October 15, 2020

Report To: Mayor & Council

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

SUBJECT: July 2020 Drinking Water Systems Monthly Summary Report

Please find attached the July 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 July 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 July 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

July 2020

Monthly Summary Report
Water Systems

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

Dated: August 17, 2020

1) **Introduction:**

This report contains the major maintenance activities and operational events that occurred during the month of July 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	0.21 m3
Estimated July Usage	6.5 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. 940 Third St. E.	2. 401 King's Hwy	3. 901 Wright Ave.	4. W. Tower
5. 943 Third St. E.	6. 1309 Kings Hwy.	7. 901 Wright Ave.	8. W. Tower
9. 1111 First St. E.	10. 1104 Church St.	11. 740 Sixth St. W.	12. W. Tower
13. 1111 First St. E.	14. 1017 Cornwall Ave.	15. 401 King"s Hwy.	16. W. Tower

There was 1 adverse water sample due to Total Coliforms present. It was related to Scott Street Construction activities and re-sampling per the MECP was not adverse.

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 June 23, 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:**

July 02nd - Cleaned top and bottom tanks on the poly unit.
- Cleaned the four check valves on the poly unit.

July 03rd - Received a load of Alum.

July 08th -cleaned settled water sample line.

July 09th -Cannect Electric working on # 4 high lift they unwired it and took off line.
- Cleaned top and bottom tanks on the poly unit.
- Cleaned the four check valves on the poly unit.

July 10th - Calibrated distribution chlorine analyzer.

July 14th -worked on #3 filter backwash valve.

July 15th - Calibrated distribution chlorine analyzer.
-Calibrated Fluoride analyzer.
-flushed poly lines.
Took grab samples of filters.

July 16th - Cleaned top and bottom tanks on the poly unit.
-Cleaned all four check valves on the poly unit.
-received 3 pallets fluoride.

July 17th - Calibrated distribution chlorine analyzer.

July 19th - Calibrated distribution chlorine analyzer.

July 21st - Calibrated distribution chlorine analyzer.
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July 22nd - Calibrated distribution chlorine analyzer.
-Called by Lab adverse sample on new main tie in on Scott St.

July 23rd - Calibrated distribution chlorine analyzer.
- Cleaned top and bottom tanks on the poly unit.
-Cleaned all four check valves on the poly unit.

July 29th - Calibrated distribution chlorine analyzer.
-Changed membrane in cl2 analyzer.
-Tested low cl2 alarms.

July 30th - - Cleaned top and bottom tanks on the poly unit.
-Cleaned all four check valves on the poly unit.

8) **Water Complaints:**

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

9) **Other Miscellaneous Information:**

July 02nd -Temp main samples Colonization Road West.

July 06th - Routine micro sample collection.
-Watermain repair samples 4th St. West and Wright Ave. first set.

July 07th -Watermain repair samples 4th St. West and Wright Ave. second set.
-Erin Cresent new main samples. First set.

July 08th -Erin Cresent new main samples. Second set.

July 13th - Routine micro samples collection.

July 15th -Erin Cresent new main tie in samples. First set

July 16th -Erin Cresent new main tie in samples. second set.

July 20th - Routine micro sample collection.
-New main samples tie in Scott St. first set.
-Temp main repair.Colonization Rd. West.

July 21st -New main samples tie in Scott St. second set.
-Seasonal samples Vanjura washrooms.
- Temp main repair.Colonization Rd. West.

July 22nd -Resample new main tie it on Scott St. first set. (due to adverse)

July 23rd -Resample new main tie it on Scott St. second set.
-Water main repair and new valve 5th St. East. first set

July 27th -Water main repair and new valve 5th St. East. Second set.
- 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
July 2018 v 2019 v 2020
Flow and Operating Data

Flow Data JULY	Units	2018		2019		2020	
		Day of the Month		Day of the Month		Day of the Month	
Total Raw Water	m^3		163390		165900		177490
Raw Maximum Day	m^3	Sunday 15th	5460	Saturday 27th	5570	Sunday 05th	5950
Raw Minimum Day	m^3	Thursday 5th	4870	Monday 29th	5180	Sunday 12th	5400
Raw Avgerage Daily Consumption	m^3		5270		5350		5730
Total Treated Water	m^3		125810		122360		139030
Treated Water Maximim Day Consumption	m^3	Tuesday 24th	5100	Wednesday 03rd	4560	Friday 03rd	5460
Treated Water Minimim Day Consumption	m^3	Monday 2nd	3400	Sunday 28th	3350	Tuesday 14th	3780
Treated Water Average Day Consumption	m^3		4060		3950		4480
Daily Average Per Household Consumption Rate	m^3		1.07		1.04	0.00	1.18
* Daily Average Per Person Consumption Rate	m^3		0.51		0.49	0.00	0.56
Monthly Averages - Operating Parameters WTP:							
FAC Residual - Treated Water	mg/L		2.12		2.07		2.17
Total Chlorine Residual - Treated Water	mg/L		2.37		2.29		2.43
Aluminum Sulphate - Raw Water	mg/L		35.0		35		34
Aluminum Sulphate - Treated Water Residual	mg/L		0.02		0.02		0.04
Fluoride - Treated Water	mg/L		0.75		0.71		0.73
Soda Ash - Raw Water	mg/L		35.0		35		37
PH - Adjusted	mg/L		7.03		7.18		6.94
Temperature	C		21.7		21.4		22.6
Quantity of Chemical Used:	kg						
Aluminum Sulphate	kg		4473.9		5806.5		6034.7
Polyelectrolyte	kg		100.0		62.5		75
Chlorine Gas	kg		848.0		815		944
Soda Ash - Used for PH Adjustment	kg		5718.7		5806.5		6567.1
Fluoride	kg		503.0		775		750

* 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
Jul-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	5.76	5.73	5.73	5.92	5.98	5.90	5.95	5.72	5.75	5.74	5.79	5.40	5.80	5.70	5.68	5.40	5.66	5.84	5.75	5.44	5.77	5.65	5.70	5.67	5.66	5.70	5.81	5.71	5.68	5.68	5.75	177.49	5.73
Peak Instantaneous - Raw Water	l/s	n/a	67.71	67.65	67.66	69.51	69.47	70.95	69.36	68.05	67.06	66.99	66.70	66.69	66.83	66.87	66.83	66.68	66.48	66.56	65.59	66.52	66.52	66.57	66.62		66.78	67.03	66.94	66.91	66.57	66.52	67.32		67.26
Treated Water	1000 m^3	17	5.28	5.01	5.46	5.31	4.80	3.99	4.03	4.64	4.46	4.35	4.64	4.02	4.95	3.78	3.93	4.60	4.97	4.59	4.49	4.14	4.56	3.95	4.00	4.47	4.28	3.81	4.38	4.33	4.31	4.52	4.98	139.03	4.48
Peak Instantaneous - Treated Water	l/s	n/a	116.81	82.24	84.38	91.69	86.98	84.48	82.26	99.70	87.22	88.15	85.82	84.28	83.21	84.54	82.58		84.71	85.01	85.32	84.47	85.27	83.83	84.00		66.51	83.61	84.53	85.01	88.99	85.92	72.21		77.40
BackWash Water	1000 m^3	n/a	0.22	0.28	0.27	0.22	0.29	0.27	0.23	0.29	0.27	0.29	0.24	0.27	0.29	0.23	0.29	0.27	0.27	0.29	0.27	0.27	0.29	0.27	0.27	0.29		0.27	0.27	0.29	0.27	0.269	0.287	8.035	0.268
Fluoride Information																																			
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.76	0.76	0.77	0.76	0.76	0.76	0.75	0.73	0.73	0.72	0.70	0.71	0.72	0.72	0.70	0.73	0.72	0.70	0.72	0.72	0.70	0.71	0.72	0.72	0.72	0.72	0.73	0.76	0.76	0.77	0.78		0.73
Turbidity Information																																			
Raw Water	NTU	n/a	1.26	1.31	1.64	1.16	1.21	1.86	1.34	1.55	1.43	1.63	1.67	1.66	1.69	1.65	1.62	1.79	1.64	1.66	1.70	1.69	1.67	1.37	1.45	1.29	1.24	1.27	1.20	1.54	1.42	1.13	1.27		1.48
Settled Water	NTU	n/a	0.55	0.48	0.46	0.48	0.43	0.39	0.40	0.36	0.35	0.41	0.32	0.38	0.27	0.21	0.19	0.34	0.27	0.21	0.19	0.19	0.35	0.27	0.31	0.35	0.37	0.41	0.21	0.30	0.23	0.33	0.25		0.33
Treated Water	NTU	1	0.17	0.19	0.21	0.18	0.21	0.21	0.20	0.21	0.22	0.15	0.24	0.20	0.18	0.09	0.11	0.24	0.22	0.15	0.12	0.10	0.15	0.17	0.17	0.11	0.15	0.12	0.04	0.19	0.19	0.19	0.17		0.17
Other Operating Parameters																																			
pH - Treated Water	no units	6.5 to 8.5	6.93	6.92	6.97	6.89	6.89	6.88	6.88	7.08	6.99	6.77	6.79	6.83	6.85	6.99	7.01	6.98	6.91	6.99	7.03	7.05	6.86	6.85	6.83	7.04	7.01	7.04	6.95	6.95	6.91	6.95	6.97		6.94
pH - Settled water	no units	n/a	6.36	6.38	6.40	6.37	6.44	6.41	6.47	6.40	6.42	6.29	6.27	6.26	6.22	6.21	6.25	6.35	6.22	6.25	6.21	6.28	6.49	6.39	6.31	6.41	6.38	6.36	6.37	6.38	6.13	6.40	6.29		6.33
pH - Raw Water	no units	n/a	6.78	6.78	6.88	6.68	6.79	6.77	6.86	6.75	6.75	6.79	6.83	6.83	6.76	6.75	6.71	6.79	6.81	6.88	6.81	6.89	6.78	6.92	6.86	6.87	6.90	6.93	6.87	6.77	6.86	6.87	6.89		6.63
FAC - Treated Water	mg/l	0.2 to 4	2.09	2.10	2.18	1.81	1.75	1.68	2.16	2.09	2.22	2.30	2.48	2.40	2.42	2.24	2.44	1.82	2.10	2.42	2.10	2.40	1.93	1.76	2.15	2.28	2.28	2.17	2.32	2.42	2.30	2.38	2.46		2.18
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.50	2.22	2.44	2.03	1.98	1.94	2.08	2.56	2.44	2.56	2.84	2.50	2.62	2.42	2.62	2.09	2.72	2.60	2.22	2.62	2.04	1.96	2.28	2.58	2.54	2.56	2.58	2.70	2.70	2.70	2.62		2.43
Temperature	°C	15	22.0	23.0	24.0	26.0	25.0	25.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.0	22.0	22.0	21.0	21.0	21.0	21.0	20.0	22.0	22.0	21.0	22.0	22.0	22.0	21.0	21.0	22.0	23.0		22.6
Fluoride used (Total Daily Consumption)	kg	n/a	24.0	24.0	23.0	24.0	23.0	24.0	23.0	22.0	21.0	25.0	28.0	25.0	27.0	26.0	26.0	27.0	25.0	26.0	24.0	24.0	23.0	23.0	23.0	22.0	22.0	21.0	22.0	25.0	26.0	26.0	26.0	750.00	24.2
Chlorine used (Total Daily Consumption)	kg	n/a	30.0	31.0	31.0	32.0	32.0	32.0	34.0	31.0	32.0	32.0	32.0	29.0	32.0	31.0	31.0	26.0	27.0	30.0	27.0	26.0	27.0	26.0	32.0	32.0	30.0	32.0	32.0	31.0	31.0	32.0	31.0	944.00	30.5
Soda Ash (Total Daily Consumption)	kg	n/a	213.1	212.0	212.0	219.0	220.2	218.3	220.2	211.6	212.8	212.4	214.2	199.8	218.3	210.9	210.2	199.8	209.4	216.1	212.8	201.3	213.5	209.1	210.9	209.8	209.4	210.9	215.0	211.3	210.2	210.2	212.8	6567.13	211.8
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	195.8	194.8	194.8	201.3	202.3	200.6	202.3	194.5	195.5	195.2	196.9	183.6	200.6	193.8	193.1	183.6	192.4	198.6	195.5	185.0	196.2	192.1	193.8	192.8	192.4	193.8	197.5	194.1	193.1	193.1	195.5	6034.66	194.7
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	0.03	0.03	0.07	0.05	0.08	0.05	0.06	0.04	0.03	0.04	0.04	0.04	0.03	0.02	0.03	0.03	0.06	0.04	0.03	0.03	0.04	0.05	0.04	0.05	0.04	0.05	0.03	0.04	0.05	0.03	0.02		0.04
Poly bags added (25 kg bags)	kg	n/a			0.5				0.5						0.5								0.5			0.5						0.5		75.0	