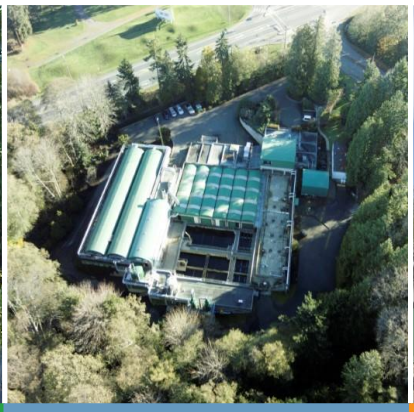
REGIONAL DISTRICT OF NANAIMO



2025 Annual Report

French Creek Pollution Control Centre

February 2026

Submitted to the Ministry of Environment and Parks
envauthorizationsreporting@gov.bc.ca

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www.rdn.bc.ca

Executive Summary

The Regional District of Nanaimo (RDN) owns and operates the French Creek Pollution Control Centre (FCPCC) located at 957 Lee Road in Parksville. FCPCC provides secondary treatment. Treated effluent is discharged to the Strait of Georgia.

Operation of FCPCC is regulated by Environmental Management Permit No. PE-4200 issued by the Ministry of Environment and Parks. The authorized treatment works include screenings, de-gritting and ancillary facilities, a secondary treatment plant, sludge digestion, and dewatering facilities and an outfall with diffuser extending 2,440 m to a depth of 61 m below low mean low water, and related appurtenances.

This report was written by RDN staff as a permit requirement. This report summarizes and interprets the FCPCC monitoring data for 2025.

The summary of 2025 monitoring data at FCPCC for the outfall effluent is as follows:

Summary of Compliance	Permit	2025	Non-compliances
Maximum Daily Flow (Outfall)	16,000 m^3/day	16,626.8 m^3/day	1
Average Daily Flow	-	10,682.2 m^3/day	
Average Daily $cBOD_5$ (Outfall)	45 mg/L	15.1 mg/L	0
Average Daily TSS (Outfall)	60 mg/L	17.0 mg/L	0

- **Flow** – The total volume of effluent discharged to the outfall in 2025 was 3,899,015 m^3/day, at an average daily flow of 10,682 m^3/day. The maximum daily flow was 16,627 m^3/day. In 2025, no flows were discharged to Morningstar Golf Course.

  There was one maximum daily flow non-compliance on March 9, 2025. More information on this non-compliance can be found in Appendix C.

- **5-day Carbonaceous Biochemical Oxygen Demand** – The influent and effluent average 5-day carbonaceous biochemical oxygen demand ($cBOD_5$) concentration for 2025 was 257 mg/L and 15.1 mg/L, respectively. The average removal efficiency in 2025 was 94.0%. There were no $cBOD_5$ permit exceedances in 2025.

- **Total Suspended Solids** – The influent and effluent average total suspended solids (TSS) concentration in 2025 was 392 mg/L and 17.0 mg/L, respectively. The average TSS removal efficiency in 2025 was approximately 95.4%. There were no TSS permit exceedances in 2025.

- **Ammonia and Toxicity** – The average ammonia nitrogen concentration in the effluent for 2025 was 37.3 mg/L and the average toxicity (LC_{50}) of the effluent for 2025 was >100%.

- **General parameters, metals, volatile and semi-volatile compounds** – 2025 results were all consistent with historical data. Only one sample is taken per year so limited conclusions can be made on trending of the parameters.

- **Biosolids** – SYLVIS Environmental Services conducts fecal coliform and full parameter testing as the Qualified Professional for the biosolids soil fabrication program. These results are

summarized in the Annual Summary of 2025 Management of Regional District of Nanaimo French Creek Pollution Control Centre Biosolids (see Appendix H).

In the RDN sampling program, FCPCC biosolids met Class A standards for metals and fecal coliforms. Eight fecal coliform samples and two full parameter samples were taken.

Table of Contents

1) Introduction

The Regional District of Nanaimo (RDN) owns and operates the French Creek Pollution Control Centre (FCPCC) located at 957 Lee Road, Parksville, British Columbia. The authorized treatment works include screenings, de-gritting and ancillary facilities, a secondary treatment plant, sludge digestion, and dewatering facilities and an outfall with diffuser extending 2,440 m to a depth of 61 m below low mean low water, and related appurtenances. Treated effluent from FCPCC is discharged to the Strait of Georgia. In some years, a portion of FCPCC treated effluent is also pumped to irrigation storage lagoons at the Morningstar Golf Course, which are adjacent to the treatment facility. No effluent was pumped to Morningstar Golf Course in 2025.

Operation of the treatment plant is regulated by the Ministry of Environment and Parks (ENV) under Environmental Management Permit No. PE-4200 (the Permit), issued on January 16, 1976, and amended most recently on July 10, 1990 (see Appendix A). In 2023, the RDN requested a minor permit amendment to increase the maximum permitted flow rate by 10%. In 2025, the RDN requested a second minor permit amendment to increase the maximum flow rate by a further 10%. The RDN is waiting for a response from ENV on both requests.

The FCPCC was constructed in 1977 as an activated sludge treatment plant capable of serving a population of 12,000 people. In December 1996, a trickling filter was added to the process and an expansion undertaken to accommodate the increasing population of the area. This expansion, completed in 1997, doubled the plant's capacity and significantly improved the quality of its effluent and biosolids. The plant now uses trickling filter and solid contact tank technology. Further work was done to address odour problems associated with the plant's initial design. Future upgrades and expansion are planned in the FCPCC Expansion and Odour Upgrade project. Construction of this project commenced in 2025.

This report was written by RDN staff as a permit requirement to summarize and interpret the 2025 FCPCC monitoring data.

1.1 Environmental Management System

The RDN's Wastewater Services department's Environmental Management System (EMS) is certified to the ISO 14001:2015 standard. ISO 14001 is an international EMS standard based on a model of continual improvement. The overall aim of ISO 14001 is to support environmental protection and prevent pollution in balance with socio-economic needs. Visit www.rdn.bc.ca/environmental-management-system for more information.

2) Site Description and Neighborhood

The FCPCC is located at 957 Lee Road between Parksville and Qualicum Beach. The septage receiving area is accessed via a second driveway, located further away from Hwy 19A on Lee Road. The site is approximately 9 acres surrounded by a forested area.

Single-family residential subdivisions are located directly south and west of the plant, and there are condominiums to the southwest. A campground, marina, pub, and restaurant are located across Hwy

19A to the north. Phase I of French Creek Estates, to the north of the FCPCC, was constructed several years ago. Further phases are proposed in the next fifteen years. There were no significant changes to the layout of the neighbourhood in 2025.

The undeveloped areas around the plant are zoned for high-density residential use, except for the land directly across the highway, which is zoned CMQ6. This zoning allows for the following uses: residential, hotel, resort condominium, neighborhood pub, office, personal service use, public assembly use, recreation facility, restaurant, or retail store.

3) Permit Requirements

3.1 Authorized Discharges

Section 1.1 of the Permit states the maximum daily effluent discharge to the outfall is:

- Maximum daily flow: 16,000 m^3/day.

Section 1.2 of the Permit stipulates that the characteristics of the discharge shall not exceed:

- 5-day carbonaceous biochemical oxygen demand ($cBOD_5$): 45 mg/L
- Total suspended solids (TSS): 60 mg/L.

Appendix 02 of the Permit states the maximum daily effluent discharge to Morningstar Golf Course is:

- 1,370 m^3/day.

And that the discharge shall not exceed:

- 5-day carbonaceous biochemical oxygen demand ($cBOD_5$): 20 mg/L
- Total suspended solids (TSS): 30 mg/L.

3.2 Monitoring Requirements

The Permit monitoring requirements are summarized in Table 1. Monthly reports were submitted to the Ministry of Environment and Parks in 2025, reporting all required test results.

Table 1. Monitoring Requirements by Permit Subsection Number

Appendix C-1 A. Sampling and Analyses
A suitable sampling facility shall be installed, and a grab sample of the effluent shall be obtained once a day. The sample shall be analyzed daily for TSS and weekly for $cBOD_5$.
Once per year a composite sample, over an eight-hour period shall be collected and analyzed for metals, volatile organics, phenolics, organochlorine pesticides, acid extractable herbicides, anions, and inorganics.
Appendix C-1 B. Flow Measurement
A flow measuring device must be provided and maintained to record, once per day, the effluent volume discharged over a 24-hour period.

Appendix B-1 E. Outfall Inspection

An inspection of the outfall line is conducted once every five years, using an underwater camera.

Appendix C-1 C. Sampling and Analytical Procedures

Sampling and flow measurement shall be carried out in accordance with the *British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Sediment and Biological Samples (2013 Edition).*

Analyses are to be carried out in accordance with the *British Columbia Environmental Laboratory Manual: For the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples (2020)*, or by suitable alternative procedures as authorized by the Regional Waste Manager.

Appendix C-2 E. Reporting

The Permittee shall maintain records of analyses and flow measurements for inspection and once per month submit the data, suitably tabulated, to the Regional Waste Manager for the previous month's monitoring.

The 2025 monitoring program adhered to all sampling, analytical, flow measurements, and reporting requirements specified in the Permit.

3.3 Operational Certificate

The RDN's Liquid Waste Management Plan (LWMP) includes a draft Operational Certificate for FCPCC.

3.4 Outfall Inspection

When FCPCC's outfall was inspected by Remote Operated Vehicle (ROV) in 2017 by SeaVeyors Marine and Environmental, the inspection noted that the outfall pipe was in fair condition. No major leaks were identified. A small leak was identified from the clamp between the old outfall pipe and the diffuser that was replaced in 2013. This issue was also identified in an inspection in 2019 by ITB Subsea

The outfall was inspected again in November 2022 by GreatPacific Consulting Ltd. GreatPacific noted the small leak at the diffuser connection did not intensify. However, another small leak of treated effluent was found at the Flange #3 location. The leak is described as "a diffuse, constant stream of effluent from the west side of the crown." The rate of leakage at this flange was estimated to be much less than that of one of the 25 diffuser ports. GreatPacific noted that it is unlikely that the leak is resulting in imminent risk to environment or human health. The RDN increased the frequency of inspection and monitoring by underwater Remote Operated Vehicle (ROV) to a 3-year interval to ensure the small leaks of treated effluent at the Flange #3 and diffuser clamp location do not intensify.

The outfall was inspected in 2025 by GreatPacific Consulting Ltd. The inspection showed no deterioration of previously identified issues. The minor leak previously identified at the Flange# 3 location was not detectable. The small leak near the diffusers was identified, however no worsening of the leak was identified over the last 3 years.

4) Flow Monitoring

4.1 Treatment Plant and Outfall Flow

Daily flow monitoring data for FCPCC in 2025 are presented in Appendix B. Results are summarised in Table 2 and Figure 1. The combined flow of effluent discharged from the outfall in 2025 was 3,899,016 m^3, at an average daily flow of 10,682 m^3/day.

There was one maximum daily flow non-compliance on March 9, 2025. This non-compliance occurred during a high flow event and was attributed to inflow and infiltration (I&I) in the sewer collection system. More information on this non-compliance can be found in Appendix C.

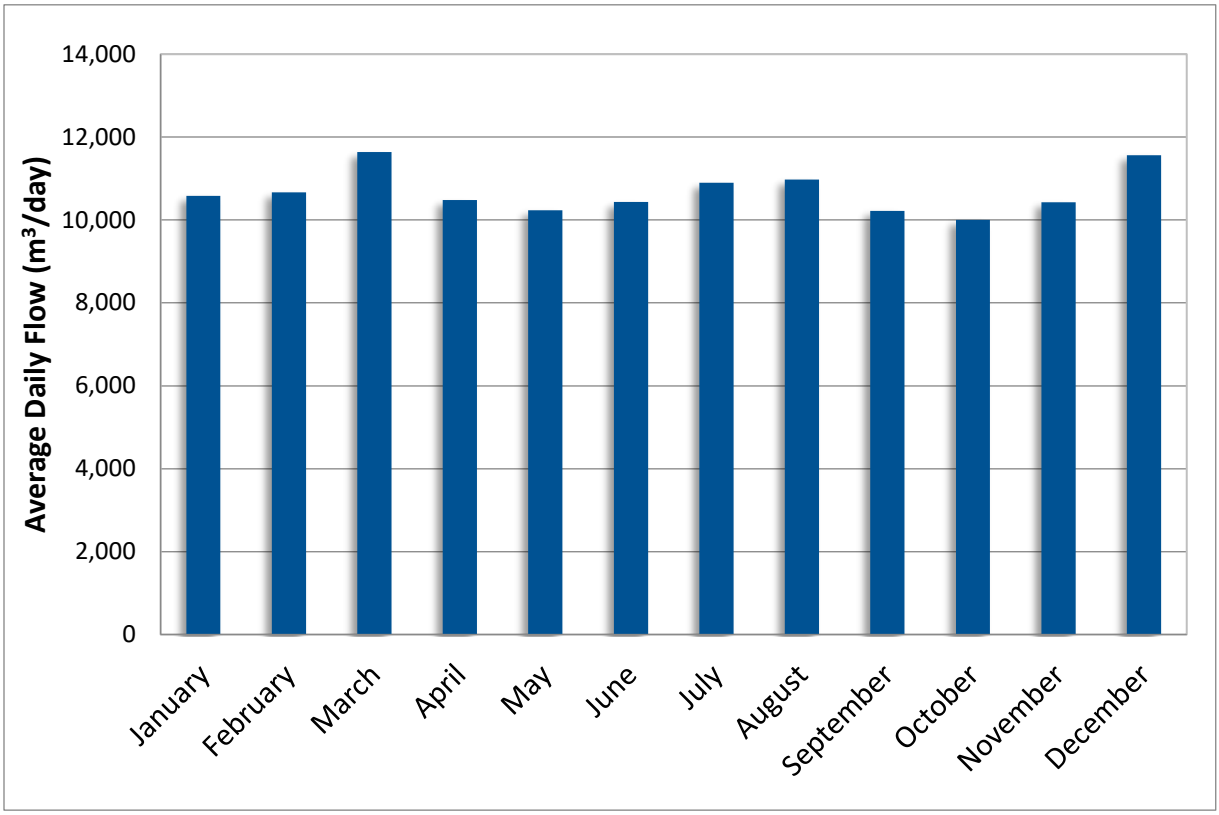
As part of the LWMP process, the RDN is working collaboratively on I&I reduction with our partners in the City of Parksville and the Town of Qualicum Beach. The RDN has also completed Closed Circuit TV (CCTV) condition assessments of the interceptor pipes. The RDN also monitors influent quality and conducts a flow monitoring program to investigate sources of infiltration. The RDN also conducts a program to repair sources of infiltration on the Qualicum Beach and Parksville interceptor lines.

Table 2. 2025 Treatment Plant Flow from the Outfall

Month	Outfall Average Daily Flow (m^3/day)	Outfall Total Flow (m^3)	Outfall Maximum Flow (m^3/day)	Outfall Minimum Flow (m^3/day)	Maximum Flow Non-compliances	Total Monthly Precipitation * (mm)
January	10,583.6	328,092.4	12,172.2	9,668.7	0	30.8
February	10,670.5	298,773.2	12,930.5	9,640.4	0	62.8
March	11,641.1	360,873.4	16,626.8	10,297.7	1	135.6
April	10,480.9	314,426.6	11,354.8	10,037.7	0	28.0
May	10,238.1	317,381.7	11,096.9	9,535.3	0	35.1
June	10,438.4	313,152.4	11,235.9	10,001.0	0	9.1
July	10,902.0	337,961.9	11,430.4	10,450.5	0	2.9
August	10,979.8	340,374.7	11,325.7	10,613.7	0	13.2
September	10,216.6	306,496.9	10,843.9	9,622.0	0	22.2
October	10,006.6	310,203.9	10,672.2	8,735.7	0	75.0
November	10,430.5	312,914.1	11,708.2	9,626.9	0	88.0
December	11,560.1	358,364.5	13,193.3	10,055.7	0	115.4
Average	**10,682.2**					
Total		**3,899,015.8**			**1**	**618.1**
Maximum			**16,626.8**			
Minimum				**8,735.7**		

* Source: Qualicum Beach Airport weather station (see Environment and Climate Change Canada)

Figure 1. Monthly Average Daily Outfall Flow



4.2 Flows to Morningstar Golf Course

Treatment effluent was not sent to Morningstar Golf Course in 2025.

4.2.1 Historical Trends

Historical combined, outfall, and Morningstar flow data reported for previous years are summarised in Tables 3 to 5 and graphed in Figure 2. The discharge to Morningstar Golf Course over the past ten years has been variable based on demand from the golf course.

In 2015, the RDN repaired a large source of infiltration of sea water on the Qualicum Beach interceptor line. Repairs to manholes and/or pipe joints to prevent infiltration on the Qualicum Beach interceptor line have also been conducted in 2018, 2019, 2021, 2022, and 2024.

Table 3. Historical Trends: Treatment Plant Flow

Year	Combined Average Daily Flow (m^3/day)	Combined Total Flow (m^3)	Combined Max Daily Flow (m^3/day)
2016	10,457.4	3,827,402.4	17,935.2
2017	10,588.5	3,864,816.0	16,275.6
2018	10,356.0	3,779,923.6	19,908.0
2019	9,859.0	3,598,527.4	16,420.3
2020	9,920.3	3,630,815.1	18,439.9
2021	10,511.5	3,836,715.7	25,903.3
2022	10,493.7	3,830,187.6	18,580.1
2023	10,417.3	3,802,325.6	14,663.0
2024	10,844.0	3,968,900.4	17,777.4
2025	10,682.2	3,899,015.8	16,626.8

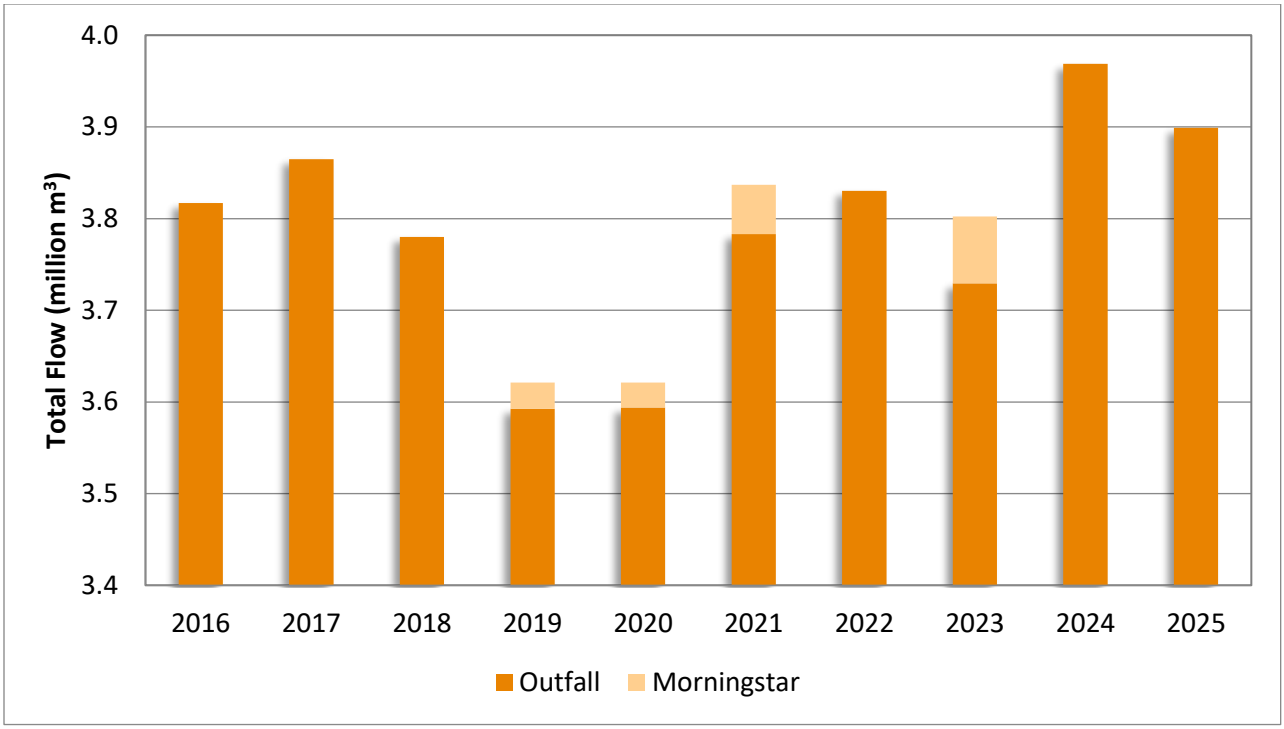
Table 4. Historical Trends: Outfall Discharge

Year	Outfall Average Daily Flow (m^3/day)	Outfall Total Flow (m^3)	Non-conformances (Outfall max daily flow)
2016	10,457.1	3,816,837	2
2017	10,588.5	3,864,816	2
2018	10,356.0	3,779,924	3
2019	9,842.4	3,592,469	1
2020	9,846.1	3,593,821	1
2021	10,364.8	3,783,166	3
2022	10,493.7	3,830,188	2
2023	10,217.6	3,729,410	0
2024	10,844.0	3,968,900	1
2025	10,682.2	3,899,016	1

Table 5. Historical Trends: Morningstar Discharge

Year	Morningstar Total Flow (m^3)	Non-conformances (Morningstar max daily flow)
2016	0.0	0
2017	0.0	0
2018	0.0	0
2019	28,623.6	0
2020	27,271.2	0
2021	53,549.8	0
2022	0.0	0
2023	72,915.5	0
2024	0.0	0
2025	0.0	0

Figure 2. Historical Trends: Combined Total Yearly Flow



5) Effluent Monitoring

5.1 5-Day Carbonaceous Biochemical Oxygen Demand ($cBOD_5$)

Five-day carbonaceous biochemical oxygen demand ($cBOD_5$) is a measure of the quantity of oxygen consumed by microorganisms to break down organic matter in water in which the contribution from nitrogenous bacteria has been suppressed. A high $cBOD_5$ means less oxygen is available to support aquatic life.

The Permit requires testing the effluent for $cBOD_5$ weekly, with a maximum permitted concentration of 45 mg/L for discharge to the outfall, and 20 mg/L for discharge to Morningstar Golf Course. The average influent and effluent $cBOD_5$ concentration for 2025 was 257 mg/L and 15.1 mg/L, respectively. The average $cBOD_5$ removal efficiency was 94.0%. Results are summarized Table 6 and graphed in Figure 3. Appendix B contains the daily $cBOD_5$ results.

Effluent was also tested each week for $cBOD_5$ in a separate sampling program at the ISO17025:2017 certified lab at Greater Nanaimo Pollution Control Centre (GNPCC) to meet the Wastewater Systems Effluent Regulations (WSER) requirements for quarterly average $cBOD_5$ results. Appendix B contains the results of this sampling program.

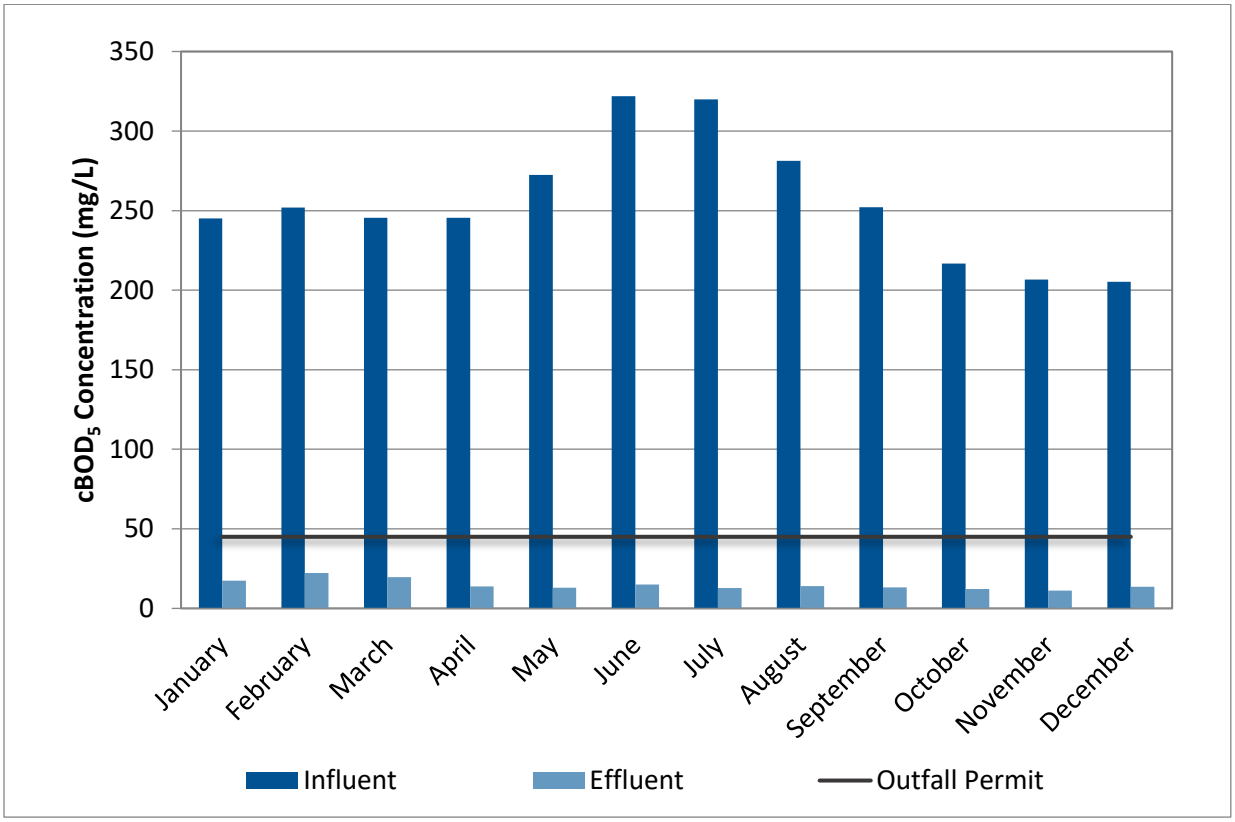
There were no $cBOD_5$ non-compliances in 2025 for the FCPCC effluent. No effluent was sent to Morningstar Golf Course.

Table 6. 2025 Influent & Effluent $cBOD_5$ Concentrations

Month	Influent Average $cBOD_5$ (mg/L)	Outfall Effluent Average $cBOD_5$ (mg/L)	Average % Reduction in $cBOD_5$ (%)	Non-Compliances $cBOD_5$ >45 mg/L (Outfall)
January	245	17.4	92.9	0
February	252	22.2	90.9	0
March	246	19.5	92.0	0
April	246	13.7	94.4	0
May	272	12.9	95.4	0
June	322	15.0	95.0	0
July	320	12.7	95.3	0
August	281	14.1	95.0	0
September	252	13.16	94.5	0
October	217	12.1	94.3	0
November	207	11.3	94.6	0
December	205	13.6	93.3	0
Average	**257**	**15.1**	**94.0**	
Total				**0**

* % Reduction only determined when the influent and effluent $cBOD_5$ testing was done on the same day

Figure 3. 2025 Influent & Effluent Monthly Average $cBOD_5$ Concentration



5.1.1 Historical Trends

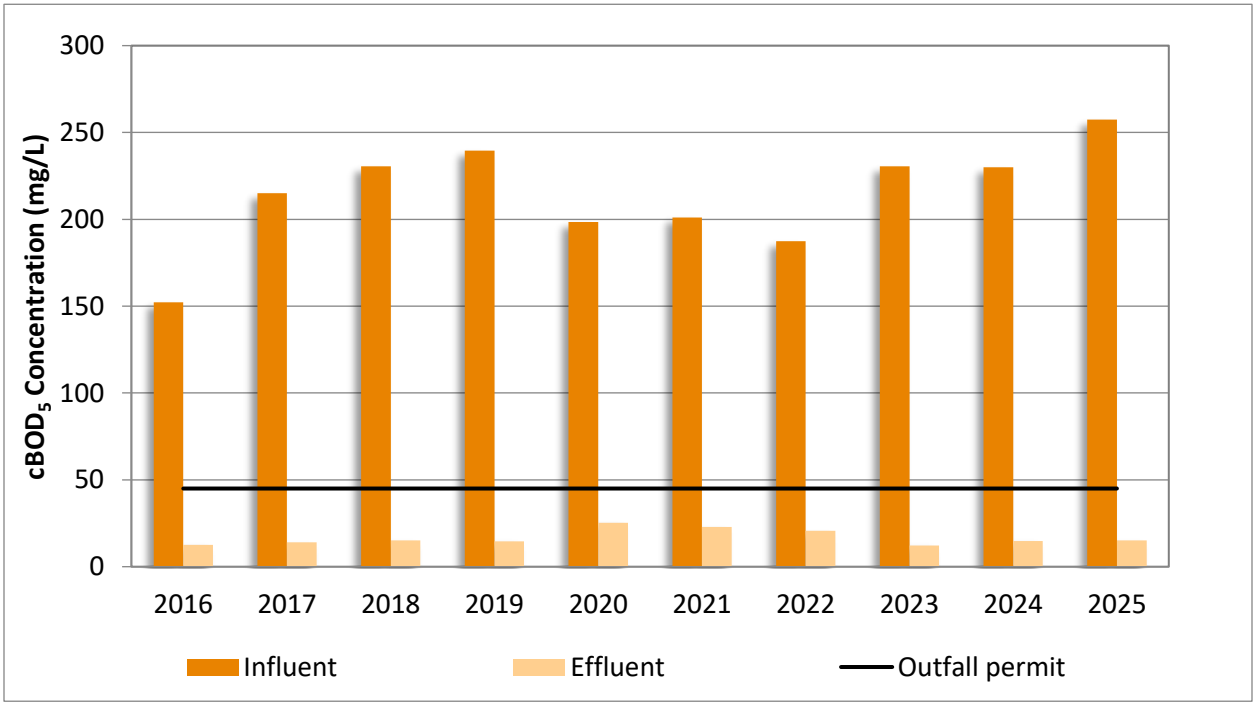
Historical influent and effluent average $cBOD_5$ concentrations, reduction efficiencies and the number of outfall and Morningstar Golf Course $cBOD_5$ non-compliances reported over the past ten years are summarised in the Table 7 and graphed in Figure 4.

The $cBOD_5$ reduction has improved since 2023.

Table 7. Historical Trends: Influent & Effluent $cBOD_5$ Concentrations

Year	Influent Average $cBOD_5$ (mg/L)	Outfall Effluent Average $cBOD_5$ (mg/L)	Average % Reduction in $cBOD_5$	Non-Compliances (Outfall)	Non-Compliances (Morningstar)
2016	152	12.5	91.4	0	-
2017	215	14.0	93.6	0	-
2018	230	15.1	93.0	2	-
2019	240	14.7	93.7	0	0
2020	198	25.3	88.8	19	0
2021	201	22.8	88.1	1	0
2022	187	20.6	88.8	0	-
2023	231	12.3	94.5	0	0
2024	230	14.7	93.7	0	-
2025	257	15.1	94.0	0	-

Figure 4. Historical Trends: Influent & Effluent Yearly Average $cBOD_5$ Concentration



5.2 Total Suspended Solids

Total suspended solids (TSS) are solids in wastewater that can be captured on a fine filter paper. They are visible and decrease water clarity. High concentrations of TSS can harm aquatic life.

The Permit requires daily effluent testing, with a maximum permitted concentration of 60 mg/L for discharge to the outfall, and 30 mg/L for discharge to Morningstar Golf Course (see Appendix B for test data). The pump sending effluent to Morningstar Golf Course is controlled by a TSS probe. The pump turns off when the probe reaches 30 mg/L.

The average TSS concentration for influent and outfall effluent was 392 mg/L and 17.0 mg/L, respectively. The average TSS removal efficiency in 2025 was approximately 95.4%. Table 8 and Figure 5 present the average monthly TSS levels for the influent and effluent in 2025. There were no TSS exceedances for the outfall effluent in 2025.

Effluent was also tested each week for TSS in a separate sampling program at the ISO17025:2017 certified lab at Greater Nanaimo Pollution Control Centre (GNPCC) to meet the Wastewater Systems Effluent Regulations (WSER) requirements for quarterly average $cBOD_5$ results. Appendix B contains the results of this sampling program.

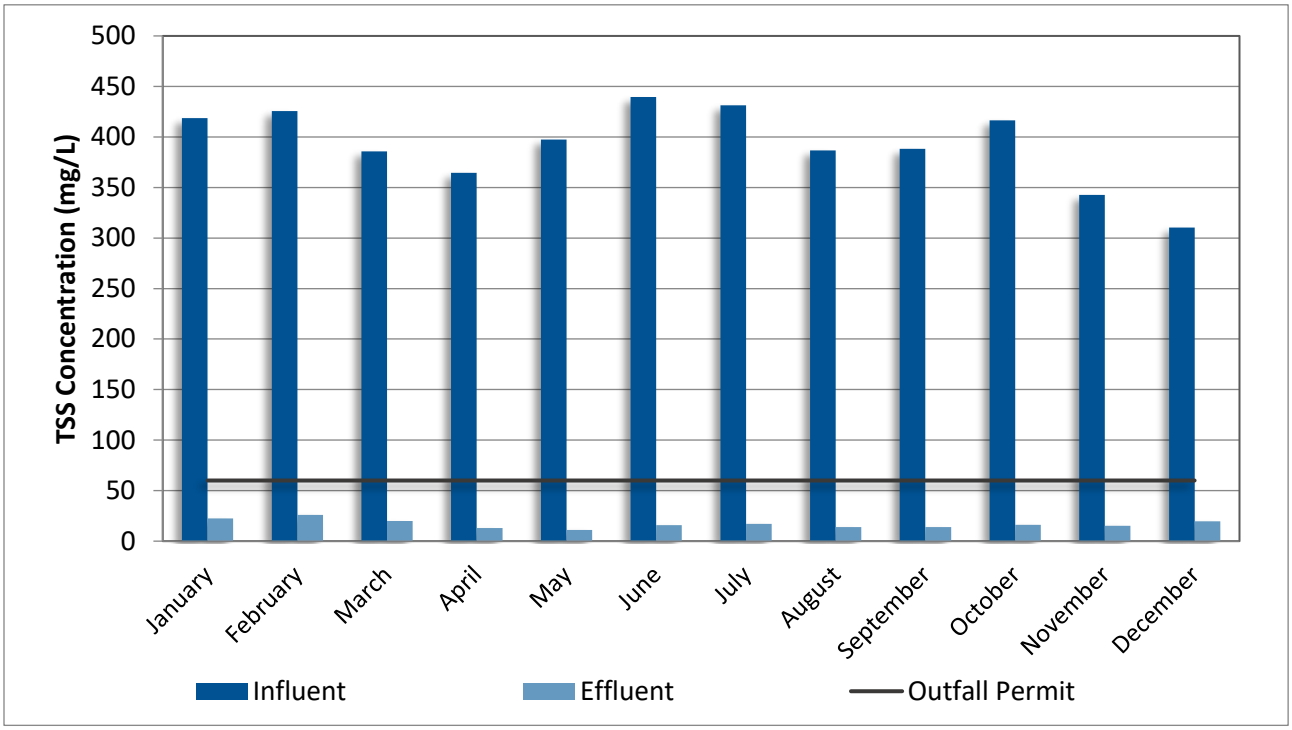
There were no TSS non-compliances in 2025 for FCPCC effluent. No effluent was sent to Morningstar Golf Course.

The RDN is planning an expansion of FCPCC that will allow the wastewater treatment process to treat higher daily flows more efficiently.

Table 8. 2025 Influent & Effluent TSS Concentrations

Month	Influent Average TSS (mg/L)	Outfall Effluent Average TSS (mg/L)	Average % Reduction in TSS	Outfall Permit (mg/L)	Non-Compliances (Outfall TSS > 60 mg/)
January	419	22.5	94.2	60	0
February	426	26.0	93.5	60	0
March	386	20.1	94.2	60	0
April	365	12.9	96.3	60	0
May	397	10.9	97.1	60	0
June	440	16.0	95.9	60	0
July	431	17.1	95.9	60	0
August	387	14.0	96.3	60	0
September	388	13.9	96.3	60	0
October	417	16.3	96.0	60	0
November	343	15.2	95.1	60	0
December	310	19.5	93.6	60	0
Average	**392**	**17.0**	**95.4**		
Total					**0**

Figure 5. 2025 Influent & Effluent Monthly Average TSS Concentration



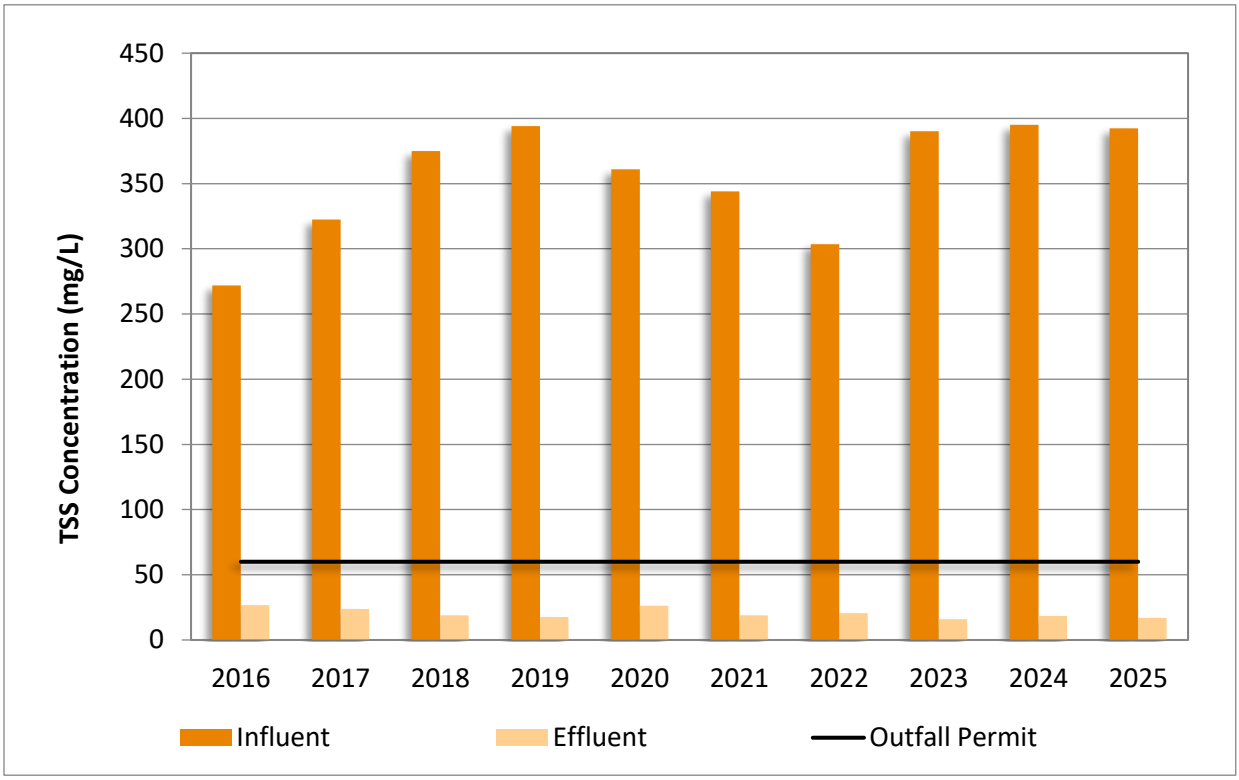
5.2.1 Historical Trends

Historical average TSS concentration in the influent and effluent, reduction efficiencies and the number of outfall and Morningstar Golf Course TSS non-compliances reported over the past ten years are summarised in Table 9 and graphed in Figure 6. Data from 2025 are consistent with previous years.

Table 9. Historical Trends: Influent & Effluent TSS Concentration

Year	Influent Average TSS (mg/L)	Effluent Average TSS (mg/L)	Average % Reduction in TSS	Non-Compliances (Outfall)	Non-Compliances (Morningstar)
2016	272	26.6	90.1%	24	-
2017	322	23.8	92.4%	15	-
2018	375	18.8	94.5%	1	-
2019	394	17.6	95.2%	0	0
2020	361	26.2	92.3%	30	1
2021	344	18.9	94.0%	0	0
2022	304	20.5	92.8%	0	-
2023	390	15.8	95.6%	0	0
2024	395	18.3	94.9%	0	-
2025	392	17.0	95.4%	0	-

Figure 6. Historical Trends: Influent & Effluent Yearly Average TSS Concentration



5.3 Other General Parameters

The RDN completes annual testing on the effluent for the following parameters:

Alkalinity	Dissolved Sulphate	pH	Total Phosphorus
Chloride	Dissolved Sulphide	Total Cyanide	Total Organic Carbon
Dissolved Fluoride	Oil and Grease	Total Nitrogen	

A sample of the effluent is tested by an external laboratory each September. In 2025, the sample was taken on September 22 (see Appendix D for results). Historic results are summarized in Table 10. Results from 2025 were consistent with previous years. Only one sample is taken per year so limited conclusions can be made on trending of the parameters.

Table 10. Historical Trends: Effluent General Parameters

General Parameter	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
pH	mg/L	7.81	8.17	7.81	7.77	7.71	7.94	7.98	7.90	7.93	7.99
Total Alkalinity	mg/L	160	202	217	238	250	220	-	-	220	240
Dissolved Chloride	mg/L	1,500	1,600	1,400	1,920	1,400	1,700	1,700	-	1,600	1,700
Total Kjeldahl Nitrogen	mg/L	22.5	31.4	35.9	36.2	37.2	-	-	-	33	51
Total Nitrogen (as N)	mg/L	-	-	-	-	-	41.2	32.3	45.8	39.6	53.4
Total Oil and Grease	mg/L	<1.0	<1.0	<1.0	<2.0	<1.0	12	<1.0	<1.0	<1.0	<1.0
Dissolved Sulphate	mg/L	220	248	172	270	200	250	230	-	240	230
Total Sulphide	mg/L	0.0551	0.0568	0.068	0.039	0.040	0.038	0.023	0.043	0.035	0.017
Total Cyanide	mg/L	0.00238	0.00218	<0.0050	0.00440	0.00250	<0.0050	0.00227	0.00223	0.00238	0.00190
Dissolved Fluoride	mg/L	0.110	0.130	0.130	<1.00	0.13	0.14	0.16	-	0.12	0.15
Total Organic Carbon	mg/L	15.8	18.1	21	19	34	22	33	30	25	28
Total Phosphorus	µg/L	2,780	2,130	3,740	2,410	4,000	2,100	2,300	4,100	3,400	3,500

* Total Alkalinity results reflect average annual results from the internal laboratory starting in 2022. Prior to 2022, this parameter was determined by external laboratory testing.

5.4 Metals

The RDN completes annual testing of the effluent for the following metals:

Aluminum (total)	Chromium (total)	Manganese (dissolved)	Selenium (total)
Arsenic (total)	Cobalt (dissolved)	Mercury (total)	Silver (total)
Barium (dissolved)	Copper (dissolved)	Molybdenum (total)	Tin (total)
Boron (dissolved)	Iron (Dissolved)	Nickel (dissolved)	Zinc (total)
Cadmium (dissolved)	Lead (total)		

A composite sample of the effluent is collected over a 24-hour period in September (a low flow month) each year and is tested by an external laboratory. In 2025, metals were sampled on September 22 (see Appendix D). Historic metals results are summarized in Tables 11 and 12. All parameters were consistent with previous years.

Table 11. Historical Trends: Effluent Total Metal Concentrations

Total Metals	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Aluminum	µg/L	97.6	92	30	42.3	80	41	36	45	34	31
Arsenic	µg/L	1.2	0.7	0.67	0.72	0.64	0.72	0.60	0.74	0.70	0.72
Chromium	µg/L	9.7	<5.0	<5.0	1.26	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead	µg/L	0.36	<1.0	<1.0	0.32	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	µg/L	<0.010	<0.010	0.0040	<0.010	0.0030	0.068	<0.019	<0.038	0.004	0.0054
Molybdenum	µg/L	1.4	<5.0	<5.0	1.98	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium	µg/L	0.28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.72	<0.50
Silver	µg/L	0.027	<0.10	<0.10	<0.050	<0.10	<0.10	<0.10	<0.10	0.34	<0.10
Tin	µg/L	<5.0	<25	<25	0.56	<25	<25	<25	<25	<25	<25
Zinc	µg/L	37.2	<25	<25	24.9	34	<25	31	29	30	31

Table 12. Historical Trends: Effluent Dissolved Metal Concentrations

Dissolved Metals	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Barium	µg/L	22.7	7.3	<5.0	<5.0	3.3	78.7	<5.0	91.2	<5.0	50.7
Boron	µg/L	469	570	490	635	470	550	560	650	540	560
Cadmium	µg/L	0.024	<0.050	<0.050	0.033	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050
Cobalt	µg/L	<0.50	<1.0	<1.0	1.67	0.47	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	µg/L	17.6	14.1	10.8	11.7	17.1	23.0	6.7	10.5	4.8	6.4
Iron	µg/L	354	146	286	442	807	169	375	254	223	231
Manganese	µg/L	92.2	96.0	83.2	123	96.1	110	117	79.6	76.2	91.4
Nickel	µg/L	2.3	<5.0	<5.0	7.0	3.4	<5.0	<5.0	<5.0	<5.0	<5.0

5.5 Volatile and Semi-Volatile Compounds

The RDN completes annual testing of effluent for the following volatile and semi-volatile compounds:

Benzene	Dichloromethane	1,1-1 Trichloroethane
Chloroform	Di-n-butyl phthalate	1,1-2 Trichloroethane
Chloromethane	Ethylbenzene	Trichloroethylene
Di(2-ethylhexyl) phthalate	PCBs	Toluene
Dichlorobromomethane	Tetrachloroethylene	Total Phenols

A composite sample of the effluent is collected over a 24-hour period in September (a low flow month) each year and is tested by an external laboratory. In 2025, volatiles were sampled on September 22 (refer to Appendix D for test results). The historical average concentration of the volatile and semi-volatile compounds is summarised in Table 13.

In 2024, the external laboratory only analyzed BTEX (benzene, ethyl benzene, toluene, and xylene compounds) and not the volatile compound group due to an oversight in the sample request.

Data from 2025 are consistent with previous years for parameters tested.

Table 13. Historical Trends: Effluent Semi Volatile and Volatile Compounds

Volatile and Semi-Volatile Compounds	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Benzene	µg/L	<0.40	<0.40	1.0	<0.5	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chloroform	µg/L	<1.0	1.5	1.2	<1.0	1.4	1.2	1.2	1.1	-	1.1
Chloromethane	µg/L	<1.0	<1.0	<1.0	NT	<1.0	<1.0	<1.0	<1.0	-	<1.0
Dichlorobromomethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0
Dichloromethane	µg/L	<2.0	<2.0	<2.0	<3.0	<2.0	<1.0	<2.0	<2.0	-	<2.0
Ethylbenzene	µg/L	<1.0	<0.40	<0.40	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Tetrachloroethylene	µg/L	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.40	<0.50
Toluene	µg/L	<0.40	<0.40	1.7	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Total Phenols	mg/L	0.005	0.016	0.025	0.0087	0.0082	0.0033	0.0039	<0.0015	0.0021	0.0018
1,1,1-Trichloroethane	µg/L	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	-	<0.50
1,1,2-Trichloroethane	µg/L	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	-	<0.50
Trichloroethylene	µg/L	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	-	<0.50
Di(2-ethylhexyl)phthalate	µg/L	<2.0	<2.0	<2.0	<1.0	<8.0	<2.0	<2.0	<2.0	-	<4.0
Di-N-Butyl Phthalate	µg/L	<2.0	<2.0	<0.80	<1.0	<8.0	<2.0	<2.0	<2.0	-	<4.0
PCBs	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.056	<0.056	<2.5	-	<0.050

6) Biosolids

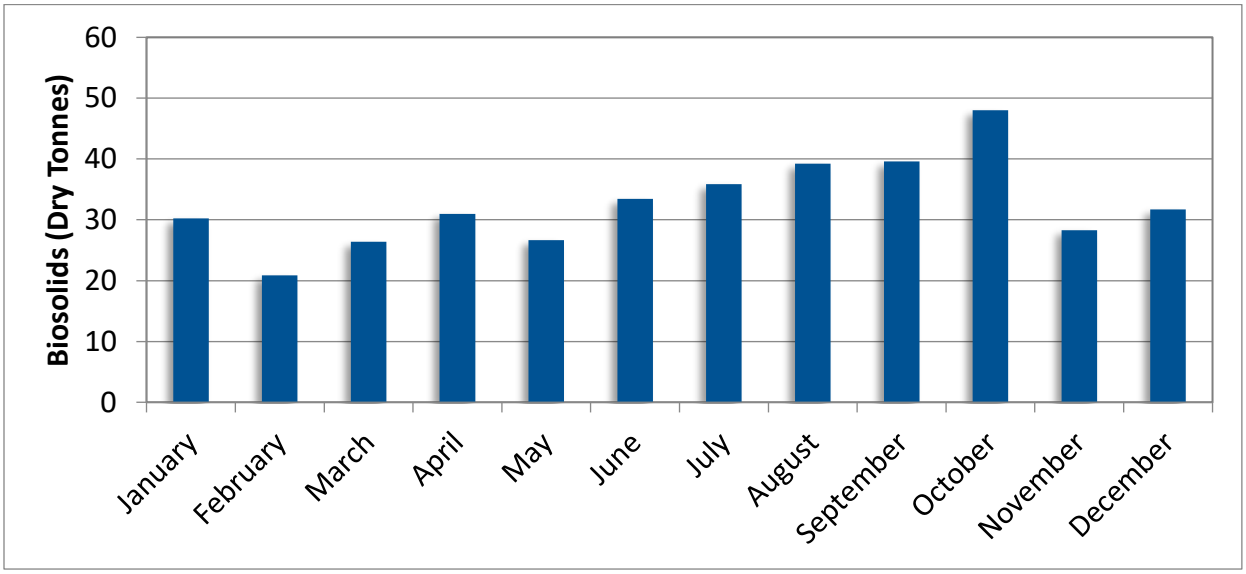
6.1 Biosolids Production

FCPCC produces Class A biosolids. The average monthly production of biosolids in 2025 is summarized in Table 14 and graphed in Figure 7.

Table 14. 2025 Biosolids Production

Month	Trucked Biosolids (Dry Tonnes)	Trucked Biosolids (Wet Tonnes)	% Solids (Dewatered)
January	30.22	91.23	33.1
February	20.9	66.36	31.4
March	26.4	82.75	31.9
April	30.9	94.44	32.8
May	26.7	89.51	29.8
June	33.4	115.01	29.1
July	35.9	126.32	28.4
August	39.2	126.26	31.1
September	39.6	123.32	29.0
October	48.0	169.04	28.4
November	28.3	96.71	29.2
December	31.7	102.75	30.9
Average	**32.4**	**107.0**	**30.3**
Total	**389**	**1,284**	

Figure 7. 2025 Monthly Biosolids Production (Trucked Dry Tonnes)



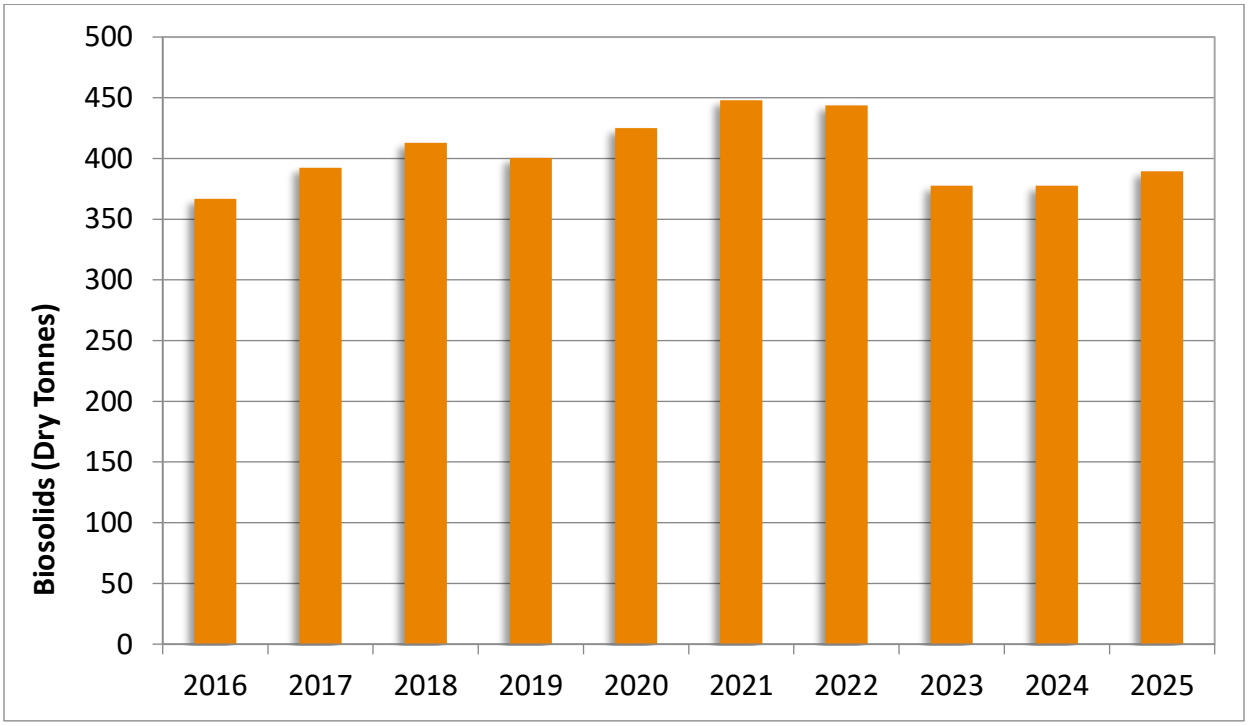
6.1.1 Historical Trends

Historical average polymer usage, total trucked biosolids (wet tons and dry tons) and yearly average percent solids of the biosolids are summarized in Table 15 and graphed in Figure 8. Biosolids production (dry tonnes) was in the range seen over the last ten years.

Table 15. Historical Trends: Biosolids Production

Year	Polymer Usage (Kg/year)	Trucked Biosolids (Dry Tonnes/year)	Trucked Biosolids (Wet Tonnes/year)	% Solids (Average Pressed Solids)
2016	5,867	367	1,188.66	30.8
2017	4,860	392	1,260.32	31.1
2018	5,610	413	1,286.52	32.1
2019	5,481	401	1,255.85	31.9
2020	6,383	425	1,280.71	33.2
2021	4,815	448	1,299.19	34.5
2022	5,108	444	1,291.03	34.4
2023	5,618	378	1,124.71	33.6
2024	6,568	378	1,073.71	35.2
2025	7,088	389	1,283.70	30.3

Figure 8. Historical Trends: Biosolids Production per Year (Trucked Dry Tonnes)



6.2 Biosolids Analysis

The Organic Matter Recycling Regulation (OMRR) requires that sampling for quality criteria must be taken once per year or from every 1,000 tonnes dry weight, whichever occurs first.

Sampling to meet requirements of the soil fabrication program is conducted by SYLVIS Environmental Services (SYLVIS). For more information on this sampling, please refer to Appendix H.

The RDN also conducts a program to test FCPCC biosolids for quality criteria. Testing for the following parameters is conducted twice a year by an external laboratory.

Total Solids	Chromium*	Molybdenum*
Volatile Suspended Solids	Cobalt*	Nickel*
Moisture	Copper*	Phosphorus
Total Kjeldahl Nitrogen	Iron	Potassium
Arsenic*	Lead*	Selenium*
Cadmium*	Mercury*	Zinc*

*Monitoring required by the Organic Matter Recycling Regulation (OMRR).

Biosolids were tested in January and July 2025 (see Appendix D for test reports). The average concentration of these parameters, reported over previous years, is summarised in Table 16. Metal concentrations in 2025 were consistent with data from previous years.

All FCPCC biosolids samples in 2025 met the OMRR Class A regulatory limits for metals.

Table 16.: Historical Trends: Biosolids General Parameters

Parameter	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	OMRR Regulatory Limits	
												Class A	Class B
Total Solids	%	26.6	29.8	30.8	31.5	32.4	33.7	35.7	31.0	32.4	29.7	-	-
Volatile Solids	%	75.75	70.2	72.9	71.5	74.35	72.45	76.5	71.8	75.35	76.6	-	-
Moisture	%	69.65	69	69.5	68.5	67.8	66	64.5	69	68	70.0	-	-
Total Kjeldahl Nitrogen	% dry weight	4.97	5.7	5.7	6.6	3.86	5.5	4.35	4.65	6	5.45	-	-
Arsenic	µg/g	2.8	2.8	2.7	3.3	2.1	2.3	2.1	2.2	2.2	2.4	75	75
Cadmium	µg/g	1.9	2.1	1.4	2.1	1.8	1.6	1.3	2.0	1.5	1.8	20	20
Chromium	µg/g	24.5	27.3	27.9	37.9	35.1	37.1	26	27.7	27	34.4	-	1,060
Cobalt	µg/g	3.0	4.9	2.9	2.5	2.0	2.5	2.1	2.3	2.3	2.5	150	150
Copper	µg/g	702.5	807	637	798	620	602.5	531.5	676.5	688	747	-	2,200
Iron	µg/g	ND	ND	41,400	48,800	37,900	43,800	37,200	31,500	32,600	29,700	-	-
Lead	µg/g	19.2	18.75	21.8	19.3	14.3	13.1	13.45	14.6	14.55	17.2	500	500
Mercury	µg/g	1.60	0.99	0.66	0.80	1.07	0.82	1.21	0.82	1.81	1.06	5	15
Molybdenum	µg/g	5.4	4.7	3.6	4.6	4.9	6.3	5.1	4.3	4.6	4.9	20	20
Nickel	µg/g	12.5	11.7	10.47	14.15	12.95	13.35	10.485	10.77	11.4	12.7	180	180
Phosphorus	µg/g	17,900	25,750	22,800	28,600	21,300	23,850	20,100	19,800	20,300	19,500	-	-
Potassium	µg/g	ND	ND	727.5	964.5	759.5	986.5	776.5	833	802.5	876	-	-
Selenium	µg/g	3.9	4.4	3.1	4.2	3.2	3.0	2.8	3.8	4.3	5.0	14	14
Zinc	µg/g	954.5	1175	890	1,250	1,080	1,110	918	1,270	1,090	1,430	1,850	1,850

ND – Not determined

6.3 Fecal Coliforms

OMRR requires seven representative samples for fecal coliforms to be taken every 1,000 tonnes dry weight or once per year, whichever occurs first. The level of fecal coliforms in each Class A sample must be <1000 MPN per gram of total solids (dry weight basis).

SYLVIS, as the Qualified Professional, conducts fecal coliform testing for the soil fabrication program. SYLVIS's results are summarized in the 2025 Management of RDN Biosolids (see Appendix H).

The RDN also conducts its own fecal coliform sampling. Sampling was taken of sludge at a sample point immediately downstream of the ATAD digesters. In 2025, the RDN sent nine representative samples of biosolids to an external laboratory for fecal coliform analysis (see test reports in Appendix D). All the laboratory samples met Class A limits. The geometric mean fecal coliform concentration of the biosolids from the RDN sampling in 2025 was <6.5MPN/g (dry weight) and is summarized in Table 17.

Table 17. 2025 FCPCC Biosolids Fecal Coliforms Concentrations

FCPCC Biosolids	
Parameter	**Fecal Coliforms**
Unit	**MPN / g dry**
8-Jan-25	<8.0
17-Mar-25	<8.7
7-Apr-25	<6.9
20-May-25	<7.4
14-Jul-25	<5.6
19-Aug-25	<4.7
23-Sep-25	<6.3
14-Oct-25	<6.3
1-Dec-25	7.4
Geometric Mean	**<6.5**

6.4 Stabilization and Dewatering

Biosolids at FCPCC are stabilized using autothermal thermophilic aerobic digesters (ATADs). The ATADs consist of four digesters and three cooling storage cells which treat sludge collected from the bottom of the sedimentation tanks. Sludge is held in the tanks for 10 to 12 days at 45 to 65°C, during which time it is decomposed and stabilized by biological processes. Once digested, the stabilized sludge is dewatered through a centrifuge, resulting in biosolids with a moist, soil-like consistency. Significant pathogen reduction is achieved in the ATAD tanks, which create Class A biosolids (defined according to OMRR parameters). Stabilization and dewatering process data are presented in Tables 18 and 19.

Volatile Solids Reduction was determined using sampling points from the sludge entering and existing the ATADs for a more accurate representation of ATAD performance. Prior to September 2019, Volatile Solids Reduction was determined from samples in ATAD 3 and ATAD 6. Average Volatile Solids Reduction for 2025 is presented below.

Table 18. Stabilization Process Data

Total Mass of Sludge Delivered for Stabilization	108,629	Tonnes (dry)
% of TSS as VSS in Sludge Feed	85.0	%
Mass of Biosolids Remaining after Stabilization	539.2	Tonnes (dry)

Table 19. Dewatering Process Data

Volume of Biosolids delivered for dewatering	17,935	m^3
Average Volatile Solids Reduction	55.82	%
% solids in biosolids dewatering feed	3.01	%
% solids in dewatered biosolids	30.3	%
Polymer dosage to aid dewatering	0.395	kg/m^3

6.5 Biosolids Management

In 2025, FCPCC Class A biosolids were used in a soil fabrication program. This program operates in partnership with Harmac Pacific (Harmac) at their kraft mill site in Nanaimo. There, RDN biosolids, wood waste, and mineral soil are blended to fabricate soil for cover material for the Harmac landfill during its landfill closure activities as well as a commercial grade biosolids growing medium (BGM). More details of the soil fabrication program are provided in the Annual Summary of 2025 Management of Regional District of Nanaimo French Creek Pollution Control Centre Biosolids, completed by SYLVIS Environmental, and attached in Appendix H.

The RDN biosolids management program won the Northwest Biosolids *Excellence in Biosolids Award* which recognizes significant contributions to the development and implementation of cost-effective and environmentally beneficial biosolids management practices two times in 2013 and 2019.

7) Process Control Monitoring

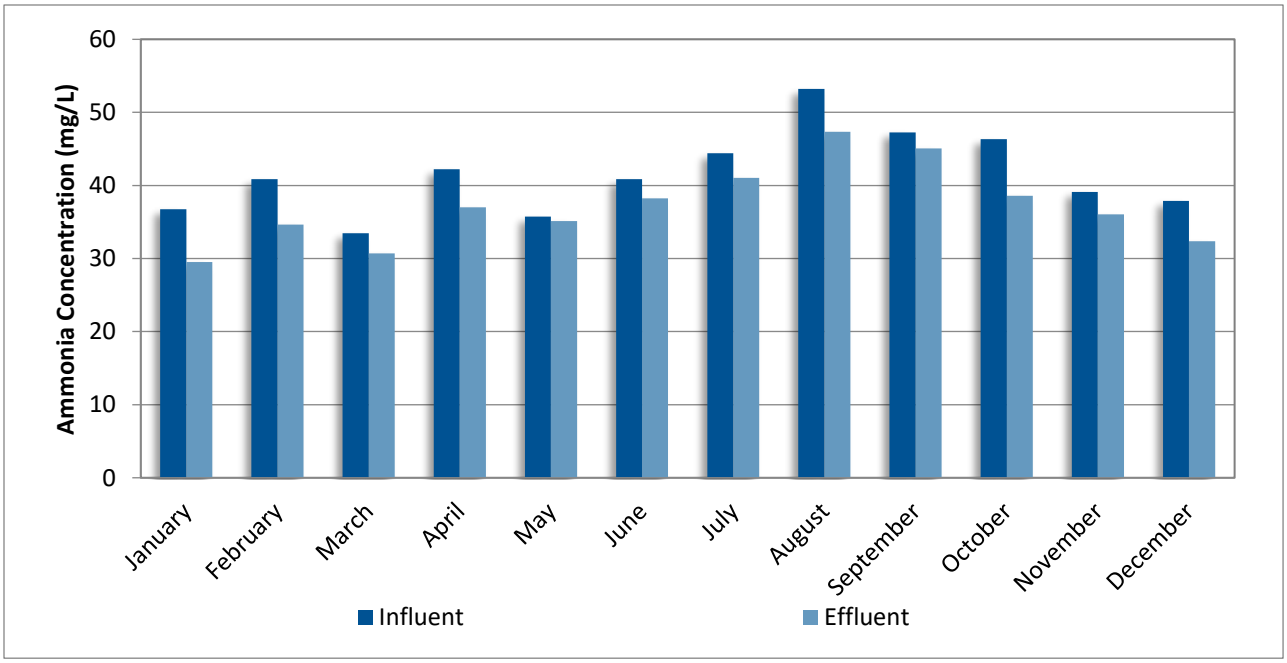
7.1 Ammonia

Ammonia is one of the typical constituents of domestic wastewater. Ammonia can be toxic to fish (freshwater and marine) and is monitored to determine potential impacts to the receiving environment. Ammonia is tested in the influent and effluent weekly. The average ammonia concentration in 2025 in the influent and effluent was 41.5 mg/L and 37.3 mg/L, respectively. Appendix B contains the weekly Ammonia test data for FCPCC for 2025. Results are summarized in Table 20 and Figure 9.

Table 3. 2025 Influent & Effluent Ammonia Concentration

Month	Influent Average Ammonia (mg/L)	Effluent Average Ammonia (mg/L)	% Reduction
January	36.8	29.5	19.7%
February	40.9	34.6	15.3%
March	33.5	30.7	8.3%
April	42.2	37.0	12.3%
May	35.7	35.1	1.7%
June	40.9	38.2	6.5%
July	44.4	41.1	7.5%
August	53.2	47.4	11.0%
September	47.3	45.1	4.7%
October	46.3	38.6	16.7%
November	39.1	36.0	7.8%
December	37.9	32.4	14.5%
Average	**41.5**	**37.3**	**10.5%**

Figure 9. 2025 Influent & Effluent Monthly Average Ammonia Concentration



7.2 96-Hour Rainbow Trout Toxicity Test

This test, or bioassay, determines the toxicity of a material by studying the reaction of a living organism exposed to it. An LC_{50} 96-hour test is the accepted method to determine the toxicity of water and wastewater. This means the lethal concentration at which 50% of test organisms die within 96 hours. The result is given as a percentage, referring to the amount of effluent, in relation to dilution water, used in the test. A toxicity test of 100% is not acutely toxic. The lower the toxicity result (expressed as a percentage) the more acutely toxic the effluent.

To meet requirements of the *Wastewater Systems Effluent Regulation*, annual testing is completed in September by an external laboratory. Appendix D contains the laboratory test results. The result for 2025 was >100% based on a sample from August 20, 2025.

7.2.1 Historical Trends

Historical effluent toxicity results reported over previous years are summarized in Table 21.

Table 21 Historical Trends: Effluent LC_{50} Toxicity

Year	Average Effluent LC_{50} Toxicity (%)
2016	90.2
2017	>100
2018	90.2
2019	>100
2020	>100
2021	>100
2022	>100
2023	>100
2024	>100
2025	>100

7.3 Nitrate, Nitrite, Alkalinity

Wastewater Services' staff conduct weekly testing of the effluent for nitrate, nitrite, and alkalinity. The average monthly concentration is summarized in Table 22 and graphed in Figures 10 and 11.

Table 22. Effluent Nitrate, Nitrite, and Alkalinity

Month	Effluent Average Nitrate (NO_3) (mg/L)	Effluent Average Nitrite (NO_2) (mg/L)	Effluent Average Alkalinity (mg/L)
January	1.90	0.783	176
February	1.08	0.680	206
March	0.914	0.595	219
April	1.33	0.560	239
May	1.09	0.711	233
June	1.01	0.972	232
July	0.93	1.17	244
August	0.894	0.879	253
September	1.05	2.00	229
October	1.90	2.13	236
November	1.72	1.91	188
December	2.27	1.62	205
Average*	**1.31**	**1.17**	**224**

Figure 10. 2025 Effluent Nitrate and Nitrite Monthly Average Concentration

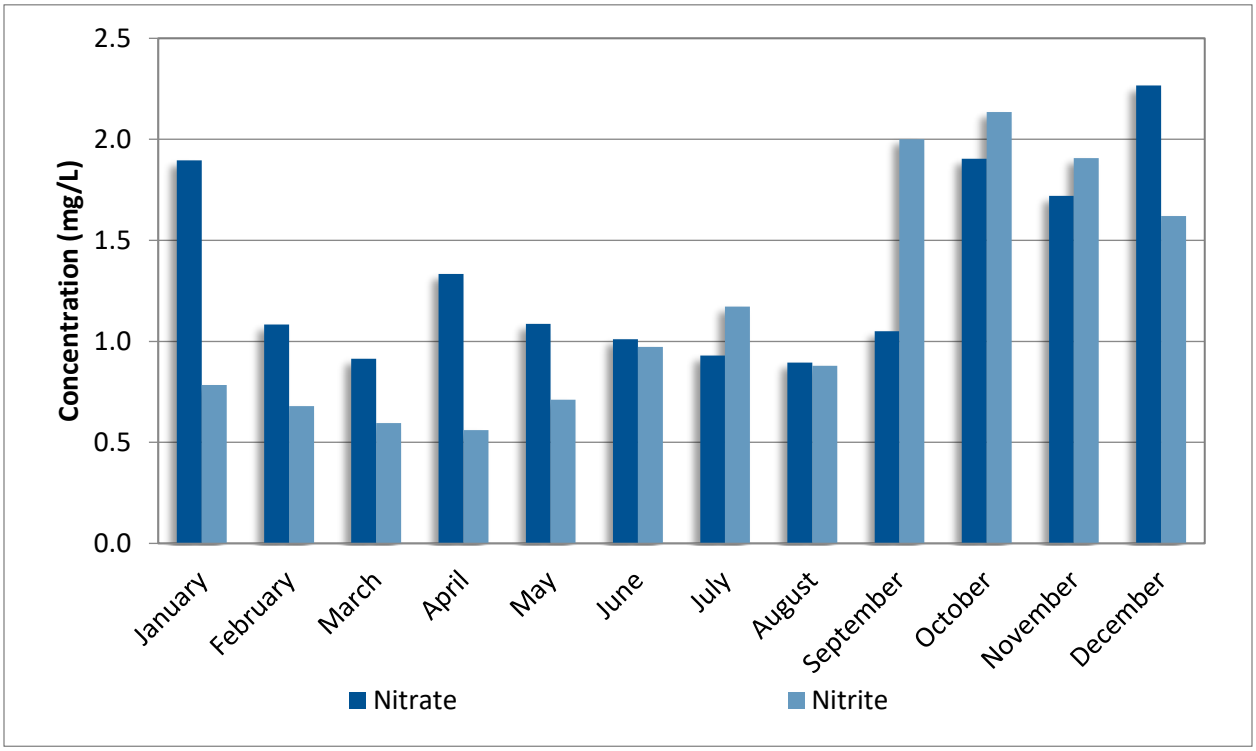
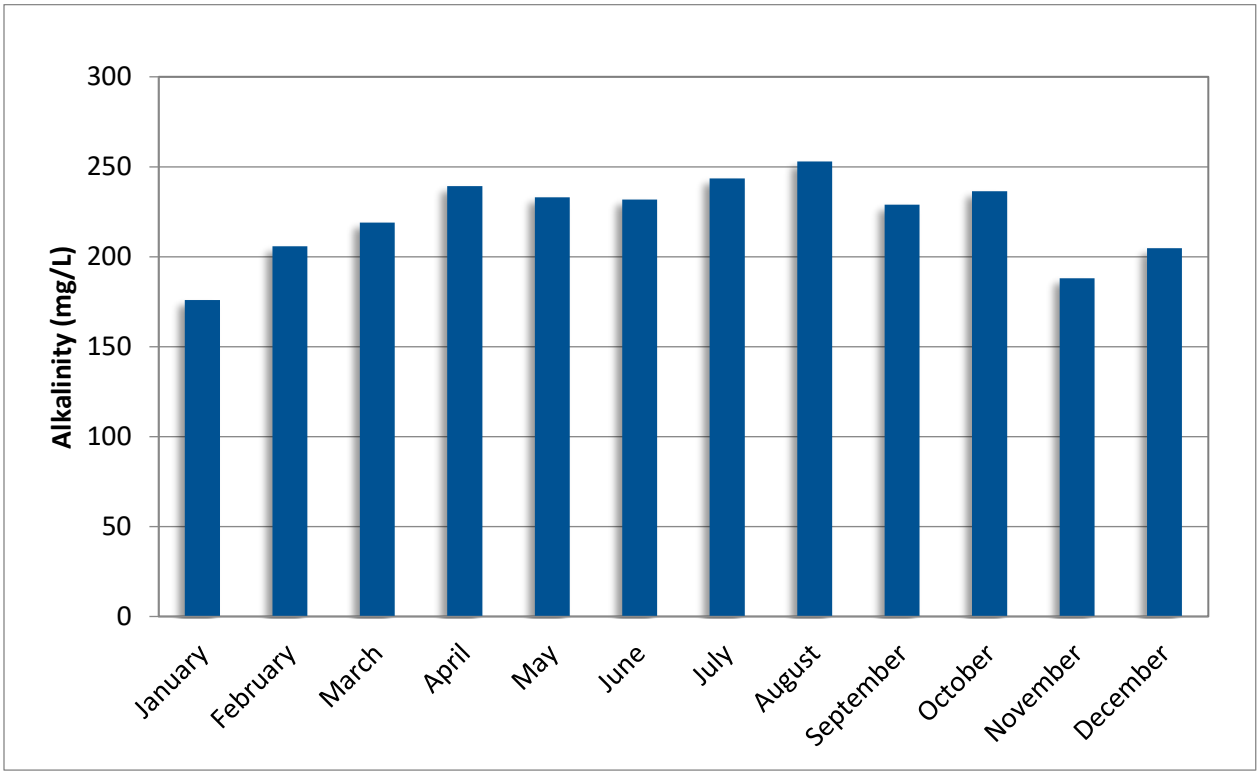


Figure 11. 2025 Effluent Alkalinity Monthly Average



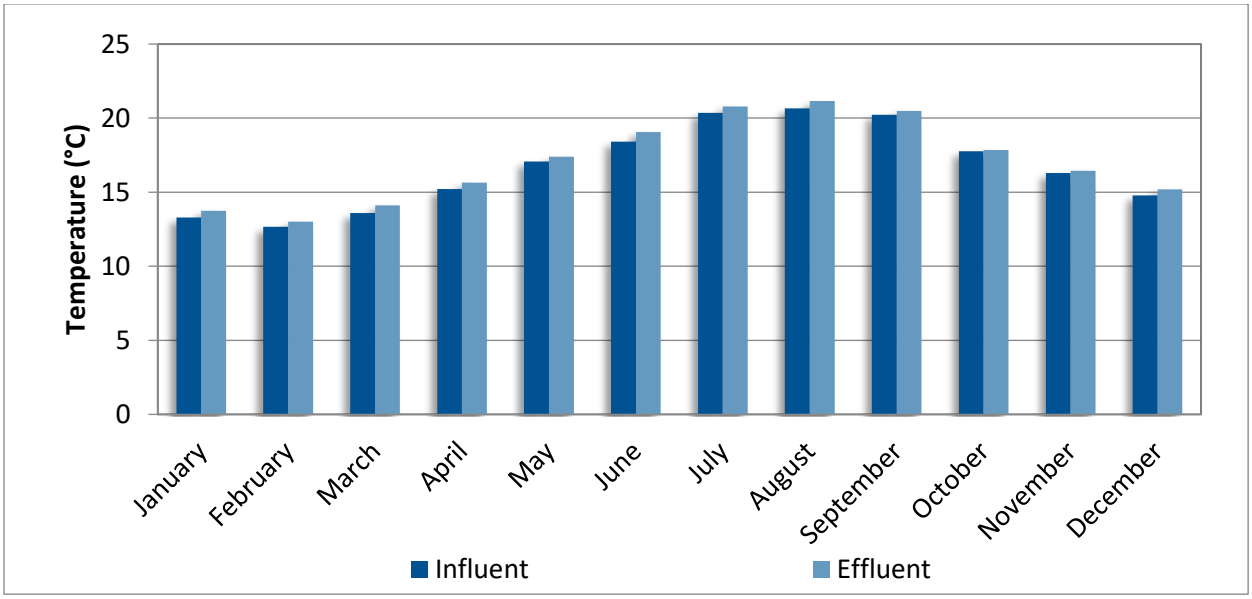
7.4 Temperature

Wastewater Services staff monitor the temperature of the influent and effluent daily. Temperature data for 2025 are presented in Appendix B. The average monthly temperature is summarized in Table 23 and graphed in Figure 12.

Table 23. 2025 Influent & Effluent Temperatures

Month	Average Temperature (°C)	
	Influent	Effluent
January	13.3	13.7
February	12.7	13.0
March	13.6	14.1
April	15.2	15.6
May	17.1	17.4
June	18.4	19.1
July	20.4	20.8
August	20.7	21.1
September	20.2	20.5
October	17.8	17.8
November	16.3	16.4
December	14.8	15.2
Average	**16.7**	**17.1**

Figure 12. 2025 Influent & Effluent Monthly Average Temperature



7.4.1 Historical Trends

Historical influent and effluent average temperatures reported over previous years are summarized in Table 24. Data from 2025 are consistent with historical data.

Table 24. Historical Trends: Influent & Effluent Average Temperature

Year	Average Temperature (°C)	
	Influent	Effluent
2016	16.7	17.2
2017	16.1	16.6
2018	16.3	16.9
2019	16.1	16.6
2020	16.0	16.5
2021	16.7	16.9
2022	16.1	16.8
2023	16.4	16.9
2024	16.4	16.9
2025	16.7	17.1

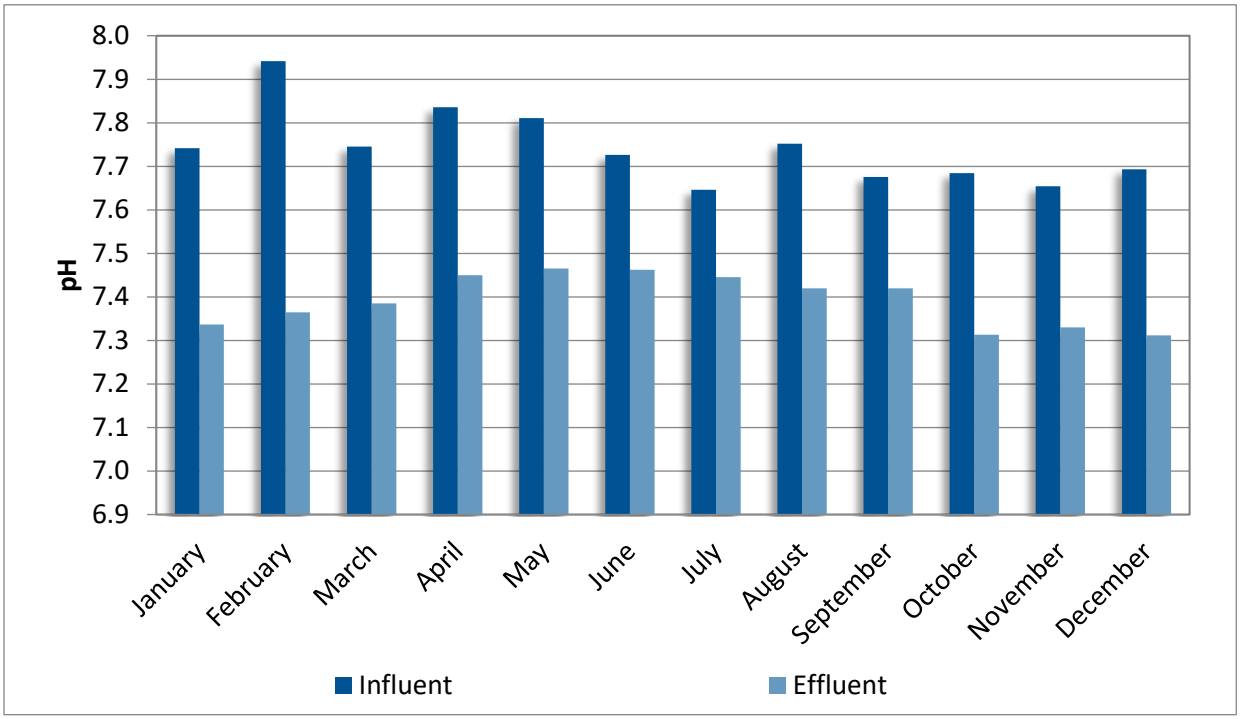
7.5 pH

Grab samples of the influent and effluent are monitored for pH daily. The pH data for FCPCC for 2025 are presented in Appendix B, the average monthly pH data are summarized in Table 25 and Figure 13.

Table 25. 2025 Influent & Effluent Average pH

Month	Average pH	
	Influent	Effluent
January	7.74	7.34
February	7.94	7.36
March	7.75	7.39
April	7.84	7.45
May	7.81	7.47
June	7.73	7.46
July	7.65	7.45
August	7.75	7.42
September	7.68	7.42
October	7.68	7.31
November	7.65	7.33
December	7.69	7.31
Average	**7.74**	**7.39**

Figure 13. 2025 Influent & Effluent Monthly Average pH



7.5.1 Historical Trends

Historical average influent and effluent pH values reported previous years are summarized in Table 26. Data from 2025 are consistent with historical data.

Table 26. Historical Trends: Influent & Effluent pH

Year	Average pH	
	Influent	Effluent
2016	7.84	7.22
2017	7.68	7.35
2018	7.67	7.35
2019	7.72	7.34
2020	7.59	7.30
2021	7.61	7.31
2022	7.62	7.24
2023	7.69	7.24
2024	7.72	7.28
2025	7.74	7.39

7.6 Dissolved Oxygen

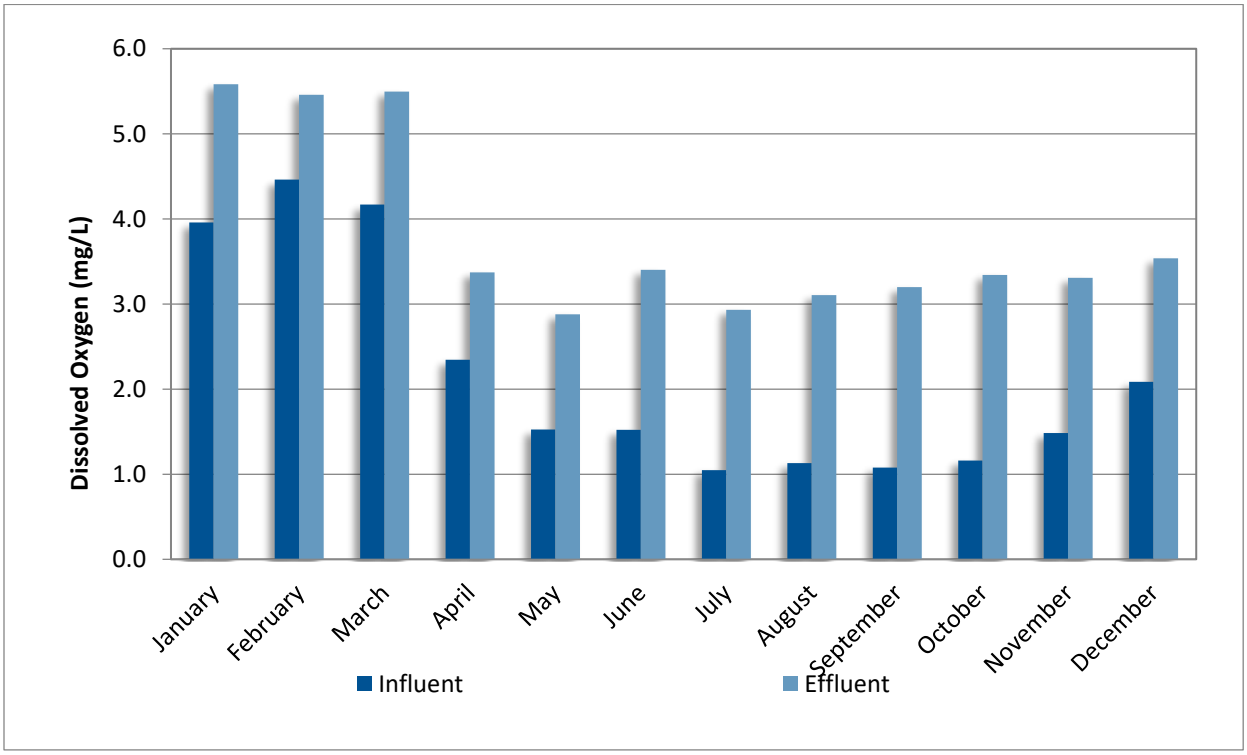
The dissolved oxygen (DO) of the influent and effluent is measured daily. The average monthly DO concentrations are summarized in Table 27 and graphed in Figure 14.

As of April 2025, dissolved oxygen readings have been taken in the field using a portable DO probe. This change was made to increase result accuracy by eliminating the high bias caused by shaking/pouring the sample prior to analysis in the laboratory. This trend can be confirmed in Table 27 and Figure 14.

Table 27. 2025 Influent & Effluent Dissolved Oxygen Concentration

Month	Average Dissolved Oxygen (mg/L)	
	Influent	Effluent
January	3.96	5.58
February	4.46	5.46
March	4.17	5.50
April	2.35	3.37
May	1.52	2.88
June	1.52	3.40
July	1.05	2.93
August	1.13	3.11
September	1.08	3.20
October	1.16	3.34
November	1.48	3.31
December	2.09	3.54
Average	**2.16**	**3.80**

Figure 14. 2025 Influent & Effluent Average Dissolved Oxygen Concentration



7.6.1 Historical Trends

Historical influent and effluent average DO concentration are summarized in Table 28. Data from 2025 are lower than historical data due to the methodology change described above. These results have increased accuracy by eliminating a significant result bias.

Table 28. Historical Trends: Influent & Effluent Dissolved Oxygen Concentration

Year	Average Dissolved Oxygen (mg/L)	
	Influent	Effluent
2015	3.26	5.11
2016	2.62	4.25
2017	3.44	4.91
2018	3.45	5.01
2019	3.08	5.20
2020	3.36	5.51
2021	2.99	5.32
2022	3.05	5.92
2023	3.30	5.39
2024	3.35	5.58
2025	2.16	3.80

8) Resource Consumption

8.1 Chemical Consumption

Table 29 summarizes the cost of chemicals used in the treatment process in 2025.

Table 29. 2025 Chemical Consumption

Chemical	FCPCC Usage (%)	Consumption	Units	Cost ($)	Use
Dry Polymer	100%	7,088	Kg	$73,480	Dewatering
Lquid Polymer	100%	3,904	Kg	$14,530	Residual Sludge Thickening
Ferrous Chloride	100%	55,112	kg	$33,839	Odour Control
Sodium Hypochloride	100%	17,902	L	$17,186	Odour Control
Defoamer	100%			$10,636	Defoaming
Other	100%			$16,461	Odour Control (Chemical Scrubber)
Total				**$166,132**	

8.1.1 Historical Trends

Annual costs of chemicals consumed in over the last ten years are summarised in Table 30. Pricing has increased since 2020 due to market trends and supply chain issues.

Total cost decreased since 2024 due to a reduction in ferrous chloride consumption in the process.

Table 30. Historical Trends: Chemical Costs

Year	Dewatering Polymer	Thickening Polymer	Secondary Treatment Polymer	Caustic Soda	Ferrous Chloride	Sodium Hypochlorite	De-Odorizer	De-Foamer	Hydrogen Peroxide	Actizyme	Other	Total
2016	$38,137	$13,627	$9,563	$7,260	$13,015	$10,149	-	$0	-	-	-	**$96,453**
2017	$31,592	$16,288	$15,754	$393	$15,976	$11,673	$2,018	$2,759	-	-	-	**$100,574**
2018	$36,467	$21,980	$133	$1,726	$20,798	$15,899	$1,995	$1,576	-	-	-	**$122,172**
2019	$35,628	$28,071	-	$2,060	$19,974	$34,576	-	-	$1,862	-	-	**$118,905**
2020	$41,488	$27,510	-	$879	$20,696	$24,608	-	-	$3,724	-	-	**$126,409**
2021	$32,982	$25,279	-	$7,469	$23,765	$32,923	-	$3,991	-	-	-	**$182,168**
2022	$45,050	$25,824	-	$8,091	$52,306	$42,408	-	$4,026	-	$4,463		**$211,647**
2023	$53,648	$35,620	-	$1,601	$80,921	$27,919	-	-	-	$4,463	$7,475	**$211,647**
2024	$63,141	$30,878	$2,351	-	$45,198	$22,709	-	-	-	-	$19,226	**$183,503**
2025	$73,480	$14,530	-	-	$33,839	$17,186	-	$10,636	-	-	$16,461	**$166,132**

Note: Due to a corrosion of the ferrous chloride tank at Bay Avenue pump station, ferrous was only delivered to FCPCC since 2017. In 2024, ferrous chloride was only added to the process at FCPCC.

8.2 Electrical Consumption

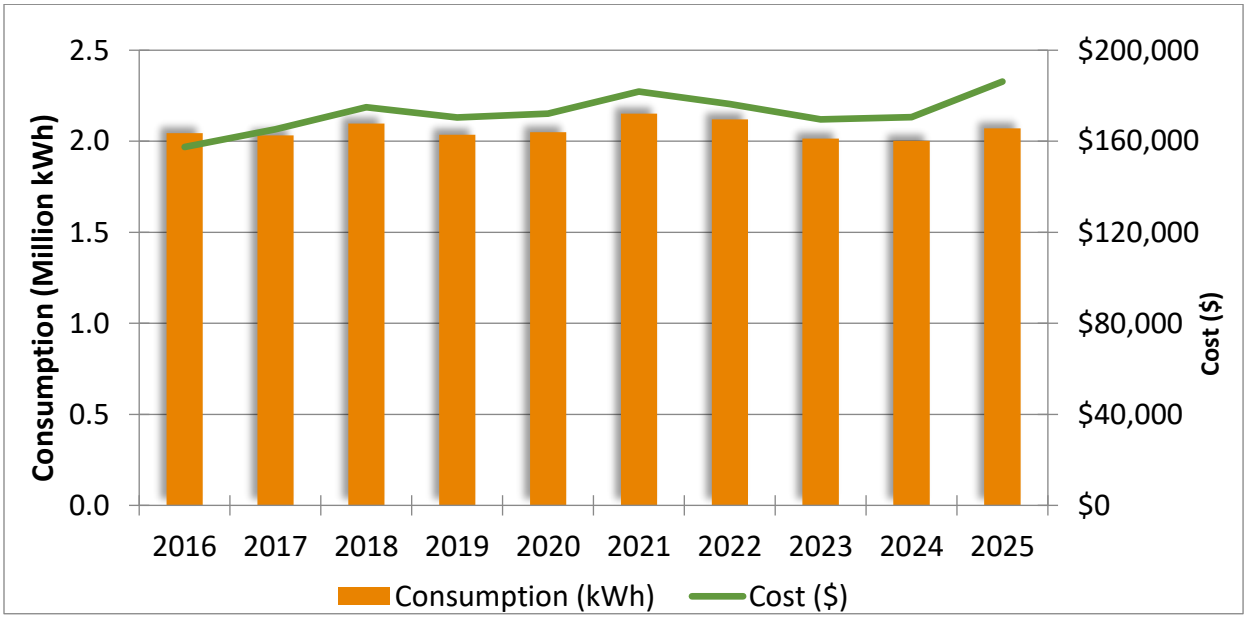
Historical annual electrical consumption and costs are summarised in Table 31 and graphed in Figure 15. Note: this section reports electrical consumption at the treatment plant only (pump stations are excluded). The cost of electricity excludes federal and provincial taxes.

Table 31. Historical Trends: FCPCC Electrical Consumption

Year	Consumption (kWh)	Cost ($)
2016	2,044,800	$157,473
2017	2,031,840	$165,277
2018	2,097,360	$174,964
2019	2,035,440	$170,450
2020	2,048,974	$172,096
2021	2,152,216	$181,784
2022	2,120,888	$176,288
2023	2,015,041	$169,614
2024	2,002,149	$170,553
2025	2,070,473	$186,220

Note: Electrical consumption at the treatment plant only (pump stations are excluded).

Figure 15. Historical Trends: FCPCC Electrical Consumption and Costs (Treatment Plant Only)



8.3 Water Consumption

Water consumption at FCPCC for 2025 was estimated at 4,972 m^3 using water invoices. Table 32 contains the water consumption records over the last eight years. There have been considerable decreases in water consumption due to proactive water monitoring and increased use of reclaimed water in treatment processes. Water use has declined due to a new technology to pressurize the seals

on pumps using air pressure and water as opposed to constant water flow. Note: this is water consumption at the treatment plant only (pump stations are excluded).

Increased consumption in 2024 and 2025 may be due to the start of the FCPCC Expansion and Odour Control Upgrade, and use of potable water from the hydrate.

Table 32. Historical Trends: FCPCC Water Consumption

Year	Consumption (m^3)
2016	4,575
2017	2,013
2018	4,894
2019	6,160
2020	4,815
2021	4,356
2022	2,324
2023	1,937
2024	4,765
2025	4,972

9) Odour

Odours at the FCPCC were a significant concern prior to 2000, and considerable progress has been made in reducing odours at the FCPCC facility. The odour control system at FCPCC now includes two bioscrubbers, one chemical scrubber, and one biofilter.

Wastewater staff continues to monitor the effectiveness of odour control initiatives to ensure the impacts to neighborhoods adjacent to the plant are minimized. The RDN acknowledges the assistance and input from residents in addressing air quality issues around the FCPCC.

9.1 Operational Procedures

Wastewater that enters FCPCC is primarily from domestic sources. Tourism in the summer months increases the flows to the treatment plant, as well as results in more solids. Winter flows are higher, but the solids concentration is lower during this time. TSS and $cBOD_5$ are measured in the influent and effluent to determine the strength of the wastewater. A higher strength of wastewater in the summer appears to correlate to a higher level of odours throughout the treatment plant.

Influent and effluent temperatures increase during the summer months, thereby also increasing odours. Increased temperature releases additional gas and vapour into the atmosphere causing odours. As a result, odour reports increase in the summer.

The FCPCC staff have a schedule of routine duties that have an impact on odour mitigation. Some duties include skimming scum from the clarifiers, hosing/cleaning, checking odour control systems to ensure they are operating as intended, and monitoring ferrous chloride dosage. In 2020, the media for the bio-filters was replaced. In 2022, repairs were made to the trickling filter piping which have significantly reduced the number of odour concerns. In 2023, repairs were also completed to the chemical scrubber and replacement of dewatering biofilter media was completed.

9.2 Odour Concerns

The most common sources of odours at wastewater treatment plants are ammonia and hydrogen sulfide gases. At FCPCC, more odour reports are typically received in the summer months due to septage dumping (septic trucks) and higher temperatures resulting in increased biological activity. The concentration of hydrogen sulfide gas in the influent also increases in the summer months.

Odour concerns received at FCPCC are routinely recorded on a form and entered into the department's Environmental Management System. The location of the odour, time of day, weather conditions, and current activities at the plant are noted along with the report. Through this system, the Chief Operator and Senior Operator are notified of all reports within 24 hours.

In previous years, many of the odour reports were mistaken as odours from FCPCC but were due to odours from herring roe. Herring spawn along the beaches near FCPCC in the spring and the rotting of these eggs later in the season produces strong odours near the treatment plant. No odour concerns were related to herring roe in 2025.

The number of odour reports decreased after 2021 compared to previous years. This is attributed to the replacement of the media in the biofilters in 2020 and the trickling filter piping repair in 2022.

Appendix E contains further information on the 3 odour reports received in 2025.

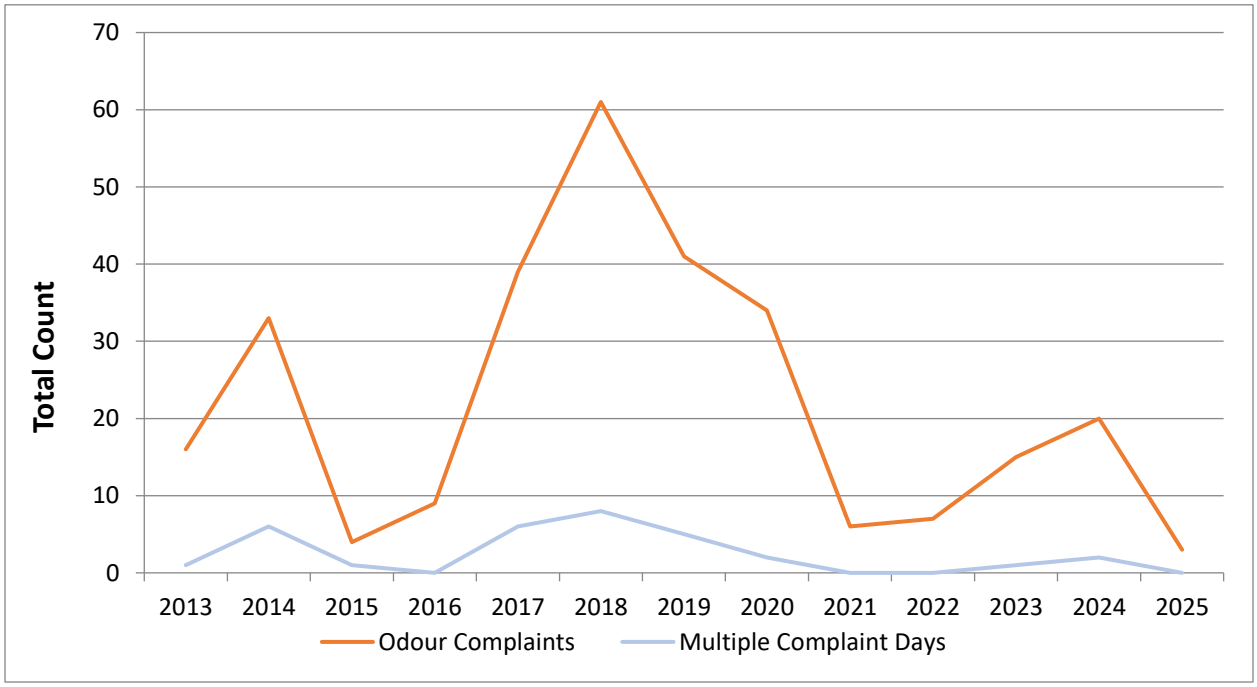
9.2.1 Historical Trends

The odour reports over the last 10 years are summarized in Table 33 and graphed in Figure 16.

Table 33. Historical Trends: FCPCC - Number of Odour Reports

Year	Odour Complaints	Multiple Complaint Days
2016	9	0
2017	39	6
2018	61	8
2019	41	5
2020	34	2
2021	6	0
2022	7	0
2023	15	1
2024	20	2
2025	3	0

Figure 16. Historical Trends: FCPCC Odour Reports



9.3 Future Plans

Wastewater staff will continue to monitor the effectiveness of odour control initiatives to ensure that the impacts on adjacent neighborhoods are minimized.

The RDN has been working in partnership with Vancouver Island University (VIU) researchers to identify, locate, and monitor sources of odours near FCPCC. Monitoring at FCPCC occurred in 2025 and identified several odour control systems at FCPCC which could be made more efficient. The design of the expansion project will incorporate the monitoring results. The RDN has also established a long-term agreement with VIU for an odour monitoring program.

The FCPCC Expansion and Odour Control Upgrade commenced construction in 2025. The project will include significant odour control upgrades at the existing plant and the expansion site.

10) Septage Receiving

The total combined volume of Septage and Pump & Haul discharged in 2025 was 3,016,968 Imperial gallons (13,715 m^3). This volume does not include discharge of NBPCC sludge to FCPCC. These volumes are tabulated in the 2025 NBPCC Annual Report.

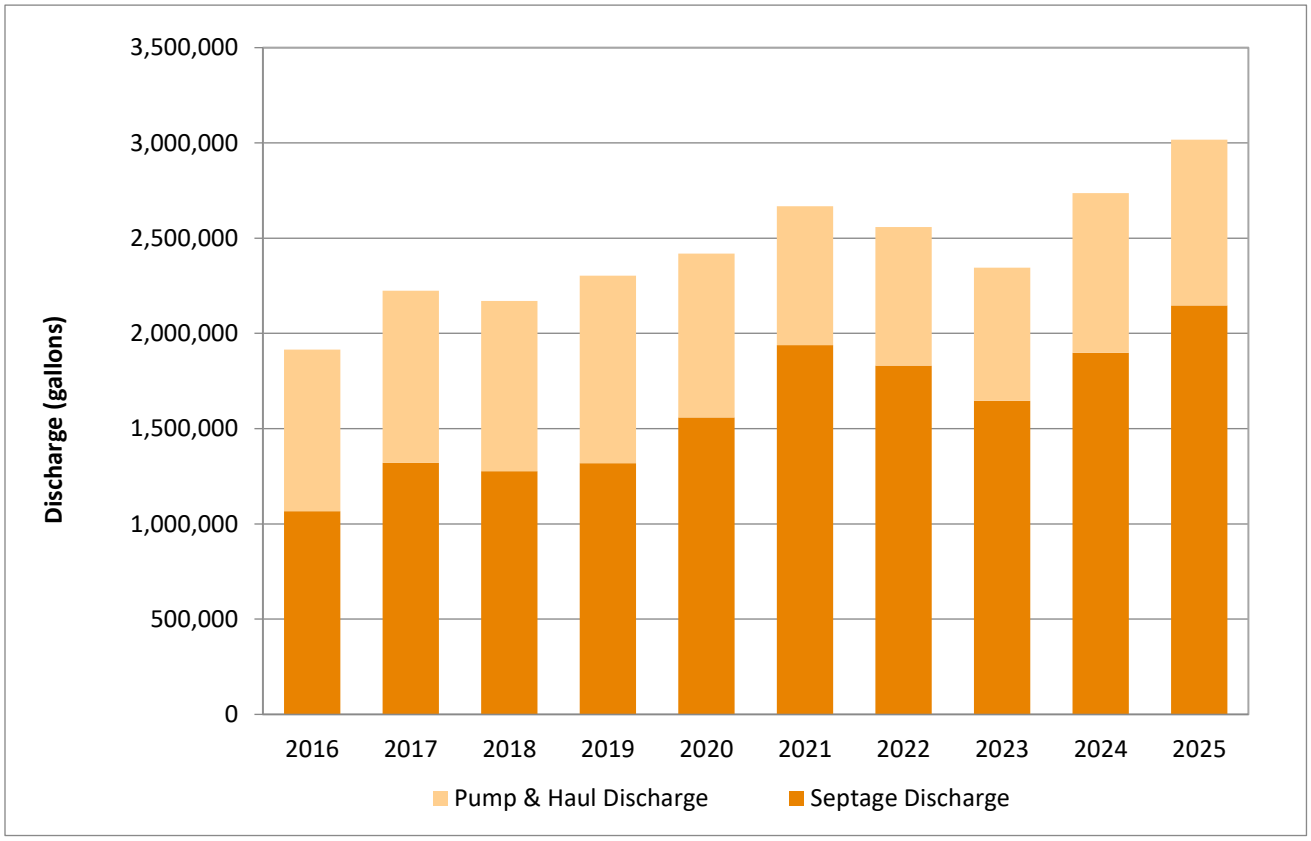
10.1 Historical Trends

The volumes of Septage and Pump & Haul waste discharged over the past ten years are summarised in Table 34 and graphed in Figure 17. The volume received has shown an increasing trend. This is likely related to better tracking of volumes discharged due to the installation of a septage meter.

Table 34. Historical Trends: Septage and Pump & Haul Discharged at FCPCC

Year	Total Septage (Imperial Gallons)	Total Pump & Haul (Imperial Gallons)	Combined Total (Imperial Gallons)	Combined Total (m^3/year)
2016	1,067,458	847,500	1,914,958	8,706
2017	1,320,987	903,700	2,224,687	10,114
2018	1,277,508	893,594	2,171,102	9,870
2019	1,318,518	984,713	2,303,231	10,471
2020	1,559,241	859,025	2,418,266	10,994
2021	1,938,308	729,999	2,668,307	12,130
2022	1,831,525	726,302	2,557,827	11,628
2023	1,645,958	699,183	2,345,141	10,661
2024	1,898,526	838,304	2,736,830	12,442
2025	2,146,397	870,571	3,016,968	13,715

Figure 17. Historical Trends: Annual Septage and Pump & Haul Waste Discharged at FCPCC



11) Contributory Population and Remaining Plant Capacity

The current FCPCC plant operating capacity is designed for an average daily flow of 12,000 m^3/day, with a maximum daily flow capacity of 18,360 m^3/day. Wastewater Services continues to install new equipment and upgrade existing technology to ensure the future carrying capacity of the treatment plant is adequate and permit levels are not exceeded.

In 2025, the combined average daily flow from FCPCC was 10,682.2 m^3/day with a maximum daily discharge of 16,626.8 m^3/day. The estimated population serviced in 2025 was 30,152 with a projected annual growth rate of approximately 1.39%.

In 2017, the RDN commissioned a preliminary design study to evaluate expansion options for FCPCC. The Integrated Project Delivery Project Validation for the FCPCC Stage 4 expansion and Odour Control Upgrades was ongoing in 2024. Construction commenced in 2025.

12) Environmental Incidents

As part of the RDN's ISO 14001 Environmental Management System certification, records are maintained regarding any environmental incidents that are associated with the RDN's wastewater infrastructure and treatment facilities including spills, leaks, and fires. Environmental incidents may be related to spills, leaks, or fires from the treatment plant, gravity sewer interceptor and forcemains conveying wastewater to FCPCC.

One environmental incident was reported at FCPCC in May 2025 by a contractor undertaking the FCPCC Expansion and Odour Control Project. This spill occurred during the demolition and excavation of existing underground piping adjacent to the demolished bio-filter building. A pipe servicing the dewatering building was removed but was later discovered to still be service. The estimated volume spilled was 1,000 L. The dewatering process was shut down, and contaminated soil removed. This incident was reported to ENV by the contractor.

Appendix F contains more information on this environmental incident.

13) Conditional Management Plan

On May 1, 2012, the RDN entered into a Conditional Management Plan (CMP) agreement with the Canadian Food Inspection Agency, Environment Canada, Fisheries and Oceans Canada, and the British Columbia Ministry of Environment (now Ministry of Environment and Parks). The CMP was renewed several times, with the current agreement expiring January 31, 2028.

The CMP has these key objectives:

- Provides enhanced management of shellfish harvesting in Conditionally Classified Harvest Areas adjacent to Hall Road Pump Station.

- Outlines the roles and responsibilities of the signatories in the event of a "trigger event," which is a discharge of wastewater to the marine environment from the identified pump stations.

No trigger events occurred in 2025. The 2025 CMP Annual Report in Appendix G provides more information.

14) Upgrades & Major Projects

14.1 Upgrades and Repairs Completed in 2025

- Bay Avenue Pump Station (Completion of Project)
- Centrifuge #1 Rotating Assembly.
- Rotacut Sludge Macerator.

14.2 Studies and Projects Completed in 2025

- FCPCC Stage 4 Expansion and Odour Control Upgrade – Project Validation and Design and Commencement of Construction.
- ISO 14001:2015 Surveillance Audit
- Federation of Canadian Municipalities Side Stream Ammonia Study
- FCPCC outfall inspection – 3-year cycle
- VIU Odour Monitoring Study (ongoing).

14.3 Upgrades and Repairs Planned for 2026

- Bay Avenue Pump Station – Public Access Improvements
- Ferrous chloride tanks

14.4 Studies and Projects Planned for 2026

- FCPCC Stage 4 Expansion and Odour Control Upgrade – Construction
- Review of the Development Cost Charge Bylaw for the Northern Communities

15) Resource Recovery

15.1 Biosolids Reuse

Since 1999, RDN biosolids have been beneficially used in agriculture, landfill closures, mine reclamation, soil fabrication, and forest fertilization. Biosolids management in 2025 is discussed in Section 6.5.

15.2 Effluent Reuse

The reuse of effluent in operational processes at FCPCC has decreased the plant's demand for potable water from the community's supply. Effluent was not used to irrigate Morningstar Golf Course in 2025.

15.3 Solid Waste and Recycling

Wastewater Services has a general recycling program at the treatment plant, initiated as part of the department's Environmental Management System, and continues to recycle metals, plastics, cardboard, waste oils, paints and paint thinners.

16) Education Programs

16.1 Source Control

Source Control Bylaw No. 1730 regulates the discharge of waste into any sewer or drain connected to an RDN sewage facility, including discharges to municipal collection systems. The bylaw provides a process for issuing Waste Discharge Permits and a fee structure based on waste strength and volume. The Bylaw also lists prohibited waste items and has provisions for fees and enforcement.

Trucked Liquid Waste Rates and Regulations Bylaw No. 1732 include source control provisions including a schedule of prohibited wastes and a schedule of restricted wastes. It also includes enforcement tools.

16.2 Water Conservation

The RDN has a water conservation and outreach program, called Team WaterSmart, for municipalities in the region and electoral areas. The RDN's Board also approved a Water Conservation Plan in 2020. This plan was completed in collaboration with member municipalities.

16.3 Open House

Open houses are occasionally offered at FCPCC to provide the public with opportunities to tour the facilities, learn about planned upgrades, browse information, and ask questions. An open house was not held at FCPCC in 2025.

16.4 SepticSmart

SepticSmart is and RDN educational program that provides information on septic system operation and maintenance. It aims to prolong the life of functioning systems in the region. More information on the SepticSmart Program is available at: https://www.rdn.bc.ca/septicsmart.

The SepticSmart program includes an information package, annual workshops and a rebate program. Two SepticSmart workshops were held in 2025. To date, the SepticSmart rebate program has issued more than $450,000 in rebates to homeowners to help with septic tank repairs and maintenance.

16.5 Liquid Waste Management Plan

The RDN Liquid Waste Management Plan (LWMP) is a long-range plan to support sustainable wastewater management in the region. This plan authorizes the RDN to find community-driven and cost-effective solutions to protect public health and achieve a standard level of wastewater treatment over time. The BC Minister of the Environment approved the RDN's LWMP in October 2014. An LMWP annual report will be submitted under separate cover in June.

In December 2023, the RDN submitted a request to the Province of BC for an LWMP Amendment. In 2025, the RDN submitted a subsequent request for an LMWP Amendment to update the financial information related to the FCPCC Expansion and Odour Control Upgrade project.

16.6 Website

The RDN's Wastewater Services department website www.rdn.bc.ca/wastewater-services is regularly updated and provides education material related to wastewater treatment, environmental management, pollution prevention and septic system maintenance (the SepticSmart program).

The Get Involved RDN webpage is an online public engagement space that hosts outreach information specific to the regional projects. In 2025, the following FCPCC projects were highlighted:

- FCPCC Expansion and Odour Control Upgrade Project
- Liquid Waste Management Plan Amendment.

Appendix A – Waste Management Permit No. PE-4200 & Amendments

Province of
British Columbia

Ministry of
Environment

Vancouver Island Region
Regional Headquarters
2569 Kenworth Road
Nanaimo
British Columbia
V9T 4P7
Telephone: (604) 758-3951

JUL 10 1990

REGISTERED MAIL

File: PE-4200

Regional District of Nanaimo
6300 Hammond Bay Road
Lantzville, British Columbia
V0R 2H0

Gentlemen:

LETTER OF TRANSMITTAL

Enclosed is a copy of amended Permit No. PE-4200, issued under the provisions of the Waste Management Act, in the name of Regional District of Nanaimo. Your attention is respectfully directed to the terms and conditions outlined in the Permit. An annual fee for Permit No. PE-4200 will be determined on the basis of your industrial code and capacity in accordance with the Waste Management Fees Regulation.

The administration of this Permit will be carried out by staff from our Regional Office located at 2569 Kenworth Road, Nanaimo, British Columbia, V9T 4P7 (telephone 758-3951). Plans, data and reports pertinent to the Permit are to be submitted to the Regional Waste Manager at this address.

You will note that values have been expressed in the International System of Units (SI). These units are to be used in submitting monitoring results and any other information in connection with this Permit.

This Permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority shall rest with the Permittee.

Yours very truly,

G. E. Oldham, P. Eng.
Regional Waste Manager

Enclosure

28.05.90
28.5.90
DAB 09/06/90

MINISTRY OF ENVIRONMENT

PERMIT

Under the Provisions of the Waste Management Act

REGIONAL DISTRICT OF NANAIMO
6300 Hammond Bay Road
Lantzville, British Columbia
V0R 2H0

is hereby authorized to discharge effluent from a municipal sewage system located within the Regional District of Nanaimo to the Strait of Georgia and to storage lagoons at the Morningstar Golf Course near Parksville, British Columbia

This permit has been issued under the terms and conditions prescribed in the attached Appendices

01, 02, A-1, A-2, B-1, B-2, C-1 and C-2

Regional Waste Manager
Permit No. PE-4200

Date issued: January 16, 1976
Date amended: JUL 10 1990
28.05.90
20.5.90
09/06/90

ENV 2093

MINISTRY OF ENVIRONMENT

WASTE MANAGEMENT BRANCH

APPENDIX 01

to Permit No. PE-4200

(Effluent)

(a) The discharge of effluent to which this appendix is applicable is from a municipal sewage system servicing the Parksville and Qualicum Beach area as shown on the attached Appendix A-1.

(b) The maximum rate at which effluent may be discharged is 16 000 m^3/d.

(c) The characteristics of the effluent shall be equivalent to or better than:
5-day Biochemical Oxygen Demand - 45 mg/L
Total Suspended Solids - 60 mg/L.

(d) The works authorized are screening, degritting and ancilliary facilities, a secondary treatment plant, sludge digestion and dewatering facilities and an outfall with diffuser extending 2440 m from mean low water to a depth of 61 m below mean low water and related appurtenances approximately located as shown on the attached Appendix A-1.

(e) The location of the facilities from which the effluent originates and to which this appendix is appurtenant is Lot 2, Plan 2570, District Lot 28, Nanoose District.

(f) The location of the point of discharge and to which this appendix is appurtenant is the Strait of Georgia off the mouth of French Creek.

(g) Those works authorized must be completed and in operation on and from the date of this appendix.

Date issued: January 16, 1976

Date amended: JUL 10 1990

Regional Waste Manager

28.05.90

28.5.90

PAB 03/04/90

ENV. 2096 W-817

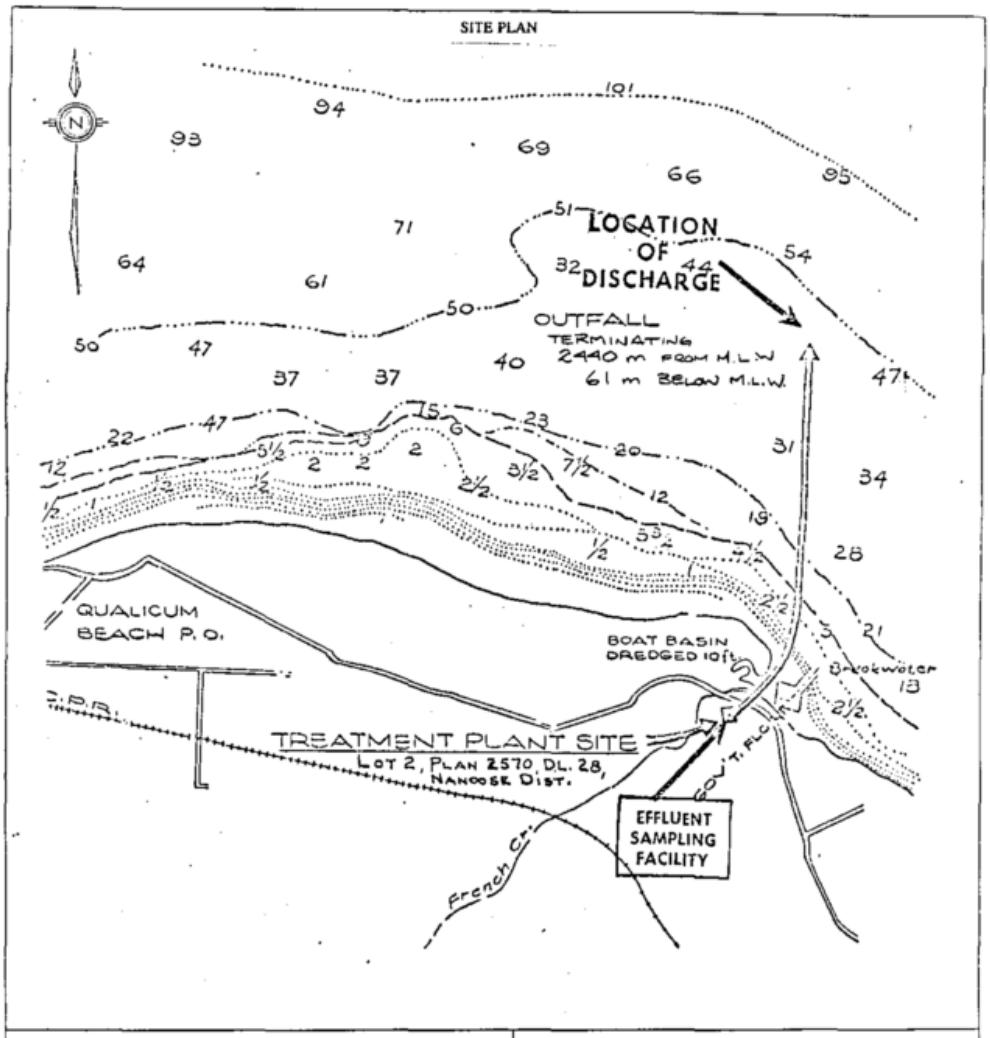
p

Province of British Columbia

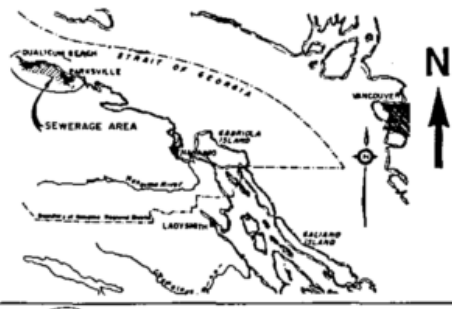
Ministry of Environment

WASTE MANAGEMENT

SITE PLAN



LOCATION MAP



Regional District of Nanaimo
(Name of applicant(s))

(Date) (Signature of applicant(s) or agent)

(FOR OFFICE USE ONLY)

Date Issued JUL 10 1990 Regional Waste Manager

Date Amended

Appendix A-1 to Permit No. PE-4200

Approval No.

ENV 1987

29.05.90

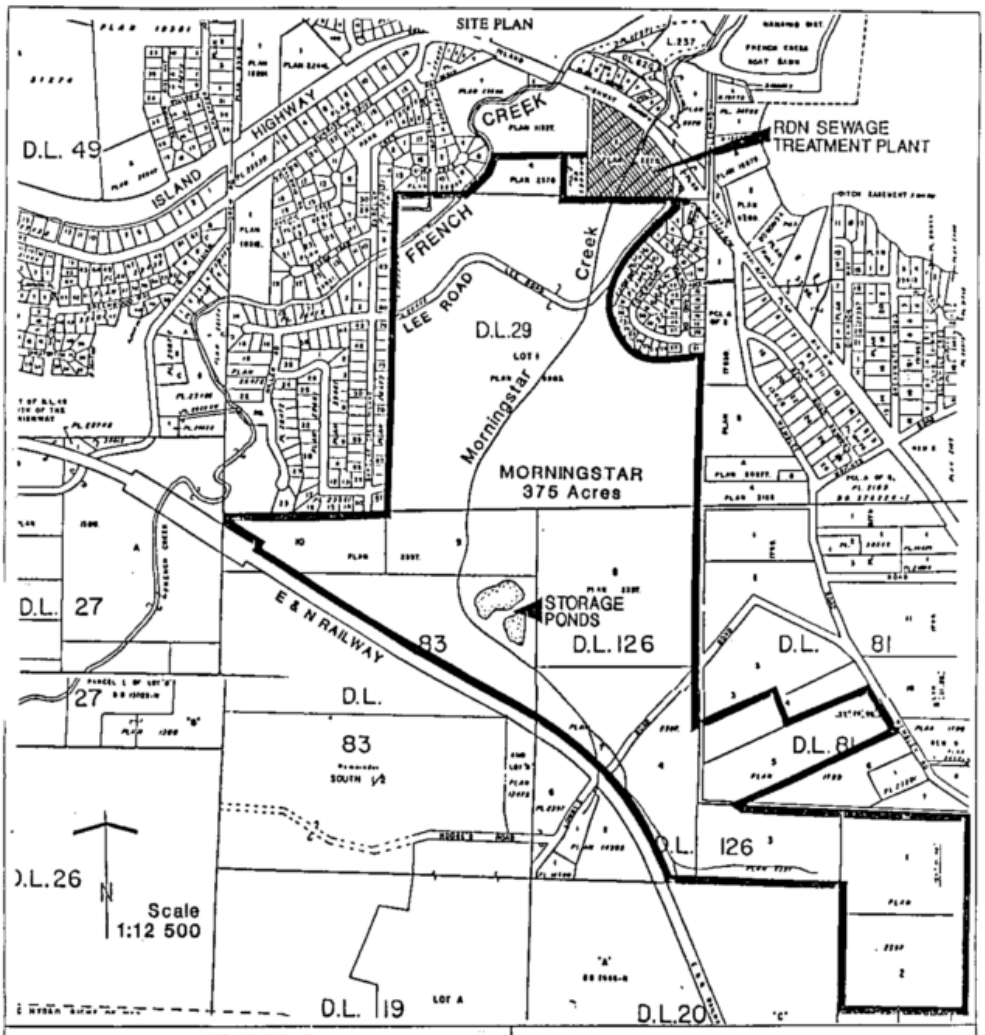
28.5.90

RMs 09/04/90

Province of British Columbia

Ministry of Environment

WASTE MANAGEMENT



LOCATION MAP

Regional District of Nanaimo
(Name of applicant(s))

(Date) (Signature of applicant(s) or agent)

(FOR OFFICE USE ONLY)

JUL 10 1990
Date Issued

Regional Waste Manager

Date Amended

Appendix A-2 to Permit No. PE-4200

Approval No.

ENV 1987

08.05.90

28.5.90

RAS 03/06/90

MINISTRY OF ENVIRONMENT

WASTE MANAGEMENT BRANCH

APPENDIX B-1

to Permit No. PE-4200

A. MAINTENANCE OF WORKS

The Permittee shall inspect the pollution control works regularly and maintain them in good working order. Notify the Regional Waste Manager of any malfunction of these works.

B. EMERGENCY PROCEDURES

In the event of an emergency or condition beyond the control of the Permittee which prevents continuing operation of the approved method of pollution control, the Permittee shall immediately notify the Regional Waste Manager and take appropriate remedial action.

C. BYPASSES

The discharge of effluent which has bypassed the authorized works is prohibited unless the approval of the Director or the Regional Waste Manager is obtained and confirmed in writing.

D. PROCESS MODIFICATIONS

The Permittee shall notify the Regional Waste Manager prior to implementing changes to any process that may affect the quality and/or quantity of the discharge.

E. OUTFALL INSPECTION

The Permittee shall conduct a dye test on the outfall line authorized in Appendix 01 (or inspect by another method approved by the Regional Waste Manager) once every five years or as may otherwise be required by the Regional Waste Manager.

F. DISINFECTION

Although disinfection of the effluent discharge authorized by Appendix 01 is not required at this time, suitable provisions should be made to include disinfection facilities in the future. If disinfection is by chlorination, dechlorination facilities may also be required.

Date issued: JUL 10 1990

Date amended: _____

_____

_____

Regional Waste Manager

2805.90

28.5.90

RAB 07/06/90

ENV. 2096 w-air

MINISTRY OF ENVIRONMENT

WASTE MANAGEMENT BRANCH

APPENDIX B-2

to Permit No. PE-4200

G. SLUDGE WASTING AND DISPOSAL

Sludge wasted from the treatment plant shall be disposed of to a site and in a manner approved by the Regional Waste Manager.

H. EFFLUENT UPGRADING

Based on receiving environment monitoring data and/or other information obtained in connection with this discharge, the Permittee may be required to provide additional treatment facilities.

Date issued: JUL 10 1990

Date amended: _____

28.05.90

28.5-90

09/06/90

G.E.O.

Regional Waste Manager

ENV. 2096 W-817

MINISTRY OF ENVIRONMENT
WASTE MANAGEMENT BRANCH

APPENDIX C-1

to Permit No. PE-4200

A. SAMPLING AND ANALYSIS

The Permittee shall install a suitable sampling facility and obtain a grab sample of the effluent once every day. The sample shall be analyzed on a daily basis for Total Suspended Solids and on a weekly basis for 5-day Biochemical Oxygen Demand.

Once per year a composite sample, over an eight-hour period, shall be taken during a low flow period in July or August and analyzed for parameters such as metals, volatile organics, phenolics, organochlorine pesticides, acid extractable herbicides, anions, and inorganics. The Regional Waste Manager shall advise the Permittee in writing of the specific parameters to be analyzed.

B. FLOW MEASUREMENT

For the discharge authorized by Appendix 01, provide and maintain a suitable flow measuring device and record once per day the effluent volume discharged over a 24-hour period.

C. SAMPLING AND ANALYTICAL PROCEDURES

Sampling and flow measurement shall be carried out in accordance with the procedures described in "Field Criteria for Sampling Effluents and Receiving Waters", April 1989.

Analyses are to be carried out in accordance with procedures described in "A Laboratory Manual for the Chemical Analysis of Waters, Wastewaters, Sediments and Biological Materials, (1976 edition including updates)", April 1989.

Copies of the above manuals are available from the Data Standards Group, Ministry of Environment, 3800 Wesbrook Mall, Vancouver, British Columbia, V6S 2L9, at a cost of $20.00 and $70.00, respectively, and are also available for inspection at all Waste Management offices.

Date issued: JUL 10 1990

Date amended: _____

_____

_____

Regional Waste Manager

DAT: 06/07/90

V. 2096 WBB 4.7.90

04.07.90

MINISTRY OF ENVIRONMENT

WASTE MANAGEMENT BRANCH

APPENDIX C-2

to Permit No. PE-4200

D. RECEIVING ENVIRONMENT MONITORING

At the discretion of the Regional Waste Manager, the Permittee may be required to conduct a receiving environment monitoring program for the discharge authorized by Appendix 01. The program shall be established in consultation with the Regional Waste Manager, who will advise the Permittee in writing of the program requirements.

E. REPORTING

Maintain data of analyses and flow measurements for inspection and once per month submit the data, suitably tabulated, to the Regional Waste Manager for the previous month's monitoring. The first report is to be submitted by September 30, 1990.

Date issued: JUL 10 1990

Date amended: _____

_____

_____

Regional Waste Manager

ENV. 2096 w617

Paris 05/07/90

4.7.90

09.07.90

Province of
British Columbia
Ministry of
Environment,
Lands and Parks

BC Environment

Environmental Protection Division
777 Broughton Street
Victoria
British Columbia
V8V 1X5

COPY

Telephone: (604) 387-9974
Facsimile: (604) 356-9836

File: PE-4200

June 17, 1993

Regional District of Nanaimo
6300 Hammond Bay Road
Lantzville, British Columbia
V0R 2H0

Dear Permittee:

Re: Notification of Amendment to Permit No. PE-4200

Please note that Permit No. PE-4200, issued under the provisions of the Waste Management Act, in the name of Regional District of Nanaimo is amended by adding to Appendix B-2 the following clauses:

(h) FACILITY CLASSIFICATION

The Permittee shall classify the wastewater treatment facility authorized in part (d) of Appendix No. 01 (the facility) and the classification shall be maintained with the "British Columbia Water and Wastewater Operators Certification Program Society" (BCWWOCPS). The Permittee shall submit an application to classify the facility to BCWWOCPS by **August 1, 1993**. Although the facility may have already been voluntarily classified previously, an application for classification must be submitted by the above date.

(i) OPERATOR CERTIFICATION

If the facility is classified by the BCWWOCPS (the Program) at Level II or higher, the Permittee shall ensure that all operators of the facility shall be certified by the Program to a Class I level, at a minimum, by **December 1, 1994**.

Operators in Training:

The Permittee shall ensure that all operators in training (OIT) working at the facility classified by the BCWWOCPS at Level II or higher shall be required to successfully pass an OIT examination within three (3)

../2

months of commencement of employment at the facility. The OIT certificate shall be valid for fifteen (15) months from the date of issue. Prior to the expiry date of the OIT certificate, but not sooner than twelve (12) months from the date when the OIT commenced facility operation, the OIT shall successfully complete a Class I certification examination in order to continue to operate at the facility.

Chief Operator: Level II or higher

If the facility is classified by the BCWWOCPS at Level II or higher, the Permittee shall designate at least one operator to be the "Chief Operator" of the facility by **December 1, 1996**. The "Chief Operator" shall be certified at a Class II level, at a minimum.

After **December 1, 1996**, no person shall have "Direct Responsible Charge", as defined by the BCWWOCPS, of a municipal wastewater treatment facility classified at Level II or higher unless they possess a valid operator's certificate not more than one level below the classification level of the facility.

Chief Operator: Level III and IV

If the facility is classified by the BCWWOCPS at Level III, the Permittee shall designate a "Chief Operator", certified at a Class III level by **December 1, 1998**.

If the facility is classified by the BCWWOCPS at Level IV, the Permittee shall designate a "Chief Operator", certified at a Class IV level by **December 1, 1998**.

All other terms and conditions of Permit No. PE-4200 remain in full force and effect. If you have any questions regarding this amendment please contact John Finnie at 751-3183.

Yours truly,

R.J. Driedger,
Deputy Director of Waste Management

cc: Ted Oldham
BCWWOCPS

DB
AGL
BMM

August 24, 1994

File: PE-4200

Regional District of Nanaimo
6300 Hammond Bay Rd
PO Box 40
Lantzville BC V0R 2H0

ATTENTION: Mike Donnelly
Manager of Operations

Dear Mike Donnelly:

Re: Monitoring of French Creek
Pollution Control Centre Effluent

As outlined in Appendix C-1 to Permit PE-4200, the Regional District of Nanaimo is required to obtain a composite sample of the effluent once per year during July or August and have the sample analyzed for several parameters. The exact parameters were listed in our letter to you dated July 17, 1990 (copy enclosed). Our records indicate that the Regional District last sampled for these specific parameters on July 16, 1992.

Environmental Protection staff have reviewed the results of your July, 1992 sampling. Since the analysis shows that the levels meet the ministry's 1994 Approved and Working Criteria for Water Quality, we advise you that repeating this sampling procedure is not necessary at this time, although it may be required in the future.

If you have any questions or concerns, please contact Al Leuschen, P. Eng., or Bernie MacKay of this office at 751-3100.

Yours truly,

J. O. Finnie, P.Eng.
Head, Municipal & Environmental
Safety Sections
Environmental Protection
DB/dpc
monitor.db
Enclosure

94.08.25

Appendix B – Internal Flow Monitoring & Laboratory Raw Data (Permit Data)

2025 Treatment Plant and Outfall Flow (Cubic Metres)

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	11,559.6	10,039.8	10,873.7	11,354.8	10,173.0	10,292.3	10,506.1	11,295.9	10,843.9	10,344.3	11,708.2	10,348.1
2	11,641.1	10,052.4	10,767.4	10,955.8	10,260.2	10,387.2	10,621.0	11,107.1	10,613.1	10,306.5	10,360.7	10,185.8
3	11,950.0	9,812.3	10,755.8	10,998.9	10,223.7	10,054.1	10,583.6	10,921.0	10,353.5	10,044.9	10,374.5	10,055.7
4	12,172.2	9,640.4	10,436.1	10,614.7	9,995.6	10,001.0	10,712.9	11,140.4	10,223.3	9,840.2	10,057.9	10,775.8
5	11,938.9	9,937.0	10,339.2	10,725.5	9,972.2	10,107.3	10,521.6	11,083.2	10,434.2	9,782.3	11,243.2	10,857.5
6	11,380.3	9,988.1	10,297.7	10,998.7	9,828.5	10,147.0	10,450.5	11,088.5	10,434.6	10,267.4	11,422.4	11,009.5
7	11,066.7	9,960.2	10,303.9	10,757.1	9,535.3	10,238.5	10,946.6	11,096.8	10,581.9	9,760.8	10,674.1	11,015.8
8	10,886.5	10,029.6	12,903.4	10,803.5	9,846.7	10,353.5	10,694.1	10,981.8	10,773.1	9,798.9	10,570.0	11,515.5
9	11,118.7	9,974.7	16,626.8	10,374.6	9,885.4	10,543.9	10,796.8	11,198.2	10,361.2	9,653.4	10,722.3	10,883.2
10	11,525.6	9,996.0	12,564.3	10,657.3	10,013.8	10,158.2	10,889.1	11,325.7	10,391.5	10,616.9	10,612.9	11,893.8
11	11,048.5	9,898.2	12,078.8	10,370.6	10,113.5	10,256.8	10,917.8	11,204.3	10,232.5	10,523.7	10,132.8	10,905.7
12	10,968.3	9,926.0	11,740.0	10,322.9	10,318.5	10,326.2	10,953.3	10,953.4	10,442.0	10,672.2	10,187.8	10,761.3
13	10,803.9	10,210.0	11,744.1	10,238.9	10,392.7	10,511.4	10,853.2	10,911.0	10,541.4	10,108.5	11,196.7	10,567.3
14	10,425.8	10,121.4	11,233.9	10,356.4	10,273.5	10,415.3	10,855.7	11,129.9	10,838.6	10,222.9	10,448.3	12,130.3
15	10,542.0	10,973.4	11,570.5	10,611.7	10,283.3	10,226.9	10,738.9	11,171.2	10,107.5	10,189.8	10,322.3	12,580.8
16	10,469.7	10,980.2	11,175.8	10,336.3	10,248.8	10,419.9	10,850.9	10,861.0	10,164.1	9,622.7	10,284.9	12,022.7
17	10,352.2	10,863.4	11,030.2	10,200.5	11,096.9	10,237.8	10,769.9	11,102.5	9,969.0	8,735.7	9,866.1	11,698.2
18	9,987.4	10,649.6	10,939.8	10,525.6	10,567.8	10,305.0	10,796.4	11,299.5	9,933.4	9,870.4	9,658.1	11,865.0
19	9,771.0	10,786.7	11,492.5	10,648.9	10,705.1	10,425.6	10,820.8	10,937.1	9,853.0	9,737.0	9,626.9	11,217.0
20	9,905.4	10,731.6	11,532.9	10,481.4	10,314.3	10,382.3	10,753.1	10,695.4	10,168.7	9,639.3	9,759.2	11,654.8
21	9,818.2	11,320.1	12,100.9	10,242.1	9,981.3	10,453.6	11,134.6	10,826.4	10,084.6	9,645.1	9,741.8	12,509.3
22	9,739.0	12,930.5	11,773.9	10,285.8	10,068.1	10,570.7	11,204.9	10,796.3	10,009.2	9,707.6	10,390.0	12,991.3
23	9,668.7	12,155.4	11,740.6	10,152.3	10,290.3	11,235.9	11,430.4	10,854.3	9,822.1	9,928.3	10,018.0	12,352.3
24	9,778.0	12,332.4	11,793.6	10,037.7	10,356.1	10,520.2	11,370.8	10,655.0	9,622.0	10,309.4	9,905.3	13,193.3
25	9,838.3	12,163.2	11,409.0	10,127.8	10,403.4	10,855.3	11,176.2	11,036.2	9,756.7	10,611.2	10,413.7	12,827.7
26	9,726.6	11,331.8	12,185.0	10,255.9	10,561.8	11,180.0	11,114.3	10,977.0	9,793.7	10,028.4	10,033.6	12,858.5
27	9,865.4	11,043.1	12,195.3	10,176.4	10,324.3	10,359.7	10,924.2	10,787.1	10,115.0	9,774.2	11,637.2	11,999.4
28	9,696.8	10,925.7	11,994.0	10,502.8	10,454.9	10,820.6	11,382.6	10,613.7	10,115.0	10,471.7	10,621.8	11,452.3
29	9,752.6		11,934.7	10,238.4	10,572.7	10,683.1	11,062.6	10,978.3	10,046.1	9,800.5	10,586.4	11,507.2
30	10,183.4		11,831.7	10,073.3	9,716.6	10,683.1	10,997.8	10,681.4	9,872.1	9,571.1	10,337.0	11,237.4
31	10,511.6		11,507.9		10,603.4		11,131.2	10,665.1		10,618.6		11,492.0
Total:	**328,092**	**298,773**	**360,873**	**314,427**	**317,382**	**313,152**	**337,962**	**340,375**	**306,497**	**310,204**	**312,914**	**358,365**
Average:	**10,584**	**10,670**	**11,641**	**10,481**	**10,238**	**10,438**	**10,902**	**10,980**	**10,217**	**10,007**	**10,430**	**11,560**
Minimum:	**9,669**	**9,640**	**10,298**	**10,038**	**9,535**	**10,001**	**10,451**	**10,614**	**9,622**	**8,736**	**9,627**	**10,056**
Maximum:	**12,172**	**12,931**	**16,627**	**11,355**	**11,097**	**11,236**	**11,430**	**11,326**	**10,844**	**10,672**	**11,708**	**13,193**
Non compliance (max flow)	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Maximum permitted daily flow: 16,000 cubic metres/day

2025 Influent 5-day Biochemical Oxygen Demand (BOD_5) (mg/L)												
Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	224			188	266		285					
2	NR	283							258	204		201
3			248	216		288	404					
4		264	236						269			240
5	176					347		264		166		
6		282	302		244		272					
7	266							290	239			165
8				258	238		280					
9	NR	290								257	226	206
10			268	272		298	373	244	191			
11			228						284			213
12	200					362		292			198	
13		236	274	NR							206	
14	203				215			314		244		200
15				253	339		272					
16	222								294	208	228	206
17						457	356	272				
18		208	259						300		242	195
19	NR					440		307		208		
20		312	192				244				235	
21	287							328	216	195		192
22				259	301		319					
23	334	175							242	275		210
24				260		217	520					
25		213	254						280			
26	236					309		227				
27		257	194		262		278				180	
28	267							274	188	193		
29				258	314	179	334					
30	282						280		264		138	231
31							262					
Average	**245**	**252**	**246**	**246**	**272**	**322**	**320**	**281**	**252**	**217**	**207**	**205**

2025 Effluent 5-day Biochemical Oxygen Demand (BOD_5) (mg/L)												
Day	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
1	12.2			11.8	12.5		14.2					
2	NR	19.4							14.6	14.5		13.8
3			25.0	12.6		11.4	25.4					
4		19.2	21.8						13.90			13.80
5	13.6					13.4		22.4		10.8		
6		22.0	21.6		12.6		10.10					
7	17.6							13.6	11.60			13.20
8				15.9	13.2		18.40					
9	NR	16.8								12.5	9.3	10.9
10			23.9	12.8		12.3	15.40	12.8	12.60			
11			17.4						8.62			12.2
12	14.6	22.2				21.2		14.0			11.4	
13		21.8	19.2	NR							10.2	
14	13.8				12.2			16.2		15.5		14.0
15				13.5	12.8		14.3					
16	13.6								18.2	12.4	11.6	14.0
17						15.1	14.0	11.1				
18		22.0	21.6						11.6		13.0	13.9
19	NR					14.60		14.4		10.7		
20		26.5	17.8		17.4		11.6				11.9	
21	17.0							13.2	8.5	9.2		13.5
22				16.1	14.3		11.2					
23	24.4	20.2							9.9	9.4	11.5	17.2
24				17.2		17.4	16.8					
25		24.3	13.7						10.2		13.3	
26	19.7					19.2		9.7				
27		30.3	13.4		10.0		14.5				10.4	
28	23.1							13.2	28.2	14.1		
29				9.8	11.3	10.6	15.2					
30	22.2						14.3		10.0		10.1	12.6
31							13.6					
Average	**17.4**	**22.2**	**19.5**	**13.7**	**12.9**	**15.0**	**12.7**	**14.1**	**13.2**	**12.1**	**11.3**	**13.6**
Permit Exceedance (cBOD5>45 mg/L)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

FCPCC Outfall Maximum $cBOD_5$: 45 mg/L

2025 Effluent 5-day Biochemical Oxygen Demand (BOD_5) (mg/L) - GNPCC Accredited Lab

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	17.4						11.5		10.8	10.3		
2		17.3										
3			21.7			10.9					13.4	
4					8.8			13.7				
5	18.3									8.2		
6				10.0			10.30					
7									9.72			
8						9.1						14.40
9		18.5	15.8									
10								11.8				
11					10.4						8.8	
12	NR											
13							10.1			12.2		
14				NR								13.2
15						10.5			13.30			
16											11.6	
17		22.0	13.4					8.2				
18												
19	10.0				7.7					10.7		
20							11.2					
21				11.7					7.8			11.8
22						10.90						
23		26.8	8.2									
24								10.9			10.8	
25					8.1							
26	17.4									7.0		
27				8.5	10.0		11.3					
28												14.9
29												
30			8.4								14.0	
31												
Average	**15.8**	**21.2**	**13.5**	**10.1**	**9.0**	**10.3**	**10.9**	**11.2**	**10.4**	**9.7**	**11.7**	**13.6**
Permit Exceedance (cBOD5>45 mg/L)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WSER Quarterly Average	**16.6**			**9.7**			**10.8**			**11.5**		

FCPCC Outfall Maximum $cBOD_5$: 45 mg/L

Days highlighted in yellow were days in which TSS exceed levels in the outfall permit.

WSER Quarterly Average $cBOD_5$: 25 mg/L

2025 Influent Total Suspended Solids (TSS) (mg/L)

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	411	355	302	343	385	436	463	435	380	382	259	335
2	457	400	383	296	417	466	436	356	407	295	174	287
3	443	-	443	321	228	352	373	291	410	446	341	376
4	326	388	427	349	295	554	252	332	380	379	266	276
5	355	427	493	353	284	443	323	359	192	331	270	333
6	188	409	545	319	475	303	350	527	264	477	610	353
7	584	319	110	391	410	354	460	411	340	411	331	239
8	377	405	382	404	466	309	376	368	361	321	284	217
9	420	340	419	438	383	548	415	351	399	478	276	277
10	532	436	418	306	322	493	496	314	359	672	139	296
11	325	524	336	178	352	589	474	396	411	471	478	240
12	351	750	336	276	445	433	471	440	439	-	326	433
13	535	508	483	248	428	412	401	454	320	380	408	315
14	424	501	368	426	434	438	453	444	371	438	296	259
15	368	431	-	398	604	351	538	310	415	557	-	283
16	422	294	407	452	370	602	411	330	435	369	260	355
17	483	344	425	325	381	867	485	406	405	397	537	298
18	145	359	503	309	305	753	560	478	488	-	389	317
19	403	830	275	366	-	698	340	422	422	224	295	328
20	420	436	373	301	-	297	424	365	319	450	358	264
21	382	470	354	390	-	277	451	407	337	369	449	266
22	645	303	450	311	499	350	239	436	449	463	446	283
23	596	255	329	530	360	435	528	385	576	587	-	353
24	417	377	485	479	328	409	-	324	359	NR	-	304
25	396	402	379	492	359	535	748	417	471	493	-	275
26	300	376	400	300	543	466	499	320	413	418	268	344
27	488	498	375	348	563	314	378	471	353	464	265	306
28	484	353	333	418	387	312	515	423	321	360	544	305
29	472		414	424	421	275	409	368	367	376	-	391
30	483		277	445	342	116	361	361	480	338	296	423
31	349		349		343		315	287		317		288
Average:	**419**	**426**	**386**	**365**	**397**	**440**	**431**	**387**	**388**	**417**	**343**	**310**

2025 Effluent Total Suspended Solids (TSS) (mg/L)												
Day	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
1	26.4	16.6	28.4	13.2	6.8	7.6	11.6	15.8	10.0	12.4	9.40	16.0
2	32.0	17.2	27.6	11.4	10.0	11.0	14.6	10.0	13.0	17.6	8.80	16.0
3	28.6	22.0	24.2	14.8	10.2	11.6	38.8	12.0	12.6	12.2	15.4	15.2
4	31.2	18.4	27.2	11.2	11.6	11.0	16.8	14.0	13.8	16.0	9.0	16.0
5	33.4	21.2	26.4	12.8	8.8	9.8	21.0	18.6	14.8	13	19.0	18.8
6	23.6	21.0	20.6	14.2	14.4	8.2	13.6	16.4	12.4	23.0	13.6	15.2
7	29.4	20.4	26.8	14.4	15.0	8.6	21.6	15.4	15.0	18.6	16.2	18.0
8	14.0	22.2	30.8	18.4	14.0	11.8	18.8	16.6	15.4	17.6	16.4	19.8
9	16.6	18.2	24.2	14.2	14.0	12.4	16.4	20.4	16.4	15.0	13.0	21.0
10	19.6	18.8	31.0	14.8	11.6	10.6	14.6	15.4	16.0	14.4	21.8	17.8
11	22.8	21.6	24.5	11.6	12.0	35.4	16.0	24.4	13.2	15.8	17.6	12.6
12	24.0	27.6	23.0	12.2	12.4	30.2	17.8	13.6	13.4	18.4	15.0	15.0
13	25.0	27.0	24.2	9.40	13.2	19.6	14.0	12.8	12.2	13.8	14.4	16.6
14	20.6	26.0	21.8	11.4	9.8	16.2	21.4	11.0	12.4	23.8	15.0	15.6
15	21.0	24.6	17.6	12.2	7.8	18.4	22.4	12.8	17.6	26.4	13.2	24.6
16	22.4	22.6	17.8	12.0	10.4	12.6	20.6	10.8	19.0	22.0	14.4	20.6
17	20.2	24.2	16.8	11.8	12.6	16.6	13.6	10.8	13.4	22.8	12.0	19.4
18	18.2	24.0	21.4	10.4	10.6	19.8	15.0	12.2	11.4	15.2	15.4	22.2
19	13.0	26.6	24.6	11.2	9.4	16.0	11.4	15.4	11.0	11.2	16.8	24.6
20	22.0	27.8	18.8	13.2	9.4	14.0	10.0	13.4	14.8	11.8	15.8	19.8
21	19.4	34.6	20.4	14.4	9.2	15.2	13.4	15.0	11.2	13.6	16.6	18.6
22	21.8	37.3	14.6	16.6	14.4	13.6	12.2	13.0	16.0	14.6	16.2	21.2
23	20.2	32.0	10.2	21.2	9.0	22.2	17.0	17.0	14.0	14.0	13.2	23.6
24	24.8	36.6	10.4	18.0	11.8	19.4	15.8	11.8	18.4	13.6	15.6	23.0
25	19.4	29.4	12.8	11.0	12.4	21.2	28.0	11.4	17.2	20.0	18.8	24.2
26	14.8	43.2	12.0	9.8	10.8	22.8	21.6	11.0	14.0	10.2	16.8	18.4
27	22.6	40.4	18.6	7.6	10.4	20.0	14.2	15.0	14.4	18.0	12.4	27.4
28	23.6	26.4	13.4	15.6	9.2	14.0	17.0	10.4	12.8	21.0	16.6	25.6
29	29.0		12.2	10.8	9.6	12.2	15.4	12.4	10.8	13.8	19.2	19.6
30	20.8		10.8	8.4	11.0	17.4	14.6	13.0	11.8	13.0	18.8	19.6
31	17.6		9.6		7.2		11.6	13.4		11.0		17.8
Average:	**22.5**	**26.0**	**20.1**	**12.9**	**10.9**	**16.0**	**17.1**	**14.0**	**13.9**	**16.3**	**15.2**	**19.5**
Non-Compliance (TSS > 60 mg/L)	0	0	0	0	0	0	0	0	0	0	0	0

FCPCC Outfall Maximum TSS: 60 mg/L

Days highlighted in yellow were days in which TSS exceed levels in the outfall permit.

2025 Effluent Total Suspended Solids (TSS) (mg/L) - GNPCC Accredited Lab

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	28.7						18.0		11.6	12.4		
2		16.0										
3			24.0			10.8					14.8	
4					8.0			12.8				
5	26.7									10		
6				12.0			18.0					
7									17.2			
8						11.3						18.4
9		17.6	24.0									
10								21.6				
11					12.0						16.4	
12	22.0											
13							18.0			11.6		
14				13.2								17.2
15						18.0			15.6		13.2	
16											14.4	
17		21.2	14.7					10.8				
18												
19	12.8				6.0					11.6		
20							10.8					
21				14.0					11.6			14.4
22						16.7						
23		30.0	12.0									
24								12.4			14.8	
25					6.7							
26	13.2									10.8		
27				8.7	10.4		14.8					
28												23.2
29												
30			8.0								19.6	
31												
Average:	**20.7**	**21.2**	**16.5**	**12.0**	**8.6**	**14.2**	**15.9**	**14.4**	**14.0**	**11.3**	**15.5**	**18.3**
Non-Compliance (Outfall TSS > 60 mg/L)	0	0	0	0	0	0	0	0	0	0	0	0
Quarterly WSER Average	19.4			11.4			14.9			14.9		

FCPCC Outfall Maximum TSS: 60 mg/L

Days highlighted in yellow were days in which TSS exceed levels in the outfall permit.

FCPCC WSER Quarterly Average TSS Limit: 60 mg/L

2025 Influent Ammonia (NH_3) (mg/L)												
Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Sample 1	33.1	42.5	41.7	32.7	41.9	38.4	> 47.0	> 47.0	43.4	52.1	41.3	40.0
Sample 2	39.8	37.9	29.9	> 47.0	19.1	> 47.0	46.0	50.1	43.9	40.4	36.4	38.0
Sample 3	37.4	42.2	36.6	47.0	41.1	41.1	45.6	49.8	48.0	54.0	39.6	35.6
Sample 4		Fail	25.7	47.0	41.5	43.1	46.6	59.8	53.8	43.8		
Sample 5					35.1		39.4			41.4		
Average	**36.8**	**40.9**	**33.5**	**42.2**	**35.7**	**40.9**	**44.4**	**53.2**	**47.3**	**46.3**	**39.1**	**37.9**

2025 Effluent Ammonia (NH_3) (mg/L)												
Day	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Sample 1	26.5	34.3	37.2	28.7	37.4	35.1	44.1	43.4	45.0	45.4	35.2	35.4
Sample 2	30.5	29.6	27.4	40.6	16.8	46.4	41.7	> 47.0	45.0	30.8	40.0	33.3
Sample 3	31.6	40.0	34.9	36.6	41.5	34.2	41.8	46.5	44.7	42.8	32.9	28.4
Sample 4		Fail	23.3	42.2	47.0	37.2	39.7	52.2	45.5	39.6		
Sample 5					33.0		38.0			34.3		
Average	**29.5**	**34.6**	**30.7**	**37.0**	**35.1**	**38.2**	**41.1**	**47.4**	**45.1**	**38.6**	**36.0**	**32.4**
% reduction	**19.7%**	**15.3%**	**8.3%**	**12.3%**	**1.7%**	**6.5%**	**7.5%**	**11.0%**	**4.7%**	**16.7%**	**7.8%**	**14.5%**

Regular Ammonia testing is not required for permit, regular testing is completed internally and has historically been reported in this section of the Annual Report.

2025 Influent Temperature

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	12.8	12.0	13.5	15.3	17.5	17.1	20.2	20.3	21.4	18.7	15.7	16.5
2	13.7	12.3	13.3	14.1	16.1	18.1	21.2	20.5	21.1	19.4	15.3	16.5
3	13.4	12.9	13.4	14.9	16.1	18.4	20.7	20.3	21.1	19.4	17.1	16.2
4	13.1		13.5	14.9	16.8	17.9	19.8	20.5	20.9	20.0	16.8	15.7
5	13.0	12.8	12.6	14.0	16.3	18.8	19.2	20.3	20.7	18.0	17.4	16.0
6	13.7	13.8	13.7	14.8	17.0	19.2	20.4	20.0	20.0	18.0	17.0	14.0
7	14.7	12.1	14.7	15.0	16.8	17.5	21.1	19.9	21.2	18.1	17.8	15.1
8	15.2	11.6	14.8	16.0	15.8	18.0	21.0	20.8	21.2	17.8	16.1	14.8
9	13.5	11.7	13.7	15.0	16.4	19.3	20.3	21.7	20.7	18.3	15.2	15.7
10	13.5	12.9	13.1	14.8	16.0	19.9	20.0	20.7	20.3	17.9	16.6	16.0
11	12.8	13.7	13.1	14.6	15.8	18.2	19.9	21.0	20.7	18.7	15.8	16.2
12	14.1	11.5	13.4	13.8	17.1	18.5	20.2	21.1	20.2	18.4	16.7	15.4
13	14.3	12.6	12.2	13.5	17.5	17.9	20.5	21.1	20.1	15.9	16.0	14.4
14	14.3	13.0	13.7	14.9	17.4	18.0	21.1	21.3	20.3	16.5	17.0	14.8
15	13.7	13.5	11.9	15.7	17.8	18.3	21.8	20.4	20.7	17.3	17.5	15.7
16	13.2	11.7	11.8	15.1	16.7	18.8	21.9	21.5	20.4	18.3	17.5	15.8
17	13.1	12.2	13.6	15.7	16.1	18.8	22.2	20.6	20.7	17.8	14.4	14.7
18	12.7	12.1	14.0	14.8	15.5	18.7	20.0	20.7	20.2	15.8	16.4	15.1
19	14.2	12.8	13.7	15.5	16.0	19.1	20.0	20.8	19.8		16.5	14.9
20	13.0	12.9	13.6	15.8	18.5	18.9	19.8	20.4	19.4	17.8	16.3	13.5
21	13.2	13.1	13.6	15.5	16.3	18.4	19.8	20.3	19.7	18.4	16.9	13.0
22	11.9	12.5	13.6	16.3	18.2	18.7	20.2	20.7	19.7	17.2	17.1	14.3
23	12.8	12.4	14.2	15.2	17.3	19.4	19.5	19.5	20.3	17.0	15.1	14.7
24	12.1	12.5	14.0	15.4	17.4	19.3	19.5	19.1	20.4	18.5	16.3	14.5
25	12.1	12.7	15.1	16.5	18.0	19.8	19.7	20.4	19.6	16.7	15.5	12.6
26	12.4	13.8	14.5	14.7	18.2	19.1	19.4	21.5	19.2	17.0	16.0	12.8
27	13.0	13.5	14.1	15.4	17.6	18.6	20.1	21.0	19.1	17.7	16.0	12.5
28	12.6	13.4	14.1	16.5	17.7	18.2	20.0	20.9	19.2	16.9	15.9	12.9
29	13.8		13.3	16.6	18.9	18.4	20.3	21.1	19.5	17.1	16.0	14.3
30	13.0		13.6	15.8	18.4	13.2	20.1	21.4	19.0	17.0	14.9	14.6
31	12.8		14.2		18.1		21.0	20.5		17.2		15.3
Average:	**13.3**	**12.7**	**13.6**	**15.2**	**17.1**	**18.4**	**20.4**	**20.7**	**20.2**	**17.8**	**16.3**	**14.8**
Minimum:	**11.9**	**11.5**	**11.8**	**13.5**	**15.5**	**13.2**	**19.2**	**19.1**	**19.0**	**15.8**	**14.4**	**12.5**
Maximum:	**15.2**	**13.8**	**15.1**	**16.6**	**18.9**	**19.9**	**22.2**	**21.7**	**21.4**	**20.0**	**17.8**	**16.5**

2025 Effluent Temperature

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	14.3	13.6	14.1	15.0	16.4	17.9	20.9	20.8	21.6	18.9	17.2	15.8
2	13.7	13.3	13.2	14.4	16.8	17.8	21.0	21.2	21.2	19.0	16.5	16.3
3	13.8	12.1	14.2	14.6	16.9	18.2	20.2	20.9	21.1	17.8	17.2	16.2
4	14.4		14.0	15.4	17.4	18.2	20.3	21.0	21.2	19.3	16.8	15.8
5	14.7	12.3	13.6	15.0	16.4	18.6	20.0	20.4	21.0	18.9	17.5	16.2
6	14.2	13.2	14.0	15.6	17.0	19.2	20.7	20.4	21.4	18.1	17.0	15.4
7	14.4	11.9	13.6	15.2	17.0	19.6	21.0	21.0	22.0	18.2	17.2	15.7
8	14.8	14.4	15.6	16.2	16.4	19.8	21.1	21.0	21.0	18.0	17.3	15.2
9	14.3	12.7	14.7	15.2	16.7	19.4	20.6	21.6	21.4	18.2	16.5	15.8
10	14.1	12.1	13.3	15.4	17.2	19.4	20.8	22.2	20.6	18.6	16.8	15.8
11	14.2	11.9	13.8	15.0	17.3	18.4	20.6	21.2	20.7	19.1	16.7	15.6
12	14.5	11.4	14.0	14.8	17.3	18.8	21.3	22.2	20.8	19.1	16.4	15.5
13	14.3	12.4	13.1	15.1	17.7	18.0	22.0	21.2	20.7	17.2	16.6	15.3
14	14.5	11.7	13.6	15.0	17.7	18.9	22.6	21.2	20.9	16.8	16.6	16.1
15	14.2	12.9	13.5	15.8	17.5	19.1	22.2	21.0	20.5	16.8	18.0	15.8
16	13.8	13.1	13.7	15.6	16.9	19.0	21.6	21.8	20.0	17.3	17.3	16.0
17	13.6	13.1	13.7	16.0	17.1	18.5	21.6	21.6	20.4	17.8	13.7	15.2
18	13.9	12.9	13.2	15.1	16.9	18.8	20.2	20.8	19.9	17.8	16.4	15.0
19	14.0	13.2	13.6	15.9	17.2	19.0	21.2	21.0	20.1		15.8	14.8
20	13.2	13.1	13.9	16.3	17.9	19.0	21.1	20.6	20.0	17.9	16.2	15.2
21	13.1	13.9	14.3	15.6	17.2	19.6	20.0	20.3	20.5	18.0	16.2	15.1
22	12.8	14.0	13.9	16.2	17.2	19.7	20.4	20.7	20.2	17.8	16.7	14.3
23	13.2	13.7	14.9	16.0	17.6	19.7	19.8	21.0	20.3	18.0	16.0	14.6
24	13.3	13.8	14.4	15.8	17.9	19.3	20.1	20.9	20.3	18.0	15.7	14.4
25	13.2	13.4	14.8	16.4	18.4	19.9	20.2	20.8	19.4	17.6	15.8	14.2
26	13.6	13.6	15.0	16.6	18.2	19.4	19.9	21.3	19.2	17.7	16.0	13.7
27	11.6	13.8	15.0	16.3	17.6	18.8	21.3	21.0	19.4	17.0	16.1	13.4
28	13.1	13.9	14.8	16.6	17.8	**19.4**	20.2	21.4	19.7	16.6	16.0	13.6
29	13.1		14.6	16.8	18.4	19.8	20.3	21.0	19.7	16.5	16.0	14.2
30	12.9		14.8	16.4	18.5	20.6	20.4	22.2	19.5	16.8	15.2	15.0
31	13.2		14.8		18.5		20.8	21.8		16.6		15.5
Average:	**13.7**	**13.0**	**14.1**	**15.6**	**17.4**	**19.1**	**20.8**	**21.1**	**20.5**	**17.8**	**16.4**	**15.2**
Minimum:	**11.6**	**11.4**	**13.1**	**14.4**	**16.4**	**17.8**	**19.8**	**20.3**	**19.2**	**16.5**	**13.7**	**13.4**
Maximum:	**14.8**	**14.4**	**15.6**	**16.8**	**18.5**	**20.6**	**22.6**	**22.2**	**22.0**	**19.3**	**18.0**	**16.3**

2025 Influent pH

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	6.97	7.56	7.03	8.13	7.86	7.56	7.46	7.67	7.77	7.77	7.72	7.88
2	7.81	7.47	7.49	7.84	7.70	7.80	7.76	8.25	7.78	7.82	7.81	7.81
3	7.74	8.08	8.19	8.08	7.22	7.92	7.93	7.83	7.82	7.84	7.79	7.73
4	7.41		7.84	7.86	7.44	7.89	7.87	7.73	7.74	7.67	7.46	7.29
5	7.41	8.16	7.73	7.58	7.90	8.03	7.10	8.01	7.67	7.63	7.88	7.71
6	7.74	8.12	7.82	7.75	7.88	7.79	7.68	7.63	7.22	7.74	6.35	7.51
7	8.09	7.96	7.70	7.81	8.01	7.59	7.78	7.75	7.45	7.53	7.91	7.78
8	7.82	7.41	6.77	7.99	7.65	7.54	7.75	7.90	7.70	7.75	7.56	7.81
9	7.75	7.57	7.31	7.84	7.95	7.24	7.74	7.67	7.54	7.65	7.78	7.64
10	7.68	7.95	8.00	7.77	7.66	8.12	6.90	7.67	7.67	7.83	7.75	8.03
11	7.49	8.44	7.67	7.88	7.60	7.81	6.89	7.71	7.98	7.96	7.68	8.00
12	7.68	7.77	7.83	7.86	7.44	7.82	7.13	7.71	7.15	7.86	7.77	7.71
13	8.04	8.13	7.78	7.82	8.00	7.75		7.85	7.58	7.83	7.95	7.43
14	7.75	8.35	7.84	7.89	8.14	7.42	7.79	7.76	7.46	7.03	7.64	7.42
15	7.48	8.19	7.70	8.22	8.11	7.76	7.79	7.73	7.85	7.80	6.59	7.96
16	7.83	7.84	7.80	7.84	7.46	7.85	7.46	8.01	7.90	7.96	7.49	7.40
17	7.77	7.75	8.18	7.97	7.75	7.96	7.90	7.59	7.87	7.65	7.69	7.77
18	7.27	7.90	8.10	7.45	7.82	7.79	7.94	7.81	7.90	7.32	8.05	7.59
19	7.76	8.10	7.92	7.87	7.79	7.86	7.84	7.84	7.65		7.80	7.89
20	7.90	8.25	7.80	7.97	7.79	7.70	7.51	7.68	7.53	7.75	7.78	7.58
21	8.09	8.09	7.22	7.86	7.70	7.43	8.00	7.83	7.64	7.88	7.89	7.58
22	7.49	7.76	7.67	7.82	8.08	7.60	7.77	7.84	7.77	7.53	7.90	7.79
23	8.17	7.58	7.94	7.56	7.88	7.76	7.75	7.36	7.75	7.69	7.86	7.54
24	7.67	7.97	8.03	7.94	7.70	7.76	7.62	7.59	7.80	7.89	7.74	7.66
25	7.45	7.93	8.16	8.10	7.65	7.77	7.66	7.51	7.66	6.39	7.43	7.70
26	7.61	8.12	7.72	7.47	8.13	7.74	7.54	7.73	7.74	7.81	7.76	7.50
27	8.04	7.89	7.77	7.46	7.85	7.85	7.12	7.87	7.30	7.68	7.70	7.81
28	7.88	8.08	7.87	7.81	8.00	7.43	7.78	7.52	7.57	7.66	7.30	7.81
29	8.17		7.51	7.85	7.81	7.56	8.04	7.86	7.89	7.98	7.82	7.75
30	8.08		7.77	7.77	7.91	7.69	7.74	7.89	7.91	7.70	7.78	7.68
31	7.94		7.95		8.26		7.96	7.51		7.93		7.72
Average:	**7.74**	**7.94**	**7.75**	**7.84**	**7.81**	**7.73**	**7.65**	**7.75**	**7.68**	**7.68**	**7.65**	**7.69**
Minimum:	**6.97**	**7.41**	**6.77**	**7.45**	**7.22**	**7.24**	**6.89**	**7.36**	**7.15**	**6.39**	**6.35**	**7.29**
Maximum:	**8.17**	**8.44**	**8.19**	**8.22**	**8.26**	**8.12**	**8.04**	**8.25**	**7.98**	**7.98**	**8.05**	**8.03**

2025 Effluent pH

Day	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	7.14	7.30	7.24	7.42	7.39	7.23	7.36	7.44	7.26	7.42	7.23	7.34
2	7.35	7.30	7.24	7.50	7.51	7.54	7.47	7.99	7.44	7.39	7.29	7.30
3	7.36	7.41	7.36	7.49	7.36	7.55	7.46	7.58	7.44	7.52	7.38	7.32
4	7.23		7.47	7.51	7.27	7.66	7.52	7.38	7.38	7.25	7.40	7.34
5	7.23	7.42	7.40	7.29	7.55	7.61	7.31	7.48	7.45	7.39	7.34	7.35
6	7.32	7.43	7.37	7.30	7.52	7.56	7.37	7.43	7.39	7.43	7.38	7.46
7	7.38	7.43	7.48	7.36	7.63	7.39	7.40	7.38	7.36	7.28	7.32	7.36
8	7.41	7.24	7.35	7.56	7.35	7.29	7.38	7.34	7.40	7.33	7.29	7.33
9	7.54	7.33	7.24	7.54	7.62	7.52	7.44	7.29	7.42	7.33	7.28	7.32
10	7.38	7.45	7.36	7.45	7.29	7.53	7.38	7.47	7.36	7.39	7.36	7.28
11	7.22	7.41	7.48	7.48	7.30	7.46	7.38	7.42	7.45	7.16	7.32	7.28
12	7.22	7.45	7.50	7.46	7.58	7.54	7.38	7.40	7.52	7.22	7.40	7.34
13	7.38	7.46	7.41	7.55	7.54	7.44	7.42	7.38	7.38	7.36	7.42	7.46
14	7.20	7.43	7.44	7.52	7.60	7.51	7.42	7.41	7.37	7.41	7.38	7.21
15	7.30	7.17	7.45	7.54	7.51	7.55	7.46	7.42	7.44	7.21	7.31	7.32
16	7.36	7.20	7.43	7.54	7.54	7.58	7.50	7.38	7.40	7.22	7.34	7.32
17	7.37	7.19	7.41	7.55	7.50	7.58	7.54	7.40	7.44	7.18	7.36	7.31
18	7.25	7.39	7.38	7.28	7.43	7.62	7.47	7.45	7.45	7.37	7.32	7.26
19	7.27	7.44	7.50	7.31	7.41	7.48	7.43	7.42	7.41		7.32	7.33
20	7.37	7.39	7.42	7.33	7.54	7.54	7.62	7.40	7.47	7.34	7.35	7.19
21	7.39	7.45	7.40	7.31	7.52	7.31	7.55	7.39	7.45	7.40	7.37	7.18
22	7.43	7.32	7.34	7.56	7.41	7.29	7.52	7.44	7.36	7.20	7.19	7.31
23	7.38	7.28	7.28	7.53	7.62	7.43	7.51	7.38	7.36	7.37	7.22	7.25
24	7.44	7.40	7.36	7.50	7.43	7.40	7.52	7.48	7.38	7.31	7.31	7.28
25	7.28	7.36	7.50	7.58	7.32	7.40	7.46	7.43	7.43	7.30	7.34	7.26
26	7.31	7.44	7.44	7.24	7.51	7.44	7.31	7.38	7.36	7.20	7.35	7.32
27	7.38	7.42	7.46	7.34	7.51	7.39	7.36	7.52	7.50	7.12	7.30	7.28
28	7.40	7.34	7.50	7.38	7.38	7.32	7.43	7.32	7.58	7.19	7.30	7.33
29	7.41		7.19	7.54	7.52	7.29	7.46	7.32	7.44	7.34	7.31	7.32
30	7.36		7.17	7.53	7.59	7.42	7.52	7.23	7.49	7.37	7.42	7.34
31	7.37		7.37		7.18		7.45	7.26		7.39		7.37
Average:	**7.34**	**7.36**	**7.39**	**7.45**	**7.47**	**7.46**	**7.45**	**7.42**	**7.42**	**7.31**	**7.33**	**7.31**
Minimum:	**7.14**	**7.17**	**7.17**	**7.24**	**7.18**	**7.23**	**7.31**	**7.23**	**7.26**	**7.12**	**7.19**	**7.18**
Maximum:	**7.54**	**7.46**	**7.50**	**7.58**	**7.63**	**7.66**	**7.62**	**7.99**	**7.58**	**7.52**	**7.42**	**7.46**

Appendix C – Permit Non-conformance Reports

Permit Non-Conformances

Date of Non-compliance	Describe the Issue	Immediate Actions Taken	Describe the Suspected Cause or Solution	Suggested Corrective Actions
FCPCC Flow (x1)				
March 9, 2025	On March 9, 2025, the effluent flow recorded from FCPCC was 16,626.8 which exceeded the permit limits of 16,000 m3/day.		This flow result occurred during a high flow event was attributed to inflow and infiltration into the collection system.	The RDN has submitted a permit amendment to increase the maximum flow limits on the permit. The Ministry of the Environment and Parks is reviewing this permit amendment request.
FCPCC LABORATORY (x1)				
May 17, 2025	The 2025 May 17 FCPCC effluent TSS data was reported with unacceptable QC (duplicate failure), because the sample cut was discarded before the duplicate RPD was verified/approved	Chief Laboratory Technician was notified. It was determined that the data would be reported because the CCV of the batch was acceptable, and the FCPCC effluent composite TSS result (12.6 mg/L) was not at risk of being over permit (60 mg/L)		

Appendix D – External Laboratory Results

FCPCC INFLUENT & EFFLUENT (ANNUAL) –September 22.2025			
Parameter	Unit	Influent	Effluent
AMMONIA NITROGEN	mg/L	44	38
pH	pH Units	7.39	7.99
ALKALINITY	mg/L	260	240
DISSOLVED CHLORIDE	mg/L	1,700	1,700
TOTAL KJELDAHL NITROGEN	mg/L	180	51
OIL AND GREASE	mg/L	48	<1.0
SULPHATE (D)	mg/L	230	230
SULPHIDE (T)	mg/L	0.07	0.018
CYANIDE (STRONG ACID DISSOLVED)	mg/L	0.00239	0.00190
FLUORIDE (D)	mg/L	0.15	0.15
TOTAL PHENOLS	mg/L	0.094	0.0018
TOTAL ORGANIC CARBON	mg/L	160	28
PHOSPHOROUS (T)	mg/L	7.3	3.5
METALS			
Parameter	Unit	Influent	Effluent
ALUMINUM (T)	µg/L	780	31
ARSENIC (T)	µg/L	1.16	0.72
BARIUM (D)	µg/L	15	50.7
BORON (D)	µg/L	560	560
CADMIUM (D)	µg/L	<0.050	<0.050
CHROMIUM (T)	µg/L	<5.0	<5.0
COBALT (D)	µg/L	<1.0	<1.0
COPPER (D)	µg/L	5.1	6.4
IRON (D)	µg/L	223	231
LEAD (T)	µg/L	2.2	<1.0
MANGANESE (D)	µg/L	88.6	91.4
MERCURY (T)	µg/L	0.0496	0.01
MOLYBDENUM (T)	µg/L	<5.0	<5.0
NICKEL (D)	µg/L	6.4	<5.0
SELENIUM (T)	µg/L	0.62	<0.50
SILVER (T)	µg/L	0.23	<0.10
TIN (T)	µg/L	<25	<25
ZINC (T)	µg/L	230	31
VOLATILE ORGANIC COMPOUNDS, PCBs, and PHTHALATES			
Parameter	Unit	Influent	Effluent
METHYL-TERT-BUTYLETHER (MTBE)	µg/L	<4.0	<4.0
BENZENE	µg/L	<0.40	<0.40
TOLUENE	µg/L	1.8	<0.40
ETHYLBENZENE	µg/L	<0.40	<0.40
M&P-XYLENE	µg/L	<0.40	<0.40
O-XYLENE	µg/L	<0.40	<0.40
STYRENE	µg/L	<0.50	<0.50
XYLENES (TOTAL)	µg/L	<0.40	<0.40
VH C6-C10	µg/L	<300	<300
DI(2-ETHYLHEXYL)PHTHALATE	µg/L	<40	<4.0
DI-N-BUTYLPHTHALATE	µg/L	<40	<4.0
NAPHTHALENE	µg/L	<0.10	<0.10
PCBS	µg/L	<0.050	<0.050

FCPCC Effluent		
Parameter	Unit	August 20, 2025
Survival Rate (Rainbow Trout)	%	>100

FCPCC Biosolids				
Parameter	Unit	16-Jan-25	14-Jul-25	Average
TOTAL SOLIDS	%	31.6	27.8	**29.7**
VOLATILE SOLIDS	%	75.5	77.7	**76.6**
MOISTURE	%	68	72	**70**
TOTAL KJELDAHL NITROGEN	% dry wt.	7.20	3.70	**5.45**
ARSENIC (T)	µg/g	2.26	2.47	**2.37**
CADMIUM (T)	µg/g	1.69	1.88	**1.79**
CHROMIUM (T)	µg/g	38.1	30.6	**34.4**
COBALT (T)	µg/g	2.75	2.26	**2.51**
COPPER (T)	µg/g	797	696	**747**
IRON (T)	µg/g	30,600	28,800	**29,700**
LEAD (T)	µg/g	15.7	18.6	**17.2**
MERCURY (T)	µg/g	0.92	1.21	**1.06**
MOLYBDENUM (T)	µg/g	3.75	6.04	**4.90**
NICKEL (T)	µg/g	13.7	11.6	**12.7**
PHOSPHOROUS (T)	µg/g	21,600	17,400	**19,500**
POTASSIUM (T)	µg/g	889	863	**876**
SELENIUM (T)	µg/g	4.75	5.17	**4.96**
ZINC (T)	µg/g	1,370	1,480	**1,430**

FCPCC Biosolids	
Parameter	Fecal Coliforms
Unit	MPN / g dry
8-Jan-25	<8.0
17-Mar-25	<8.7
7-Apr-25	<6.9
20-May-25	<7.4
14-Jul-25	<5.6
19-Aug-25	<4.7
23-Sep-25	<6.3
14-Oct-25	<6.3
1-Dec-25	7.4
Geometric Mean	**<6.5**

Note: Fecal coliform samples for FCPCC biosolids were taken from the ATAD Out Sample Point

Appendix E – Odour Concern Reports

Odour Concerns

Date of Occurrence	Location	Odour or Noise Complaint Description, as per the Complainant	Location or Source Odour / Noise Originated within WWS Site	Immediate Actions Taken to Address the Odour or Noise Complaint	Description of Response to Complainant
25-07-21 17:57:00	Lakes BLVD Parksville	Odour Complaint		Tried to contact the Complainant for more information and left a message.	Phoned and left a message
25-08-08 00:00:00	Unknown	Indicated that it was stinky around the plants.		N/A	
25-08-31 19:18:00	FCPCC	Can't sit outside because Lee Rd stinks. Do they know it is still happening often. It wafts in and awhile later disperses. They have millions to fix it.			Sent email requesting more information and explained odour control upgrade was under way. Didn't receive a response

Appendix F – Environmental Incident Reports

Environmental Incidents:

Date of Occurrence	Incident Title	Quantity of Material Spilled	Accident Location	Incident Description	Extent of damage (if applicable)	Preventative Measures Identified	Conclusion for this Environmental Incident
May 28, 2025	Spill – FCPCC Stage 4 Expansion Project	1,000 L	Trench Excavation near Dewatering Building	The spill occurred during the demolition and excavation of existing underground asbestos containing piping adjacent to the demolished Biofilter foundation of the construction site by the FCPCC Expansion and Odour Control contractor. The pipe, after being exposed, was dismantled by the abatement crew. There were no issues at that point in time. The pipe was left unattended while the abatement crew were wrapping and prepping previously removed lengths of pipe. The dewatering system was then initiated by the RDN. It was a short amount of time after that the abatement crew noticed a smell coming from their excavated work area. After a short amount of investigation, we realized that the pipe that was being demolished, and thought to no longer be in service, was tied into the live wastewater line.	No adverse impact on the environment or human health. The clean up resulted in a temporary shut down of the dewatering process.	The RDN Shut down of dewatering process to prevent additional wastewater from entering the spill site, creation of a soil dam to prevent further ground contamination, hydro-v vacuumed contaminated soil and wastewater foam, and damaged pipe was cut and capped and then encased in concrete to prevent further contamination.	The spill was reported to EMBC (DGIR) number #25204 by the contractor.

Appendix G – Conditional Management Plan 2025 Annual Report

REGIONAL DISTRICT OF NANAIMO

Date: January 9, 2026 **File:** 2240-20-CMP

Submitted to:

Erin Milligan, Canadian Shellfish Sanitation Program Coordinator, Fisheries and Oceans Canada
VIA EMAIL: erin.milligan@dfo-mpo.gc.ca

and

Darren Stewart, Section Head, Compliance & Environmental Enforcement Branch, Environmental Protection Division, Ministry of Environment and Parks
VIA EMAIL: darren.stewart@gov.bc.ca

Subject: **4200 2025 CMP AnnRpt / 2025 Annual Report**
French Creek Pollution Control Centre – Conditional Management Plan

The Regional District of Nanaimo (RDN) has a Conditional Management Plan (CMP) for the Hall Road Pump Station, at 300 Hall Road, in Qualicum Beach, BC. Hall Road Pump Station is associated with the French Creek Pollution Control Centre (FCPCC). The original CMP was established in 2012 and has been renewed several times. The current agreement expires on January 31, 2028.

The RDN reports CMP activities annually to Fisheries and Oceans Canada (DFO) and the Ministry of Environment and Parks (ENV). This letter summarizes CMP trigger events and activities from January 1, 2025, to December 31, 2025. It also lists notable upgrades and activities at FCPCC and suggests proposed changes, if any, to future versions of the CMP.

CMP Events

There were no trigger events in this reporting period.

FCPCC Upgrades and Activities

Upgrades and activities at FCPCC in 2025 include:

- Continued construction on the FCPCC Expansion and Odour Control Upgrade.
- Continued the partnership with VIU to monitor air quality.
- Added Operations Superintendent of Wastewater Services for NC to support FCPCC
- Added a Chief Laboratory Technician and Senior Laboratory Technician to support FCPCC.
- Added a Chief Electrician, Senior Electrician, Chief Millwright, and Senior Millwright to support FCPCC.
- Completed engineering design for FCPCC ATAD Upgrade, to start construction in 2026.
- Completed PFAS testing on FCPCC Influent, Effluent, and Biosolids
- Completed 3-year inspection on the FCPCC outfall

Proposed CMP Changes

In Appendix D RDN Contact information, remove Rob Skwarcynski and replace with Stacia Selinger, Superintendent Operations, Wastewater Services, email: sselinger@rdn.bc.ca phone: 250-248-5794 cell: 250-268-1342

If you have any questions regarding this report, please do not hesitate to contact me at 250-390-6560 or mtomlinson@rdn.bc.ca.

Sincerely,

Melissa Tomlinson
Wastewater Program Coordinator, Communications
T: 250-390-6560 | Email: mtomlinson@rdn.bc.ca

Cc: EnvAuthorizationsReporting@gov.bc.ca

Appendix H – Annual Summary 2025 Management of RDN FCPCC Biosolids (SYLVIS)

2025 ANNUAL SUMMARY

RDN French Creek Pollution Control Centre Biosolids Management

Presented to:	Shelley Norum, RDN
Presented by:	Christian Evans, SYLVIS Environmental
Presentation date:	February 17, 2025

BACKGROUND

Regional District of Nanaimo (RDN) Class A biosolids from the French Creek Pollution Control Centre (FCPCC) are delivered to the Nanaimo Forest Products Harmac Pacific pulp and paper mill (Harmac) in Nanaimo, BC where they are blended with hog fuel and sand to produce a biosolids growing medium (BGM), a retail-grade product regulated under the BC *Organic Matter Recycling Regulation* (OMRR), or a "biosolids fabricated soil" (BFS) which does not meet BGM criteria. This project has been in operation since 2020. The BGM has been sold to local property developers and the BFS has been used in on-site landfill closure.

SYLVIS provides qualified professional oversight of the project, determines whether batches have met BGM criteria, and certifies batches. All batches of BGM produced until June 2023 met regulatory quality criteria. However, the batch produced from deliveries occurring between July 2023 and September 2024, which was sampled and tested in September 2024, did not meet all BGM criteria and was thus classed as a BFS. This BFS technically remains a Class A biosolids. Harmac opted to use this material in landfill closure and to exclusively produce BFS during 2025.

2025 MANAGEMENT SUMMARY

In 2025 a total of 4,500 m^3 of BFS were placed on the landfill as a capping layer over 0.39 ha. An additional 4,000 m^3 of BFS were placed within the landfill in order to build up and re-slope a portion of the landfill which was damaged during a fire in 2024. In 2025, as in previous years, a correction factor has been included to align carry-over volume calculations with end-of-year volume observations. Volume changes can result from handling and blending of the feedstocks.

Annual tonnages of biosolids and volumes of soil are summarized in Table 1, Appendix A.

BIOSOLIDS QUALITY SUMMARY

In 2025, three composite samples were collected by SYLVIS and analyzed for physical parameters, nutrients, and trace elements. In 2025 FCPCC biosolids met the OMRR Class A criteria for trace element concentrations. Eight samples for fecal coliform analysis were collected by SYLVIS in 2025. All eight samples tested at < 8 MPN/g, meaning that FCPCC biosolids continued to meet the OMRR Class A criterion of < 1,000 MPN/g fecal coliforms in 2025.

APPENDIX A – TABLES

Table 1: Management and carry-over summary for fabricated soil made from FCPCC biosolids.

Row #	Material	Category	2020	2021	2022	2023	2024	2025
1	FCPCC Biosolids (wet tonnes)	Carry over from previous year	0	875	1,176	1,508	936	1,772
2		Tonnage delivered to BGM project	1,152	1,299	1,291	1,124	1,074	1,299
3		Tonnage exported from site	277	998	640	605	238	0
4		Tonnage used in landfill cover	0	0	0	648	0	972
5		Volume landfilled	0	0	0	0	0	864
6		Tonnage Correction[a]	0	0	320	443	0	251
7		Carry over to next year (1+2)-(3+4+5+6)	875	1,176	1,508	936	1,772	985
8	BGM/BFS (cubic metres)	Carry over from previous year	0	3,320	4,720	6,260	3,610	7,480
9		Volume mixed	4,720	6,020	5,980	5,200	4,970	7,460
10		Volume exported from site	1,400	4,620	2,960	2,800	1,100	0
11		Volume used in landfill cover	0	0	0	3,000	0	4,500
12		Volume landfilled	0	0	0	0	0	4,000
13		Volume Correction[a]	0	0	1,480	2,050	0	1,440
14		Carry over to next year (8+9)-(10+11+12+13)	3,320	4,720	6,260	3,610	7,480	5,000

a Tonnage/volume correction to match calculated estimates to year-end site observations.

Table 2: French Creek Pollution Control Centre biosolids quality summary - 2025.

WWTP	FCPCC	OMRR Class A Biosolids Criteria[a]	Units
# of samples	**3**		
Available Nutrients			
Ammonia + Ammonium - N (available)	2,923	-	µg/g
Nitrate - N (available)	7	-	µg/g
Phosphorus (total)	16,000	-	µg/g
Potassium (available)	741	-	µg/g
Classification			
Organic Matter	70.8	-	%
Total Nitrogen	4.35	-	%
C:N Ratio	10.6	-	-
OMRR Trace Elements			
Arsenic	2.2	75	µg/g
Cadmium	1.42	20	µg/g
Chromium	23.9	1,060[b]	µg/g
Cobalt	2.47	150	µg/g
Copper	567	2,200[b]	µg/g
Lead	14.5	500	µg/g
Mercury	0.822	5	µg/g
Molybdenum	5.6	20	µg/g
Nickel	10.6	180	µg/g
Selenium	4.4	14	µg/g
Zinc	1,148	1,850	µg/g
Physical Properties			
Total Solids	24.4	-	%
Electrical Conductivity (Sat Paste)	6.75	-	dS/m
pH (1:2 Soil:Water)	6.8	-	pH
Foreign Matter	< 0.1	1	%
Foreign Matter (sharps)	< 0.1	0	%
Microbiology			
Fecal coliforms	< 8[b]	1,000	MPN/g Dry

Note: All analyses based on dry weight.

a Class A trace element criteria specified in the August 2017 version of *Trade Memorandum T-4-93, Standards for Metals in Fertilizers and Supplements*, and microbiological criteria specified in Schedule 3 of the BC *Organic Matter Recycling Regulation*.

b Value is the maximum of eight samples collected by SYLVIS throughout 2025.

REGIONAL DISTRICT OF NANAIMO

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