April 15, 2016

Report To: Mayor & Council

From: Doug Brown, Manager of Operations & Facilities

SUBJECT: March 2016 Drinking Water Systems Monthly Summary Report

Please find attached the March 2016 Summary Report on the drinking water systems, prepared by Randy White, Senior WTP Operator.

Your Administration recommends that Operations & Facilities Executive Committee accept the March 2016 report as presented.

Respectfully submitted,
Operations & Facilities Division

Doug Brown

Doug Brown, P. Eng.
Manager of Operations & Facilities

Council approval of this report will accept the March 2016 Drinking Water Systems Monthly Summary Report and approve the report prior to it being made available to the general public.

c.c. – Doug Herr, Environmental & Facilities Supt.
Randy White, Senior WTP Operator

03CouncilwaterreportMarch 2015

March, 2016

Monthly Summary Report
Water Systems

Prepared by: Randy White, ORO
Senior Water Treatment Plant Operator

Dated: April 15, 2016

1) **Introduction -**

This report contains the major maintenance activities and operational events that occurred during the month of March 2016 at the Water Treatment Plant - Water Works # 220000978 and the Airport Groundwater Well Water Works # 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.

2) **Flow Data**

Water Treatment Plant: See attached spreadsheet. No flow data for Airport groundwater well.

3) **Microbiological (Health Related) Water Analysis – Main Water System # 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.

4) **Microbiological (Health Related) Water Analysis – Airport Groundwater Well # 26002736**

No samples taken.

The Airport has signs posted in the men's and women's washroom stating that the water has not been tested or treated for drinking purpose in accordance with the Health Protection and Promotion Act – Section 7 of the Small Drinking Water Systems Regulation, O. Reg. 318/08 (*Amended to Safe Drinking Water Act, 2002 - Section 6 of Ontario Regulation 252/05)*. The operators do a visual inspection of the warning notices at a minimum of once per week to ensure that they are legible and comply with Ontario Regulation 318/08, Section 7(5).

5) **Free Available Chlorine Residual (FAC) – Main Water System – # 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 # 26002736**

Signs posted, exempt from testing.

7) **Maintenance Activities at the WTP**

March 01st - put clarifier # 2 back on line.

March 02nd - took grab samples off each filter.

March 09th - tested chlorine alarms.

March 10th - tested chlorine alarms with Lakeside.
- tested filter 3 turbidity alarms.
- cleaned all four (4) check valves on poly unit.
- cleaned the top and bottom tank on the poly unit.

March 14th - calibrated dist. Cl2 analyzer.

March 15th -shut down filters and cleaned flumes.
-flushed poly lines to clarifiers.

March 16th - took clarifier # 1 off line to drain and inspect.

March 17th - ran generator for 1 hour.
- cleaned the rotometers on poly unit.

March 18th - took grab samples off each filter.

March 23rd - tested high turbidity alarm on filter # 4.

March 24th - changed filters in soda ash dust collector.

March 28th - transferred sludge from clarifier # 2 to # 1.

March 29th - calibrated distribution chlorine analyzer.

March 31st - transferred sludge from clarifier # 2 to # 1.
- cleaned the top and bottom tank on the poly unit.
- cleaned all four (4) check valves on poly unit.

8) **Water Complaints –**

- Poor Pressure – 0 complaints
- Water Quality – 1 complaint

- 331 Third St. W. - yellow water
- flushed cold water until clear.

9) **Other Miscellaneous Information:**

March 01st - water main repair bacti samples – Nelson St. (400 blk.) - 1st set.

March 02nd - Lakeside controls working on computer program.

March 03rd - Lakeside controls working on computer program.
- water main repair samples – Nelson St. (400 blk.) - 2nd set.

March 07th - took weekly routine bacti samples.

March 14th - took weekly routine bacti samples.

March 21st - took weekly routine bacti samples.

March 29th - took weekly routine bacti samples.

March 30th - Q.M.S. meeting at plant.

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:

- Randy White, ORO, Senior WTP Operator: _____
- Doug Herr, Environmental & Facilities Supt.: _____
- Doug Brown, Manager of Operations & Facilities: _____
- Mark McCaig, CAO: _____
- Paul Ryan, Chair O& F Exec Committee: _____
- Roy Avis, Mayor: _____
- June Caul, Councillor: _____
- John Albanese, Councillor: _____
- Wendy Brunetta, Councillor: _____
- Doug Kitowski, Councillor: _____
- Ken Perry, 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 Randy White, Senior WTP Operator at 274-2325.

Town of Fort Frances - WTP - 220000978
March 2014/2015 vs. March 2016

Flow and Operating Data

Flow Data MARCH	Units	2014		2015		2016	
		Day of the Month		Day of the Month		Day of the Month	
Total Raw Water	m^3		254410		168790		156060
Raw Maximum Day	m^3	Saturday 22nd	11360	Saturday 14th	5970	Friday 25th	5200
Raw Minimum Day	m^3	Sunday 09th	5710	Sunday 01st	4890	Saturday 26th	4500
Raw Avgerage Daily Consumption	m^3		8210		5440		5030
* Daily Instantaneous Peak Flow	L/min.						
Total Treated Water	m^3		226450		126450		118060
Treated Water Maximim Day Consumption	m^3	Friday 21st	10020	Tuesday 10th	5230	Friday 04th	5040
Treated Water Minimim Day Consumption	m^3	Monday 10th	4780	Sat. 28th & Tues. 31st	3630	Sat. 12th & Sun. 27th	3540
Treated Water Average Day Consumption	m^3		7300		4080		3810
Daily Average Per Household Consumption Rate	m^3		1.93		1.08		1.01
* Daily Average Per Person Consumption Rate	m^3		0.91		0.51		0.48
Monthly Averages - Operating Parameters WTP:							
FAC Residual - Treated Water	mg/L		1.97		1.91		2.16
Total Chlorine Residual - Treated Water	mg/L		2.28		2.21		2.46
Aluminum Sulphate - Raw Water	mg/L		34.3		35.6		35.0
Aluminum Sulphate - Treated Water Residual	mg/L		0.07		0.06		0.05
Fluoride - Treated Water	mg/L		0.63		0.60		0.64
Soda Ash - Raw Water	mg/L		34.6		36.4		35.0
PH - Adjusted	mg/L		7.12		7.13		7.27
Temperature	C		2.0		2.6		3.1
Quantity of Chemical Used:							
Aluminum Sulphate	kg		8733.0		6000.6		5462.1
Polyelectrolyte	kg		137.5		75.0		62.5
Chlorine Gas	kg		1023		614		624
Soda Ash - Used for PH Adjustment	kg		8816.0		6144.7		5462.1
Fluoride	kg		912		363		549

* The Canadian Average is 450 Litres (0.45 m^3) per day.
* Population is 7986
* Number of Households is 3783

March 2016

Operating Data	Units	*MAC	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
		or Range																																	
Flow rates																																			
Raw Water	10^3 M^3	17	5.14	5.07	5.05	5.06	5.19	4.95	5.01	5.06	5.03	5.06	5.09	4.93	4.87	5.11	5.05	5.06	5.06	4.99	5.05	5.09	5.07	5.06	5.05	5.07	5.20	4.50	4.96	5.08	5.02	4.96	5.17	156.06	5.03
Peak Instantaneous - Raw Water	L/s	n/a	59.08	60.39	59.21	59.17	59.30	59.21	59.23	59.21	59.14	59.08	59.05	59.06	59.06	59.03	59.01	59.14	59.48	59.21	59.06	59.06	59.08	59.06	59.08	59.05	59.06	59.09	59.13	59.17	59.14	**62.02**	58.40	1836.46	59.24
Treated Water	10^3 M^3	17	4.54	4.09	4.24	5.04	4.00	3.72	3.95	3.71	3.65	3.67	3.76	3.54	3.81	3.75	3.59	3.59	3.59	3.59	3.59	3.59	4.11	3.77	3.63	3.65	3.75	3.68	3.54	3.73	3.85	3.64	3.70	118.06	3.81
Peak Instantaneous - Treated Water	L/s	n/a	**106.15**	64.76	76.79	66.48	79.86	69.61	71.28	73.87	72.88	70.09	70.1	73.3	73.34	71.14	68	66.44	67.3	65.13	64.16	64.69	68.62	72.19	69.18	71.6	72.9	70.69	66.5	71.9	70.38	71.2	71.91	2212.49	71.37
BackWash Water	10^3 M^3	n/a	0.233	0.237	0.262	0.237	0.239	0.267	0.230	0.506	0.270	0.227	0.234	0.264	0.217	0.338	0.236	0.326	0.482	0.238	0.267	0.221	0.239	0.226	0.221	0.237	0.226	0.224	0.234	0.263	0.225	0.232	0.262	8.120	0.262
Fluoride Information																																			
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.69	0.64	0.61	0.67	0.59	0.61	0.57	0.56	0.61	0.69	0.59	0.54	0.52	0.67	0.65	0.59	0.71	0.65	0.65	0.65	0.66	0.70	0.70	0.69	0.61	0.62	0.60	0.73	0.74	0.57	0.70	19.78	0.64
Turbidity Information																																			
Raw Water	NTU	n/a	0.58	0.61	0.55	0.51	0.57	0.55	0.54	0.51	0.52	0.61	0.56	0.54	0.60	0.61	0.58	0.62	0.59	0.57	0.59	0.58	0.59	0.61	0.53	0.57	0.52	0.55	0.60	0.51	0.57	0.53	0.59	17.56	0.57
Settled Water	NTU	n/a	0.19	0.16	0.19	0.19	0.21	0.20	0.20	0.25	0.29	0.26	0.21	0.19	0.24	0.17	0.20	0.19	0.27	0.29	0.19	0.17	0.28	0.23	0.21	0.24	0.26	0.25	0.24	0.26	0.23	0.25	0.26	6.97	0.22
Treated Water	NTU	1	0.09	0.09	0.12	0.12	0.11	0.10	0.12	0.10	0.11	0.11	0.09	0.11	0.11	0.10	0.12	0.10	0.11	0.11	0.08	0.08	0.12	0.10	0.11	0.10	0.12	0.14	0.14	0.11	0.10	0.10	0.11	3.33	0.11
Other Operating Parameters																																			
pH - Treated Water	no units	6.5 to 8.5	7.06	7.19	7.15	7.11	7.15	7.12	7.09	7.07	6.94	7.01	7.18	7.44	7.33	7.40	7.39	7.46	7.34	7.29	7.21	7.24	7.40	7.44	7.38	7.41	7.37	7.28	7.30	7.19	7.51	7.36	7.41	225.22	7.27
pH - Settled water	no units	n/a	6.31	6.36	6.32	6.17	6.15	6.19	6.34	6.19	6.38	6.16	5.91	5.87	5.91	5.88	5.95	5.89	6.07	6.08	6.19	6.16	6.00	5.98	5.97	5.92	5.85	5.82	5.91	5.93	5.98	5.97	5.98	187.79	6.06
pH - Raw Water	no units	n/a	7.13	7.14	7.10	6.99	7.06	7.03	6.95	7.11	6.91	6.93	7.19	7.40	7.34	7.26	7.35	7.17	7.17	7.20	7.18	7.22	7.25	7.12	7.11	7.23	7.17	7.15	7.17	7.30	7.31	7.16	7.20	222.00	7.16
FAC - Treated Water	mg/l	0.2 to 4	2.18	2.05	2.05	2.08	2.23	2.15	2.17	2.18	2.38	2.20	2.26	2.07	2.10	2.08	2.06	2.06	2.22	2.20	2.19	2.14	2.16	2.19	2.08	2.11	2.19	2.31	2.35	2.12	2.15	2.24	2.13	67.08	2.16
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.44	2.36	2.25	2.38	2.37	2.27	2.48	2.44	2.52	2.50	2.58	2.50	2.44	2.40	2.44	2.70	2.60	2.50	2.56	2.48	2.60	2.44	2.38	2.48	2.35	2.51	2.55	2.62	2.46	2.38	2.38	76.36	2.46
Temperature	C	15	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	96.0	3.1
Fluoride used (Total Daily Consumption)	kg	n/a	16.0	16.0	16.0	16.0	19.0	19.0	18.0	18.0	19.0	18.0	18.0	18.0	17.0	18.0	18.0	19.0	20.0	18.0	18.0	18.0	18.0	18.0	17.0	18.0	18.0	18.0	16.0	18.0	16.0	17.0	18.0	549.0	17.7
Chlorine used (Total Daily Consumption)	kg	n/a	20.0	20.0	19.0	20.0	20.0	20.0	20.0	20.0	22.0	20.0	21.0	20.0	19.0	20.0	20.0	21.0	20.0	19.0	21.0	20.0	21.0	20.0	20.0	20.0	21.0	20.0	20.0	20.0	20.0	19.0	21.0	624.0	20.1
Soda ash (Total Daily Consumption)	kg	n/a	179.9	177.5	176.8	177.1	181.7	173.3	175.4	177.1	176.1	177.1	178.2	172.6	170.5	178.9	176.8	177.1	177.1	174.7	176.8	178.2	177.5	177.1	176.8	177.5	182.0	157.5	173.6	177.8	175.7	173.6	181.0	5462.1	176.2
Soda Ash - Dosage	mg/l	n/a	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	1085.0	35.0
Alum residual - (Total Daily Consumption)	kg	n/a	179.9	177.5	176.8	177.1	181.7	173.3	175.4	177.1	176.1	177.1	178.2	172.6	170.5	178.9	176.8	177.1	177.1	174.7	176.8	178.2	177.5	177.1	176.8	177.5	182.0	157.5	173.6	177.8	175.7	173.6	181.0	5462.1	176.2
Alum residual - Dosage	mg/l	n/a	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	1085.0	35.0
Alum residual - Treated Water	mg/l	0.1	0.05	0.05	0.04	0.04	0.04	0.03	0.05	0.04	0.06	0.05	0.02	0.06	0.06	0.09	0.04	0.04	0.06	0.03	0.06	0.06	0.04	0.07	0.06	0.05	0.04	0.04	0.05	0.06	0.06	0.08	0.06	1.58	0.05
Poly bags added (25 kg bags)	kg				0.5						0.5						0.5			0.5						0.5								62.5	