SAINT PAUL REGIONAL WATER SERVICES

PHYSICAL AND CHEMICAL ANALYSIS OF WATER

AUG 2020

All results are in parts per million & Samples Measured are Dissolved Ions.
Analytes with Nelac Lab Cert No. are Nelac Accredited analytes

PHYSICAL WATER QUALITY

	Reporting Limit	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Color (Color Units)	4	<4	Hach Method 8025	
Loss Ignition (ppm)	84	<84	SM 2540 E	
Non-Volatile Salts (ppm)	84	140	SM 2540 E	
Temperature (^{0}C)	0.02	26	SM 2550 B-93	1791662
Total Dissolved Solids (ppm)	140	180	SM 2540 C-97	1791662
Turbidity (NTU)	0.020	0.031	SM 2130 B-94	1791662

CHEMICAL WATER QUALITY

	Reporting Limit	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Alkalinity-Total (ppm as $CaCO_3$)	0.40	63	SM 2320B	
Carbonate Hardness (ppm as $CaCO_3$)	0.40	63	SM 2340 C	
Dissolved Oxygen (ppm)	1.2	6.9	SM 4500-O G (20th)	
Hydrogen Ion-pH	0.04	9.05	SM 4500-H+ B-96	1791662
Non-Carbonate Hardness (ppm)	0.40	21	SM 2340 C	
Total Hardness (ppm as $CaCO_3$)-EDTA method	0.40	84	SM 2340 C	
Total Organic Carbon (ppm as C)	2.00	4.27	SM 5310 B (Online)	1791662

Total Hardness (grains/Gal as $CaCO_3$)-EDTA method is 4.91

CHEMICAL WATER QUALITY - INORGANIC NONMETALS

	Reporting Limit	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Ammonia Nitrogen (ppm as N)	0.020	1.026	Hach 10205	
Bromide (ppm as Br-1)	0.050	<0.05	EPA 300.0	1791786 Subcontracted to Pace Analytical
Chloride-Cl (ppm as Cl^{-1})	8	36	SM 4500-CL-B (20th)	
Chlorine Residual (ppm Cl as Cl_2)	0.085	3.39	Hach 10101	
Fluoride-F (ppm as F^{-1})	0.08	0.70	EPA 9214	
Nitrate, Nitrite Nitrogen (ppm as N)	0.250	<0.250	EPA 353.2	1791662
Sulfate (ppm as SO_4)	2.7	13.2	Hach 8051	
Sulfur-S (ppm as S)	2.7	4.4	Hach 8051	
Sulfide-S^{2-} (ppm as S^{2-})	0.020	<0.02	Hach 8131	
Total Phosphorus-P (ppm as P)	0.025	<0.025	EPA 365.1	1791662
Total Nitrogen-N (ppm as N)	0.200	0.66	SM 5310 B - Modified	

CHEMICAL WATER QUALITY - METALS

	Reporting Limit	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Aluminum-Al (ppm as Al)	0.0009	0.0097	EPA 200.8	1791662
Arsenic-As (ppm as As)	0.0001	0.0006	EPA 200.8	1791662
Cadmium-Cd (ppm as Cd)	0.0001	<0.0001	EPA 200.8	1791662
Calcium-Ca (ppm as Ca)	0.4000	22	SM 2340 C	
Copper-Cu (ppm as Cu)	0.0008	0.0017	EPA 200.8	1791662
Hexavalent Chromium (ppm as Cr^{6+})	0.0400	<0.04	Hach 8023	
Iron-Fe (ppm as Fe)	0.0052	<0.0052	EPA 200.8	
Lead-Pb (ppm as Pb)	0.0001	<0.0001	EPA 200.8	1791662
Magnesium-Mg (ppm as Mg)	0.4000	6	SM 2340 C	
Manganese-Mn (ppm as Mn)	0.0002	<0.0002	EPA 200.8	1791662
Silicon-Si (ppm as Si)	NA	NA	EPA 200.8	
Sodium-Na (ppm as Na)	0.0007	22.19	EPA 200.8	
Strontium-Sr (ppm as Sr)	0.0001	0.0690	EPA 200.8	
Zinc-Zn (ppm as Zn)	0.0002	0.0013	EPA 200.8	1791662

MICROBIOLOGY WATER QUALITY

	Number of Samples	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Total Coliform Count 35°C/100 ml	240	Absent	SM 9223 B-97 (IDEXX Colilert)	1791662
E. Coli Count 35°C/100 ml	240	Absent	SM 9223 B-97 (IDEXX Colilert)	1791662