Table 4. These values are obtained during laboratory testing procedures. They provide additional information about the water's suitability for a particular use.

Contaminant	Maximum Contaminant Level
Arsenic (As)	0.05 ppm ¹
Barium (Ba)	2 ppm
Fluoride (F)	4.0 ppm
Mercury	0.002 ppm
Nitrate (N)	10 ppm
Turbidity	turbidity units
Coliform/Fecal Coliform/E. coli	absent
ppm (parts per million)	

Contaminant	Maximum Contaminant Level
Chloride (Cl)	400.0 ppm ¹
Color	15.0 color units
Copper (Cu)	1.0 ppm
Fluoride (F)	2.0 ppm
Iron (Fe)	0.6 ppm
Magnesium (Mg)	150.0 ppm
Manganese (Mn)	0.1 ppm
pH	6.5 - 8.5
Sulfate(SO ₄)	500.0 ppm
Total Dissolved Solids (TDS)	1000.0 ppm
Zinc (Zn)	5.0 ppm
¹ ppm (parts per million)	

Characteristic	Consideration	
Alkalinity ³		
Boron ^{2 3}	Too much boron is harmful to plants.	
Bicarbonate (HCO ₃) ³		
Calcium (Ca) ^{1 2 3}	High levels increase pH in water and soils.	
Carbonate (CO ₃) ³		
EC (Electrical Conductivity) ³	Measures salt concentration of water in umhos/cm.	
	0 to 400	excellent
	400 to 8,500	Satisfactory
	over 8,500	objectionable
Hardness	0 to 75 ppm	soft
	75 to 150 ppm	moderately hard
	150 to 300 ppm	hard
	over 300 ppm	very hard
Magnesium (Mg) ^{1 2 3}	Laxative effect, quickly adjusted to by newcomers.	
Potassium (K) ²	Plant nutrient, adds to TDS. Consult personal physician for health application.	
Silica ³		
Sodium (Na) ³	Consult personal physician for health application.	

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