

January 30, 2026

**M. Jean-François Durocher**

*Water Inspector – Provincial Officer*

Ministry of the Environment, Conservation and Parks

**Subject:**

**2025 - Performance Report for the Limoges Wastewater Facility**

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M. Durocher,

The following document includes the 2025 Performance Report for the Limoges Wastewater Facility.

In this Performance Report, a summary of the Limoges 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 schedule C of the Environmental Compliance Approval No. 9447-B3AL5X approved on September 21<sup>st</sup>, 2018.

Sincerely,

*Sébastien Cadieux*

(Prepared by)

Sébastien Cadieux,

Senior Water & Wastewater Operator/Compliance Officer

*Nicholas Pigeon*

(Reviewed & Approved)

Nicholas Pigeon,

Director of Water & Wastewater

## 2025 Annual Performance Report for the Limoges Wastewater Facility

### **a) A summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.**

The average daily flow of wastewater entering the Limoges Wastewater Facility in 2025 was 1389 m<sup>3</sup>/day. This represents 40% of the average day design capacity rated at 3500m<sup>3</sup>/day. The maximum daily flow of wastewater entering the Limoges facility was 2682m<sup>3</sup> during the month of April and the minimum was 865 m<sup>3</sup> in December.

See Appendix I, for a summary of all the Influent monitoring.

### **b) A summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in the Approval, including an overview of the success and adequacy of the Works.**

See Appendix II, this includes all the effluent sampling results and loadings of required ECA parameters.

### **c) A summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.**

- The surface water sample table "Schedule D" as per ECA 9447-B3AL5X was sampled during 2025, no deviations to report.

Please see Appendix III for the schedule of 2026.

### **d) A summary of all operating issues encountered, and corrective actions taken.**

During the 2025 operating year, the treatment facility operated reliably and without significant operational disruptions. Notwithstanding this overall performance, instances of non-compliance with effluent quality limits were recorded for specific parameters. These exceedances were primarily associated with Total Ammonia and Total Suspended Solids (TSS). A detailed summary of the monitoring results, along with an analysis of the contributing factors, is provided in Appendix II.

In response to these occurrences, operational staff implemented enhanced monitoring, including additional sampling throughout the treatment process, to better characterize system performance and identify underlying causes. In parallel, the Municipality continues to work closely with the process engineer to evaluate and implement operational and process-based strategies aimed at reducing the risk of future exceedances and improving overall regulatory compliance.

As part of the Municipality's long-term improvement strategy, an Assimilative Capacity Study for the Castor River has been completed to assess the receiving water's ability to assimilate treated effluent while maintaining applicable environmental standards. The findings of this study are being incorporated into the Wastewater Master Plan to support the evaluation of future servicing options.

The Wastewater Master Plan was initiated in 2025 and is scheduled for completion in 2026. This study is assessing long-term solutions, including the potential for regional or shared infrastructure approaches, to address existing capacity and compliance challenges. Additional details and recommendations will be available upon completion of the Master Plan in 2026.

The following incident reference numbers were reported to the Ministry of the Environment, Conservation, and Parks (MECP) during 2025:

- 1- H1W2Q4
- 1- IU3CZO
- 1-N8466A
- 1-O7W53R
- 1-PAMHJB
- 1-P9SZF3
- 1-PZTQCP

These reports reflect our commitment to transparency and regulatory compliance. We are actively working on corrective actions to ensure consistent adherence to all effluent quality standards moving forward.

**e) A summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works.**

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

- **January,**
  - Repairs were completed on the Biocord aeration blower, and continuous aeration was maintained through the operation of two blowers.
- **February,**
  - Rebuilt screw compactor and its body at the Limoges Lagoon Facility
- **March**
  - Cleaned all SPS with Nation's personnel and hydrovac truck

- **May,**
  - New Pumping station was added to our Collection System.
  
- **June,**
  - Cleaned and inspect BioCord East Cell as per our annual maintenance at the Limoges Lagoon Facility with Nation's personnel and hydrovac truck.
  - Replace motor of the bar screen in the headworks building
  
- **July,**
  - Clean and Removed sludge from the Settling Cell at the Limoge Lagoon facility.
  - Cleaned all SPS with Nation's personnel and hydrovac truck
  - Replace controller on generator at the Limoges Lagoon
  
- **August,**
  - Replace VFD at SPS #7
  - Replace pump #2 at SPS 6
  - Flush and clean all sanitary sewer lines in Limoges with Nation's personnel and hydrovac truck.
  - Commissioning of new sanitary sewer force main at SPS #11
  
- **September,**
  - Annual Maintenance
  
- **October,**
  - Flow meter calibration.
  
- **December**
  - Install/Replace two new pumps at SPS #8
  - Flow meter calibration at SPS #11

**f) A summary of any effluent quality assurance or control measures undertaken.**

Monitoring and recording of Effluent was taken during the 2025 period and the results are presented in the Analytical survey 2025, see Appendix II.

An average of 236 mg/L of coagulant (Aluminium sulphate) was the dosage added to the inlet wastewater pipe for the Limoges wastewater facility this year.

Additional in-house sampling was performed throughout the treatment process to identify all process are performing well. Ammonia levels are still a challenge in 2025, and we are still working towards a solution to improve the results in 2026.

**g) A summary of the calibration and maintenance carried out on all Influent and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer.**

- **October**
- Annual Calibration of Flow meters.

**h) A summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:**

**i. When any of the design objectives is not achieved more that 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality.**

N/A

**ii. When the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.**

We are now at 40% of the rated inflow capacity of 3500m<sup>3</sup>/day.

**i) A tabulation of the estimated volume of the sludge generated in the lagoon cells. Sludge volume is to be measured every five (5) years but may be estimated in the interim years. A summary of disposal locations and volumes of sludge disposed must also be provided if sludge was disposed of during the reporting period.**

### **Sludge Generation – Estimated (Interim Year)**

#### **1) Influent suspended solids (dry basis)**

Formula

$$\text{TSS solids (kg/yr)} = \frac{Q_{\text{annual}} \times \text{TSS}}{1000}$$

Inputs

- Annual flow,  $Q_{\text{annual}}$ : 507,273 m<sup>3</sup>
- Influent TSS: 188 mg/L

Calculation

$$\frac{507,273 \times 188}{1000} = 95,367 \text{ kg/yr}$$

Result

95.4 tonnes/year (dry solids)

## 2) Alum-related chemical solids (dry basis)

Aluminum sulfate-related solids were estimated as aluminum hydroxide using a standard planning conversion.

Formula

$$\text{Alum solids (mg/L)} = 0.26 \times \text{Alum dose (mg/L)}$$

Inputs

- Average aluminum sulfate dose: 236 mg/L

Calculation (concentration)

$$0.26 \times 236 = 61.4 \text{ mg/L}$$

Annual mass

$$\frac{507,273 \times 61.4}{1000} = 31,150 \text{ kg/yr}$$

Result

31.2 tonnes/year (dry solids)

## 3) Gross sludge generated (dry basis)

$$95,367 + 31,150 = 126,517 \text{ kg/yr}$$

Result

126.5 tonnes/year (gross dry solids)

#### 4) Net sludge accumulation (interim estimate)

Not all generated solids accumulate as sludge due to biological degradation of organic solids within the lagoon/Biocord process (including nitrification/denitrification). For interim reporting purposes, a conservative net accumulation factor of 65% was applied.

$$126.5 \times 0.65 \approx 82 \text{ tonnes/year (net dry solids)}$$

#### Operations and sludge management summary

Sludge accumulation occurs primarily in the Settling Cell, where aluminum sulfate is applied at the influent. Based on sludge depth observations, the Settling Cell typically requires dredging approximately every two (2) years to support treatment performance, reduce ammonia rebound potential, and minimize solids carryover to the polishing cell.

In July 2025, the Settling Cell was dredged and approximately 7,300 m<sup>3</sup> of sludge was hydraulically transferred to the East Cell (not currently in service). Dredging was completed to remove accumulated bottom solids.

#### Cross-check using dredged sludge volume (July 2025)

Assuming an average sludge solids concentration of 4% and a sludge density of 1,000 kg/m<sup>3</sup>, the dry solids removed are estimated as:

$$\text{Dry solids} = 7,300 \times 1,000 \times 0.04 = 292,000 \text{ kg}$$

Result

≈ 292 tonnes (dry solids)

This dredging quantity represents multiple years of accumulated sludge and provides a reasonable check on the interim annual sludge accumulation estimate.

#### j) A summary of any complaints received, and any steps taken to address the complaints.

No complaints received.

#### k) A summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.

There was a spill event at the SPS #5 on August 3, 2025. Reference # 1- P9SZF3

**l) A summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.**

N/A.

**m) A summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.**

The collection sewer system was flushed and inspected by the Nation's personnel to mitigate any issues in the infrastructure.

**n) Any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.**

N/A.

**Appendix I: Analytical Survey, Influent**

**Appendix II: Limoges, Wastewater Effluent & Loadings**

**Appendix III: Sampling schedule 2026**

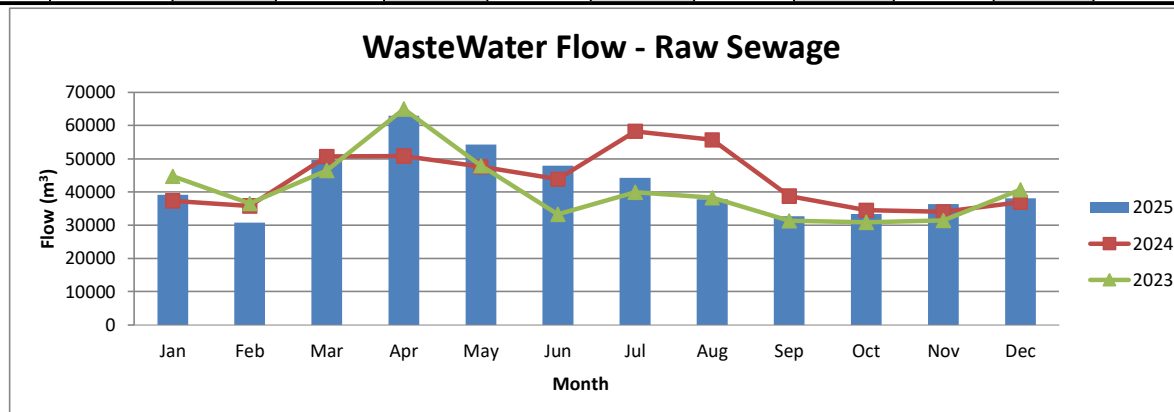
# APPENDIX I

### Waste Water - Analytical survey



Limoges

		2025	Limit	Limit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>RAW SEWAGE</b>		<b>C of A</b>	<b>Federal</b>														
Total Flow	$m^3$				39151	30789	49668	62939	54229	47871	44296	37823	32722	33338	36303	38145	507273.5
Daily Ave. Flow	$m^3/d$	3500			1263	1100	1602	2098	1749	1596	1429	1220	1091	1075	1210	1230	1389
Max Flow	$m^3/d$				1592	1266	2218	2682	2288	2288	1617	1363	1200	1429	1412	1326	2682
Min Flow	$m^3/d$				999	885	1028	1644	911	1235	1127	1031	900	887	1009	865	865
BOD <sub>5</sub>	$mg/l$				173	226.3	166	124.4	123.3	106.3	171.6	188.3	233.4	167.8	253.0	181.2	176.2
TSS	$mg/l$				148	221.3	188	143.0	174.5	121.3	275.0	246.3	183.0	158.75	221.3	172.0	187.6
TKN	$mg/l$				63.4	47.9	39.0	26.8	31.2	39.0	170.9	66.8	56.6	50.7	52.0	44.8	57.4
Ph at 25°C	<i>Ph unit</i>				7.7	7.7	7.7	7.7	7.7	7.7	7.8	7.8	7.8	7.9	7.7	7.69	7.75
TP	$mg/l$				5.1	4.6	4.2	2.9	3.5	3.3	14.2	5.8	5.2	5.1	5.6	4.10	5.30
<b>EFFLUENT</b>																	
Total Flow	$m^3$				38960	33178	51119	67378	50332	42362	31051	24193	28102	28977	40789	39265	475704.8
Daily Ave. Flow	$m^3/d$				1257	1185	1649	2246	1624	1412	1002	780	937	935	1360	937	1277
Max Flow	$m^3/d$				1628	1496	2189	3099	1999	1999	1973	1018	1149	1229	1930	1442	2246
CBOD <sub>5</sub>	$mg/l$	5.0	25.0		2.50	1.00	2.8	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
TSS	$mg/l$	5.0	25.0		7.75	4.25	7.0	11.20	3.50	1.25	0.80	0.00	0.60	2.00	0.00	5.20	4
TP	$mg/l$	0.3			0.18	0.15	0.18	0.15	0.17	0.06	0.07	0.05	0.04	0.06	0.14	0.18	0.12
Unionized Ammonia	$mg/l$		1.25		0.09	0.02	0.06	0.02	0.00	0.01	0.06	0.00	0.00	0.01	0.01	0.01	0.02
T. Ammonia	$mg/l$	Summer 1 Winter 5			4.50	7.25	7.77	2.61	0.22	0.66	1.68	0.13	0.17	0.64	1.27	3.44	2.53



# APPENDIX II

Effluent	Sampling Method	Limit	1/07/25	1/14/25	1/21/25	1/28/25	Monthly average	2/04/25	2/11/25	2/18/25	2/25/25	Monthly average	3/04/25	3/11/25	3/18/25	3/25/25	Monthly average	4/01/25	4/08/25	4/15/25	4/22/25	4/29/25	Monthly average	5/06/25	5/13/25	5/20/25	5/27/25	Monthly average	6/03/25	6/10/25	6/17/25	6/24/25	Monthly average
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CBOD5	8hr comp. - Weekly	5 mg/L	0	4	3	3	2.50	4	0	0	0	1.00	0	0	3	8	2.75	6	7	5	0	0	3.60	0	0	0	0	0.00	0	0	0	0	0.00
TSS	8hr comp. - Weekly	5 mg/L	5	9	9	8	7.75	10	4	3	0	4.25	0	6	6	16	7.00	16	12	19	5	4	11.20	3	5	3	3	3.50	0	0	5	0	1.25
Total phosphorus	8hr comp. - Weekly	0.3 mg/L	0.18	0.2	0.17	0.15	0.18	0.17	0.19	0.12	0.13	0.15	0.15	0.15	0.2	0.22	0.18	0.22	0.16	0.23	0.1	0.06	0.15	0.06	0.06	0.5	0.04	0.17	0.05	0.06	0.06	0.07	0.06
Total Ammonia Nitrogen	8hr comp. - Weekly	1 mg/L (May 1 - October 31), 5mg/L (November 1 - April 30)	4.1	4.58	4.47	4.84	4.50	5.81	7.17	7.72	8.29	7.25	9.06	8.4	8.22	5.38	7.77	3.65	2.56	2.65	2.68	1.49	2.61	0.26	0.11	0.24	0.26	0.22	0.40	0.7	0.56	0.99	0.66
Nitrate as Nitrogen	8hr comp. - Weekly	None	7.77	7.93	8.36	8.43	8.12	9.26	9.04	8.1	0.79	9.89	7.48	7.04	7.61	7.15	7.32	6.84	6.22	5.78	4.57	4.19	5.52	4.12	3.59	3.41	3.72	3.71	3.54	2.59	2.46	1.64	2.56
Nitrite as Nitrogen	8hr comp. - Weekly	None	0.34	0.32	0.29	0.16	0.28	0.19	0.19	0.2	0	0.15	0.17	0.19	0.06	0.11	0.13	0.07	0.13	0.12	0.12	0.28	0.14	0	0.11	0.16	0.18	0.11	0.24	0.19	0.4	0.69	0.38
Unionized Ammonia	8hr comp. - Weekly	Federal (1.25 mg/L)	0.02	0.04	0.03	0.25	0.09	0.03	0.03	0	0	0.02	0.04	0.05	0.06	0.07	0.06	0.04	0.04	0.03	0	0	0.02	0.01	0	0	0	0.00	0.02	0	0	0	0.01
E. Coli	8hr comp. - Weekly	200 org. per 100 ml	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	#NUM!	0	0	0	0	0.00	0	0	0	0	0.00
pH	8hr comp. - Weekly	Between 6.0 - 9.5 (Single sample result)	7.76	7.94	7.87	7.98	7.89	7.83	7.64	7.9	7.83	7.80	7.72	7.82	7.86	7.97	7.84	8.04	8.03	7.92	7.29	7.97	7.84	7.93	8.34	7.3	7.95	7.87	8.14	7.41	6.84	6.98	7.33
Hydrogen Sulphide	8hr comp. - Weekly	mg/L	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0.01	0	0.00	0	0.02	0.02	0	0	0.01	0	0	0	0	0.00	0	0	0	0	0.00
Temperature	Grab sample		0.9	1.8	0.5	1	1.05	0.5	0.9	0.4	0.8	0.65	0.6	1.6	2.3	6.4	2.87	1.8	6.4	4.1	10.3	13.4	7.20		17.2	14.7	16.4	16.10	17.4	20.4	20	23.4	20.30
Toxicity to Rainbow trout and Daphnia magna	Grab sample - Quarterly									0		0.00													0								

E.Coli (Monthly Geometric Mean Density)  $\sqrt[n]{x_1 \times x_2 \times x_3 \dots x_n}$

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Effluent	Sampling Frequency	Limit	7/02/25	7/08/25	7/15/25	7/22/25	7/29/25	Monthly average	8/05/25	8/12/25	8/19/25	8/26/25	Monthly average	9/02/25	9/09/25	9/16/25	9/23/25	9/30/25	Monthly average	10/07/25	10/14/25	10/21/25	10/28/25	Monthly average	11/04/25	11/12/25	11/18/25	11/25/25	Monthly average	12/02/25	12/09/25	12/16/25	12/23/25	12/30/25	Monthly average	
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CBOD5	8hr comp. - Weekly	5 mg/L	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0.00	
TSS	8hr comp. - Weekly	5 mg/L	0	0	0	0	4	0.80	0	0	0	0	0.00	0	3	0	0	0	0.60	4	4	0	0	2.00	0	0	0	0	0.00	0	4	11	6	5	5.20	
Total phosphorus	8hr comp. - Weekly	0.3 mg/L	0.08	0.05	0.06	0.08	0.06	0.07	0.09	0.04	0.04	0.03	0.05	0.05	0.04	0.03	0.04	0.06	0.04	0.05	0.02	0.1	0.08	0.06	0.1	0.13	0.14	0.18	0.14	0.16	0.18	0.18	0.19	0.2	0.18	
Total Ammonia Nitrogen	8hr comp. - Weekly	1 mg/L (May 1 - October 31), 5mg/L (November 1 - April 30)	2.88	2.84	2.24	0.35	0.11	1.68	0.13	0.08	0.21	0.09	0.13	0.06	0.09	0.13	0.24	0.33	0.17	0.37	0.54	0.92	0.71	0.64	0.77	1.05	1.32	1.95	1.27	1.96	2.94	3.66	4.04	4.58	3.44	
Nitrate as Nitrogen	8hr comp. - Weekly	None	0.51	0.77	1.51	2.1	2.95	1.57	2.37	2.81	1.71	2.72	2.40	2.51	2.28	2.36	2.73	2.5	2.48	1.93	2.28	2.68	2.68	2.39	3.38	4.26	5.02	5.6	4.57	7.18	7.05	8.12	7.97	8.11	7.69	
Nitrite as Nitrogen	8hr comp. - Weekly	None	0.37	0.34	0.3	0.2	0	0.24	0	0	0.09	0	0.02	0	0	0.08	0.17	0.2	0.09	0.12	0.33	0.45	0.63	0.38	0.56	0.61	0.42	0.63	0.56	0.52	0.62	0.5	0.52	0.5	0.53	
Unionized Ammonia	8hr comp. - Weekly	Federal (1.25 mg/L)	0.08	0.06	0.13	0.01	0	0.06	0	0	0	0	0.00	0	0	0	0	0.01	0.00	0.01	0	0.02	0	0.01	0	0	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01
E. Coli	8hr comp. - Weekly	200 org. per 100 ml	0	0	0	0	0	0.00	15	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00
pH	8hr comp. - Weekly	Between 6.0 - 9.5 (Single sample result)	7.84	7.6	7.96	7.95	8.05	7.88	7.12	8.01	7.99	7.95	7.76	7.76	7.72	7.68	7.64	8.05	7.77	7.92	7.6	7.97	7.67	7.79	7.76	7.82	7.95	7.99	7.88	8.08	7.67	7.61	7.56	7.56	7.70	
Hydrogen Sulphide	8hr comp. - Weekly	mg/L	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00
Temperature	Grab sample		20.3	23.2	27	25.6	26.9	24.60	24.3	25.4	22.1	22.3	23.5	20.6	18.7	18.3	18.5	18.6	18.9	18.8	13.9	13.2	9.9	13.95	6.7	2.1	1.5	1.7	3.00	0.9	0.7	1.1	0.9	0.4	0.80	
Toxicity to Rainbow trout and Daphnia magna	Grab sample - Quarterly										0																									

E.Coli (Monthly Geometric Mean Density)

$$\sqrt[n]{x_1 \times x_2 \times x_3 \dots \times x_n}$$

7.69

Limoges



		<b>CBOD5</b>	<b>TSS</b>	<b>Total phosphorus</b>	<b>Total Ammonia Nitrogen</b>
<b>Limit</b>	<b>Effluent Flow Average(m3)</b>	<b>17.3 kg/day</b>	<b>17.3 kg/day</b>	<b>1.0 kg/day</b>	<b>3.5 kg/day (May 1 - Oct.31), 17.3 kg/day (Nov. 1 - April 30)</b>
January	1257	3.1	9.7	0.2	5.7
February	1185	1.2	5.0	0.2	8.6
March	1649	4.5	11.5	0.3	12.8
April	2246	8.1	25.2	0.3	5.9
May	1624	0.0	5.7	0.3	0.4
June	1412	0.0	1.8	0.1	0.9
July	1002	0.0	0.8	0.1	1.7
August	780	0.0	0.0	0.0	0.1
September	937	0.0	0.6	0.0	0.2
October	935	0.0	1.9	0.1	0.4
November	1360	0.0	0.0	0.2	1.7
December	1267	0.0	6.6	0.2	4.4

# APPENDIX III

