December 2, 2020

Report To: Mayor & Council

From: Travis Rob, P.Eng., Manager of Operations & Facilities

SUBJECT: November 2020 Drinking Water Systems Monthly Summary Report

Please find attached the November 2020 Summary Report on the drinking water systems, prepared by Brad Webb, Senior WTP Operator.

Your Administration recommends that Operations & Facilities Executive Committee accept the November 2020 report as presented.

Respectfully submitted,
Operations & Facilities Division

Travis Rob, P.Eng.
Manager of Operations & Facilities

Council approval of this report will accept the November 2020 report prior to it being made available to the general public.

c.c. – Craig Miller, P.Eng., Environmental Superintendent
Brad Webb, ORO, Senior WTP Operator

November 2020

Monthly Summary Report
Water Systems

Prepared by: Brad Webb, ORO
Senior Water Treatment Plant Operator

Dated: December 02, 2020

1) **Introduction:**

This report contains the major maintenance activities and operational events that occurred during the month of November 2020 at the Water Treatment Plant - Water Works # 220000978 and the Airport Groundwater Well Water Works No. 849N7DGE0 (Precedes Airport Groundwater Well Water Works No. 26002736). This information report has been prepared for Council to better understand how the water systems they own and operate are maintained on a monthly basis. Also, this report will assist Council as Directors of the Corporation in exercising its obligation to meet a reasonable Standard of Care as outlined in Section 19 of the Safe Drinking Water Act. The water treatment plant falls under the requirements of Ontario Regulation 170/03 – Drinking Water Systems.

The Airport Small Drinking Water System, System No. 849N7DGE0, was put into service August 01, 2017. The system falls under the requirements of Ontario Regulation 319/08 – Small Drinking Water Systems.

2) **Flow Data:**

Water Treatment Plant: See attached spreadsheet.

Airport Groundwater Well:

Estimated Daily Usage	0.198 m3
Estimated November Usage	6.1 m3

3) **Microbiological (Health Related) Water Analysis - Main Water System No. 220000978:**

Water Treatment Plant (treated): 5 samples taken no adverse results
Water Treatment Plant (raw): 5 samples taken no adverse results
Water Distribution System: 20 samples taken where 25% of samples were tested for heterotrophic plate count (HPC) - no adverse results.

We take microbiological samples on a weekly basis, which includes 1 raw sample, 1 treated sample and 4 distribution samples. The 4 distribution samples are taken at different locations throughout the distribution system.

Water distribution samples taken at the following locations:

1. 1111 First St. E.	2. 1104 Church St.	3. 921 Sixth St. W.	4. W. Tower
5. 1227 Fifth St. E.	6. 218 Third St. E.	7. 900 Wright Ave.	8. W. Tower
9. 438 Third St. E.	10. 1017 Cornwall Ave.	11. 401 Kings Hwy	12. W. Tower
13.940 Third St. E.	14. 900 Wright Ave.	15. 1324 Kings Hwy	16. W. Tower
17. 943 Third St. E.	18. 1330 Woodward St.	19. 505 McIrvine Rd.	20. W. Tower

4) **Microbiological (Health Related) Water Analysis - Airport Groundwater Well No. 849N7DGE0:**

New drinking water system put online August 01, 2017. No treatment required as the Airport groundwater tested negative for bacteria.

The Airport drinking water system is to be sampled and tested for bacteria once every three (3) months in accordance with Section 25 – Microbiological Sampling and Testing of the Small Drinking Water Systems Regulation, O. Reg. 319/08.

Water distribution sample taken September 24, 2020 – no adverse results.

5) **Free Available Chlorine Residual (FAC) - Main Water System No. 220000978:**

FAC residuals are taken at a minimum daily at both the Water Treatment Plant and within the Water Distribution System.

6) **Free Available Chlorine Residual (FAC) - Airport Groundwater Well System No. 849N7DGE0:**

New drinking water system put online August 01, 2017. No treatment required as the Airport groundwater well tested negative for bacteria.

7) **Maintenance Activities at the WTP:**

Nov. 5th - Replaced membrane on chlorine analyzer.
- Cleaned top and bottom tanks on poly unit.
- Cleaned all 4 check valves on the poly unit.

Nov. 6th - Calibrated distribution chlorine analyzer.

Nov. 7th - Calibrated distribution chlorine analyzer.

Nov. 12th - Calibrated distribution chlorine analyzer.
- Cleaned top and bottom tanks on poly unit.
- Cleaned all 4 check valves on the poly unit.

Nov. 16th - Cleaned settled sample pump line.

Nov. 19th - Cleaned top and bottom tanks on poly unit.
- Cleaned all 4 check valves on the poly unit.
- Calibrated distribution chlorine analyzer.

Nov. 23rd – Calibrated Fluoride analyzer.
- Took grab samples off filters.

Nov. 27th - Ran standby generator for 1 hour

Nov. 29th - Calibrated the distribution chlorine analyzer.

Nov. 30th – Greased Clarifiers # 1 & # 2 and lubricated Chains

8) **Water Complaints:**

- Poor Pressure – 0 complaints.
- Water quality – 0 complaints.

9) **Other Miscellaneous Information:**

Nov. 2nd - Routine micro samples collection.

Nov. 9th - Routine micro samples collection.

Nov. 16th - Routine micro samples collection.

Nov. 18th – Painted lower section of soda ash silo stairs.

Nov. 19th – Lakeside here to do an update on SCADA system

Nov. 23rd - Routine micro samples collection.

Nov. 26th – Painted alum containment area stairs.

Nov. 30th - Routine micro sample collection.
- First set samples for 800 Blk. of Second St. E. Watermain repair

10) In order to acknowledge that all levels of responsibility within the Corporation of the Town of Fort Frances have received and reviewed this monthly report, it is necessary to sign-off in the appropriate location below:

- Brad Webb, ORO, Senior WTP Operator: Brad Webb
- Craig Miller, P.Eng. Environmental Superintendent: _____
- Travis Rob, P.Eng. Manager of Operations & Facilities: _____
- Doug Brown, P.Eng. CAO: _____
- Rick Wiedenhoeft, Chair O & F Exec Committee: _____
- June Caul, Mayor: _____
- John McTaggart, Councillor: _____
- Mike Behan, Councillor: _____
- Wendy Brunetta, Councillor: _____
- Doug Judson, Councillor: _____
- Andrew Hallikas, Councillor: _____

Note: Once all signatures have been obtained, the report will be distributed and made available to the public. If you have any questions, please feel free to contact myself or Brad Webb, Senior WTP Operator at 274-2325.

Town of Fort Frances - WTP - 220000978
November 2018 v 2019 v 2020
Flow and Operating Data

Flow Data November	2018		2019		2020	
	Day of the Month		Day of the Month		Day of the Month	
Total Raw Water		153490		149020		152030
Raw Maximum Day	Saturday 17th	5520	Saturday 30th	5170	Thursday 12th	5350
Raw Minimum Day	Friday 16th	4770	Saturday 16th	4780	Wed 11th, Fri 20th	4770
Raw Average Daily Consumption		5120		4970		5070
Total Treated Water		101430		92820		98680
Treated Water Maximim Day Consumption	Thursday 27th	4350	Saturday 23rd	3410	Thursday 26th	3550
Treated Water Minimim Day Consumption	Friday 16th	3020	Saturday 09th	2650	Sunday 1st	2710
Treated Water Average Day Consumption		3380		3090		3290
Daily Average Per Household Consumption Rate		0.893		0.817		0.870
* Daily Average Per Person Consumption Rate		0.423		0.387		0.412
Monthly Averages - Operating Parameters WTP:						
FAC Residual - Treated Water		2.24		2.34		2.4
Total Chlorine Residual - Treated Water		2.50		2.67		2.67
Aluminum Sulphate - Raw Water		35.00		35		34
Aluminum Sulphate - Treated Water Residual		0.02		0.06		0.05
Fluoride - Treated Water		0.72		0.72		0.66
Soda Ash - Raw Water		35.00		35		37
PH - Adjusted		7.15		7.41		7.28
Temperature		3.70		3.3		4
Quantity of Chemical Used:						
Aluminum Sulphate		5372.20		5215.7		5169
Polyelectrolyte		100.00		50		62.5
Chlorine Gas		648.00		671		635
Soda Ash - Used for PH Adjustment		5372.20		5215.7		5625.2
Fluoride		559.00		679		601

* The Canadian Average is 450 Litres (0.45 m^3) per day.
* Population is 7986
* Number of Households is 3783

Town of Fort Frances - Water treatment Plant - Water Works # 220000978
Monitoring Record
Nov-20

Operating Data	Units	*MAC or Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total	Average
Flow rates																																		
Raw Water	1000 m^3	17	4.94	4.98	5.15	5.10	5.11	5.10	5.01	5.07	5.22	5.11	4.77	5.35	5.09	4.83	5.05	5.31	5.08	5.13	5.09	4.77	5.24	5.09	4.97	5.07	5.08	5.08	5.06	4.98	5.05	5.15	152.03	5.07
Peak Instantaneous - Raw Water	l/s	n/a	59.61	59.63	59.65	59.61	59.63	59.57	59.62	59.61	59.73	59.54	59.57	59.51	59.43	59.70	59.40	59.43	59.38	59.38	59.31	59.38	59.62	59.26	59.28	59.43	59.25	59.21	59.23	59.75	59.18	59.33		59.47
Treated Water	1000 m^3	17	2.71	3.37	3.40	3.35	3.21	3.50	2.87	3.33	3.27	3.46	3.08	3.46	3.07	3.22	3.40	3.39	3.51	3.10	3.48	3.15	3.31	3.05	3.45	3.48	3.06	3.55	3.29	3.42	3.48	3.26	98.68	3.29
Peak Instantaneous - Treated Water	l/s	n/a	62.53	62.73	63.54	62.83	71.53	62.58	62.95	62.23	62.50	62.77	63.01	61.45	62.60	63.50	62.40	62.57	62.79	63.15	64.06	61.21	62.41	62.88	63.09	62.61	62.94	69.17	63.87	64.13	62.04	63.28		63.31
BackWash Water	1000 m^3	n/a	0.00	0.25	0.29	0.27	0.25	0.29	0.29	0.25	0.29	0.27	0.25	0.29	0.27	0.25	0.29	0.27	0.25	0.28	0.27	0.25	0.28	0.27	0.25	0.28	0.27	0.25	0.28	0.27	0.25	0.284	7.769	0.259
Fluoride Information																																		
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.62	0.62	0.62	0.63	0.61	0.63	0.63	0.62	0.63	0.62	0.61	0.62	0.61	0.60	0.61	0.61	0.61	0.70	0.71	0.72	0.71	0.71	0.73	0.69	0.73	0.74	0.64	0.71	0.72	0.73		0.66
Turbidity Information																																		
Raw Water	NTU	n/a	1.35	1.51	1.48	1.41	1.39	1.44	1.35	1.41	1.48	1.58	1.47	1.42	1.24	1.49	1.56	1.67	1.49	1.07	1.15	1.31	1.41	1.36	1.34	1.07	1.12	1.23	1.25	1.20	1.20	1.15		1.35
Settled Water	NTU	n/a	0.12	0.13	0.13	0.12	0.11	0.11	0.12	0.11	0.12	0.12	0.09	0.09	0.07	0.02	0.07	0.12	0.10	0.15	0.12	0.17	0.16	0.12	0.14	0.12	0.15	0.12	0.18	0.10	0.06	0.10		0.11
Treated Water	NTU	1	0.07	0.11	0.07	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.01	0.04	0.01	0.01	0.05	0.06	0.02	0.03	0.03	0.01	0.05	0.06	0.03	0.04	0.08	0.06	0.10	0.05	0.05	0.04		0.05
Other Operating Parameters																																		
pH - Treated Water	no units	6.5 to 8.5	7.35	7.21	7.19	7.10	7.14	7.10	7.16	7.18	7.13	7.43	7.39	7.14	7.06	7.43	7.38	7.06	7.33	7.36	7.37	7.38	7.39	7.34	7.36	7.35	7.35	7.32	7.34	7.39	7.36	7.38		7.28
pH - Settled water	no units	n/a	6.29	6.39	6.41	6.43	6.38	6.42	6.43	6.38	6.44	6.67	6.51	6.45	6.45	6.50	6.54	6.44	6.66	6.67	6.67	6.54	6.67	6.65	6.57	6.49	6.28	6.50	6.26	6.49	6.47	6.28		6.48
pH - Raw Water	no units	n/a	7.01	7.25	7.19	7.21	7.24	7.18	7.08	7.10	7.13	7.21	7.25	7.22	7.16	7.30	7.28	7.26	7.31	7.29	7.25	7.31	7.27	7.28	7.25	7.21	7.19	7.20	7.19	7.24	7.21	7.25		7.22
FAC - Treated Water	mg/l	0.2 to 4	2.46	2.76	2.28	2.36	2.34	2.36	2.16	2.28	2.15	2.54	2.46	2.38	2.46	2.52	2.36	2.48	2.42	2.48	2.46	2.48	2.42	2.30	2.48	2.42	2.40	2.46	2.44	2.44	2.24	2.13		2.40
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.64	2.90	2.58	2.66	2.56	2.64	2.56	2.56	2.49	2.66	2.76	2.64	2.74	2.76	2.64	2.70	2.68	2.76	2.66	2.74	2.64	2.62	2.82	2.88	2.72	2.82	2.90	2.58	2.46	2.26		2.67
Temperature	°C	15	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.0	6.0	5.0	5.0	5.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		4.0
Fluoride used (Total Daily Consumption)	kg	n/a	23.0	22.0	22.0	21.0	22.0	21.0	20.0	21.0	22.0	21.0	22.0	26.0	25.0	21.0	22.0	23.0	21.0	19.0	19.0	20.0	19.0	19.0	18.0	17.0	16.0	16.0	16.0	15.0	16.0	16.0	601.00	20.0
Chlorine used (Total Daily Consumption)	kg	n/a	22.0	22.0	22.0	23.0	21.0	22.0	21.0	21.0	22.0	21.0	20.0	22.0	22.0	20.0	21.0	22.0	21.0	22.0	21.0	20.0	23.0	21.0	21.0	22.0	21.0	21.0	21.0	21.0	18.0	18.0	635.00	21.2
Soda Ash (Total Daily Consumption)	kg	n/a	182.8	184.3	190.6	188.7	189.1	188.7	185.4	187.6	193.1	189.1	176.5	198.0	188.3	178.7	186.9	196.5	188.0	189.8	188.3	176.5	193.9	188.3	183.9	187.6	188.0	188.0	187.2	184.3	186.9	190.6	5625.11	187.5
Soda Ash - Dosage	mg/l	n/a	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0		37.0
Alum residual - (Total Daily Consumption	kg	n/a	168.0	169.3	175.1	173.4	173.7	173.4	170.3	172.4	177.5	173.7	162.2	181.9	173.1	164.2	171.7	180.5	172.7	174.4	173.1	162.2	178.2	173.1	169.0	172.4	172.7	172.7	172.0	169.3	171.7	175.1	5169.02	172.3
Alum residual - Dosage	mg/l	n/a	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0		34.0
Alum residual - Treated Water	mg/l	0.1	0.60	0.02	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.05	0.05	0.03	0.03	0.03	0.05	0.04	0.06	0.03	0.04	0.04	0.03	0.04	0.03	0.02	0.03	0.03	0.04	0.03	0.04	0.03		0.05
Poly bags added (25 kg bags)	kg	n/a						0.5						0.5							0.5					0.5						0.5	62.5	

Minimum	Maximum
4.77	5.35
59.18	59.75
2.71	3.55
61.21	71.53

* MAC - maximum acceptable range