February 26, 2021

Report To: Mayor & Council

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

SUBJECT: October 2020 Drinking Water Systems Monthly Summary Report

Please find attached the October 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 October 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 October 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

October 2020

Monthly Summary Report
Water Systems

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

Dated: November 01, 2020

1) **Introduction:**

This report contains the major maintenance activities and operational events that occurred during the month of October 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 August Usage	6.1 m3

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

Water Treatment Plant (treated): 4 samples taken no adverse results
Water Treatment Plant (raw): 4 samples taken no adverse results
Water Distribution System: 16 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:

1.218 3rd St. East.	2. 901 Wright Ave.	3. 401 King's Hwy.	4. W. Tower
5. 940 Third St. E.	6. 800 6th St.	7.320 Portage Ave.	8. W. Tower
9. 715 Col. Rd. E.	10. 834 McKenzie Ave.	11. 901 Wright Ave.	12. W. Tower
13. 943 Third St. E.	14.720 Scott St.	15. 740 Sixth St. W.	16. 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:**

Oct 01st - Cleaned top and bottom tanks on poly unit.
Cleaned all 4 check valves on the poly unit.

Oct 05th -Received a load of Alum.

Oct 08th -Cleaned top and bottom tanks on the poly unit.
- Cleaned all 4 check valves on the poly unit.

Oct 13th -Canect Electric here changing compressor switch.

Oct 15th -Cleaned top and bottom tanks on the poly unit.
- Cleaned all 4 check valves on the poly unit.

Oct. 20th -Changed oil and filters in both compressors.
-Changed filtered water sample pump.

Oct 22nd -Calibrated the distribution chlorine analyzer.
-Cleaned top and bottom tanks on the poly unit.
- Cleaned all 4 check valves on the poly unit.
Oct 23rd -lubricated clarifier chains.

Oct 27th -WayJax here doing annual load test on stand-by generator
- Took grab samples off filters.
-Calibrated fluoride meter.

Oct 29th - Cleaned top and bottom tanks on poly unit.
-Cleaned all 4 check valves on the poly unit.

8) **Water Complaints:**

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

9) **Other Miscellaneous Information**

Oct 05th - Routine micro sample collection

Oct 06th - Lead sampling.

Oct 13th -Routine micro sample collection.

Oct 19th -Routine micro sample collection.

Oct 21st - Routine micro sample collection. Resample the ones on 19th froze.

Oct 26th -Routine micro sample collection.

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
October 2018 v 2019 v 2020
Flow and Operating Data

Flow Data October	Units	2018		2019		2020	
		Day of the Month		Day of the Month		Day of the Month	
Total Raw Water	m^3		167050		153300		159370
Raw Maximum Day	m^3	Oct 6th	5720	Monday 21st	5220	Saturday 31st	5580
Raw Minimum Day	m^3	Oct 29th & 31st	5010	Friday 25th	4540	Saturday 10th	4830
Raw Avgerage Daily Consumption	m^3		5390		4950		5140
Total Treated Water	m^3		103780		97640		102590
Treated Water Maximim Day Consumption	m^3	Oct 8th	4450	Saturday 26th	3650	Friday 09th	3910
Treated Water Minimim Day Consumption	m^3	Oct 4th	2930	Friday 04th	2800	Saturday 24th	2870
Treated Water Average Day Consumption	m^3		3350		3150		3310
Daily Average Per Household Consumption Rate	m^3		0.89		0.83		0.87
* Daily Average Per Person Consumption Rate	m^3		0.42		0.39		0.41
Monthly Averages - Operating Parameters WTP:							
FAC Residual - Treated Water	mg/L		2.15		2.29		2.45
Total Chlorine Residual - Treated Water	mg/L		2.42		2.58		2.71
Aluminum Sulphate - Raw Water	mg/L		35.0		35		34
Aluminum Sulphate - Treated Water Residual	mg/L		0.02		0.04		0.03
Fluoride - Treated Water	mg/L		0.70		0.74		0.56
Soda Ash - Raw Water	mg/L		35.0		35		37
PH - Adjusted	mg/L		7.09		7.47		7.49
Temperature	C		8.6		11		10
Quantity of Chemical Used:	kg						
Aluminum Sulphate	kg		5846.8		5365.5		5418.6
Polyelectrolyte	kg		75.0		64.5		62.5
Chlorine Gas	kg		707		712		729
Soda Ash - Used for PH Adjustment	kg		5846.8		5365.5		5896.7
Fluoride	kg		617		696		722

* 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
Oct-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	31	Total	Average
Flow rates																																			
Raw Water	1000 m^3	17	5.17	5.12	5.06	5.12	5.22	5.15	5.08	5.17	5.12	4.83	5.12	5.17	5.39	4.95	5.16	5.12	5.27	5.13	5.09	5.22	5.12	5.13	5.12	4.93	5.16	5.23	5.10	5.11	5.11	5.12	5.58	159.37	5.14
Peak Instantaneous - Raw Water	l/s	n/a	60.55	60.27	60.06	60.05	59.99	59.94	59.99	59.91	60.04	59.99	59.92	60.00	60.00	60.06	59.94	60.08	60.02	59.95	59.95	59.93	60.06	59.94	59.94	59.96	59.91	59.94	59.87	59.88	59.83	59.71	59.74		59.98
Treated Water	1000 m^3	17	3.51	2.99	3.44	3.18	3.35	3.49	2.91	3.50	3.91	3.54	3.07	3.34	3.29	2.98	3.42	3.08	3.25	3.21	3.53	3.09	3.48	2.99	3.44	2.87	3.41	3.47	3.33	3.46	3.09	3.24	3.73	102.59	3.31
Peak Instantaneous - Treated Water	l/s	n/a	63.59	63.83	63.90	67.51	62.34	63.37	63.28	76.98	62.96	67.31	67.72	63.09	63.23	63.38	63.82	63.20	63.14	61.99	62.91	62.89	63.93	62.92	63.68	62.39	62.83	62.95	62.63	63.09	62.24	62.85	61.61		63.89
BackWash Water	1000 m^3	n/a	0.27	0.28	0.29	0.27	0.26	0.29	0.27	0.26	0.29	0.27	0.26	0.29	0.27	0.25	0.29	0.27	0.25	0.29	0.27	0.25	0.29	0.27	0.25	0.29	0.27	0.25	0.29	0.27	0.25	0.286	0.268	8.359	0.270
Fluoride Information																																			
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.55	0.55	0.54	0.54	0.55	0.55	0.55	0.55	0.55	0.55	0.54	0.54	0.54	0.56	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.56	0.56	0.55	0.55	0.54	0.61	0.62	0.61	0.60	0.63		0.56
Turbidity Information																																			
Raw Water	NTU	n/a	1.14	1.19	1.22	1.17	1.29	1.15	1.20	1.22	1.49	1.29	1.68	1.10	1.63	1.63	1.66	1.68	1.66	1.43	1.52	1.45	1.50	1.47	1.43	1.17	1.54	1.60	1.14	1.38	1.23	1.62	1.65		1.40
Settled Water	NTU	n/a	0.05	0.07	0.07	0.06	0.06	0.07	0.12	0.03	0.09	0.07	0.10	0.06	0.07	0.12	0.09	0.08	0.09	0.03	0.09	0.07	0.04	0.08	0.09	0.03	0.04	0.07	0.08	0.11	0.07	0.15	0.12		0.08
Treated Water	NTU	1	0.05	0.05	0.05	0.06	0.05	0.02	0.05	0.01	0.03	0.06	0.06	0.03	0.05	0.07	0.05	0.04	0.07	0.03	0.02	0.05	0.07	0.05	0.05	0.02	0.04	0.08	0.04	0.08	0.05	0.08	0.05		0.05
Other Operating Parameters																																			
pH - Treated Water	no units	6.5 to 8.5	7.38	7.35	7.28	7.39	7.42	7.39	7.79	7.41	7.56	7.56	7.61	7.57	7.57	7.56	7.57	7.57	7.57	7.60	7.61	7.78	7.77	7.70	7.32	7.55	7.54	7.31	7.43	7.43	7.17	7.19	7.22		7.49
pH - Settled water	no units	n/a	6.33	6.37	6.41	6.44	6.46	6.33	6.38	6.30	6.75	6.49	6.52	6.53	6.54	6.52	6.35	6.44	6.47	6.43	6.49	6.61	6.26	6.47	6.53	6.28	6.66	6.63	6.16	6.33	6.37	6.38	6.35		6.44
pH - Raw Water	no units	n/a	7.01	6.99	6.96	7.09	7.03	6.90	7.36	7.20	7.43	7.34	7.33	7.40	7.54	7.54	7.53	7.50	7.51	7.53	7.55	7.80	7.73	7.53	7.28	7.23	7.56	7.32	7.47	7.49	7.18	7.19	7.09		7.34
FAC - Treated Water	mg/l	0.2 to 4	2.09	2.46	2.48	2.50	2.44	2.60	2.16	2.52	2.38	2.36	2.30	2.34	2.38	2.36	2.40	2.42	2.34	2.40	2.36	2.46	2.64	2.42	2.52	2.48	2.52	2.52	2.64	2.54	2.68	2.36	2.47		2.44
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.40	2.64	2.58	2.66	2.58	2.82	2.78	2.76	2.70	2.50	2.70	2.66	2.60	2.56	2.78	2.70	2.58	2.81	2.72	2.90	2.82	2.82	2.68	2.74	2.66	2.68	2.78	2.86	2.98	2.80	2.61		2.71
Temperature	°C	15	15.0	14.0	13.0	13.0	13.0	13.0	13.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.0	11.0	10.0	10.0	9.0	8.0	8.0	7.0	7.0	7.0	7.0	8.0	8.0	6.0	6.0	6.0	6.0		10.0
Fluoride used (Total Daily Consumption)	kg	n/a	22.0	22.0	22.0	21.0	21.0	22.0	24.0	25.0	25.0	24.0	24.0	24.0	25.0	23.0	23.0	23.0	23.0	23.0	22.0	23.0	21.0	22.0	21.0	23.0	26.0	26.0	25.0	25.0	24.0	24.0	24.0	722.00	23.3
Chlorine used (Total Daily Consumption)	kg	n/a	23.0	27.0	26.0	26.0	25.0	25.0	25.0	24.0	24.0	22.0	24.0	23.0	25.0	23.0	23.0	23.0	24.0	24.0	23.0	24.0	23.0	23.0	23.0	21.0	23.0	23.0	22.0	22.0	22.0	19.0	25.0	729.00	23.5
Soda Ash (Total Daily Consumption)	kg	n/a	191.3	189.4	187.2	189.4	193.1	190.6	188.0	191.3	189.4	178.7	189.4	191.3	199.4	183.2	190.9	189.4	195.0	189.8	188.3	193.1	189.4	189.8	189.4	182.4	190.9	193.5	188.7	189.1	189.1	189.4	206.5	5896.69	190.2
Soda Ash - Dosage	mg/l	n/a	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37		37.0
Alum residual - (Total Daily Consumption	kg	n/a	175.8	174.1	172.0	174.1	177.5	175.1	172.7	175.8	174.1	164.2	174.1	175.8	183.3	168.3	175.4	174.1	179.2	174.4	173.1	177.5	174.1	174.4	174.1	167.6	175.4	177.8	173.4	173.7	173.7	174.1	189.7	5418.58	174.8
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		34.0
Alum residual - Treated Water	mg/l	0.1	0.01	0.01	0.02	0.01	0.01	0.07	0.01	0.01	0.04	0.05	0.05	0.07	0.05	0.06	0.06	0.07	0.01	0.06	0.02	0.03	0.04	0.01	0.01	0.01	0.01	0.02	0.02	0.09	0.03	0.02	0.01		0.03
Poly bags added (25 kg bags)	kg	n/a						0.5							0.5							0.5					0.5				0.5			62.5	