July 29, 2020

Report To: Mayor & Council

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

SUBJECT: May 2020 Drinking Water Systems Monthly Summary Report

Please find attached the May 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 May 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 May 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

RECOMMENDED
AUG 05 2020
DIV. MNG.
EXECUTIVE COMM.

May 2020

Monthly Summary Report
Water Systems

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

Dated: June 16, 2020

1) **Introduction:**

This report contains the major maintenance activities and operational events that occurred during the month of May 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 .21m3

May Usage 6.51 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:

1.943 Third St. E.	2. 401 Kings Hwy.	3. 1319 Col Rd. W.	4. W. Tower
5. 1111 First St. E.	6. 1319 Col Rd. W.	7. 901 Wright Ave.	8. W. Tower
9. 1017 Cornwall Ave.	10. 401 Kings Hwy.	11. 1319 Col Rd. W.	12. W. Tower
13.1017 Cornwall Ave.	14. 401 Kings Hwy.	15. 1319 Col Rd. 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 February 5, 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 on line August 01, 2017. No treatment required as the Airport groundwater well tested negative for bacteria.

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

May 05th worked on settled water sample pump.

May 7th - cleaned top and bottom tanks on the poly unit.
- cleaned all four (4) check valves on the poly unit.
-replaced settled water sample pump.
-replaced in-line mixer gaskets.

May 11th - calibrated the Distribution Chlorine Analyzer.
-took grab samples off filters.

May 14th - cleaned top and bottom tanks on the poly unit.
- cleaned all four (4) check valves on the poly unit

May 20th -repaired impeller on clarifier # 1.
-flushed poly line to clarifier # 1.

May 21st - cleaned top and bottom tanks on the poly unit.
- cleaned all four (4) check valves on the poly unit.

May 28th - cleaned top and bottom tanks on the poly unit.
- cleaned all four (4) check valves on the poly unit.
-calibrated fluoride analyzer.
-took grab sample off filters.

May 29th -ran generator for 1 hour.
-calibrated fluoride analyzer.

8) **Water Complaints:**

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

9) **Other Miscellaneous Information:**

May 4th - took weekly routine micro samples.
-received a load of alum.

May 7th -ordered calcium hypochlorite.
-ordered cl2 reagents.

May11th - took weekly routine micro samples.
-took samples at Rainy Lake Square.
-took samples on Scott St. construction.1st set.
-painted at plant.

May 12th -took samples on Scott St. construction.2nd set.
-painted at plant.

May 13th -painted at plant.

May 14th - painted at plant.

May 15th - painted at plant.

May 19th - took weekly routine micro samples.

May 25th - took weekly routine micro samples.

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: _____
- 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
May 2018 v 2019 v 2020

Flow and Operating Data

Flow Data MAY	Units	2018		2019		2020	
Total Raw Water	m^3		191512		162710		162350
Raw Maximum Day	m^3		6780		6180		5410
Raw Minimum Day	m^3		4970		4760		4910
Raw Average Daily Consumption	m^3		5310		5250		5240
Total Treated Water	m^3		112970		105850		111690
Treated Water Maximim Day Consumption	m^3		4130		4180		4960
Treated Water Minimim Day Consumption	m^3		3060		2760		2840
Treated Water Average Day Consumption	m^3		3640		3410		3600
Daily Average Per Household Consumption Rate	m^3		0.96		0.90		
* Daily Average Per Person Consumption Rate	m^3		0.46		0.43		0.45
Monthly Averages - Operating Parameters WTP:							
FAC Residual - Treated Water	mg/L		2.07		2.15		1.94
Total Chlorine Residual - Treated Water	mg/L		2.30		2.38		2.22
Aluminum Sulphate - Raw Water	mg/L		35.00		35.00		34.13
Aluminum Sulphate - Treated Water Residual	mg/L		0.03		0.03		0.04
Fluoride - Treated Water	mg/L		0.71		0.73		0.72
Soda Ash - Raw Water	mg/L		35.00		35.00		36.74
pH - Adjusted			7.11		7.03		6.71
Temperature	°C		9.50		8.84		10.77
Quantity of Chemical Used:							
Aluminum Sulphate	kg		7416.50		5694.90		5964.61
Polyelectrolyte	kg		112.5		87.5		62.5
Chlorine Gas	kg		671		676		666
Soda Ash - Used for pH Adjustment	kg		7416.50		5694.90		5541.07
Fluoride	kg		583		478		734

* 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
May 2020

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	Maximum	Minimum	
Flow rates																																						
Raw Water	10^3 M^3	17	5.30	5.29	5.38	5.30	5.31	5.33	5.36	5.07	5.31	5.19	5.09	5.22	5.20	5.10	5.31	5.11	5.21	5.21	5.33	5.20	5.21	5.24	4.91	5.22	5.34	5.39	5.23	5.17	5.33	5.41	5.18	162.45	5.24	5.41	4.91	4.91
Peak Instantaneous - Raw Water	L/s	n/a																																	#DIV/0!	0.00	0.00	0.00
Treated Water	10^3 M^3	17	3.35	3.74	2.84	3.20	3.51	3.34	3.74	3.07	3.40	3.36	3.18	3.73	3.97	3.13	3.32	3.20	3.35	3.43	4.07	4.19	4.38	4.96	3.30	3.57	3.95	4.12	4.04	3.53	3.95	3.45	3.34	128.69		4.96	2.84	2.84
Peak Instantaneous - Treated Water	L/s	n/a																																	#DIV/0!	0.00	0.00	0.00
BackWash Water	10^3 M^3	n/a	0.279	0.162	0.251	0.278	0.263	0.250	0.279	0.000	0.262	0.251	0.277	0.263	0.247	0.277	0.263	0.252	0.280	0.262	0.255	0.279	0.261	0.252	0.279	0.261	0.253	0.280	0.262	0.247	0.279	0.262	0.247	7.81	0.25	0.28	0.00	0.000
Fluoride Information																																						
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.78	0.79	0.78	0.76	0.78	0.79	0.66	0.68	0.69	0.67	0.67	0.68	0.68	0.69	0.69	0.69	0.69	0.69	0.75	0.76	0.74	0.75	0.75	0.74	0.74	0.74	0.75	0.77	0.66	0.63	0.62	22.26	0.72			
Turbidity Information																																						
Raw Water	NTU	n/a	1.02	0.97	1.10	1.29	1.38	1.43	1.67	1.49	1.41	1.44	1.47	1.43	1.51	1.46	1.55	1.48	1.44	1.50	1.49	1.40	1.04	1.26	0.91	1.05	1.06	1.22	1.07	1.22	1.31	1.35	1.22	40.64	1.31			
Settled Water	NTU	n/a	0.59	0.56	0.52	0.48	0.41	0.32	0.19	0.15	0.14	0.12	0.26	0.20	0.19	0.20	0.17	0.37	0.28	0.22	0.33	0.31	0.28	0.30	0.23	0.25	0.22	0.28	0.27	0.36	0.25	0.33	0.32	9.10	0.29			
Treated Water	NTU	1	0.31	0.28	0.20	0.24	0.25	0.37	0.21	0.20	0.14	0.10	0.20	0.11	0.13	0.11	0.11	0.12	0.11	0.10	0.12	0.13	0.18	0.19	0.01	0.04	0.17	0.17	0.16	0.19	0.17	0.19	0.21	5.22	0.17			
Other Operating Parameters																																						
pH - Treated Water	no units	6.5 to 8.5	6.94	7.13	6.96	6.99	6.77	6.78	6.79	6.91	7.00	7.05	7.01	7.00	7.03	7.00	7.02	7.01	7.00	7.02	6.81	6.82	6.78	6.81	6.82	6.77	6.75	6.84	6.85	6.90	6.84	6.85	6.83	214.08	6.91			
pH - Settled water	no units	n/a	6.26	6.28	6.31	6.27	6.40	6.38	6.32	6.24	6.31	6.35	6.19	6.28	6.34	6.36	6.41	6.39	6.29	6.34	6.21	6.08	6.22	6.27	6.25	6.33	6.20	6.12	6.21	6.20	6.24	6.20	6.28	194.53	6.28			
pH - Raw Water	no units	n/a	6.85	6.80	6.88	6.79	6.60	6.75	6.78	6.77	6.75	6.77	6.68	6.66	6.71	6.70	6.73	6.79	6.83	6.80	6.78	6.78	6.79	6.77	6.77	6.73	6.73	6.66	6.71	6.69	6.66	6.70	6.73	209.14	6.75			
FAC - Treated Water	mg/l	0.2 to 4	2.18	2.11	2.04	2.13	2.15	2.07	1.92	1.85	1.92	1.96	1.90	1.92	1.98	1.90	1.87	1.92	1.94	1.87	1.98	1.88	1.94	2.02	1.96	1.87	2.04	1.83	1.80	1.70	1.76	1.70	2.04	60.15	1.94			
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.40	2.32	2.22	2.36	2.42	2.36	2.26	2.04	2.07	2.17	2.22	2.24	2.32	2.34	2.26	2.17	2.24	2.26	2.20	2.20	2.42	2.18	2.22	2.20	2.20	2.15	2.09	1.90	2.06	1.99	2.40	68.88	2.22			
Temperature	C	15	9.0	9.0	9.0	9.0	9.0	9.0	9.0	10.0	11.0	12.0	9.0	8.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	13.0	13.0	13.0	13.0	12.0	13.0	12.0	12.0	11.0	11.0	12.0	332.00	10.71			
Fluoride used (Total Daily Consumption)	kg	n/a	23.0	23.0	24.0	22.0	23.0	23.0	24.0	28.0	26.0	25.0	25.0	25.0	25.0	24.0	24.0	23.0	24.0	23.0	24.0	23.0	21.0	22.0	21.0	24.0	25.0	24.0	23.0	23.0	23.0	24.0	23.0	734.00	23.68			
Chlorine used (Total Daily Consumption)	kg	n/a	22.0	21.0	22.0	21.0	21.0	22.0	22.0	22.0	20.0	20.0	20.0	21.0	21.0	20.0	21.0	20.0	20.0	21.0	23.0	22.0	22.0	22.0	21.0	22.0	22.0	22.0	23.0	22.0	22.0	21.0	25.0	666.00	21.48			
Soda ash (Total Daily Consumption)	kg	n/a	185.5	185.2	188.3	185.5	196.5	197.2	198.3	187.6	196.5	192	188.3	193.1	192.4	188.7	196.5	189.1	192.8	192.8	197.2	192.4	192.8	193.9	181.7	193.1	197.6	199.4	193.5	191.3	197.2	200.2	191.7	1058.00				
Soda Ash - Dosage	mg/l	n/a	35.0	35.0	35.0	35.0	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	1139.00	36.74			
Alum residual - (Total Daily Consumption)	kg	n/a	185.5	185.2	188.3	185.5	180.5	181.2	182.2	172.4	180.5	176.5	173.1	177.5	176.8	173.4	180.5	173.7	177.1	177.1	181.2	176.8	177.1	178.2	166.9	177.5	181.6	183.3	177.8	175.8	181.2	183.9	176.1	4675.78				
Alum residual - Dosage	mg/l	n/a	35.0	35.0	35.0	35.0	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	#REF!	34.13			
Alum residual - Treated Water	mg/l	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	#REF!	#REF!			
Poly bags added (25 kg bags)	kg																																	0.00	#DIV/0!			