

Glencoe Wastewater Treatment Plant  
& Collection System  
Operations Report  
Fourth Quarter 2019

Submitted by:  
Ontario Clean Water Agency  
Date: February 10, 2020

### **Facility Description**

Facility Name: Glencoe Wastewater Treatment Plant  
Regional Manager: Dale LeBritton (519) 476-5898  
Senior Operations Manager: Sam Smith (226) 377-1540  
Business Development Manager: Susan Budden (519) 318-3271  
Facility Type: Municipal  
Classification: Class 2 Wastewater Collection, Class 2 Wastewater Treatment

### **Service Information**

Area(s) Serviced: Village of Glencoe  
Population Serviced: 2,379  
No. of Connections:  
Water Meters:  
In service Date: 2011

### **Capacity Information**

Total Design Capacity: 1723 m<sup>3</sup>/day  
Total Annual Flow (2016 Data): 197,943 m<sup>3</sup>/year  
Average Day Flow (2016 Data): 558m<sup>3</sup>/day  
Maximum Day Flow (2016 Data): 2139m<sup>3</sup>/day

### **Operational Description:**

Wastewater from the collection system is pumped to the partially mixed aerated lagoon divided into 3 aeration zones. The lagoon contents from the first or third aeration zone (depending on the time of year) are gravity fed to the Submerged Attached Growth Reactors (SAGR). From here the SAGR effluent is directed to the flocculation tank where alum and a polymer are added prior to the clarifier. The clarifier contains lamella plate settlers. The effluent from the clarifier undergoes final treatment by the disc filters, where it is discharged to Newbiggen Creek.

## **SECTION 1: COMPLIANCE SUMMARY**

### **FIRST QUARTER:**

There were no compliance issues in the first quarter.

### **SECOND QUARTER:**

There were no compliance issues in the second quarter.

### **THIRD QUARTER:**

There were no compliance issues in the third quarter.

### **FOURTH QUARTER:**

There were no compliance issues in the fourth quarter.

## **SECTION 2: INSPECTIONS**

### **FIRST QUARTER:**

There were no MECP or MOL inspections conducted this quarter.

### **SECOND QUARTER:**

There were no MECP or MOL inspections conducted this quarter.

### **THIRD QUARTER:**

There were no MECP or MOL inspections conducted this quarter.

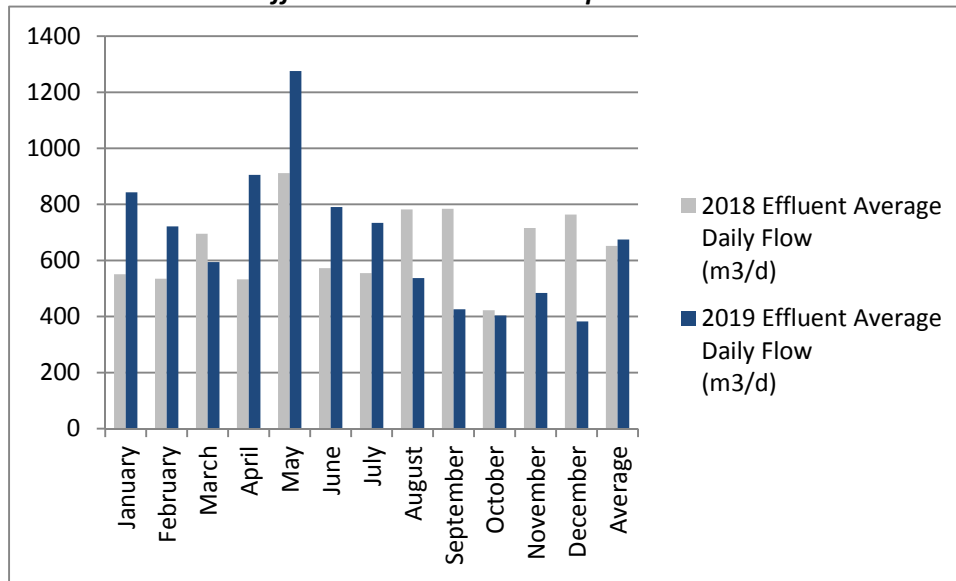
### **FOURTH QUARTER:**

There were no MECP or MOL inspections conducted this quarter.

### SECTION 3: PERFORMANCE ASSESSMENT REPORT

The average daily effluent flow in 2019 is 693.19 m<sup>3</sup>/d. The average daily flow in 2019 is up 0.14% compared to the average daily flow in 2018, refer to Chart 1.

**Chart 1. Effluent Flows in 2019 Compared to 2018 Flows**



Raw samples are taken at a minimum of monthly following the ECA requirements. Table 1 provides the raw sample results for 2019 compared to the design objectives. There have been eight instances where the design objectives have been exceeded. This hasn't resulted in non-compliances with effluent parameters, but will be monitored to ensure effective treatment of the incoming wastewater.

**Table 1. Raw Water Sample Results for 2019**

	BOD5 (mg/L)	TKN (mg/L)	TP (mg/L)	TSS (mg/L)
<b>Design Objective</b>	284	47	8	300
<b># Design Objectives Exceeded</b>	2/9	6/9	0/9	0/9
<b>January</b>	284	38.9	4.16	154
<b>February</b>	166	20.9	2.2	95
<b>March</b>	209	50.2	5.62	240
<b>April</b>	232	36.5	3.62	110
<b>May</b>	64	12.3	0.95	82
<b>June</b>	204	50.4	4.92	135
<b>July</b>	313	52.9	6	240
<b>August</b>	185	57.2	4.93	284
<b>September</b>	260	62.3	5.79	193
<b>October</b>	157	42.2	4.63	136
<b>November</b>	250	44.1	4.03	197
<b>December</b>	292	55.1	4.9	280

The effluent is sampled on a weekly basis following the requirements of the ECA. Table 2 summarizes the monthly average results compared against the objectives and limits identified in the ECA. The effluent results have met all the objectives and limits identified in the ECA, with the exception of TSS and TP in June and TSS in October where the objective was exceeded.

**Table 2. Effluent Sample Results for 2019**

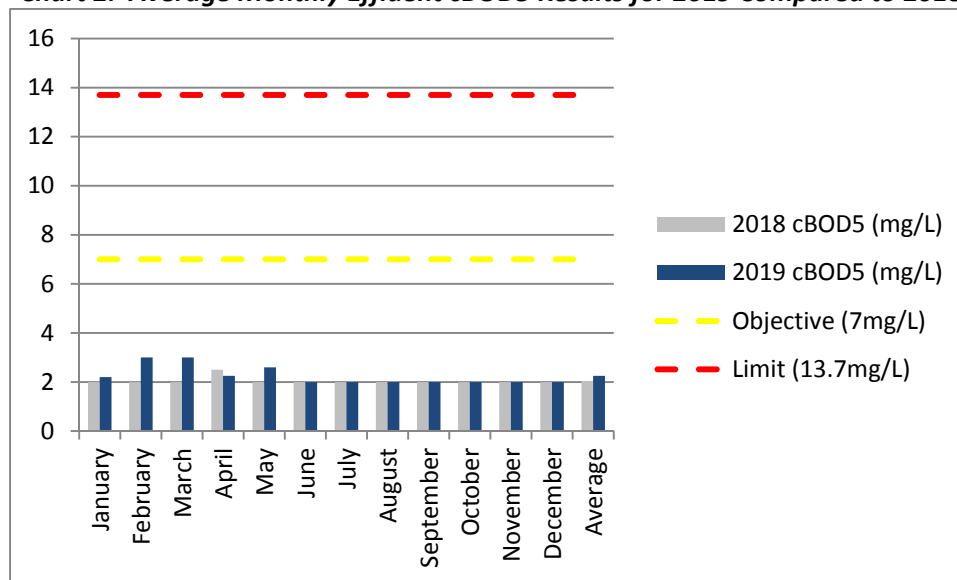
	cBOD5(mg/L)	TSS (mg/L)	TP(mg/L)	TAN (mg/L)	E. coli (cfu/100mL)*	pH **
<b>ECA Objective</b>	7	7	0.3	1.0	100	6.5-8.5
<b>ECA Limit</b>	13.7	13.7	0.55	3.0	200	6.0-9.5
<b>January</b>	2.2	3	0.26	0.1	3.74	7.63-7.89
<b>February</b>	3	3.75	0.11	0.1	2	7.09-7.95
<b>March</b>	3	3.25	0.12	0.1	2	6.98-7.44
<b>April</b>	2.25	3.25	0.17	0.1	2	6.8-7.31
<b>May</b>	2.6	2.4	0.11	0.54	1.74	7.25-7.79
<b>June</b>	2	8	0.49	0.1	2.21	7.23-7.74
<b>July</b>	2	6.8	0.34	0.1	1.52	7.15-7.70
<b>August</b>	2	2.75	0.05	0.1	1.41	6.68-7.41
<b>September</b>	2	2.5	0.04	0.1	2	6.62-7.01
<b>October</b>	2	7.6	0.15	0.1	2	6.52-7.41
<b>November</b>	2	5.25	0.16	0.38	5.62	6.98-7.84
<b>December</b>	2	3	0.10	0.1	1.52	7.22-7.80

\*expressed as geometric mean

\*\*minimum and maximum result range

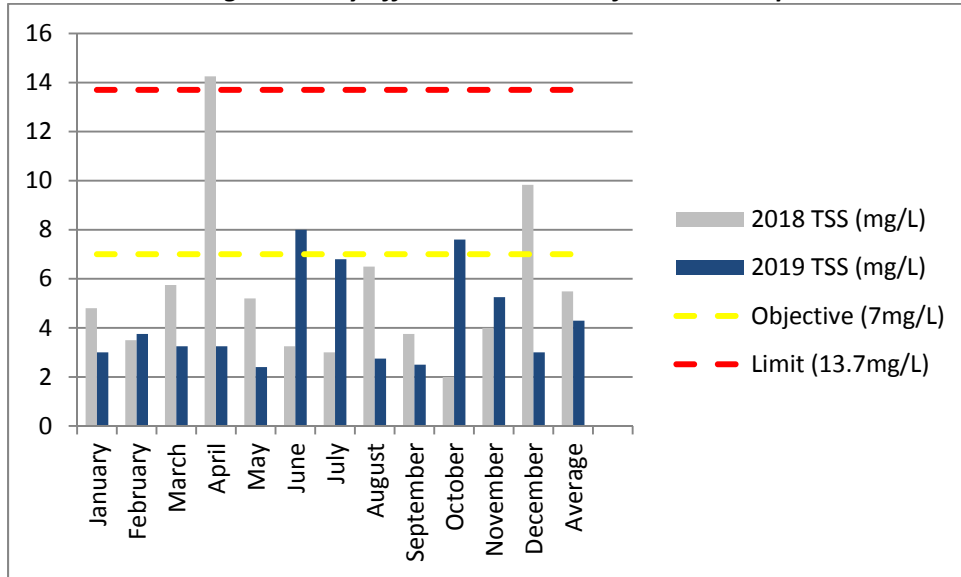
Effluent average cBOD5 for 2019 is 2.25mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for cBOD5 in 2018 was 2.0mg/L, therefore the results for 2019 are up 10.4% when compared to 2018 (refer to Chart 2).

**Chart 2. Average Monthly Effluent cBOD5 Results for 2019 Compared to 2018**



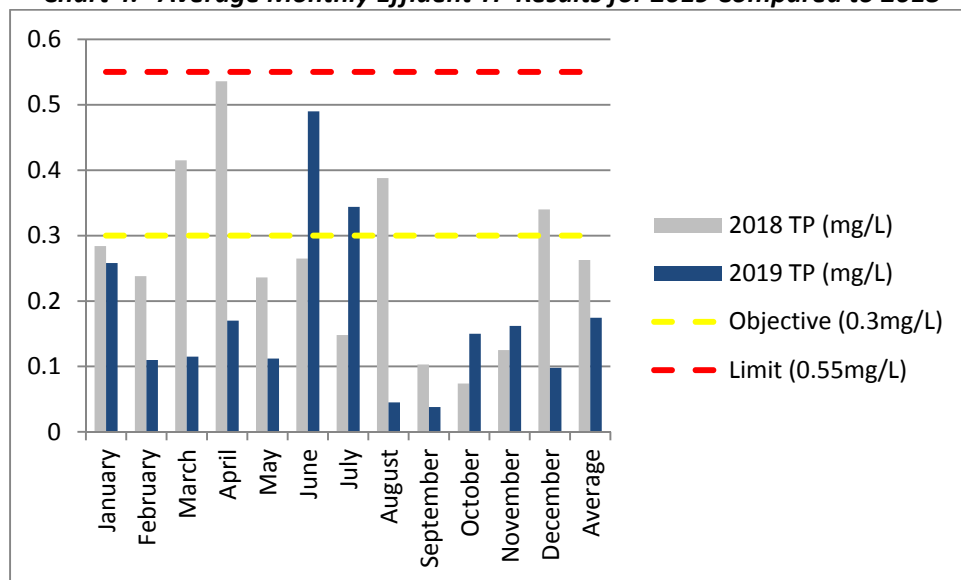
Effluent average TSS for 2019 is 4.30mg/L, meeting effluent limits identified in the ECA. The objective in June and October were exceeded due to high flows. The annual average result for TSS in 2018 was 5.5mg/L, therefore the results for 2019 are down by 22% when compared to 2018 (refer to Chart 3).

**Chart 3. Average Monthly Effluent TSS Results for 2019 Compared to 2018**



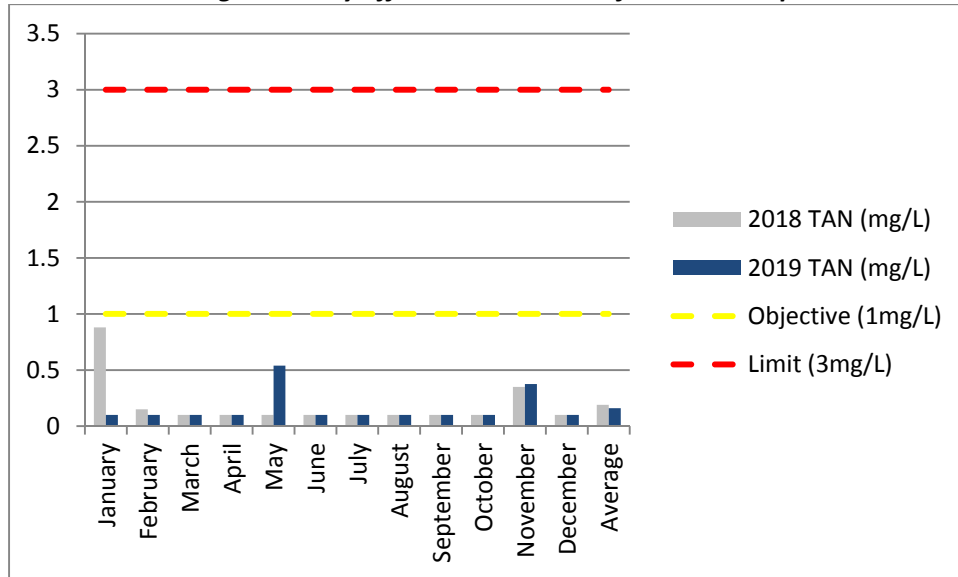
Effluent average TP for 2019 is 0.17mg/L, meeting effluent limits, identified in the ECA. The objective was exceeded in June and July due to high flows. The annual average result for TP in 2018 was 0.26mg/L, therefore the results for 2019 are down by 34% when compared to 2018 (refer to Chart 4).

**Chart 4. Average Monthly Effluent TP Results for 2019 Compared to 2018**



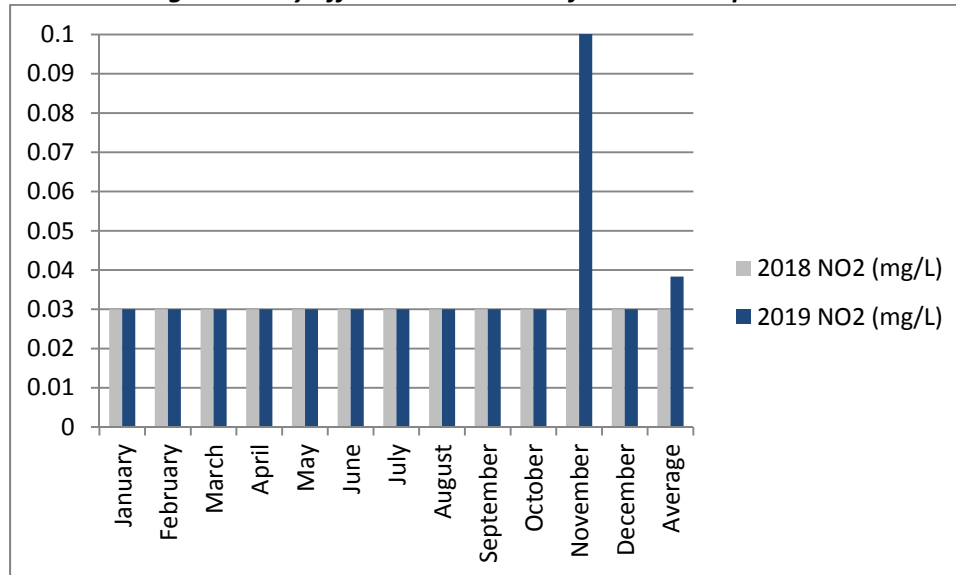
Effluent TAN for 2019 is 0.16mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for TAN in 2018 was 0.19mg/L, therefore the results for 2019 are down by 16% when compared to 2018 (refer to Chart 5).

**Chart 5. Average Monthly Effluent TAN Results for 2019 Compared to 2018**



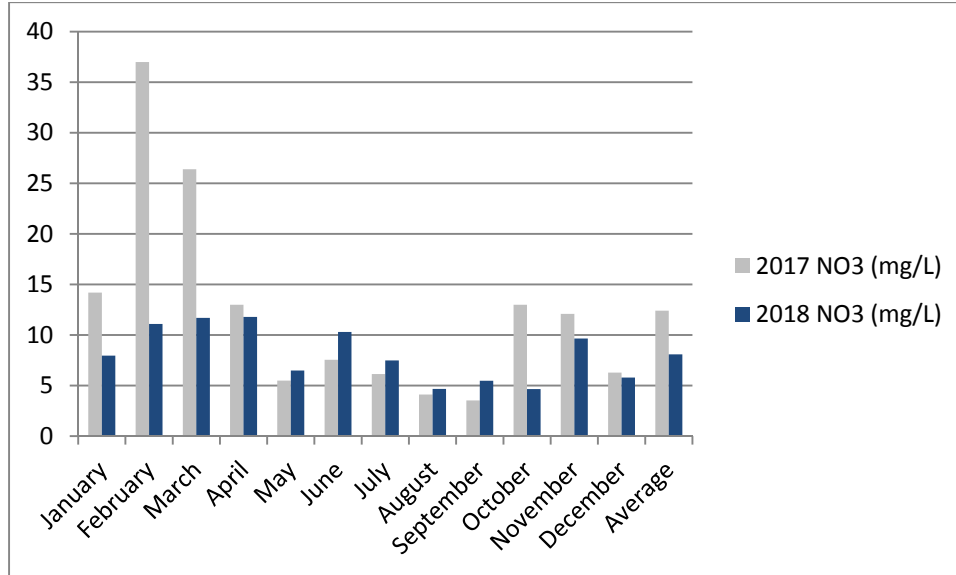
Effluent nitrites (NO<sub>2</sub>) are required to be sampled monthly, there are no objective or limit requirements for this parameter. The NO<sub>2</sub> average in 2019 is 0.04mg/L. The annual average result for NO<sub>2</sub> in 2018 was 0.03mg/L, therefore the results for 2019 are up 28%. (refer to chart 6).

**Chart 6. Average Monthly Effluent NO2 Results for 2019 Compared to 2018**



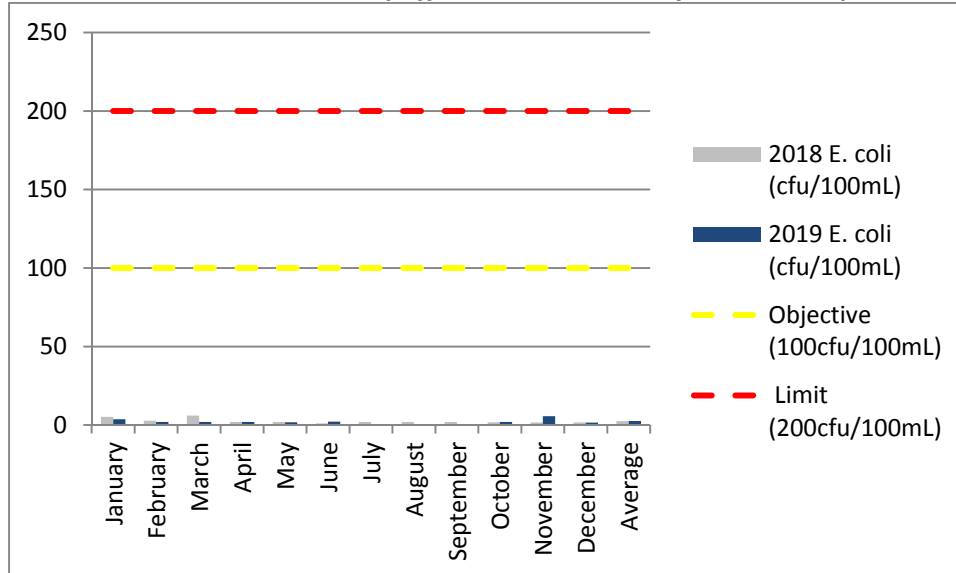
Effluent nitrates (NO<sub>3</sub>) are required to be sampled monthly, there are no objective or limit requirements for this parameter. The NO<sub>3</sub> average in 2019 is 8.1mg/L. The annual average result for NO<sub>3</sub> in 2018 was 12.41mg/L, therefore the results for 2019 are down 35% when compared to 2018. (refer to Chart 7).

**Chart 7. Average Monthly Effluent NO<sub>3</sub> Results for 2019 Compared to 2018**



Effluent geometric mean E. Coli for 2019 is 2.54cfu/100mL, meeting both effluent objectives and limits identified in the ECA. The annual geometric mean result for E. coli in 2018 was 2.52cfu/100mL, therefore the results for 2019 are down by 0.7% when compared to 2018 (refer to Chart 8).

**Chart 8. Geometric Mean Monthly Effluent E. coli Results for 2019 Compared to 2018**





## **SECTION 4: OCCUPATIONAL HEALTH & SAFETY**

### **FIRST QUARTER:**

There were no hazards identified this quarter.

### **SECOND QUARTER:**

There were no hazards identified this quarter.

### **THIRD QUARTER:**

There were no hazards identified this quarter.

### **FOURTH QUARTER:**

There were no hazards identified this quarter.

## **SECTION 5: GENERAL MAINTENANCE**

### **FIRST QUARTER:**

#### **JANUARY:**

- 08: Check valve just after the wasting pump for the plate settler was found to be broken. Operator sourced out a new one to replace it.
- 10: Cleaned air release valve to fix the issue with continuous wasting.
- 24: Jar testing to find proper dosing set points.
- 25: Triple S Sanitation on site to dump three truckloads of waste from Babcock into our septage.

#### **FEBRUARY:**

- 05: Monthly generator run test completed.
- 12: Changed oil in disk filter motors and replaced disk filters with new ones.
- 22: Installed new poly mixer from Gerber as the old one burnt out.

#### **MARCH:**

- 08: Alum delivery from Chemtrade.
- 12: Carruthers delivered water.

### **SECOND QUARTER**

#### **APRIL:**

- 02: Exhaust fans in the SAGR plant found to be out of service due to multiple power surges over the weekend. Gerber Electric on site to troubleshoot the issues and found that the motor coils had burnt out.
- 04: 188 Symes Street Sewer Service and Clean out Repair
- 11: Chemtrade on site for alum delivery.
- 17: 188 Symes Street; sanitary service was flushed and scope was performed.
- 23: Gerber Electric on site to repair the exhaust fans.
- 26: Flowmetrix on site for flow meter calibration

MAY:

- 06: On site to install alum pump. Nevtro on site to prepare for alum line installation scheduled for the following day. Alum pump installed and operating normally.
- 24: Nevtro on site for new alum line.
- 31: Gerber Electric on site for alum pumps

JUNE:

- 07: Gerber on site for pumps not operating in auto setting at main pump station. Repairs completed and pumps now operating properly.

**THIRD QUARTER:**

JULY:

- 19: Chemtrade on site for alum delivery

AUGUST:

- 06: Disk filter #1 shutdown due to oil leak. Nevtro to repair
- 22: Found pump #2 at main pump station faulted out. Notified Senior Operations Manager and was instructed to call Gerber Electric. Gerber Electric arrived on site and investigated the issue and determined pump is no longer operable. Operator notified the Senior Operations Manager.
- 30: Switched SAGR feed point to summer feed point; summer feed point now closed.

SEPTEMBER:

- 15: Found alum and polymer pumps not running; reset pumps and all systems appear okay
- 17: Chemtrade on site for alum delivery
- 18: Nevtro on site to remove pump two from Victoria Street Pump station
- 19: Chemtrade on site for remainder of alum delivery
- 24: Hydro One on site to diagnose issues with power supply. Power supply back on and now normal at 16:45. Reset all required equipment and all systems are operating properly.
- 26: Hurricane Vac on site to clean pump station wet wells.

**FOURTH QUARTER:**

OCTOBER:

- 23: Operated and inspected generators at Victoria Street Pump Station and Industrial Pump Station
- 23: Turned winter feed valve off, and alum, polymer pumps for planned power outage. Power restored at 12:10, opened winter feed valve, turned alum and polymer pumps on and reset mixers. Plant now has flow; all systems are operating normally.
- 24: Closed valves for outside feed points into both SAGR beds as instructed by senior operations manager. Influent from lagoons now feeding from inside feed points; all systems are operating normally.
- 24: Chemtrade on site for alum delivery of 4000 gallons to Victoria St Pump Station to fill alum tank.
- 25: Found plate settler sludge pump had faulted over night during daily checks. Reset plate settler sludge pump and all systems are now operating normally.

NOVEMBER:

- 08: Nevtro on site to install the gearbox on disk filter #1.
- 11: Nevtro on site to replace seals on the disk filters.
- 22: Nevtro on site to pull carrier water pump #1 to inspect issues with overheating. They also pulled disk filter #2 gearbox for a rebuild and replaced it with disk filter #1's gearbox.

## DECEMBER:

- 04: Repaired/ replaced 3 aerators in the west lagoon; 2 aerators were missing and required to be completely replaced.
- 11: Chemtrade on site for alum delivery.
- 19: Carruthers on site for water delivery.

## **SECTION 6: ALARM SUMMARY**

### **FIRST QUARTER:**

#### JANUARY:

There were no alarms this month.

#### FEBRUARY:

- 15: Filter High Level; upon arrival operator noticed high level was still in alarm and inflow had a lot of suspended solids coming through causing the disk filters to back up. Operator washed the disk filters and waited for the level to go down until it was back to “now normal.”

#### MARCH:

- 31: On site at Glencoe Main Pump Station and SAGR for multiple power surges causing the generator to start up. Operator ensured all systems were reset as necessary.
- 31: Operator back on site to main pump station and SAGR after main power was restored. Operator reset systems and ensured proper operation.

### **SECOND QUARTER**

#### APRIL:

- 20: Operator on site for main pump station high level alarm. Stayed on site for 3 hours monitoring the level and ensuring it was going down. Alarm was caused by heavy rain fall over the weekend.

#### MAY:

- 01: Received page for channel 1 “high level wet well” alarm. Level at 2.96m and both pumps running when arrived on site. Heavy rains overnight caused increased inflow to pump stations; wet well level dropping and all systems appeared to be normal.
- 19: Received page for Glencoe Sewage Treatment plant intrusion alarm. Electrical room door had opened due to thunderstorm and high winds. Door was secured upon arrival.

#### JUNE:

- 01: On site for zone 3 “Generator Running” alarm. Power was restored upon arrival; all systems appear to be normal.
- 09: On site due to power outage, power was restored upon arrival. Reset alum and polymer pumps, and mixer. All systems are now normal.
- 15: Received alarm page for channel 8 alarm septage receiving pump failure; VFD faulted out for both pumps
- 21: On site for “Generator Running” alarm. Once on site, generator was running. Operator ran both units to ensure they were operational before leaving site.
- 27: Received channel 1 alarm (Control panel 4-General alarm / Septage receiving fault). Operator checked septage system, controls and related panels but could not find any issues. Operator cycled

pumps to ensure proper operation. The system was monitored to ensure unit no longer was paging out. Senior Operations Manager was notified of the issue and steps taken.

### **THIRD QUARTER:**

#### **JULY:**

- 02: Received page for Glencoe sewage treatment plant channel 1 alarm. Arrived on site at 20:10 and checked septage panel; all systems normal.
- 05: On site due to power failure; received page at 17:17. Power was restored upon arrival; all systems are normal.
- 07: Received page at 18:34 for sewage back up into Triplex at 136 Symes St. Arrived on site at 20:15, but could not locate sewage cleanout. Owner said he had a plumber coming in the next morning. Homeowner was instructed to tell plumber to call OCWA about the location of the blockage.
- 28: Received page for generator running at 07:28. Power was restored upon arrival; all systems operating normally.

#### **AUGUST:**

- 04: Operator received page for power failure. Power on by the time operator arrived on site. Operator cycled pumps to make sure they were operating, checked alum and left site.
- 21: Arrived on site after receiving alarm page out at 19:48 for high level alarm at Victoria Street pump station. When arrived on site wet well level was 3.05m. Level was dropping, monitored well level until back into normal operating range. Level was 1.65m upon leaving site. All other systems appear okay.

#### **SEPTEMBER:**

There were no alarms this month.

### **FOURTH QUARTER:**

#### **OCTOBER:**

- 27: Received alarm page for channel 8 alarm at Glencoe Sewage Treatment Plant. Septage receiving pump and reject pump had faulted. Reset both pumps, all systems are now operating normally.
- 31: Received alarm page for pump station high level, wet well level at 2.96 m upon arrival. Monitored system until out of high level alarm, wet well level upon departure was 1.78 m. Issues due to heavy rainfall over past 48 hours, all systems are now operating normally.

#### **NOVEMBER:**

There were no alarms this month.

#### **DECEMBER:**

- 05: Filter alarm; Operator reduced flows for the process to catch back up.
- 08: Septage pump failure; Operator reset VFD and completed a facility walk through.

## **SECTION 7: COMMUNITY COMPLAINTS & CONCERNS**

### **FIRST QUARTER:**

No complaints or concerns this quarter.

### **SECOND QUARTER**

No complaints or concerns this quarter.

### **THIRD QUARTER**

No complaints or concerns this quarter.

### **FOURTH QUARTER**

No complaints or concerns this quarter.