Dare County Water Treatment Plant Distributed Water Quality Analyses (October 2024)

	Cape Hatteras	RWS	Stumpy Point	NRO	Skyco (Nano Blend)	MCL
P-Alkalinity as $CaCO_3$, mg/l	0	0	0	0	0	N/A
Total Alkalinity $CaCO_3$, mg/l	56	30	32	20	52	N/A
Bicarbonate as HCO_3, mg/l	68	37	39	24	63	N/A
Carbonate as CO_3, mg/l	0	0	0	0	0	N/A
Hydroxide as OH, mg/l	0	0	0	0	0	N/A
Total Hardness as $CaCO_3$, mg/l	68	2	110	8	52	150✱
Calcium Hardness as $CaCO_3$, mg/l	60	1	8	4	20	N/A
Magnesium as $CaCO_3$, mg/l	8	1	2	4	7	N/A
Color, C. U. (Color Units)	0	0	0	0	1	15✱
Silica as SiO_2, mg/l	0	2	2	1	7	N/A
Conductivity as µS/cm	355	190	111	468	156	N/A
Iron, Fe mg/l	0.020	0.000	0.000	0.000	0.040	0.300✱
Manganese, Mn mg/l	0.005	0.002	0.001	0.004	0.007	0.050✱
Phosphate as PO_4, mg/l	1.09	0.69	0.90	1.01	1.27	5.00✱
Chloride as CL_2, mg/l	60	40	30	120	45	250✱
Fluoride, F mg/l	0.62	0.68	0.66	0.62	0.74	2.00✱-4.00⬟
Nitrate as NO_3, mg/l	0.02	0.50	0.50	0.02	0.70	10.00⬟
Zinc, Zn, mg/l	0.270	0.290	0.230	0.370	0.250	5.000✱
Chlorine (free CL_2), mg/l	0.95	0.48	0.95	0.98	0.24	0.20□ 4.00⬟
Corrosiveness	-0.93	-2.78	-1.96	-2.42	-1.35	N/A
pH	7.5	7.4	7.6	7.6	7.5	6.5 - 8.5⬣
pHs	8	10	9	10	8	N/A
Total Dissolved Solids, mg/l	238	95	58	227	81	500✱
Sulfate as SO_4, mg/l	0	0	0	0	0	250✱
Salinity, part per thousand (ppt)	0	0	0	200	0	N/A
Temperature as F°, Fahrenheit	69	69	72	72	72	N/A

N/A = Not Available; no limit

Mg/l = milligrams per liter

MCL = Maximum Contaminant Level

✱ Recommended Max ⬟ Mandatory Max ⬣ Mandatory Range □ Mandatory Min

Analyses will be updated in January, April, July, and October

CONTAMINANT DESCRIPTIONS

P-Alkalinity as CaCO3, MG/L

The alkalinity of water is its acid-neutralizing capacity. Alkalinity is the measure of an aggregate property of water, which can be interpreted in terms of specific substances only when the chemical composition of the sample is known. Alkalinity is the measure of how much acid can be added to a water without changing the pH. The Phenolphthalein end point is at a pH of 8.3. When the pH is above 8.3, P-Alkalinity is present. When the pH is above 8.3, there is no carbon dioxide in the water.

T-Alkalinity as CaCO3, MG/L

Total Alkalinity is the sum of bicarbonate, carbonate, and hydroxide the sample. The Total Alkalinity has a direct effect on the non-carbonate and carbonate hardness in a sample.

Bicarbonate as HCO3, MG/L

The addition of some chemicals increases the pH of water. For example: the addition of lime to water increases the concentrations of hydroxide, thus increasing the pH. An increase in pH has the potential of changing the alkalinity form to the bicarbonate form to the carbonate form which causes the calcium to be precipitated as calcium carbonate.

Carbonate as CO3, MG/L

This test allows us to keep track of how stable the water is, when the pH is less than 8.3 all alkalinity is in the carbonate form, and is commonly referred to as natural alkalinity.

Hydroxide as OH, MG/L

If the Hydroxide level gets too high, it causes excess causticity, allowing magnesium to precipitate as magnesium hydroxide, which in turn causes the pH to remain higher than the desired level.

Total Hardness as CaCO3, MG/L (Acceptable Limit = 150 MG/L)

Hardness in water is caused by calcium and magnesium ions. The more hardness in the water the more soap is required to wash and clean, it also causes scale to develop in water heaters, pipes, and fittings. It can possibly cause damage to some industrial processes and cause objectionable taste in water. Hard water in addition to inhibiting to cleaning action of soaps will tend to shorten the life of fabrics by allowing scums to embed in the fibers allowing them to lose their softness and elasticity.

Calcium Hardness as CaCO3, MG/L

Calcium hardness is used in an equation in calcium carbonate equivalent: calcium hardness plus magnesium hardness equals total hardness.

Magnesium as CaCO3, MG/L

Magnesium is one of the two cations that are usually present in significant concentrations which affects the hardness of the water.

Calcium as Ca, MG/L

Calcium is the other ion which is usually present in significant concentrations that affects the hardness of the water.

Color

High color content may indicate high disinfection demand and the potential of production of excess amounts of disinfectant by- products, inadequate treatment, and high organic chemical contamination.

Conductivity

Conductivity measures the ability of water to carry an electric current.

Iron as Fe, MG/L (Acceptable Limit = 0.30 MG/L)

Clothes laundered in water with high iron content can become stained. The iron in the water can spontaneously react with manganese and dissolved oxygen, promoting the growth of a group of microorganisms knows as iron bacteria which results in dirty water, foul tastes and unpleasant odors.

Manganese, Mn, MG/L (Acceptable Limit = 0.05 MG/L)

Manganese promotes growth of iron bacteria. It also creates stains on laundry, plumbing fixtures, sinks and bath tubs.

Phosphate as PO4, MG/L

We test the total phosphate to see how much corrosion protection and sequestering ability is in the water.

Chloride as Cl-, MG/L (Acceptable Limit = 250 MG/L)

High chloride levels cause an objectionable salty taste in the water. Plumbing, water heaters, and water system components deteriorate when high concentrations of chloride ions are present.

Fluoride as F, MG/L

The State of North Carolina maximum is 4.0 ppm, but the recommended dosage is between 0.7 -1.0 ppm to minimize dental decay. The goal of the fluoride treatment is to add enough to prevent tooth decay while avoiding unwanted health effects from too much fluoride. (NC Public Water Supply Position Statement February 2, 2011)

Nitrate as NO3, MG/L (Acceptable Limit = 10.0 MG/L)

Nitrate in drinking water above 10.0 mg/l poses an immediate threat to children under three months of age. Nitrate reacts with an intestinal bacteria in children to cause Blue Baby Syndrome.

Zinc, Zn, MG/L

High concentrations of Zinc may cause adverse physiological effects. Also will cause a milky appearance in water at levels above 30.0 mg/l. Excess zinc levels may cause lead and cadmium concentrations to increase.

Chlorine (Free) MG/L (Acceptable Limit = Not less than 0.20)

Chlorine is required by law to be added to the water as a disinfectant to control the number of coliform bacteria. The state requires that a residual of .20 mg/l be held throughout the system so that disinfection is accomplished. However, adding chlorine also has the drawback of the possibility that when combining with organic substances Trihalomethanes (THMs) are formed. THMs are suspected of causing cancer.

Corrosiveness

Corrosivity is a measure of how aggressive water is at corroding pipes and fixtures. Corrosive water can mobilize lead and copper from pipes into drinking water and can eventually cause leaks in plumbing.

pH (Acceptable Limit = 6.5 - 8.5)

pH is a measure of hydrogen ion concentration; a measure of the acidity or alkalinity of a solution. Aqueous solutions at 25°C with a pH less than seven are acidic, while those with a pH greater than seven are basic or alkaline.

Total Dissolved Solids (Acceptable Limit = 500)

TDS is all of the dissolved solids in water.

Sulfate as SO4, MG/L (Acceptable Limit = 250)

This contaminant tends to form hard scales in boilers and heat exchangers. It also causes a laxative effect, therefore it must be controlled.