

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-Albert Wastewater Facility

M. Durocher,

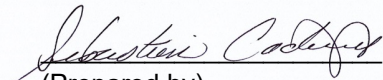
The following document includes the 2023 Performance Report for the St-Albert Wastewater Facility, 2023 inclusive.

In this Performance Report a summary of the St Albert 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.

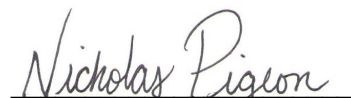
This document follows condition 10 of Amended Environmental Compliance Approval # 0098-A6XKFP, approved on February 19th, 2016.

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-Albert Wastewater Facility

a) A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 6, including an overview of the success and adequacy of the works;

The average daily flow (ADF) of wastewater entering the St Albert Wastewater facility was 396 m³/Day. This represents 55% of the average day design capacity rated at 720m³/day. The maximum daily flow of wastewater entering the St Albert facility was 870 m³/day during month of January and the minimum was 158 m³/day in October.

During the Spring Discharge a total of 198 000 m³ of Effluent was discharged for a period of 38 days.

The wastewater treatment at the St-Albert Wastewater Facility did not encounter any major problem during the year 2023.

Monitoring and analytical parameters

1) Total Nitrogen (Kjeldahl)

The TKN concentration of the raw sewage varied from 26.6 mg/L in May to 79.4 mg/L in October. The monthly average concentration of raw sewage is 40.34 mg/L.

2) Total Ammonia

The Ammonia average concentration for the Treated Effluent was 2.29 mg/L.

The Annual loading of total Ammonia average during the 2023 discharge was 454 Kg. This is below the loading limit of 2628 Kg/month specified in the ECA.

3) Total Phosphorus

The Total Phosphorus concentration of the raw sewage varied from 2.53 mg/L in May to 8.37 mg/L in October. The monthly average concentration was 4.34 mg/L.

The Treated Effluent concentration of Total Phosphorus averaged 0.28 mg/L. The Effluent limit is 1.0 mg/L.

The annual loading of total phosphorus during discharge was 56 Kg. This is below the loading limit of 131 Kg/month specified in the ECA.

4) Carbonaceous Biological Oxygen Demand (CBOD5)

CBOD5 average concentration of raw sewage varied from 58 mg/L in August to 261 mg/L in March with an average of 112.8 mg/L.

The Treated Effluent concentration averaged 1.20 mg/L, which is below the Effluent limit of 30 mg/L.

The annual loading of CBOD5 during the 2023 discharge period was 242 Kg. This is below the loading limit of 3942 Kg/month specified in the ECA.

5) Suspended Solids

The TSS concentration in the raw sewage varied from 66 mg/L in May to 400 mg/L in October with a monthly average concentration of 166.9 mg/L.

The annual loading of TSS during the 2023 discharge period was 581 Kg in March and 1201 Kg in April. This is below the loading limit of 3942 Kg/month specified in the ECA.

6) H₂S

The treated effluent concentration of H₂S averaged 0.30 mg/L, during discharge.

The annual loading of hydrogen sulphide for the treated effluent was 37 Kg during the month of March and 3 Kg in April. This is below the loading limits of 42 Kg in March and 117 Kg in April, specified in the ECA.

b) A description of any operating problems encountered, and corrective actions taken.

No operating challenges occurred during the 2023 period.

c) A summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the works;

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

- **February,**
-Cleaning of sanitary pump station with Nation's personnel.
- **May,**
- Isolated lagoon cell #1 and pumped all the wastewater into cell #2. The cat tail removal continued, casting the piles on the inside of the berms.
- **August,**
- Started flushing and cleaning all sanitary sewer lines with Nation Personnel
- **October,**
- Flow meter calibration performed by Capital Control.
- **November,**
- Removed 22 000 tons of piled cattails from the side of the berms and hauled to the St-Albert Landfill.
- **December,**
-Cleaning of sanitary pump station with Nation's personnel.
-Flush Force Main with Nation Personnel

d) A summary of any Effluent Quality assurance or control measures undertaken in the reporting period;

Monitoring and recording of raw sewage and final effluent during discharge were taken during 2023. The results are presented in the Analytical survey 2023, see Appendix I.

e) A summary of the calibration and the maintenance carried out on all effluent monitoring equipment;

- **October,**
Annual Calibration of all Flow meters by Capital Control.

f) A description of efforts made and results achieved in meeting the Effluent Limits of Condition 6;

The Effluent limits are presented in table 1, with an average concentration limit and an average of waste Loadings in Kg for each Effluent parameter. All the results for those sampling and the amount of Loadings in Kg are presented in Appendix I.

To help maintain a compliant effluent, a flow based dosage of 318 mg/L of coagulant “Aluminum Sulfate” was injected at the inlet of the lagoon.

Prior to discharge we also start the Blower for the aeration system of Cell “D”. The aeration helps to thaw the ice cover and provide off gassing of sulfide, which results in a better effluent.

g) A tabulation of the volumes 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 where the sludge was disposed;

No Haulage of waste was brought to St-Albert lagoon in the 2023 period.

As for the volumes of sludge generated please see the table below;

<i>Parameters</i>	<i>Alum. (mg/L)</i>	<i>TSS (mg/L)</i>	<i>Flow (m3)</i>	<i>Total KG</i>	
2023	318	166.9	144773		
KG	10128	24165		34293	Sludge

These numbers were calculated using the average results of the monthly wastewater samples taken during each month with the total of cubic meter that entered the lagoon. See Appendix II.

A total of 34 293 Kg as per analytical tabloid of sludge was produced in 2023.

As for the next reporting period, the anticipated volume of sludge should remain around the same, as we do not allow for any haulage to the lagoon. The volume of sludge produce will vary depending on the total of Wastewater Influent.

Cell #1 was isolated for a couple of months during this Fall to removed 22 000 tons of pilled cattails on the berm from last year. Due to budget the cat tails were not removed from the facility last year, they were stored inside the berms to be able to dry them better for this year removal.

h) A summary of any complaints received during the reporting period and any steps taken to address the complaints;

No complaints received in 2023.

i) A summary of all *By-pass*, spill or abnormal discharge events;

There was no by-pass or spill during the year 2023.

j) A copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule 'A', Section 1, with a status report on the implementation of each modification;

None.

k) A report summarizing all modifications completed as a result of Schedule 'A', Section 3; and

No modification was performed during 2023.

l) Any other information the Water Supervisor requires from time to time;

None.

Appendix I: Annual discharge Effluent concentration and loadings

Appendix II: Analytical Survey

APPENDIX I

Appendix II

Waste Water - Analytical survey



St-Albert

	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			16678	14237	16847	17948	14419	12570	10943	11973	8434	5367	5831	9526	144773
Daily Ave. Flow	m^3/d	720		538	491	543	598	465	419	353	386	281	173	194	307	396
Max Flow	m^3/d			870	579	696	1058	546	452	444	455	464	192	210	360	1058
Min Flow	m^3/d			375	449	439	456	433	433	269	269	166	158	180	210	158
CBOD ₅	mg/l			109	131	261	66	62	72	70	58	113	224	113	74	112.8
TSS	mg/l			366	200	260	112	66	85	170	66	125	400	83	70	166.9
pH	pH units			7.93	7.78	7.6	7.95	7.96	7.91	8.07	7.83	7.49	6.9	7.65	7.54	7.72
TKN	mg/l			41.3	34.9	46.7	33.5	26.6	38.3	45.3	28.8	35.6	79.4	44.8	28.9	40.34
Ptot	mg/l			3.7	4.54	7.91	2.87	2.53	4.43	3.91	3.18	3.79	8.37	4.21	2.6	4.34

EFFLUENT

Total Flow	m^3					64530	133470									198000
Daily Ave. Flow	m^3/d					6453	4767									5609.9
CBOD ₅	mg/l	30.0	25.0			0.8	1.8									1.30
TSS	mg/l	30.0	25.0			12	5									8.50
Ptot	mg/l	1.0				0.29	0.27									0.28
H2S	mg/l	March (0.32) April (0.89)				0.58	0.02									0.30
Unionized Ammonia	mg/l		1.25			0.16	0.25									0.21
Ammonia	mg/l	20.0				0.79	4.17									2.48

Wastewater Flow - Raw Sewage

