Iroquois Wastewater System

Waterworks # 120000159

Annual Report

Prepared For: Municipality of South Dundas

Reporting Period of January 1st – December 31st 2023

Issued: March 15th, 2024

Revision: 0

Operating Authority:

OCWA

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

This report has been prepared to meet the requirements set out in:

Document	Document #	Issue Date	Issue Number
Facility ECA	9689-8MQHNK	October 25, 2011	N/A
ECA for Municipal Sewage Collection System	165-W601	June 2, 2023	1.0

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1 Revision History

Date	Rev#	Revisions	Revised By
March 15, 2024	0	Annual Report Issued	Kurtis Winkenweder, OCWA

2 Operations and Compliance Reliability Indices

Compliance Event	# of Events
Ministry of Environment Inspections	No MECP inspections in 2023.
Ministry of Labour Inspections	No MOL inspections in 2023.
Non-Compliance	No Non-compliance events in 2023.
Community Complaints	Received complaints were related to sewer main blockages in 2023.
Spills	No spill events in 2023.
Overflows/Bypass	1 event on April 5th, 2023
Sewer main blockages	3 sewer main blockages in 2023 • Details referenced in Complaints section of the report

3 Process Description

Iroquois's sewage collection system is a gravity fed sanitary sewage collection system. There are two pumping stations which pump wastewater from the collection system to the wastewater treatment facility.

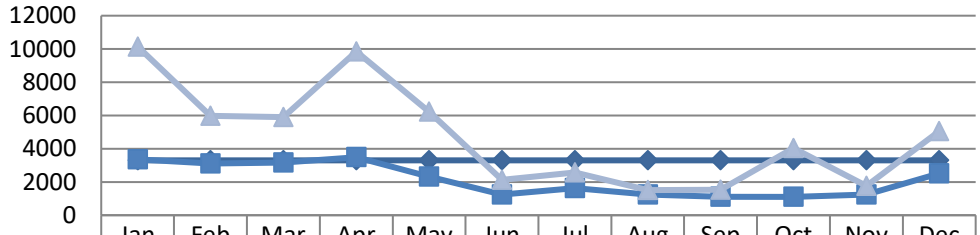
The Iroquois Wastewater Treatment Plant (WWTP) is a Class II wastewater treatment facility owned and operated by the Municipality of South Dundas. Raw sewage is pumped to the WWTP by the plant pumping station which is equipped with three submersible pumps. From the pumping station, wastewater passes through the inlet works, including mechanically cleaned fine screens and a grit removal and disposal system. Aluminum Sulphate is added to assist in phosphorous removal. The wastewater then moves through either of two parallel Sequencing Batch Reactors (SBRs) equipped with individual aeration systems, mixers, decanters and sludge removal pumps. Effluent decanted from the SBRs is treated by UV disinfection and subsequently passes through an outfall pipe to the St. Lawrence River.

Sludge removed from the SBRs is transferred to a waste activated sludge tank. From the tank, the sludge enters a rotary drum thickener. Polymer is added to assist with the thickening process. Thickened sludge is pumped to an Autothermal Thermophilic Aerobic Digestion (ATAD) system for stabilization. The ATAD system is equipped with an off-gas scrubber and biofilter to provide odour control. The digested sludge is then pumped to one of three biosolids storage tanks. From the storage tanks, biosolids are hauled off site to be utilized as soil conditioner.

4 Treatment Flows

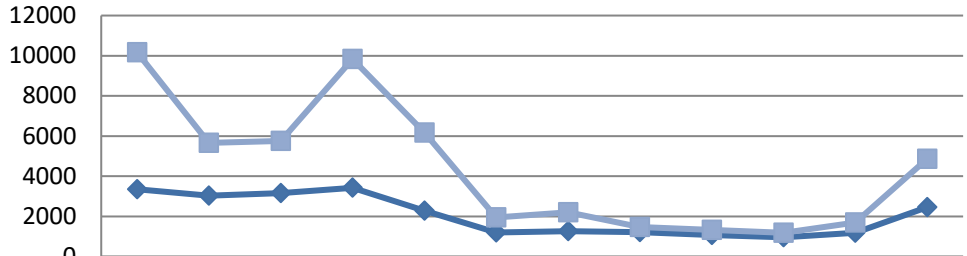
The hydraulic flows reaching the treatment facility in 2023 averaged 2124 m^3/day which represents 64% of the 3,300 m^3/day design. Please see the Performance Assessment Reports attached in Appendix A for details.

4.1 Raw Flow (m3/d)



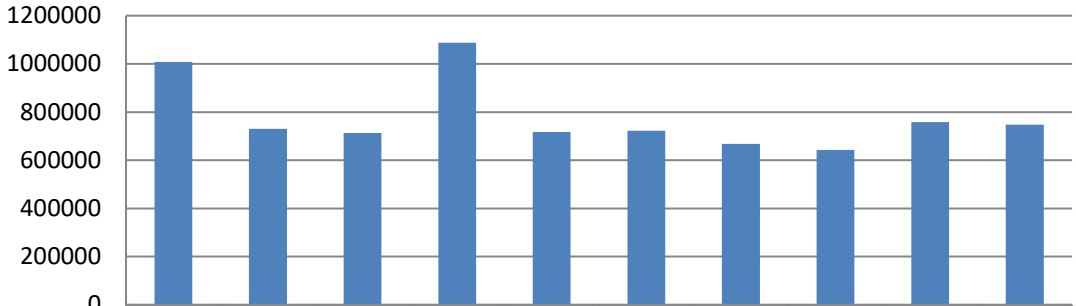
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300
Average Daily Flow	3366	3107	3171	3487	2320	1238	1627	1249	1110	1103	1243	2519
Maximum Daily Flow	10143	5984	5891	9848	6219	2122	2578	1511	1525	4043	1772	5063

4.2 Effluent Flow (m3/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Daily Flow	3353	3033	3162	3425	2285	1198	1273	1215	1077	963	1183	2460
Maximum Daily Flow	10166	5668	5757	9835	6173	1944	2214	1478	1336	1187	1700	4864

4.2.1 Annual Comparison (m3)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Annual Flow	1008129	730754	713262	1087278	717171	722318	668007	642564	758152	747445

4.3 Imported Sewage

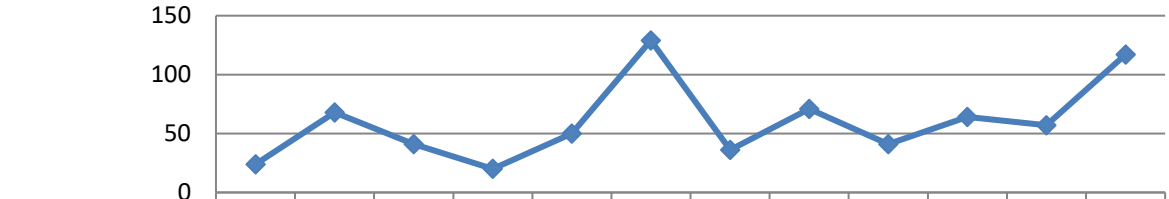
There is no imported sewage accepted at this facility.

5 Raw Sewage Quality

Current year minimum, maximum and averages are available in Appendix A – Performance Assessment Report.

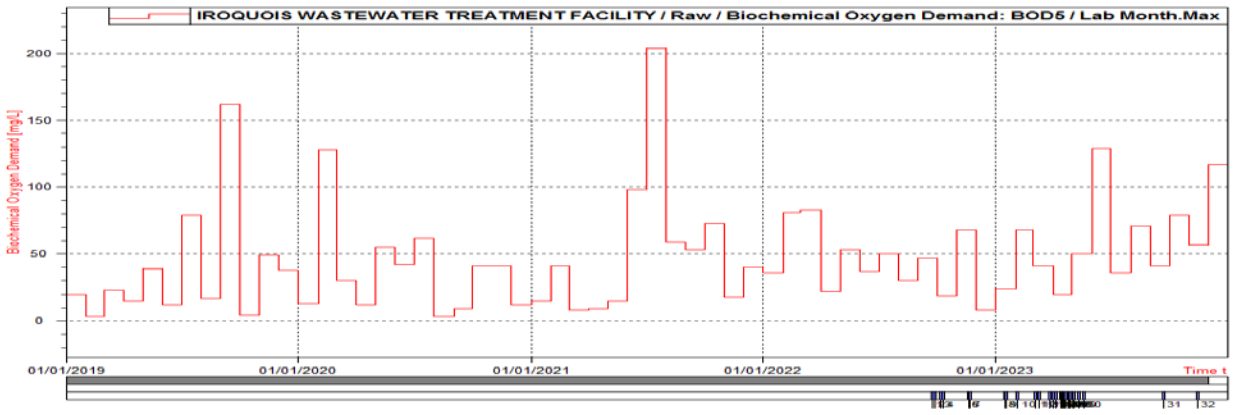
5.1 Influent Trending

5.1.1 BOD5 (mg/L)

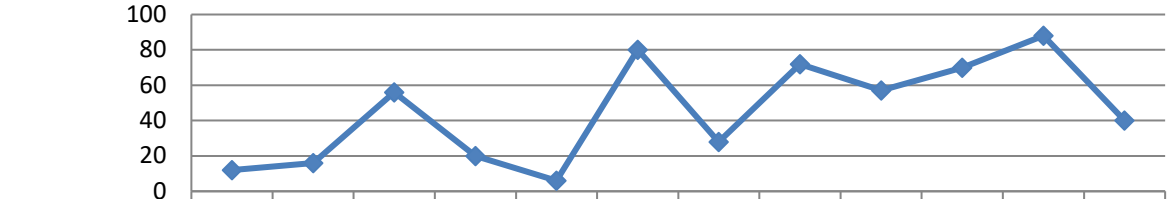


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BOD5 (mg/L)	24	68	41	20	50	129	36	71	41	64	57	117

5.1.2 5-year BOD5 (mg/L)

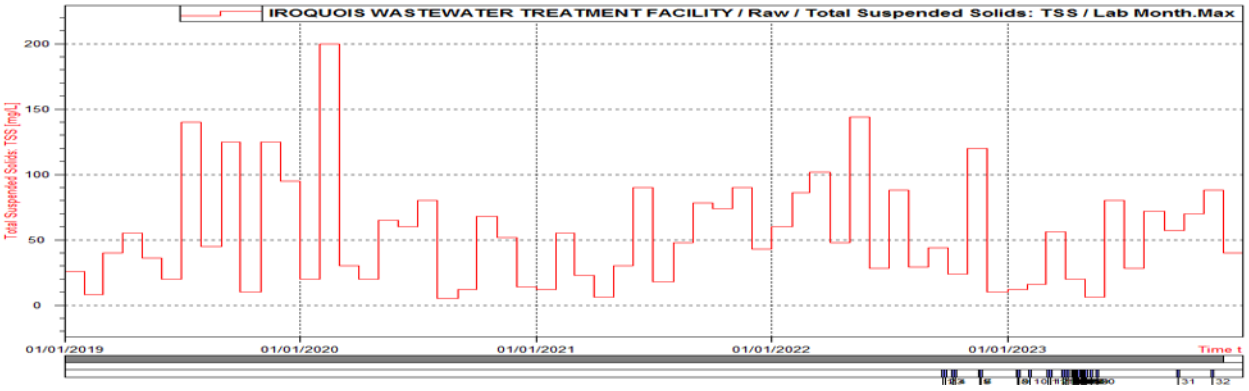


5.1.3 Total Suspended Solids (mg/L)

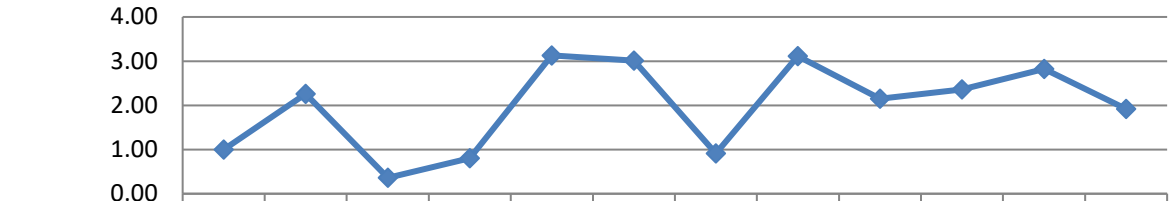


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TSS (mg/L)	12	16	56	20	6	80	28	72	57	70	88	40

5.1.4 5-year Total Suspended Solids (mg/L)

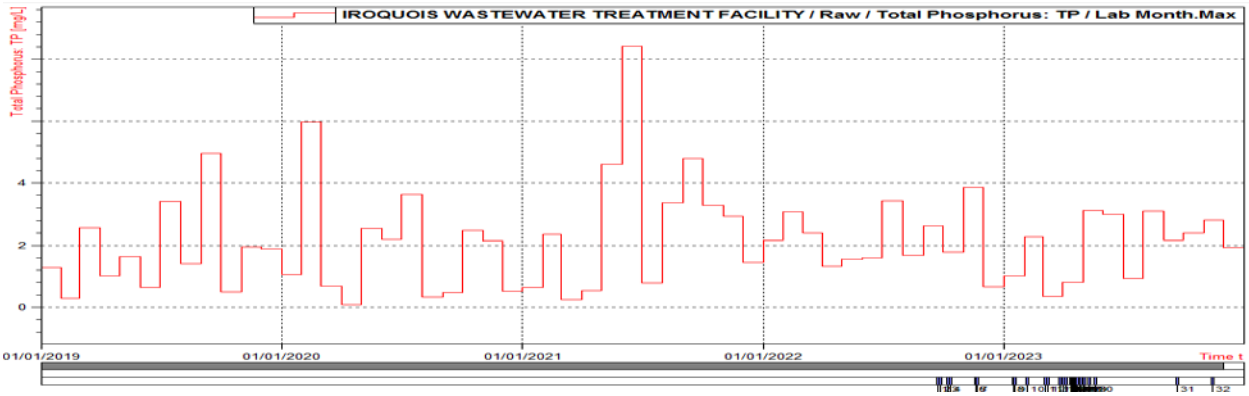


5.1.5 Total Phosphorus (mg/L)

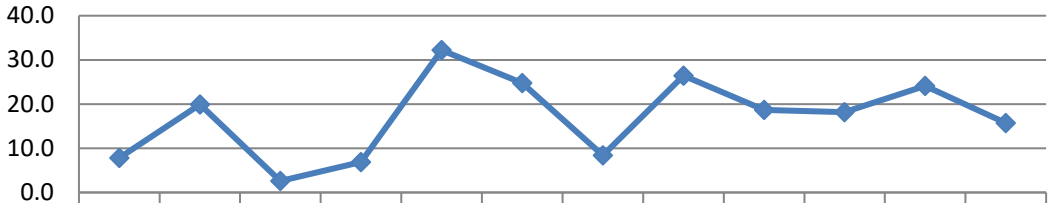


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TP (mg/L)	1.00	2.26	0.36	0.80	3.13	3.01	0.91	3.11	2.15	2.36	2.82	1.92

5.1.6 5-year Total Phosphorus (mg/L)

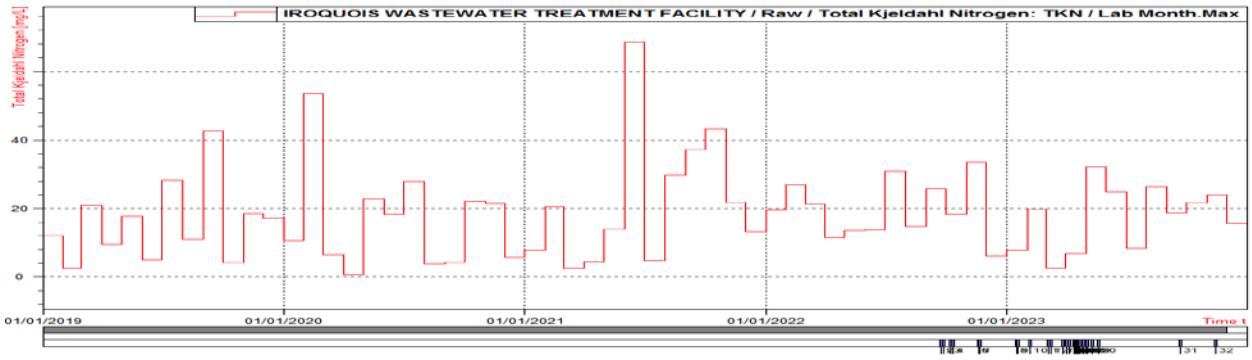


5.1.7 Total Kjeldahl Nitrogen (TKN) (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN (mg/L)	7.8	19.9	2.6	6.9	32.2	24.8	8.4	26.4	18.7	18.2	24.1	15.7

5.1.8 5-year Total Kjeldahl Nitrogen (TKN) (mg/L)



5.2 Imported Waste Quality

There is no imported sewage accepted at this facility.

6 Effluent Quality

The monthly average concentrations of carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), total ammonia nitrogen (TAN) remained below the effluent objectives and limits outlined in the facility's Certificate of Approval during 2023. The geometric mean density of E. coli in the effluent also remained below the ECA limit and objective in 2023. In addition, the effluent pH remained within the limits and objectives throughout the year. The monthly average for total phosphorus (TP) remained below the effluent limit outlined in the facility's Certificate of Approval in 2023. The monthly average for TP exceeded the effluent objective in June 2023, and the details are outlined in the operational issues section.

Effluent results from the WWTP for 2023 are tabulated below. Additional data can be found in the Performance Assessment Reports attached in Appendix A.

6.1 Effluent Quality Assurance and Control Measures Taken

This system is part of the Township of South Dundas. The Township is supported by the Eastern Regional Hub of OCWA, and corporate resources. Operational Services are delivered by Town staff that live and work in the community. The systems are operated to meet compliance with applicable regulations. The system has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents and are updated as required.

The process is reviewed and maintained by certified operators. These operator's complete in-house rounds and testing to monitor the process. All Sampling and analysis follow approved methods and protocols for sampling, analysis and recording as specified in the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works", the Ministry's publication, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" and the publication, "Standard Methods for the Examination of Water and Wastewater".

All final effluent samples collected during the reporting period to meet legislated sampling requirements

are submitted to Caduceon Ottawa for analysis, with the exception of pH and temperature. Caduceon Ottawa has been deemed accredited by the Canadian Association for Laboratory Accreditation (CALA), meeting strict provincial guidelines including an extensive quality assurance/quality control program. By choosing this laboratory, South Dundas is ensuring appropriate control measures are undertaken during sample analysis. The pH and temperature parameters are analyzed in the field at the time of sample collection by certified operators, to ensure accuracy and precision of the results obtained.

South Dundas uses a data management system provided by OCWA which include:

- Process Data Management (PDM)
    - This database program consolidates all operational data from a variety of sources including field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.

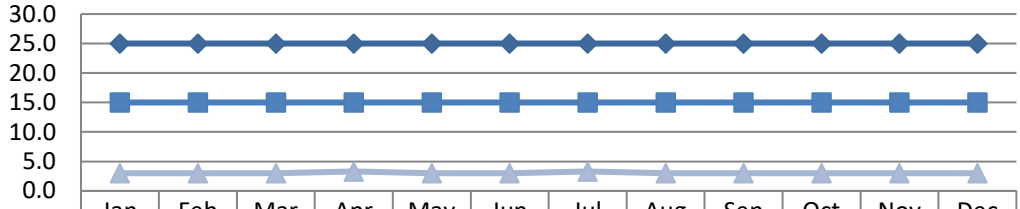
The operations team also has access to a network of operational compliance and process specialists to assist for emerging process issues. This aids in establishing additional control measures to ensure a quality effluent product.

Detailed individual sample results for both raw sewage and final effluent can be requested from the operating authority.

6.2 CBOD5 (mg/L)

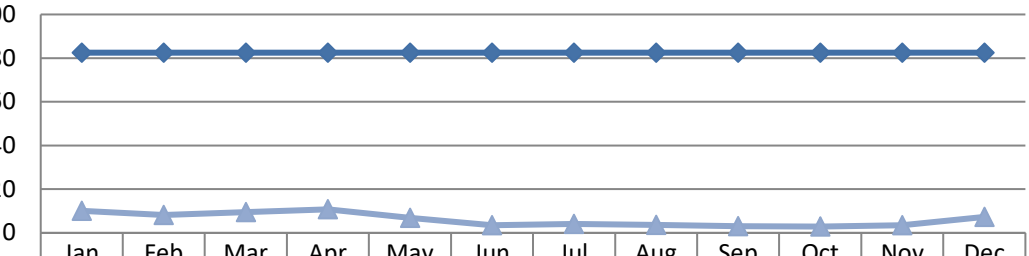
Compliance Limit and Objective for this parameter was met in 2023.

6.2.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
ECA Objective	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Average	3.0	3.0	3.0	3.3	3.0	3.0	3.3	3.0	3.0	3.0	3.0	3.0

6.2.1.1 Loading (kg/d)

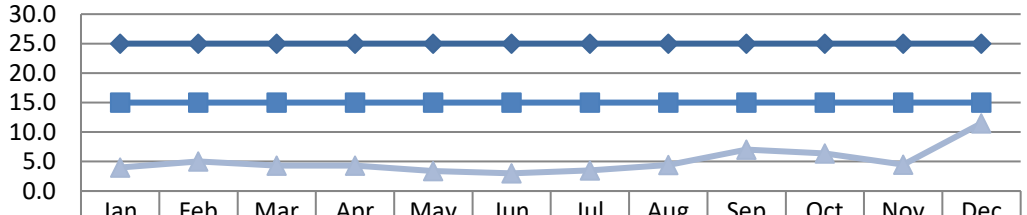


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Average	10.1	8.2	9.5	10.8	6.9	3.5	4.1	3.7	3.1	2.9	3.4	7.4

6.3 Total Suspended Solids (mg/L)

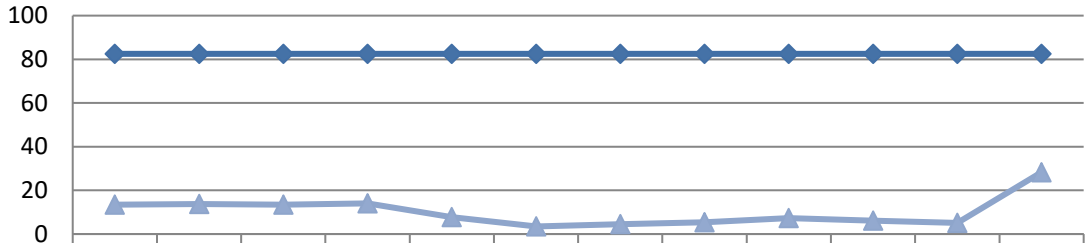
Compliance Limit and Objective for this parameter was met in 2023.

6.3.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
ECA Objective	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Average	4.0	5.0	4.3	4.3	3.4	3.0	3.5	4.4	7.0	6.4	4.5	11.5

6.3.2 Loading (kg/d)

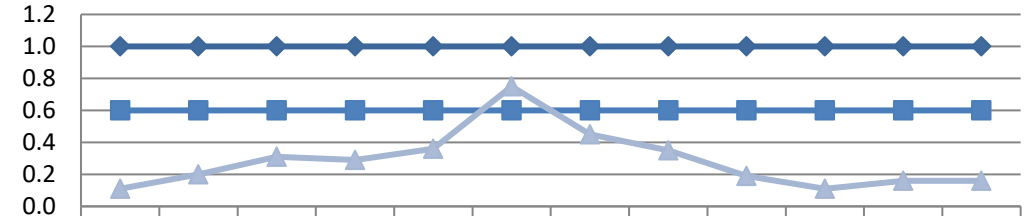


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Average	13.4	13.7	13.4	14.1	7.8	3.5	4.5	5.4	7.3	6.2	5.2	28.3

6.4 Total Phosphorus (mg/L)

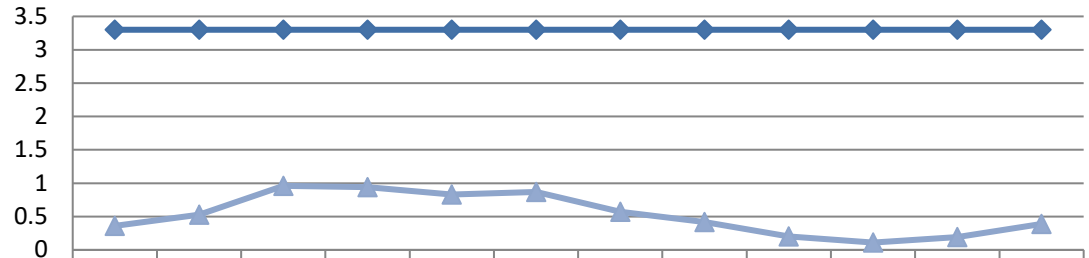
Compliance Limit for this parameter was met in 2023.
Compliance Objective for this parameter was not met in June 2023, see Operational Issues for details.

6.4.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ECA Objective	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Average	0.11	0.20	0.31	0.29	0.36	0.75	0.45	0.35	0.19	0.11	0.16	0.16

6.4.2 Loading (kg/d)

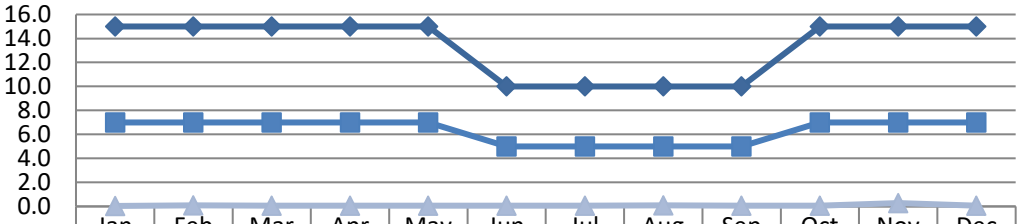


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Average	0.36	0.53	0.96	0.94	0.83	0.87	0.57	0.42	0.20	0.11	0.19	0.39

6.5 Total Ammonia Nitrogen (mg/L)

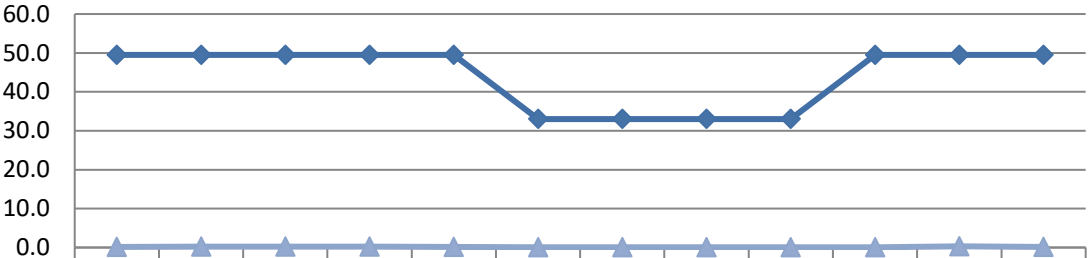
Compliance Limit and Objective for this parameter was met in 2023.

6.5.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	15.0	15.0	15.0	15.0	15.0	10.0	10.0	10.0	10.0	15.0	15.0	15.0
ECA Objective	7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0	7.0	7.0	7.0
Average	0.04	0.08	0.06	0.06	0.07	0.05	0.05	0.08	0.06	0.05	0.28	0.05

6.5.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	49.5	49.5	49.5	49.5	49.5	33.0	33.0	33.0	33.0	49.5	49.5	49.5
Average	0.15	0.22	0.20	0.19	0.16	0.06	0.06	0.10	0.06	0.05	0.31	0.12

6.6 Acute Lethality

One effluent sample was collected in 2023 and tested for acute lethality to Rainbow Trout and Daphnia Magna. Results are displayed as % mortality. An adverse result is indicated by a > 50% mortality rate.

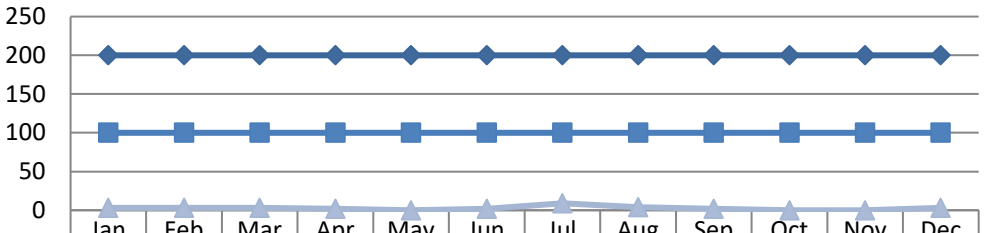
Compliance Limit for this parameter was met in 2023.

Date	Rainbow Trout	Daphnia Magna
01-10-2023	0%	0%

6.7 E-coli (cfu/100mL)

Compliance Limit and Objective for this parameter was met in 2023.

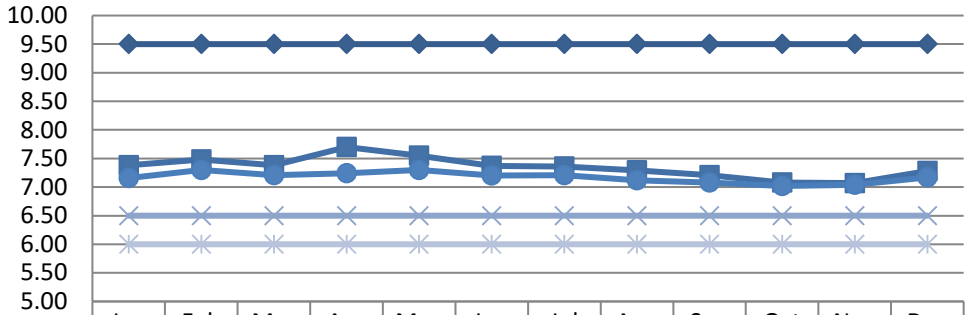
6.7.1 Geometric Mean (cfu/100mL)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	200	200	200	200	200	200	200	200	200	200	200	200
ECA Objective	100	100	100	100	100	100	100	100	100	100	100	100
Geometric Mean	3	3	3	2	0	2	9	4	2	0	0	3

6.8 pH

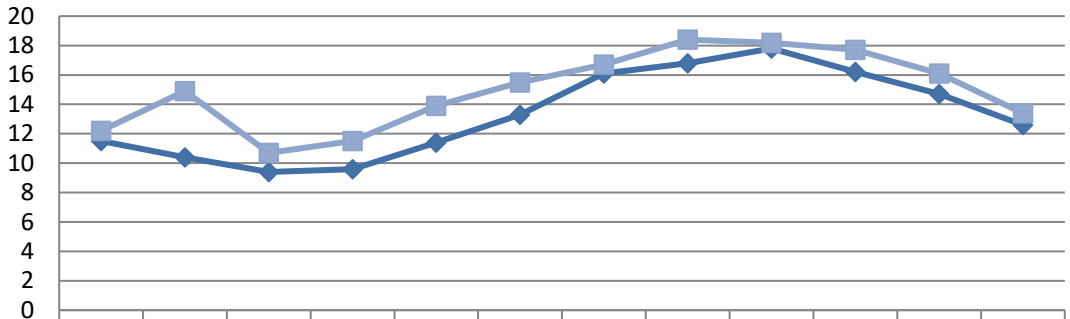
Compliance Limit range for this parameter is 6.0 – 9.5. The parameter was met in 2023. Each instance the pH is outside of that range is reported as a non-compliance.
Compliance Objective range for this parameter is 6.5-9.5. The parameter was met in 2023.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Limit/Objective	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50
Max	7.38	7.48	7.38	7.70	7.55	7.37	7.36	7.29	7.21	7.08	7.07	7.28
Min	7.16	7.30	7.21	7.24	7.30	7.20	7.21	7.12	7.08	7.02	7.04	7.17
Min Objective	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Min Limit	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00

6.9 Temperature

There are no compliance limits or objectives defined for Effluent.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum	11.5	10.4	9.4	9.6	11.4	13.3	16.1	16.8	17.8	16.2	14.7	12.6
Maximum	12.2	14.9	10.7	11.5	13.9	15.5	16.7	18.4	18.2	17.7	16.1	13.4

7 Operating Issues

There were no operating issues in 2023 that are not mentioned in the Objective exceedance below.

7.1 Effluent Quality Non-Compliance Summary

Date	Exceedance of	Limit	Value	Corrective Action
June 2023	ECA TP Objective	0.6 mg/L	0.75 mg/L	Low coagulant feed rate in attempt to improve MLSS. Coagulant dosage was increased to improve TP removal.

7.2 Summary of Abnormal Sewage Discharge Events

Abnormal Discharge Events include Bypass', Overflows, Diversions and Spills of Sewage. Summary Details are included in Appendix B.

7.3 Spills (Other than Sewage)

Date	Location	Details	Volume (m3)	Start Date and Time	End Date and Time
There were no spills of sewage to report in 2023.					

8 Maintenance

Routine planned maintenance activities:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of water distribution systems, pumps, chemical feeders, and all other equipment installed at the facilities.
- Carry out a routine maintenance program including greasing and oiling as specified in the lubrication schedule.

- Perform day-to-day maintenance duties to equipment including checking machinery and electrical equipment when required.
- Maintain an equipment inventory

Unplanned maintenance is conducted as required.

8.1 Normal Maintenance and Repairs

Maintenance/Repairs
- SCADA upgrades - Compactor Chute Modification - Installation of new submersible pump and scrubber circulation pump - Replaced gas sensor elements - UV system upgrades and preventative maintenance - Rebuild Alum and Polymer chemical feed system - Replaced process effluent solenoids x 3 - Process equipment cleanouts and oil changes

8.2 Emergency Maintenance and Repairs

Maintenance/Repairs	Details
- Repaired compactor auger o Shear pin replaced	

8.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
FIT-401 Waste Sludge Basin 1	June 5th, 2023	None.
FIT-402 Waste Sludge Basin 2	June 5th, 2023	None.
FIT-305 Raw Sewage Influent Channel 1	June 5th, 2023	None.
FIT-306 Raw Sewage Influent Channel 2	June 5th, 2023	None.
FIT-304 Raw Waste Water Flow	June 5th, 2023	None.
FIT-302 P.S. Inlet Sewage Flow	June 5th, 2023	None.
FIT-301 Inlet Sewage Plant Pump Station Flow	June 5th, 2023	None.
FIT-303 Supernatant	June 5th, 2023	None.
FIT-501 UV Channel Flow	June 5th, 2023	None.

8.4 Authorized Alterations in Collection System

Alteration	Details	Significant Drinking Water Threat (Y/N)
No alterations made to the collection system in 2023		

8.5 Notice of Modifications

Date	Process	Modification	Status
No modifications made to the collection system in 2023			

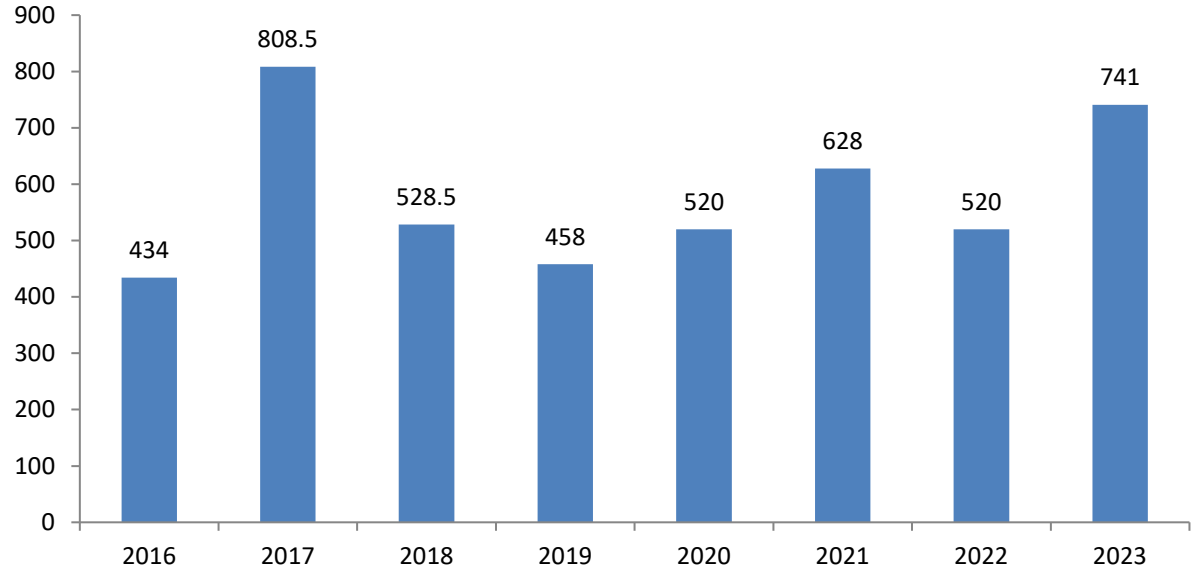
9 Sludge Generation

9.1 Sludge Disposal Summary

Date	Disposal Location	Approval Number	Total Volume (m3)
May 29 – June 1, 2023	D.E.S Digester Tank #4 12 Bath Road Iroquois, ON	ECA # 5948-7JRMAJ	411
October 17-20, 2023	D.E.S Digester Tank #4 12 Bath Road Iroquois, ON	ECA # 5948-7JRMAJ	330

In 2023, a total of 741 m^3 of liquid sludge was removed from Iroquois' WWTP. The sludge was removed from the WWTP by GFL in May/June/October. There is no NASM plan as all sludge was hauled to a holding tank for mixing. It is anticipated that approximately the same volume of sludge will be generated in 2023.

9.2 Annual Comparison (m3/year)



It is anticipated that sludge volumes will remain similar to the 2023 volumes.

10 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
Iroquois Plaza	03/24/23	Sewer main blockage	Flushed with hydro jet, return back to normal service
Lakeview Dr	04/05/23	Sewer main blockage	Flushed with hydro jet, return back to normal service
Broadway Crs	11/21/23	Sewer main blockage	Flushed with hydro jet, return back to normal service

Appendix A

Appendix A - Performance Assessment Report

IROQUOIS WWTP
PERFORMANCE ASSESSMENT REPORT

MUNICIPALITY: SOUTH DUNDAS
PROJECT: IROQUOIS WWTP
WORKS NUM.: 120000159
DESCRIPTION: TWO SEQUENTIAL BATCH REACTORS AND AEROBIC SLUDGE DIGESTION

YEAR: 2023
WATER COURSE: ST. LAWRENCE
DESIGN CAPACITY: 3,300 m^3/d

MONTH	RAW			TREATED			RAW				SLUDGE
	Total Flow m^3	Avg Day Flow m^3	Max Day Flow m^3	Total Flow m^3	Avg Day Flow m^3	Max Day Flow m^3	Raw BOD (mg/L)	Raw TSS (mg/L)	Raw PHOS. (mg/L)	Raw TKN (mg/L)	Liquid Sludge Hauled m^3
JAN	104,342	3,366	10,143	103,946	3,353	10,166	24	12	1.00	7.8	0
FEB	86,992	3,107	5,984	84,921	3,033	5,668	68	16	2.26	19.9	0
MAR	98,287	3,171	5,891	98,015	3,162	5,757	41	56	0.36	2.6	0
APR	104,619	3,487	9,848	102,752	3,425	9,835	20	20	0.80	6.9	0
MAY	71,920	2,320	6,219	70,839	2,285	6,173	50	6	3.13	32.2	297
JUN	37,127	1,238	2,122	35,944	1,198	1,944	129	80	3.01	24.8	115
JUL	50,450	1,627	2,597	39,452	1,273	2,214	36	28	0.91	8.4	0
AUG	38,713	1,249	1,511	37,665	1,215	1,478	71	72	3.11	26.4	0
SEPT	33,285	1,110	1,525	32,318	1,077	1,336	41	57	2.15	18.7	0
OCT	34,193	1,103	4,043	29,840	963	1,187	64	70	2.36	18.2	329
NOV	37,293	1,243	1,772	35,493	1,183	1,700	57	88	2.82	24.1	0
DEC	78,091	2,519	5,063	76,260	2,460	4,864	117	40	1.92	15.7	0
TOTAL	775,312			747,445							741
AVG		2,124			2,052		60	45	1.99	17.1	
MAX			10,143			10,166					
CRITERIA		3,300	16,800								
COMPLIANCE		YES	YES								

2023 - IROQUOIS WWTP EFFLUENT SAMPLING MONTHLY AVERAGES

MONTH	DATE	CBOD (mg/L)		TSS (mg/L)		TP (mg/L)		NH_3 (mg/L)		E. Coli (CFU/100ml)	
January	01/03/2023	<	3		6		0.1		0.03		3
	01/10/2023	<	3	<	3		0.09	<	0.01		2
	01/17/2023	<	3		3		0.10	<	0.01		4
	01/24/2023	<	3		4		0.1		0.08		6
	01/31/2023	<	3		4		0.15		0.09		10
	Monthly Average		3.0		4.0		0.11		0.04		3
	Compliant?		YES		YES		YES		YES		YES
February	02/07/2023	<	3		7		0.18	<	0.05		9
	02/14/2023	<	3		6		0.2		0.17		1
	02/21/2023	<	3		4		0.15	<	0.05		4
	02/28/2023	<	3	<	3		0.25	<	0.05		2
	Monthly Average		3.0		5.0		0.20		0.08		3
	Compliant?		YES		YES		YES		YES		YES
March	03/07/2023	<	3		6		0.28	<	0.05		1
	03/14/2023	<	3	<	3		0.4	<	0.05		5
	03/21/2023	<	3		4		0.26	<	0.05		3
	03/28/2023	<	3		4		0.28		0.1		6
	Monthly Average		3.0		4.3		0.31		0.06		3
	Compliant?		YES		YES		YES		YES		YES
April	04/04/2023		4		3		0.26	<	0.05		1
	04/11/2023	<	3		4		0.13	<	0.05		3
	04/18/2023	<	3		7		0.29		0.08		2
	04/25/2023	<	3	<	3		0.46	<	0.05		1
	Monthly Average		3.3		4.3		0.29		0.06		2
	Compliant?		YES		YES		YES		YES		YES
May	05/02/2023	<	3	<	3		0.25		0.12		1
	05/09/2023	<	3	<	3		0.35	<	0.05		0
	05/16/2023	<	3	<	3		0.38	<	0.05		2
	05/23/2023	<	3		3		0.35		0.08		12
	05/30/2023	<	3		5		0.48	<	0.05		9
	Monthly Average		3.0		3.4		0.36		0.07		0
	Compliant?		YES		YES		YES		YES		YES
June	06/06/2023	<	3		3		1.56	<	0.05		4
	06/13/2023	<	3	<	3		0.5	<	0.05		2
	06/20/2023	<	3	<	3		0.51	<	0.05		1
	06/27/2023	<	3	<	3		0.43	<	0.05		2
	Monthly Average		3.0		3.0		0.75		0.05		2
	Compliant?		YES		YES		YES		YES		YES
July	07/05/2023		4		4		0.45	<	0.05		56
	07/11/2023	<	3	<	3		0.47	<	0.05		10
	07/18/2023	<	3		3		0.43	<	0.05		6
	07/25/2023	<	3		4		0.43	<	0.05		2
	Monthly Average		3.3		3.5		0.45		0.05		9
	Compliant?		YES		YES		YES		YES		YES
August	08/01/2023	<	3		3		0.41	<	0.05		3
	08/09/2023	<	3	<	3		0.44	<	0.05	<	2
	08/15/2023	<	3		7		0.36		0.05		6
	08/22/2023	<	3		6		0.35	<	0.05		5
	08/29/2023	<	3		3		0.18		0.21		3
	Monthly Average		3.0		4.4		0.35		0.08		4
	Compliant?		YES		YES		YES		YES		YES
September	09/06/2023	<	3		3		0.16	<	0.05		5
	09/12/2023	<	3		6		0.22		0.09		1
	09/19/2023	<	3		12		0.16	<	0.05		4
	09/26/2023	<	3		7		0.22	<	0.05		1
	Monthly Average		3.0		7		0.19		0.06		2
	Compliant?		YES		YES		YES		YES		YES
October	10/03/2023	<	3	<	3		0.12	<	0.05		25
	10/11/2023	<	3		10		0.11	<	0.05		1
	10/17/2023	<	3		12		0.12	<	0.05		1
	10/24/2023	<	3	<	3		0.1	<	0.05		1
	10/31/2023	<	3		4		0.12	<	0.05		0
	Monthly Average		3		6.4		0.11		0.05		0
	Compliant?		YES		YES		YES		YES		YES
November	11/07/2023	<	3		4		0.09	<	0.05		0
	11/14/2023	<	3		7		0.41		0.95		14
	11/21/2023	<	3		4		0.08	<	0.05		0
	11/28/2023	<	3		3		0.07	<	0.05		0
	Monthly Average		3.0		4.5		0.16		0.28		0
	Compliant?		YES		YES		YES		YES		YES
December	12/05/2023	<	3		5		0.09		0.05		3
	12/12/2023	<	3	<	3		0.14	<	0.05		3
	12/19/2023	<	3		5		0.29	<	0.05		3
	12/27/2023	<	3		33		0.11	<	0.05		2
	Monthly Average		3.0		11.5		0.16		0.05		3
	Compliant?		YES		YES		YES		YES		YES

Appendix B

Appendix B - Details of Abnormal Sewage Discharge Events

Facility Bypass

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
April 5th, 2023	Iroquois WWTF	Heavy precipitation and blockage on Lakeview St resulted in a bypass of wastewater to the St. Lawrence River	30	23:30	23:44	00:14 min	St. Lawrence River	N/A

Facility Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
No facility overflows to report in 2023.								

Collection Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
One Sanitary Sewer Overflow Point in Table B5 of Draft CLI-ECA: Elizabeth Street SPS No overflows to report in 2023.								

Spills of Sewage

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
No spills of sewage to report in 2023.								

Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading	Any Adverse Impacts & Corrective Actions
There was no collection system overflow or spill to report in 2023. As per the CLI ECA, a grab sample was collected from the overflow point on October 17th, 2023.						

Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading	Any Adverse Impacts & Corrective Actions
Collected as per the CLI ECA	Elizabeth Street SPS	N/A	BOD	79	N/A	N/A. Collected as per the CLI- ECA
			Total Suspended Solids	48	N/A	
			Total Phosphorus	2.39	N/A	
			Total Kjeldahl Nitrogen (TKN)	21.8	N/A	
			E.Coli (cfu/100mL)	6,600,000		

Appendix C

Appendix C – Biosolids Quality Report

2023 - IROQUOIS WWTP MONTHLY AEROBIC BIOSOLIDS CONCENTRATION RATIO

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Ammonia	2130	1540	1590	1900	100	1160	1310	1780	1510	1400	2190	1070
Nitrate	1.0	0.3	0.8	1.9	1.1	1.3	1.9	4.0	2.3	0.8	3.2	1.1
Ammonia + Nitrate	2131	1540	1591	1902	101	1161	1312	1784	1512	1401	2193	1071
Total Phosphorus	884	860	958	907	705	802	854	1030	1220	1250	1230	1180
Total Solids	28000	24200	23600	20800	22200	25900	30800	29500	31200	30000	31600	48400
Aluminum	920	933	156.00	775	835.0	810.0	720	1050	1220	1170	1240	1130
Arsenic	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20
Cadmium	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.03
Chromium	1.38	1.26	0.22	1.10	1.18	2.52	1.30	1.62	1.67	1.58	1.47	1.46
Cobalt	0.14	0.16	0.03	0.10	0.10	0.14	0.12	0.16	0.15	0.15	0.13	0.14
Copper	35.60	33.20	4.44	21.60	27.20	34.80	28.90	38.00	41.00	40.00	40.00	47.60
Lead	0.90	0.80	0.20	0.60	0.70	0.70	0.80	1.10	1.00	0.90	0.80	0.80
Mercury	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02
Molybdenum	0.44	0.44	0.18	0.30	0.30	0.48	0.28	0.43	0.44	0.42	0.40	0.41
Nickel	1.02	0.94	0.14	0.71	0.84	1.82	1.04	1.05	1.03	1.00	0.96	0.88
Selenium	0.10	0.10	0.10	0.20	0.10	0.10	0.10	0.30	0.20	0.20	0.20	0.20
Zinc	19.60	18.30	2.64	13.20	14.50	15.60	15.90	24.70	25.30	25.40	24.20	21.70

Metals ratio = mg metals/kg solids

	Metal/Solids Ratio (Sludge)												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Limit
Arsenic	7.14	8.26	4.24	4.81	4.50	3.86	3.25	6.78	6.41	6.67	6.33	4.13	**170**
Cadmium	1.07	1.24	1.27	1.44	1.35	1.16	0.97	1.36	1.28	1.33	1.27	0.62	**34**
Chromium	49.3	52.1	9.3	52.9	53.2	97.3	42.2	54.9	53.5	52.7	46.5	30.2	**2800**
Cobalt	5.00	6.61	1.27	4.81	4.50	5.41	3.90	5.42	4.81	5.00	4.11	2.89	**340**
Copper	1271	1372	188	1038	1225	1344	938	1288	1314	1333	1266	983	**1700**
Lead	32.1	33.1	8.5	28.8	31.5	27.0	26.0	37.3	32.1	30.0	25.3	16.5	**1100**
Mercury	0.39	0.50	0.34	0.48	0.50	0.54	0.32	0.24	0.64	0.47	0.38	0.48	**11**
Molybdenum	15.71	18.18	7.63	14.42	13.51	18.53	9.09	14.58	14.10	14.00	12.66	8.47	**94**
Nickel	36.4	38.8	5.9	34.1	37.8	70.3	33.8	35.6	33.0	33.3	30.4	18.2	**420**
Selenium	3.57	4.13	4.24	9.62	4.50	3.86	3.25	10.17	6.41	6.67	6.33	4.13	**34**
Zinc	700	756	112	635	653	602	516	837	811	847	766	448	**4200**

Sludge is Acceptable	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	

SOME ANALYSIS RESULTS EXPRESSED AS "<" (LESS THAN);HOWEVER, IN ORDER TO COMPLETE THE CALCULATION, ONLY THE NUMERIC VALUE WAS USED; THEREFORE THE AVG. CONC. IS GREATER THAN ACTUAL.

Appendix D

Appendix D - ECA Annual Report Requirements

Facility ECA # 9689-8MQHNK **Section 10.6**	**Section in Report**
(a) A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works;	Treatment Flows, Raw Sewage, Effluent Quality
(b) A description of any operating problems encountered and corrective actions taken;	Operating Issues and Problems
(c) A summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;	Maintenance
(d) A summary of any effluent quality assurance or control measures undertaken in the reporting period;	Effluent Quality
(e) A summary of the calibration and maintenance carried out on all effluent monitoring equipment; and	Flow Meter Calibrations
(f) A description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6.	Effluent Quality
(g) A tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;	Sludge Generation
(h) A summary of any complaints received during the reporting period and any steps taken to address the complaints;	Complaints
(i) A summary of all By-pass, spill or abnormal discharge events; and	Appendix B
(j) Any other information the District Manager requires from time to time.	N/A

Collection ECA # 165-W601 **Schedule E**	
4.6.3 If applicable, includes a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.	Operating Issues and Problems
4.6.4 Includes a summary of any operating problems encountered and corrective actions taken.	Operating Issues and Problems
4.6.5 Includes a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.	Maintenance
4.6.6 Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.	Summary of Complaints
4.6.7 Includes a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.	Maintenance
4.6.8 Includes a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including: a) Dates; b) Volumes and durations; c) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli; d) Disinfection, if any; and e) Any adverse impact(s) and any corrective actions, if applicable.	Operating Issues and Problems Appendix B

Collection ECA # 165-W601 **Schedule E**	
4.6.9 Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable: a) A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted. b) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines. c) An assessment of the effectiveness of each action taken. d) An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives. e) Public reporting approach including proactive efforts.	Maintenance Operating Issues and Problems