

Rodney Wastewater Treatment Plant Operations Report Fourth Quarter 2020

Submitted by:
Ontario Clean Water Agency
Date: January 5, 2021

SECTION 1: COMPLIANCE SUMMARY

FIRST QUARTER:

There were no compliance issues to report for the first quarter.

SECOND QUARTER:

There were no compliance issues to report for the second quarter.

THIRD QUARTER:

There were no compliance issues to report for the third quarter.

FOURTH QUARTER:

There were no compliance issues to report for the fourth quarter.

SECTION 2: INSPECTIONS

FIRST QUARTER:

There were no MECP or MOL inspections during this quarter.

SECOND QUARTER:

There were no MECP or MOL inspections during this quarter.

THIRD QUARTER:

There were no MECP or MOL inspections during this quarter.

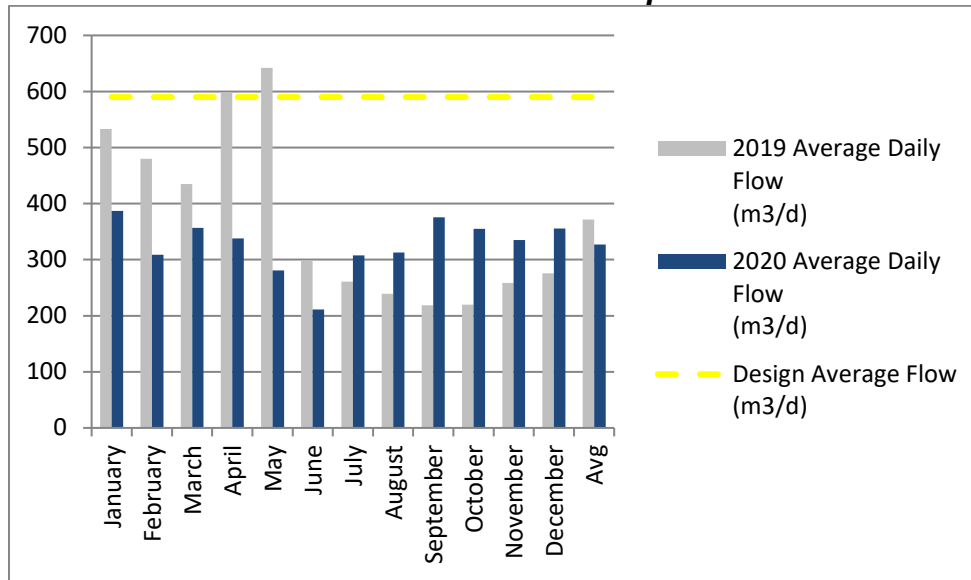
FOURTH QUARTER:

There were no MECP or MOL inspections during this quarter.

SECTION 3: PERFORMANCE ASSESSMENT REPORT

The average daily flow for the wastewater treatment plant in 2020 is 327.1m³/d. The average daily flow in 2019 was 371.7 m³/d, therefore the flow for 2020 is down by 12% when compared to 2019. The plant is currently at 55% of its rated capacity of 590m³/d.

Chart 1. Raw Flows in 2020 Compared to 2019



Raw samples are taken on a biweekly basis following the ECA requirements. The table below shows the raw sample results for 2020.

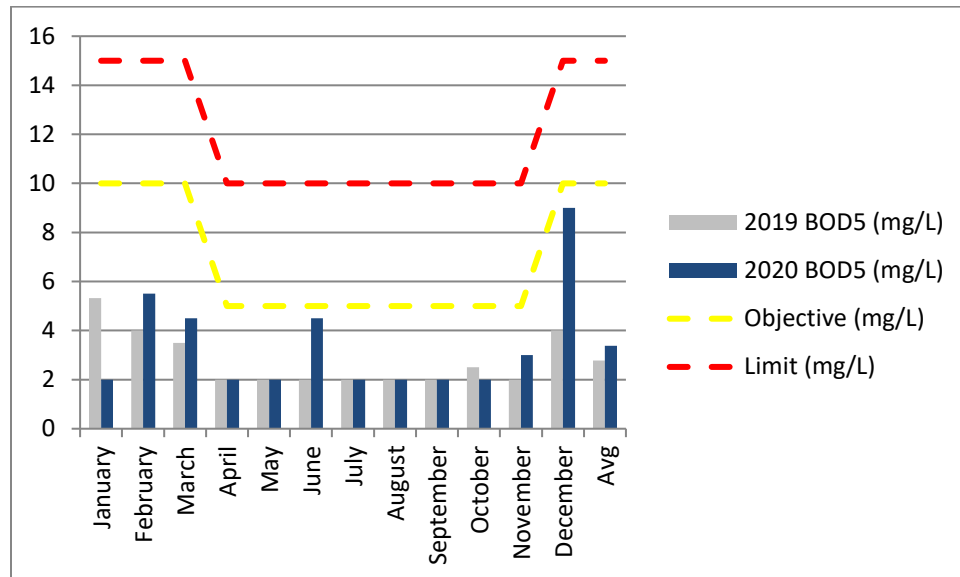
Table 1. Raw water sample results for 2020..

	BOD5 (mg/L)	TKN (mg/L)	TP(mg/L)	TSS (mg/L)
January Results	203.5	34.6	4.455	137.5
February Results	118.5	25.55	3.555	100.5
March Results	100	25.45	2.475	105
April Results	124	31.15	3.34	124.5
May Results	61.5	27.1	2.33	32.5
June Results	132.5	36.9	3.42	109.5
July Results	158.7	37.4	3.61	168.7
August Results	163.5	35	3.81	209
September Results	52.5	21.4	2.28	59.5
October Results	84	26.8	2.95	64
November Results	119	41.45	4.73	148
December Results	84.667	44.433	2.83	168
Annual Average	117.23	32.94	3.31	122.69

The effluent is sampled on a bi weekly basis following the requirements of the ECA.

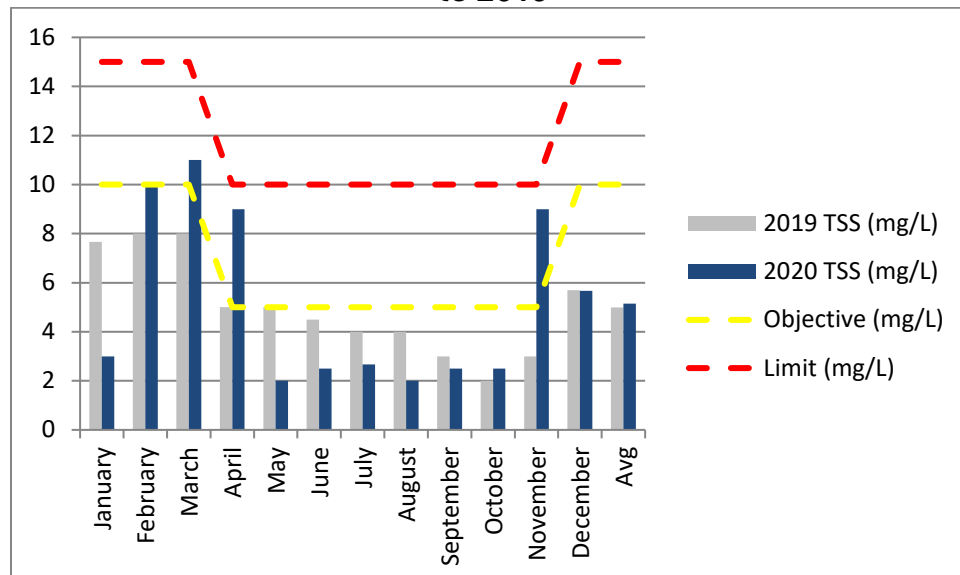
The average effluent BOD5 for 2020 is 3.4mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for BOD5 in 2019 was 2.78mg/L, therefore the results for 2020 so far are up by 21.5% when compared to 2019 (refer to Chart 2).

Chart 2. Average Monthly Effluent BOD5 results for 2020 compared to 2019.



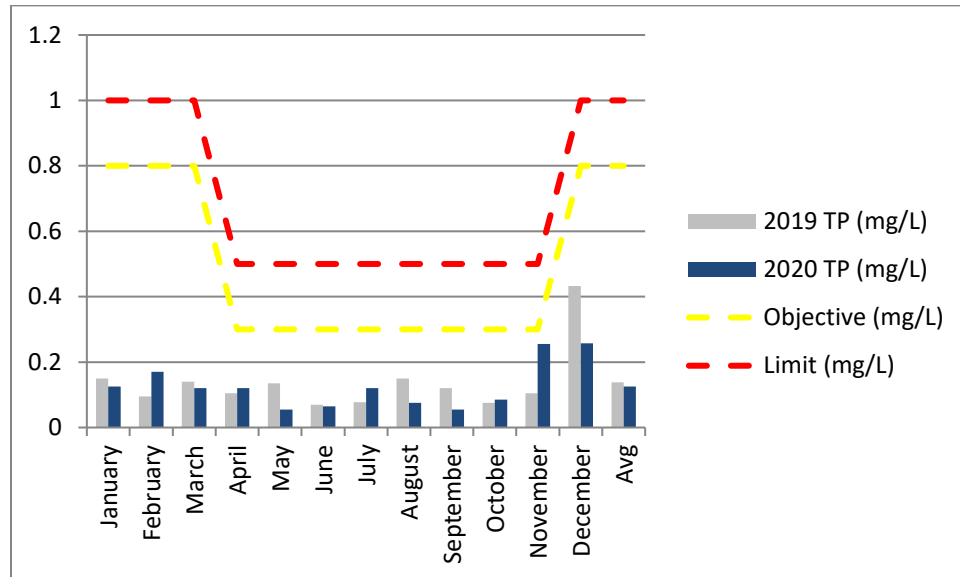
The average effluent TSS for 2020 is 5.2 mg/L, meeting the effluent limit identified in the ECA but exceeding the objective in March, April and November. The annual average result for TSS in 2019 was 5mg/L, therefore the results for 2020 are up by 3% when compared to 2019 (refer to Chart 3).

Chart 3. Average Monthly Effluent Total Suspended Solids Results for 2020 Compared to 2019



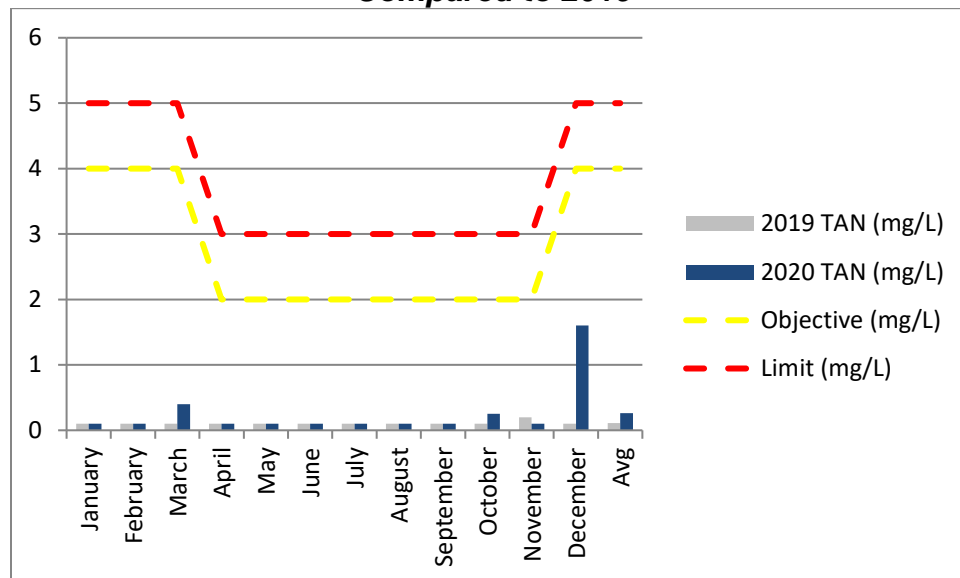
The average effluent TP for 2020 is 0.13mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for TP in 2019 was 0.14mg/L, therefore the results for 2020 are down 9% when compared to 2019 (refer to Chart 4).

Chart 4. Average Monthly Effluent Total Phosphorus Results for 2020 Compared to 2019



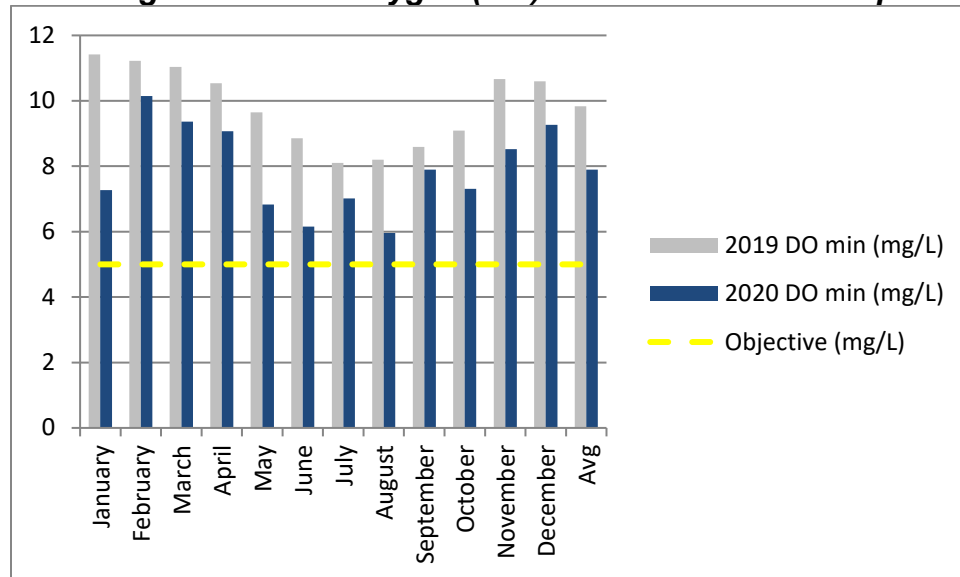
The average effluent TAN for 2020 is 0.26 mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for TAN in 2019 was 0.11mg/L, therefore the results for 2020 so far are up by 142% when compared to 2019 (refer to Chart 5).

Chart 5. Average monthly Effluent Total Ammonia Nitrogen Results for 2020 Compared to 2019



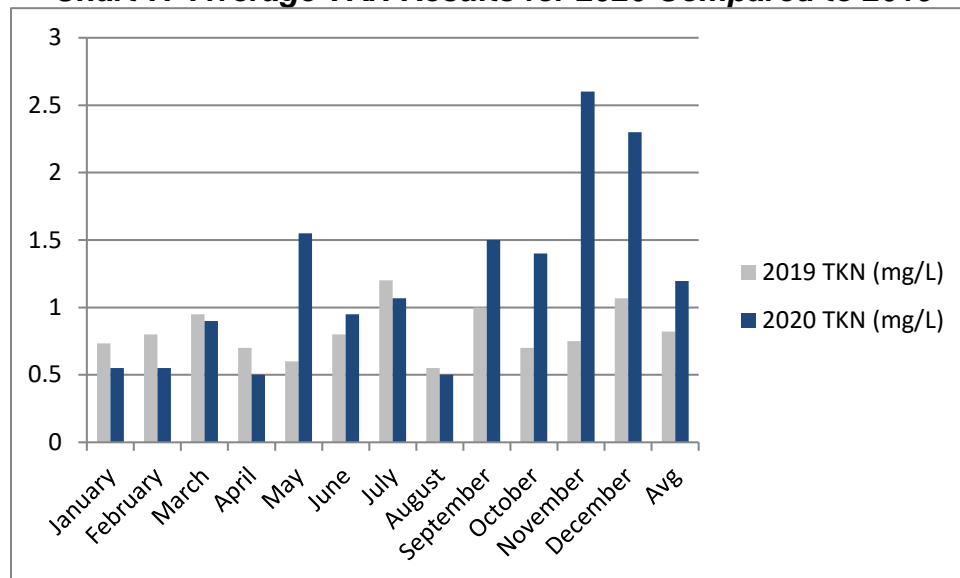
Dissolved oxygen (DO) of the effluent is tested on site at the plant; the ECA identifies a minimum level required as an objective. This objective is 5mg/L. The chart below (Chart 6) shows the minimum DO concentrations, there have been no objective exceedances.

Chart 6. Average Dissolved Oxygen (DO) Results for 2020 Compared to 2019



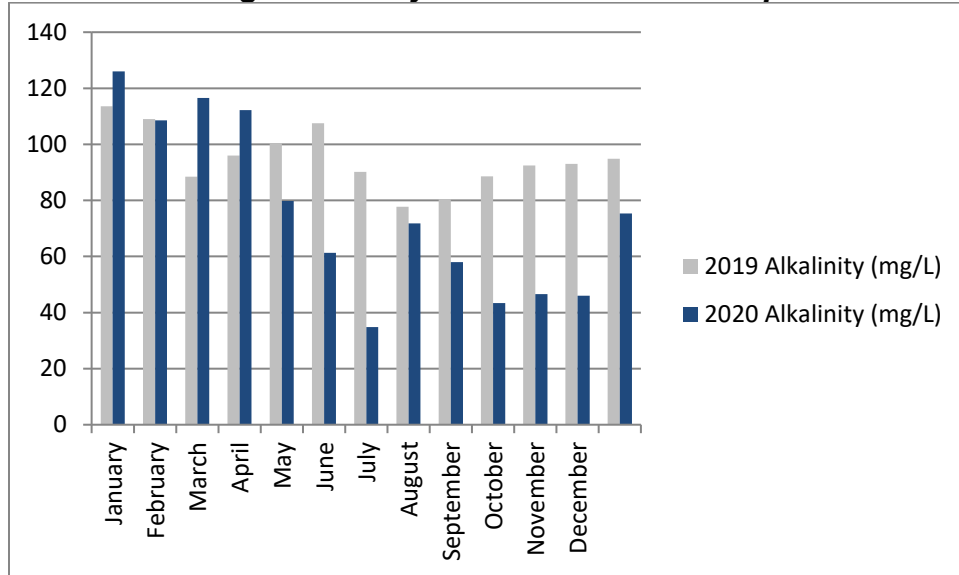
Total Kjeldahl Nitrogen (TKN) is sampled biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. The average effluent TKN for 2020 is 1.19 mg/L. The annual average result for TKN in 2019 was 0.82mg/L; therefore the results for 2020 so far are up by 46% when compared to 2019 (refer to Chart 7).

Chart 7. Average TKN Results for 2020 Compared to 2019



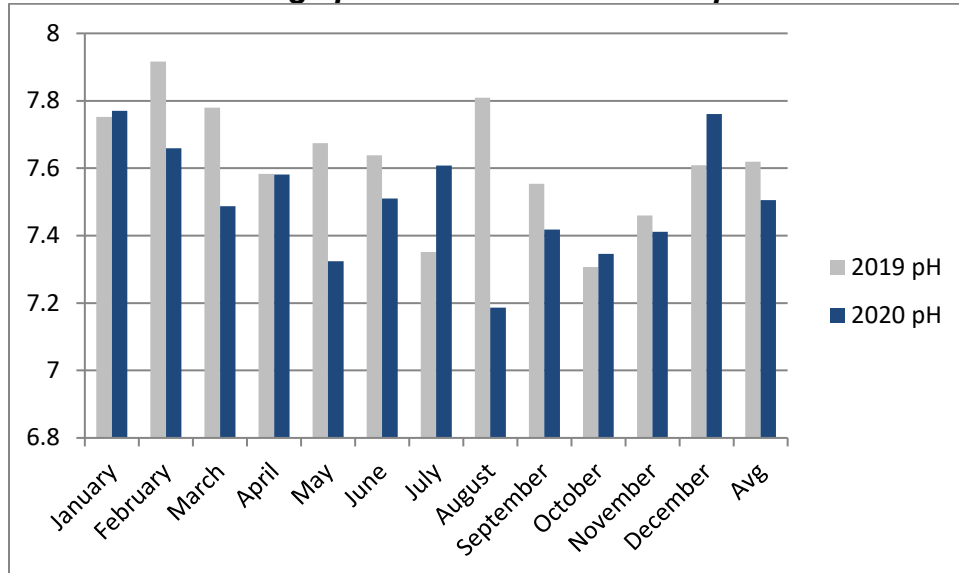
Alkalinity is sampled at least biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that at least 50mg/L is present in the effluent. The average effluent alkalinity for 2020 is 75mg/L. The annual average result for alkalinity in 2019 was 94.8mg/L, therefore the results for 2020 so far are down by 20% when compared to 2019 (refer to Chart 8).

Chart 8. Average Alkalinity Results for 2020 Compared to 2019



pH is sampled at least biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that the pH is in the range of 6.5-8.5. The average effluent pH for 2020 so far is 7.50. The annual average result for pH in 2019 was 7.62; therefore the results for 2020 is down by 1.5% when compared to 2019 (refer to Chart 10).

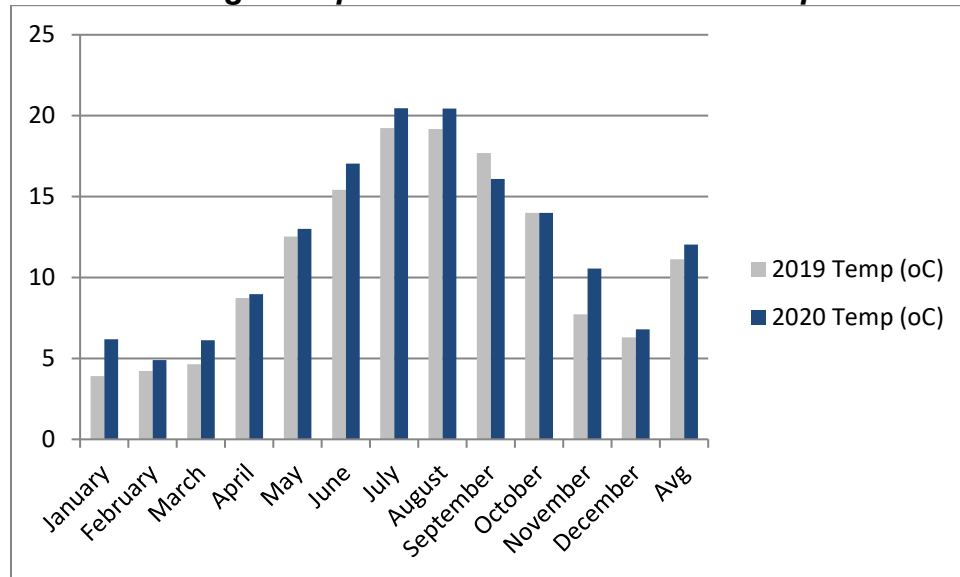
Chart 9. Average pH Results for 2020 Compared to 2019



Temperature is measured at least biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. The temperature of the effluent fluctuates based on outdoor temperatures. The average effluent temperature for 2020 is 12°C. The

annual average temperature in 2019 was 11.1°C, therefore the results for 2020 are up 8.2% when compared to 2019 (refer to Chart 11).

Chart 10. Average Temperature Results for 2020 Compared to 2019



SECTION 4: OCCUPATIONAL HEALTH & SAFETY

FIRST QUARTER:

Due to the COVID-19 pandemic, which has been brought to the attention of all OCWA staff; precautionary protection measures have been implemented at all facilities. In addition to the mandatory PPE worn by all operational staff, the following additional steps were taken to assure safety:

- Additional PPE and supplies were sourced as applicable.
- The frequency of facility and vehicle cleaning and surface disinfection was increased and documented
- Staff re-organization was implemented to meet social distancing requirements where applicable.
- Facility accesses to essential contractors and/or delivery personnel are closely monitored.

There were no additional Health & Safety issues identified during the first quarter.

SECOND QUARTER:

The Covid-19 precaution's still continue to ensure the protection of all staff and the public.

THIRD QUARTER:

The Covid-19 precaution's still continue to ensure the protection of all staff and the public.

FOURTH QUARTER:

The Covid-19 precaution's still continue to ensure the protection of all staff and the public.

SECTION 5: GENERAL MAINTENANCE

FIRST QUARTER:

JANUARY:

Contractors on site various days for PLC upgrade.

02: Alum system flushed due to airlocks.

15: Alum day tank topped up.

16: Pumped out scum chamber.

24: Flushed alum system with hot water to clear line blockages caused by cold weather.

26: Alum system flushed due to airlocks.

28: Flushed alum system with hot water to clear line blockages caused by cold weather; connected new alum day tank.

29: Alum system flushed due to airlocks.

31: Electricians fixed connection between pump station and sewage plant for alarm dialers.

FEBRUARY:

13: Kone Cranes on site to complete lifting device inspections

19: Monitored pump station due to phantom alarms previous night. Miltronics was jumping all over the place; cleaned the face of the transducer off as it was covered in black grime. Large chunk of grease found in pump station, but doesn't seem to be causing an issue. Untangled floats and got them back in the float rings. Alberts Generator was on site to service generator, as the generator had gone into a self-test mode. The self-test mode was cleared, oil and filter changed and fuel filter changed. Monitored after all work complete and no alarms came out.

20: Municipality completed mowing of lagoon edges

21: Flowmetrix on site to scale new flowmeters to SCADA

24: Low Set tests; operator changed WAS cycle from 7 times per day to 5 times per day. Manholes on Third Street and Stinson checked.

MARCH:

Contractors on site various days for PLC upgrade.

02: Alum system flushed due to airlocks.

03: Pumped out Rodney PS chamber.

04: Topped up alum day tank. Operator mounted new effluent water pump in the filter building.

05: Alum system flushed due to airlocks.

09: RAS Pump 1 faulted due to a clogged impellor. Operator disconnected pump, cleared out the impellor and returned RAS Pump 1 to service.

12: Alum system flushed with hot water to clear blockages. Operator found leak on Pump 1 cartridge. Replaced pump cartridge and returned Pump 1 to service.

18: Diverted flow from plant to lagoon. Operator pumped out the clarifier to inspect lower end of the scraper arm. Flowmetrix was on site to calibrate flowmeter.

20: Inspection of clarifier lower arm complete; no damage found. Wastewater flow returned to the plant instead of the lagoon.

SECOND QUARTER:

APRIL

- 01: UV installed for seasonal use.
- 17: Cleared foam and debris from the aeration v-notches. Operator attempted to clear the pipe from RAS containment pit using a plumbers 'snake'. T&T Power and RVA on site for walkthrough.
- 20: Gerber Electric performed annual maintenance on RAS/WAS pumps.

MAY

- 06: Gerber electric replaced a GFCI.
- 11: Repaired RAS building sump pipe. Patched RAS building sump.
- 12: Gerber Electric on site to investigate clarifier scum pump not working in auto mode. Electrician repaired the switch; the scum pump now works in manual/hand mode. Gerber Electric also investigated the bar screen scraper float which was not activating the bar screen scraper. A faulty relay was found to be the cause. A new relay has been ordered and the bar screen scraper was left running in hand mode.
- 13: Performed troubleshooting of the WAS flow engineering units in SCADA with T&T technician.
- 15: Installed new 6V battery in the dialer.
- 20: Changed bulb on the UV.
- 26: Changed 2 bulbs on the UV and cleared the UV slot in the effluent channel of sand and debris.
- 28: Performed WAS flow meter/SCADA troubleshooting with Flowmetrix technician.

JUNE

- 03: Added air to 'pipe pig' at the lagoon overflow.
- 04: Changed light bulbs on the aeration deck. Transferred alum from the large tank to the day tank. At the request of Flow Metrix for WAS flow meter troubleshooting the electronics of the meter was inspected, no signs of water corrosion or loose wires. Inspected and added grease to aeration mixers.
- 09: Performed trial of SCADA controlled WAS (waste active sludge) cycle. The trial was unsuccessful; the flow meter records faults, likely due to air siphoned from the return line, which makes the total waste volume inaccurate during the SCADA controlled cycle. WAS cycles will continue to be performed manually by the operators.
- 10: Removed old influent auto sampler and placed new auto sampler in cabinet.
- 15: Gerber Electric replaced faulty relay on the bar screen scraper. A UV light bulb burnt out and was replaced.
- 19: A UV light bulb burnt out and was replaced.
- 22: Gerber Electric was on site to investigate GFCI outlet in the influent auto sampler. A crossed wire in the new auto sampler was causing the GFCI to trip. Gerber's electrician corrected the issue.
- 23: Flowmetrix technician was on site to investigate the WAS flow meter faults. The technician collected more data on the flow meter; the WAS cycle will continue to be performed manually. Gerber Electric was on site to replace a faulty float to activate the bar screen scraper. Additionally, the counter arm used to control the bar screen scraper had rusted off and was replaced with a piece of plastic. The bar screen scraper will now

operate correctly in auto mode. Gerber Electric replaced batteries for the emergency lights in Building B (RAS pump room) and the lime room. The new effluent auto sampler was installed in its permanent location.

- 24: Removed old effluent auto sampler.
- 25: Performed trials on new auto samplers; auto sampler operated correctly.
- 26: Configured the influent and effluent auto samplers with programs for 24hr sampling each day of the week.
- 29: Nevro technician was on site to evaluate and provide quotes for a replacement filter backwash pump, a mechanical seal rebuild on RAS pump 2 and repair on the aeration mixer 1 coupler.

THIRD QUARTER:

JULY

- 06: The manhole at the dead end of Third Street had a small blockage at one of the residential drain lines. A 10L jug of water was poured down the manhole to clear the debris. With the blockage cleared flow was observed leaving the residential line; overall flow in the manhole was acceptable.
- 14: Flowmetrix technician was on site for WAS flow meter troubleshooting. The technician replaced a cable to the flow meter which was causing erratic readings. The meter performance has improved but active sludge wasting cannot be controlled through SCADA. The new meter is sensitive to air bubbles and with the current piping configuration, air is back siphoned through the return line when the wasting line is opened. Active sludge wasting will continue to be performed manually.
- 14: Flow was diverted after the clarifier to the lagoon to allow for work on the sand filters. Hurricane Hydrovac was on site and removed the old sand from the sand filter chambers.
- 15: Air lances installed in the sand filters in preparation for the addition of new sand to the filter chambers.
- 16: Continental Carbon Group was on site to install new sand into the sand filters.
- 17: Sand filters were returned to operation.
- 20: Diverted flow after the clarifier to the lagoon to allow for work on the sand filters. Hurricane Hydrovac on site to remove sand from the south filter, to remove sand from the effluent/UV channel, and to remove sand from a broken bag in front of the filter building. Flow was returned to the sand filters after work was complete.
- 21: Troubleshooting performed on the UV intensity meter. The meter was reading off-scale high. Trojan Technologies Inc. will be contacted.
- 23: Paramount Power has been contacted for warrantee work on the malfunctioning Rodney Pump Station generator automatic transfer switch. Trojan Technologies Inc. was contacted regarding the UV intensity meter. The tech support agent stated that the current intensity detector is obsolete, it is past its replacement age and will not provide accurate readings. As per Senior Operations Manager, current practices of UV bulb operation checks, regular UV bulb/effluent channel cleaning and monitoring the bi-weekly Bacti sample results will be used to ensure the UV is operating correctly.
- 27: Rinsed down the effluent channel. Called Bell Canada regarding Rodney pump station alarm line; a technician visit was scheduled for July 28th.
- 28: Bell Canada was contacted several times throughout the day, the technician did not show up to investigate the Rodney pump station alarm line. The Bell technician visit was re-scheduled for July 29th.

- 29: Bell Canada was contacted regarding the Rodney pump station alarm line. The technician was not available, the operator re-stated the importance of the phone line and re-escalated the service call. The service call was re-scheduled for July 30th.
- 30: Chemtrade was on site to deliver alum. Bell Canada was contacted regarding the service call. A Bell technician arrived on site at 14:18 but did not specialize in the equipment at the pump station and was unable to resolve the issue. A different Bell service technician will be sent to troubleshoot the pump station alarm line.
- 31: Bell Canada was contacted regarding the pump station alarm line. The technician was unavailable but the service call was escalated again. Drained water from the sand filter air compressor.

AUGUST

- 03: Bell technician on site to repair the communication between the Rodney Pump Station PLC and the Rodney Sewage Treatment Plant SCADA. The technician was unable to fix the issue but put in a referral to the business department.
- 04: Bell technician was on site and repaired wiring which fixed the communication error between the Rodney PS and the Rodney STP. Replaced and tested air valves for the sand filters.
- 10: Pumped down the clarifier scum chamber. Pumped down the RAS building sump. Rinsed down the effluent channel. Performed troubleshooting on sand filter air compressor air pressure. An air leak was found at the petcock valve, the valve will be replaced. New pressure gauges were installed on the effluent water line before and after the pressure tank.
- 11: RAS pump backwashed into the RAS building pit to clear debris from the pump and restore flow rate. RAS building rinsed down and the RAS building sump pumped down.
- 13: Ronnie's Generator on site to perform a repair under warranty of the automatic transfer switch (ATS) for the Rodney Pump Station generator. The ATS controller was replaced.
- 17: Performed troubleshooting on the sand filters. The backwash weir height was adjusted and an air lance was used to blow out and unclog sand filter lines. 10L jug of water was poured down the manhole at the dead end of Third Street to clear debris from one of the residential lines. Water was observed flowing from the residential line after the debris was cleared.
- 18: Installed new auto dump valve on the sand filter compressor to replace the leaking petcock valve. Used an air lance to unclog the sand filter lines.
- 20: Contacted Dynasand for assistance with the sand filters. The repair technician provided information on troubleshooting and improving filter performance. Rinsed down the aeration deck.
- 21: Replaced the oil separator filter on the sand filter compressor which increased filter backpressure to normal levels. Removed the south east sand filter air lance to unplug it and found that holes had been worn through the shaft which will cause air to escape at the bottom rather than the top. The air lance will need to be repaired.
- 27: Performed manhole inspections in Rodney.

SEPTEMBER

- 02: Operators completed maintenance on sand filters to allow proper operation and consistent flows.
- 03: Nevtro on site to pick up backwash pump from filter building. Pump was quoted in August and manager gave approval to get work completed.
- 08: Removed pump #2 in RAS building as the coupler had sheered apart. Operator found the pump seized, removed impeller assembly from volute for pick up by Nevtro.
- 09: Nevtro on site to pick up pump#2 for quoting and air lance from SE corner of sand filter as it had a hole worn through.
- 16: Hurricane Hydrovac on site at pump stations to clean out well.
- 18: Gerber Electric on site to install new exterior lights on administration building, RAS building and filter building.

FOURTH QUARTER:

OCTOBER

- Operator manually wastes solids daily to lagoon due to valve and flow meter issues that require upgrades in facility.
 - Third Street and Stinson Street man holes checked weekly for buildup.
 - All sewers in town inspected and flushed by Hurricane.
- 05: Sewer backup 209 Third Street. Had Hurricane Hydrovac inspect and flush past service and in area until flow was achieved.
 - 20: Shut down and removed UV lights for season.
 - 31: Gerber Electric on site to adjust overload amperage on pump 2 at pump station, as it was faulting.

NOVEMBER

- Operator manually wastes solids daily to lagoon due to valve and flow meter issues that require upgrades in facility.
 - Third Street and Stinson Street man holes checked weekly for buildup.
- 12: Operator found problems with RAS/WAS pump 1. Operator pulled pump apart to clean debris from volute and impeller.
 - 23: Operator found issues with RAS/WAS pump 1. Pump was pulled apart and found that the wear plate was beyond repair. Nevtro was called and pump 1 was moved to pump 2 volute as pump 2 is out for repair. RAS pump was set to operate and tested in operation.
 - 24: Operator tried to complete generator monthly test at pump station; received over voltage alarm and unable to keep running. Albert's Generator was on site to troubleshoot, but was unable to repair as computer hook up was required by the dealer.
 - 25: Started inquiring a repair plan for generator; contacted Paramount Power Kohler dealer for Ontario.

DECEMBER

- Operator manually wastes solids daily to lagoon due to valve and flow meter issues that require upgrades in facility.
 - Third Street and Stinson Street man holes checked weekly for buildup.
- 01: Farmington on site for back flow testing.
 - 04: Gerber Electric on site to test pump station pump 2; readings show the pump is faulted.

- 08: Operators pulled pump station pump 2 and found no clogs; the pump will not run in hand. Removed volute from RAS pump.
- 09: Nevro picked up pumps for service.
- 09: Ronnie's Generator on site to repair generator at pump station; 3 transformers replaced.
- 16: Operators switched from outside tank to day tank for alum until order arrives in New Year.
- 30: Flowmetrix on site to repair flow meter; loose wiring or look computer board system working, spare display was left in case required over long weekend.

SECTION 6: ALARM SUMMARY

FIRST QUARTER:

JANUARY:

No alarms to report this month.

FEBRUARY:

No alarms to report this month.

MARCH:

- 07: WAS/RAS pump fault. Operator was unable to resolve issues via SCADA. Senior Operations Manager, Sam Smith, repaired later on the following day.
- 29: Power outage caused alum pumps to fault.

SECOND QUARTER:

APRIL

- 17: Suspected voltage drop or phase drop caused aeration mixers to turn very slowly and fault. Hydro one was called and tested voltages but did not discover an issue. After Hydro One tested the voltage, the aeration mixers worked normally.
- 26: Alarm for Rodney Pump Station; Alarm cleared before operator arrived on site.
- 28: Alarm for Rodney Pump Station; Alarm cleared before operator arrived onsite.

MAY

- 09: Alarm callout for power outage. Operator on site, reset the main breaker, alum pumps and RAS pumps and performed facility walkthrough to ensure the plant was operating correctly.

JUNE

- 10: Received alarm at 19:50 that main power was out. This occurred during a severe thunderstorm. Operator arrived on site, reset main breaker and re-started alum pump and RAS pump 1.
- 25: Power outage occurred at 14:57. Operator diverted flow to the lagoon at 16:37. Power returned at 18:21; restored plant to normal operating condition, restored flow to the plant and stopped diverting to the lagoon.

THIRD QUARTER:

JULY

- 10: Received an alarm call from Spectrum at 19:01 for Rodney STP channel 7. Alarms for both high clarifier flow and UV general fault were active. The UV was operating normally, all bulbs were operational and UV intensity was normal. The alarm may have been caused by a power flicker. The high clarifier flow was caused by heavy rainfall. Another alarm call was received from Spectrum for Rodney STP at 20:52. The alarm for UV general fault was active. All UV bulbs were on but the intensity was blinking 1.6 and 3.0. The panel was reset and the alarm cleared. The alarm may have been caused by high flows from heavy rain. Partially diverted flow after the clarifier to the lagoon to reduce the flow going to the UV and disabled the UV alarm. The on call operator arrived on site on Sunday July 12th at 09:00 to check on the UV. Three UV alarms and three high flow alarms were recorded Saturday; all alarms had cleared when checked Sunday morning. The effluent channel and installed UV bulb racks were rinsed down. The UV was operating normally with all bulbs on and normal UV intensity, the operator then left the site.
- 18: Alarm occurred at 19:44. Rodney Pump Station alarm was active. On-call operator arrived at the pump station and found the generator running without a power failure. It was determined that the automatic transfer switch for the generator had malfunctioned. Gerber electric was contacted and provided instructions to the on call operator on manually returning the generator to normal power and turning the generator off.
- 26: Received alarm call from Spectrum, Rodney pumps station alarm was active. There is no PLC interface at the Rodney pump station to identify the cause of the alarm. The on-call operator determined that the alarm was likely due to phone line issues. The alarm for the pump station was disabled; Bell Canada will be contacted on Monday July 27th.

AUGUST

- 01: Received an alarm at Rodney STP for high effluent flow caused by a large amount of rain during a storm.
- 16: Received an alarm at Rodney STP. Arrived on site and found the power was off. Reset main breaker, alum pump and RAS pump. Performed plant walkthrough; facility was operating as designed. Went to Rodney PS; alarm had cleared and facility was operating normally. Power outage and high flows were likely caused by a thunderstorm.
- 22: Received an alarm at Rodney STP. Arrived on site and found the alarm was for the Rodney PS. The alarm was for high level. Pumped the wet well down in hand mode then returned pumps to auto control. The pump station operation was monitored. Both pumps operated correctly under auto control.

SEPTEMBER

- 04: Operator received page for high level at pump station. Operator pumped down and cleared alarm.
- 05: Operator received page for high level at pump station. Operator pumped down and observed large debris in wet well, and notified OPS manager.
- 06: Operator received page for power flicker. Operator attended site and reset main breaker switch and started systems back up.

FOURTH QUARTER:

OCTOBER

- 15: Operator received loss of power alarm. Operator attended site and reset main breaker and all pumps.
- 23: Operator received page for power outage. Operator arrived on site and reset main breaker and all pumps

NOVEMBER

- 15: Operator received loss of power alarm. Operator attended site and reset main breaker and all pumps.
- 21: Operator received page channel 7. Upon arrival all alarms were clear and operator checked system to ensure all systems were operational.

DECEMBER

- 30: Operator received page; found the flow meter not operating. Operator consulted with SOM and PCT; calculate pump hours to calculate plant flow until unit is fixed.

SECTION 7: COMMUNITY COMPLAINTS & CONCERNS

FIRST QUARTER:

No complaints or concerns to report this quarter.

SECOND QUARTER:

No complaints or concerns to report this quarter.

THIRD QUARTER:

There were no complaints or concerns this quarter.

FOURTH QUARTER:

There were no complaints or concerns this quarter.