October 15, 2020

Report To: Mayor & Council

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

SUBJECT: August 2020 Drinking Water Systems Monthly Summary Report

Please find attached the August 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 August 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 August 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

August 2020

Monthly Summary Report
Water Systems

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

Dated: September 02, 2020

1) **Introduction:**

This report contains the major maintenance activities and operational events that occurred during the month of August 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 August 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 3rd St. E.	2. 401 King's Hwy.	3. 901 Wright Ave.	4. W. Tower
5. 940 3rd St. E.	6. 401 Kings Hwy.	7. 901 Wright Ave.	8. W. Tower
9. 740 Scott St.	10. 1036 Victoria Ave.	11. 901 Wright Ave.	12. W. Tower
13. 943 Third St. E.	14. 1324 Kings Hwy.	15. 901 Wright Ave.	16. W. Tower
17.East End Hall	18. 218 3rd St. E.	19. 901 Wright Ave.	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 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 online August 01, 2017. No treatment required as the Airport groundwater well tested negative for bacteria.

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

Aug 04th -Ran back up generator for 1 hour.
-Flushed settled water sample pump line.
-Lake side here doing annual calibrations.

Aug 5th -Flushed poly line to clarifier 3 1.
-Lake side here doing annual calibrations.

Aug 6th - Cleaned top and bottom tanks on the poly unit.
- Cleaned all 4 check valves on the poly unit.
-Calibrated cl2 analyzer.
-Cleaned soda ash intake line.
-Flushed soda ash line.
- Changed soda ash pump.

Aug 7th - Calibrated cl2 analyzer.
-Changed settled water sample pump.

Aug.11th -Received a load of Alum.

Aug.12th -Flushed settled water sample pump line.

Aug.13th -Cleaned top and bottom tanks on the poly unit.
- Cleaned all 4 check valves on the poly unit.

Aug.14th - Calibrated cl2 analyzer.

Aug 18th - Took grab samples off the filters.
-Calibrated Fluoride analyzer.

Aug 19th -Lakeside here finishing up Calibrations.

Aug 19th -Removed High Lift #4 to send away for rebuild.

Aug 21st - Cleaned top and bottom tanks on the poly unit.
-Cleaned all 4 check valves on the poly unit.
-Changed cl2 tank.

Aug 25th - Calibrated distribution chlorine analyzer.

Aug 27th -Q.M.S. Management review.

Aug 28th - Cleaned top and bottom tanks on the poly unit.
-Cleaned all 4 check valves on the poly unit.

Aug 29th - Calibrated distribution chlorine analyzer.

8) **Water Complaints:**

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

9) **Other Miscellaneous Information:**

Aug. 04th - Routine micro samples collection.

Aug. 05th - Took micro samples on 6th St. and Victoria Ave. valve replacement. 1st set.

Aug. 06th - Took micro samples on 6th St. and Victoria valve replacement. 2nd set.
-Took micro samples on Armit Ave. Hydrant replacement. 1st set.

Aug. 10th -Routine micro samples collection.
-Took micro samples on Armit Ave. Hydrant replacement. 2nd set.

Aug. 11th - Took micro samples on Colonization Rd. W. valve replacement. 1st set.

Aug. 12th - Took micro samples on Colonization Rd. W. valve replacement. 2nd set.
-Took micro samples on Thompson Ave. Hydrant. replacement. 1st set.

Aug. 13th -Took micro samples on Thompson Ave. Hydrant. replacement. 2nd set.
-Took micro samples on Keating Ave. Hydrant. replacement. 1st set.

Aug. 17th - Took micro samples on Keating Ave. Hydrant replacement. 2nd set.
-Routine micro samples collection.

Aug. 18th -Service repair Fort Frances G.M.

Aug. 24th -Routine micro samples collection.
-Took micro samples on. 4th and wright Valve replacement. 1st set.
-Took micro samples on. 1st and wright Valve replacement. 1st set.
- Took micro samples on Keating Ave. and 3rd Street Hydrant replacement.1st set.

Aug. 25th -Took micro samples on. 4th and wright Valve replacement. 2nd set.

-Took micro samples on. 1st and wright Valve replacement. 2nd set.
- Took micro samples on Keating Ave. and 3rd Street Hydrant replacement.2nd set.
-Took micro samples on. 3rd St. E. hydrant replacement. 1st set.

Aug. 26th -Took micro samples on. 3rd St. E. hydrant replacement. 2nd set.
-Took micro samples on. 1040 Williams Ave. hydrant replacement. 1st set.

Aug. 27th -Took micro samples on. 1040 Williams Ave. hydrant replacement. 2nd set.
-Took micro samples on. 1020 5th street. hydrant replacement. 1st set.

Aug 31st -Routine micro samples collection.
-Took micro samples on. 1020 5th street. hydrant replacement. 2nd set.
-Took micro samples on. Crowe and 2nd Street valve replacement. 1st set.

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
August 2018 v 2019 v 2020
Flow and Operating Data

Flow Data August	Units	2018		2019		2020	
		Day of the Month		Day of the Month		Day of the Month	
Total Raw Water	m^3		185980		159470		176790
Raw Maximum Day	m^3	Sunday 19th	6740	Wednesday 02nd	5260	Tuesday	6210
Raw Minimum Day	m^3	Mon 6th & Sat 11th	5280	Thursday 24th	5010	Saturday	5310
Raw Avgerage Daily Consumption	m^3		6000		5140		5700
Total Treated Water	m^3		132730		118250		127750
Treated Water Maximim Day Consumption	m^3	Monday 13th	5780	Monday 07th	4880	Friday	5880
Treated Water Minimim Day Consumption	m^3	Monday 6th	3340	Tuesday 08th	3120	Saturday	2930
Treated Water Average Day Consumption	m^3		4280		3810		4120
Daily Average Per Household Consumption Rate	m^3		1.13		1.01		1.09
* Daily Average Per Person Consumption Rate	m^3		0.54		0.48		0.52
Monthly Averages - Operating Parameters WTP:							
FAC Residual - Treated Water	mg/L		2.16		2.11		2.18
Total Chlorine Residual - Treated Water	mg/L		2.42		2.33		2.44
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		0.72		0.74		0.64
Soda Ash - Raw Water	mg/L		35.0		35		37
PH - Adjusted	mg/L		6.97		7.26		7.08
Temperature	C		21.7		21.7		22.4
Quantity of Chemical Used:	kg						
Aluminum Sulphate	kg		6509.3		5581.5		6010.8
Polyelectrolyte	kg		75.0		87.5		75
Chlorine Gas	kg		919		778		962
Soda Ash - Used for PH Adjustment	kg		6509.3		5581.5		6541.2
Fluoride	kg		656		729		726

* 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
Aug-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	5.48	5.87	5.88	6.21	5.89	6.06	6.14	5.85	6.11	5.88	5.77	5.59	5.56	5.55	5.31	5.75	5.64	5.53	5.57	5.54	5.59	5.82	5.52	5.38	5.64	5.60	5.59	5.61	5.55	5.66	5.65	176.79	5.70
Peak Instantaneous - Raw Water	l/s	n/a	68.50	68.79	68.75	68.75	68.70	71.03	70.82	71.20	70.80	69.69	69.70	69.41	65.32	65.10	65.06	65.19	65.36	65.32	65.37	65.06	65.06	65.18	65.19	65.32	65.34	65.32	65.38	65.32	65.95	66.49	66.59		67.07
Treated Water	1000 m^3	17	5.01	4.19	4.79	5.30	5.55	5.76	5.88	4.72	3.94	3.59	3.82	3.80	4.32	4.08	3.53	3.51	3.29	3.67	3.77	3.67	3.87	4.29	3.19	3.47	4.28	4.37	3.87	3.89	3.56	3.63	3.74	127.75	4.12
Peak Instantaneous - Treated Water	l/s	n/a	118.36	66.12	67.24	67.24	119.72	134.90	69.14	85.97	63.49	63.70	62.52	65.36	66.23	65.05	64.24	63.64	62.42	63.47	63.64	63.66	64.25	63.27	66.44	63.68	63.10	66.01	66.55	69.22	64.44	69.25	63.62		72.77
BackWash Water	1000 m^3	n/a	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	0.27	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	0.55	0.269	0.276	8.750	0.282
Fluoride Information																																			
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.64	0.63	0.62	0.61	0.64	0.64	0.63	0.64	0.62	0.64	0.65	0.63	0.61	0.62	0.62	0.62	0.63	0.69	0.63	0.65	0.62	0.65	0.67	0.64	0.65	0.65	0.65	0.66	0.65	0.65	0.65		0.64
Turbidity Information																																			
Raw Water	NTU	n/a	1.33	1.12	1.13	1.15	1.20	1.05	1.01	0.93	1.02	0.97	1.24	1.66	1.36	1.39	1.31	1.35	1.40	1.42	1.45	1.40	1.31	1.33	1.35	1.36	1.30	1.35	1.41	1.44	1.38	1.43	1.48		1.29
Settled Water	NTU	n/a	0.35	0.33	0.29	0.38	0.31	0.40	0.30	0.25	0.38	0.27	0.34	0.29	0.28	0.34	0.35	0.37	0.25	0.21	0.33	0.25	0.22	0.20	0.19	0.34	0.29	0.34	0.27	0.31	0.29	0.31	0.27		0.30
Treated Water	NTU	1	0.18	0.17	0.18	0.19	0.22	0.19	0.22	0.15	0.22	0.18	0.17	0.15	0.18	0.21	0.19	0.19	0.21	0.18	0.20	0.17	0.15	0.14	0.14	0.19	0.14	0.15	0.13	0.14	0.15	0.14	0.14		0.17
Other Operating Parameters																																			
pH - Treated Water	no units	6.5 to 8.5	6.98	6.96	6.97	7.06	7.08	7.15	6.93	7.17	6.99	7.08	7.35	7.39	6.98	7.16	7.11	7.06	7.13	7.15	7..11	7.10	7.07	7.11	7.15	6.99	7.04	7.01	7.00	6..98	7.01	7.01	7.00		7.08
pH - Settled water	no units	n/a	6.41	6.54	6.44	6.51	6.34	6.40	6.36	6.34	6.24	6.35	6.30	6.46	6.20	6.34	6.34	6.34	6.37	6.42	6.41	6.40	6.31	6.35	6.41	6.40	6.39	6.36	6.40	6.48	6.39	6.43	6.38		6.38
pH - Raw Water	no units	n/a	6.89	6.88	6.89	7.04	6.89	7.02	7.01	7.12	6.85	7.11	6.90	6.91	6.93	6.82	7.02	6.97	6.98	7.00	7.12	7.09	7.01	7.07	7.00	7.01	7.03	7.03	7.03	7.01	6.98	7.01	7.00		6.99
FAC - Treated Water	mg/l	0.2 to 4	2.18	2.22	2.18	2.12	2.17	2.20	2.16	2.28	2.22	2.08	2.02	2.13	2.28	2.34	2.32	2.38	2.32	2.35	2.20	2.42	2.26	2.07	2.06	1.95	2.26	2.17	1.97	1.92	1.9	1.91	2.17		2.17
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.46	2.50	2.26	2.56	2.34	2.68	2.80	2.52	2.40	2.46	2.32	2.26	2.52	2.56	2.44	2.62	2.66	2.64	2.42	2.60	2.42	2.20	2.20	2.34	2.42	2.36	2.24	2.32	2.28	2.34	2.42		2.44
Temperature	°C	15	23.0	23.0	22.0	22.0	22.0	23.0	22.0	23.0	23.0	23.0	23.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	23.0	23.0	23.0	23.0	22.0	22.0	22.0		22.4
Fluoride used (Total Daily Consumption)	kg	n/a	24.0	26.0	25.0	26.0	25.0	24.0	25.0	23.0	23.0	22.0	22.0	21.0	21.0	24.0	25.0	26.0	27.0	25.0	25.0	24.0	24.0	25.0	23.0	22.0	22.0	22.0	21.0	22.0	21.0	21.0	20.0	726.00	23.4
Chlorine used (Total Daily Consumption)	kg	n/a	31.0	32.0	33.0	35.0	32.0	34.0	34.0	31.0	33.0	32.0	31.0	31.0	30.0	30.0	29.0	31.0	31.0	31.0	30.0	29.0	31.0	30.0	29.0	29.0	31.0	30.0	31.0	30.0	30.0	31.0	30.0	962.00	31.0
Soda Ash (Total Daily Consumption)	kg	n/a	202.8	217.2	217.6	229.8	217.9	224.2	227.2	216.5	226.1	217.5	213.5	206.8	205.7	205.4	196.5	212.8	208.7	204.6	206.1	205.0	206.8	215.3	204.2	199.1	208.7	207.2	206.8	207.6	205.4	209.4	209.1	6541.16	211.0
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	186.3	199.8	199.9	211.1	200.3	206.0	208.8	188.9	207.7	199.9	196.2	190.1	189.0	188.7	180.5	195.5	191.8	188.0	189.4	188.4	190.1	197.9	187.7	182.9	191.8	190.4	190.1	190.7	188.7	192.4	192.1	6010.79	193.9
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	0.01	0.01	0.01	0.01	0.01	0.01	0.08	0.08	0.07	0.08	0.09	0.08	0.03	0.02	0.02	0.02	0.03	0.01	0.04	0.03	0.01	0.05	0.07	0.05	0.05	0.05	0.03	0.05	0.04		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	