

## GENERAL EXPLANATION OF WATER ANALYSIS REPORT

<u>PARAMETER</u>	<u>SOURCE OF CAUSE</u>	<u>SIGNIFICANCE</u>	<u>LIMITS</u>	<u>TREATMENT</u>
<b>pH</b>	pH is lowered by acids; acid-generating salts and free carbon dioxide; pH is raised by carbonates, bicarbonates, hydroxides, phosphates, silicates and borates.	pH is a measure of the acid qualities of water; a pH of 7.0 means a neutral solution; water with a pH below 7.0 is normally harmful in that it may dissolve iron from pumping facilities and mains and produce a "red water" problem.	(acceptable range = 6.5 to 8.5) 7.0+ = alkalinity 7.0 - = acidity	Chemical Addition
<b>Conductivity</b>	Is an indicator of the dissolved mineral content of water; mostly calcium carbonate along with other dissolved salts.	Is a measure of the electrical Conductivity of water and varies with the amount of dissolved solids.	0 -0.5 mS/cm    Good 0.5 - 1.5 mS/cm    Normal >1.5 mS/cm    High	
<b>Total Hardness (CaCO<sub>3</sub> - calcium carbonate such as lime and chalk)</b>	Caused by the presence of calcium and magnesium.	Hard water consumes soap before a lather will form and creates scale in boilers, water heaters, and pipes.	0 - 60 mg/L    soft 61-120 mg/L    moderate 121-180 mg/L    hard >181 mg/L    very hard	Water Softener
<b>Calcium and Magnesium</b>	Dissolved from soil and rock, especially from limestone, dolomite and gypsum. Calcium and Magnesium are found in large quantities in sea water.	Cause most of the hardness and scale-forming properties of water which for example, consume soap; water low in calcium and magnesium is desirable in the electroplating, tanning, dyeing and textile manufacturing industries as well as for boiler use.	No Standards Established	
<b>Alkalinity</b>	Indicates the presence of bicarbonates, carbonates and hydroxides (See pH.)	Information on alkalinity is useful in water treatment, softening and control of corrosion.	No Standards Established	
<b>Carbonate (CO<sub>3</sub>) and Bicarbonate (HCO<sub>3</sub>)</b>	Formed from carbonated rock, such as limestone and dolomite.	Produces alkalinity and forms scale in hot water facilities as a result of hardness in combination with calcium and magnesium; bicarbonates of sodium produces "burp water".	No Standards Established	
<b>Sulfate</b>	Dissolved from rock and soil containing gypsum, iron sulfides and other sulfur compounds; commonly present in industrial wastes.	Sulfate in water containing calcium forms hard scale in steam boilers; in large amounts sulfate can give a bitter taste to water and /or have a laxative effect.	300 mg/L    *MC Limit	Reverse Osmosis
<b>Chloride</b>	Dissolved from rock and soil; found in large amounts in oil field brine, sea water and industrial brine.	When combined with sodium, gives salty taste to drinking water and may increase the corrosiveness of water.	300 mg/L    *MC Limit	Reverse Osmosis
<b>Nitrate</b>	Produced by decaying organic matter, sewage, fertilizers and nitrates in the soil.	High concentrations may suggest pollution; water of high nitrate content may cause methemoglobinemia (blue babies) and should not be used in infant feeding; some animals such as ruminants (cudchewers) can be poisoned by nitrate if the concentration is high; NO <sub>3</sub> encourages growth of algae and other organisms which may produce undesirable tastes and odor.	10 mg/L as N    *MC Limit 44 mg/L as NO <sub>3</sub>	Reverse Osmosis
<b>Fluoride</b>	Dissolved in small quantities from rock and soil. Fluoride may in some cases actually be added to drinking water supplies.	May cause molting of the teeth in children depending on the quantity and temperature average per year. In proper amounts may reduce cavities	0.-0.6 mg/L    Good 0.6-2.0 mg/L    Optimum 2.0-4.0 mg/L    Mottling of teeth >4.0 mg/L    Possible health risk	Reverse Osmosis
<b>Iron</b>	Dissolved from rock and soil; may also come from iron pipes, pumps and other equipment if low pH water is present.	On exposure to air, iron in ground water oxidizes to reddish-brown (red water) which may stain laundry and utensils; large quantities can cause unpleasant taste and encourage the growth of iron bacteria.	0.3 mg/L    *MC Limit	Iron Filtration
<b>Total Dissolved Solids</b>	Dissolved mineral content from various rock formations	Considered a general indicator of the quality of water.	>1000 mg/L    *MC Limit	Reverse Osmosis

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\*MC Limit - Maximum Contaminant Limit for Public Drinking Water