



Montana Environmental Laboratory LLC

1170 N. Meridian Rd., P.O. Box 8900, Kalispell, MT 59904
 Phone: 406-755-2131 Fax: 406-257-5359 www.melab.us

How to understand water test results: This is an explanation. This is NOT your results.

Client Sample ID: Any Customer				Lab ID:				
Matrix: DRINKING WATER	Collected:			Received:				
Analyses	Result	Units	RL	MCL	Method	Prepared	Analyzed	Analyst
Alkalinity - Total	224	mg/L	1	500	SM2320B		03/19/2018 16:48	GDM
Arsenic	0.018	mg/L	0.001	0.010	E200.8		03/22/2018 16:51	BLW
Nitrate + Nitrite, Total	0.70	mg/L	0.01	10	E353.2		03/19/2018 9:00	GDM

Definitions:

ND stands for no detection meaning the chemical was not detected in the sample.

mg/L stands for milligrams per liter which is the same as parts per million.

RL stands for reporting limit, the smallest amount that can be detected.

MCL stands for maximum contaminant limit, the highest amount of a contaminant that is considered safe to drink.

Parameter	Range	Pass / Fail	Warnings
Alkalinity is a measure of the water's capacity to resist a change of pH.	ND to 100 mg/L	Corrosive	Along with low pH can cause corrosion of pipes.
	100 to 200 mg/L	Satisfactory	
	200 mg/L or higher	Scaling	Can cause scaling. May have an objectionable soda like taste.
Aluminum	ND to 0.2 mg/L	Satisfactory	No action necessary. Suggested maximum contaminant limit is based on aesthetics, not health concerns.
	0.2 mg/L or higher	Objectionable	Can cause colored water.
Antimony	ND to 0.006 mg/L	Satisfactory	Consider annual testing if result is 0.005 or higher.
	0.006 mg/L or higher	Not potable	Some people who drink water with high levels could experience intestinal problems.
Arsenic occurs naturally in rock and soil. It is very common in Montana.	ND	Ideal	
	ND to 0.010 mg/L	Satisfactory	Consider annual testing if result is 0.007 or higher.
	0.010 mg/L or higher	Not potable	Some people who drink water with high levels of arsenic could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Barium most groundwater in Montana contains some barium	ND to 2 mg/L	Satisfactory	Small amounts of barium are common in groundwater.
	2 mg/L or higher	Not potable	Some people who drink water with high levels could experience increased blood pressure.
Beryllium	ND to 0.004 mg/L	Satisfactory	Consider annual testing if result is 0.003 or higher.
	0.004 mg/L or higher	Not potable	Some people who drink water with high levels could experience intestinal lesions.
Cadmium can be in water from natural deposits or corrosion of galvanized pipe.	ND to 0.005 mg/L	Satisfactory	Consider annual testing if result is 0.003 or higher.
	0.005 mg/L or higher	Not potable	Some people who drink water with high levels could experience kidney damage.



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Calcium is a naturally occurring mineral which is essential in the human diet.	Any value	Satisfactory	Calcium is a major component of hard water, which leaves mineral deposits on faucets. Calcium is required by the human body at 1000 mg per day.
Chloride can be in water through erosion of natural deposits	ND to 250 mg/L	Satisfactory	Low levels of chloride are normal in drinking water.
	250 mg/L or higher	Objectionable	Higher concentrations can give a salty taste to the water.
Chromium can be in water through erosion of natural deposits	ND to 0.1 mg/L	Satisfactory	Consider annual testing if result is 0.08 or higher.
	0.1 mg/L or higher	Not potable	Some people who drink water with high levels could experience allergic dermatitis.
Coliform Bacteria (Total) indicates contamination and should not be present in drinking water.	Absent	Satisfactory	The EPA suggests that all homeowners test annually for this contaminant.
	Present	Objectionable	Not a direct health threat, but coliforms should not be present in groundwater. If present, other harmful bacteria may be present.
Coliform Bacteria (Escherichia, or E. coli) is a primary indication of fecal contamination.	Absent	Satisfactory	The EPA suggests that all homeowners test annually for this contaminant.
	Present	Not potable	Direct health threat. Unsafe to drink without treatment.
Conductivity (Specific Conductance) is a measure of how well the water conducts electricity. Closely related to total dissolved solids. The unit of measurement (umhos) is called micro mhos.	ND to 400 umhos/cm	Satisfactory	In the normal range for well water.
	400 to 1000 umhos/cm	Moderate	Moderate, getting high.
	1000 umhos/cm or higher	Objectionable	Conductivity over 1000 over may cause mineral build up in the soil of house plants, causing them to turn yellow. Sea water has conductivity of over 10,000.
Copper Commonly caused by corrosion of copper plumbing. Results can only be compared to the maximum contaminant limit if the sample was a one liter first draw.	ND to 1.3 mg/L from a 1L first draw sample	Satisfactory	Copper is an essential nutrient in small amounts.
	1.3 mg/L or higher from a 1L first draw sample	Not potable	This may be evidenced by green staining in sinks or tubs. High levels of copper could cause gastrointestinal distress and could lead to liver or kidney disease.
Fluoride is found in many types of rock, and may enter water through erosion of natural deposits. Fluoride in water is very common in Montana.	ND to 0.7 mg/L	Satisfactory	Out of the ideal range for protection of tooth enamel.
	0.7 to 1.5 mg/L	Satisfactory	Ideal range for protection of tooth enamel.
	1.5 to 2.0 mg/L	Satisfactory	Out of the ideal range for protection of tooth enamel.
	2.0 to 4.0 mg/L	Objectionable	levels above 2.0 mg/L fluoride can cause mottling or permanent white stains on the teeth
	4.0 mg/L or higher	Not potable	Fluoride above 4.0 mg/L can cause dental or skeletal fluorosis.
Hardness is mostly made up of calcium and magnesium ions in the water. These ions combine with soap to form a scum. Hard water requires more soap to clean items and soap scum may build up on fixtures.	ND to 60 mg/L	Soft	Soft water can be more corrosive to pipes and plumbing.
	60 to 120 mg/L	Moderate	Normally a satisfactory intermediate between causing corrosion or scaling.
	120 mg/L or higher	Hard	High levels of hardness can cause scaling to form in hot water heaters. To determine the hardness of your water in grains per gallon, use the following conversion factor: mg/L of hardness divided by 17.1 = grains per gallon of hardness.



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Iron is a naturally occurring metal which is essential in the human diet.	ND to 0.3 mg/L	Satisfactory	
	0.3 mg/L or higher	Objectionable	Iron concentrations above 0.3 mg/L can cause "red water" and staining of plumbing fixtures and laundry. Although there are no adverse health effects from drinking water with high levels of iron, it can have an objectionable metallic taste.
Lead usually comes from the corrosion of lead or brass plumbing fixtures. Even new plumbing fixtures can contain up to 8% lead. Results can only be compared to the maximum contaminant limit if the sample was a one liter first draw.	ND	Satisfactory	
	ND to 0.015 mg/L from a 1L first draw sample	Satisfactory	Consider annual testing if result is 0.010 or higher.
	0.015 mg/L or higher from a 1L first draw sample	Not potable	High levels of lead can cause physical or mental developmental problems, learning disabilities, kidney problems, and high blood pressure.
Magnesium is a naturally occurring mineral which is essential in the human diet.	Any value	Satisfactory	Along with calcium, is a mineral that commonly causes hard water.
Manganese is a naturally occurring metal which is essential in the human diet.	ND to 0.05 mg/L	Satisfactory	
	0.10 mg/L or higher	Objectionable	Can impart a bitter metallic taste to the water, and cause black or brown staining of fixtures and laundry.
Mercury	ND	Satisfactory	Consider annual testing if mercury is detected.
	0.002 mg/L or higher	Not potable	Some people who drink water with high levels could experience kidney or brain damage.
Nickel	ND to 0.1 mg/L	Satisfactory	
	0.1 mg/L or higher	Objectionable	Some people who drink water with high levels could experience eczema (skin problems).
Nitrate moves easily in groundwater so increasing nitrate levels can be an early warning that other contaminants are moving towards a well.	ND to 1 mg/L	Satisfactory	The EPA suggests that all well owners test annually for Nitrates.
	1 to 4 mg/L	Possible impairment	Potential pollution exists. Continue annual testing to monitor for changes.
	4 to 10 mg/L	Above normal natural levels	Above normal levels. Nitrate in well water may indicate contamination from agricultural runoff or septic system contamination.
	10 mg/L or higher	Not potable	High nitrate levels can be fatal to infants under one year old. Health risk exists.
Nitrite moves easily in groundwater.	ND to 1 mg/L	Satisfactory	The EPA suggests that all well owners test annually for Nitrates.
	1 mg/L or higher	Not potable	High nitrite levels can be fatal to infants under one year old. Health risk exists.
Nitrate + Nitrite Total Nitrates move easily in groundwater so increasing nitrate levels can be an early warning that other contaminants are moving towards a well.	ND to 1 mg/L	Satisfactory	The EPA suggests that all well owners test annually for Nitrates.
	1 to 4 mg/L	Possible impairment	Potential pollution exists. Continue annual testing to monitor for changes.
	4 to 10 mg/L	Above normal natural levels	Above normal levels. Nitrate in well water may indicate contamination from agricultural runoff or septic system contamination.
	10 mg/L or higher	Not potable	High nitrate levels can be fatal to infants under one year old. Health risk exists.
pH is a measurement to indicate how acidic or basic the water is. pH 7 is neutral.	Less than 6.5 or	Objectionable	Water with a pH of less than 7 is considered acidic, and may give the water a bitter metallic taste. Low pH water may increase leaching metals from plumbing pipes.
	6.5 to 8.5	Satisfactory	
	Greater than 8.5	Objectionable	Water with a pH greater than 7 is considered basic and may make the water have a slippery feel, and a soda taste.



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Potassium is common in groundwater.	Any value	Satisfactory	Essential for the human diet.
Selenium can be in groundwater through erosion of natural deposits and discharge from mines.	ND to 0.05 mg/L	Satisfactory	Consider annual testing if result is 0.04 or more.
	0.05 mg/L or higher	Not potable	Some people who drink water with high levels could experience hair or fingernail loss, numbness in fingers and toes, and circulatory problems.
Silver	ND to 0.1 mg/L	Satisfactory	No action necessary. Suggested maximum contaminant limit is based on aesthetics, not health concerns.
	0.1 mg/L or higher	Objectionable	Can cause skin discoloration and graying of the white part of the eye.
Sodium is one half of common table salt (sodium chloride).	Any value	Satisfactory	High levels of salt have been associated with hypertension. Softened water typically contains about 200 mg/L of sodium.
Sulfate in water containing calcium forms a hard scale in water heaters.	ND to 250 mg/L	Satisfactory	Sulfate can be reduced to hydrogen sulfate which has an objectionable "rotten egg" smell.
	250 mg/L or higher	Objectionable	Concentrations greater than 250 mg/L may have a laxative effect, but up to 500 mg/L is considered safe. In large amounts, sulfate gives a bitter, "medicinal" or salty taste to water.
Thallium can be in water from erosion of natural deposits.	ND	Satisfactory	No action necessary.
	0.0005 to 0.002 mg/L	Objectionable	The EPA maximum contaminant limit "goal" is 0.0005 mg/L. Ideally drinking water should be less than that.
	0.002 mg/L or higher	Not potable	Some people who drink water with high levels could experience hair loss, blood, kidney, intestine, or liver problems.
Total Dissolved Solids is the sum of all minerals metals and salts dissolved in water.	ND to 500 mg/L	Satisfactory	Does not normally pose a serious health risk.
	500 mg/L or higher	Objectionable	Can cause water to be colored, taste poor, stain and cause diarrhea in people not accustomed to the water.
Zinc is a naturally occurring metal that is essential to the human diet.	ND to 5 mg/L	Satisfactory	No action necessary. Suggested maximum contaminant limit is based on aesthetics, not health concerns.
	5 mg/L or higher	Objectionable	Can cause a metallic taste.

There are many other water quality parameters that can be tested, including many other metals, pesticides, herbicides, volatile organic compounds, and radio nuclides. If you have specific water quality concerns, call our lab for prices on other tests.

See http://www.epa.gov/safewater/privatewells/pdfs/household_wells.pdf for more information.