Temagami North & South Water & Wastewater Systems Quarterly Operations Report

GENERAL

- All preventative maintenance completed as per the work management system
- Municipal drinking water sampling and testing required by Ontario Regulation 170/03 was completed and all results complied with limits.
- Wastewater sampling and testing required by the systems' Environmental Compliance Approval and the Wastewater Systems Effluent Regulation was completed.
- Municipal Wastewater Systems reporting and Wastewater Systems Effluent Regulation reporting was completed as required.

2020 CAPITAL RECOMMENDATIONS & PROGRESS

Temagami North WTP	
Scope of Work	**Status**
Clearwell Inspection & Cleaning(if required)	Approved (2021)
Submersible Pump for CW level analyzer	Approved (2021)
Generator Servicing	Completed
Chlorination system at the tower	Approved (2021)
New turbidity meters for filters 1 & 2	Completed
Chemical pump parts	Completed
Pocket Colorimeter	Completed
Maintenance of "Tempered Water Controls"	Completed
New treated pH meter	Completed
Portable pH meter	Completed
Tower work (as per Landmark Recommendations)	Approved (2021)
Unplanned Capital	
Chemical Feed Pump	Completed
Alum panel and chemical feed system	In Progress

Temagami South WTP	
Scope of Work	**Status**
Refurbish/replace old plant (filter 1 train)	Deferred
Milltronics control for the waste pit	Completed
Generator Servicing	Completed
2 Chemical tanks (1500 L) for Alum &Soda Ash	Completed
Chemical pump parts	Deferred to 2021
Portable pH meter	Completed
Pocket Colorimeter	Completed
Service the second backwash pump	Approved (2021)
Clearwell Inspection & cleaning (if required)	Approved (2021)

Temagami South WTP	
Investigate and repair water tower riser leak	Approved (2021)
Tower repairs (as per Landmark Recommendations)	Approved (2021)
Unplanned Capital	
Replace pH controller & probe	Completed
Replace raw flow meter	Completed

Temagami North Lagoon	
Scope of Work	**Status**
Generator Servicing (Spruce Drive SPS)	Completed
Desludging of Cells	Municipality 2021
Aeration Line Repair	Deferred 2021
Lagoon electrical building repair	Municipality
Spruce Drive pumping station clean out	*Deferred
Unplanned Capital	
Repair SPS #1 pump	Completed
Replace UPS	Completed
Portable dissolved oxygen meter	Completed
Lifting chains for Spruce Dr. SPS	Completed
Hour meters for Spruce Dr. SPS	Completed

**Pumping station inspection completed: clean out not yet required.*

Temagami South Lagoon	
Scope of Work	**Status**
ECA amendment to allow for GEO TUBE technology	Deferred
Heater in Ferric Room	Municipality
Repair/replace chemical tank valves and piping	Deferred to 2021
Ferric tank clean out	Deferred to 2021
Install radio communications at Temagami Shores	In progress
Unplanned Capital	
UPS battery for Temagami Shores SPS	Completed

QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) PROGRESS

An Internal Audit of the Temagami Drinking Water Systems' Quality & Environmental Management System was completed in November and December 2020 to ensure that the Temagami QEMS conforms to the Drinking Water Quality Management Standard. All elements were audited and found to be in conformance with the Standard.

INSPECTIONS & FINDINGS

The Temagami North DWS was inspected by the Ministry of the Environment, Conservation and Parks on September 28, 2020. The system received an inspection rating of 88.54%; three non-compliances were identified, all of which have been resolved.

1. **The owner was not in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.**

   Condition 1.0 of Schedule C of the MDWL identifies the rated capacity for the Temagami North DWS as 328 A review of plant records for this inspection period indicated that the rated capacity (328 m^3/day) was exceeded on June 11 due to watermain flushing program (342 m^3/day) and on June 18 (340 m^3/day), July 4 (329 m^3/day) and July 5 (329 m^3/day) due to increased usage in the community due to warm weather. The MDWL allows for temporary exceedance of the above noted rated capacity for the purpose of fighting a large fire or for maintenance of the DWS. Therefore, only the flow exceedances which occurred on June 18, July 4 and 5, 2020 were not permitted and are a non-compliance with condition 1.0 of Schedule C to the MDWL.

   Failure to ensure that the WTP is operated in a manner to ensure that the rated capacity is not exceeded is a violation of the MDWL and section 31 (1)(b) of the Safe Drinking Water Act.

   Required Action: The owner and/or operating authority shall provide written documentation to Provincial Officer/Water Inspector Lori Duquette of the North Bay Office outlining the steps that will be taken to ensure that the maximum rated capacity is not exceeded in the future as a result of increase consumer demand during warm weather.

   Corrective Action: Written documentation to Provincial Officer/Water Inspector Lori Duquette on January 27, 2021 indicating that the owner will work at creating a water conservation by-law for days when temperature is high and/or when there is a risk of the WTP flows exceeding the limit.

2. **Records did not indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.**

   For the period of time from 12:30 am on August 19 to 9:30 am on August 20, 2020 coagulant was only being dosed on every second pump cycle as one of the pumps stopped working. Therefore, for that period of time the filters failed to meet item 1 of the conventional filtration criteria noted above and did not receive log removal credits. Failure to meet the log removal/inactivation credit assignment criteria identified in Schedule E of MDWL No. 201-102 issue no. 2 is a violation of the SDWA.

   Required Actions: The owner and/or operating authority shall provide written documentation to Provincial Officer/Water Inspector Lori Duquette identifying the action that will be taken to ensure the following:
   - That the broken chemical dosing pump is replaced; and
   - Steps are taken to prevent a similar situation from occurring

   Corrective Actions: written documentation provided to Provincial Officer/Water Inspector Lori Duquette on January 27, 2021 indicating that;
   - OCWA is in the process of replacing the existing ALUM pumps with a new chemical panel that includes two new pumps with the functionality of alarming and shutting the system down.
   - There is a plan in place to replace all chemical pumps over the next few years to all have the same functionality preventing the same issue from happening.

3. **Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was not performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and/or was not recording data with the prescribed format.**

With the exception of a few short periods, the continuous monitoring equipment monitored and recorded the required free chlorine residual and filter effluent turbidity data in accordance with the requirements of section 6-5 of Schedule 6 to O. Reg. 170/03. However, based on a review of the documentation provided during the inspection, there were two short periods of time on April 8, 2020 (i.e. 51 minutes and 52 minutes) when the free chlorine residual value was not being continuously recorded and water was being distributed. The incident occurred due to a problem with the chlorination system causing a spike in the free chlorine residual level in the treated water above the upper range for the continuous monitoring equipment (i.e. 5.0 mg/L). During this time the free chlorine residual trend flat lined at 5.0 mg/L with the exact free chlorine residual test result not been recorded until the residual value was within the analyzer range (i.e. 0.00-5.00 mg/L) .Failure to ensure that the continuous monitoring equipment records the result of every test is a violation of section 6- 5(1)1(ii) of Schedule 6 to O. Reg. 170/03.

No further action is required as the following actions were taken by the operating authority:

- On November 12, 2020, a high level free chlorine residual alarm set point of 4.9 mg/L was programmed and will trigger a plant shutdown if activated.
- The standard operating procedure for responding to a free chlorine residual alarm was amended to include the requirement for the operator to manually test and record the free chlorine residual in treated water every 5 minutes if the level is at or above the alarm set point of 4.9 mg/L and water is being sent to the distribution system.

HEALTH & SAFETY

- The monthly Health and Safety inspections were completed.
- Health & Safety training topics reviewed include: Hearing Protection, Confined Spaces and Ladder Safety.

INCIDENTS & COMPLAINTS

Temagami North DWS: Watermain Break & Boil Water Advisory - December 29th AWQI# 153341

Details: Watermain break, caused by deterioration, was repaired on December 29, 2020. Boil Water Advisory issued by the Timiskaming Health Unit because there was a possibility of contamination while the repair was being done.

Resolution: The watermain was repaired and the affected area flushed on December 30th at 00:00hrs. The first set of 3 microbiological samples then taken. The second set of required microbiological samples was taken on December 31st. All results good and BWA lifted on January 1st, 2020

Temagami North Lagoon: Flow Exceedance - October 23rd

Details: The maximum daily flow exceeded the limit of 1200 m^3 on October 23 the total flow for the day was 1208 m^3. Elevated flows were due to precipitation.

Resolution: Ministry of the Environment, Conservation and Parks notified.

CALL-BACK SUMMARY

System	Call-Backs this Quarter	Total Call-Backs to Date
Temagami North WTP	1	17
Temagami North Lagoon	0	0
Temagami South WTP	1	21
Temagami South Lagoon	1	3
Total to Date	6	41

Please see Appendix A for Call-Back details

DRINKING WATER SYSTEM PERFORMANCE & COMPLIANCE SUMMARY

Temagami North Drinking Water System		October	November	December	Compliance
Maximum Daily Raw Flow Volume (m^3/d)		258	231	498	Max 460
Maximum Peak Raw Flow Rate (L/min)		413	416	418	Max 456
Maximum Treated Flow (m^3/d)		27	224	533*	Max 328
Total Treated Flow (m^3/d)		5,326	5,406	7,320	NA
Free Chlorine Residual from analyzer (mg/L)		1.31 to 1.84	1.41 to 1.99	1.39 to 1.91	Min 0.85
Distribution Chlorine Residual (mg/L)		0.33 to 1.65	0.26 to 1.65	0.18 to 1.66	Min 0.05
% of time turbidity ≤ 0.3 NTU	Filter 1	100	100	100	Min 95%
	Filter 2	100	100	100	

**Maximum total flow exceeded on December due to the watermain break (allowed under the Permit to Take Water)*

Temagami South Drinking Water System	October	November	December	Compliance
Maximum Daily Raw Flow Volume (m^3/d)	280	164	175	Max 1,005
Maximum Peak Raw Flow Rate (L/min)	699.6	699	698	Max 700
Maximum Treated Flow (m^3/d)	269	132	130	Max 950
Total Treated Flow (m^3/d)	3,394	3,000	3,379	NA
Free Chlorine Residual from analyzer (mg/L)	1.53 to4.44	1.52 to 1.89	1.47 to 1.82	Min 1.00
Distribution Chlorine Residual (mg/L)	0.80 to 2.11	0.53 to 1.74	1.03 to 1.59	Min 0.05
% of time turbidity ≤ 0.3 NTU (filter 2)	100	100	100	Min 95%

WASTEWATER TREATMENT SYSTEM PERFORMANCE & COMPLIANCE SUMMARY

Temagami North Lagoon	October	November	December	Compliance
As per the Environmental Certificate of Approval				
Average Daily Flow - Influent (m^3/day)	495	418	317	Max 390 (*annual average*)
Max Daily Flow (m^3/day)	1,208*	646	577	Max 1,200/day
Total Volume – Treated (m^3)	15,343	12,544	9,816	NA
$cBOD_5$ (mg/L)	1.63	1.58	2.14	20 mg/L (*monthly average*)
Total Suspended Solids (mg/L)	1.63	3.63	3.1	30 mg/L *(monthly average)*
Total Phosphorous (mg/L)	0.029	0.032	0.068	0.6 mg/L *(monthly average)*
Total Ammonia Nitrogen (mg/L)	0.40	1.06	1.95	6 mg/L *(monthly average)*
Dissolved Oxygen	10.3 - 11.4	9.53 - 11.6	9.54 - 13.4	NA
pH	7.8 - 8.1	7.2 - 7.7	7.1 - 7.6	6.0 to 9.5 (inclusive)
Temperature (°C)	4.4 - 11.6	2 - 11.6	1 - 4.3	NA
Un-ionized Ammonia	0.006	0.003	0.005	NA
Escherichia coli (*E. coli*) (cfu/100mL)	240	368	1,320	Geometric Mean of 200 *(objective)*
AS PER WASTEWATER SYSTEM EFFLUENT REGULATIONS (WSER)				
$cBOD_5$	1.63	1.58	2.14	25 mg/L *(quarterly average)*
Total Suspended Solids	1.63	3.63	3.1	25 mg/L *(quarterly average)*

**Limit exceeded on October 23 due to precipitation.*

Temagami South Lagoon	October	November	December	Compliance
As per the Environmental Certificate of Approval				
Influent				
Average Daily Flow (m^3/day)	126	113	112	Annual Average of 232
Total Volume Treated (m^3)	3,899	3,394	3,486	NA
Prior to Discharge Sampling				
Total Phosphorous (mg/L)	0.104			NA
Hydrogen Sulphide (mg/L)	0.03			NA
Escherichia coli (*E. coli*) (cfu/100mL)	45			NA
Effluent - Spring Discharge				
Discharge Period	Oct 29 - Nov 12 (14 days) *Oct 29 - Nov 6 & Nov 8 - 12*			October 15 to November 30
Average Discharge Flow (m^3/day)	2,466			Max 2,877.12
Total Volume Discharged (m^3)	34,525			NA
BOD5 (mg/L)	4.1			25 mg/L (*seasonal average*)
Total Suspended Solids (mg/L)	20.3			25 mg/L (*seasonal average*)
Total Phosphorous (mg/L)	0.47			1.0 mg/L (*seasonal average*)
Total Ammonia Nitrogen (mg/L)	15.3			NA
AS PER WASTEWATER SYSTEM EFFLUENT REGULATIONS (WSER)				
cBOD5	2.4			25 mg/L *(annual average)*
Total Suspended Solids (TSS)	20.3			25 mg/L *(annual average)*

APPENDIX A

CALL BACK REPORTS

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Work Order Call Back Details Report

1959764: high cl2 residual temagami south WTP 6028

Asset:
Location: 6028-WTTM-P-DI 6028, Temagami South WTP, Process, Disinfection

Page Time:	10/03/2020 03:30 AM
Arrive time:	10/03/2020 04:30 AM
Leave time:	10/03/2020 05:30 AM
Finish Time:	10/03/2020 09:57 AM
Report Date:	10/3/20
Reported By:	Claude Mongrain
Supervisor:	

Site:	OCWASITE
Priority:	5
Work Type:	CALL
Status:	CLOSE
Classification	REFURBISH/REPLACE
GL Account:	TEMAGY6028-20OM

Actual Labor

Task ID	Craft	Labor	Regular Hours	Premium Hours
	MECHANIC	Claude Mongrain	00:00	04:00

Log

Date	Created By	Description
10/3/20	Claude Mongrain	high cl2 res.
due to faulty regulating level valve filter overflow to waste pit hypo getting injected with no water		

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Work Order Call Back Details Report

1998278: Shut down Temagami South Lagoon Drawdown 5997

Asset: 0000293289 SITE
Location: 5997-WLTM 5997, Temagami South Lagoon

Page Time:	11/07/2020 11:00 AM
Arrive time:	11/07/2020 11:45 AM
Leave time:	11/07/2020 01:00 PM
Finish Time:	11/08/2020 09:54 AM
Report Date:	11/8/20
Reported By:	Chris Barkhouse
Supervisor:	

Site:	OCWASITE
Priority:	5
Work Type:	CALL
Status:	CLOSE
Classification	COMPLIANCE
GL Account:	TEMAGY5997-21OM

Actual Labor

Task ID	Craft	Labor	Regular Hours	Premium Hours
	INSTTECH	Chris Barkhouse	00:00	04:00

Log

Date	Created By	Description
11/8/20	Chris Barkhouse	
Called by ORO to go and do an emergency shutdown of lagoon drawdown due to a bad TSS sample.		

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Work Order Call Back Details Report

2036890: high turb.filter #1 temagami north WTP 6030

Asset:
Location: 6030-WTTM-P 6030, Temagami North WTP, Process

Page Time:	12/02/2020 10:45 PM
Arrive time:	12/02/2020 11:45 PM
Leave time:	12/03/2020 12:15 AM
Finish Time:	12/04/2020 07:36 AM
Report Date:	12/4/20
Reported By:	Claude Mongrain
Supervisor:	

Site:	OCWASITE
Priority:	5
Work Type:	CALL
Status:	COMP
Classification	REFURBISH/REPLACE
GL Account:	TEMAGY6030-21OM

Actual Labor

Task ID	Craft	Labor	Regular Hours	Premium Hours
	MECHANIC	Claude Mongrain	00:00	04:00

Log

Date	Created By	Description
12/4/20	Claude Mongrain	#1 filter high turb.
due to new turb meter install had to adjust water flow to meter and monitor		