



WATER ANALYSES INTERPRETATION

ARSENIC	<p>Arsenic contamination of water is most often caused by leachate from solid waste landfills, or from use of pesticides. Arsenic in high concentrations is carcinogenic and can cause liver and kidney damage. In high concentrations, arsenic can also damage the digestive tract, heart and circulation. Arsenic accumulates in body tissues. Studies suggest that arsenic is associated with skin cancer. Studies also indicate that arsenic in small amounts may be an essential element for normal human development.</p>
CHLORIDE	<p>Chloride in normal ground waters fall in the 1 to 2 mg/L range, and in reasonable concentration are not harmful to humans. Concentrations of 250 mg/L and above give a salty taste to water and could cause corrosion of pipes and plumbing fixtures. Elevated chlorides may also result from saltwater intrusion, septic tank contamination, or road salt contamination of the well water. Naturally occurring chloride is derived from trace amounts which are present in rocks and soils. Consuming drinking water containing chloride is not harmful to health. Therefore, the secondary drinking water standard of 250 milligrams per liter is set to indicate water quality problems and not health effects. If high chloride amounts are detected, the water source should also be checked for sodium. Locate and remove the source of contamination if possible. Although costly, methods are available to remove sodium and chloride from drinking water. Contact a water treatment specialist. See the yellow pages under "Water Treatment" for the name of a company in your area.</p>
COLOR, ODOR AND TURBIDITY	<p>Although these tests do not directly measure the safety of the water, they do relate to an individual's acceptance of the water. The levels of 5 units of turbidity, 15 units of color, and odor number of 4 are levels which are objectionable to a number of people. Turbidity and color may be removed by entanglement with a chemical floc, settling, and filtration. Activated carbon cartridges will remove tastes and odors by absorption. If a supply suddenly develops an offensive odor, discontinue using the water for drinking and cooking purposes until another analysis shows the water is satisfactory for such purposes.</p>
COPPER	<p>Copper is an essential element for plants, animals, and humans. When present in drinking water in levels over one milligram per liter, it may cause a bitter taste, or green-blue stains on sinks. Copper is a gastrointestinal irritant and can be toxic at high levels. However, the levels in drinking water are rarely high enough to cause a serious risk. A one milligram per liter secondary drinking water standard is set to indicate a taste problem, not a health hazard. Since copper is found only in trace amounts in Maine's ground waters, excess levels are usually caused by the corrosion of copper pipes from soft, acidic waters. Copper caused by corroding of pipes will tend to be more concentrated in early morning because the water stands all night in the pipes. Reduce the concentrations by letting the water run for several minutes before using for cooking or drinking. Equipment for pH control will reduce the acidity of water so that less copper is dissolved. Contact a water treatment specialist; or change to plastic pipe of a type approved for hot water. See the yellow pages under "Water Treatment" for the name of a water treatment company in your area.</p>
HARDNESS	<p>Hardness is caused by minerals, primarily calcium and magnesium, which are picked up by water passing through underground mineral deposits. Hard water is not considered contaminated, but it does retard the cleaning action of soap and forms a scale on cooking utensils, hot water pipes and heaters. This build-up may eventually reduce pipe capacity and water pressure. Hardness is the total concentration of calcium and magnesium in water. Water with under 75 milligrams per liter of calcium carbonate is soft; water with over 200 milligrams per liter is hard. There is no standard for hardness. Hard water is not harmful to health. Calcium and magnesium are essential body elements. In fact, studies suggest that hard water is better for cardiovascular health than soft water, though the reasons for this are not yet known. Water softeners are available from water treatment specialists. In the process of removing minerals, sodium is added to the water and may be unsuitable for a person on a low-sodium diet. See the yellow pages under "Water Treatment" for the name of a specialist in your area.</p>
IRON	<p>Most water contains some iron and manganese which naturally leaches from rocks and soils. Found naturally in soils, rocks, plants, and most water supplies, these minerals are essential to human health. If the water is acidic, ground water can also pick up additional iron from contact with well casing, pump, and piping. The more acidic the water, the more it will dissolve metal from the surface it contacts. High iron in ground water also can be caused by landfill leachate or a leaking petroleum tank. Excess amounts in drinking water can cause discolored water, rusty-brown stains or black specs on fixtures and laundry. Excess amounts may also affect the taste of beverages and can build up deposits in pipes, heaters or pressure tanks. Iron and manganese in the amounts found in most drinking waters are not harmful to health. The secondary drinking water standards of 0.3 milligram per liter for iron and 0.05 milligram per liter for manganese are set to indicate problems of taste, staining, and cloudiness. Iron and manganese can be removed by any one of a number of methods. Contact a water treatment specialist. They are listed in the yellow pages under "Water Treatment".</p>

Please see reverse side for more information.

<p>LEAD</p>	<p>Lead in amounts over the primary drinking water standard of 0.015 milligrams per liter may cause nervous system disorders and brain or kidney damage. Since lead accumulates in body tissue, it is especially hazardous to the fetus or to children under three years old. Most lead contamination of drinking water occurs when soft acidic water corrodes lead or galvanized pipes or corrodes solder used in pipe fittings. Lead from solder can be confirmed by testing to see if tin is also present. Lead is used in insecticides and in high octane gasolines. Lead contamination may be present in water from industrial waste disposal or landfill leachate.</p>
<p>MANGANESE</p>	<p>Manganese is one of a small group of chemicals (including iron, copper and a few others) that reaches an undesirable level due to taste, odor, or color before it becomes a health hazard. For this reason, health-based guidelines for these chemicals are usually not available. Instead, secondary or "aesthetic" MCLs have been promulgated by the U.S. EPA. These "SMCLs" are not formally adopted by the state and thus are not legally enforceable. However, exceeding the SMCL usually means that the water is undesirable for human consumption. The SMCL for manganese is 0.05 mg/l. The existence or an SMCL for a chemical does not preclude that chemical being present in water at a level that would be a health concern if consumed. Consumption of water containing large amounts of manganese has been documented to cause adverse health effects in a few cases. Because of the large number of wells being found in the state with high manganese levels, and because some people apparently consume water containing levels much higher than the SMCL, it was determined that a guideline for protection of public health was necessary in addition to the existing SMCL. The Department of Human Services has determined that a reasonable guideline for manganese would be about 0.8 mg/l. Iron and manganese can be removed by any one of a number of methods. Contact a water treatment specialist. They are listed in the yellow pages under "Water Treatment".</p>
<p>NITRATE-NITROGEN AND NITRITE-NITROGEN</p>	<p>Nitrate and nitrite are naturally occurring substances found in soils, plants, water, and other sources. Nitrogen compounds are commonly found in uncontaminated water in only very small amounts. Most of our daily consumption of nitrates comes from plants. Most nitrites are found in saliva and in the stomach where nitrate is converted to nitrite. The primary drinking water standard is 10 milligrams per liter for nitrate - (N) and 1.0 milligram per liter for nitrite - (N). Primary standards are set to address health risks. Nitrate or nitrite concentrations cause methemoglobinemia in infants, a disease which affects blood so that it no longer carries oxygen through the body. Also known as "blue-baby syndrome", this disease can be fatal. Infants should not drink water which is over the standard, and it should not be used for mixing infant formulas. Do not boil the water to make it safe for temporary use--this will only increase the nitrate concentrations. Use bottled water for infants.</p> <p>Nitrate or nitrite consumption does not affect adults the same as children. Generally, adults can consume much more of these substances without health risk. Nitrogen compounds can be introduced into drinking water supplies through a number of sources including privies, septic systems, municipal and industrial wastes, livestock manure spreading and storage, and heavy use of fertilizers on gardens and agricultural land. Locate and remove the source of nitrate contamination, if possible. Nitrogen compounds can also be removed from the water. Contact a water treatment specialist who has expertise in nitrate removal. Water treatment equipment which removes hardness or iron will not remove nitrate. See the yellow pages under "Water Treatment" for the name of a company in your area.</p>
<p>pH</p>	<p>The pH of a water sample indicates its acidity. pH values range from 0 (very acid) to 14 (very basic); 7.0 indicates water that is neutral (neither acid nor basic). Most ground waters have pH values ranging from about 5.5 to slightly over 8. A water sample having a pH less than 7.0 tends to be corrosive. It will dissolve some metals (lead, copper, cadmium, and zinc) from pipes and iron from well casing, pump, and piping. Water with a pH under 6.0 should be neutralized either chemically or by filtering. Water with a high pH has been associated with scale formation in pipes. If pH exceeds 8.5, water may have an alkali taste. Well water would rarely have such a high pH value as to pose a direct health risk. Contact a water treatment specialist. See the yellow pages under "Water Treatment" for the name of a specialist in your area.</p>
<p>SODIUM</p>	<p>Amounts of high sodium often occur in water with high chloride amounts. An excess of sodium in water may cause a salty taste or odor, as well as presenting long-term health effects. Excess sodium from salt in the diet increases the risk of high blood pressure and cardiovascular disease. For most healthy people, a sodium level 100 milligrams per liter of water will not substantially increase risk. Individuals on a low sodium diet due to high blood pressure or other health problems, are restricted to water within the 20 milligrams per liter standard. They should consult their physician about drinking water which exceeds that level. High amounts of chloride are associated with contamination from salt water intrusion, septic tanks, road salting, and road salt storage piles. Most water contains some sodium which naturally leaches from rocks and soils. In coastal areas, when water is removed from an underground source faster than it is replaced, sea water may be drawn into the well. Also salt spray from the seas can increase sodium in ground water. Water softeners also increase the amount of sodium in water. If you use a softener, it is probably the cause of high sodium. Check this by taking another sample from a point before the water enters the softener. If the sodium level is caused by a water softener, you may need to change the method of treatment. One option is to soften only the hot water, so that water used for drinking and cooking will not be affected. Locate and remove the source of contamination if possible. Although costly, methods are available to remove sodium and chloride from drinking water. Contact a water treatment specialist. See the yellow pages under "Water Treatment" for the name of a company in your area.</p>

For more information, please contact the Maine State Toxicologists toll free at 1 – 866 – 292 – 3474.