

**SAINT PAUL REGIONAL WATER SERVICES**  
**PHYSICAL AND CHEMICAL ANALYSIS OF WATER**  
**FEB 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	160	SM 2540 E	
Temperature (°C)	0.02	7	SM 2550 B-93	1791662
Total Dissolved Solids (ppm)	140	170	SM 2540 C-97	1791662
Turbidity (NTU)	0.020	0.040	SM 2130 B-94	1791662

**CHEMICAL WATER QUALITY**

	Reporting Limit	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Alkalinity-Total (ppm as CaCO <sub>3</sub> )	0.40	51	SM 2320B	
Carbonate Hardness (ppm as CaCO <sub>3</sub> )	0.40	51	SM 2340 C	
Dissolved Oxygen (ppm)	1.2	12.2	SM 4500-O G (20th)	
Hydrogen Ion-pH	0.04	8.96	SM 4500-H+ B-96	1791662
Non-Carbonate Hardness (ppm)	0.40	36	SM 2340 C	
Total Hardness (ppm as CaCO <sub>3</sub> )-EDTA method	0.40	87	SM 2340 C	
Total Organic Carbon (ppm as C)	2.00	5.77	SM 5310 B (Online)	1791662

*Total Hardness (grains/Gal as CaCO<sub>3</sub>)-EDTA method is 5.09*

**CHEMICAL WATER QUALITY - INORGANIC NONMETALS**

	Reporting Limit	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Ammonia Nitrogen (ppm as N)	0.020	0.978	Hach 10205	
Bromide (ppm as Br <sup>-1</sup> )	0.050	<0.05	EPA 300.0	1791786 Subcontracted to Pace Analytical
Chloride-Cl (ppm as Cl <sup>-1</sup> )	8	38	SM 4500-CL-B (20th)	
Chlorine Residual (ppm Cl as Cl <sub>2</sub> )	0.085	3.28	Hach 10101	
Fluoride-F (ppm as F <sup>-1</sup> )	0.08	0.71	EPA 9214	
Nitrate, Nitrite Nitrogen (ppm as N)	0.050	0.516	EPA 353.2	1791662
Sulfate (ppm as SO <sub>4</sub> )	2.7	14.1	Hach 8051	
Sulfur-S (ppm as S)	2.7	4.7	Hach 8051	
Sulfide-S <sup>2-</sup> (ppm as S <sup>2-</sup> )	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	0.91	SM 5310 B - Modified	

**CHEMICAL WATER QUALITY - METALS**

	Reporting Limit	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Aluminum-Al (ppm as Al)	0.0009	0.0184	EPA 200.8	1791662
Arsenic-As (ppm as As)	0.0001	0.0004	EPA 200.8	1791662
Cadmium-Cd (ppm as Cd)	0.0001	<0.0001	EPA 200.8	1791662
Calcium-Ca (ppm as Ca)	0.4000	20	SM 2340 C	
Copper-Cu (ppm as Cu)	0.0008	0.0014	EPA 200.8	1791662
Hexavalent Chromium (ppm as Cr <sup>6+</sup> )	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	9	SM 2340 C	
Manganese-Mn (ppm as Mn)	0.0002	0.0003	EPA 200.8	1791662
Silicon-Si (ppm as Si)	NA	NA	EPA 200.8	
Sodium-Na (ppm as Na)	0.0007	21.80	EPA 200.8	
Strontium-Sr (ppm as Sr)	0.0001	0.0533	EPA 200.8	
Zinc-Zn (ppm as Zn)	0.0002	0.0005	EPA 200.8	1791662

**MICROBIOLOGY WATER QUALITY**

	Number of Samples	EFFLUENT	Method Reference	Nelac Lab Cert. No.
Total Coliform Count 35°C/100 ml	232	Absent	SM 9223 B-97 (IDEXX Colilert)	1791662
E. Coli Count 35°C/100 ml	232	Absent	SM 9223 B-97 (IDEXX Colilert)	1791662