

00	02-22-2022	Issued for Information	PL	PL	PL	
Rev	Date	DESCRIPTION	MADE	CHECKED	APPR'D	
						
SAINT JOHN SAFE CLEAN DRINKING WATER PROJECT						
						
PRIMARY INFRASTRUCTURE - COMPONENT 1-1 & 2-1 ANNUAL OPERATIONS REPORT <i>January 1, 2021-December 31, 2021</i>						
Project Code	Company Code	Area Code	Discipline Code	Document Type	Document N°	Rev
SCDWP	PCWS	1-1/2-1	OP	RP	00001	00



Drinking-Water Systems Annual Report 2021

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Annual Report Requirements & System Information

Approval to Operate Annual Report Requirements W-1673:

**The Approval Holder shall submit an annual report for the reporting period of January to December to the Director, no later than March 1st of the following year. The report shall include the following (if applicable):*

- a) Monitoring results (daily/ weekly/ monthly data such as free chlorine residual, turbidity, pH, temperature, Mn, Fe, etc.);(Range of results summary)*
- b) Monthly water production in m3;*
- c) Operational highlights (significant incidents & system improvements, changes or additions)*
- d) Alarm log; (Alarms reportable were done under “notices” during this reporting period).*
- e) Summary of backflow prevention and cross-connection control activities; (BPV’s in plant tested and certified. There are no known cross connections in the system)*
- f) Summary of flushing activities; (No flushing activities took place during the reporting period)*
- g) Operator information (training, certification & staffing changes);*
- h) Public relations (notifications & public education);*
- i) list of new extensions and/or renewals complete with analytical results (microbiological, organic & inorganic); (No new extensions and/or renewals were conducted during the reporting period)*
- j) Additional comments.*

System Information

Drinking-Water Approval Number:	W-1673
Drinking-Water System Name:	Loch Lomond Water Treatment Plant
Drinking-Water System Owner:	The City of Saint John
Drinking-Water System Category:	Water Treatment Class IV
Period being reported:	January 1-December 31, 2021



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Does your Drinking-Water System serve more than 10,000 people?
 Yes [] No []

Is your annual report available to the public at no charge on a web site on the Internet?
 Yes [] No []

Location where Report will be available for inspection.

City of Saint John Web Page
 or hard copies by request to PCWS at
 55 Latimore Lake Road, Saint John NB
 E2N 0E6

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Approval Number
Saint John Treatment & Distribution System	W-1510

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?
 Yes [] No []

Indicate how you notified system users that your annual report is available, and is free of charge.

- [X] Public access/notice via the web (City web page)
- [] Public access/notice via Government Office
- [] Public access/notice via a newspaper
- [] Public access/notice via Public Request
- [] Public access/notice via a Public Library
- [X] Public access/notice via other method

Describe your Drinking-Water System

The Loch Lomond WTP is categorized as a Class IV WT plant operated by PCWS under Approval to Operate # W-1673 issued August 24, 2018. The Loch Lomond WTP is the new drinking water treatment facility supplying Saint John East customers in 2019 and early in 2020, feed to the west side Saint John customers in 7 communities as well; (Approximately 70,000) residential, business and industrial. Treatment is in the form of surface water received from Latimore Lake Reservoir intakes (City operated) through two (2) large raw water transmission mains feeding the plant. The treatment plant consists of four (4) lines or ‘trains’; each line incorporates a flash mix tank, flocc tank, Dissolved Air Flootation (DAF) and filter. Each “train” is capable of 25MLD flow rates. The total plant maximum treatment design rate is for 75MLD.

The treatment consists of alkalinity and pH adjustment through lime and CO₂, with pre-oxidation of metals with Potassium Permanganate. This raw inlet water is then chemically assisted to coagulate and flocculate the fine suspended organic and inorganic particulates with coagulant and polymer. This coagulated water passes through a flash mix chamber, flocculation basins and the solids removal is obtained via Dissolved Air Flotation units (DAF’s). The effluent water from the DAF’s is then directed onto multi media filters (4) where final solids removal is performed. The filtered water then flows through a chlorine contact chamber (baffled) where primary chlorination is achieved. The treated water at this point is then pH adjusted and corrosion inhibitor applied to protect the City network. Caustic Soda is used for pH adjustment and Zinc Orthophosphate used as a corrosion inhibitor. This water is then pumped via high lift pumps (4) through UV Trojan disinfection (as needed) to the storage tanks (3) each consisting of 11,000m³ volume. The water from the tanks then flows through Treated Water meters on supply lines (2) to Lakewood Heights and Hickey Road where secondary chlorination occurs to ensure proper residuals for City network.

There are several auxiliary possesses consisting of plant service water pumps (2), potable water feed pumps (3), backwash pumps (2), and blowers and compressors for treatment. There is also sludge pumps (2) and plate & frame press, backwash waste pumps (2) and sewer pumps (2) along with flow metering for process lines and systems. Staffing consists of a Plant Manager, Maintenance/Operations Manager, and five (5) Operators.

List all water treatment chemicals used over this reporting period

- Lime
- CO₂
- KMnO₄
- Orthophosphate (Corrosion inhibitor)
- Sodium Hydroxide (50% Caustic)
- Sodium Hypochlorite (12% Bleach/Chlorine)
- PAX XL1900 (Coagulant)
- Polymer (LT27AG & Superfloc A120)
- Polymer (Sludge dewatering LT22S & Superfloc C492)

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred.

- 1) Repairs and modifications to the Lower storm retention pond due to slope failure. This was done under warranty from constructor with additional operating funds for stamped drawings and Engineering designs. Cost of \$30K.
- 2) Updates to server applications, cyber security devices and firewall systems at a cost of \$25K.
- 3) Upgrades to heating coils and drip trays for HVAC units on building. Warranty item with energy costs associated \$10K.
- 4) Structural assessment audit with modifications/repairs for a cost of approximately \$10K



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Provide details on the Operator training, certification, staff changes in accordance with Approval to Operate W-1673.

Name	Certification	Training Hours/CEU	Other Details
Peter Larsen	WT IV/ WD IV/ WWT IV/ WWC IV	68 hrs, 0.7 CEU's	Ops Meeting/safety(36), First Aid & CPR with AED (8), WWOTC courses (7), WHMIS (4), TDG (4), NBCSA audit course (7)
Shon Karolic	WT III / WD II	63 hrs, 1.4 CEU's	Ops Meeting/safety (33), First Aid & CPR with AED (8), WHMIS (4), TDG (4), WWOTC courses (14)
Brenda MacKinnon	WT III	77 hrs, 0.7 CEU's	Ops Meeting/safety (36), First Aid & CPR with AED (8), IMS training and auditor course (18), WHMIS (4), TDG (4), WWOTC courses (7)
Travis Keenan	WT II, Cal State WT Course I&II	63 hrs, 1.4 CEU's	Ops meeting/safety (33), First Aid & CPR with AED (8), WHMIS (4), TDG (4), WWOTC courses (14)
Robert Theriault	WT II, Cal State WT Course I&II	62 hrs, 0.7 CEU's	Ops meeting/safety (36), First Aid & CPR with AED (8), TDG (4), WWOTC courses (7), NBCSA Safety on line course audits (7)
Kyle Kirkpatrick	WT I, Cal State WT Course I & II	59 hrs, 1.4 CEU's	Ops meeting/safety (33), First Aid & CPR with AED (8), WHMIS (4), WWOTC courses (14)



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Provide details on the notices submitted in accordance with Approval to Operate W-1673 and reported to NBDELG or DOH.

Incident: Date / number	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
March 2, 2021	General notice	N/A	N/A	Provided notification to Medical Officer of Health and NBDELG and City water department of PCWS power outage on line side with SJE. On generator, plant functioning normally. No further action required	March 2, 2021
March 25, 2021	General notice	N/A	N/A	Provided notification to Medical Officer of Health and NBDELG and City water department of PCWS power outage on line side with SJE (Blown fuse on main road pole). On generator, plant functioning normally. No further action required	March 25, 2021
October 2, 2021	General notice	N/A	N/A	Provided notification to Medical Officer of Health and NBDELG and City water department of PCWS power outage on line side with SJE. On generator, plant functioning normally. No further action required	October 2, 2021
October 18, 2021	General notice	N/A	N/A	Provided notification to Medical Officer of Health and NBDELG and City water department of Tank #2 storage tank clear of bacti and ready to return to service after maintenance completed. No further action required	October 18, 2021
October 13, 2021	Bacteriological	11 TC	Colony units	Provided notification to Medical Officer of Health and NBDELG and City water department of exceeded bacti result for treated water samples collected on October 12 th . Total Coliform (TC) count of 11 on Hickey Rd TW line. Immediate notification to	October 14, 2021



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				Health Dept. and DELG along with SJW. Resample and clear results. All chlorine and CT values within requirements at time of sample event. No further action required advised by Health and DELG.	
November 20, 2021	Filter Turbidity	>1.0 NTU	NTU	<p>Provided notification to Medical Officer of Health and NBDELG and City water department of stuck filter effluent valve causing short term spike in turbidity above the 1.0 NTU threshold for 24 minutes. TW turbidity in tanks not above 0.058 NTU from event. CT and UV disinfection on and within required parameters.</p> <p>No further action required</p>	Nov 20, 2021

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Microbiological testing done during this reporting period (January 1 to December 31, 2021)

Water Type	Number of Samples	Range of E.Coli or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #) as cfu/100 ml	Number of HPC Samples (Background) as cfu/ml	Range of HPC Results (Background) (min #)-(max #)
Raw Water	51	0 to 7	2 to TNTC	Not applicable.	Not applicable.
Treated Lakewood Heights	53	0 to 0	0 to 0	29	0 to 572
Treated Hickey Road	53	0 to 0	0 to 11	29	0 to 440

Operational testing done during the period covered by this Annual Report (January 1 to December 31, 2021)

Parameter (Raw Water (RW) & Finished Water (FW) & Treated Water (TW))	Number of Grab Samples #	Range of Results (min #)-(max #) (mg/L)
Turbidity (NTU) RW FW	365 365	0.343 – 1.82 0.021 – 0.050
pH RW FW	365 365	6.80 – 7.36 7.36 – 7.85
Cl₂ (mg/L free) FW	365	0.91 – 1.21
CL₂ (mg/L free) TW Hickey Road line Lakewood Heights Line	365 365	1.13 – 1.59 1.10 – 1.45
Alkalinity (mg/L) RW FW	365 366	8.6 – 13.6 27.8 – 37.2

NOTE: Other process analysis results obtained as part of operational controls are available at WTP as required.



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Summary of Water production. (January 1, 2021 to December 31, 2021) as per the requirement of contract and approval #W-1673.

Date	Water Produced M³
January 2021	1,524,740
February 2021	1,361,480
March 2021	1,501,900
April 2021	1,308,900
May 2021	1,246,380
June 2021	1,248,100
July 2021	1,274,760
August 2021	1,270,900
September 2021	1,185,200
October 2021	1,195,200
November 2021	1,235,700
December 2021	1,390,300

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Summary of on-line testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Parameter	Unit of Measure	Number of Samples (Jan 1, 2021-Dec 31, 2021)	Range of Results (min#-max#)
Filter Turbidity#1	NTU	8760	0.020– 3.544*(Event Nov 20 th , 2021 see notifications)
Filter Turbidity#2	NTU	8760	0.021 – 0.073
Filter Turbidity#3	NTU	8760	0.020 – 0.073
Filter Turbidity#4	NTU	8760	0.023 – 0.057
FW Turbidity	NTU	8760	0.021 – 0.068
FW pH	pH	8760	7.41 – 7.81
TW CL ₂ free	mg/L	8760	
TW Hickey Road			1.19 – 1.33
TW Lakewood Heights			1.16 – 1.32

*NOTE: Record the unit of measure if it is not milligrams per litre.
NOTE: For continuous monitors use 8760 as the number of samples/year.*

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Aluminum	Standard –	MAC 0.100	mg/L	
Raw Water	Mar 10.21	0.029	mg/L	NONE
Treated Water		0.011	mg/L	
Raw Water	Sept 7.21	0.020	mg/L	NONE
Treated Water		0.005	mg/L	
Antimony	Standard –	IMAC 0.006	mg/L	
Raw Water	Mar 10.21	<0.002	mg/L	NONE
Treated Water		<0.002	mg/L	
Raw Water	Sept 7.21	<0.002	mg/L	NONE
Treated Water		<0.002	mg/L	
Arsenic	Standard –	IMAC 0.010	mg/L	
Raw Water	Mar 10.21	<0.001	mg/L	NONE
Treated Water		<0.001	mg/L	
Raw Water	Sept 7.21	<0.001	mg/L	NONE
Treated Water		<0.001	mg/L	
Barium	Standard –	MAC 2.0	mg/L	
Raw Water	Mar 10.21	<0.010	mg/L	NONE
Treated Water		<0.010	mg/L	
Raw Water	Sept 7.21	<0.010	mg/L	NONE
Treated Water		<0.010	mg/L	
Boron	Standard –	IMAC 5.0	mg/L	
Raw Water	Mar 10.21	<0.1	mg/L	NONE
Treated Water		<0.1	mg/L	
Raw Water	Sept 7.21	<0.1	mg/L	NONE
Treated Water		<0.1	mg/L	

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Cadmium	Standard –	MAC 0.005	mg/L	
Raw Water Treated Water	Mar 10.21	<0.00002 <0.00002	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	<0.00002 <0.00002	mg/L mg/L	NONE
Calcium	Standard –	N/A	mg/L	
Raw Water Treated Water	Mar 10.21	3.1 6.0	mg/L mg/L	N/A
Raw Water Treated Water	Sept 7.21	4.6 5.8	mg/L mg/L	N/A
Chloride	Standard –	AO 250	mg/L	
Raw Water Treated Water	Mar 10.21	7.5 10.0	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	4.7 8.9	mg/L mg/L	NONE
Chromium	Standard –	MAC 0.05	mg/L	
Raw Water Treated Water	Mar 10.21	<0.001 <0.001	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	<0.001 <0.001	mg/L mg/L	NONE
Copper	Standard –	AO 10000	mg/L	
Raw Water Treated Water	Mar 10.21	<1.0 <1.0	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	<1.0 <1.0	mg/L mg/L	NONE

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Iron	Standard –	AO 300	mg/L	
Raw Water Treated Water	Mar 10.21	0.047 0.009	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	0.020 <0.002	mg/L mg/L	NONE
Lead	Standard –	MAC 0.010	mg/L	
Raw Water Treated Water	Mar 10.21	<0.001 <0.001	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	<0.001 <0.001	mg/L mg/L	NONE
Mercury	Standard –	MAC 0.001	mg/L	
Raw Water Treated Water	Mar 10.21	<0.00002 <0.00002	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	<0.00002 <0.00002	mg/L mg/L	NONE
Potassium	Standard –	N/A	mg/L	
Raw Water Treated Water	Mar 10.21	0.30 0.30	mg/L mg/L	N/A
Raw Water Treated Water	Sept 7.21	0.30 0.40	mg/L mg/L	N/A
Selenium	Standard –	MAC 0.05	mg/L	
Raw Water Treated Water	Mar 10.21	<0.002 <0.002	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	<0.002 <0.002	mg/L mg/L	NONE

Sodium	Standard –	AO 200	mg/L	
Raw Water	Mar 10.21	3.9	mg/L	NONE
Treated Water		11.9	mg/L	
Raw Water	Sept 7.21	3.8	mg/L	NONE
Treated Water		12.8	mg/L	
Magnesium	Standard –	N/A	mg/L	
Raw Water	Mar 10.21	0.60	mg/L	N/A
Treated Water		0.60	mg/L	
Raw Water	Sept 7.21	0.60	mg/L	N/A
Treated Water		0.60	mg/L	
Manganese	Standard –	AO 0.05	mg/L	
Raw Water	Mar 10.21	0.011	mg/L	NONE
Treated Water		<0.002	mg/L	
Raw Water	Sept 7.21	0.022	mg/L	NONE
Treated Water		<0.002	mg/L	
Thallium	Standard –	N/A	mg/L	
Raw Water	Mar 10.21	<0.001	mg/L	N/A
Treated Water		<0.001	mg/L	
Raw Water	Sept 7.21	<0.001	mg/L	N/A
Treated Water		<0.001	mg/L	
Uranium	Standard –	MAC 0.02	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	

Fluoride	Standard –	MAC 1.5	mg/L	
Raw Water	Mar 10.21	<0.10	mg/L	NONE
Treated Water		<0.10	mg/L	
Raw Water	Sept 7.21	<0.10	mg/L	NONE
Treated Water		<0.10	mg/L	
Zinc	Standard –	AO 0.5	mg/L	
Raw Water	Mar 10.21	0.003	mg/L	NONE
Treated Water		0.085	mg/L	
Raw Water	Sept 7.21	<0.002	mg/L	NONE
Treated Water		0.086	mg/L	
Sulphate	Standard –	AO 5000	mg/L	
Raw Water	Mar 10.21	2.0	mg/L	NONE
Treated Water		2.0	mg/L	
Raw Water	Sept 7.21	<2.0	mg/L	NONE
Treated Water		<2.0	mg/L	
Nitrate	Standard –	MAC 45.0	mg/L	
Raw Water	Mar 10.21	<0.20	mg/L	NONE
Treated Water		<0.20	mg/L	
Raw Water	Sept 7.21	<0.20	mg/L	NONE
Treated Water		<0.20	mg/L	
Nitrite	Standard –	MAC 3.0	mg/L	
Raw Water	Mar 10.21	<0.20	mg/L	NONE
Treated Water		<0.20	mg/L	
Raw Water	Sept 7.21	<0.20	mg/L	NONE
Treated Water		<0.20	mg/L	

Bromide	Standard –	N/A	mg/L	
Raw Water Treated Water	Mar 10.21	<0.2 <0.2	mg/L mg/L	N/A
Raw Water Treated Water	Sept 7.21	<0.2 <0.2	mg/L mg/L	N/A
TKN	Standard -		mg/L	
Raw Water Treated Water	Mar 10.21	<0.5 <0.5	mg/L mg/L	NONE
Raw Water Treated Water	Sept 7.21	<0.5 <0.5	mg/L mg/L	
Turbidity	Standard –	MAC 1.0 TW	NTU	
Raw Water Treated Water	Mar 10.21	0.78 0.34	NTU NTU	NONE
Raw Water Treated Water	Sept 7.21	0.68 0.18	NTU NTU	NONE
Conductivity	Standard –	N/A	us/cm	
Raw Water Treated Water	Mar 10.21	47 113	us/cm us/cm	N/A
Raw Water Treated Water	Sept 7.21	44 105	us/cm us/cm	N/A
TDS	Standard –	N/A	mg/L	
Raw Water Treated Water	Mar 10.21	22 54	mg/L mg/L	N/A
Raw Water Treated Water	Sept 7.21	21 50	mg/L mg/L	N/A

True Colour	Standard –	AO <15.0	TCU	
Raw Water Treated Water	Mar 10.21	22.0 2.0	TCU TCU	NONE
Raw Water Treated Water	Sept 7.21	10.0 1.0	TCU TCU	NONE
Hardness as CaCO₃	Standard –	N/A	mg/L	
Raw Water Treated Water	Mar 10.21	10 17	mg/L mg/L	N/A
Raw Water Treated Water	Sept 7.21	15 17	mg/L mg/L	N/A
Alkalinity mg/L as CaCO₃	Standard –	N/A	mg/L	
Raw Water Treated Water	Mar 10.21	7.0 29.0	mg/L mg/L	N/A
Raw Water Treated Water	Sept 7.21	10.0 28.0	mg/L mg/L	N/A
pH	Standard –	N/A	pH	
Raw Water Treated Water	Mar 10.21	6.76 7.52	pH pH	N/A
Raw Water Treated Water	Sept 7.21	6.88 7.62	pH pH	N/A

Summary of Organic parameters sampled during this reporting period or the most recent sample results.

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Benzene	Standard –	MAC 0.005	mg/L	NONE
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Benzo(a)pyrene	Standard –	MAC 0.00004	mg/L	
Raw Water	Mar 10.21	<0.00001	mg/L	NONE
Treated Water		<0.00001	mg/L	
Raw Water	Sept 7.21	<0.00001	mg/L	NONE
Treated Water		<0.00001	mg/L	
Carbon Tetrachloride	Standard –	MAC 0.002	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Chlorobenzene	Standard –	HAL 0.080 Part of THM	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Bromodichloromethane	Standard –	HAL 0.016 Part of THM	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		0.0027	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		0.0032	mg/L	

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Bromoform	Standard –	Part of THM	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Chloroform	Standard –	Part of THM	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		0.0262		
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		0.0309	mg/L	
Dibromochloromethane	Standard –	Part of THM	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		0.0006	mg/L	
1,2-Dichlorobenzene	Standard –	MAC 0.200	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
1,4-Dichlorobenzene	Standard –	MAC 0.005	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
1,2-Dichloroethane	Standard –	IMAC 0.005	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	

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Dichloromethane	Standard –	MAC 0.050	mg/L	
Raw Water	Mar 10.21	<0.0010	mg/L	NONE
Treated Water		<0.0010	mg/L	
Raw Water	Sept 7.21	<0.0010	mg/L	NONE
Treated Water		<0.0010	mg/L	
Ethylbenzene	Standard -	MAC 0.14	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Methyl-t-butyl Ether (MTBE)	Standard -	AO 0.015	mg/L	
Raw Water	Mar 10.21	<0.0010	mg/L	NONE
Treated Water		<0.0010	mg/L	
Raw Water	Sept 7.21	<0.0010	mg/L	NONE
Treated Water		<0.0010	mg/L	
Monochlorobenzene	Standard -	MAC 0.080 AO < or = 0.030	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Pentachlorophenol	Standard –	IMAC 0.06	mg/L	
Raw Water	Mar 10.21	<0.0002	mg/L	NONE
Treated Water		<0.0002	mg/L	
Raw Water	Sept 7.21	<0.0002	mg/L	NONE
Treated Water		<0.0002	mg/L	

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Toluene	Standard –	HAL 0.024	mg/L	
Raw Water			mg/L	NONE
Treated Water	Mar 10.21	<0.0005 <0.0005	mg/L mg/L	
Raw Water			mg/L	NONE
Treated Water	Sept 7.21	<0.0005 <0.0005	mg/L mg/L	
THM (Total)	Standard -	CDWQG 0.100 HAL 0.100	mg/L	
TW (Mar 10.21)	Mar 10.21	0.0289	mg/L	NONE
TW (Sept 7.21)	Sept 7.21	0.0347	mg/L	NONE
TOC	Standard-	<i>None</i>	mg/L	
Combined Filter Effluent (Mar 10.21)	Mar 10.21	2.3	mg/L	NONE
Combined Filter Effluent (Sept 7.21)	Sept 7.21	1.6	mg/L	NONE
Tetrachloroethylene	Standard –	MAC 0.010	mg/L	
Raw Water			mg/L	NONE
Treated Water	Mar 10.21	<0.0005 <0.0005	mg/L mg/L	
Raw Water			mg/L	NONE
Treated Water	Sept 7.21	<0.0005 <0.0005	mg/L mg/L	
Trichloroethylene	Standard –	MAC 0.005	mg/L	
Raw Water			mg/L	NONE
Treated Water	Mar 10.21	<0.0005 <0.0005	mg/L mg/L	
Raw Water			mg/L	NONE
Treated Water	Sept 7.21	<0.0005 <0.0005	mg/L mg/L	
Vinyl Chloride (Last Values in 2019)	Standard –	MAC 0.002	mg/L	
Raw Water			mg/L	NONE
Treated Water	Jan 17.19	<0.0020 <0.0020	mg/L mg/L	
Raw Water			mg/L	NONE
Treated Water	Sept 17.19	<0.0020 <0.0020	mg/L mg/L	



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Xylenes	Standard –	MAC 0.090	mg/L	
Raw Water	Mar 10.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	
Raw Water	Sept 7.21	<0.0005	mg/L	NONE
Treated Water		<0.0005	mg/L	

List any Inorganic or Organic parameter(s) that exceeded MAC, IMAC or over half MAC of the CDWQG, NBDWG or HAL limits in Water Quality Standards.

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
NONE FOR 2021				

Summary of Public Relations (Notifications & Public Education & Tours) during this reporting period (January 1, 2021 – December 31, 2021).

<i>Note: Starting March 2020 Pandemic restrictions in place</i>	<i>Pandemic restricted access to only emergency or critical work and site visits with strict access protocols/procedures.</i>
Tour City FD all platoons	City FD platoons for site awareness and review. Week of April 5-9, 2021 (approx. 40 total)
Tour WTP facility City council and new Mayor	Tour of WTP and site for new council and Mayor with City leadership team. June 12, 2021 (20 people)
Tour City Staff & Students	Tour with Dean Price and some students for summer term. June 30, 2021 (7 people)
Tour WTP and site for PCWP leadership teams and owners with SJW staff	Tour of site for Project Co. team and PCWS leadership. Review of site prior to quarterly OPJC committee meeting. Oct 20, 2021 (10 people)



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Summary of Backflow prevention activities during this reporting period (January 1, 2021 – December 31, 2021).

Device Tag/Name	Date Inspected	Certified Pass/Fail	Information
Custodial Room#25537	July 7, 2021	Pass	
Custodial Room#169682	July 7, 2021	Pass	
Custodial Room#169716	July 7, 2021	Pass	
Chemical Room#154128	July 7, 2021	Pass	
Chemical Room#051815	July 7, 2021	Pass	
Chemical Room#090043	July 7, 2021	Pass	
Water Entrance#111713	July 7, 2021	Pass	
Laundry Room#096106	July 7, 2021	Pass	
Laundry Room#156478	July 7, 2021	Pass	
Fire Closet#Q1-1242	July 29, 2021	Pass	
Fire Pump House#1150040717	July 29, 2021	Pass	
Spare (Out of service)#096097	N/A	N/A	Out of service spare

List of Abbreviations:

CDWQG = Canadian Drinking Water Quality Guidelines
NBDWG = New Brunswick Drinking Water Guidelines
HAL = Health advisory level
RW = Raw Water
TW = Treated Water
FW = Finished Water (Before final chlorination)
NTU = Nephelometric turbidity unit
mg/L = milligram per litre
MAC = Maximum acceptable concentration
IMAC = Interim maximum acceptable concentration
AO = Asthetic objective
MLD = Mega liters per day
ML = Mega Litres (Million Litres)
UV = Ultraviolet
DAF = Dissolved air floatation
UVT = Ultraviolet transmittance
ug/L = Microgram per litre
THM = Trihalomethane (Chlorination disinfection byproduct)
TDS = Total dissolved solids
N/A = Not Applicable
DOH = Department of Health
NBDELG = New Brunswick Department of Environment and Local Government
TDG = Transportation of Dangerous Goods
LOTO = Lock Out, Tag Out (Electrical safety)
WHMIS = Workplace Hazardous Materials Information System
BPV = Backflow Prevention Valve/device
TNTC = Too Numerous To Count
Cfu = Coliform forming units (Count)