

January 31st, 2024

M. Jean-François Durocher

Water Inspector – Provincial Officer

Ministry of the Environment, Conservation and Parks

Subject:

2023 - Performance Report for the St- Isidore Wastewater Facility

The following document includes the 2023 Performance Report for the St-Isidore Wastewater Facility.

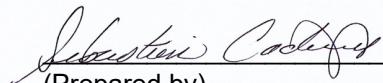
There is no specific Certificate of Approval for this facility. The operations follow the MECP guidelines for specific effluent limits. The guidelines are as follow;

- ❖ *Guideline F-5-1 Table I for Lagoon effluent compliance limits*
- ❖ *Guideline F-10 for sampling requirements*
- ❖ *Guideline F-10-1 Procedures for sampling and Analysis*

In this Performance Report a summary of the St-Isidore Wastewater Facility will be discussed.

- Volumes and daily flow rates of wastewater
- Results of raw sewage and final effluent parameters
- Summary of operation and environmental challenges.
- Maintenance and calibration of monitoring equipment.

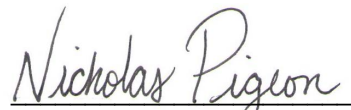
Sincerely,



(Prepared by)

Sébastien Cadieux,

Senior Water & Wastewater Operator



(Reviewed & Approved)

Nicholas Pigeon,

Director of Water & Wastewater (acting)

2023 Annual Performance Report for the St-Isidore Wastewater Facility

a) Summary and interpretation of raw sewage and final effluent monitoring data and comparison to effluent objectives

The average daily flow of wastewater entering the St-Isidore facility was 402 m³/day in 2023.

The treated Effluent daily flow was 6301 m³/day during the 29 days period of discharge from May 5th to June 2nd, 2023. Totalizing 182 742 m³.

The Wastewater Lagoon Treatment Facility did not encounter any major challenges during 2023. Respected the effluent limits for Carbonaceous BOD₅ and TSS.

B) Analytical parameters- Raw sewage & Effluent

1) Total Nitrogen (kjeldahl)

The concentration of raw sewage varied from 28 mg/L in May to 54.3 mg/L in January. The monthly average concentration was 38.15 mg/L.

The Ammonia average concentration for treated effluent was 0.81 mg/L for 2023.

2) Total Phosphorus

The concentration of raw sewage varied from 2.96 mg/L in April to 5.78 mg/L in January. The monthly average concentration was 4.12 mg/L.

The Total phosphorus average concentration for treated effluent was 0.92 mg/L.

3) Carbonaceous Biological Oxygen Demand (CBOD5)

The concentration of raw sewage varied from 65 mg/L in April to 115 mg/L in December. The monthly average concentration was 96 mg/L.

The CBOD5 average concentration for treated effluent was 7.60 mg/L.

4) Suspended Solids

The concentration of raw sewage varied from 80 mg/L in December to 180 mg/L in September. The monthly average concentration was 124 mg/L.

The TSS average concentration for treated effluent was 7.60 mg/L.

5) E Coli

The E Coli average concentration for treated effluent was 156 mg/L.

c) Summary of raw and effluent quality assurance control measures

Monitoring and recording of raw sewage was taken during each month in 2023. Effluent samples were taken during period of discharge.

Results are in the St-Isidore Wastewater –Analytical survey table at the end of this report in Appendix I. The Effluent results are shown in Appendix II.

d) Summary of maintenance carried out on major structure, equipment, apparatus and mechanism

In addition to regular preventative maintenance, the following operational duties were performed.

- **February**
 - Cleaning of Sanitary pumping station with Nation's personnel.
- **April,**
 - Batch treatment of 25 000 Kg of PAS 8 into the St-Isidore Lagoon.
- **June,**
 - Flushed and cleaned gravity sanitary sewer lines by Nation personnel.
 - CCTV the completed collection system for any infrastructure issues and infiltration.
 - Repair many deficiencies found by the CCTV inspection.
- **August,**
 - Clean pumping station with Nation's personnel.
- **October,**
 - Calibration of Flow Meter by Capital Control.
- **December,**
 - Clean pumping station with Nation's personnel.

d) A description of any operating challenges encountered, and corrective actions taken

The operating challenge for this facility is the nearing capacity of the lagoon cells. It is budgeted for 2024 to establish a Master plan for the wastewater system, collection and treatment. This will help guide us for the upcoming years. The issue for the Total phosphorus will also be address as we were near the Effluent limit in the last couple of years.

Appendix I: St-Isidore WASTEWATER FACILITY - ANALYTICAL SURVEY – 2023

Appendix II: St-Isidore WASTEWATER FACILITY – Discharge results – 2023

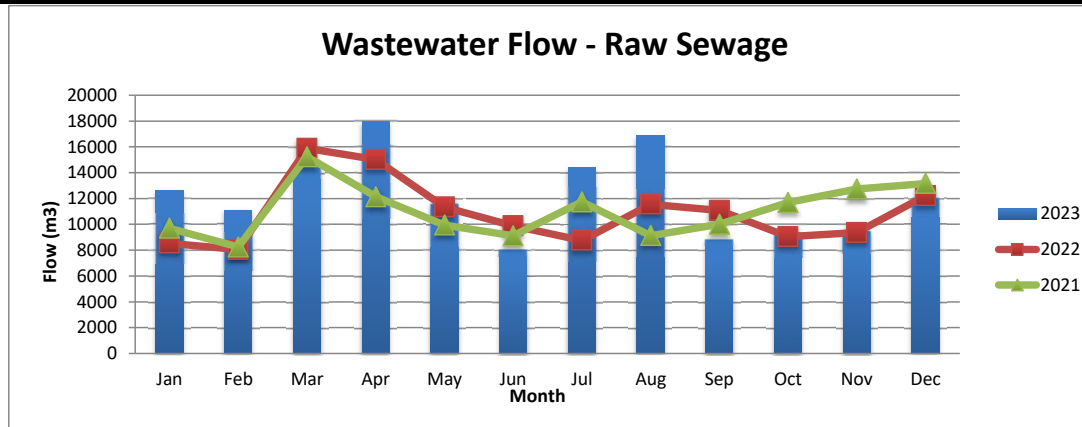
APPENDIX I

Waste Water - Analytical survey



St-Isidore

2023		Limit	Limit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
RAW SEWAGE		C of A	Federal													
Total Flow	m^3			12592	11106	14685	17954	11625	8081	14409	16853	8887	9380	9518	12073	147162
Daily Ave. Flow	m^3/d			406	383	474	598	375	269	465	544	296	303	317	389	402
Max. Flow	m^3/d			700	480	666	842	570	290	729	1162	328	317	342	418	1162
Min. Flow	m^3/d			286	305	316	385	260	260	290	328	264	264	300	323	260
CBOD ₅	mg/l			109	75	92	65	139	74	86	92	136	71	93	115	96
TSS	mg/l			144	100	145	122	110	130	90	118	180	134	140	80	124
pH	pH units			8.11	7.91	7.80	7.99	7.62	7.77	7.96	7.92	7.76	7.64	7.75	7.63	7.82
TKN	mg/l			54.3	33.4	32.9	29.8	28.0	35.1	37.5	41.6	44.7	40.5	38.4	41.6	38.15
Ptot	mg/l			5.78	3.48	3.45	2.96	3.85	3.82	3.97	4.69	4.91	4.66	3.91	3.96	4.12
EFFLUENT																
Total Flow	m^3						35320	138208	9214							182742
Daily Ave. Flow	m^3/d						2717	4458	4607							3927
CBOD ₅	mg/l	25.0	25.0				12.8	4.9	6							7.90
TSS	mg/l	25.0	25.0				12.8	4.4	10							9.07
Ptot	mg/l	1.0					0.85	0.81	2.14							1.27
Unionized ammonia	mg/l		1.25				0.01	0.03	0.03							0.02
Ammonia	mg/l						0.57	0.92	0.81							0.77
E. Coli	cfu/100mL						170	88	710							322.67



APPENDIX II

THE NATION - ST-ISIDORE LAGOON DISCHARGE - 2023

Effluent Samples	Date	CDBO5 mg/l	TSS mg/l	TP mg/l	T Ammonia mg/l	H2S	Unionized Ammonia	pH	TKN	E Coli cfu/100mL
Pre-liminary	13-Apr-23	3	5	0.26	0.00	0.02	0	7.41	1.2	0
Opening	18-Apr-23	11	14	1.25	0.97		0.02	7.67	4.8	160
1	21-Apr-23	31	14	1.26	0.90		0	8.03	3.9	138
2	25-Apr-23	11	15	1.08	0.53		0.03	8.06	5.1	480
3	28-Apr-23	8	16	0.41	0.46		0	8.16	1.4	70
4	2-May-23	5	9	1.24	0.75		0	7.99	3.1	180
5	5-May-23	7	18	1.04	1.14		0	8.05	4.1	360
6	9-May-23	0	3	0.93	1.30		0.06	7.95	3.9	66
7	12-May-23	28	0	0.64	2.02		0.13	8.07	3.6	14
8	16-May-23	0	3	0.28	0.64		0.03	7.90	1.3	2
9	19-May-23	0	0	0.41	0.00		0	8.17	0	2
10	23-May-23	0	3	0.18	0.12		0	8.19	0	12
11	26-May-23	4	0	0.19	0.23		0	7.84	1.4	8
12	30-May-23	0	4	2.42	2.06		0.08	7.86	4	152
Closing	2-Jun-23	6	10	2.14	1.03		0.03	7.75	3.3	710
Discharge average		7.6	7.6	0.92	0.81	0.0	0.03	7.94	2.74	156.9

Loading

Volume (m3)	182742	182742	182742	182742	182742
Load (Kg)	1389	1389	167	148	4
March				N/A	
April				30	kg
May				113	kg
June				20	kg

Effluent Flow

March	April
0	35320
May	June
138208	9214
182742	Total

Limits

Average (mg/l)	25	25	1
March load (Kg/Month)	3942	3942	131
April load (Kg/Month)	3942	3942	131

UP STREAM						
Samples	Date	CDBO5	TSS	TP	T Ammonia	pH
		mg/l	mg/l	mg/l	mg/l	
1	2023-04-18	0	18	0.08	0.16	8.25
2	2023-06-02	0	26	0.15	0.07	8.24
Average		0	22	0.115	0.115	8.25

DOWN STREAM						
Samples	Date	CDBO5	TSS	TP	T Ammonia	pH
		mg/l	mg/l	mg/l	mg/l	
1	2023-04-18	0	20	0.08	0.2	8.26
2	2023-06-02	3	26	0.13	0.07	8.22
Average		1.5	23	0.105	0.135	8.24