



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

5526 West Lorne Wastewater Treatment Plant Operations Report Second Quarter 2021

Ontario Clean Water Agency, Southwest Region

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Facility Information:

Facility Name: West Lorne Wastewater Treatment Plant & Collection System
Facility Type: Municipal
Classification: Class 2 Wastewater Collection, Class 2 Wastewater Treatment

Operational Description:

The village of West Lorne is served by an extended aeration Wastewater Treatment Plant, comprised of aeration, clarification, filtration, disinfection and sludge disposal. Also included is the collection system with one pumping station and a sanitary sewer system. The operations are in accordance to ECA # 5873-B4RLEJ, which covers the entire plant including the pumping stations.

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 reaerated and discharged to the Zoller Drain and then Brocks 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 Served: Village of West Lorne

Design Capacity:

Total Design Capacity: 900 m³/day
Total Annual Flow (2017 Data): 181,074 m³/year
Average Day Flow (2017 Data): 496 m³/day
Maximum Day Flow (2017 Data): 1,512 m³/day

Treatment Process Features:

Effluent Receiver: Zoller Drain to Brocks Creek to Lake Erie
Major Process: Extended aeration
Phosphorus Removal: Continuous, Alum addition
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 non-compliances reported this quarter.

SECOND QUARTER:

There were no non-compliances reported this quarter.

SECTION 2: INSPECTIONS

FIRST QUARTER:

There were no MECP or MOL inspections during the first quarter.

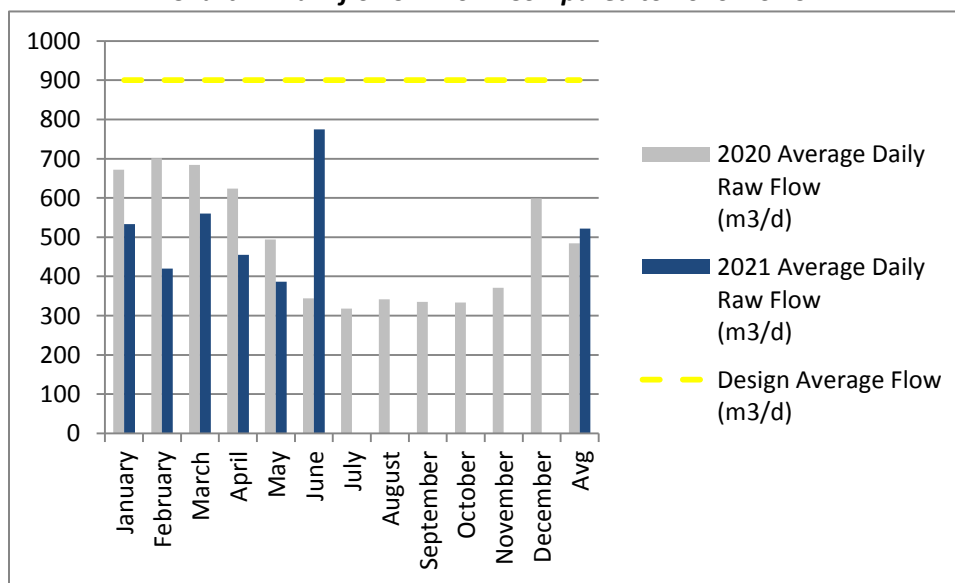
SECOND QUARTER:

There were no MECP or MOL inspections during the second quarter.

SECTION 3: PERFORMANCE ASSESSMENT REPORT

The average daily raw flow for the wastewater treatment plant in 2021 is 521.64 m³/d. The average daily flow in 2020 was 484.67 m³/d, therefore the flow for 2021 is up 7.6% when compared to 2020. The plant is currently at 58 % of its rated capacity of 900m³/d.

Chart 1. Raw flows in 2021 Compared to 2020 Flows



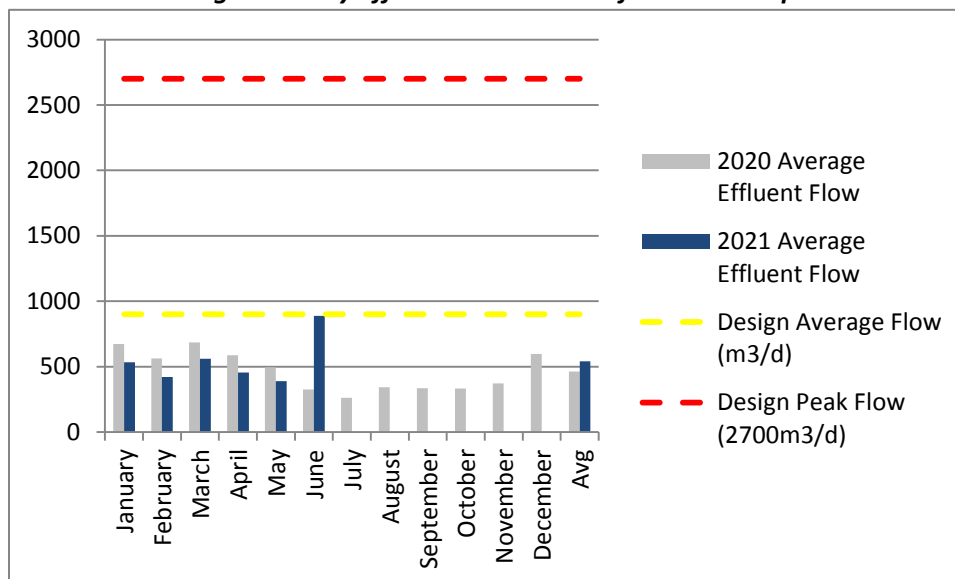
Raw samples are taken on a biweekly basis following the ECA requirements. The table below shows the raw sample results for 2021 so far.

Table 1. Raw Water Sample Results for 2021.

	BOD5 (mg/L)	TKN (mg/L)	TP (mg/L)	TSS (mg/L)	Alkalinity (mg/L)
January Results	177.5	32.25	3.895	139.5	293
February Results	216	44.85	5.345	269.5	349.5
March Results	92.5	31.7	4.005	211	243.5
April Results	120	36.85	4.11	123	368.5
May Results	173	46.9	5.267	135	335.3
June Results	92.5	12.8	1.85	140.5	213.5
July Results					
August Results					
September Results					
October Results					
November Results					
December Results					
Annual Average	147.4	35.2	4.17	167.1	303.2

The average daily effluent flow for the wastewater treatment plant in 2021 is 540.96 m³/d. The average daily flow in 2020 was 463.8 m³/d, therefore the flow for 2021 is up 16.6% when compared to 2020. The plant is currently at 60 % of its rated capacity of 900m³/d.

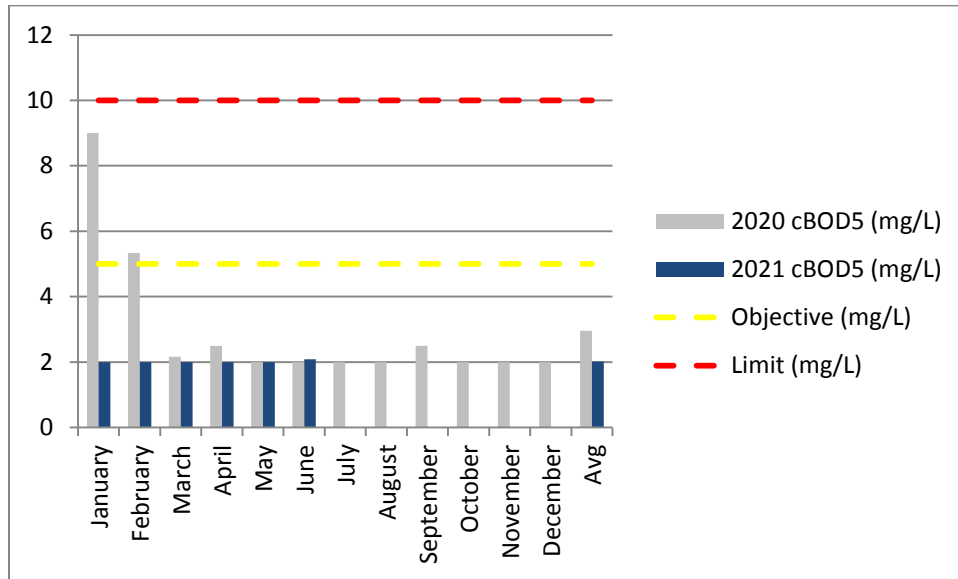
Chart 2. Average Monthly Effluent Flow Results for 2021 Compared to 2020



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

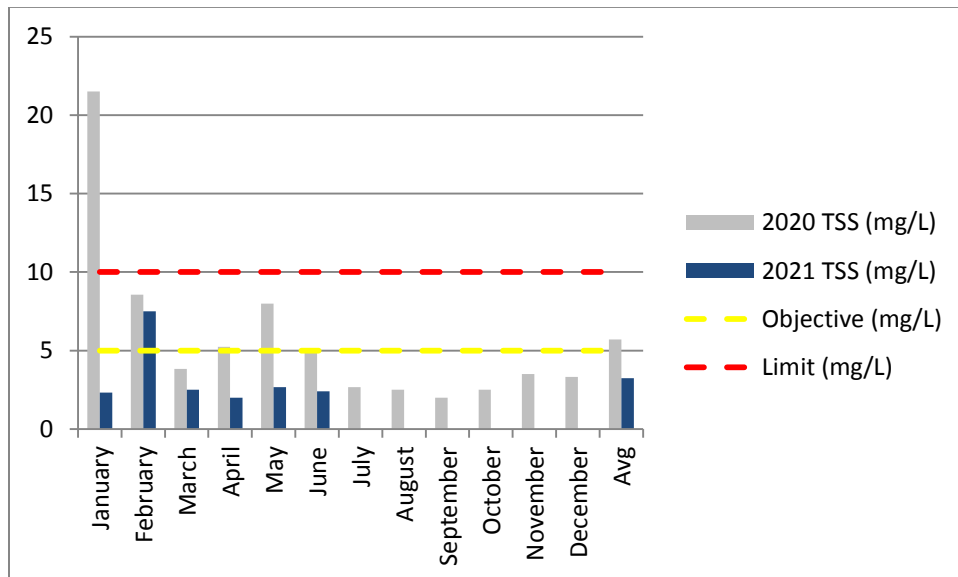
The average effluent cBOD₅ for 2021 is 2 mg/L, meeting the objective and limits identified in the ECA. The annual average result for cBOD₅ in 2020 was 2.96mg/L, therefore the results for 2021 are down by 32% when compared to 2020 (refer to Chart 3).

Chart 3. Average Monthly Effluent cBOD5 Results for 2021 Compared to 2020



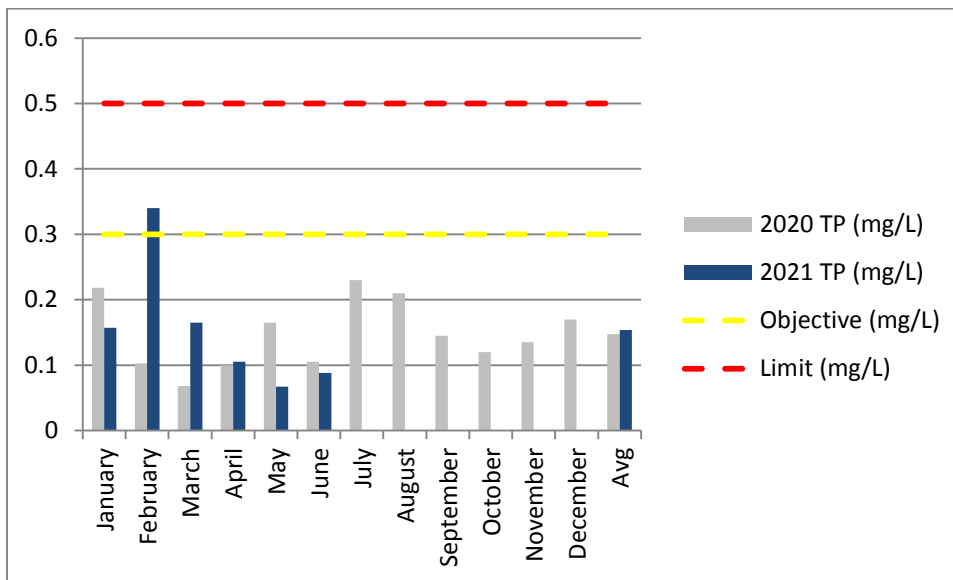
The average effluent TSS for 2021 is 3.2mg/L, meeting the effluent limits identified in the ECA, exceeding the effluent objective in February due to improper alum dosage. The annual average result for TSS in 2020 was 5.7mg/L; therefore the results for 2021 are down by 43% when compared to 2020 (refer to Chart 4).

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



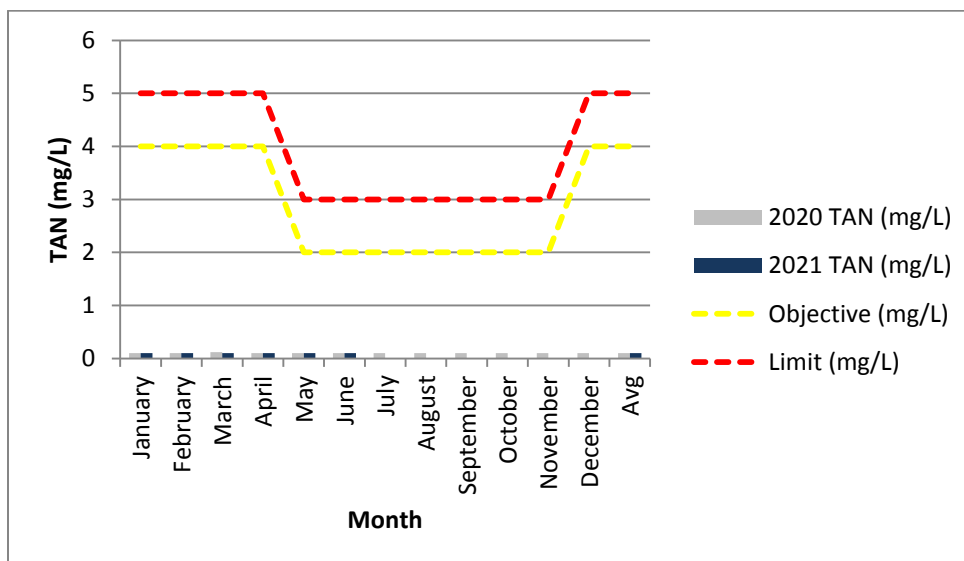
The average effluent TP for 2021 is 0.25 mg/L, meeting effluent limits identified in the ECA, objective was exceeded in February due to improper alum dosage. The annual average result for TP in 2020 was 0.15mg/L, therefore the results for 2021 is up 4.2% when compared to 2020 (refer to Chart 5).

Chart 5. Average Monthly Effluent Total Phosphorus Results for 2021 Compared to 2020



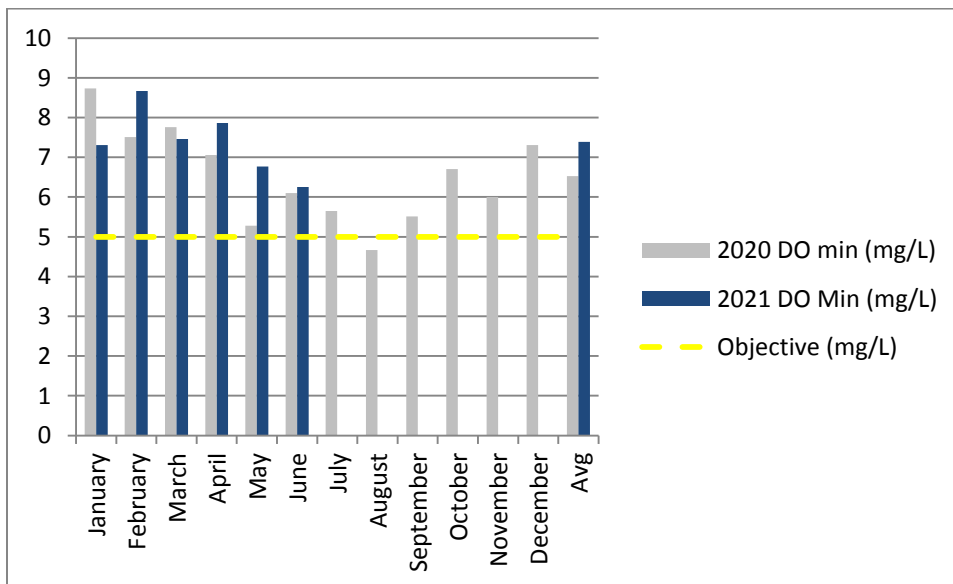
The average effluent TAN for 2021 is 0.10mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for TAN in 2020 was 0.14mg/L, therefore the results for 2021 are down 4.2% compared to 2020 (refer to Chart 6).

Chart 6. Average Monthly Effluent Total Ammonia Nitrogen Results for 2021 Compared to 2020



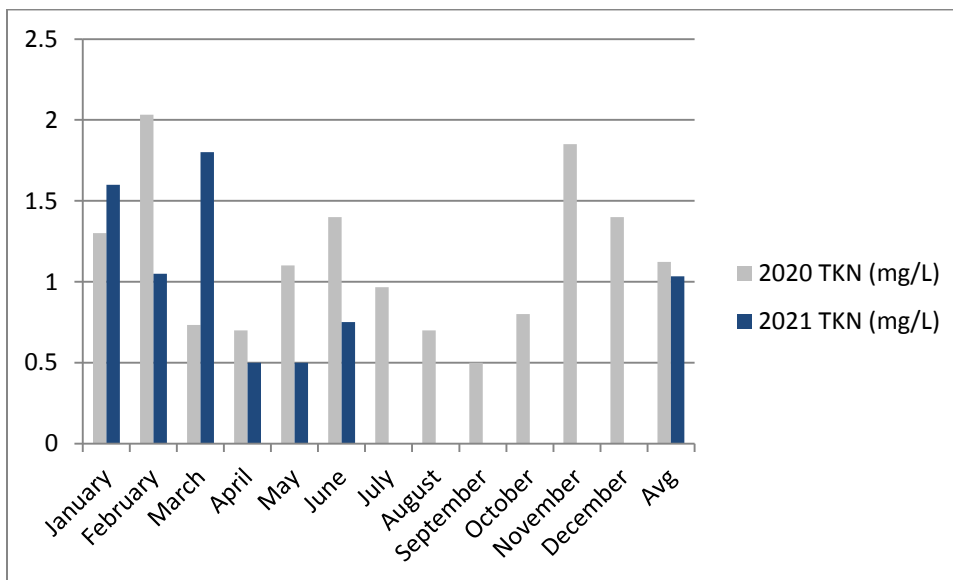
Dissolved oxygen (DO) of the effluent is tested on site at the plant, the ECA identifies a minimum level required as an objective. This objective is 5mg/L. The chart below (chart 7) shows the minimum DO concentrations; there have been no objective exceedances.

Chart 7. Minimum Dissolved Oxygen (DO) Results for 2021 Compared to 2020



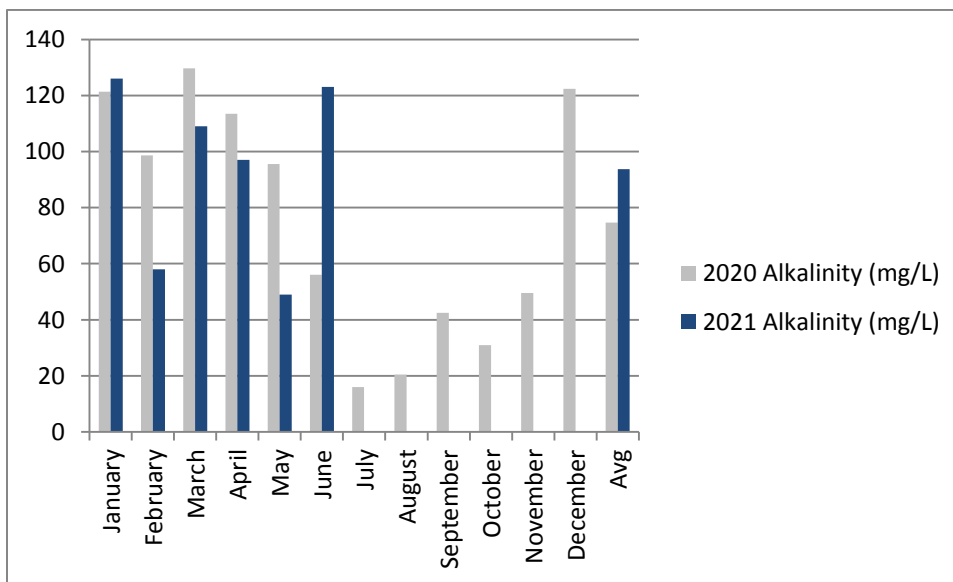
Total Kjeldahl Nitrogen (TKN) is sampled biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. The average effluent TKN for 2021 is 1.03mg/L. The annual average result for TKN in 2020 was 1.12mg/L, therefore the results for 2021 are down by 8% when compared to 2020 (refer to Chart 8).

Chart 8. Average TKN Results for 2021 Compared to 2020



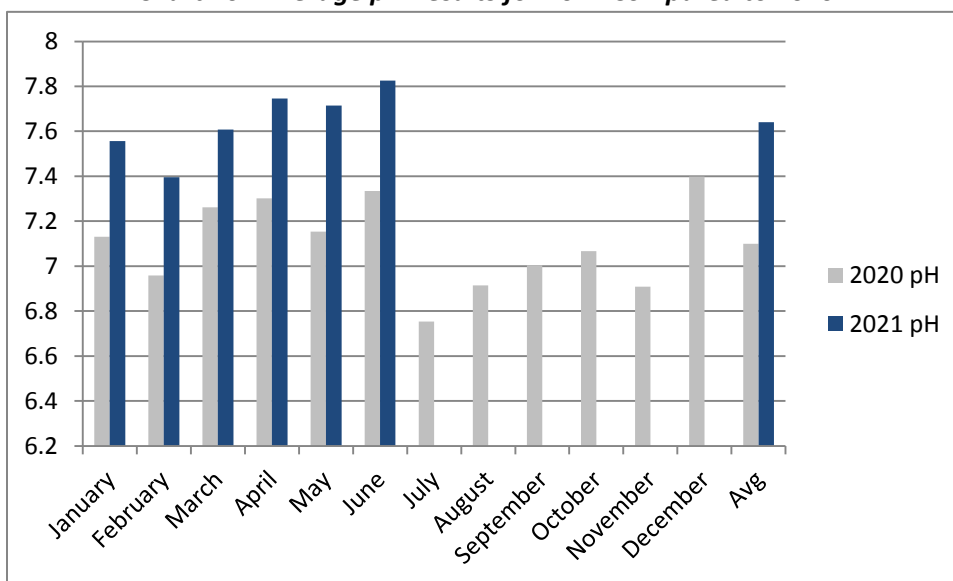
Alkalinity is sampled biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that at least 50mg/L is present in the effluent. The average effluent alkalinity for 2021 is 93.7mg/L. The annual average result for alkalinity in 2020 was 74.7mg/L, therefore the results for 2021 are up by 25% when compared to 2020(refer to Chart 9).

Chart 9. Average Alkalinity Results for 2021 Compared to 2020



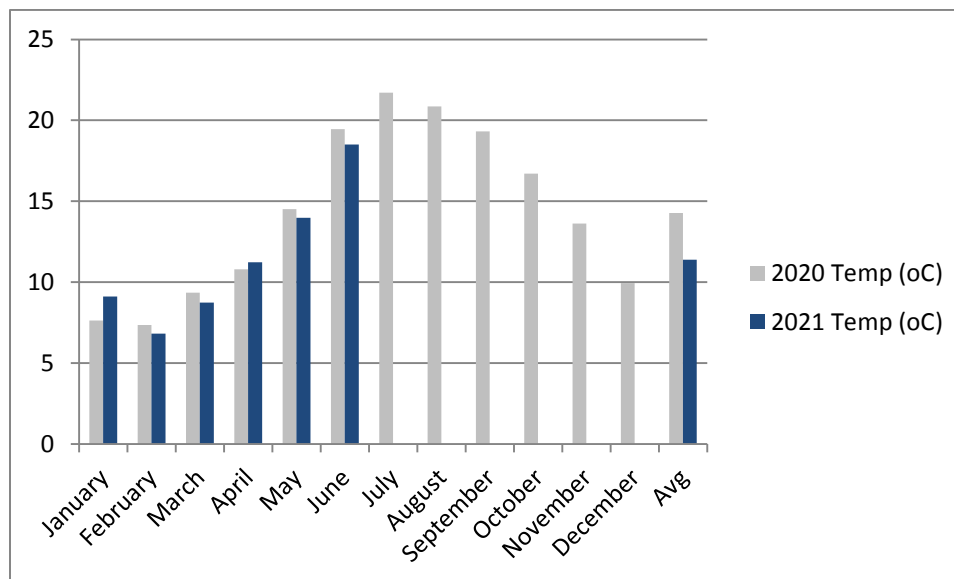
pH is sampled at least biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that the pH is in the range of 6.5-8.5. The average effluent pH for 2021 is 7.64. The annual average result for pH in 2020 was 7.10, therefore the results for 2021 are up by 7.6% when compared to 2020 (refer to Chart 10).

Chart 10. Average pH Results for 2021 Compared to 2020



Temperature is measured at least biweekly in accordance with ECA requirements; there are not any objectives or limits imposed on this parameter. The temperature of the effluent fluctuates based on outdoor temperatures. The average effluent temperature for 2021 is 11.4°C. The annual average temperature in 2020 was 14.3°C, therefore the results for 2021 are down by 20% when compared to 2020 (refer to Chart 11).

Chart 11. 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 personal 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 the second quarter.

SECTION 6: GENERAL MAINTENANCE:

First Quarter

January

01, 04-08, 11-15, 18-22, and 25-29: Daily rounds and readings that include; removing scum from clarifier, draining moisture off blower air system for aeration cells, ensuring sand filters are working properly, inspecting UV channel and reviewing SCADA.

01, 04, 05, 08, 11, 15, 19, 21,28: Marsh Street pumping station inspection/readings. Operated pump(s) in hade-mode to ensure proper operation.

04: Reprogrammed dialer to send to the SWM crew.

04: Collected sample to send to SGS lab because of high flows Jan 02 (987.52m3)

07: Cleaned the clarifier

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

12: Chemtrade onsite for alum delivery (7000gal)

21: Monthly generator run test at March Street pumping station.

21: Monthly generator run test at West Lorne Wastewater Treatment Plant.

21: Monthly aeration DO probe cleaning/inspection completed.

26: T&T Power onsite to investigate issues with the SCADA computer freezing.

February

01-05,08-12, 15-19, 22-26: Daily rounds and readings that include; removing scum from clarifier, draining moisture off blower air system for aeration cells, ensuring sand filters are working properly, inspecting UV channel and reviewing SCADA.

02, 04, 09, 16, 23: Marsh Street pumping station inspection/readings. Operated pump(s) in hade-mode to ensure proper operation.

03: T&T Power on-site to investigate the issues with the scada freezing, they are updating the server and will monitor to see if it fixes the issue.

04: Monthly generator run test at March Street pumping station.

04: Monthly generator run test at West Lorne Wastewater Treatment Plant.

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

17: Matt from T&T Power on-site to investigate the issues with the Scada computer. He deleted the “trending” off of the scada because it was obsolete anyways and figured that could be the cause of the alarms.

23: Power flicker- acknowledged and reset all systems.

24: Cleaned the clarifier/process

26: T&T Power onsite to investigate issues with the SCADA computer freezing

March

01-05, 08-12, 15-19, 22-26, 29-31: Daily rounds and readings that include; removing scum from clarifier, draining moisture off blower air system for aeration cells, ensuring sand filters are working properly, inspecting UV channel and reviewing SCADA.

02, 09, 16, 23, 30: Marsh Street pumping station inspection/readings. Operated pump(s) in hade-mode to ensure proper operation.

09: Put the aeration sprayers back online for the season

11: Monthly generator run test at March Street pumping station.

11: Monthly generator run test at West Lorne Wastewater Treatment Plant.

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

19: Reset the SCADA computer due to it faulting out and causing an alarm this morning. Ensured all systems are working properly after resetting. Notified T&T about the issue so they can investigate.

23: Glover-Hill contractor's offsite now. Installed new air receiver and piping and is now online, raw flow is now going through the plant as per normal and the valve to divert to the lagoons is now closed.

23: NCA on-site for general maintenance on the air compressor. Full service; cleaned cooler, replaced drain kit, oil change. Tested and ensured proper operation

17: Cleaned the clarifier/process

24: Grover-Hill and T&T Power on-site today to install/connect new auto samplers. They are now installed and the old ones are removed.

25: Replaced light bulbs in office building that were burnt out. 2 sets of lights not working due to faulted ballasts.

25: Grover-Hill onsite to finish up the auto-sampler installations.

26: Grover-hill on-site to make adjustments to the auto samplers. Syntec on-site to commission the new auto samplers and give training on the programming. Engineer onsite to oversee work being completed.

29: Flowmetrix onsite for annual flowmeter inspections.

30: Franklin Empire and T&T onsite for the installation of the level sensor for the grit channel. It is now in operation and the grit removal system is now working

Second Quarter

April

1, 06-09, 12-16, 19-23, 26-30: Daily rounds and readings that include; removing scum from clarifier, draining moisture off blower air system for aeration cells, ensuring sand filters are working properly, inspecting UV channel and reviewing SCADA.

06, 13, 20, 27: Marsh Street pumping station inspection/readings. Operated pump(s) in hade-mode to ensure proper operation.

05,06,27: Cleaned the clarifier/process

06, 19: Obtained compliance samples to send to SGS lab.

09: Chemtrade onsite for alum delivery.

12: Contractors replacing air blower lines needed blowers off. Shut down blowers and disabled all associated alarms on SCADA while work is being completed. Changed valves so we are now diverting raw flow to the lagoons while contractors have the blowers off for repairs to the air lines. As per SOM. All systems back to

normal operation at the end of the work day.

13: Contractors are onsite today replacing air blower lines and needed blowers turned off. Shut down blowers and disabled alarms on SCADA while work is being completed. Changed valves so we are now diverting raw flow to the lagoons while contractors have the blowers off for repairs to the air lines. As per SOM. . All systems back to normal operation at the end of the work day.

19: Konecranes onsite for annual lifting device inspections

20: Monthly generator run test at March Street pumping station.

20: Monthly generator run test at West Lorne Wastewater Treatment Plant.

20: Lafarge onsite to pour cement pad at the bottom of the stairs to the aeration tanks.

26: Contacted T&T Power about the communication failure last night for them to investigate the ongoing issue

May

03-07, 10-14, 17-21, 25-28, 31: Daily rounds and readings that include; removing scum from clarifier, draining moisture off blower air system for aeration cells, ensuring sand filters are working properly, inspecting UV channel and reviewing SCADA.

03, 17, and 31: Obtained compliance samples to send to SGS lab.

04, 11, 18, 25: Marsh Street pumping station inspection/readings. Operated pump(s) in hade-mode to ensure proper operation.

06: Completed monthly generator run test. WO#2243322. Proper forms filled out. Tested high level alarms for the pump station as well (WO#2242848)

19: Hetek onsite for gas detector inspection/calibration

21, 27: Angelo from ACI was onsite to calibrate and inspect the effluent flow meter. All systems appear to be working properly at this time.

27: Cleaned the clarifier/process

31: Started decanting now that the flowmeter is calibrated and reading correctly, as per SOM.

June

01-04, 07-11, 14-18, 21,25, 28-30: Daily rounds and readings that include; removing scum from clarifier, draining moisture off blower air system for aeration cells, ensuring sand filters are working properly, inspecting UV channel and reviewing SCADA.

03, 04, 08,09,14,15,18,21,23,28,30: : Obtained compliance samples to send to SGS lab.

01, 08, 15, 22, 29: Marsh Street pumping station inspection/readings. Operated pump(s) in hade-mode to ensure proper operation.

09: Pump station high level called out due to heavy rain fall and the pump couldn't keep up.

11: Cleaned the UV bulbs.

24: Onsite at WL pump station to pull & inspect inoperable pumps. Removed P102 & P100 and found both full of rags etc. Removed debris and was able to get impeller spinning on pump P102 once debris was removed but still would trip breaker as soon as it started. Spoke to SOM and as per instruction arranged with NEVTRO to pick up pumps on morning to take for inspection/repair.

21, 25: Cleaned the clarifier/process

25: Changed the majority of UV bulbs.

28: Nevтро onsite this morning and removed pumps P102 & P100 to take to shop for inspection/repairs

30: Completed monthly generator run test. Proper forms filled out. Tested high level alarms for the pump station as well.

SECTION 7: ALARMS:

First Quarter

January

03: SCADA; Operator onsite to restart the SCADA computer and ensure proper operation.

08: Backwash high level; operator onsite found that filters were not allowing proper amount of flow through and were not throwing sand as designed. Was able to get filters working properly and plant flowing as designed through filters and plant is no longer backed up. Filter backwash tank is now out of high level alarm and operating in normal range

19: SCADA; Operator onsite to restart the SCADA computer and ensure proper operation.

February

03: Received page at 02:55 for communication lost, arrived onsite and reset scada computer, communication is now normal and all systems appear to be operating properly at time

08: Onsite for a power flicker, reset compressor, exhaust fans and reviewed SCADA rounds. Completed plant walk through.

11: Onsite due to call out for the SCADA server freezing. Reset the system and ensured all systems are working properly. Notified T&T Power that this issue occurred again.

28: Received channel 2 alarm upon arrival AIT-302A dissolved oxygen for west aeration was at 1.7mg/L, increased minimum blower speed from 30hz to 35 hz. Blew out air lines and monitored system. Air seems to not want to increase. Set the min hz from 35 to 40. At 40 hz the do on AIT-302A. Is holding at 3.5mg/L

March

03: Onsite for communication failure channel 1 Found SCADA Computer - All Good Completed Site Checks

11: Received page for gateway alarm at 17:40, arrived onsite and reset SCADA computer all systems are now normal

26: Called in for comm. fail to filter building channel 2. Reset desk top in lab and cleared the alarm. Completed plant walk through all appears normal.

28: Onsite for low DO in the west aeration tank but was out of alarm upon arrival. All other DOs appeared normal on SCADA. Cleaned the DO probe and ensured it was reading accurate

Second Quarter

April

03: Comm. Fail to the SCADA computer; operator reset the computer, deleted unnecessary data in hopes the system won't freeze again as per T&T Power suggestions. Ensured it was out of alarm and completed plant walk through. All systems in 'normal' operation before leaving the facility.

04: Low DO – West Aeration; Operator noticed the west aeration was reading low, cleaned the probe and monitored until out of alarm. All systems operating 'normal' before leaving the facility.

10: Received call for channel 1 alarm, upon arrival found that the alarm was for communication loss. Reset

scada computer. All systems back to normal.

18: Onsite for Communications Error. Restarted Scada Computer, completed Plant Walk Throughs All Appears Normal.

26: Received page for “communication failure”, arrived onsite and reset scada computer all systems are now normal

27: Received alarm page out to site for net 2 communication alarm. Arrived onsite , logged onto SCADA and found alarm for filter backwash high level alarm. Found pump running and level dropping. Completed plant walk thru and all appears ok with filters , clarifiers etc with no issues to report. Monitored until out of high level. Notified SOM of issues and actions taken to rectify.

May

11: Onsite for communication fail to the SCADA computer. Reset SCADA and ensured proper operation.

26: Onsite for communication failure to SCADA. Re set computer, and regained communication. Checked operation of system and all appears ok again.

June

10: Received call for comm. fail. Reset computer and plant walk through all is normal.

13: Called for power flicker, caused by heavy storm that hit the area. Completed plant walk through and started air compressor for sand filters.

25: Received call for Channel 1 alarm, SCADA computer froze. Reset the system and completed plant walk through.

27: Received call from on-call operator that West Lorne Pump Station was in high level due to large rain event (Sam Smith). Instructed operator to carry on with duties in other area as West Lorne P.S has an overflow to the West Lorne Treatment plant lagoons.

27: Received a call from Mike Kalita (West Elgin) regarding a possible sewer blockage at Graham and Jesse St. Arrived onsite to investigate and look for the actual blockage (Sam Smith). Upon further investigation, it was realized that it was not in fact a blockage but a backup from the main P.S being in high level. As there was no reports of property damage resulting from the back up, it was decided to leave the system and allow the P.S to catch up. Onsite at Jesse St. and Graham Rd to confirm that there is no sewer blockage but the issue was in fact the High Level at the West Lorne P.S. West Lorne P.S no longer in high level and sewer mains are flowing freely.

SECTION 8: COMPLAINTS & CONCERNS:

There were no complaints or concerns this quarter.