



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

5834 Rodney Wastewater Treatment Plant
Operations Report
Fourth Quarter 2021

Ontario Clean Water Agency, Southwest Region
Sam Smith, Senior Operations Manager
Susan Budden, Business Development Manager
Issue Date: February 24, 2022

Facility Information:

Facility Name: Rodney Wastewater Treatment Plant
Facility Type: Municipal
Classification: Class 2 Wastewater Collection, Class 2 Wastewater Treatment

Operational Description:

The collection system consists of sewers and one submersible pumping station. The treatment facility main elements are an extended aeration process designed for combined carbon removal and nitrification. The discharge of secondary clarifier: effluent is filtered and disinfected with ultraviolet light before being re-aerated and discharged to the Sixteen Mile Creek. The waste activated sludge is discharged to a lagoon for storage. Dual-point chemical addition alum: is used for phosphorus removal. Sodium hydroxide is added for control of alkalinity.

Service Information

Areas: Serviced: Village of Rodney

Design Capacity:

Total Design Capacity: 590 m³/day
Total Annual Flow (2017 Data): 127,060 m³/year
Average Day Flow (2017 Data): 348.1 m³/day
Maximum Day Flow (2017 Data): 588 m³/day

Treatment Process Features:

Effluent Receiver: Sixteen Mile Creek to Lake Erie
Major Process: Extended aeration
Phosphorus Removal: Continuous, Use of alum
Additional Treatment: Effluent filtration
Discharge Mode: Continuous discharge
Effluent Disinfection Practice: UV Disinfection
Sludge Stabilization: Lagoon storage

Contacts:

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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:

A non-compliance was reported due to biweekly samples for alkalinity being missed in house due to operator oversight. The parameter was added to the offsite chain of custody to ensure compliance.

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.

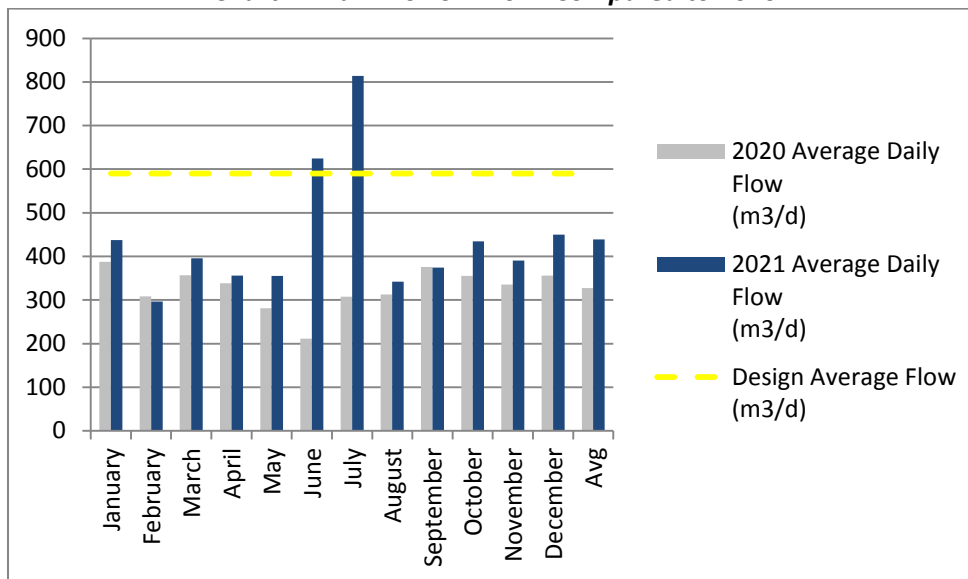
FOURTH QUARTER:

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 2021 is 439.11m³/d. The average daily flow in 2020 was 327.1 m³/d, therefore the flow for 2021 is up by 34% when compared to 2020. The plant is currently at 74% of its rated capacity of 590m³/d.

Chart 1. Raw Flows in 2021 Compared to 2020



Raw samples are taken on a biweekly basis following the ECA requirements. The table below shows the raw sample results for 2021.

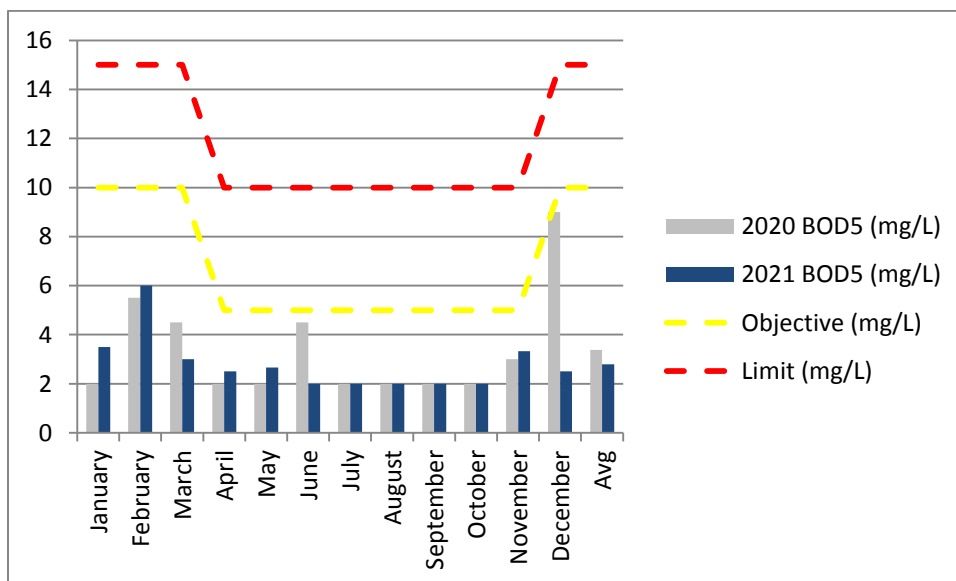
Table 1. Raw water sample results for 2021.

	BOD5 (mg/L)	TKN (mg/L)	TP(mg/L)	TSS (mg/L)
January Results	83.5	30.3	2.995	59.5
February Results	165	39.15	2.62	231.5
March Results	100	21	2.7	104
April Results	103	29.3	3.25	94
May Results	178	34.733	4.323	138.333
June Results	112.5	37.75	3.675	135.5
July Results	184	36.05	4.215	137
August Results	112	40.15	4.535	99.5
September Results	134.5	39.55	4.345	242
October Results	105.5	31.95	3.26	117
November Results	136	34.1	4.07	256.7
December Results	96.5	18.9	1.695	101.5
Annual Average	128.3	32.87	3.529	147.2

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

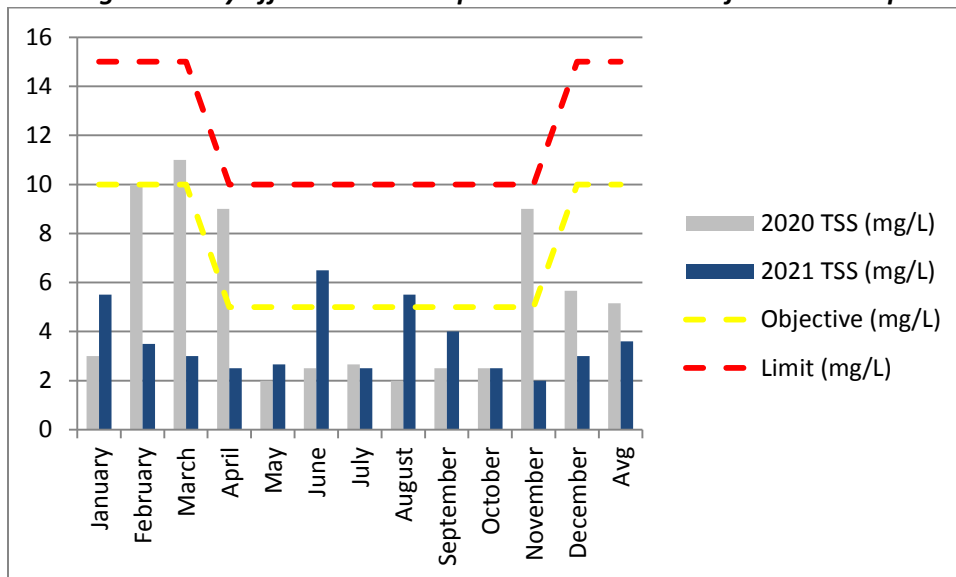
The average effluent BOD5 for 2021 is 2.79mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for BOD5 in 2020 was 3.4mg/L, therefore the results for 2021 so far are down by 17% when compared to 2020 (refer to Chart 2).

Chart 2. Average Monthly Effluent BOD5 results for 2021 compared to 2020.



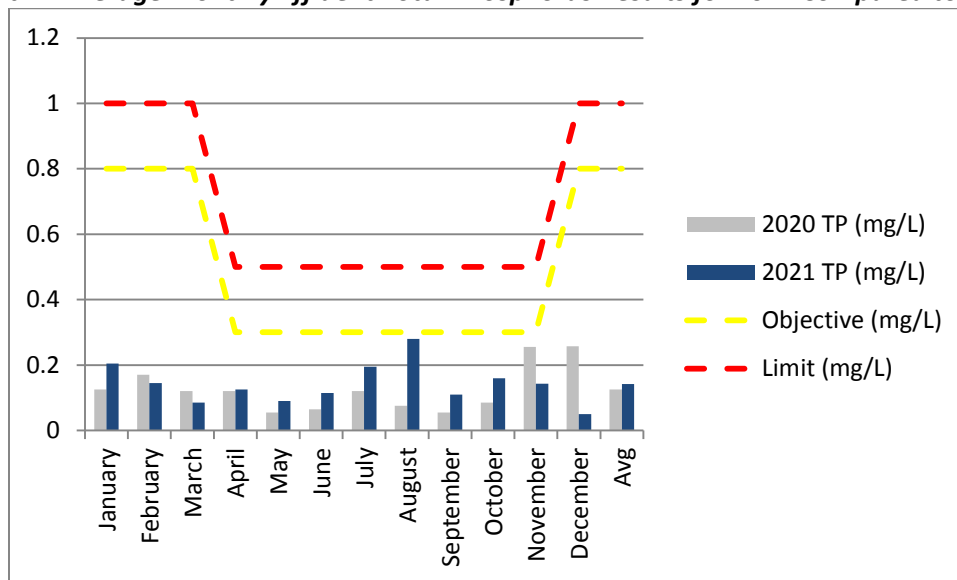
The average effluent TSS for 2021 is 3.60 mg/L, meeting effluent limits identified in the ECA, but exceeding the objective in June and July due to high flows,. The annual average result for TSS in 2020 was 5.2mg/L, therefore the results for 2021 are down by 30% when compared to 2020 (refer to Chart 3).

Chart 3. Average Monthly Effluent Total Suspended Solids Results for 2021 Compared to 2020



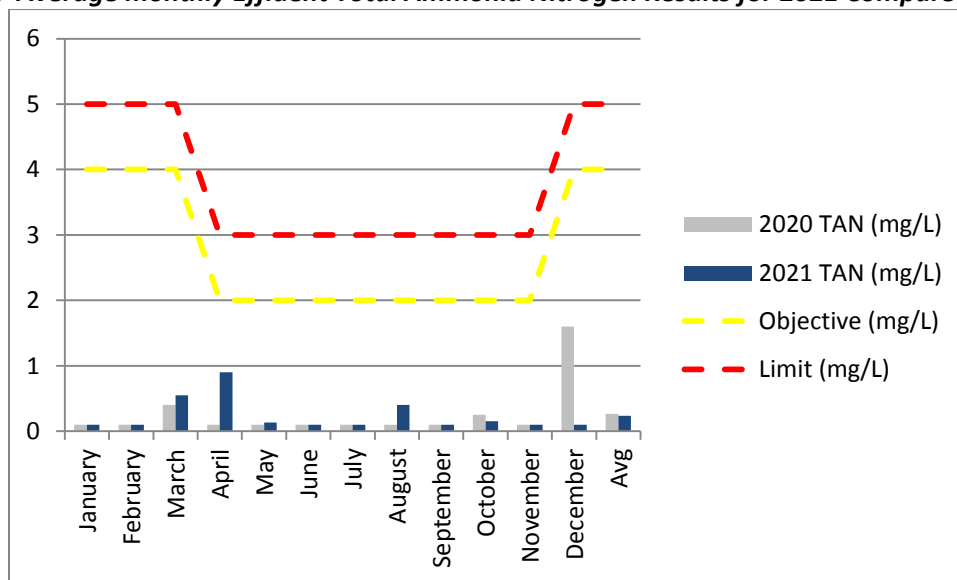
The average effluent TP for 2021 is 0.14mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for TP in 2020 was 0.13mg/L, therefore the results for 2021 are up 13% when compared to 2020 (refer to Chart 4).

Chart 4. Average Monthly Effluent Total Phosphorus Results for 2021 Compared to 2020



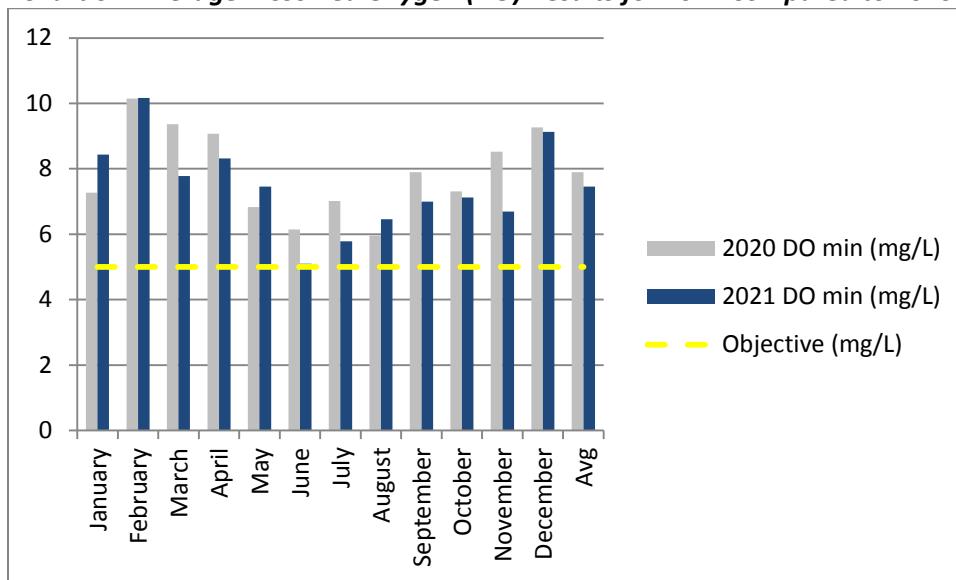
The average effluent TAN for 2021 is 0.24 mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for TAN in 2020 was 0.26mg/L, therefore the results for 2021 are down by 10% when compared to 2020 (refer to Chart 5).

Chart 5. Average monthly Effluent Total Ammonia Nitrogen Results for 2021 Compared to 2020



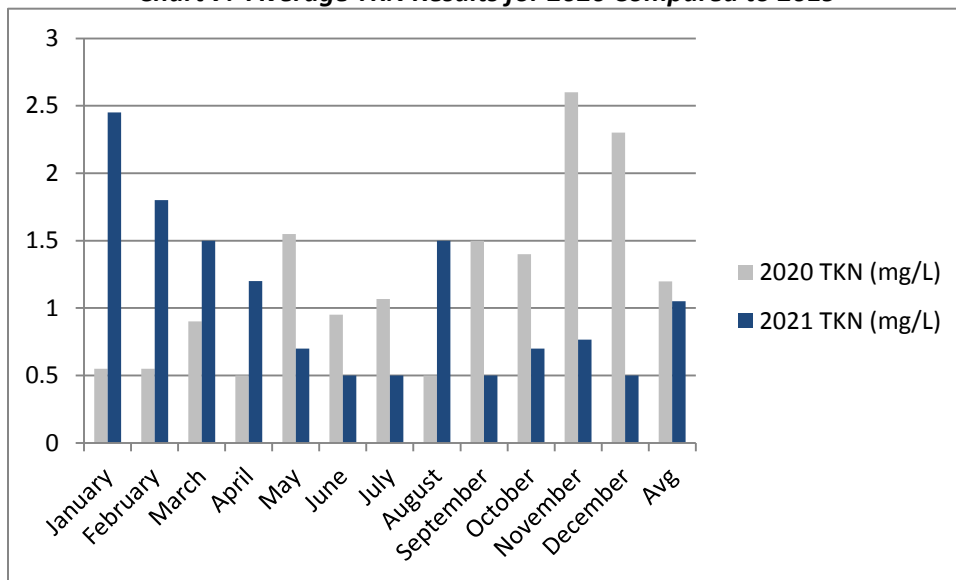
Dissolved oxygen (DO) of the effluent is tested on site at the plant; the ECA identifies a minimum level required as an objective. This objective is 5mg/L. The chart below (Chart 6) shows the minimum DO concentrations, there have been no objective exceedances.

Chart 6. Average Dissolved Oxygen (DO) Results for 2021 Compared to 2020



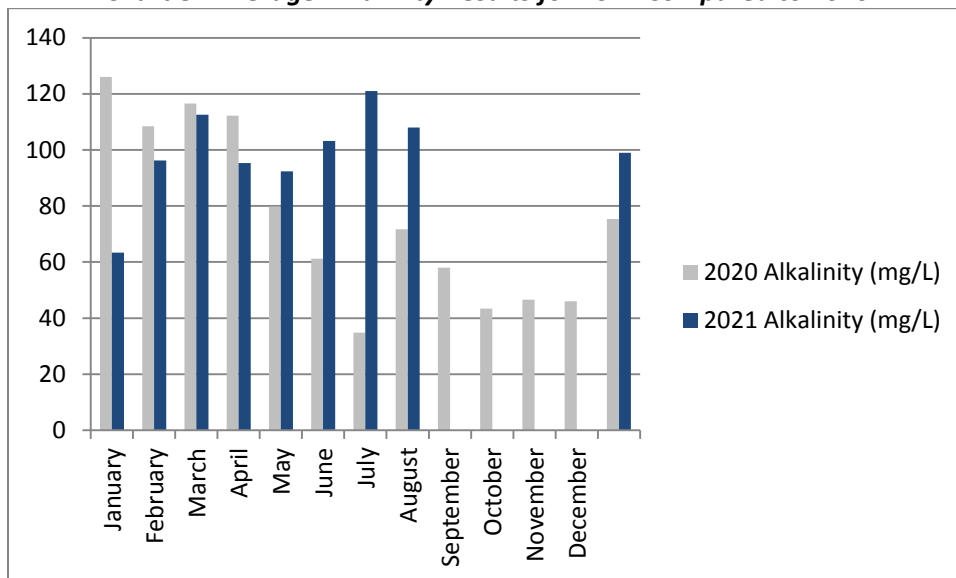
Total Kjeldahl Nitrogen (TKN) is sampled biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. The average effluent TKN for 2021 is 1.05 mg/L. The annual average result for TKN in 2020 was 1.20mg/L; therefore the results for 2021 are down by 12% when compared to 2020 (refer to Chart 7).

Chart 7. Average TKN Results for 2020 Compared to 2019



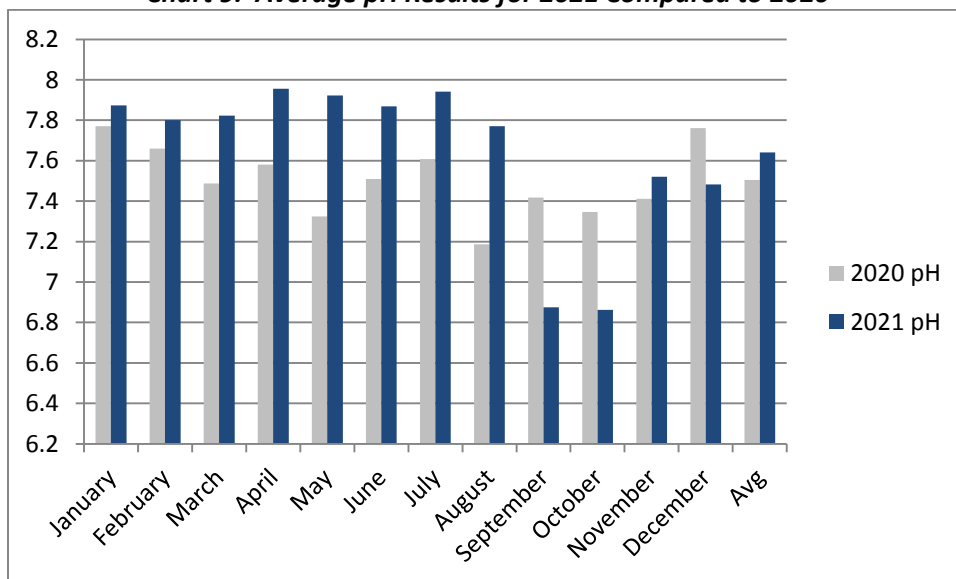
Alkalinity is sampled at least biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that at least 50mg/L is present in the effluent. The average effluent alkalinity for 2021 is 99mg/L. The annual average result for alkalinity in 2020 was 75mg/L, therefore the results for 2021 so far are up by 31% when compared to 2020 (refer to Chart 8). A non compliance was reported due to bi weekly samples being missed in 2021.

Chart 8. Average Alkalinity Results for 2021 Compared to 2020



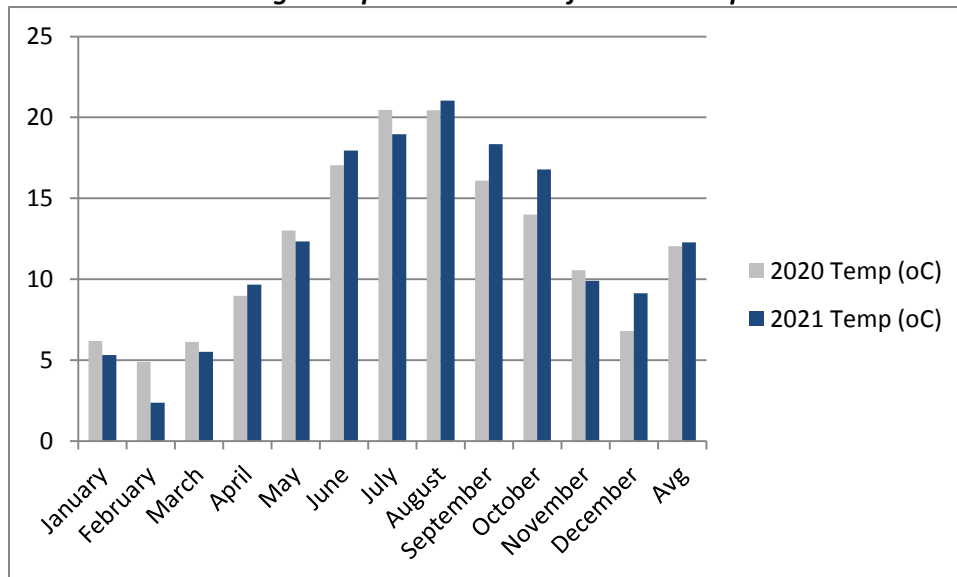
pH is sampled at least biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that the pH is in the range of 6.5-8.5. The average effluent pH for 2021 is 7.64. The annual average result for pH in 2020 was 7.50; therefore the results for 2021 is up by 1.8% when compared to 2020 (refer to Chart 10).

Chart 9. Average pH Results for 2021 Compared to 2020



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 2021 is 12.3°C. The annual average temperature in 2020 was 12°C, therefore the results for 2021 are up 1.9% when compared to 2020 (refer to Chart 11).

Chart 10. Average Temperature Results for 2021 Compared to 2020



SECTION 4: OCCUPATIONAL HEALTH & SAFETY

FIRST QUARTER:

Due to the COVID-19 pandemic; 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:

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

THIRD QUARTER:

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

FOURTH QUARTER:

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

SECTION 5: GENERAL MAINTENANCE:

FIRST QUARTER:

JANUARY

01, 04-08, 11-15, 18-22, and 25-29: Daily rounds and readings include; clearing debris from bar screen, inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.

04,08,15,19,21,28: Rodney pump station inspection. Operated pump(s) in hade-mode to ensure proper operation.

04: Reprogrammed dialer to send to the SWM crew.

07: Flushed alum line with hot water.

08, 15, 21: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.

11, 25: Obtained compliance samples to send to SGS lab.

12: Chemtrade onsite for alum delivery of 7000gal.

13: Sprayed clarifier down, cleaned weirs at the end of the aeration.

19: Transferred alum

19: Monthly generator run test at Rodney pump station.

26: Repair plugged / inoperable center filter reject piping for sand filter. Removed clogged section of piping and replaced with new pipe, 90 degree fitting and 2 ferco couplings. Installed repaired sand filter lance in SW sand filter. Nevro onsite today to deliver parts and air lance system.

29: Nevro onsite to install #1 RAS pump.

FEBRUARY

01-05, 08-12, 15-19, 22-26: Daily rounds and readings include; clearing debris from bar screen, inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.

02, 04, 09, 16, 23: Rodney pump station inspection. Operated pump(s) in hade-mode to ensure proper operation.

04: Monthly generator run test at Rodney pump station.

02, 25: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.

08,22: Obtained compliance samples to send to SGS lab.

22: Nevro pumps onsite today to install back wash pump #1 in filter room. Pump was removed and rebuilt.

Mike from Nevro to pick up 2 air lances from sand filters tomorrow to take for repairs

23: Sprayed clarifier down, cleaned weirs at the end of the aeration.

MARCH

01-05, 08-12, 15-19, 22-26, 29-31: Daily rounds and readings include; clearing debris from bar screen, inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.

02, 09, 16, 23, 30: Rodney pump station inspection. Operated pump(s) in hade-mode to ensure proper operation.

02,09,16,23,30: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.

05: Nevro onsite to quote repairs on the scum trough arm as well as pick up the sand filter lances for repair.

08, 22: Obtained compliance samples to send to SGS lab.

11: Monthly generator run test at Rodney pump station.

12: UV lights are back online and working properly for the season.
17: Nevtro onsite to install fixed clarifier scum arm. It is now back online.
17, 24: Sprayed clarifier down, cleaned weirs at the end of the aeration.
26: Arrived onsite for high effluent flow alarm due to heavy rain over night. Monitored until it was out of high alarm and operating properly.
29: Flowmetrix onsite for annual inspection on the flowmeter.

SECOND QUARTER:

APRIL

01-02,06-09,12-16,19-23,26-30: Daily rounds and readings include; clearing debris from bar screen, inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.
06,13,20,27: Rodney pump station inspection. Operated pump(s) in hade-mode to ensure proper operation.
06,13,20,27: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.
06,19: Obtained compliance samples to send to SGS lab.
09,12: pumped out rain water from alum containment.
09: Chemtrade onsite for alum delivery.
20: Monthly generator run test at Rodney pump station.
12: Sprayed clarifier down, cleaned weirs at the end of the aeration.
19: Konecranes onsite for annual lifting device inspections.
19: Lawn maintenance and grass cutting.
21: Building and grounds maintenance work order completed, cleaned office building, filter building, and RAS building.

MAY

03-07, 10-14, 17-21, 25-28, 31: Daily rounds and readings include; clearing debris from bar screen, inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.
04, 11, 18, and 25: Rodney pumps station inspection. Operated pump(s) in hade-mode to ensure proper operation.
04, 11, 18, 25: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.
06: Monthly WO#2243436 (UV light inspection) completed. Replaced 2 UV bulbs, 1 sleeve and, cleaned.
06: Completed monthly generator run test for the facility WO#2243436. All systems operated properly, filled out proper paper work. Tested out high level for the pump station for the monthly alarm check WO#2242908.
07: Brian from Gerber Electric onsite to help troubleshoot an issue with the scum pit pump not turning on. After checking the electrical side of things he has suggested we pull the pump and go from there. I have talked with Josh to set up a day early next week to assist in pulling the pump to further investigate the problem
12: Onsite today to pull scum pit pump to inspect why it's inoperable. Locked out, pulled pump with winch system. Found that impeller appears to be spinning free but when powered will just trip out. Called SOM and as per discussion, scheduled NEVTRO to come pick up pump and diagnose issues. Gerber Electric was onsite previous and determined all electrical tested ok from MCC to disconnect and issue must be within pump.
14: Nevtro onsite to take the scum pump to their shop to investigate the issue with it not operating properly.
27: Sanitary Sewer onsite to pump out the scum pit.

JUNE

01-04, 07-11, 14-18, 21-25, 28-30: Daily rounds and readings include; clearing debris from bar screen,

inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.

01, 08, 15, 22, 29: Rodney pumps station inspection. Operated pump(s) in hade-mode to ensure proper operation.

01, 08, 15, 22, 29: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.

10, 30: Transferred alum to the day tank.

24: Cleaned the UV racks.

30: Pumped out alum containment of all the rain water from the past week.

30: Completed monthly generator run test for the facility WO#2243436. All systems operated properly, filled out proper paper work. Tested out high level for the pump station for the monthly alarm check WO#2242908.

THIRD QUARTER:

JULY

02, 05, 12, 19, 26: Completed in House Labs.

Completed Plant Maintenance, Weekly on Fridays.

Completed Filter Maintenance Bi weekly.

Completed UV Cleaning Bi weekly.

AUGUST

03-06, 09-13, 16-20, 23-27, 30: Daily rounds and readings include; clearing debris from bar screen, inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.

03, 10, 17, 24, 31: Rodney pumps station inspection. Operated pump(s) in hade-mode to ensure proper operation.

03, 10, 17, 24, 31: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.

03, 04, 06, 16, 26: Cleaned the process including the UV channel.

06: Alberts generator service onsite today at Rodney PS to complete annual maintenance & testing.

09: Replaced Fuse On Flowmeter Milltronics due to the screen being blank upon arrival. - All Good

12: Assisted operator with sand filter maintenance and rounds.

19: Pumped down south side filter chamber to investigate problem with filter. Removed copper bar stuck in the sand. All four filters in service.

SEPTEMBER

01-03, 06-10, 13-17, 20-24, 27,30: Daily rounds and readings include; clearing debris from bar screen, inspecting clarifier and process, alum dose check, manually wasting, cleaning sand filters and UV channel and, recording data from SCADA.

02, 09, 16, 23, 30: Rodney pumps station inspection. Operated pump(s) in hade-mode to ensure proper operation.

02, 09, 16, 23, 30: Manhole inspections at Third Street and Stinson Street. Adequate flow through both at the time of the inspection.

02, 09, 16, 23, 30: Cleaned the process including the UV channel.

09: Nevro Onsite at Pump Station to install Pump # 2.

13: Cleaned sand out of sand filter found plugged, once sand is clear filter put back in normal process.

17: Found Sump Pump broken in RAS pit, Contacted SOM & Ordered New Pump for replacement.

24: Reset overloaded Bar Screen mechanical rake arm.

FOURTH QUARTER:

OCTOBER

- 01: Alum day tank refilled
- 07: RAS pump #2 reset
- 25: RAS pump #2 reset

NOVEMBER

- 12: Hurricane Hydro Vac on site. Scum pit cleaned out and alum containment sucked out.
- 16: Filter maintenance completed. Reject pipe unplugged, filter area cleaned up and filters aligned.
- 30: During facility walk through, operator found alum pump faulted; error message reading "error 14 speed error." Power to unit was cycled several times but could not get pump to operate. Pump was isolated, removed and back-up/second pump put into operation via changing the tubing and valving. Dosage set exactly at what other pump was set to. Put into operation, appeared to be operating as intended. Alum drip up top at dosing point checked and appeared that it is operating normally.

DECEMBER

- 06: 1000L of alum transferred from outside tank into day tank. Alum line re-primed to ensure all air was out of line. Nevro also on site to wire in new scum pit pump. Nevro couldn't wire in scum pump due to breaker issues.
- 14: Alum dosing channel cleaned out.
- 16: New RAS pit sump-pump installed. Line re-plumbed.
- 21: RAS pump 2 maintenance completed. Pump locked out, drive shaft and volute cover removed to expose impeller. Impeller plugged with rags. Rags removed and flushed pump with hose. Pump put back together and put back into service. Flow through pump has improved.
- 22: RAS pump 1 maintenance completed. Pump locked out, drive shaft and volute cover removed to expose impeller. Impeller plugged with rags. Rags removed and flushed pump with hose. Pump put back together and put back into service. Flow through pump has improved.
- 22: RAS pit sump-pump line re-plumbed. Entire room sprayed down and cleaned. Rags from RAS pit grate cleaned, sump-pump unclogged from rags. Sump-pump operating as intended now on float.
- 23: RV Anderson on site to check tree line and living environmental concerns during upgrades.
- 30: Cleaned out auto-sampler jar.

SECTION 6: ALARMS:

FIRST QUARTER:

There were no alarms this quarter.

SECOND QUARTER:

APRIL

- 04: channel 7 alarm operator onsite noticed high flow, monitored until out of high level and out of alarm

MAY

No alarms this month.

JUNE

- 03: Channel 7 alarm, high flow after clarifier, found sand filter backed up. Diverted to lagoon to let system catch up.
- 09: Arrived onsite @ 16:25 found FIT002 flow meter from clarifier to sand filters faulted out. Notified SOM and

diverted flow to sand filters at his request. Reviewed electrical drawing found the breaker in cabinet, in admin building. Wires not hooked up to kill power so opened the flow meter covering removing only the positive terminal to cycle power. Powered up unit and it started working. The chamber was backed up possibly caused by filter back up. System is left to divert overnight. Notified ORO via phone.

THIRD QUARTER:

JULY

No alarms this month.

AUGUST

No alarms this month.

SEPTEMBER

14: Alarm received for Power outage. Operator onsite to reset main breaker. Restart alum pump, restart RAS/WAS pump 1. Pump 2 faulted and plugged; unable to get it to run, shut the check valve so it doesn't leak from seals.

FOURTH QUARTER:

No alarms to report this quarter.

SECTION 7: COMPLAINTS & CONCERNS:

FIRST QUARTER:

There were no complaints or concerns this quarter.

SECOND QUARTER:

There were no complaints or concerns this quarter.

THIRD QUARTER:

There were no complaints or concerns this quarter.

FOURTH QUARTER:

There were no complaints or concerns this quarter.