October 15, 2020

Report To: Mayor & Council

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

SUBJECT: September 2020 Drinking Water Systems Monthly Summary Report

Please find attached the September 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 September 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 September 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

September 2020

Monthly Summary Report
Water Systems

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

Dated: October 07, 2020

1) **Introduction:**

This report contains the major maintenance activities and operational events that occurred during the month of September 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): 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. 940 3rd St. E.	3. 746 6th St. W.	4. W. Tower
5. 1301 Calder Dr.	6. 901 Wright Ave.	7.F.F. Cemetery.	8. W. Tower
9. 720 Scott St.	10. 1036 Victoria Ave.	11. 901 Wright Ave.	12. W. Tower
13.1301 Calder Dr.	14. 746 6th St. W.	15.500 Keating Ave.	16. W. Tower
17.943 3rd St. E.	18.704 Portage Ave.	19. 901 Wright Ave.	20. W. Tower

There were 2 adverse water samples due to Total Coliforms present. They were related to Colonization Road West 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 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 on line August 01, 2017. No treatment required as the Airport groundwater well tested negative for bacteria.

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

Sept 01st -Calibrated chlorine analyzer.
-Ran backup generator for 1 hour.

Sept 02nd -worked on finished and settled sample pumps and flushed lines.

Sept 03rd – Changed soda ash transfer pump.
- cleaned all 4 check valves on the poly unit.
- cleaned top and bottom tanks on the poly unit.

Sept 04th -repaired spare soda ash transfer pumps.

Sept 09th - Changed soda ash dust collector filters.

Sept 10th - cleaned all 4 check valves on the poly unit.
- cleaned top and bottom tanks on the poly unit.

Sept 13th - Calibrated distribution chlorine analyzer.

Sept 14th - Calibrated distribution chlorine analyzer.

Sept 17th -Changed chlorine tank
- cleaned all 4 check valves on the poly unit.
- cleaned top and bottom tanks on the poly unit.

Sept 18th - Took grab samples off the filters.
-Calibrated fluoride analyzer.
- Calibrated chlorine analyzer.

Sept 21st - Soda ash truck here.

Sept 23rd - Calibrated chlorine analyzer.

Sept 24th -Clear-Tech here calibrating Hach Equipment.

Sept 25th - cleaned all 4 check valves on the poly unit.
- cleaned top and bottom tanks on the poly unit.
- Calibrated chlorine analyzer.

Sept 28th - Calibrated chlorine analyzer.

Sept 30th -Ran backup generator for 1 hour.

8) **Water Complaints:**

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

9) **Other Miscellaneous Information:**

Sept 01st - Valve replacement samples Mini Ave. second set.
-recievet 4 tonners chlorine.

Sept 02nd - Valve replacement samples Scott St. first set.

Sept 03rd - Valve replacement samples Scott St. second set.
-Valve replacement samples 5th St. first set.

Sept 08th -Valve replacement samples 5th St. Second set.
- routine micro sample collection.

Sept 09th - Cut and Cap samples Colonization Rd. W. first set.

Sept 10th - Cut and Cap samples Colonization Rd. W. second set.

Sept 13th – New main samples Colonization Rd. W. first set.

Sept 14th - New main samples Colonization Rd. W. second set.

Sept 21st - routine micro sample collection.

Sept 22nd -Resample for adverse sample Colonization Rd. W. first set.
- Did Quarterly samples at W.T.P. and Tower.
- Did T.S.S. samples off filter # 3.
-Did Airport samples.

Sept 23rd -Resample for adverse sample Colonization Rd. W. second set.

Sept 28th - 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
September 2018 v 2019 v 2020
Flow and Operating Data

Flow Data SEPTEMBER	Units	2018		2019		2020	
		Day of the Month		Day of the Month			
Total Raw Water	m^3		183370		151480		160540
Raw Maximum Day	m^3	Saturday 02nd	6640	Wednesday 04th	5890	Tuesday o8th	5850
Raw Minimum Day	m^3	Monday 25th	5200	Tuesday 03rd	4300	Monday 21st	4870
Raw Avgerage Daily Consumption	m^3		6110		5050		5350
Total Treated Water	m^3		104130		100160		107690
Treated Water Maximim Day Consumption	m^3	Tuesday 12th	4590	Wednesday 25th	3990	Wednesday 02nd	4190
Treated Water Minimim Day Consumption	m^3	Friday 04th	3120	Friday 27th	2810	Monday 07th	2930
Treated Water Average Day Consumption	m^3		3470		3340		3590
Daily Average Per Household Consumption Rate	m^3		0.92		0.88		0.95
* Daily Average Per Person Consumption Rate	m^3		0.43		0.42		0.45
Monthly Averages - Operating Parameters WTP:							
FAC Residual - Treated Water	mg/L		2.26		2.26		2.25
Total Chlorine Residual - Treated Water	mg/L		2.47		2.53		2.55
Aluminum Sulphate - Raw Water	mg/L		35.0		35		34
Aluminum Sulphate - Treated Water Residual	mg/L		0.02		0.03		0.03
Fluoride - Treated Water	mg/L		0.66		0.75		0.58
Soda Ash - Raw Water	mg/L		35.0		35		3.7
PH - Adjusted	mg/L		6.96		7.34		7.38
Temperature	C		17.7		16.7		16.4
Quantity of Chemical Used:	kg						
Aluminum Sulphate	kg		6418		5301.7		5458.4
Polyelectrolyte	kg		87.5		62.5		62.5
Chlorine Gas	kg		870		726		797
Soda Ash - Used for PH Adjustment	kg		6418		5301.7		5940
Fluoride	kg		646		724		724

* 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
Sep-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	5.59	5.49	5.55	5.50	5.36	5.54	5.43	5.85	5.53	5.48	5.53	5.57	5.44	5.50	5.50	5.49	5.24	5.13	5.29	5.33	4.87	5.15	5.17	5.18	5.22	4.99	5.36	5.05	5.16	5.05	160.54	5.35
Peak Instantaneous - Raw Water	l/s	n/a	65.28	64.98	64.98	65.00	64.78	64.59	64.63	64.46	64.54	64.42	64.55	64.43	64.36	64.28	64.37	64.29	64.28	64.13	60.59	60.47	60.51	60.44	60.31	60.27	60.34	60.34	60.24	60.26	60.25	60.28		62.89
Treated Water	1000 m^3	17	3.68	4.19	4.03	3.82	3.20	3.56	2.83	3.85	3.63	3.25	3.63	3.70	3.42	3.47	3.65	3.68	4.14	3.62	3.63	3.78	3.48	3.67	3.66	3.60	3.58	3.25	3.26	4.00	3.02	3.31	107.69	3.59
Peak Instantaneous - Treated Water	l/s	n/a	63.44	64.50	68.87	67.63	64.97	62.83	63.13	62.47	63.44	63.39	64.55	65.01	63.65	62.89	64.47	63.89	64.58	64.68	63.28	62.57	62.11	63.35	64.63	64.81	63.77	64.27	63.31	63.46	63.57	64.66		64.07
BackWash Water	1000 m^3	n/a	0.29	0.27	0.27	0.29	0.27	0.27	0.29	0.27	0.27	0.29	0.27	0.27	0.28	0.27	0.27	0.29	0.27	0.26	0.29	0.27	0.26	0.29	0.52	0.29	0.27	0.26	0.29	0.27	0.26	0.288	8.446	0.282
Fluoride Information																																		
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.63	0.63	0.62	0.61	0.60	0.59	0.60	0.58	0.56	0.57	0.58	0.59	0.58	0.55	0.58	0.58	0.55	0.54	0.58	0.59	0.58	0.57	0.58	0.56	0.58	0.58	0.58	0.57	0.55	0.55		0.58
Turbidity Information																																		
Raw Water	NTU	n/a	1.37	1.36	1.30	1.58	1.59	1.66	1.65	1.60	1.71	1.56	1.69	1.56	1.26	1.47	1.65	1.31	1.31	1.28	1.25	1.22	1.03	1.67	1.32	1.29	1.29	1.31	1.13	1.06	1.11	1.20		1.39
Settled Water	NTU	n/a	0.30	0.27	0.34	0.25	0.28	0.21	0.29	0.34	0.25	0.28	0.26	0.29	0.22	0.29	0.25	0.21	0.20	0.21	0.17	0.15	0.23	0.21	0.23	0.26	0.08	0.09	0.08	0.05	0.07	0.08		0.21
Treated Water	NTU	1	0.20	0.20	0.21	0.19	0.21	0.16	0.16	0.20	0.19	0.21	0.20	0.29	0.19	0.16	0.17	0.22	0.18	0.18	0.19	0.15	0.13	0.18	0.22	0.20	0.23	0.04	0.06	0.03	0.05	0.05		0.17
Other Operating Parameters																																		
pH - Treated Water	no units	6.5 to 8.5	7.05	7.08	7.14	7.05	7.22	7.20	7.29	7.33	7.38	7.2	7.30	7.33	7.35	7.27	7.61	7.52	7.60	7.53	7.51	7.44	7.56	7.35	7.57	7.49	7.36	7.61	7.55	7.62	7.58	7.45		7.38
pH - Settled water	no units	n/a	6.40	6.41	6.41	6.44	6.48	6.46	6.52	6.47	6.65	6.56	6.59	6.51	6.49	6.43	6.73	6.83	6.84	6.82	6.85	6.80	6.79	6.61	6.47	6.57	6.06	6.38	6.25	6.39	6.41	6.26		6.53
pH - Raw Water	no units	n/a	7.06	6.93	6.95	6.99	6.97	7.04	7.00	7.24	7.39	7.25	7.27	7.30	7.31	7.25	7.46	7.38	7.33	7.54	7.44	7.32	7.49	7.16	7.24	7.57	7.28	7.29	7.41	7.48	7.36	7.02		7.26
FAC - Treated Water	mg/l	0.2 to 4	2.32	2.28	2.05	2.30	2.34	2.34	2.16	2.40	2.40	2.42	2.40	2.38	1.90	1.75	1.79	1.73	2.00	2.40	2.57	2.45	2.66	2.84	2.64	2.56	2.14	1.99	2.04	1.99	1.99	2.08		2.24
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.52	2.70	2.76	2.52	2.72	2.80	2.54	2.70	2.70	2.80	2.82	2.60	2.12	2.04	1.94	2.03	2.10	2.58	2.65	2.58	2.96	3.26	2.78	2.96	2.54	2.24	2.20	2.36	2.38	2.44		2.55
Temperature	°C	15	21.0	20.0	20.0	19.0	19.0	19.0	18.0	17.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		16.4
Fluoride used (Total Daily Consumption)	kg	n/a	25.0	25.0	26.0	25.0	24.0	26.0	25.0	26.0	25.0	25.0	24.0	24.0	23.0	24.0	23.0	24.0	21.0	24.0	26.0	26.0	23.0	25.0	24.0	24.0	24.0	23.0	23.0	22.0	22.0	23.0	724.00	24.1
Chlorine used (Total Daily Consumption)	kg	n/a	30.0	30.0	29.0	30.0	29.0	30.0	29.0	32.0	30.0	30.0	30.0	28.0	24.0	23.0	23.0	23.0	24.0	26	28	29	26	27	27	26	24	21	24	22	22	21	797.00	26.6
Soda Ash (Total Daily Consumption)	kg	n/a	206.8	203.1	205.4	203.5	198.3	205.0	200.9	216.5	204.6	202.8	204.6	206.1	201.3	203.5	203.5	203.1	193.9	189.8	195.7	197.2	180.2	190.6	191.3	191.7	193.1	184.6	198.3	186.9	190.9	186.9	5939.98	198.0
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	190.1	186.7	188.7	187.0	182.2	188.4	184.6	198.9	188.0	186.3	188.0	189.4	185.0	187.0	187.0	186.7	178.2	174.4	179.9	181.2	165.6	175.1	175.8	176.1	177.5	169.7	182.2	171.7	175.4	171.7	5458.36	181.9
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
Alum residual - Treated Water	mg/l	0.1	0.05	0.01	0.09	0.08	0.02	0.07	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.05	0.02	0.01	0.02	0.01	0.01	0.01	0.04	0.06	0.01	0.01	0.01	0.01	0.01	0.02		0.03
Poly bags added (25 kg bags)	kg	n/a			0.5							0.5							0.5								0.5				0.5		62.5	