



**Ontario Clean Water Agency**  
**Agence Ontarienne Des Eaux**

# 5526 West Lorne Wastewater Treatment Plant Operations Report Second Quarter 2022

Ontario Clean Water Agency, Southwest Region  
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Robyn Trepanier, Business Development Manager  
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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 m<sup>3</sup>/day

Total Annual Flow (2017 Data): 181,074 m<sup>3</sup>/year

Average Day Flow (2017 Data): 496 m<sup>3</sup>/day

Maximum Day Flow (2017 Data): 1,512 m<sup>3</sup>/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:**

Regional Manager: Dale LeBritton 519: 476-5898

Sr. Operations Manager: Sam Smith 226-377-1540

Business Development Manager: Robin Trepanier 519- 791-2922

## 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.

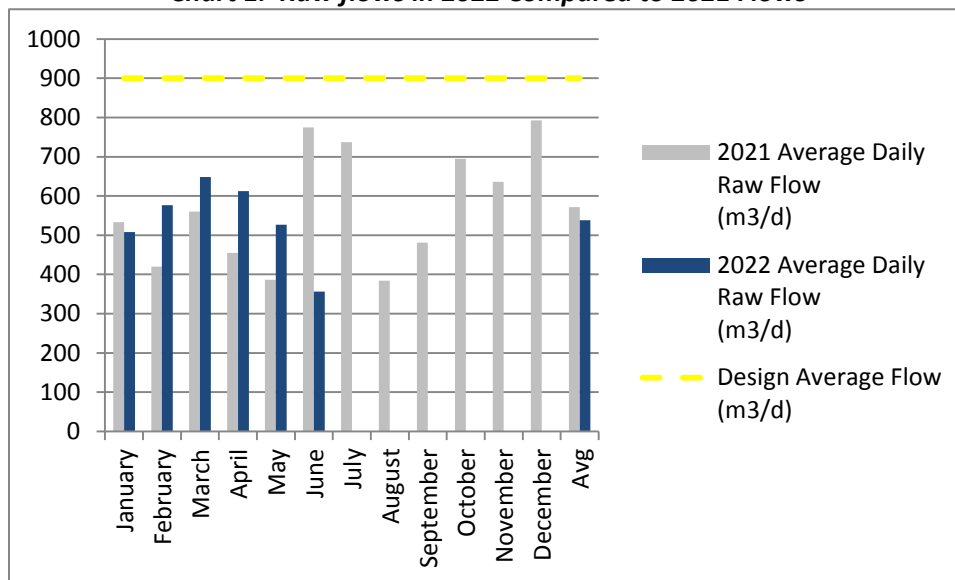
### SECOND QUARTER:

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

## SECTION 3: PERFORMANCE ASSESSMENT REPORT

The average daily flow for the wastewater treatment plant in 2022 is 538.19m<sup>3</sup>/d. The average daily flow in 2021 was 571.26 m<sup>3</sup>/d, therefore the flow for 2022 is down 5.8% when compared to 2021. The plant is currently at 60 % of its rated capacity of 900m<sup>3</sup>/d.

**Chart 1. Raw flows in 2022 Compared to 2021 Flows**



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

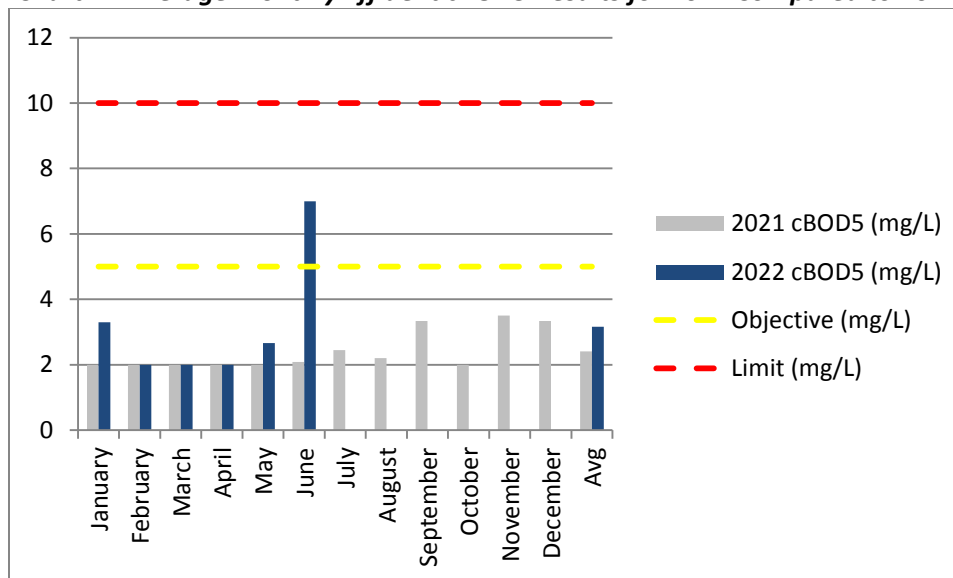
**Table 1. Raw Water Sample Results for 2021.**

	BOD5 (mg/L)	TKN (mg/L)	TP (mg/L)	TSS (mg/L)	Alkalinity (mg/L)
January Results	52.5	13.35	1.255	184	203
February Results	108.5	21	3.31	120	241
March Results	70.5	25.05	2.7	97	311.5
April Results	83.5	15.25	1.53	130	232.5
May Results	97	17.1	1.51	80.3	238
June Results	56	19.95	1.61	65	192.5
July Results					
August Results					
September Results					
October Results					
November Results					
December Results					
Annual Average	79.46	18.5	1.95	110.23	236.5

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

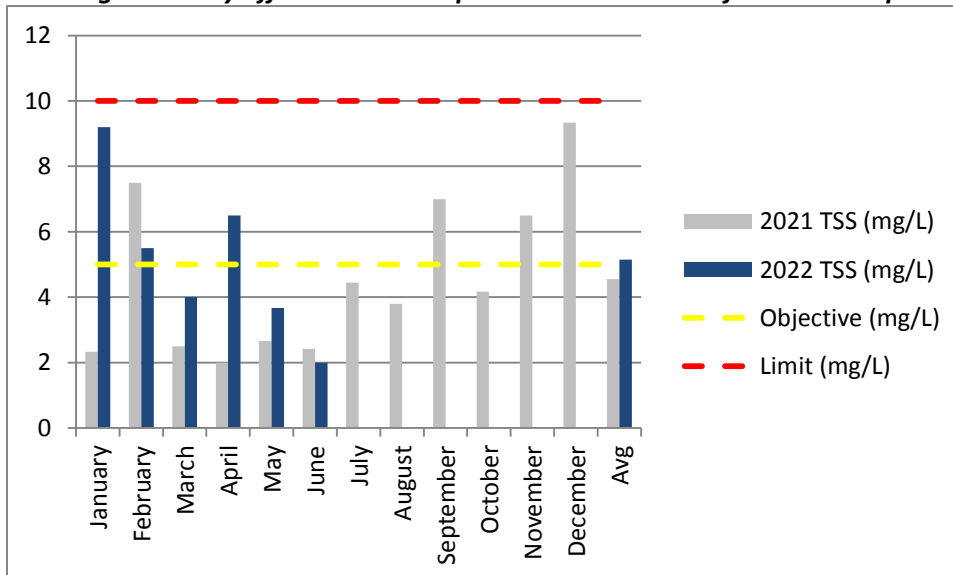
The average effluent cBOD5 for 2022 is 3.16mg/L, meeting the limits identified in the ECA. The objective was exceeded in June. The annual average result for cBOD5 in 2021 was 2.41mg/L, therefore the results for 2022 are up by 31% when compared to 2021 (refer to Chart 2).

**Chart 2. Average Monthly Effluent cBOD5 Results for 2022 Compared to 2021**



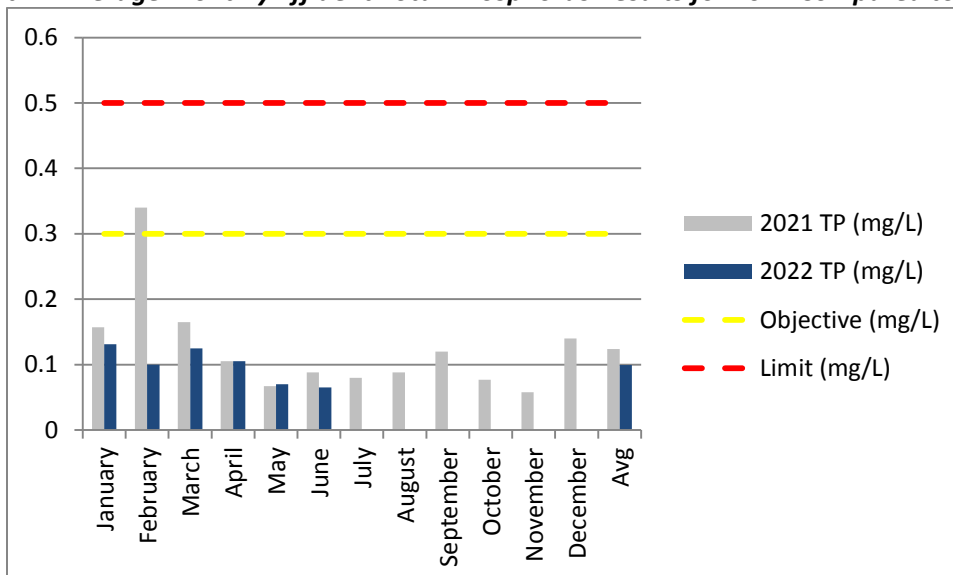
The average effluent TSS for 2022 is 5.1mg/L, meeting the effluent limits identified in the ECA, exceeding the effluent objective in January and February and April. The annual average result for TSS in 2021 was 4.6mg/L; therefore the results for 2022 are up by 31% when compared to 2021 (refer to Chart 3).

**Chart 3. Average Monthly Effluent Total Suspended Solids Results for 2022 Compared to 2021**



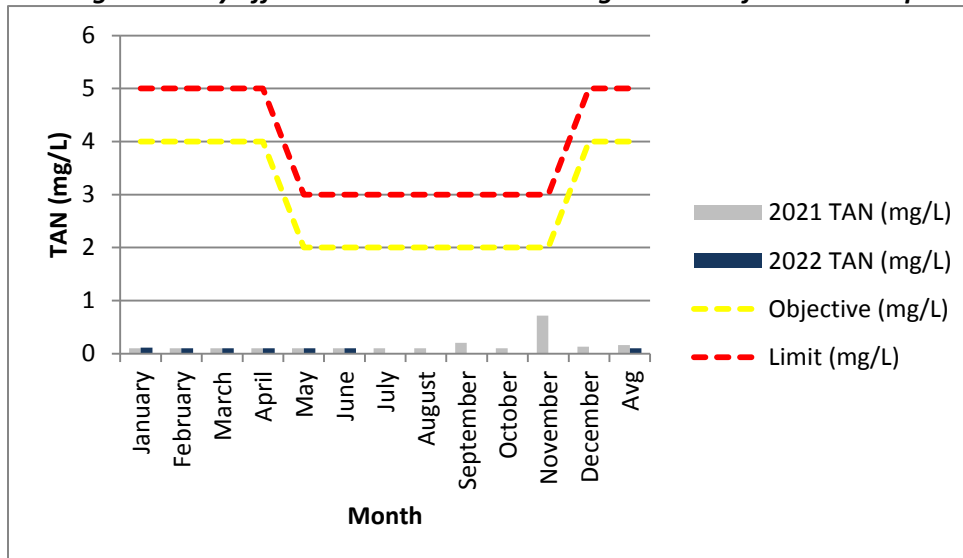
The average effluent TP for 2022 is 0.10 mg/L, meeting effluent objective and limits identified in the ECA. The annual average result for TP in 2021 was 0.124mg/L, therefore the results for 2022 is down 19.7% when compared to 2021 (refer to Chart 4).

**Chart 4. Average Monthly Effluent Total Phosphorus Results for 2022 Compared to 2021**



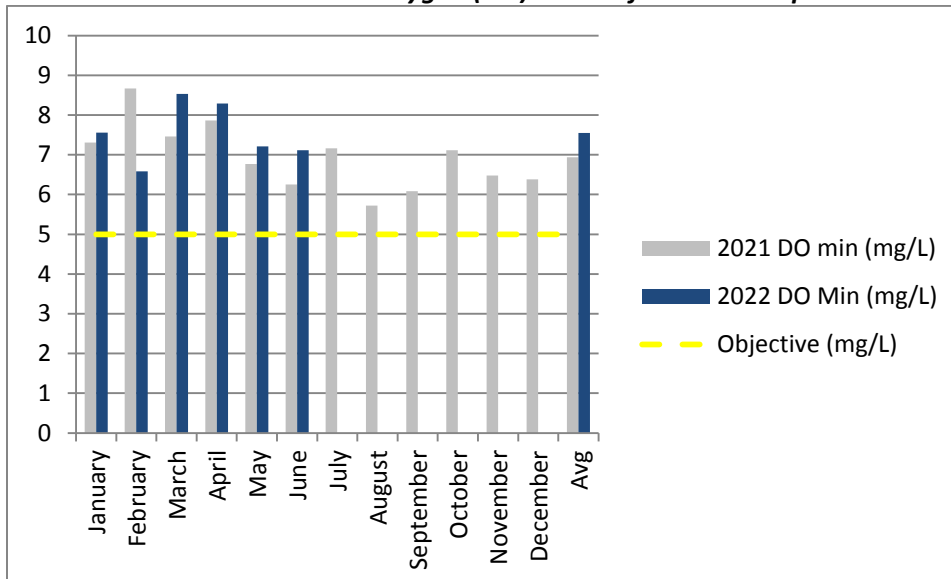
The average effluent TAN for 2022 is 0.10mg/L, meeting both effluent objectives and limits identified in the ECA. The annual average result for TAN in 2021 was 0.16mg/L, therefore the results for 2022 are down 37% compared to 2021 (refer to Chart 5).

**Chart 5. Average Monthly Effluent Total Ammonia Nitrogen Results for 2022 Compared to 2021**



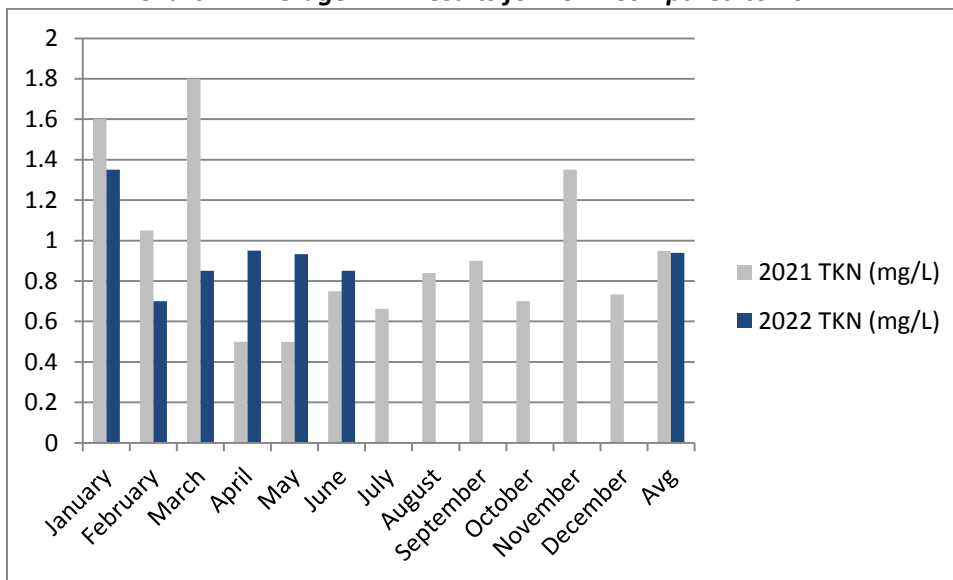
Dissolved oxygen (DO) of the effluent is tested on site at the plant, the ECA identifies a minimum level required as an objective. This objective is 5mg/L. The chart below (chart 7) shows the minimum DO concentrations; there have been no objective exceedances.

**Chart 6. Minimum Dissolved Oxygen (DO) Results for 2022 Compared to 2021**



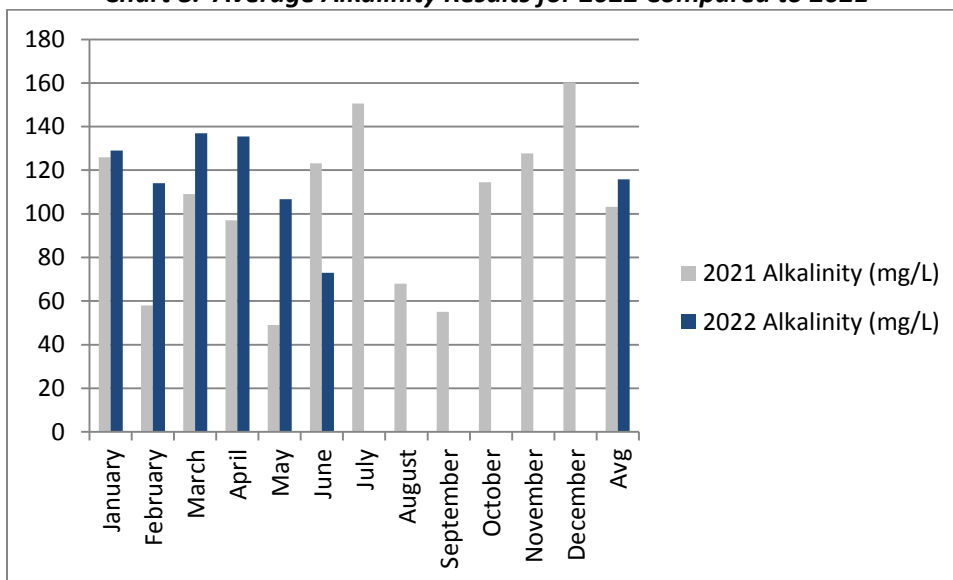
Total Kjeldahl Nitrogen (TKN) is sampled biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. The average effluent TKN for 2022 is 0.94mg/L. The annual average result for TKN in 2021 was 0.95mg/L, therefore the results for 2022 are down by 1% when compared to 2021 (refer to Chart 7).

**Chart 7. Average TKN Results for 2022 Compared to 2021**



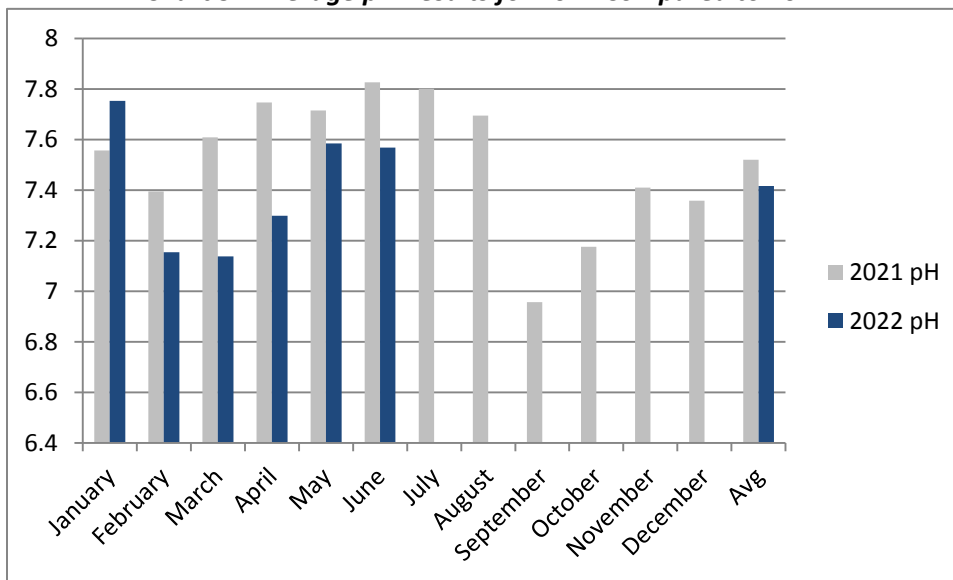
Alkalinity is sampled biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that at least 50mg/L is present in the effluent. The average effluent alkalinity for 2022 is 116mg/L. The annual average result for alkalinity in 2021 was 103mg/L, therefore the results for 2022 are up by 12% when compared to 2021(refer to Chart 8).

**Chart 8. Average Alkalinity Results for 2022 Compared to 2021**



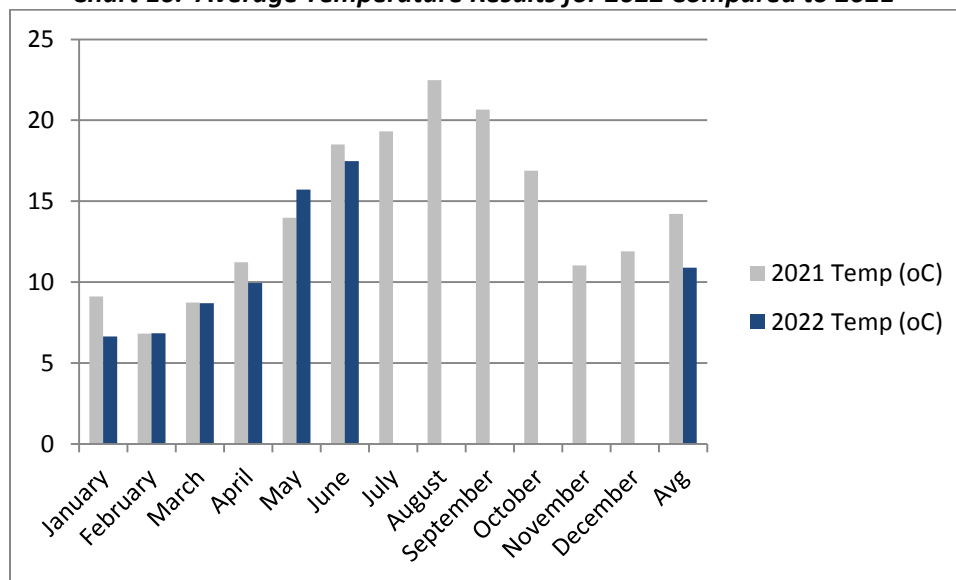
pH is sampled at least biweekly in accordance with ECA requirements; there are no objective or limits imposed on this parameter. It is recommended that the pH is in the range of 6.5-8.5. The average effluent pH for 2022 is 7.41. The annual average result for pH in 2021 was 7.52, therefore the results for 2022 are down by 1.4% when compared to 2021 (refer to Chart 9).

**Chart 9. Average pH Results for 2022 Compared to 2021**



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 2022 is 10.9°C. The annual average temperature in 2021 was 14.2°C, therefore the results for 2022 are down by 23% when compared to 2021 (refer to Chart 10).

**Chart 10. Average Temperature Results for 2022 Compared to 2021**





## SECTION 4: OCCUPATIONAL HEALTH & SAFETY

### **FIRST QUARTER:**

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

### **SECOND QUARTER:**

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

## SECTION 5: GENERAL MAINTENANCE:

### **FIRST QUARTER:**

#### **JANUARY**

Sampled As Per Sampling Calendar

General maintenance as schedule by WMS

04: NCA compressors on site to change oil on sand filter compressor as it wouldn't stay running due to internal sensor tripped.

05: Started to decant West lagoon and closed east to west interconnect. Lagoon level was at 32.5"

06: High flow sample taken and shipped to lab.

10: High flow sample taken due to high numbers over weekend and shipped to lab. Decant flow was lowered to prevent high flows.

13: Auma on site to replace parts on the pinch valve. Valve is used for RAS/WAS system.

18: High flow sample taken and shipped to lab.

21: Lagoon measured and at 44"

24: Heytech on site to calibrate gas detectors in head works room.

24: Received alum delivery of 9000L

25: Gerber Electric on site to test MCC panel for RAS pump P108 due to issues; pump was reset and all appears normal.

26: High flow samples taken and shipped to lab.

31: Lagoon measured and at 51" - a total drop of 18.5" for the month.

#### **FEBRUARY**

Sampled As Per Sampling Calendar

General maintenance as schedule by WMS

11: Reset SCADA computer due to communication error

#### **MARCH**

Sampled As Per Sampling Calendar

General maintenance as schedule by WMS

02: Updated RAS/ WAS pump duty table

30: Flowmetrix on site to calibrate flowmeters

## **SECOND QUARTER:**

### **APRIL:**

Sampled As Per Sampling Calendar

General maintenance as schedule by WMS

- 20: On site with Gerber Electric and T&T power to investigate PLC issues; found P100 faulted and it was determined that the pump needs to be pulled - P102 running but very low flow. Gerber Electric reversed direction and pump is now flowing at 17L/s.
- 25: On site with Kone Cranes for lifting devices inspections
- 27: Flowmetrix on site to complete effluent flow meter calibrations

### **MAY:**

Sampled As Per Sampling Calendar

General maintenance as schedule by WMS

- 04: Turned off lagoon decant
- 16: Cleaned D.O probes in aeration tanks
- 16: Turned off decant due to high flows from rain.
- 18: Received call from Mike Kalita in regards to a sewer back up reported on McGregor Street. Operator arrived on site and found that manhole located at dead end appeared to have slight back up. Manhole located at McGregor and Wood Street appeared to be okay and flowing slightly still. Operator suspected there to be an issue between the two manholes. Hurricane Hydrovac in to flush from manhole to manhole. Completed flushing of line and all systems appeared to be ok.
- 25: On site with Chemtrade for alum delivery
- 25: On site with Nevtro to drop off pump from Rodney scum pit.

### **JUNE:**

Sampled As Per Sampling Calendar

General maintenance as schedule by WMS

- 09: Cleaned clarifiers and effluent chambers
- 13: Cleaned entire process and effluent chamber
- 17: Cleaned clarifiers and effluent channel

## **SECTION 6: ALARMS:**

### **FIRST QUARTER:**

#### **JANUARY**

- 11: Operator received page for communication fail. Operator reset computer and all was normal.
- 27: Scada computer communication fail. Operator reset computer all was normal.

#### **FEBRUARY**

- 03: Received page at 19:55 for gateway communication alarm. Arrived on site at 20:58, and restarted SCADA computer. All systems now appear okay.

- 18: Received channel 2 network gateway alarm at 21:34. Arrived on site and reset SCADA computer, all systems are now operating normally at time.
- 23: Received alarm page out at 18:04 to West Lorne WWTP for channel 1 communication loss. Arrived on site and reset SCADA computer and regained communication. Completed facility walk-through to make sure all systems are operating as designed.

#### MARCH

- 03: Received page for channel 2 communication alarm. Operator restarted SCADA computer and reset sand filter air compressor. All systems running normal.
- 12: Received call from spectrum at 17:01 for "West Lorne SCADA communication alarm gateway 2." Operator reset SCADA computer and completed plant walk through.
- 20: Received call for communication alarm at 22:26. Arrived on site at 00:30, reset SCADA computer and completed plant walk through. All systems appeared okay at the time.
- 27: Received call for communication alarms at 11:06. Arrived at 11:55, restarted computer and completed plant walk through. All systems appeared okay at the time.

#### SECOND QUARTER:

##### APRIL:

No alarms this month

##### MAY:

- 03: On site after receiving call out for pump station high level; operator found wet well level at 3.60m and still in alarm. Pump was operating normal and plant was receiving flow at 14 l/s. Notified S.O.M Sam Smith

##### JUNE:

No Alarms this month

## SECTION 7: COMPLAINTS & CONCERNS:

#### FIRST QUARTER:

There were no complaints or concerns this quarter.

#### SECOND QUARTER:

There were no complaints or concerns this quarter.