Gulf Islands and Port Renfrew Wastewater Facilities Environmental Monitoring Program 2025 Report

Capital Regional District | Parks, Recreation & Environmental Services, Environmental Protection

Prepared by:
Marine Programs

Capital Regional District
625 Fisgard Street, Victoria, BC V8W 2S6
T: 250.360.3000 F: 250.360.3079
www.crd.ca

June 2026

GULF ISLANDS AND PORT RENFREW WASTEWATER FACILITIES
ENVIRONMENTAL MONITORING PROGRAM
2025 REPORT

EXECUTIVE SUMMARY

This report summarizes the 2025 results of the Wastewater and Marine Environment Program (WMEP) for the wastewater treatment plants (WWTP) operated by the Capital Regional District (CRD) in the Gulf Islands and Port Renfrew. Two of these WWTPs (Ganges and Schooner) discharge ultraviolet disinfected, secondary treated effluent; one WWTP (Port Renfrew) discharges secondary treated effluent; and one (Maliview) discharges secondary treated effluent mixed with fine-screened effluent during high flows. The program includes regular monitoring, as stipulated by the BC Ministry of Environment and Parks (ENV), either through permits or registrations under the Municipal Wastewater Regulation (*Environmental Management Act*). In addition, there are monitoring requirements under the federal Wastewater Systems Effluent Regulations (*WSER*) for the Ganges and Schooner treatment plants, as their average daily flow volumes exceed minimum thresholds.

The CRD also monitors all four WWTP influents and effluents on a monthly basis to assess treatment plant performance and predict risk to aquatic life and human health. Staff also monitor sludge (mixed liquor) from the Ganges WWTP facility and from the Burgoyne Bay waste transfer facility to provide data to assist the CRD's Regional Source Control Program (RSCP). Finally, marine environment surface water monitoring is required every four years for these facilities to assess outfall performance and potential for impacts to human health. Surface water sampling is also required in the event of emergency or planned bypass/overflow.

GANGES WWTP

Final Effluent

The CRD analyzed wastewater influent and effluent for conventional and priority substances, plus effluent for acute toxicity. In 2025, none of the daily effluent flows from the Ganges WWTP exceeded the allowable maximum. There were three exceedances of regulatory requirements for fecal coliforms and one exceedance for TSS in Ganges wastewater. Effluent quality met all requirements for carbonaceous biochemical oxygen demand (CBOD), unionized ammonia, and total residual chlorine results.

Of the 200 priority substances analyzed in effluent, 83 parameters were detected at standard detection limits (conventionals, nutrients, metals, total phenols, and trichloromethane). Effluent concentrations were within similar ranges relative to previous years. Most priority substances in the effluent were below the BC Water Quality Guidelines (BC WQG) before the predicted minimum receiving water dilution of 419:1. Only enterococci, cyanide weak acid dissociable (WAD), copper and zinc exceeded BC WQG in undiluted effluent. All substances were below BC WQG after the minimum dilution calculation was applied (the predicted concentration of effluent in the marine water column within the initial dilution zone [IDZ, the area up to 100 metres (m) away from the outfall].

Toxicity Testing

The effluent sample from July 2025 failed the 96-hour Rainbow trout acute toxicity test (96-h LC50 test). A resample was collected in September 2025, and the test repeated with additional ammonia stabilization. This test passed, confirming that ammonia accumulation was the cause of the test failure. Ammonia stabilization will be used for Ganges toxicity tests going forward. The Daphnia acute toxicity test also passed, consistent with previous testing conducted from 2011-2024.

Sludge (Mixed Liquor)

Ganges WWTP sludge (mixed liquor) met the criteria for BC Organic Matter Recycling Regulations (OMRR) Class A Biosolids in 2025 for all regulated parameters.

Receiving Water

Routine receiving water monitoring was not required in 2025. Monitoring is scheduled next in 2028, unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter or one day duration in the summer.

Next Steps

WMEP staff will continue to share priority pollutant and sludge (mixed liquor) results with the RSCP.

MALIVIEW WWTP

Wastewater

The Maliview WWTP produces secondary treated effluent when instantaneous flows are equivalent to or less than 60 m^3/d. For instantaneous flows equivalent to or greater than 60 m^3/d, the plant produces a final effluent that is a blend of secondary treated and fine-screened effluents. As such, there are different regulatory limits for this facility depending on whether the flows are above or below 60 m^3/day. The flow-splitting process responds to instantaneous peak flows, rather than daily flows, and bypass events can occur despite total daily flows of less than 60 m^3/d. Bypass events occurred, despite flow being less than 60 m^3/d on 91% of the days in 2025. Flow also bypassed the secondary treatment process and received screening on days where the total flow was greater than 60 m^3/d, but the flow to the secondary treatment process was less than 60 m^3/d on 8% of the days. All flows met allowable maximum of 250 m^3/d for total combined daily flows in 2025. Flow to the secondary treatment plant exceeded 60 m^3/d on 45% of the days in 2025, resulting in a portion of the effluent bypassing the secondary treatment process of the plant to be treated solely by fine screening.

The combined final effluent exceeded low flow (<60 m^3/d) registration limits for TSS in two monthly samples and for CBOD in four monthly samples, representing 29% and 83% respectively of the low flow sampling events. The combined final effluent did not exceed high flow (>60 m^3/d) registration limits in any samples. The remaining wastewater parameters were in compliance.

Toxicity Testing

Effluent from July 2025 failed the 96-hour Rainbow trout acute toxicity test, as in previous years. The toxicity test was not ammonia stabilized, which may be considered for future years.

Receiving Water

Routine receiving water monitoring was not required 2025. Monitoring is scheduled to be repeated next in 2028, unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter or one day duration in the summer.

Next Steps

WMEP staff will continue to investigate ways to eliminate regulatory compliance violations. CRD staff and a contracting engineer have developed a detailed design for an upgrade to the facility to increase capacity and treatment reliability. Construction is expected to begin in 2026.

SCHOONER WWTP

Wastewater

In 2025 all daily flow values met regulatory limits in 2025. All monthly effluent compliance parameters were within compliance limits, except for fecal coliforms which exceeded 8% of the time (one month of the year).

Toxicity Testing

Effluent from July 2025 failed the 96-hour Rainbow trout acute toxicity test. A resample was collected in October 2025, and the test repeated with additional ammonia stabilization. This test passed. Ammonia stabilization will be considered for future toxicity testing at Schooner WWTP.

Receiving Water

Routine receiving water monitoring was required in 2025 as part of the temporary, enhanced receiving environment monitoring program. All individual bacteria results as well as geomeans were well below WQG. Samples were also analyzed for total metals on one day of the 5-in-30. All results were below applicable guidelines except for six values. The enhanced monitoring program will continue into 2026, as required by ENV after commissioning of the new plant. Monitoring will also be required if there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter or one day duration in the summer.

Next Steps

Optimization of plant operations continues.

PORT RENFREW WWTP

Wastewater

The Port Renfrew WWTP met regulatory limits for all daily flows in 2025, as well as for all effluent compliance parameters.

Toxicity Testing

Effluent from July 2025 passed the 96-hour Rainbow trout acute toxicity test.

Receiving Water

Routine receiving water monitoring was not required in 2025. Monitoring is scheduled to be repeated next in 2028, unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter or one day duration in the summer.

Next Steps

CRD staff and consultants completed a feasibility study in 2015 to improve/increase the treatment plant capacity and ensure ongoing effective operation of the treatment plant and conveyance system into the future. Grant funding will be required in order to complete any upgrades to this system. Updates to the facility asset management plans are underway, and a phased implementation plan is anticipated pending funding.

BURGOYNE BAY WASTE TRANSFER FACILITY

Burgoyne Bay waste transfer facility sludge met the criteria for BC OMRR Class A Biosolids in 2025 for all regulated parameters.

GULF ISLANDS AND PORT RENFREW WASTEWATER FACILITIES
ENVIRONMENTAL MONITORING PROGRAM
2025 REPORT

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

GULF ISLANDS AND PORT RENFREW
WASTEWATER AND MARINE ENVIRONMENT PROGRAM
2025 REPORT

1.0 INTRODUCTION

This report summarizes the 2025 results of the Wastewater and Marine Environment Program (WMEP) for the wastewater treatment plants (WWTP) operated by the Capital Regional District (CRD) on the Gulf Islands and in Port Renfrew. Two of these WWTPs (Ganges and Schooner) discharge ultraviolet disinfected, secondary treated effluent; one plant (Port Renfrew) discharge undisinfected, secondary treated effluent; and one plant (Maliview) discharges undisinfected, secondary treated effluent combined with fine-screened effluent during high flows. The locations of these four facilities are presented in Figure 1.1. The WMEP includes regular monitoring, as stipulated by the BC Ministry of Environment and Parks (ENV) either through a permit or registrations under the Municipal Wastewater Regulation (MWR)[1]. There are also monitoring requirements under the federal Wastewater Systems Effluent Regulations (WSER) for the Ganges WWTP and Schooner WWTP facilities. The two remaining facilities (Maliview and Port Renfrew WWTPs) do not require monitoring under the federal WSER, due to their low volumes of discharge. Monitoring is also conducted to assess treatment plant performance and potential for impacts to the marine environment, aquatic life and human health.

1.1 Wastewater Monitoring

Wastewater monitoring components are summarized in Table 1.1. WWTP-specific regulatory compliance limits for applicable parameters, and associated sampling and analytical methodologies, are discussed in the individual sections of this report.

1.1.1 Compliance and Treatment Plant Performance Monitoring

All wastewater discharges (effluents) were monitored for flow, total suspended solids (TSS), biochemical oxygen demand (BOD), carbonaceous biochemical oxygen demand (CBOD) and fecal coliform (FC) bacteria. All treatment plant influents were monitored for TSS, BOD and FC bacteria. Two plants (Schooner and Ganges) were monitored for additional parameters, such as ammonia (NH_3), pH and total residual chlorine.

1.1.2 Toxicity Testing

Annual toxicity testing is a requirement under the MWR registrations and a requirement under WSER for the Ganges and Schooner WWTPs, and was initiated on a voluntary basis for the remaining facilities beginning in 2021. Effluent from each treatment plant was collected in July 2025 and analyzed for toxicity to Rainbow trout (96-h LC50 test). As in previous years, the Ganges sample was also analyzed for toxicity to *Daphnia*.

1.1.3 Priority Substances

Wastewater influent and effluent from the Ganges WWTP were analyzed for a list of priority substances, as stipulated in the MWR registration for this facility. Priority substance results were compared to water quality guidelines (WQG) set to protect aquatic life (BCMoE&CCS, 2017; 2019a). This data was also used to assess the quality of the final effluent and the effectiveness of the CRD's Regional Source Control Program (RSCP).

1.1.4 Ganges Wastewater Treatment Plant Sludge

The Ganges WWTP produces sludge (mixed liquor) with the objective of meeting Class A Biosolids guidelines, in accordance with the pathogen reduction and vector attraction reduction processes in the BC Organic Matter Recycling Regulations (OMRR) (BCMoE&CCS, 2017b). Ganges WWTP sludge (mixed liquor) is a by-product of sewage treatment, which is de-watered prior to monitoring. The intent of this mixed liquor monitoring was originally to assess suitability for land application. However, Ganges WWTP mixed

[1] formerly the Municipal Sewage Regulation of the *Environmental Management Act*

liquor is currently transferred to a septage treatment facility on Vancouver Island and no land application takes place. Mixed liquor sampling (at a reduced frequency) is still of benefit to the RSCP to help assess the effectiveness of their various campaigns by providing partitioning information between the solid and liquid fractions of the treatment process.

1.1.5 Burgoyne Bay Waste Transfer Facility

The Burgoyne Bay waste transfer facility is located on Salt Spring Island and collects septage from Salt Spring Island (Ganges WWTP and Maliview WWTP), Pender Island (Schooner WWTP and Cannon WWTP) and from Saturna Island. Material is then disposed of at GFL Environmental SPL Wastewater Recovery Centre (Langford, BC). Monitoring is undertaken to characterize the septage prior to disposal and to inform the CRD's RSCP initiatives. The Burgoyne Bay facility is not designed to produce a biosolids product as defined in the OMRR. However, as a reference point, the results of the analyses performed on the septage are compared to the quality criteria established in Schedule 4 of the OMRR for Class A biosolids.

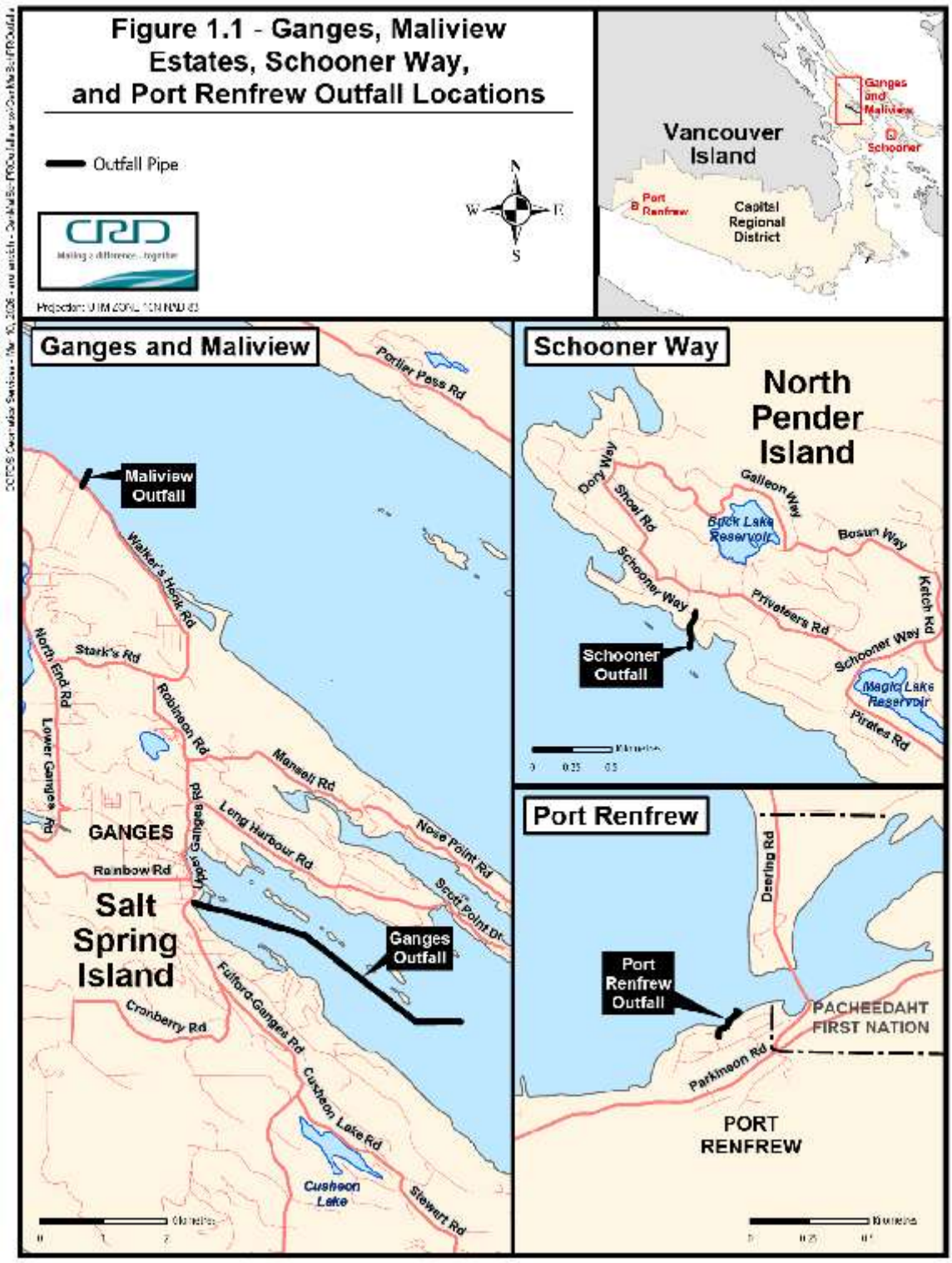

Figure 1.1 Ganges, Maliview, Schooner, and Port Renfrew Outfall Locations

Table 1.1 Summary of 2025 Wastewater and Surface Water Components of the Gulf Islands and Port Renfrew WMEP

Component	Parameter	Frequency and Stations
Wastewater	Flow	Daily: **Ganges**, **Maliview**, **Schooner**, **Port Renfrew**
	Provincial compliance and treatment plant performance monitoring: • Influent: TSS, BOD, fecal coliform • Secondary Effluent: TSS, fecal coliform • Disinfected Secondary Effluent: TSS, BOD, CBOD, fecal coliform, NH_3, pH	Once per month: **Ganges**, **Schooner**
	Provincial compliance and treatment plant performance monitoring: • Influent: TSS, BOD, fecal coliform • Secondary Effluent: TSS, BOD, CBOD, fecal coliform, NH_3, pH • Combined Final Effluent (Secondary + Fine-screened): TSS, BOD, CBOD, fecal coliform, NH_3, pH	Once per month: **Maliview**
	Provincial compliance and treatment plant performance monitoring: • Influent: TSS, BOD • Secondary Effluent: TSS, BOD, CBOD, fecal coliform, NH_3, pH	Once per month: **Ganges, Maliview, Schooner, Port Renfrew**
	Federal compliance monitoring: • Final Effluent: TSS, CBOD, unionized ammonia @ 15ºC, total residual chlorine	Once per month (reported quarterly): **Ganges, Schooner**
	Influent and effluent priority substances	Once per year: **Ganges**
	Effluent toxicity	Once per year: **Ganges Harbour (required)**, **Schooner (required), Maliview (voluntary), Port Renfrew (voluntary)**
	Sludge (mixed liquor)	Once per month: **Ganges** Quarterly: **Burgoyne**
Receiving Water	Surface water indicator bacteria (fecal coliform and enterococci)	**Ganges WWTP** five days of sampling in a 30-day period* **Maliview WWTP** five days of sampling in a 30-day period* **Schooner WWTP** five days of sampling in a 30-day period^ **Port Renfrew WWTP** five days of sampling in a 30-day period*

Notes:
*Receiving water sampling was last conducted in 2024, and is next required in 2028, unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer.

^Receiving water sampling was conducted this year (2025) and will also be conducted on a biannual basis for 2026, as part of the new REMP for the upgraded Schooner WWTP (Appendix C3). Samples will also be analyzed for metals on one day of each 5-in-30.

1.2 Receiving Water Monitoring

Routine receiving environment monitoring was not historically undertaken for all four of the small CRD wastewater facilities. In 2010, discussions with ENV led to the requirement for such monitoring, with the inter-year frequency of monitoring dependent on the size of the facility. In addition, intra-year sampling frequency was changed from monthly to five sets of daily samples collected over a 30-day period (5-in-30) to allow for a more direct comparison of bacterial indicators to relevant human health protection criteria. In addition, enterococci are now analyzed as well as fecal coliforms, as enterococci persist longer in the marine environment and have a more direct link to human health impacts.

For the four small facilities that are the subject of this report, the monitoring programs were added and/or revised to comprise a 5-in-30 sampling program once every four years. Emergency sampling is also required after planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter or one day duration in the summer. If the results from a single day of emergency sampling indicate no impact to the receiving environment (i.e., results less than human health guidelines), then no repeat emergency sampling is required for similar events of the same duration or less during that same wet weather season. If impacts are observed during the emergency sampling (i.e., results higher than human health guidelines), then sampling must repeat every few days until all results are below human health guidelines.

Pre-2010 monitoring programs sampled surface water only (0.5 to 1 m below the surface). The receiving water sampling programs now include sampling of near-surface stations at a depth mid-way between the surface and seafloor, in addition to surface samples, at stations at the edge of the initial dilution zone (IDZ). The IDZ is defined as the area 100 m around the outfall and is where BC WQG must be met. In addition to the IDZ sampling stations, surface samples are collected at two stations approximately 200 m up-current and down-current from the outfalls (Figure 1.2, Figure 1.3, Figure 1.4, and Figure 1.5).

The 2025 sampling year represents year one of the current round of this four-year monitoring cycle and routine receiving environment monitoring was not required. The next routine 5-in-30 sampling, as per the four-year cycle, will be required in 2028. Receiving environment sampling was required for the Schooner WWTP as part of the temporary enhanced monitoring detailed in the new Receiving Environment Monitoring Program (REMP) (CRD, 2025).

Any 2025 non-routine/emergency receiving environment sampling events are described in subsequent sections.

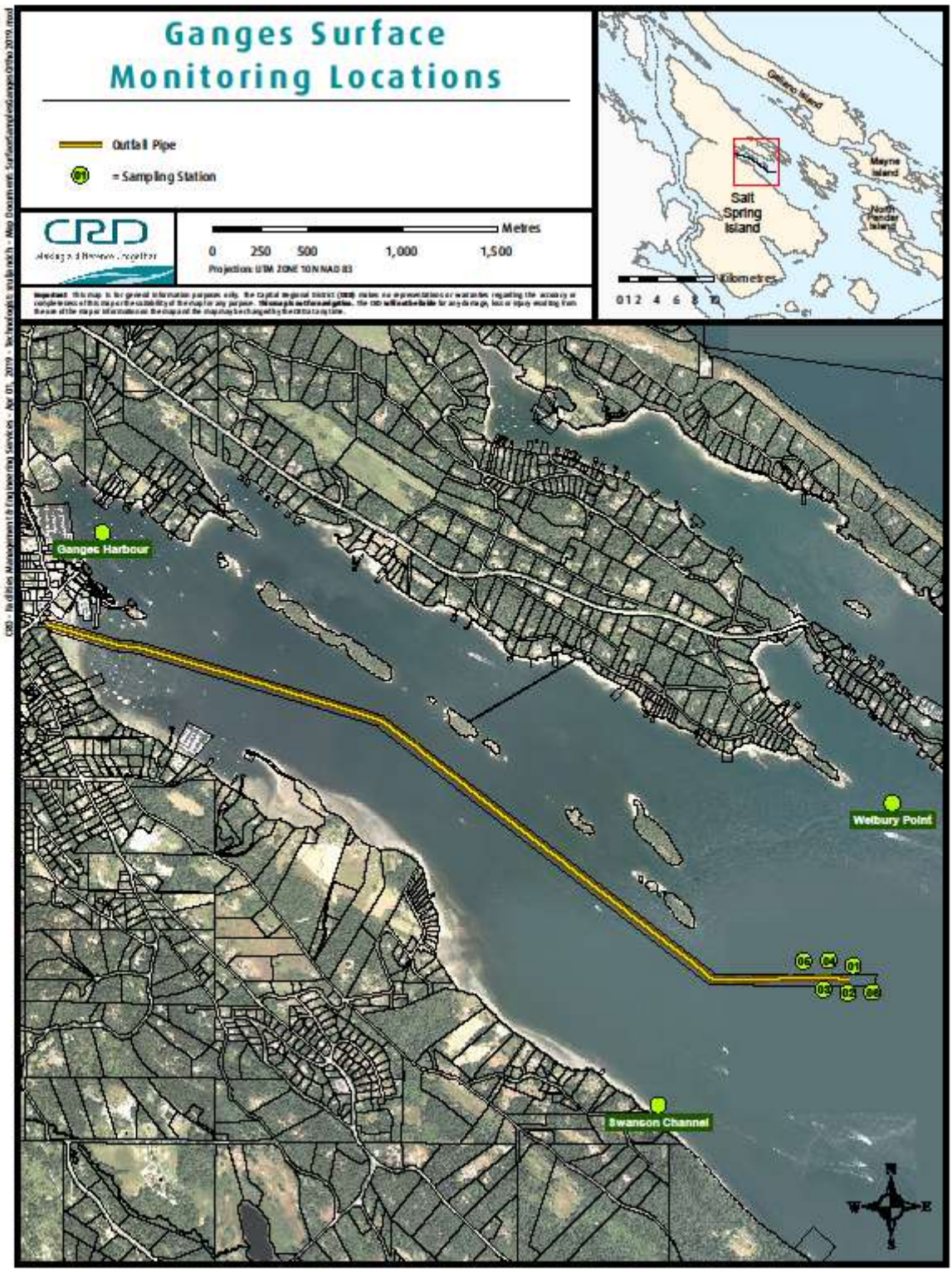

Figure 1.2 Ganges Receiving Environment Sampling Stations

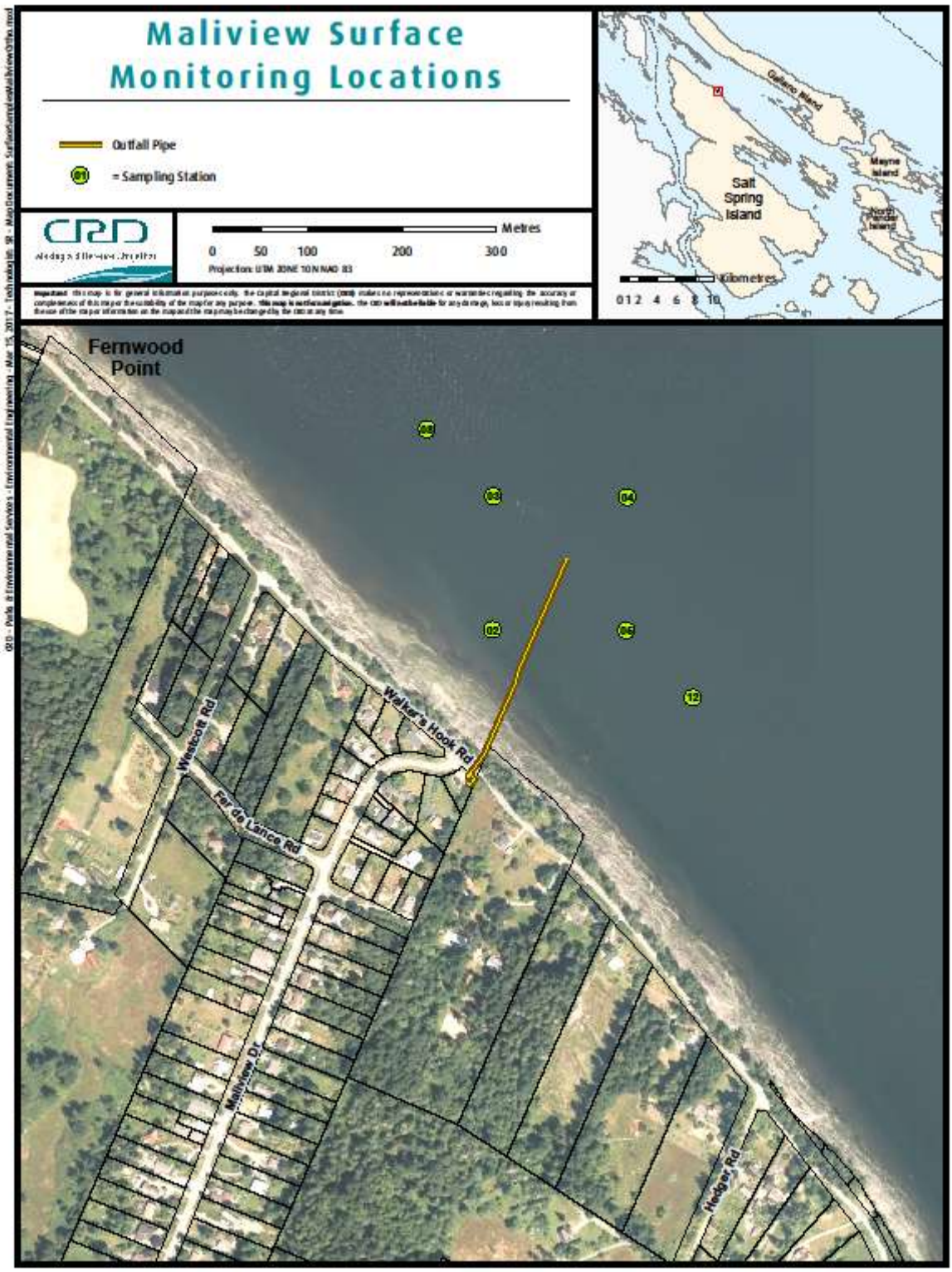

Figure 1.3 Maliview Receiving Environment Sampling Stations

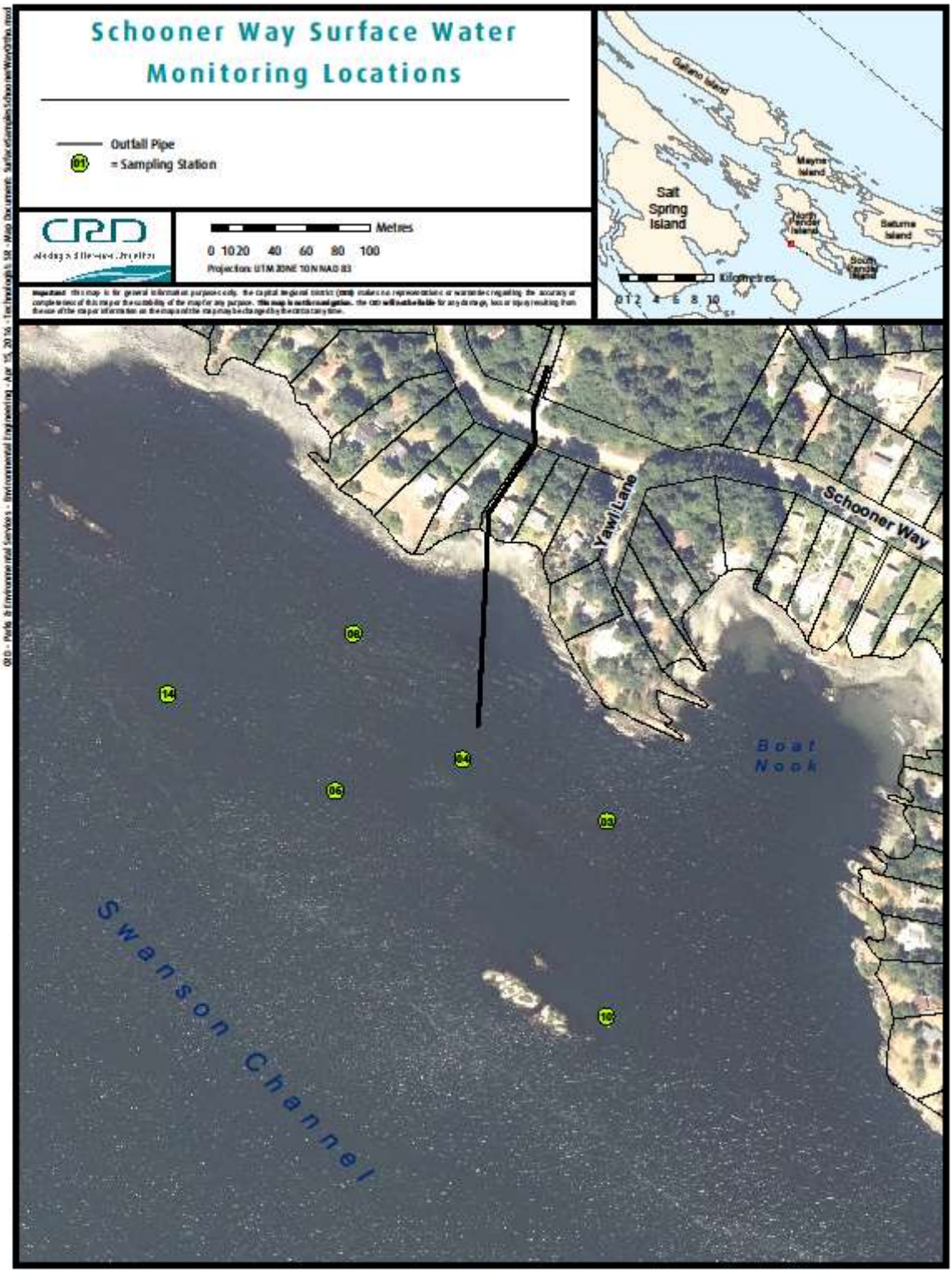

Figure 1.4 Schooner Receiving Environment Sampling Stations

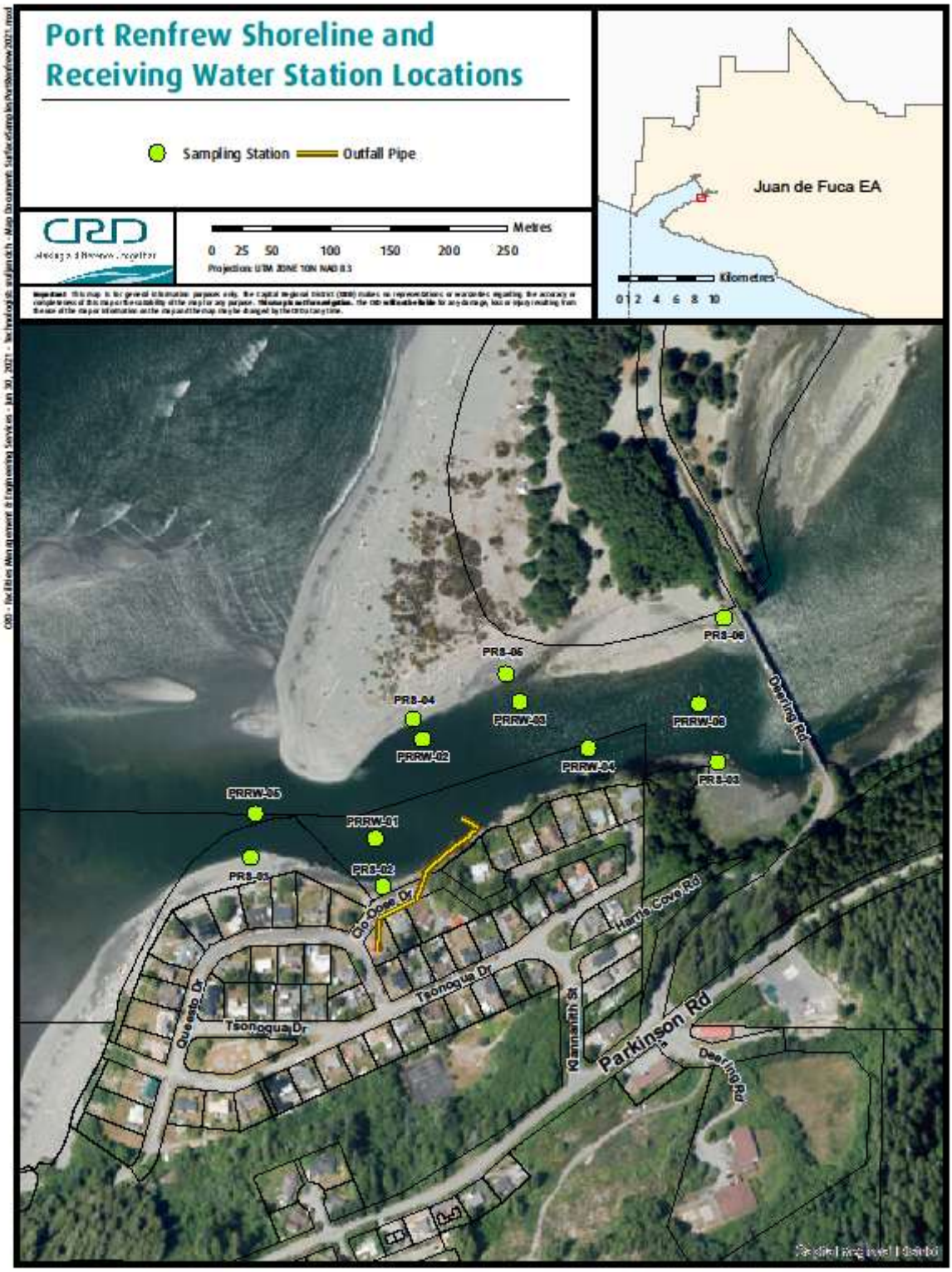

Figure 1.5 Port Renfrew Receiving Environment Sampling Stations

2.0 METHODOLOGY

2.1 Wastewater Monitoring

COMPLIANCE AND TREATMENT PLANT PERFORMANCE MONITORING

Influent and effluent samples from all five facilities were collected as grab samples at the frequency noted in Table 1.1.

Laboratory analyses were conducted at the McLoughlin Point WWTP laboratory, the Saanich Peninsula WWTP laboratory or Bureau Veritas Laboratories (BV Labs, Burnaby, BC). All labs are ISO certified as per provincial and federal regulatory requirements. TSS was determined gravimetrically using glass fiber filters dried at 105°C (APHA, 1998). BOD was determined by five-day oxygen depletion at 20°C using an oxygen meter (APHA, 1998). CBOD was determined by five-day oxygen depletion at 20°C with TCMP [2-chloro-6-(trichloro methyl) pyridine] as a nitrification inhibitor and using an oxygen meter (APHA, 1998). Fecal coliforms were enumerated using 0.45 µm membrane filters incubated on mFC medium at 44.5°C for 24 hours (APHA, 1998). Enterococci was determined by membrane-filtration technique, followed by incubation on mEI agar (an enzyme substrate medium) for 24 hours at 41°C. Nitrite was determined by diazotization colourimetry. Nitrate was determined by cadmium reduction, followed by diazotization colourimetry. The concentration of unionized ammonia was calculated using the measured concentration of total ammonia and the pH corrected to 15ºC.

Means reported for fecal coliform and enterococci are geometric (logarithmic) means. Means for all other parameters are arithmetic. Mean daily loadings were calculated from mean concentrations and mean daily flows. Annual loadings were calculated from mean concentrations and total annual flows. Values of half the detection limit were used for non-detect results.

TOXICITY TESTING

Effluent toxicity samples for each of the WWTPs were collected by grab sampling. Testing was conducted using standardized and approved protocols by ISO certified Nautilus Environmental (Burnaby, BC). Effluent toxicity was determined using the 96-hour acute toxicity test (EPS 1/RM/13) with juvenile Rainbow trout (*Oncorhynchus mykiss*). Five effluent concentrations plus one control were tested, with 10 test organisms per concentration. The number of organisms surviving over the testing period was recorded.

An additional toxicity test was conducted at the Ganges WWTP only. Effluent toxicity was further assessed using the 48-hour acute toxicity test (EPS 1/RM/14 with 2016 amendments) with <24-hour old neonate *Daphnia magna*. Five effluent concentrations plus one control were tested, with 10 test organisms per concentration. The number of organisms surviving over the testing period was recorded.

PRIORITY SUBSTANCES

At Ganges WWTP, influent and effluent samples were collected as composite samples for priority substance analysis at routine detection limits. The composite samples were collected by an ISCO automated sampler, with 400 mL of wastewater collected every 30 minutes over a 24-hour period. The composite samples were then split into smaller sample bottles for individual analyses and preserved before shipping to BV Labs. An additional grab sample was collected for those parameters not suited for composite collection. Analytical detection limits were chosen to allow comparison to BC WQG.

SLUDGE

Dewatered sludge (mixed liquor) at Ganges WWTP was sampled monthly and analyzed for 34 metals and moisture content by BV Labs. Results were compared to the BC OMRR (BCMoE&CCS, 2017b) biosolids limits. These regulations stipulate the land uses that are acceptable for the tested biosolids according to the concentrations of a select group of substances. The regulations are set to protect human and environmental health.

Sludge at the Burgoyne Bay waste transfer facility was sampled quarterly and analyzed for 34 metals and moisture content by BV Labs. Results were also compared to the BC OMRR (BCMoE&CCS, 2017b) biosolids limits.

2.2 Receiving Water Monitoring

RECEIVING WATER SURFACE WATER MONITORING

Routine receiving environment sampling was conducted solely at Schooner Way WWTP in 2025, as part of the temporary, enhanced monitoring for the new REMP (CRD, 2025). The water column around the outfall was sampled 5 times in 30 days (5-in-30) for bacterial indicators, as well as additional sampling depths and analysis of total metals from one day of the 5-in-30. After receiving environment sampling in 2026, the results will be reviewed with ENV. If impact to the receiving environment is low, sampling frequency will be reduced again to every four years.

There was no non-routine/emergency receiving environment sampling required in 2025. Routine receiving environment sampling will be conducted next at Ganges, Maliview and Port Renfrew WWTPs in 2028. 5-in-30 receiving environment sampling will be conducted next at Schooner WWTP in summer 2026.

3.0 GANGES WWTP

3.1 Introduction

The Ganges WWTP is located on the east side of Salt Spring Island (Figure 1.1). It discharges UV disinfected secondary treated effluent into Ganges Harbour through a 4,800 m outfall at a depth of 16 m. Because the average daily flow of this facility exceeds 100 m^3/day, both provincial and federal regulatory requirements must be met by this facility. Total residual chlorine must also be measured, but only when chlorine is used when washing the membranes.

The facility is regulated under BC MWR Registration RE-05521, dated April 28, 2005. Provincial and Federal regulatory requirements are described in Table 3.1.

Table 3.1 Ganges WWTP Regulatory Requirements

Parameter	Regulatory Requirement	
	Provincial	Federal
Maximum daily flow	<1,198 m^3/d	---
CBOD	max 25 mg/L	average 25 mg/L
TSS	max 25 mg/L	average 25 mg/L
Fecal coliform	max 1,000 CFU/100 mL	---
Unionized ammonia @15°C	---	max 1.25 mg/L
Total residual chlorine	---	average 0.02 mg/L
Toxicity test	96-hr Rainbow trout (pass)	---

This registration also has a requirement for receiving water monitoring. Routine monitoring was not required at this facility for this reporting year (2025) and is next required in 2028 unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer which would trigger non-routine or emergency sampling.

The following section reports the results from the Ganges Wastewater Treatment Plant WMEP (Table 3.2).

Table 3.2 Ganges Wastewater Treatment Plant WMEP

Component	Parameter	Frequency
Wastewater	Flow	Daily
	Provincial compliance and treatment plant performance monitoring: • Influent: TSS, BOD, fecal coliform • Secondary effluent: TSS, fecal coliform • Disinfected secondary effluent: TSS, BOD, CBOD, fecal coliform, ammonia, pH	Once per month
	Effluent toxicity: • 96-hr Rainbow Trout • *Daphnia magna* 48-hour	Once per year
	Federal compliance monitoring: • Final effluent: TSS, CBOD, unionized ammonia, total residual chlorine	Once per month
	Influent and effluent priority substances[1]	Once per year
	Sludge (mixed liquor)	Once per month
Receiving Water	Indicator bacteria (fecal coliform and enterococci)	2028, 2032

Notes:
[1]All priority substances are listed in Appendix A3.

3.2 Results

3.2.1 Wastewater Monitoring

COMPLIANCE AND TREATMENT PLANT PERFORMANCE MONITORING

In 2025, all daily flows met regulatory limits for the Ganges WWTP (Table 3.3 and Appendix A1).

Compliance and treatment plant monitoring data (Table 3.4, Appendix A2) show that effluent quality was consistent with previous years for all parameters (CRD, 2011 to 2025). There was one TSS exceedance (August) and three fecal coliform exceedances (May, July, August). All other compliance parameters met regulatory limits. Overall, the treatment plant removed 97% of the TSS and >99% of the fecal coliform bacteria from the influent. Total residual chlorine was not measured in 2025.

Compliance data was reported to ENV on a monthly basis, with individual environmental impact reports (EIR) issued if there was an incident at the plant. EIRs issued at Ganges WWTP in 2025 were a result of:

- TSS exceedance (August);
- Fecal coliform exceedances (May, July, August); and
- Failed toxicity test (July).

Table 3.3 Ganges WWTP 2025 Annual Flow Summary

Month	Mean Flow (m^3/d)	Minimum Flow (m^3/d)	Maximum Flow (m^3/d)	Total Flow (m^3)	Number of Samples	Permit Violations (%)
January	410	341	473	12,718	31	0
February	441	345	590	12,352	28	0
March	449	368	691	13,908	31	0
April	411	352	484	12,315	30	0
May	411	353	470	12,755	31	0
June	417	368	490	12,517	30	0
July	457	368	572	14,177	31	0
August	445	372	506	13,798	31	0
September	431	390	482	12,937	30	0
October	429	385	489	13,303	31	0
November	491	394	657	14,737	30	0
December	536	441	684	16,617	31	0
Annual	**444**	**341**	**691**	**162,134**	**365**	**0**

Notes:
Provincially regulated maximum daily flow = 1,198 m^3/d

Table 3.4 Ganges WWTP 2025 Compliance and Treatment Plant Performance Monitoring Annual Summary

Source	Compliance Monitoring					Treatment Plant Performance Monitoring			
	Flow (m^3/d)	TSS (mg/L)	CBOD (mg/L)	Fecal Coliform (CFU/100 mL)	Unionized Ammonia @15 C (mg N/L)	Ammonia (mg N/L)	Total Residual Chlorine (mg/L)	BOD (mg/L)	pH
Influent									
Regulatory limit	---	---	---	---	---	---	---	---	---
Mean	444	299	---	14,347,540	---	---	---	308	---
Minimum	341	82	---	2,600,000	---	---	---	110	---
Maximum	691	443	---	28,000,000	---	---	---	493	---
Regulatory violations (%)	---	---	---	---	---	---	---	---	---
Number of samples	365	12	---	12	---	---	---	12	---
Secondary effluent									
Regulatory limit	---	---	---	---	1.25	---	0.02	---	---
Mean	444	15	---	36,885	---	---	---	---	---
Minimum	341	1	---	362	---	---	---	---	---
Maximum	691	32	---	230,000	---	---	---	---	---
Percent reduction (from influent)	---	95	---	100	---	---	---	---	---
Regulatory violations	---	---	---	---	---	---	---	---	---
Number of samples	365	12	---	12	---	---		---	---
Disinfected secondary effluent									
Regulatory limit	1,198	25	25	1,000	1.25	---	0.02	---	---
Mean	444	9.1	1.9	5,909	0.107	8.30	---	3.0	7.2
Minimum	341	<2	<2	<1	<0.1	<0.10	---	<2	6.1
Maximum	691	30	4.12	62,000	0.42	38	---	9.18	7.6
Percent reduction (from influent)	---	97	---	>99	---	---	---	99	---
Regulatory violations (%)	0	8	0	25	0	---	---	---	---
Number of samples	365	12	12	12	12	12	0	12	12

TOXICITY TESTING

In 2025, disinfected effluent from July 22 failed the 96-hour Rainbow trout acute toxicity test. There was a delay between the initial failed test and the resample due to a lengthy reporting period for the analytical lab as well as limited laboratory availability to conduct the retest. A resample was eventually collected on September 17, and the toxicity test repeated using the ammonia corrected method (EPS 1/RM/50). This sample passed, confirming that the previous toxicity results were due to high ammonia concentrations. Moving forward, the Ganges plant will continue to use the ammonia corrected test methodology to mitigate any effects of the ammonia on the test. In addition, Operations staff has conducted other repairs and modifications to the Ganges WWTP to improve the treatment process and lower ammonia levels.

As in previous years (2012-2024), disinfected effluent from July passed the 48-hour *Daphnia magna* acute toxicity test, corresponding to an LC50 of >100%. The *Daphnia* test is not required but was conducted to maintain consistency with other CRD discharge monitoring programs where toxicity testing is required.

PRIORITY SUBSTANCES

Of the 200 priority substances analyzed in Ganges WWTP effluent (Appendix A3), 83 parameters were detected at standard detection limits (conventionals, nutrients, metals, total phenols, and trichloromethane). Influent results can also be found in Appendix A3.

In 2025, most priority substance concentrations in the Ganges WWTP effluent were below BC WQG (BCMoE&CCS, 2017a and 2019a) in undiluted effluent, before discharge to the environment (Appendix A3). Only enterococci, cyanide WAD, copper and zinc exceeded BC WQG in undiluted effluent. All substances were below BC WQG after the near surface dilution factor of 419:1 was applied. This 419:1 dilution factor was determined by oceanographic modelling and is the predicted dilution factor to occur near the surface at the edge of the outfall IDZ (Seaconsult Marine Research Ltd, 1994).

SLUDGE (MIXED LIQUOR)

Results of sludge (mixed liquor) analysis were compared to BC OMRR Biosolids Class A criteria to assess the quality of the sludge produced at the Ganges WWTP (Appendix A4). This class rating identifies biosolids as the highest quality that can be produced according to ENV requirements. Class A Biosolids can be used in land applications (limits are set to protect human and environmental health) with an approved land application plan. Ganges WWTP mixed liquor is not applied to land but is transferred to a Vancouver Island septage treatment facility for disposal. However, the mixed liquor monitoring results are still valuable information for the RSCP to help assess the success of their codes of practice (e.g., those in place for dental offices).

The 2025 Ganges WWTP sludge (mixed liquor) results for regulated parameters had concentrations well below the criteria for Class A Biosolids. Historically, mercury levels have been elevated at times in Ganges sludge, but these have declined steadily over time (Figure 3.1).

3.2.2 Receiving Water Monitoring

RECEIVING WATER BACTERIA INDICATORS

Routine receiving water monitoring was not required in 2025. The next routine receiving water 5-in-30 sampling will be conducted in the fall of 2028, unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer which would trigger non-routine or emergency sampling.

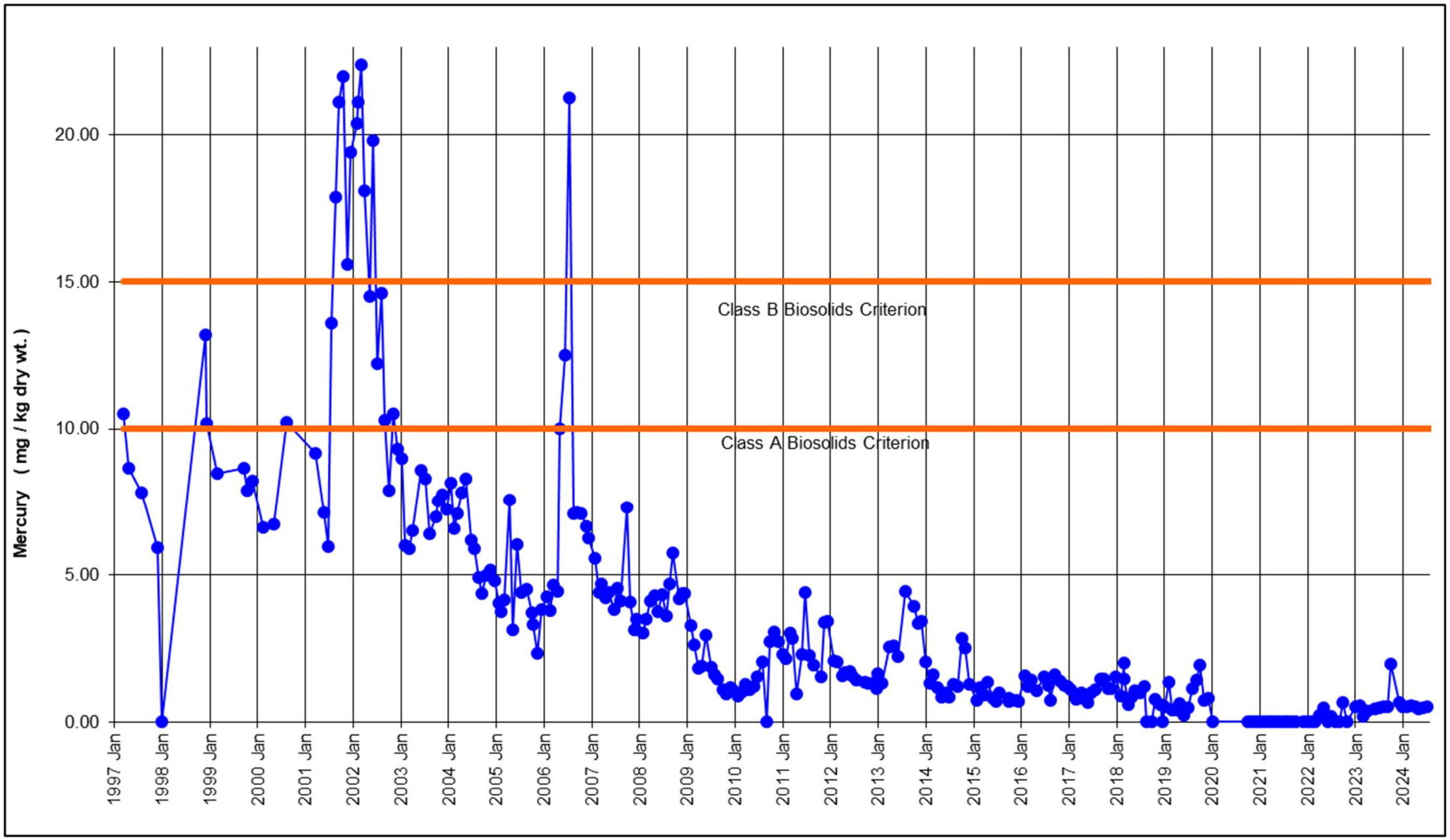

Figure 3.1 Ganges WWTP Mixed Liquor Mercury Levels (1997 to 2024)

3.3 Recommendations

CONTINUE TO SHARE RESULTS WITH THE CRD REGIONAL SOURCE CONTROL PROGRAM

Effluent priority pollutant and sludge (mixed liquor) results are valuable to the RSCP. Effluent priority pollutant monitoring is a requirement of the provincial registration for this facility and must continue, but sludge (mixed liquor) monitoring is not. It is recommended that sludge (mixed liquor) sampling continue to allow the RSCP to assess the effectiveness of their initiatives.

4.0 MALIVIEW WWTP

4.1 Introduction

The Maliview WWTP is located on the east side of Salt Spring Island (Figure 1.1). It discharges treated effluent into Trincomali Channel through a 213 m outfall at a depth of 14 m below sea level. The original primary treatment plant was upgraded to a secondary treatment facility in July 2006.

The facility is registered under BC MWR Registration RE-00242, as amended in June 2007.

Flows up to 60 m^3/d receive secondary treatment using the rotating biological contactor (RBC) and flows greater than 60 m^3/d (greater than twice the mean daily dry weather flow) receive preliminary treatment using fine screens. Both effluent streams are combined before discharge. Blending effluent streams is an option available under the MWR to deal with high effluent flows. Historically (prior to 2013), monitoring was done separately on the RBC and fine-screened portions of the effluent, and final effluent quality was predicted using a combination of the two effluent quality results and the relative flow volumes. In December 2012, a sampling point was installed that allowed for direct sampling of the combined final effluent quality. As such, the fine-screened effluent sampling point was abandoned in 2013 and replaced with the new combined final effluent sampling point. Compliance requirements are as follows:

Table 4.1 Maliview WWTP Regulatory Requirements

Parameter	Regulatory Requirements	
Maximum daily secondary flow	60 m^3/d	
Maximum daily fine-screened flow	190 m^3/d	
Maximum daily total flow	250 m^3/d	
	Flows up to 60 m^3/d	**Flows over 60 m^3/d**
Maximum CBOD	45 mg/L	130 mg/L
Maximum TSS	45 mg/L	130 mg/L

This registration also has a requirement for receiving water monitoring. Routine monitoring was not required at this facility for this reporting year (2025) and is next required in 2028 unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer which would trigger non-routine or emergency sampling.

The following section reports the results from the Maliview Wastewater Treatment Plant WMEP (Table 4.2).

Table 4.2 Maliview Wastewater Treatment Plant WMEP

Component	Parameter	Frequency
Wastewater	Flow	Daily
	Compliance and treatment plant performance monitoring: • Influent: TSS, BOD, fecal coliform • Secondary fine-screened effluent: TSS, BOD, CBOD, fecal coliform, NH_3, pH • Combined final effluent: TSS, BOD, CBOD, fecal coliform, NH_3, pH	Once per month
	Effluent toxicity (voluntary): • Rainbow trout 96-hour	Once per year
Receiving Water	Indicator bacteria (fecal coliform and enterococci)	2028, 2032

4.2 Results

4.2.1 Wastewater Monitoring

COMPLIANCE AND TREATMENT PLANT PERFORMANCE MONITORING

Flow data, including exceedances, are summarized for effluent discharged from the fine screens (bypassing the secondary treatment unit) in Table 4.3, for the secondary treatment unit in Table 4.4, and for the entire facility in Table 4.5. The complete flow data set is presented in Appendix B1.

The RBC component of the Maliview WWTP was not designed to treat the volume of effluent that it presently receives, particularly when it is rainy and significant inflow and infiltration (I&I) enters the conveyance system. In addition, the process that splits flow between the RBC and the fine screens responds to instantaneous peak flows, rather than total daily flows. This results in frequent fine-screening events on days that the RBC unit is not operating at full capacity, as measured by the total daily flow. Finally, the strength of influent has been steadily increasing in recent years, often exceeding the treatment specifications of the RBC. All these conditions make it challenging for this facility to be in compliance with provincial regulatory limits.

All total effluent flows discharged from the Maliview WWTP met the permitted allowable maximum of 250 m^3/d in 2025. Flow bypassed the secondary treatment process and received fine screening only, despite a secondary flow of less than 60 m^3/d, on 314 days (91% of the time). Flow also bypassed the secondary treatment process and received screening on days where the total flow was greater than 60 m^3/d, but the flow to the secondary treatment process was less than 60 m^3/d on 8% of the days. Flow to the secondary treatment plant exceeded 60 m^3/d on 45% of the days in 2025, resulting in a portion of the effluent bypassing the secondary treatment process of the plant to be treated solely by fine screening.

CRD staff and a contracting engineer have developed a detailed design for an upgrade to the facility to increase capacity and treatment reliability. Construction is expected to begin in 2026. It should also be noted that repairs were made in the summer of 2019 to the upstream conveyance system to reduce I&I. Since these repairs, the frequency and volume of flow limit exceedances have been substantially reduced; wet weather peak flows have been reduced to almost half of previous years, but extreme wet weather still leads to overflows. More I&I work is planned as part of the treatment plant upgrade project.

Compliance data was reported to ENV on a monthly basis, with EIRs issued if there was an incident at the plant. EIRs were issued at Maliview WWTP in 2025 as a result of:

- TSS exceedance (May, Aug);
- Mechanical breakdown (Apr);
- CBOD exceedance (May, Jul, Aug, Sept);
- Failed toxicity test (Jul);
- Power outage resulting in bypass (Feb, Dec); and
- Flow exceedance as a result of heavy rain event (December).

Compliance and treatment plant monitoring data is summarized in Table 4.6 and the complete data set is presented in Appendix B2. The secondary treatment unit removed approximately 84% of the TSS, 92% of fecal coliform and 80% of total BOD. The combined final effluent exceeded low flow (<60 m^3/d) limits for TSS on two sampling days and CBOD on four sampling days, representing 83% of the low flow sampling events. The combined final effluent did not exceed high flow limits for TSS or CBOD on any of the sampling days.

TOXICITY TESTING

Beginning in 2021, toxicity testing was conducted at each of the Gulf Islands/Port Renfrew facilities in order to maintain consistency across the region. The effluent sample from July 2025 failed the 96-hour Rainbow trout acute toxicity test. The toxicity test was not ammonia stabilized, which may be considered for future years. Once the plant upgrades are completed and treatment is functioning optimally, ammonia stabilization should no longer be required.

Table 4.3 Maliview WWTP 2025 Fine-screened Effluent Flow Summary

Month	Mean Daily Flow (m^3/d)	Min Daily Flow (m^3/d)	Max Daily Flow (m^3/d)*	Total Flow (m^3)
January	33	6	84	1,024
February	51	10	140	1,416
March	53	17	143	1,644
April	23	0	63	678
May	0	0	2	2
June	0	0	2	2
July	0	0	2	4
August	0	0	1	2
September	1	0	10	20
October	1	0	12	20
November	14	0	99	407
December	67	18	145	2,083
Annual	**20**	**0**	**145**	**7,299**

Notes:
*Permitted maximum daily flow = 190 m^3/d.
The SCADA flowmeter was malfunctioning, so some recorded daily flows are likely much lower than actual daily flows.

Table 4.4 Maliview WWTP 2025 Secondary Effluent Flow Summary

Month	Mean Daily Flow (m^3/d)	Min Daily Flow (m^3/d)	Max Daily Flow (m^3/d)*	Total Flow (m^3)
January	65	44	101	2,025
February	71	58	89	1,999
March	63	51	73	1,962
April	57	32	70	1,722
May	41	31	50	1,263
June	30	8	45	888
July	15	3	30	451
August	15	2	37	477
September	26	14	41	777
October	36	3	76	1,114
November	68	52	90	2,050
December	69	52	81	2,127
Annual	**46**	**2**	**101**	**16,853**

Notes:
*Provincially regulated maximum daily flow = 60 m^3/d.

Table 4.5 Maliview WWTP 2025 Total Effluent Flow Summary

Month	Total Daily Flow				Days TF <60 (2 flow only expected)	Days 2 flow <60, but FS discharged	Days TF >60 (blended flow expected)	Days Exceeded Regulatory Maximum (250 m3/d)
	Mean	Min	Max	Total				
January	98	62	156	3,049	0	21	31	0
February	118	0	216	3,414	1	27	28	0
March	116	73	211	3,606	0	23	31	0
April	80	40	129	2,400	10	23	20	0
May	41	31	50	1,265	31	30	0	0
June	30	8	45	889	30	29	0	0
July	15	3	30	455	31	26	0	0
August	15	2	37	479	31	28	0	0
September	27	14	49	797	30	25	0	0
October	37	3	76	1,134	29	27	2	0
November	82	52	169	2,457	6	27	23	0
December	136	82	220	4,210	0	28	31	0
Annual Total	**66**	**0**	**220**	**24,155**	**199**	**314**	**166**	**0**

Notes:
Permitted maximum daily total flow = 250 m^3/d.
Permitted maximum daily fine-screened flow = 190 m^3/d.
Flow splitting threshold (max. flow that can be handled by the RBC secondary treatment process) = 60 m^3/d.
FS = fine-screened.
2° = secondary treated flow.
TF = total daily flow (combined FS and 2°).
The flow splitting mechanism responds to instantaneous peak flow, so can get FS flow even when TF <60 m3/day.

Table 4.6 Maliview WWTP 2025 Compliance and Treatment Plant Performance Monitoring Annual Summary

Source	Compliance Monitoring				Treatment Plant Performance Monitoring		
	Flow (m^3/d)	TSS (mg/L)	CBOD (mg/L)	FC (CFU/100 mL)	BOD (mg/L)	NH_3 (mg/L N)	pH
Influent							
Regulatory Limit	250	---	---	---	---	---	---
Mean	66	250	---	10,482,716	273	---	---
Minimum	0	77	---	2,100,000	71	---	---
Maximum	220	550	---	58,000,000	471	---	---
Regulatory Violations	0	---	---	---	---	---	---
Number of Samples	365	12	---	12	12	---	---
Secondary Effluent							
Regulatory Limit	60	45	45	---		---	---
Mean	46	34	28	533,431	43	28	7.4
Minimum	2	17	11	59,000	16	0	7.2
Maximum	101	59	73	4,800,000	73	50.6	7.5
Percent Reduction (%)	---	86	---	95%	84	---	---
Regulatory Violations	37	0	0	---	---	---	---
Number of Samples	365.	12	12	12	12	12	12
Fine-Screened Effluent[1]							
Regulatory Limit	190	---	---	---	---	---	---
Mean	20	---	---	---	---	---	---
Minimum	0	---	---	---	---	---	---
Maximum	145	---	---	---	---	---	---
Percent Reduction	---	---	---	---	---	---	---
Regulatory Violations (%)	0	---	---	---	---	---	---
Number of Samples	365	---	---	---	---	---	---
Combined Final Effluent[2]							
Regulatory Limit[3]	250	45 / 130	45 / 130	---	---	---	---
Mean	66	44	45	880,694	54	29	7.4
Minimum	2	21	13	68,000	18	0	7.2
Maximum	220	97	76	4,600,000	105	48	7.9
Percent Reduction (%)	---	82	---	92	80	---	---
Regulatory Violations (%)	0	29 / 0	83 / 0	---	---	---	---
Number of Samples	365	7 / 5	12 / 12	11	12	11	12
Discharged Effluent							
Mean	66	39	41	880,694	54	28.5	7.4
Percent Reduction (%)	---	84	---	92	80	---	---

Notes: [1] No fine-screened effluent samples were collected in 2023. See footnote 2.

[2] Historically, the values for final effluent were calculated using individual secondary and fine-screened effluent quality values along with their relative flow volume proportions. In 2013, the fine-screened effluent sampling point was abandoned and replaced by direct sampling of final combined (secondary + screened) effluent quality via a new combined sampling point that was installed in December 2012.

[3] Regulatory limits for TSS and CBOD are dependent upon whether average daily flow is above or below 60 m3/day. Limits are 45 mg/L if flows are below 60 m^3/day and 130 mg/L if above 60 m^3/day.

4.2.2 Receiving Water Monitoring

RECEIVING WATER BACTERIA INDICATORS

Routine receiving water monitoring was not required in 2025. The next routine receiving water 5-in-30 sampling will be conducted in the fall of 2028, unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer which would trigger non-routine or emergency sampling.

4.3 Recommendations

INVESTIGATE WAYS TO ELIMINATE REGULATORY COMPLIANCE VIOLATIONS

Substantial upgrades to the Maliview WWTP are required to eliminate all regulatory compliance violations for this facility. Repairs were made in the summer of 2019 to the upstream conveyance system to reduce I&I. Since these repairs, the frequency and volume of flow limit exceedances have been substantially reduced; wet weather peak flows have been reduced to almost half of previous years, but extreme wet weather will still lead to overflows. Staff and consultants have developed a detailed design for a new treatment plant that will resolve flow and effluent quality issues. Construction is expected to begin in 2026. More I&I reduction is also planned.

5.0 SCHOONER WWTP

5.1 Introduction

The Schooner WWTP is located on the southwest side of North Pender Island (Figure 1.1). It discharges ultraviolet disinfected secondary treated effluent into Swanson Channel through a 198 m outfall at a depth of 8 m below sea level. Because the average daily flow of this facility exceeds 100 m^3/day, both provincial and federal regulatory requirements must be met.

The facility is regulated under BC MWR Registration RE-01693 dated March 31, 2025. Provincial and federal regulatory requirements are described in Table 5.1.

Table 5.1 Schooner WWTP Regulatory Requirements

Parameter	Regulatory Requirement	
	Provincial	Federal
Maximum daily flow	640 m^3/d	---
CBOD	max 45 mg/L	average 25 mg/L
TSS	max 45 mg/L	average 25 mg/L
Fecal coliform	200 CFU/100 mL	---
Unionized ammonia	---	max 1.25 mg/L
Total residual chlorine	---	average 0.02 mg/L
Toxicity test	96-hr Rainbow trout	---

This registration also has a requirement for receiving water monitoring. Routine monitoring was not required at this facility for this reporting year (2025) and is next required in 2028 unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer which would trigger non-routine or emergency sampling. However, receiving environment monitoring was temporarily enhanced in accordance with the new REMP developed as a result of the substantial upgrade to the treatment plant, and this sampling was conducted in 2025.

The following section reports the results from the Schooner Wastewater Treatment Plant WMEP (Table 5.2).

Table 5.2 Schooner Wastewater Treatment Plant WMEP

Component	Parameter	Frequency
Wastewater	Flow	Daily
	Compliance and treatment plant performance monitoring: • Influent: TSS, BOD, fecal coliform • Secondary Effluent: TSS, fecal coliform, unionized NH_3, total residual chlorine • Disinfected secondary effluent: TSS, BOD, CBOD, fecal coliform, NH_3, pH, unionized NH_3	Once per month
	Federal compliance monitoring: • Final Effluent: TSS, CBOD, unionized ammonia, total residual chlorine, pH	Once per month (reported quarterly)
	Effluent toxicity	Once per year
Surface Water	Indicator bacteria (fecal coliform and enterococci) Enhanced REMP sampling (fecal coliform and enterococci)	2028, 2032 2025, 2026

5.2 Results

5.2.1 Wastewater Monitoring

COMPLIANCE AND TREATMENT PLANT PERFORMANCE MONITORING

Flow data are summarized in Table 5.3 and the complete data set is presented in Appendix C1. In 2025, all total daily flow values from the Schooner WWTP were below the permitted maximum.

Monthly compliance and treatment plant performance monitoring data are summarized in Table 5.4 and the complete data set is presented in Appendix C2. In 2025, all monthly compliance parameters at the Schooner WWTP were within compliance limits, except for fecal coliforms, which exceeded 8% (one monthly sample out of the year) of the time. The treatment plant removed approximately 97% of the TSS, >99% of the fecal coliform and 99% of the total BOD it received.

Compliance data was reported to ENV on a monthly basis, with EIRs issued if there was an incident at the plant. EIRs were issued at Schooner WWTP in 2025, as a result of:

- Heavy rain event and equipment offline (March);
- Failed toxicity test (July); and
- Heavy rain events resulting in unplanned bypass (December).

Note the heavy rain event and equipment offline in March resulted in a greatly elevated fecal coliform result (31,000 CFU/100mL) that exceeded the permitted level.

TOXICITY TESTING

The disinfected effluent sample from July 2025 failed the 96-hour Rainbow trout acute toxicity test. There was a delay in resampling due to time lapsed before the results were received from the laboratory, and laboratory capacity for the follow-up test. An additional toxicity test was conducted in October 2025, using the ammonia stabilized method (EPS 1/RM/50). This test passed the acute toxicity test.

Table 5.3 Schooner WWTP 2025 Effluent Flow Annual Summary

Month	Mean Flow (m^3/d)	Min Flow (m^3/d)	Max Flow (m^3/d)*	Total Flow (m^3)	Permit Violations (%)
January	305	242	422	9,447	0
February	322	255	447	9,017	0
March	336	262	477	10,401	0
April	282	221	362	8,462	0
May	197	137	255	6,094	0
June	160	95	209	4,810	0
July	157	117	189	4,864	0
August	156	125	189	4,827	0
September	137	84	188	4,112	0
October	165	112	251	5,130	0
November	247	151	327	7,395	0
December	380	233	627	10,639	0
Annual	**235**	**84**	**627**	**85,674**	**0**

Notes:
*Provincially regulated maximum daily flow = 756 m^3/d.

Table 5.4 Schooner WWTP 2025 Compliance Annual Summary

Source	Compliance Monitoring					Treatment Plant Performance Monitoring		
	Flow (m^3/d)	TSS (mg/L)	CBOD (mg/L)	FC (CFU/100 mL)	Unionized Ammonia@15 C (mg/L N)	Ammonia (mg/L N)	BOD (mg/L)	pH
Regulatory Limit	640	---	---	---	---	---	---	---
Mean	235	142	---	6,006,494	---	---	153	---
Minimum	84	70	---	1,100,000	---	---	72	---
Maximum	627	208	---	34,000,000	---	---	260	---
Regulatory violations (%)	0	---	---	---	---	---	---	---
Number of samples	365	12	---	12	---	----	12	---
Regulatory Limit	---	---	---	---	---	---	---	---
Mean	235	3	---	35,865	---	---	---	---
Minimum	84	<2	---	<1	---	---	---	---
Maximum	627	16	---	430,000	---	---	---	---
Percent Reduction	---	98	---	99	---	---	---	---
Regulatory violations	---	---	---	---	---	---	---	---
Number of samples	365	12	---	12	---	---	---	---
Regulatory Limit	756	Max: 45 Avg: 25	Max: 45 Avg: 25	200	1.25	---	---	---
Mean	235	4	2	2,587	0.064	5	2	5.9
Minimum	84	<2	<2	<1	<0.1	<0.10	<2	4.3
Maximum	627	34	4	31,000	0.22	48	2	7.5
Percent Reduction	---	97	---	>99	---	---	99	---
Regulatory violations (%)	0	0	0	8.3	0	---	---	---
Number of samples	365	12	12	12	12	12	12	12

Notes:
Data is comprised of routine, monthly sampling results.

5.2.2 Receiving Water Monitoring

Routine receiving water monitoring was required in 2025 as part of the temporary, enhanced receiving environment monitoring program. Results are presented in Table 5.5 through 5.8. All individual results as well as geomeans were well below WQG, with the maximum value of 1 CFU/100 mL for *enterococci* and 3 CFU/100 mL for fecal coliforms in the summer sampling. The winter sampling had a maximum value of 4 CFU/100mL for *enterococci* and 5 CFU/100mL for fecal coliforms. Samples from one day of the 5-in-30 were also analyzed for total metals. All results were below applicable WQG, except one cadmium, one copper and two zinc values in the summer sampling, and two copper values in the winter sampling. As these values were likely brief elevations, they are unlikely to exceed over the long-term. More data is required to evaluate whether these exceedances are a trend.

Receiving environment sampling will be conducted next in summer of 2026, and will also be required if there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter or one day duration in the summer.

Table 5.5 Schooner Summer 2025 Receiving Water Sampling Results, CFU/100 mL

Station	Site	Depth	Jun 2		Jun 13		Jun 20		Jun 23		Aug 4		Geomean		Minimum		Maximum	
			Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.
Sch-03	100 m SE	top	<1	<1	<1	1	1	1	<1	<1	<1	<1	0.6	0.7	0.5	0.5	1.0	1.0
		middle	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	0.5	0.6	0.5	0.5	0.5	1.0
		bottom	<1	<1	<1	1	1	<1	<1	<1	<1	<1	0.6	0.6	0.5	0.5	1.0	1.0
Sch-04	100 m WSW	top	<1	<1	<1	1	1	1	<1	<1	<1	<1	0.6	0.7	0.5	0.5	1.0	1.0
		middle	1	<1	1	2	<1	1	<1	<1	<1	<1	0.7	0.8	0.5	0.5	1.0	2.0
		bottom	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	0.6	0.5	0.5	0.5	1.0	0.5
Sch-05	100 m NW	top	<1	<1	<1	3	<1	<1	<1	<1	<1	<1	0.5	0.7	0.5	0.5	0.5	3.0
		middle	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	0.5	0.6	0.5	0.5	0.5	1.0
		bottom	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.5	0.5	0.5	0.5	0.5	0.5
Sch-06	100 m S	top	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.5	0.5	0.5	0.5	0.5	0.5
		middle	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.5	0.5	0.5	0.5	0.5	0.5
		bottom	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	0.5	0.6	0.5	0.5	0.5	1.0
Sch-10	200 m SSE	top	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.5	0.5	0.5	0.5	0.5	0.5
Sch-14	200 m W	top	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	0.5	0.7	0.5	0.5	0.5	2.0

Table 5.6 Schooner Summer 2025 Receiving Water Sampling Results, Total Metals (µg/L unless noted)

Station	Site	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium (mg/L)	Chromium	Cobalt	Copper
Sch-03	100 m SE	top	25.4	<0.5	1.28	8.9	<0.5	<0.5	3150	0.079	286	1.19	0.069	0.74
		middle	42.1	<0.5	1.54	8.9	<0.5	<0.5	3580	0.085	310	<0.5	<0.05	0.58
		bottom	14	<0.5	1.29	10	<0.5	<0.5	3390	0.097	295	<0.5	0.062	0.55
Sch-04	100 m WSW	top	28.1	<0.5	1.47	8.7	<0.5	<0.5	3790	0.12	331	1.26	0.103	1.78
		middle	21.3	<0.5	1.55	10.6	<0.5	<0.5	3300	0.102	299	1.28	0.154	0.81
		bottom	24	<0.5	1.25	8.7	<0.5	<0.5	3620	0.097	305	1.06	<0.05	<0.5
Sch-05	100 m NW	top	194	<0.5	2.88	10.9	<0.5	<0.5	2880	1.32	252	1.46	1.42	4.68
		middle	20.4	<0.5	1.64	7.6	<0.5	<0.5	3420	0.112	304	0.68	0.064	1.44
		bottom	20.1	<0.5	1.13	9.7	<0.5	<0.5	3130	0.042	292	0.84	<0.05	<0.5
Sch-06	100 m S	top	13.3	<0.5	1.27	8.8	<0.5	<0.5	3010	0.057	286	1.34	0.078	0.83
		middle	19.1	<0.5	1.55	9.6	<0.5	<0.5	3780	0.117	331	<0.5	<0.05	<0.5
		bottom	21.5	<0.5	1.5	9.4	<0.5	<0.5	3350	0.066	299	0.63	<0.05	<0.5
Sch-10	200 m SSE	top	20.1	<0.5	1.39	9.7	<0.5	<0.5	3480	0.123	314	0.67	<0.05	<0.5
Sch-14	200 m W	top	40.7	<0.5	1.32	8.4	<0.5	<0.5	3430	0.055	302	1.53	0.07	<0.5
Water Quality Guideline (if applicable)				12.5						0.12		56		<2 (lt), 3 (st)

Notes: *Value minimally exceeds the criteria. In addition, the criteria is a long-term exposure limit, and as this exceedance was likely a brief elevation, is unlikely to exceed over the long-term. ^Value is most likely an error, as it differs so greatly from the others. lt=long-term, st=short term

Table 5.6 continued

Station	Site	Depth	Hardness (as CaCO3) (mg/L)	Iron	Lead	Lithium	Magnesium (mg/L)	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium (mg/L)	Selenium
Sch-03	100 m SE	top	4410	28	0.071	124	898	4.33	<0.0019	8.54	0.63	58	280	<0.5
		middle	4790	17	<0.05	133	976	3.25	<0.0019	7.89	0.42	54	293	<0.5
		bottom	4560	<10	<0.05	127	927	3.92	<0.0019	7.29	0.89	54	278	<0.5
Sch-04	100 m WSW	top	5130	67	0.186	143	1040	3.37	<0.0019	8.38	1.35	76	323	<0.5
		middle	4570	32	0.056	130	929	5.64	<0.0019	7.59	0.27	<50	283	<0.5
		bottom	4890	26	<0.05	134	1000	2.44	<0.0019	8.39	0.38	66	302	<0.5
Sch-05	100 m NW	top	3890	<10	1.43	111	793	11.6	<0.0019	8.3	2.03	254	235	<0.5
		middle	4730	27	0.124	133	965	2.11	<0.0019	8.25	0.57	70	294	<0.5
		bottom	4400	<10	<0.05	124	892	3.93	<0.0019	7.37	0.3	<50	269	<0.5
Sch-06	100 m S	top	4370	<10	0.056	121	888	4.19	<0.0019	7.65	0.35	73	274	<0.5
		middle	5150	13	<0.05	144	1050	2.67	<0.0019	8.33	0.43	66	317	<0.5
		bottom	4610	13	<0.05	133	938	3.25	<0.0019	7.97	1.3	<50	283	<0.5
Sch-10	200 m SSE	top	4860	14	0.07	137	989	2.7	<0.0019	7.79	0.59	75	299	<0.5
Sch-14	200 m W	top	4730	92	0.199	134	967	2.53	<0.0019	7.74	0.46	59	293	<0.5
Water Quality Guideline (if applicable)					<2 (lt), 140 (st)			100			8.3			2

Notes: lt=long-term, st=short term

Table 5.6 continued

Station	Site	Depth	Silicon	Silver	Strontium	Sulfur (mg/L)	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Sch-03	100 m SE	top	<1000	<0.05	5600	662	<0.05	<1	<5	2.22	2.25	5.7
		middle	<1000	<0.05	6020	694	<0.05	<1	<5	2.2	2.89	8.1
		bottom	<1000	<0.05	5890	623	<0.05	<1	<5	1.91	2.38	6.3
Sch-04	100 m WSW	top	1070	<0.05	6500	742	<0.05	<1	<5	2.24	2.81	68.6
		middle	<1000	0.053	5970	695	<0.05	<1	<5	2	3.01	31
		bottom	<1000	<0.05	6180	720	<0.05	<1	<5	2.1	3.05	10.6
Sch-05	100 m NW	top	<1000	0.148	4940	550	0.258	<1	<5	2.89	3.97	8.4
		middle	1060	<0.05	6010	680	<0.05	<1	<5	1.98	2.57	8.3
		bottom	<1000	0.058	5630	634	<0.05	<1	<5	1.9	2.1	<3
Sch-06	100 m S	top	<1000	<0.05	5690	641	<0.05	<1	<5	1.94	2.64	4.3
		middle	1140	<0.05	6550	750	<0.05	<1	<5	2.12	3.1	8
		bottom	<1000	<0.05	5950	644	<0.05	<1	<5	2.01	2.32	<3
Sch-10	200 m SSE	top	1000	<0.05	6210	693	<0.05	<1	<5	2.07	2.56	8.1
Sch-14	200 m W	top	1070	<0.05	6010	676	<0.05	<1	<5	2.08	2.24	<3
Water Quality Guideline (if applicable)				0.5								10 (lt), 55 (st)

Notes: lt=long-term, st=short term

Table 5.7 Schooner Winter 2025 Receiving Water Sampling Results, CFU/100 mL

Station	Site	Depth	Nov 12		Nov 26		Dec 1		Dec 12		Feb 11		Geomean		Minimum		Maximum	
			Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.	Ent	F.C.
Sch-03	100 m SE	top	<1	<1	<1	<1	<1	<1	1	<1	3	5	0.8	0.8	0.5	0.5	3.0	5.0
		middle	1	<1	<1	<1	1	2	<1	<1	3	2	0.9	0.9	0.5	0.5	3.0	2.0
		bottom	1	<1	<1	<1	<1	2	<1	<1	4	2	0.9	0.9	0.5	0.5	4.0	2.0
Sch-04	100 m WSW	top	1	<1	<1	<1	<1	<1	2	<1	<1	<1	0.8	0.5	0.5	0.5	2.0	0.5
		middle	<1	<1	<1	<1	<1	<1	<1	<1	1	2	0.6	0.7	0.5	0.5	1.0	2.0
		bottom	1	<1	<1	<1	<1	1	<1	<1	2	<1	0.8	0.6	0.5	0.5	2.0	1.0
Sch-05	100 m NW	top	1	<1	<1	<1	1	1	<1	1	<1	<1	0.7	0.7	0.5	0.5	1.0	1.0
		middle	<1	<1	<1	<1	<1	1	1	<1	1	2	0.7	0.8	0.5	0.5	1.0	2.0
		bottom	<1	<1	<1	<1	<1	<1	1	<1	1	2	0.7	0.7	0.5	0.5	1.0	2.0
Sch-06	100 m S	top	<1	1	<1	<1	<1	<1	1	1	2	1	0.8	0.8	0.5	0.5	2.0	1.0
		middle	<1	<1	<1	<1	<1	1	<1	<1	1	<1	0.6	0.6	0.5	0.5	1.0	1.0
		bottom	1	<1	3	<1	<1	<1	<1	<1	3	3	1.2	0.7	0.5	0.5	3.0	3.0
Sch-10	200 m SSE	top	<1	1	2	<1	<1	<1	<1	2	1	<1	0.8	0.8	0.5	0.5	2.0	2.0
Sch-14	200 m W	top	1	<1	<1	<1	<1	<1	2	<1	3	<1	1.1	0.5	0.5	0.5	3.0	0.5

* Note day 5 delayed due to weather conditions

Table 5.8 Schooner Winter 2025 Receiving Water Sampling Results, Total Metals (µg/L unless noted)

Station	Site	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium (mg/L)	Chromium	Cobalt	Copper
Sch-03	100 m SE	top	15.1	<0.5	1.4	8.8	<0.5	<0.5	4380	0.054	374	<0.5	<0.05	<0.5
		middle	31.5	<0.5	1.56	8.4	<0.5	<0.5	4260	0.091	370	<0.5	<0.05	<0.5
		bottom	15.4	<0.5	1.49	7.5	<0.5	<0.5	3770	0.053	316	<0.5	<0.05	<0.5
Sch-04	100 m WSW	top	20.1	<0.5	1.22	7.5	<0.5	<0.5	3470	0.029	297	<0.5	<0.05	<0.5
		middle	16	<0.5	1.21	7.4	<0.5	<0.5	3720	0.043	308	<0.5	<0.05	<0.5
		bottom	15	<0.5	1.21	7	<0.5	<0.5	3580	0.084	307	<0.5	<0.05	2.9
Sch-05	100 m NW	top	17.7	<0.5	1.23	7.3	<0.5	<0.5	3750	0.033	306	<0.5	<0.05	<0.5
		middle	27.5	<0.5	1.27	7.3	<0.5	<0.5	3660	0.055	320	<0.5	<0.05	<0.5
		bottom	21.7	<0.5	1.38	7.1	<0.5	<0.5	3850	0.09	331	<0.5	<0.05	<0.5
Sch-06	100 m S	top	21.2	<0.5	1.34	7.1	<0.5	<0.5	3830	0.064	310	<0.5	<0.05	<0.5
		middle	15.5	<0.5	1.34	7.9	<0.5	<0.5	4120	0.065	356	<0.5	<0.05	<0.5
		bottom	13.4	<0.5	1.19	6.8	<0.5	<0.5	3770	0.065	312	<0.5	<0.05	<0.5
Sch-10	200 m SSE	top	15.8	<0.5	1.37	8	<0.5	<0.5	4140	0.047	346	<0.5	<0.05	2.24
Sch-14	200 m W	top	19.8	<0.5	1.28	6.5	<0.5	<0.5	3790	0.03	315	<0.5	<0.05	1.03
Water Quality Guideline (if applicable)				12.5						0.12		56		<2 (lt), 3 (st)

Notes: *Value minimally exceeds the criteria. In addition, the criteria is a long-term exposure limit, and as this exceedance was likely a brief elevation, is unlikely to exceed over the long-term. ^Value is most likely an error, as it differs so greatly from the others. lt=long-term, st=short term

Table 5.8 continued

Station	Site	Depth	Hardness (as CaCO3) (mg/L)	Iron	Lead	Lithium	Magnesium (mg/L)	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium (mg/L)	Selenium
Sch-03	100 m SE	top	5490	22	<0.05	162	1110	2.04	0.0025	9.72	0.34	81	338	<0.5
		middle	5580	30	<0.05	162	1130	2.26	<0.0019	9.54	0.38	70	349	<0.5
		bottom	4800	21	<0.05	142	974	1.63	0.0019	8.4	<0.2	70	299	<0.5
Sch-04	100 m WSW	top	4450	16	<0.05	134	900	1.56	0.0021	7.98	0.23	60	279	<0.5
		middle	4660	18	<0.05	141	944	1.39	0.003	7.36	0.25	62	286	<0.5
		bottom	4520	19	<0.05	138	913	1.69	<0.0019	8.28	<0.2	<50	285	<0.5
Sch-05	100 m NW	top	4590	18	<0.05	144	930	1.47	<0.0019	8.34	0.31	55	288	<0.5
		middle	4740	17	<0.05	143	957	1.52	<0.0019	8.97	0.2	74	297	<0.5
		bottom	5000	24	<0.05	149	1010	1.96	<0.0019	8.87	0.34	58	307	<0.5
Sch-06	100 m S	top	4790	18	<0.05	142	975	1.58	<0.0019	7.88	0.35	59	299	<0.5
		middle	5290	27	<0.05	160	1070	1.68	<0.0019	9.5	0.3	68	323	<0.5
		bottom	4640	22	<0.05	143	938	1.7	<0.0019	8.14	0.24	54	290	<0.5
Sch-10	200 m SSE	top	5300	21	<0.05	159	1080	2.12	0.0023	8.89	0.4	76	325	<0.5
Sch-14	200 m W	top	4740	19	<0.05	146	959	1.92	0.0022	7.97	0.48	80	298	<0.5
Water Quality Guideline (if applicable)					<2 (lt), 140 (st)			100			8.3			2

Notes: lt=long-term, st=short term

Table 5.8 continued

Station	Site	Depth	Silicon	Silver	Strontium	Sulfur (mg/L)	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Sch-03	100 m SE	top	1750	<0.05	6840	837	<0.05	<1	<5	2.68	1.81	<3
		middle	1720	<0.05	6880	848	<0.05	<1	<5	2.71	1.7	<3
		bottom	1460	<0.05	5540	699	<0.05	<1	<5	2.28	1.61	<3
Sch-04	100 m WSW	top	1390	<0.05	5250	695	<0.05	<1	<5	2.19	1.24	<3
		middle	1420	<0.05	5400	687	<0.05	<1	<5	2.23	1.37	<3
		bottom	1390	<0.05	5370	679	<0.05	<1	<5	2.27	1.23	<3
Sch-05	100 m NW	top	1390	<0.05	5340	715	<0.05	<1	<5	2.24	1.3	<3
		middle	1440	<0.05	5540	690	<0.05	<1	<5	2.38	1.2	<3
		bottom	1480	<0.05	5840	771	<0.05	<1	<5	2.46	1.51	<3
Sch-06	100 m S	top	1410	<0.05	5500	719	<0.05	<1	<5	2.24	1.36	<3
		middle	1540	<0.05	6490	759	<0.05	<1	<5	2.62	1.6	<3
		bottom	1400	<0.05	5560	691	<0.05	<1	<5	2.23	1.38	<3
Sch-10	200 m SSE	top	1500	<0.05	6290	806	<0.05	<1	<5	2.55	1.47	<3
Sch-14	200 m W	top	1460	<0.05	5440	742	<0.05	<1	<5	2.31	1.11	<3
Water Quality Guideline (if applicable)				0.5								10 (lt), 55 (st)

Notes: lt=long-term, st=short term

5.3 Recommendations

COMMISSIONING OF NEW WWTP

The new Schooner WWTP was completed in October 2024 and commissioned in 2025. Optimization of the new plant is ongoing.

6.0 PORT RENFREW WWTP

6.1 Introduction

The Port Renfrew WWTP is located on the southeast corner of Port San Juan on Vancouver Island (Figure 1.1). It discharges undisinfected secondary treated effluent into Port San Juan through an 81 m outfall at a depth of 3 m.

The facility is regulated under BC MWR Permit PE-00312 dated March 17, 2025. Regulatory requirements are described in Table 6.1.

Table 6.1 Port Renfrew WWTP Regulatory Requirements

Parameter	Regulatory Requirement
Maximum daily flow	220 m^3/d
Maximum CBOD	45 mg/L
Maximum TSS	60 mg/L

This registration also has a requirement for receiving water monitoring. Routine monitoring was not required at this facility for this reporting year (2025) and is next required in 2028 unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer which would trigger non-routine or emergency sampling.

The following section reports the results from the Port Renfrew Wastewater Treatment Plant WMEP (Table 6.2).

Table 6.2 Port Renfrew Wastewater Treatment Plant WMEP

Component	Parameter	Frequency
Wastewater	Flow	Daily
	Compliance and treatment plant performance monitoring: • Influent: TSS, BOD, fecal coliform • Secondary Effluent: TSS, BOD, CBOD, fecal coliform, NH_3, pH	Once per month
	Effluent toxicity (voluntary): • Rainbow trout 96-hour	Once per year
Receiving Water	Indicator bacteria (fecal coliform and enterococci)	2028, 2032

6.2 Results

6.2.1 Wastewater Monitoring

COMPLIANCE AND TREATMENT PLANT PERFORMANCE MONITORING

Flow data are summarized in Table 6.3 and the complete data set is presented in Appendix D1. In 2025, all daily flows at the Port Renfrew WWTP were below the permitted maximum. Average monthly flow was similar to recent years.

Monthly compliance and treatment plant performance monitoring data are summarized in Table 6.4 and the complete data set is presented in Appendix D2. All compliance parameters were below regulatory limits. The treatment plant removed approximately 90% of the TSS, 96% of the BOD and >99% of the fecal coliforms.

Compliance data was reported to ENV on a monthly basis, with EIRs issued if there was an incident at the plant. There were no EIRs issued for the Port Renfrew WWTP in 2025.

TOXICITY TESTING

Beginning in 2021, toxicity testing was conducted at each of the Gulf Islands/Port Renfrew facilities in order to maintain consistency across the region. The undisinfected secondary effluent sample from July 2025 passed the 96-hour Rainbow trout acute toxicity test.

Table 6.3 Port Renfrew WWTP 2025 Flow Summary

Month	Mean Flow (m^3/d)	Min Flow (m^3/d)	Max Flow (m^3/d)*	Total Flow (m^3)	Permit Violations (%)
January	38	23	68	1,164	0
February	55	34	113	1,533	0
March	75	32	182	2,330	0
April	35	21	70	1,050	0
May	35	23	54	1,091	0
June	31	21	47	935	0
July	36	28	51	1,116	0
August	43	30	100	1,325	0
September	38	25	99	1,136	0
October	58	15	123	1,792	0
November	60	35	104	1,805	0
December	92	36	215	2,854	0
Annual	**50**	**15**	**215**	**18,129**	**0**

Notes:
Provincially regulated maximum daily flow = 220 m^3/d

Table 6.4 Port Renfrew WWTP 2025 Compliance and Treatment Plant Performance Monitoring Annual Summary

Source	Compliance Monitoring				Treatment Plant Performance Monitoring		
	Flow (m^3/d)	TSS (mg/L)	CBOD (mg/L)	FC (CFU/100 mL)	BOD (mg/L)	NH^3 (mg/L N)	pH
Influent							
Regulatory Limit	---	---	---	---	---	---	---
Mean	50	195	---	5,767,450	272	---	---
Minimum	15	58	---	2,100,000	<89	---	---
Maximum	215	367	---	94,000,000	619	---	---
Permit Violations (%)	0	---	---	---	---	---	---
Number of Samples	365	12	---	12	12	---	---
Secondary Effluent							
Regulatory Limit	220	60	45	---	---	---	---
Mean	50	19	5	13,366	10	0.5	6.6
Minimum	15	2	<3	690	<3	<0.1	5.9
Maximum	215	34	9	660,000	20	1.6	7.7
Percent Reduction	---	90	---	>99	96	---	---
Permit Violations (%)	0	0	0	---	---	---	---
Number of Samples	365	12	12	12	12	12	12

6.2.2 Receiving Water Monitoring

RECEIVING WATER BACTERIA INDICATORS

Routine receiving water monitoring was not required in 2025. The next routine receiving water 5-in-30 sampling will be conducted in the fall of 2028, unless there are planned bypasses, plant failures/overflows or wet weather overflows that exceed three days' duration in the winter and one day duration in the summer which would trigger non-routine or emergency sampling.

Based on feedback from provincial regulators, beginning in 2028 new upstream reference stations will be added to the receiving environment program as well as sample analysis for total metals on one day of each set of 5-in-30 sampling days.

6.3 Recommendations

MAINTAIN EFFECTIVENESS AND RELIABILITY OF THE TREATMENT PROCESS

Staff and consultants completed a feasibility study in 2015 to improve/increase the treatment plant capacity and ensure ongoing effective operation of the treatment plant and conveyance system into the future. Grant funding will be required in order to complete any upgrades to this system. Updates to the facility asset management plans are underway, and a phased implementation plan is anticipated pending funding.

7.0 BURGOYNE BAY WASTE TRANSFER FACILITY

7.1 Introduction

The Burgoyne Bay waste transfer facility is located on Salt Spring Island and collects septage from Salt Spring Island (Ganges WWTP and Maliview WWTP), Pender Island (Schooner WWTP and Cannon WWTP) and from Saturna Island. Material is then disposed of at GFL Environmental SPL Wastewater Recovery Centre (Langford, BC). Monitoring is undertaken to characterize the septage prior to disposal and to inform the CRD's RSCP initiatives. The Burgoyne Bay facility is not designed to produce a biosolids product as defined in the OMRR. However, as a reference point, the results of the analyses performed on the septage are compared to the quality criteria established in Schedule 4 of the OMRR for Class A biosolids.

7.2 Results

The Burgoyne Bay waste transfer facility met all quality criteria for Class A biosolids (Appendix E1). This exceedance currently has no implications for disposal as this comparison is for information purposes only (to assess the end-product quality) and is not intended to characterize the material as a biosolids product. All other results were below the quality criteria for Class A biosolids.

7.3 Recommendations

WMEP staff will continue to characterize the septage collected at the facility in order to inform the RSCP program.

8.0 REFERENCES

APHA (1998). Standard Methods for the Examination of Water and Wastewater, 20th Edition. American Public Health Association, Washington, DC.

BCMoE&CCS (2017a) British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Water Protection & Sustainability Branch, British Columbia Ministry of Environment & Climate Change Strategy, Victoria, BC, Canada.

BCMoE&CCS (2017b). Environmental Management Act and Health Act, Organic Matter Recycling Regulation. Originally deposited and effective February 5, 2002. Last amended November 1, 2017. British Columbia Ministry of Environment & Climate Change Strategy, Victoria, BC Canada.

BCMoE&CCS (2019a) British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Water Protection & Sustainability Branch, British Columbia Ministry of Environment & Climate Change Strategy, Victoria, BC, Canada.

BCMoE&CCS (2019b) B.C. Recreational Water Quality Guidelines: Guideline Summary. Water Quality Guidelines Series, WQG-02. Prov. B.C., Victoria, BC, Canada.

CRD (2011). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2010 Annual Report. Capital Regional District Environmental Protection, Victoria, BC, Canada.

CRD (2012). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2011 Annual Report. Capital Regional District Environmental Protection, Victoria, BC, Canada.

CRD (2013). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2012 Annual Report. Capital Regional District Environmental Protection, Victoria, BC, Canada.

CRD (2014). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2013 Annual Report. Capital Regional District Environmental Protection, Victoria, BC, Canada.

CRD (2015). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2014 Annual Report. Capital Regional District Environmental Protection, Victoria, BC, Canada.

CRD (2016). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2015 Annual Report.

CRD (2017). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2016 Annual Report.

CRD (2018). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2017 Annual Report.

CRD (2020a). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2018 Annual Report.

CRD (2020b). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2019 Annual Report.

CRD (2021). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2020 Annual Report.

CRD (2022). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2021 Annual Report.

CRD (2023). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2022 Annual Report.

CRD (2024). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2023 Annual Report.

CRD (2025). Gulf Islands and Port Renfrew Wastewater and Marine Environment Program 2024 Annual Report.

Health Canada (2012). Guidelines for Canadian Recreational Water Quality. Third Edition. Published by authority of the Minister of Health, Ottawa, Ontario. 161 pp.

Seaconsult Marine Research Ltd. (1994). Wastewater Dilution and Dispersion for the Ganges Treatment Plant Outfall. Prepared for the Capital Regional District, Victoria, BC, Canada.

APPENDIX A
GANGES WWTP

Appendix A1 Ganges WWTP Effluent Flow 2025 (m^3/day)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	415	357	418	457	395	375	414	497	416	439	576	503
2	448	350	368	413	389	419	439	455	415	451	446	497
3	470	367	392	421	406	419	429	434	416	410	452	478
4	473	345	401	411	362	419	412	416	447	412	443	535
5	470	394	432	378	398	432	423	457	449	402	495	496
6	462	392	402	464	395	374	422	423	448	439	522	467
7	427	353	382	462	419	394	437	506	426	385	567	475
8	444	352	445	484	403	385	409	452	419	421	463	588
9	442	349	425	452	390	409	439	430	420	425	458	533
10	433	382	446	433	397	416	368	485	459	420	481	683
11	402	393	472	401	353	419	572	421	482	436	394	673
12	377	402	522	387	385	446	488	424	407	418	491	515
13	426	404	445	380	369	395	461	432	390	389	536	484
14	430	393	404	434	411	410	466	472	445	414	485	506
15	425	424	435	393	400	390	450	459	426	405	461	576
16	458	517	405	414	416	412	465	495	454	475	426	567
17	368	526	418	395	467	412	474	433	428	412	483	684
18	383	454	379	394	428	490	474	422	434	443	463	679
19	364	566	426	426	435	423	471	429	415	456	470	611
20	375	485	424	390	402	408	461	458	444	434	466	558
21	383	510	469	400	470	439	403	448	415	417	449	585
22	402	590	427	391	449	368	457	480	461	430	424	616
23	367	548	488	412	462	453	440	423	407	420	458	578
24	350	547	510	405	438	438	516	446	419	443	470	557
25	365	535	556	399	396	417	502	425	452	432	524	441
26	341	499	543	387	451	455	463	372	412	414	578	491
27	392	464	691	352	369	430	511	404	408	432	652	441
28	390	454	492	421	427	429	472	450	450	437	657	451
29	394	---	458	368	461	423	485	481	452	418	480	458
30	397	---	411	391	397	418	477	423	421	485	467	441
31	445	---	422	---	415	---	477	446	---	489	---	450
Min	341	345	368	352	353	368	368	372	390	385	394	441
Max	473	590	691	484	470	490	572	506	482	489	657	684
Mean	410	441	449	411	411	417	457	445	431	429	491	536
Total Flow	12,718	12,352	13,908	12,315	12,755	12,517	14,177	13,798	12,937	13,303	14,737	16,617

Annual Min	**341**
Annual Max	**691**
Annual Mean	**444**

Note: shading indicates exceedance of regulatory limit (1,198 m^3).

Appendix A2 Ganges WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent (Undisinfected)		Secondary Effluent (Disinfected)							
	TSS (mg/L)	BOD (mg/L)	FC (CFU/100 mL)	TSS (mg/L)	FC (CFU/100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/100 mL)	NH_3 (mg/L N)	Unionized NH_3 (mg/L N)	TRC (mg/L)	pH
Regulatory Limit						25		25	1000		1.25	0.02	
January	303	295	25,000,000	2.6	14,227	3.3	<3	<3	<1	<0.1	<0.1	---	7.2
February	285	317	28,000,000	8.43	2,049	2.2	<2.26	<2.42	<1	<0.1	<0.1	---	7.2
March	385	377	18,000,000	4.79	8,270	2.44	<3	<3	12	<0.1	<0.1	---	7.2
April	443	493	21,000,000	32.4	6,245	7.2	3.66	<3	410	13.4	0.11	---	7.5
May	320	306	9,800,000	24.45	69,986	16	4.34	<3	62,000	7.13	<0.1	---	7.4
June	395	318	25,000,000	17.8	59,791	17.6	3.44	<3	52	17.7	0.12	---	7.4
July	308	371	19,000,000	30.25	42,953	20	9.18	4.12	2,100	37.6	0.42	---	7.6
August	288	255	7,500,000	29	230,000	30	4.66	3.62	6,300	23.1	0.24	---	7.5
September	307	303	16,000,000	27.75	7,483	7.33	2.22	<4	20	<0.1	<0.1	---	7.0
October	312	318	9,900,000	4.6	677	<2	<3	<3	22	<0.1	<0.1	---	6.1
November	82	110	2,600,000	1.25	574	<2	<3	<3	<1	<0.1	<0.1	---	6.9
December	160	231	20,000,000	1	362	<2	<3	<3	<1	<0.1	<0.1	---	7.2
Mean	299	308	14,347,540	15.4	36,885	9.1	3	1.895	5909	8. 3	0.11	---	7.2
Min	82	110	2,600,000	1	362	<2	<2.22	<2.42	<1	<0.1	<0.1	---	6.1
Max	443	493	28,000,000	32.4	230,000	30	9.18	4.12	62,000	37.6	0.423	---	7.6
n	12	12	12	12	12	12	12	12	12	12	12	---	12
Mean Daily Loading	kg/day	kg/day		kg/day		kg/day				kg/day	kg/day	kg/day	
	133	137	---	6.82	---	4.04	---	---	---	3.7	0.05	---	---

Notes:
TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, FC = fecal coliforms, TRC = total residual chlorine, NH_3 = ammonia
Shading indicates exceedance of regulatory limit, --- no sample.

Appendix A3 Ganges WWTP Priority Substances Analyzed in Influent and Effluent 2025

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
CONVENTIONALS								
Alkalinity - Carbonate	mg/L	1	<1	<1	0.002	158,045		
alkalinity - Bicarbonate	mg/L	1	290	250	0.6	39,511,250		
Alkalinity - Hydroxide	mg/L	1	<1	<1	0.002	158,045		
Alkalinity - Phenolphthalein - Ph 8.3	mg/L	1	<1	<1	0.002	158,045		
Alkalinity - Total - Ph 4.5	mg/L	1	240	200	0.48	31,609,000		
BOD	mg/L	15	330	9	0.02	1,422,405		
CBOD	mg/L	15	230	5.1	0.01	806,030		
COD	mg/L	10	817	73	0.17	11,537,285		
chloride	mg/L	1	90	88	0.21	13,907,960		
total/SAD cyanide	mg/L	0.0025	0.0052	0.006	0.00001	885		
WAD cyanide	mg/L	0.0025	0.004	0.004	0.00001	680	0.001	
hardness (as CaCO3)	mg/L	0.5	63.7	52.3	0.12	8,265,754		
hardness (as CaCO3) D								
oil & grease, mineral	mg/L	2	<2	<2	0.005	316,090		
oil & grease, total	mg/L	1	3.5	<1	0.002	158,045		
organic carbon	mg/L	2.5	110	16	0.04	2,528,720		
pH	pH	0	7	7.76	0.02	0.000		
pH @ 15° C	pH	0	7	7.67	N/A	0.000		
conductivity	µS/cm	2	890	780	1.9	0		
sulfide	mg/L	0.007	0.12	0.02	0.00006	3,793		
sulphate	mg/L	1	28	25	0.06	3,951,125		
TSS	mg/L	5	320	26	0.06	4,109,170		
BACTERIOLOGY								
Enterococci	CFU/100 mL	10	3,400,000	98	n/a	n/a	35 geomean / 70 single sample	35 geomean / 70 single sample
Fecal Coliforms	CFU/100 mL	10	7,200,000	62	0.15	n/a		
NUTRIENTS								
N - NH3 (as N)	mg/L	0.38	53	1.2	0.003	189,654	19.7	
N - NH3 (As N) - Unionized	mg/L	0.00096	0	0.015	0.00004	2,371		
N - NO2 (as N)	mg/L	0.005	<0.005	0.19	0.0004	29,396		
N - NO3 (as N)	mg/L	0.02	<0.02	0.13	0.0003	20,230		
N - NO3 + NO2 (as N)	mg/L	0.02	<0.02	0.31	0.001	49,468		
N - TKN (as N)	mg/L	1	56	33	0.08	5,215,485		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
N - Total (As N)	mg/L	1	58	33	0.08	5,247,094		
P - Po4 - Ortho (As P)	mg/L	0.03	3.4	0.77	0.002	121,695		
METALS DISSOLVED								
aluminum	µg/L	0.5	40	40	0.10	6,306		
antimony	µg/L	0.02	0.27	0.24	0.001	37		
arsenic	µg/L	0.02	0.71	0.40	0.001	63		
barium	µg/L	0.02	9	7.09	0.02	1,121		
beryllium	µg/L	0.01	<0.01	<0.01	ND	ND		
bismuth	µg/L	0.005	0.317	0.19	0.0005	30		
boron	µg/L	10	186	193	0.46	30,503		
cadmium	µg/L	0.005	0.03	0.02	0.00004	2.54		
calcium	mg/L	0.05	11	13	0.03	2,007,172		
chromium	µg/L	0.1	0.49	0.39	0.001	62		
cobalt	µg/L	0.005	0.15	0.10	0.0002	16		
copper	µg/L	0.05	31	6.26	0.01	989		
iron	µg/L	1	360	67	0.16	10,589		
lead	µg/L	0.005	0.47	0.28	0.001	44		
lithium	µg/L	0.5	8.70	8.37	0.02	1,323		
magnesium	mg/L	0.05	6.0	5.09	0.01	804,449		
manganese	µg/L	0.05	44	35	0.08	5,516		
mercury	µg/L	0.0019	0.017	0.0022	0.000005	0.35		
molybdenum	µg/L	0.05	0.26	<0.05	ND	ND		
nickel	µg/L	0.02	1.91	0.911	0.002	144		
phosphorus	µg/L	2	5,210	967	2.3	152,830		
potassium	mg/L	0.05	19	18	0.04	2,860,615		
selenium	µg/L	0.04	0.28	0.09	0.0002	15		
silicon	µg/L	50	1,970	1,910	4.6	301,866		
silver	µg/L	0.005	0.14	0.0229	0.00005	3.62		
sodium	mg/L	0.05	81.0	83.6	0.20	13,212,562		
Strontium	µg/L	0.05	70.1	64.3	0.15	10,162		
sulfur	mg/L	3	7.9	8.4	0.02	1,327,578		
thallium	µg/L	0.002	<0.002	<0.002	ND	ND		
tin	µg/L	0.2	1.3	0.75	0.002	119		
titanium	µg/L	0.5	3.16	<0.5	ND	ND		
uranium	µg/L	0.002	0.01	<0.002	ND	ND		
vanadium	µg/L	0.2	<0.2	<0.2	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
zinc	µg/L	0.1	26	56.4	0.135	8914		
zirconium	µg/L	0.1	1	<0.1	ND	ND		
METALS - TOTAL								
aluminum	µg/L	3	319	65	0.2	10,320		
antimony	µg/L	0.02	0.52	0.27	0.001	43		
arsenic	µg/L	0.02	0.9	0.41	0.001	65	12.5	12.5
barium	µg/L	0.05	20	8	0.02	1,255		
beryllium	µg/L	0.01	<0.01	<0.01	ND	ND	100	
cadmium	µg/L	0.005	0.2	0.03	0.0001	5	0.12	0.12
calcium	mg/L	0.25	16	13	0.03	2,022,976		
chromium	µg/L	0.1	1.5	0.6	0.001	87		
cobalt	µg/L	0.01	0.411	0.1	0.0003	22		
copper	µg/L	0.1	81.2	11	0.03	1,738	<2 (lt), 3 (st)	
iron	µg/L	5	714	132	0.3	20,862		
lead	µg/L	0.02	2	0.4	0.001	63	≤2 (lt), 140 (st)	
magnesium	mg/L	0.25	6.0	4.9	0.012	779,162		
manganese	µg/L	0.1	69	41.2	0.1	6,511		
mercury	µg/L	0.0095	0.0576	0.009	0.00002	1.44		0.16
molybdenum	µg/L	0.05	0.9	0.14	0.000	22		
nickel	µg/L	0.1	3	1.2	0.003	186	8.3	
phosphorus	µg/L	5	7,950	1,550	4	244,970		
potassium	mg/L	0.25	19	19	0.04	2,955,442		
selenium	µg/L	0.04	0.4	0.13	0.0003	21	2	
silver	µg/L	0.01	0.7	0.134	0.0003	21	1.5 (lt), 3 (st)	7.5
thallium	µg/L	0.002	0.01	0.002	0.000005	0.32		
tin	µg/L	0.2	2.0	0.76	0.002	120		
zinc	µg/L	1	154	65	0.16	10,336	10 (lt), 55 (st)	
METALS - OTHER								
chromium III	mg/L	0.001	0.002	<0.001	ND	ND	56	
chromium VI	mg/L	0.001	<0.001	<0.001	ND	ND		
methyl mercury	ng/L	0.05	0.67	0.09	0.0002	0.014		
ALDEHYDES								
acrolein	µg/L	2.8	<2.8	<2.8	ND	ND		
CHLORINATED PHENOLICS								
2,4 + 2,5 dichlorophenol	µg/L	1	<1	<0.5	ND	ND		
2-chlorophenol	µg/L	1	<1	<0.5	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
2,4,6-trichlorophenol	µg/L	1	<1	<0.5	ND	ND		
4-chloro-3-methylphenol	µg/L	2	<2	<1	ND	ND		
pentachlorophenol	µg/L	1	3.3	1.62	0.004	256		
PHENOLIC COMPOUNDS								
total phenols	mg/L	0.0075	0.06	0.005	0.00001	806		
NON-CHLORINATED PHENOLICS								
2,4-dimethylphenol	µg/L	5	<5	<2.5	ND	ND		
2,4-dinitrophenol	µg/L	13	<13	<6.5	ND	ND		
2-methyl-4,6-dinitrophenol	µg/L	5	<5	<2.5	ND	ND		
2-nitrophenol	µg/L	5	<5	<2.5	ND	ND		
4-nitrophenol	µg/L	5	<5	<2.5	ND	ND		
phenol	µg/L	5	14.3	<2.5	ND	ND		
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)								
2-chloronaphthalene	µg/L	0.5	<0.5	<0.25	ND	ND		
2-methylnaphthalene	µg/L	0.01	<0.01	<0.01	ND	ND	0.0202	
acenaphthene	µg/L	0.01	0	<0.01	ND	ND	6	
acenaphthylene	µg/L	0.01	<0.01	<0.01	ND	ND		
anthracene	µg/L	0.01	<0.01	<0.01	ND	ND		
benzo[a]anthracene	µg/L	0.01	0	<0.01	ND	ND		
benzo[a]pyrene	µg/L	0.005	0.017	<0.005	ND	ND	0.01	
benzo[b]fluoranthene	µg/L	0.01	<0.01	<0.01	ND	ND		
benzo(b)fluoranthene + benzo(j)fluoranthene	µg/L	0.01	<0.01	<0.01	ND	ND		
benzo[ghi]perylene	µg/L	0.02	<0.02	<0.02	ND	ND		
benzo(k)fluoranthene	µg/L	0.01	0	<0.01	ND	ND		
chrysene	µg/L	0.01	0.01	<0.01	ND	ND	0.1	
dibenzo(a,h)anthracene	µg/L	0.02	<0.02	<0.02	ND	ND		
fluoranthene	µg/L	0.01	0	<0.01	ND	ND		
fluorene	µg/L	0.01	0.02	<0.01	ND	ND	12	
indeno(1,2,3-c,d)pyrene	µg/L	0.02	<0.02	<0.02	ND	ND		
naphthalene	µg/L	0.01	0	<0.01	ND	ND	1	1.4
phenanthrene	µg/L	0.01	0	0.018	0.00004	2.84		
pyrene	µg/L	0.01	0	<0.01	ND	ND		
PAH-high molecular weight	µg/L	0.02	0	<0.02	ND	ND		
PAH-low molecular weight	µg/L	0.05	0.30	<0.05	ND	ND		
Total PAH	µg/L	0.05	0.41	<0.05	ND	ND		
SEMIVOLATILE ORGANICS								

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
bis(2-ethylhexyl)phthalate	µg/L	10	12	<5	ND	ND		
butylbenzyl phthalate	µg/L	5	<5	<2.5	ND	ND		
diethyl phthalate	µg/L	0.5	1.53	<0.25	ND	ND		
dimethyl phthalate	µg/L	0.5	<0.5	<0.25	ND	ND		
di-n-butyl phthalate	µg/L	10	<10	<5	ND	ND		
di-n-octyl phthalate	µg/L	0.5	<0.5	<0.25	ND	ND		
MISC SEMIVOLATILE ORGANICS								
bis(2-chloroethoxy)methane	µg/L	0.5	<0.5	<0.25	ND	ND		
bis(2-chloroethyl)ether	µg/L	0.5	<0.5	<0.25	ND	ND		
bis(2-chloroisopropyl)ether	µg/L	0.5	<0.5	<0.25	ND	ND		
hexachlorobutadiene	µg/L	0.5	<0.5	<0.25	ND	ND		
hexachlorocyclopentadiene	µg/L	0.5	<0.5	<0.25	ND	ND		
hexachloroethane	µg/L	0.5	<0.5	<0.25	ND	ND		
isophorone	µg/L	0.5	<0.5	<0.25	ND	ND		
nitrobenzene	µg/L	0.5	<0.5	<0.25	ND	ND		
N-nitrosodimethylamine	µg/L	2	<2	<1	ND	ND		
N-nitrosodiphenylamine	µg/L	2	<2	<1	ND	ND		
N-nitrosodi-n-propylamine	µg/L	2	<2	<1	ND	ND		
VOLATILE ORGANIC COMPOUNDS								
MONOCYCLIC AROMATIC HYDROCARBONS								
1,2,4-trichlorobenzene	µg/L	0.4	<0.4	<0.2	ND	ND		5.4
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		42
1,2-diphenylhydrazine	µg/L	0.1	<0.1	<0.05	ND	ND		
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		
1,4-dichlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		
2,6-dinitrotoluene	µg/L	0.5	<0.5	<0.25	ND	ND		
3,3-dichlorobenzidine	µg/L	1	<1	<0.5	ND	ND		
4-bromophenyl phenyl ether	µg/L	0.1	<0.1	<0.05	ND	ND		
4-chlorophenyl phenyl ether	µg/L	0.5	<0.5	<0.25	ND	ND		
benzene	µg/L	0.4	<0.4	<0.4	ND	ND	110	110
ethylbenzene	µg/L	0.4	<0.4	<0.4	ND	ND	250	25
m & p xylenes	µg/L	0.4	<0.4	<0.4	ND	ND		
o-xylene	µg/L	0.4	<0.4	<0.4	ND	ND		
styrene	µg/L	0.5	<0.5	<0.5	ND	ND		
toluene	µg/L	0.4	1.8	<0.4	ND	ND		215
xylenes	µg/L	0.4	<0.4	<0.4	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
CHLORINATED ALIPHATIC								
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,4-dioxane	µg/L	1		<1	ND	ND		
2,4-dinitrotoluene	µg/L	0.5	<0.5	<0.25	ND	ND		
alpha-terpineol	µg/L	10	14	<5	ND	ND		
bromomethane	µg/L	1	<1	<1	ND	ND		
chlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		
chlorodibromomethane	µg/L	1	<1	<1	ND	ND		
chloroethane	µg/L	1	<1	<1	ND	ND		
chloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
chloromethane	µg/L	1	<1	<1	ND	ND		
ALIPHATIC								
1,2-dibromoethane	µg/L	0.2	<0.2	<0.2	ND	ND		
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	ND	ND		
acrylonitrile	µg/L	1	<1	<1	ND	ND		
cis-1,2-dichloroethene	µg/L	1	<1	<1	ND	ND		
cis-1,3-dichloropropene	µg/L	1	<1	<1	ND	ND		
dibromomethane	µg/L	0.9	<0.9	<0.9	ND	ND		
methyl tertiary butyl ether	µg/L	4	<4	<4	ND	ND	440	5,000
tetrabromomethane	µg/L	50	<50	<50	ND	ND		
tetrachloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
tetrachloromethane	µg/L	0.5	<0.5	<0.5	ND	ND		
trans-1,2-dichloroethene	µg/L	1	<1	<1	ND	ND		
trans-1,3-dichloropropene	µg/L	1	<1	<1	ND	ND		
trichloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
trichlorofluoromethane	µg/L	4	<4	<4	ND	ND		
trichloromethane	µg/L	1	6.3	2.3	0.005	364		
TRIHALOMETHANES								
bromodichloromethane	µg/L	µg/L	1	<1	ND	ND		
dichlorodifluoromethane	µg/L	µg/L	2	<2	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
dichloromethane	µg/L	µg/L	2	<2	ND	ND		
tribromomethane	µg/L	µg/L	1	<1	ND	ND		
KETONES								
4-Methyl-2-Pentanone	µg/L	10	<10	<10	ND	ND		
dimethyl ketone	µg/L	15	40	<15	ND	ND		
methyl ethyl ketone	µg/L	50	<50	<50	ND	ND		

Notes:

Shading indicates WQG exceedance; *dilution calculated from maximum concentration.
BC WQG = British Columbia Water Quality Guidelines, CCME WQG = Canadian Council of Ministers of the Environment Water Quality Guidelines, HC = Health Canada WQG
(lt) = long term, (st) = short term
NM indicates not measured; ND indicates non detect; --- value not available.

Appendix A4 Ganges WWTP Sludge (Mixed Liquor) Concentrations 2025

Regulated Parameters (mg/kg dry)	Class A Biosolids Limit (mg/kg dry)*	# of samples	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
Metals															
arsenic	75	10	1.78	1.73	1.55	1.57	1.4	1.5	1.48	---	---	1.77	1.39	1.65	1.58
cadmium	20	10	0.861	0.779	0.732	0.771	0.785	0.916	0.733	---	---	0.776	0.534	0.637	0.75
chromium	1,060	10	7.81	7.72	7.42	7.57	6.85	6.46	5.82	---	---	7.51	7.17	8.43	7.28
cobalt	151	10	1.8	1.84	1.61	1.5	1.35	1.16	1.09	---	---	1.56	1.32	1.78	1.50
copper	757	10	515	455	460	490	415	354	296	---	---	375	346	481	419
lead	505	10	9	8.65	8.17	8.89	7.33	7.77	7.26	---	---	11.4	9.77	11.6	8.98
mercury	5	10	0.357	0.303	0.377	0.343	0.49	0.495	0.507	---	---	0.607	0.548	0.733	0.48
molybdenum	20	10	3.02	2.83	2.78	3.22	3.05	2.9	2.8	---	---	3.4	2.95	3.16	3.01
nickel	181	10	11	10.7	9.83	10.3	9.42	8.75	8.03	---	---	10.4	9.06	11.2	9.87
selenium	14	10	2.19	1.88	2	2.21	2.11	2.15	2.04	---	---	2.63	2.54	2.58	2.23
thallium	5	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05
vanadium	656	10	6	6.3	5.3	4.3	3.3	2.3	2.1	---	---	2.9	3.1	4.1	3.97
zinc	1,868	10	261	254	277	293	290	291	289	---	---	339	233	309	284
Unregulated Parameters (mg/kg dry)	**Class A Biosolids Limit (mg/kg dry)***	**# of samples**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
aluminum	n/a	10	2,940	2,310	2,100	1,870	1,530	1,370	1,170	---	---	1,790	1,530	1,920	1,853
antimony	n/a	10	1.02	0.85	0.85	0.93	0.82	0.76	0.79	---	---	1.31	0.91	0.89	0.91
barium	n/a	10	52	51.7	54.8	52.5	49.1	41.6	37.9	---	---	48.7	50.2	56.7	49.5
beryllium	n/a	10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	---	---	<0.2	<0.2	<0.2	<0.2
bismuth	n/a	10	16.6	14	14.3	14.9	14.4	14.6	15.3	---	---	17.4	12.7	15.2	14.9
boron	n/a	10	43.3	37.7	40.4	45.3	42.4	53.6	42.4	---	---	61.3	45.9	38.7	45.1
calcium	n/a	10	9,380	8,530	8,560	8,600	9,020	9,240	7,890	---	---	8,850	7,760	10,000	8,783
iron	n/a	10	4,990	4,760	4,280	4,080	3,290	2,850	2,480	---	---	4,020	3,670	4,310	3,873
lithium	n/a	10	2.59	2.64	2.09	1.97	1.57	1.56	1.38	---	---	1.47	1.65	1.69	1.86
magnesium	n/a	10	4,660	4,770	5,300	5,210	5,280	5,340	4,460	---	---	3,240	2,850	3,260	4,437
manganese	n/a	10	178	156	136	141	123	108	94.1	---	---	161	143	240	148

Unregulated Parameters (mg/kg dry)	Class A Biosolids Limit (mg/kg dry)*	# of samples	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
moisture	n/a	10	99	99	99	99	99	99	99	---	---	100	99	99	99
phosphorus	n/a	10	18,400	17,100	18,800	19,800	20,900	20,200	18,700	---	---	13,600	11,000	12,900	17,140
potassium	n/a	10	11,100	10,600	10,900	12,100	12,100	12,300	11,400	---	---	7,410	6,120	6,410	10,044
silver	n/a	10	4.2	4.1	4.07	4.16	5.61	6.07	4.52	---	---	4.29	3.82	4.52	4.54
sodium	n/a	10	7,950	8,880	8,550	6,340	6,370	10,600	7,870	---	---	9,350	6,100	6,250	7,826
soluble 2:1 pH	n/a	10	6.57	6.37	6.08	6.62	6.46	6.45	6.45	---	---	6.39	6.53	6.54	6.45
Strontium	n/a	10	43.2	52.5	46.5	42.9	39.4	40.5	37.7	---	---	45	39.9	50.7	43.8
tin	n/a	10	12.5	11.4	11.6	13.2	12.7	11.8	12.4	---	---	18.6	16.7	17.8	13.9
titanium	n/a	10	28.3	28.3	28	25	21.1	21.3	15.7	---	---	14.7	15.8	19.9	21.8
total solids	n/a	10	0.9	1.5	1.1	1	1	0.8	1.1	---	---	0.5	0.7	0.6	0.92
tungsten	n/a	10	0.6	0.63	0.51	0.56	0.55	<0.5	<0.5	---	---	0.55	<0.5	0.53	0.56
uranium	n/a	10	0.21	0.174	0.179	0.16	0.2	0.181	0.105	---	---	0.161	0.181	0.226	0.18
zirconium	n/a	10	0.88	0.7	1.42	0.81	1.42	1.19	1.25	---	---	1.52	1.71	1.83	1.27

Notes:
Shading indicates exceedance of regulatory limit.

--- sample was not collected.

** From Organic Matter Recycling Regulation (B.C. Reg. 18/2002, Schedule 4 Section 3, February 28, 2019) which references Trade Memorandum T-4-93 'Safety Guidelines for Fertilizers and Supplements' (Sept 1997) and contains maximum acceptable metal concentrations based on annual application rates (mg metal/kg product) 4400 kg/ha –yr.*

APPENDIX B

MALIVIEW WWTP

Appendix B1 Maliview WWTP Effluent Flow 2025 (m^3/day)

	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C
1	68	68	136	35	71	106	34	59	93	52	65	117	0	50	50	0	42	42	0	19	19	0	7	7	0	18	18	12	32	44	3	57	60	38	68	106
2	54	72	126	41	69	110	28	59	87	43	60	103	0	45	45	0	45	45	0	16	16	1	11	12	0	27	27	6	35	41	37	84	121	28	63	91
3	49	77	126	37	78	115	27	58	85	40	62	102	0	48	48	0	41	41	0	19	19	0	9	9	0	18	18	0	45	45	10	85	95	22	71	93
4	61	78	139	28	75	103	19	56	75	32	65	97	0	46	46	0	41	41	0	23	23	0	19	19	0	17	17	0	42	42	0	54	54	18	69	87
5	74	74	148	26	72	98	19	55	74	29	64	93	0	48	48	0	36	36	0	26	26	0	17	17	0	14	14	0	35	35	1	52	53	40	74	114
6	84	72	156	28	70	98	19	54	73	29	60	89	0	42	42	0	31	31	0	30	30	0	11	11	0	25	25	0	43	43	0	56	56	60	75	135
7	69	63	132	27	71	98	17	58	75	49	70	119	0	41	41	0	28	28	0	22	22	0	16	16	0	20	20	0	31	31	13	75	88	46	73	119
8	53	80	133	30	71	101	17	62	79	60	57	117	0	42	42	0	28	28	0	13	13	0	14	14	0	24	24	0	42	42	6	90	96	38	65	103
9	44	74	118	26	71	97	63	63	126	63	66	129	0	42	42	0	31	31	0	24	24	0	16	16	0	14	14	0	3	3	4	81	85	73	67	140
10	39	64	103	28	74	102	88	63	151	51	60	111	0	38	38	0	29	29	0	26	26	0	10	10	1	16	16	0	76	76	0	67	67	85	71	156
11	43	67	110	20	62	82	60	51	111	45	62	107	0	40	40	0	26	26	0	22	22	0	13	13	0	22	22	0	34	34	0	64	64	145	75	220
12	44	63	107	23	77	100	57	65	122	31	64	95	0	45	45	0	29	29	0	21	21	0	7	7	0	23	23	0	30	30	1	60	61	104	73	177
13	44	65	109	19	76	95	63	62	125	27	63	90	0	32	32	0	32	32	0	26	26	0	2	2	0	19	19	0	31	31	0	52	52	69	68	137
14	33	44	77	16	72	88	49	66	115	27	66	93	0	35	35	0	31	31	0	19	19	0	3	3	0	26	26	0	32	32	5	65	70	54	68	122
15	31	60	91	10	71	81	44	73	117	22	61	83	0	35	35	0	32	32	0	17	17	1	13	14	0	32	32	0	29	29	3	74	77	74	76	150
16	29	58	87	19	67	86	50	69	119	18	58	76	0	34	34	0	30	30	0	11	11	0	21	21	0	30	30	0	25	25	11	80	91	88	54	142
17	25	59	84	67	82	149	51	73	124	12	59	71	0	33	33	0	8	8	0	9	9	0	18	18	0	29	29	1	21	22	9	78	87	123	81	203
18	25	57	82	89	89	178	45	68	113	6	64	70	0	46	46	0	29	29	0	7	7	0	37	37	2	29	31	0	19	19	2	63	65	140	80	220
19	27	101	128	74	73	147	34	64	98	38	32	70	0	47	47	0	25	25	1	5	6	0	36	36	0	25	25	0	31	31	2	74	76	106	75	180
20	26	58	84	92	70	162	32	69	101	0	60	60	0	49	49	0	26	26	0	4	4	0	35	35	1	33	34	0	47	47	0	73	73	84	70	154
21	8	54	62	68	70	138	29	64	93	2	61	63	2	45	46	0	25	25	0	9	9	0	30	30	0	29	29	0	22	22	0	69	69	67	66	133
22	7	70	77	71	68	139	46	67	113	1	58	59	0	43	43	0	28	28	0	16	16	0	32	32	0	35	35	0	29	29	0	60	60	81	72	153
23	8	65	73	140	73	213	51	65	116	0	55	55	0	41	41	0	35	35	1	8	8	0	12	12	0	26	26	0	26	26	0	57	57	78	69	147
24	6	60	66	140	76	216	80	67	147	0	50	50	0	37	37	0	29	29	1	10	11	0	9	9	0	33	33	0	28	28	3	70	73	77	71	148
25	11	65	76	99	65	164	99	61	160	0	52	52	0	39	39	0	29	29	0	8	8	0	12	12	0	30	30	0	33	33	0	70	70	80	67	147
26	8	60	68	67	58	125	102	68	170	0	46	46	0	47	47	0	25	25	0	3	3	0	8	8	0	35	35	0	48	48	25	65	90	64	67	131
27	13	62	75	53	68	121	72	63	135	0	48	48	0	31	31	0	26	26	0	10	10	0	9	9	0	36	36	0	47	47	47	70	117	63	68	131
28	13	62	75	43	67	110	143	68	211	0	50	50	0	41	41	2	27	29	1	12	12	0	9	9	0	29	29	0	49	49	99	70	169	42	63	105
29	11	60	71	0	0	0	84	65	149	0	40	40	0	38	38	0	24	24	0	7	7	0	14	14	10	28	37	0	45	45	75	72	147	40	62	101
30	8	62	70	---	---	---	66	71	137	1	51	52	0	38	38	0	24	24	2	10	11	1	13	13	8	41	49	0	65	65	52	69	121	30	52	82
31	9	59	68	---	---	---	56	65	121	---	---	---	0	34	34	---	---	---	0	7	7	0	21	21	---	---	---	1	47	47	---	---	---	30	59	89
Min	6	44	62	10	58	81	17	51	73	0	32	40	0	31	31	0	8	8	0	3	3	0	2	2	0	14	14	0	3	3	0	52	52	18	52	82
Max	84	101	156	140	89	216	143	73	211	63	70	129	2	50	50	2	45	45	2	30	30	1	37	37	10	41	49	12	76	76	99	90	169	145	81	220
Mean	33	65	98	49	69	118	53	63	116	23	57	80	0	41	41	0	30	30	0	15	15	0	15	15	1	26	27	1	36	37	14	68	82	67	69	136
Total Flows	1,024	2,025	3,049	1,416	1,999	3,414	1,644	1,962	3,606	678	1,722	2,400	2	1,263	1,265	2	888	889	4	451	455	2	477	479	20	777	797	20	1,114	1,134	407	2,050	2,457	2,083	2,127	4,210

Annual Min	**0**	**2**	**2**
Annual Max	**145**	**101**	**220**
Annual Mean	**20**	**46**	**66**

Notes:
F-S: Fine-screened; Sec: Secondary; T-C: Total combined.
Shading indicates exceedance of regulatory limit (250 m^3/day T-C).

Appendix B2 Maliview WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent (Undisinfected)						Secondary Effluent Final Combined (secondary + screened)							
	TSS (mg/L)	BOD (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/ 100 mL)	NH_3 (mg/L N)	pH	TSS (mg/L)	TSS Applicable Limit (mg/L)	BOD (mg/L)	CBOD (mg/L)	CBOD Applicable Limit (mg/L)	FC (CFU/ 100 mL)	Ammonia (mg/L N)	pH
January	88	211	4,400,000	17	16	11	59,000	19	7.3	46	130	18	13	130	68,000	22	7.3
February	276	198	2,100,000	26	24	22	73,000	12	7.3	97	130	105	76	130	4,600,000	19	7.9
March	77	109	33,000,000	25	23	16	380,000	15	7.3	21	130	30	15	130	120,000	16	7.4
April	373	288	21,000,000	37	41	31	490,000	26	7.4	39	130	44	34	130	580,000	27	7.5
May	268	238	3,600,000	59	69	60	2,500,000	30	7.4	61	45	67	62	45	1,500,000	30	7.5
June	420	414	22,000,000	38	73	73	4,800,000	45	7.5	39	45	81	64	45	4,300,000	44	7.5
July	178	403	5,000,000	43	68	50	1,700,000	51	7.4	38	45	62	51	45	1,600,000	48	7.5
August	121	203	58,000,000	52	63	63	870,000	31	7.3	67	45	70	67	45	870,000	31	7.2
September	550	471	11,000,000	26	46	43	900,000	30	7.4	28	45	46	51	45	1,500,000	31	7.4
October	400	465	9,700,000	28	52	47	750,000	45	7.4	33	45	50	43	45	840,000	45	7.3
November	156	204	3,400,000	35	55	20	850,000	32	7.5	40	130	51	39	130	680,000	33	7.5
December	96	71	33,000,000	22	23	18	65,000	0	7.2	24	130	24	22	130	1,300,000	0	7.2
Mean	250	273	10,482,716	34	43	28	533,431	28	7.4	44	0	54	45	0	880,694	29	7.4
Min	77	71	2,100,000	17	16	11	59,000	0	7.2	21	0	18	13	0	68,000	0	7.2
Max	550	471	58,000,000	59	73	73	4,800,000	51	7.5	97	0	105	76	0	4,600,000	48	7.9
n	12	12	12	12	12	12	12	12	12	12	0	12	12	0	12	11	12
Mean Daily Loading	kg/day			kg/day				kg/day	---	kg/day	---			---		kg/day	---
	17	---	---	1.6	---	---	---	1.3	---	2.9	---	---	---	---	---	1.9	---

Notes:
TSS and CBOD shading indicates exceedance of the applicable regulatory limit.
FC = Fecal Coliforms, TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, TRC = total residual chlorine, NH_3 = ammonia
TSS/CBOD secondary effluent (disinfected limit) = 45 mg/L when flow ≤60, and = 130 mg/L when flow >60.

APPENDIX C
SCHOONER WWTP

Appendix C1 Schooner WWTP Effluent Flow 2025 (m^3/day)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	422	300	451	362	216	189	189	125	177	177	238	265
2	384	321	396	347	198	164	161	160	157	129	233	257
3	360	318	322	354	217	152	155	175	142	109	251	211
4	377	303	309	356	215	155	134	175	148	133	240	233
5	382	294	304	359	229	153	173	167	151	120	233	247
6	400	289	285	338	227	145	165	173	103	129	231	322
7	346	303	290	316	197	155	153	163	125	117	251	322
8	333	277	262	350	137	191	158	125	143	126	270	298
9	328	280	324	323	170	172	143	146	128	112	265	302
10	313	284	343	323	197	154	155	154	125	130	280	355
11	317	308	320	265	255	150	132	155	134	132	270	390
12	315	266	316	277	237	147	162	134	128	117	267	522
13	321	263	352	280	189	142	172	146	125	166	203	405
14	305	276	335	286	220	163	150	173	127	163	236	363
15	255	265	305	257	224	164	149	139	142	135	262	331
16	309	255	353	249	180	151	159	182	123	131	240	326
17	277	327	350	245	203	146	141	176	121	126	226	358
18	283	334	337	255	241	152	129	158	100	135	216	627
19	278	317	308	259	203	164	161	156	101	131	187	480
20	276	329	309	258	201	141	167	156	84	195	151	416
21	267	331	298	292	203	187	176	175	86	199	167	406
22	256	328	316	268	196	175	146	125	123	178	227	415
23	295	353	313	238	166	167	166	147	175	163	225	418
24	247	382	311	222	175	163	162	158	170	151	272	446
25	247	410	315	221	179	95	117	143	163	160	280	449
26	268	421	308	232	181	205	163	145	164	152	245	369
27	279	436	367	231	175	141	168	145	169	192	299	419
28	266	447	477	241	184	171	168	189	173	227	322	363
29	252	---	393	228	175	147	167	126	188	221	327	352
30	247	---	374	230	143	209	145	159	178	227	270	355
31	242	---	358	---	161	---	178	177	---	240	---	350
Min	242	255	262	221	137	95	117	125	84	109	151	211
Max	422	447	477	362	255	209	189	189	188	240	327	627
Mean	305	322	336	282	197	160	157	156	139	156	246	367
Total Flows	9,447	9,017	10,401	8,462	6,094	4,810	4,864	4,827	4,173	4,823	7,384	11,372

Notes: shading indicates exceedance of regulatory limit (640 m^3/day), --- indicates no data available

Annual Min	**84**
Annual Max	**627**
Annual Mean	**235**

Appendix C2 Schooner WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent		Secondary Effluent Disinfected						
	TSS (mg/L)	BOD (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/ 100 mL)	NH_3 (mg/L N)	pH	Unionized NH_3 (mg/L)
Regulatory Limit						45 max / 25 mean		45 max / 25 mean	200			1.25
January	90	73	2,300,000	2	1	<2	<3	<3	1	<0.1	5.9	<0.1
February	153	130	1,500,000	2	10	<2	<2.26	<2.42	1	<0.1	6.4	<0.1
March	71	72	1,100,000	11	430,000	034	<3	<7.47	31,000	<0.1	6.8	<0.1
April	130	123	9,500,000	2	1	<2	<3	<3	<1	0.206	4.9	<0.1
May	70	75	1,100,000	3	100	<2.5	<3	<3	<1	1.57	4.6	<0.1
June	208	238	10,000,000	16	100	<1	<3	<3	<1	3.09	5.7	<0.1
July	118	173	34,000,000	2	100	<2	<3	<3	<2	3.54	4.3	<0.1
August	190	203	21,000,000	2	90	<2	1.87	<3	32	2.35	4.6	<0.1
September	207	136	11,000,000	2	100	<2	<4	<4	2	48.4	7.5	0.222
October	172	242	12,000,000	2	36	<2	<3	<3	<1	<0.1	6.8	<0.1
November	196	260	10,000,000	2	100	<2	<3	<3	<1	<0.1	6.4	<0.1
December	102	113	5,900,000	2	4	<2	<3	<3	<1	0.49	7.1	<0.1
Mean	142	153	6,006,494	3	35,865	3.75	2	2	2587	5	5.9	0.064
Min	70	72	1,100,000	<2	<1	<2	<2	<2	<1	<0.10	4.3	<0.1
Max	208	260	34,000,000	16	430,000	34	2	4	31000	48	7.5	0.222
n	12	12	12	12	12	12	12	12	12	12.0	12	12
Mean Daily Loading	kg/day			kg/day		kg/day				kg/day		kg/day
	33	---	---	0.7	---	0.9	---	---	---	1.2	---	0.015

Notes:
TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, FC = fecal coliforms, TRC = total residual chlorine, NH_3 = ammonia
--- data not collected.
Shading indicates exceedance of regulatory limit.

APPENDIX D
PORT RENFREW WWTP

Appendix D1 Port Renfrew WWTP Effluent Flow 2025 (m^3/day)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	63	55	38	38	24	35	37	30	35	57	104	48
2	53	40	39	33	31	35	44	33	33	123	85	45
3	56	40	32	30	32	31	37	38	35	67	63	37
4	55	43	45	30	26	28	32	33	47	52	49	45
5	60	34	47	32	26	37	37	30	28	40	82	74
6	50	36	57	43	25	26	37	56	31	32	85	69
7	45	35	51	48	50	30	41	42	36	41	79	67
8	32	43	137	70	42	28	32	37	33	15	60	157
9	33	38	85	57	32	26	35	37	33	73	53	96
10	43	38	60	52	40	21	34	40	30	42	59	215
11	38	38	79	46	31	40	37	45	25	55	49	146
12	32	38	74	39	47	32	39	47	26	52	45	106
13	29	38	60	46	36	25	33	31	45	51	92	75
14	27	43	49	28	23	33	37	31	38	39	58	100
15	30	60	55	32	30	30	35	100	26	27	56	137
16	36	76	58	26	28	28	39	70	31	32	58	130
17	34	59	52	30	40	26	28	54	28	36	54	118
18	39	44	40	34	33	32	35	57	31	55	44	139
19	32	67	40	39	47	26	35	50	26	74	39	112
20	33	54	72	37	51	23	33	49	28	51	43	101
21	27	70	101	29	47	37	35	49	61	62	40	117
22	30	95	70	24	54	30	38	39	42	52	89	103
23	27	85	173	24	30	34	32	40	43	63	86	97
24	28	76	182	28	37	27	31	35	28	83	65	85
25	27	113	154	30	41	30	35	34	28	76	53	79
26	28	70	101	25	30	35	37	35	33	91	47	119
27	23	56	95	21	30	30	51	35	63	62	56	67
28	25	50	75	23	28	35	40	37	46	68	44	45
29	32	---	98	32	35	39	33	36	99	61	38	36
30	34	---	66	24	33	47	42	41	52	56	35	39
31	68	---	48	---	32	---	28	38	---	104	---	52
Min	23	34	32	21	23	21	28	30	25	15	35	36
Max	68	113	182	70	54	47	51	100	99	123	104	215
Mean	38	55	75	35	35	31	36	43	38	58	60	92
Total Flows	1,164	1,533	2,330	1,050	1,091	935	1,116	1,325	1,136	1,792	1,805	2,854

Notes:
Shading indicates exceedance of regulatory limit (220 m^3/day).

Annual Min	**15**
Annual Max	**215**
Annual Mean	**50**

Appendix D2 Port Renfrew WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent					
	TSS (mg/L)	BOD (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/ 100 mL)	NH_3 (mg/L N)	pH
Regulatory Limit				60		45			
January	207	284	11,000,000	14	8	<4	4500	00.208	6.2
February	196	265	2,600,000	31	17	8.8	20000	00.218	6.7
March	153	198	3,100,000	28	20	4	52000	<0.1	6.2
April	367	619	9,800,000	14	11	5.42	9900	00.715	6.5
May	58	102	4,100,000	34	13	5.83	27000	00.4	6.6
June	142	231	4,200,000	9	7	4.79	3600	01.64	7.7
July	162	256	94,000,000	22	14	8.52	660000	00.618	6.7
August	340	265	8,000,000	27	12	6.22	73000	00.843	5.9
September	170	206	3,900,000	24	9	5.3	7200	00.608	5.9
October	282	221	4,900,000	16	6	<3	4500	<0.1	6.4
November	147	210	2,100,000	2	9	6.31	6700	00.876	7.3
December	112	110	3,000,000	4	3	<4	690	<0.1	7.4
Mean	195	247	5,767,450	19	11	5	13,366	0.5	6.6
Min	58	102	2,100,000	2	3	<3	690	<0.1	5.9
Max	367	619	94,000,000	34	20	9	660,000	1.6	7.7
N	12	12	12	12	12	12	12	12.0	12
Mean Daily Loading	kg/day			kg/day				kg/day	
	10	---	---	0.6	---	---	---	0.03	---

Notes:
TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, FC = fecal coliforms, NH_3 = ammonia
--- data not calculated.
Shading indicates regulatory exceedance.

APPENDIX E
BURGOYNE BAY WASTE TRANSFER FACILITY

Appendix E Burgoyne Bay Waste Transfer Facility Septage Concentrations 2025

Regulated Parameters (mg/kg dry)	Class A Biosolids Limit (mg/kg dry)*	# of samples	Jan	Apr	Jul	Oct	Mean
Metals							
arsenic	75	4	1.88	3.12	3.22	2.65	2.72
cadmium	20	4	0.925	2.55	1.47	1.18	1.53
chromium	1,060	4	8.47	13.7	11.2	14.5	12.0
cobalt	151	4	1.92	1.88	1.7	2.07	1.89
copper	757	4	562	577	562	541	561
lead	505	4	9.83	22.3	12.8	19.2	16.0
mercury	5	4	0.395	0.416	0.53	0.812	0.54
molybdenum	20	4	3.26	6.49	7.51	6.01	5.82
nickel	181	4	12	16.5	17.3	16.5	15.6
selenium	14	4	2.18	2.63	3.88	3.1	2.95
thallium	5	4	<0.05	0.06	<0.05	<0.05	0.03
vanadium	656	4	6.3	7.2	5.5	6.3	6.33
zinc	1,868	4	283	727	824	805	660
Unregulated Parameters (mg/kg dry)	**Class A Biosolids Limit (mg/kg dry)***	**# of samples**	**Jan**	**Apr**	**Jul**	**Oct**	**Mean**
aluminum	n/a	4	3,140	11,500	6,930	6,890	7,115
antimony	n/a	4	1.13	1.88	1.37	1.23	1.40
barium	n/a	4	58	96.1	80.9	124	89.8
beryllium	n/a	4	<0.2	<0.2	<0.2	<0.2	<0.2
bismuth	n/a	4	18.3	67	30.6	23.7	34.9
boron	n/a	4	46.3	42.6	56.7	43	47.2
calcium	n/a	4	10,400	14,200	14,100	19,800	14,625
iron	n/a	4	5,350	5,200	3,460	5,280	4,823
lithium	n/a	4	2.83	3.46	2.45	1.9	2.66
magnesium	n/a	4	5,010	4,150	2,740	3,130	3,758
manganese	n/a	4	191	162	137	191	170
moisture	n/a	4	98	99	98	98	98.3
potassium	n/a	4	20,000	13,300	10,400	11,900	13,900
silver	n/a	4	12,000	9,430	5,130	4,380	7,735
sodium	n/a	4	4.63	5.04	4.87	10.8	6.34
soluble (2:1) pH	n/a	4	8,500	7,690	7,150	4,870	7,053
strontium	n/a	4	6.62	7.39	7.01	7.02	7.01
tin	n/a	4	47.7	62.6	56.8	67.7	58.7
titanium	n/a	4	13.6	23.2	26	21.4	21.1
total solids	n/a	4	30.5	62.9	46.5	44.2	46.0
tungsten	n/a	4	1.6	1.2	1.6	2.1	1.63
uranium	n/a	4	0.66	1.27	0.64	0.67	0.81
zirconium	n/s	4	0.225	0.325	0.721	0.864	0.53

Notes:
Shading indicates exceedance of regulatory limit.
--- sample was not collected.
* *From Organic Matter Recycling Regulation (B.C. Reg. 18/2002, Schedule 4 Section 3, February 28, 2019) which references Trade Memorandum T-4-93 'Safety Guidelines for Fertilizers and Supplements' (Sept 1997) and contains maximum acceptable metal concentrations based on annual application rates (mg metal/kg product) 4400 kg/ha –yr.*

APPENDIX A

GANGES WWTP

Appendix A1 Ganges WWTP Effluent Flow 2025 (m^3/day)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	415	357	418	457	395	375	414	497	416	439	576	503
2	448	350	368	413	389	419	439	455	415	451	446	497
3	470	367	392	421	406	419	429	434	416	410	452	478
4	473	345	401	411	362	419	412	416	447	412	443	535
5	470	394	432	378	398	432	423	457	449	402	495	496
6	462	392	402	464	395	374	422	423	448	439	522	467
7	427	353	382	462	419	394	437	506	426	385	567	475
8	444	352	445	484	403	385	409	452	419	421	463	588
9	442	349	425	452	390	409	439	430	420	425	458	533
10	433	382	446	433	397	416	368	485	459	420	481	683
11	402	393	472	401	353	419	572	421	482	436	394	673
12	377	402	522	387	385	446	488	424	407	418	491	515
13	426	404	445	380	369	395	461	432	390	389	536	484
14	430	393	404	434	411	410	466	472	445	414	485	506
15	425	424	435	393	400	390	450	459	426	405	461	576
16	458	517	405	414	416	412	465	495	454	475	426	567
17	368	526	418	395	467	412	474	433	428	412	483	684
18	383	454	379	394	428	490	474	422	434	443	463	679
19	364	566	426	426	435	423	471	429	415	456	470	611
20	375	485	424	390	402	408	461	458	444	434	466	558
21	383	510	469	400	470	439	403	448	415	417	449	585
22	402	590	427	391	449	368	457	480	461	430	424	616
23	367	548	488	412	462	453	440	423	407	420	458	578
24	350	547	510	405	438	438	516	446	419	443	470	557
25	365	535	556	399	396	417	502	425	452	432	524	441
26	341	499	543	387	451	455	463	372	412	414	578	491
27	392	464	691	352	369	430	511	404	408	432	652	441
28	390	454	492	421	427	429	472	450	450	437	657	451
29	394	---	458	368	461	423	485	481	452	418	480	458
30	397	---	411	391	397	418	477	423	421	485	467	441
31	445	---	422	---	415	---	477	446	---	489	---	450
Min	341	345	368	352	353	368	368	372	390	385	394	441
Max	473	590	691	484	470	490	572	506	482	489	657	684
Mean	410	441	449	411	411	417	457	445	431	429	491	536
Total Flow	12,718	12,352	13,908	12,315	12,755	12,517	14,177	13,798	12,937	13,303	14,737	16,617

Annual Min	**341**
Annual Max	**691**
Annual Mean	**444**

Note: shading indicates exceedance of regulatory limit (1,198 m^3).

Appendix A2 Ganges WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent (Undisinfected)		Secondary Effluent (Disinfected)							
	TSS (mg/L)	BOD (mg/L)	FC (CFU/100 mL)	TSS (mg/L)	FC (CFU/100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/100 mL)	NH_3 (mg/L N)	Unionized NH_3 (mg/L N)	TRC (mg/L)	pH
Regulatory Limit						25		25	1000		1.25	0.02	
January	303	295	25,000,000	2.6	14,227	3.3	<3	<3	<1	<0.1	<0.1	---	7.2
February	285	317	28,000,000	8.43	2,049	2.2	<2.26	<2.42	<1	<0.1	<0.1	---	7.2
March	385	377	18,000,000	4.79	8,270	2.44	<3	<3	12	<0.1	<0.1	---	7.2
April	443	493	21,000,000	32.4	6,245	7.2	3.66	<3	410	13.4	0.11	---	7.5
May	320	306	9,800,000	24.45	69,986	16	4.34	<3	62,000	7.13	<0.1	---	7.4
June	395	318	25,000,000	17.8	59,791	17.6	3.44	<3	52	17.7	0.12	---	7.4
July	308	371	19,000,000	30.25	42,953	20	9.18	4.12	2,100	37.6	0.42	---	7.6
August	288	255	7,500,000	29	230,000	30	4.66	3.62	6,300	23.1	0.24	---	7.5
September	307	303	16,000,000	27.75	7,483	7.33	2.22	<4	20	<0.1	<0.1	---	7.0
October	312	318	9,900,000	4.6	677	<2	<3	<3	22	<0.1	<0.1	---	6.1
November	82	110	2,600,000	1.25	574	<2	<3	<3	<1	<0.1	<0.1	---	6.9
December	160	231	20,000,000	1	362	<2	<3	<3	<1	<0.1	<0.1	---	7.2
Mean	299	308	14,347,540	15.4	36,885	9.1	3	1.895	5909	8. 3	0.11	---	7.2
Min	82	110	2,600,000	1	362	<2	<2.22	<2.42	<1	<0.1	<0.1	---	6.1
Max	443	493	28,000,000	32.4	230,000	30	9.18	4.12	62,000	37.6	0.423	---	7.6
n	12	12	12	12	12	12	12	12	12	12	12	---	12
Mean Daily Loading	kg/day	kg/day		kg/day		kg/day				kg/day	kg/day	kg/day	
	133	137	---	6.82	---	4.04	---	---	---	3.7	0.05	---	---

Notes:
TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, FC = fecal coliforms, TRC = total residual chlorine, NH_3 = ammonia
Shading indicates exceedance of regulatory limit, --- no sample.

Appendix A3 Ganges WWTP Priority Substances Analyzed in Influent and Effluent 2025

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
CONVENTIONALS								
Alkalinity - Carbonate	mg/L	1	<1	<1	0.002	158,045		
alkalinity - Bicarbonate	mg/L	1	290	250	0.6	39,511,250		
Alkalinity - Hydroxide	mg/L	1	<1	<1	0.002	158,045		
Alkalinity - Phenolphthalein - Ph 8.3	mg/L	1	<1	<1	0.002	158,045		
Alkalinity - Total - Ph 4.5	mg/L	1	240	200	0.48	31,609,000		
BOD	mg/L	15	330	9	0.02	1,422,405		
CBOD	mg/L	15	230	5.1	0.01	806,030		
COD	mg/L	10	817	73	0.17	11,537,285		
chloride	mg/L	1	90	88	0.21	13,907,960		
total/SAD cyanide	mg/L	0.0025	0.0052	0.006	0.00001	885		
WAD cyanide	mg/L	0.0025	0.004	0.004	0.00001	680	0.001	
hardness (as CaCO3)	mg/L	0.5	63.7	52.3	0.12	8,265,754		
hardness (as CaCO3) D								
oil & grease, mineral	mg/L	2	<2	<2	0.005	316,090		
oil & grease, total	mg/L	1	3.5	<1	0.002	158,045		
organic carbon	mg/L	2.5	110	16	0.04	2,528,720		
pH	pH	0	7	7.76	0.02	0.000		
pH @ 15° C	pH	0	7	7.67	N/A	0.000		
conductivity	µS/cm	2	890	780	1.9	0		
sulfide	mg/L	0.007	0.12	0.02	0.00006	3,793		
sulphate	mg/L	1	28	25	0.06	3,951,125		
TSS	mg/L	5	320	26	0.06	4,109,170		
BACTERIOLOGY								
Enterococci	CFU/100 mL	10	3,400,000	98	n/a	n/a	35 geomean / 70 single sample	35 geomean / 70 single sample
Fecal Coliforms	CFU/100 mL	10	7,200,000	62	0.15	n/a		
NUTRIENTS								
N - NH3 (as N)	mg/L	0.38	53	1.2	0.003	189,654	19.7	
N - NH3 (As N) - Unionized	mg/L	0.00096	0	0.015	0.00004	2,371		
N - NO2 (as N)	mg/L	0.005	<0.005	0.19	0.0004	29,396		
N - NO3 (as N)	mg/L	0.02	<0.02	0.13	0.0003	20,230		
N - NO3 + NO2 (as N)	mg/L	0.02	<0.02	0.31	0.001	49,468		
N - TKN (as N)	mg/L	1	56	33	0.08	5,215,485		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
N - Total (As N)	mg/L	1	58	33	0.08	5,247,094		
P - Po4 - Ortho (As P)	mg/L	0.03	3.4	0.77	0.002	121,695		
METALS DISSOLVED								
aluminum	µg/L	0.5	40	40	0.10	6,306		
antimony	µg/L	0.02	0.27	0.24	0.001	37		
arsenic	µg/L	0.02	0.71	0.40	0.001	63		
barium	µg/L	0.02	9	7.09	0.02	1,121		
beryllium	µg/L	0.01	<0.01	<0.01	ND	ND		
bismuth	µg/L	0.005	0.317	0.19	0.0005	30		
boron	µg/L	10	186	193	0.46	30,503		
cadmium	µg/L	0.005	0.03	0.02	0.00004	2.54		
calcium	mg/L	0.05	11	13	0.03	2,007,172		
chromium	µg/L	0.1	0.49	0.39	0.001	62		
cobalt	µg/L	0.005	0.15	0.10	0.0002	16		
copper	µg/L	0.05	31	6.26	0.01	989		
iron	µg/L	1	360	67	0.16	10,589		
lead	µg/L	0.005	0.47	0.28	0.001	44		
lithium	µg/L	0.5	8.70	8.37	0.02	1,323		
magnesium	mg/L	0.05	6.0	5.09	0.01	804,449		
manganese	µg/L	0.05	44	35	0.08	5,516		
mercury	µg/L	0.0019	0.017	0.0022	0.000005	0.35		
molybdenum	µg/L	0.05	0.26	<0.05	ND	ND		
nickel	µg/L	0.02	1.91	0.911	0.002	144		
phosphorus	µg/L	2	5,210	967	2.3	152,830		
potassium	mg/L	0.05	19	18	0.04	2,860,615		
selenium	µg/L	0.04	0.28	0.09	0.0002	15		
silicon	µg/L	50	1,970	1,910	4.6	301,866		
silver	µg/L	0.005	0.14	0.0229	0.00005	3.62		
sodium	mg/L	0.05	81.0	83.6	0.20	13,212,562		
Strontium	µg/L	0.05	70.1	64.3	0.15	10,162		
sulfur	mg/L	3	7.9	8.4	0.02	1,327,578		
thallium	µg/L	0.002	<0.002	<0.002	ND	ND		
tin	µg/L	0.2	1.3	0.75	0.002	119		
titanium	µg/L	0.5	3.16	<0.5	ND	ND		
uranium	µg/L	0.002	0.01	<0.002	ND	ND		
vanadium	µg/L	0.2	<0.2	<0.2	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
zinc	µg/L	0.1	26	56.4	0.135	8914		
zirconium	µg/L	0.1	1	<0.1	ND	ND		
METALS - TOTAL								
aluminum	µg/L	3	319	65	0.2	10,320		
antimony	µg/L	0.02	0.52	0.27	0.001	43		
arsenic	µg/L	0.02	0.9	0.41	0.001	65	12.5	12.5
barium	µg/L	0.05	20	8	0.02	1,255		
beryllium	µg/L	0.01	<0.01	<0.01	ND	ND	100	
cadmium	µg/L	0.005	0.2	0.03	0.0001	5	0.12	0.12
calcium	mg/L	0.25	16	13	0.03	2,022,976		
chromium	µg/L	0.1	1.5	0.6	0.001	87		
cobalt	µg/L	0.01	0.411	0.1	0.0003	22		
copper	µg/L	0.1	81.2	11	0.03	1,738	<2 (lt), 3 (st)	
iron	µg/L	5	714	132	0.3	20,862		
lead	µg/L	0.02	2	0.4	0.001	63	≤2 (lt), 140 (st)	
magnesium	mg/L	0.25	6.0	4.9	0.012	779,162		
manganese	µg/L	0.1	69	41.2	0.1	6,511		
mercury	µg/L	0.0095	0.0576	0.009	0.00002	1.44		0.16
molybdenum	µg/L	0.05	0.9	0.14	0.000	22		
nickel	µg/L	0.1	3	1.2	0.003	186	8.3	
phosphorus	µg/L	5	7,950	1,550	4	244,970		
potassium	mg/L	0.25	19	19	0.04	2,955,442		
selenium	µg/L	0.04	0.4	0.13	0.0003	21	2	
silver	µg/L	0.01	0.7	0.134	0.0003	21	1.5 (lt), 3 (st)	7.5
thallium	µg/L	0.002	0.01	0.002	0.000005	0.32		
tin	µg/L	0.2	2.0	0.76	0.002	120		
zinc	µg/L	1	154	65	0.16	10,336	10 (lt), 55 (st)	
METALS - OTHER								
chromium III	mg/L	0.001	0.002	<0.001	ND	ND	56	
chromium VI	mg/L	0.001	<0.001	<0.001	ND	ND		
methyl mercury	ng/L	0.05	0.67	0.09	0.0002	0.014		
ALDEHYDES								
acrolein	µg/L	2.8	<2.8	<2.8	ND	ND		
CHLORINATED PHENOLICS								
2,4 + 2,5 dichlorophenol	µg/L	1	<1	<0.5	ND	ND		
2-chlorophenol	µg/L	1	<1	<0.5	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
2,4,6-trichlorophenol	µg/L	1	<1	<0.5	ND	ND		
4-chloro-3-methylphenol	µg/L	2	<2	<1	ND	ND		
pentachlorophenol	µg/L	1	3.3	1.62	0.004	256		
PHENOLIC COMPOUNDS								
total phenols	mg/L	0.0075	0.06	0.005	0.00001	806		
NON-CHLORINATED PHENOLICS								
2,4-dimethylphenol	µg/L	5	<5	<2.5	ND	ND		
2,4-dinitrophenol	µg/L	13	<13	<6.5	ND	ND		
2-methyl-4,6-dinitrophenol	µg/L	5	<5	<2.5	ND	ND		
2-nitrophenol	µg/L	5	<5	<2.5	ND	ND		
4-nitrophenol	µg/L	5	<5	<2.5	ND	ND		
phenol	µg/L	5	14.3	<2.5	ND	ND		
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)								
2-chloronaphthalene	µg/L	0.5	<0.5	<0.25	ND	ND		
2-methylnaphthalene	µg/L	0.01	<0.01	<0.01	ND	ND	0.0202	
acenaphthene	µg/L	0.01	0	<0.01	ND	ND	6	
acenaphthylene	µg/L	0.01	<0.01	<0.01	ND	ND		
anthracene	µg/L	0.01	<0.01	<0.01	ND	ND		
benzo[a]anthracene	µg/L	0.01	0	<0.01	ND	ND		
benzo[a]pyrene	µg/L	0.005	0.017	<0.005	ND	ND	0.01	
benzo[b]fluoranthene	µg/L	0.01	<0.01	<0.01	ND	ND		
benzo(b)fluoranthene + benzo(j)fluoranthene	µg/L	0.01	<0.01	<0.01	ND	ND		
benzo[ghi]perylene	µg/L	0.02	<0.02	<0.02	ND	ND		
benzo(k)fluoranthene	µg/L	0.01	0	<0.01	ND	ND		
chrysene	µg/L	0.01	0.01	<0.01	ND	ND	0.1	
dibenzo(a,h)anthracene	µg/L	0.02	<0.02	<0.02	ND	ND		
fluoranthene	µg/L	0.01	0	<0.01	ND	ND		
fluorene	µg/L	0.01	0.02	<0.01	ND	ND	12	
indeno(1,2,3-c,d)pyrene	µg/L	0.02	<0.02	<0.02	ND	ND		
naphthalene	µg/L	0.01	0	<0.01	ND	ND	1	1.4
phenanthrene	µg/L	0.01	0	0.018	0.00004	2.84		
pyrene	µg/L	0.01	0	<0.01	ND	ND		
PAH-high molecular weight	µg/L	0.02	0	<0.02	ND	ND		
PAH-low molecular weight	µg/L	0.05	0.30	<0.05	ND	ND		
Total PAH	µg/L	0.05	0.41	<0.05	ND	ND		
SEMIVOLATILE ORGANICS								

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
bis(2-ethylhexyl)phthalate	µg/L	10	12	<5	ND	ND		
butylbenzyl phthalate	µg/L	5	<5	<2.5	ND	ND		
diethyl phthalate	µg/L	0.5	1.53	<0.25	ND	ND		
dimethyl phthalate	µg/L	0.5	<0.5	<0.25	ND	ND		
di-n-butyl phthalate	µg/L	10	<10	<5	ND	ND		
di-n-octyl phthalate	µg/L	0.5	<0.5	<0.25	ND	ND		
MISC SEMIVOLATILE ORGANICS								
bis(2-chloroethoxy)methane	µg/L	0.5	<0.5	<0.25	ND	ND		
bis(2-chloroethyl)ether	µg/L	0.5	<0.5	<0.25	ND	ND		
bis(2-chloroisopropyl)ether	µg/L	0.5	<0.5	<0.25	ND	ND		
hexachlorobutadiene	µg/L	0.5	<0.5	<0.25	ND	ND		
hexachlorocyclopentadiene	µg/L	0.5	<0.5	<0.25	ND	ND		
hexachloroethane	µg/L	0.5	<0.5	<0.25	ND	ND		
isophorone	µg/L	0.5	<0.5	<0.25	ND	ND		
nitrobenzene	µg/L	0.5	<0.5	<0.25	ND	ND		
N-nitrosodimethylamine	µg/L	2	<2	<1	ND	ND		
N-nitrosodiphenylamine	µg/L	2	<2	<1	ND	ND		
N-nitrosodi-n-propylamine	µg/L	2	<2	<1	ND	ND		
VOLATILE ORGANIC COMPOUNDS								
MONOCYCLIC AROMATIC HYDROCARBONS								
1,2,4-trichlorobenzene	µg/L	0.4	<0.4	<0.2	ND	ND		5.4
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		42
1,2-diphenylhydrazine	µg/L	0.1	<0.1	<0.05	ND	ND		
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		
1,4-dichlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		
2,6-dinitrotoluene	µg/L	0.5	<0.5	<0.25	ND	ND		
3,3-dichlorobenzidine	µg/L	1	<1	<0.5	ND	ND		
4-bromophenyl phenyl ether	µg/L	0.1	<0.1	<0.05	ND	ND		
4-chlorophenyl phenyl ether	µg/L	0.5	<0.5	<0.25	ND	ND		
benzene	µg/L	0.4	<0.4	<0.4	ND	ND	110	110
ethylbenzene	µg/L	0.4	<0.4	<0.4	ND	ND	250	25
m & p xylenes	µg/L	0.4	<0.4	<0.4	ND	ND		
o-xylene	µg/L	0.4	<0.4	<0.4	ND	ND		
styrene	µg/L	0.5	<0.5	<0.5	ND	ND		
toluene	µg/L	0.4	1.8	<0.4	ND	ND		215
xylenes	µg/L	0.4	<0.4	<0.4	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
CHLORINATED ALIPHATIC								
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	ND	ND		
1,4-dioxane	µg/L	1		<1	ND	ND		
2,4-dinitrotoluene	µg/L	0.5	<0.5	<0.25	ND	ND		
alpha-terpineol	µg/L	10	14	<5	ND	ND		
bromomethane	µg/L	1	<1	<1	ND	ND		
chlorobenzene	µg/L	0.5	<0.5	<0.5	ND	ND		
chlorodibromomethane	µg/L	1	<1	<1	ND	ND		
chloroethane	µg/L	1	<1	<1	ND	ND		
chloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
chloromethane	µg/L	1	<1	<1	ND	ND		
ALIPHATIC								
1,2-dibromoethane	µg/L	0.2	<0.2	<0.2	ND	ND		
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	ND	ND		
acrylonitrile	µg/L	1	<1	<1	ND	ND		
cis-1,2-dichloroethene	µg/L	1	<1	<1	ND	ND		
cis-1,3-dichloropropene	µg/L	1	<1	<1	ND	ND		
dibromomethane	µg/L	0.9	<0.9	<0.9	ND	ND		
methyl tertiary butyl ether	µg/L	4	<4	<4	ND	ND	440	5,000
tetrabromomethane	µg/L	50	<50	<50	ND	ND		
tetrachloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
tetrachloromethane	µg/L	0.5	<0.5	<0.5	ND	ND		
trans-1,2-dichloroethene	µg/L	1	<1	<1	ND	ND		
trans-1,3-dichloropropene	µg/L	1	<1	<1	ND	ND		
trichloroethene	µg/L	0.5	<0.5	<0.5	ND	ND		
trichlorofluoromethane	µg/L	4	<4	<4	ND	ND		
trichloromethane	µg/L	1	6.3	2.3	0.005	364		
TRIHALOMETHANES								
bromodichloromethane	µg/L	µg/L	1	<1	ND	ND		
dichlorodifluoromethane	µg/L	µg/L	2	<2	ND	ND		

Parameter	Units	MDL	Ganges Influent	Ganges Effluent	Effluent Diluted	Loading (kg/year)	BC WQG	CCME / HC WQG
dichloromethane	µg/L	µg/L	2	<2	ND	ND		
tribromomethane	µg/L	µg/L	1	<1	ND	ND		
KETONES								
4-Methyl-2-Pentanone	µg/L	10	<10	<10	ND	ND		
dimethyl ketone	µg/L	15	40	<15	ND	ND		
methyl ethyl ketone	µg/L	50	<50	<50	ND	ND		

Notes:

Shading indicates WQG exceedance; *dilution calculated from maximum concentration.
BC WQG = British Columbia Water Quality Guidelines, CCME WQG = Canadian Council of Ministers of the Environment Water Quality Guidelines, HC = Health Canada WQG
(lt) = long term, (st) = short term
NM indicates not measured; ND indicates non detect; --- value not available.

Appendix A4 Ganges WWTP Sludge (Mixed Liquor) Concentrations 2025

Regulated Parameters (mg/kg dry)	Class A Biosolids Limit (mg/kg dry)*	# of samples	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
Metals															
arsenic	75	10	1.78	1.73	1.55	1.57	1.4	1.5	1.48	---	---	1.77	1.39	1.65	1.58
cadmium	20	10	0.861	0.779	0.732	0.771	0.785	0.916	0.733	---	---	0.776	0.534	0.637	0.75
chromium	1,060	10	7.81	7.72	7.42	7.57	6.85	6.46	5.82	---	---	7.51	7.17	8.43	7.28
cobalt	151	10	1.8	1.84	1.61	1.5	1.35	1.16	1.09	---	---	1.56	1.32	1.78	1.50
copper	757	10	515	455	460	490	415	354	296	---	---	375	346	481	419
lead	505	10	9	8.65	8.17	8.89	7.33	7.77	7.26	---	---	11.4	9.77	11.6	8.98
mercury	5	10	0.357	0.303	0.377	0.343	0.49	0.495	0.507	---	---	0.607	0.548	0.733	0.48
molybdenum	20	10	3.02	2.83	2.78	3.22	3.05	2.9	2.8	---	---	3.4	2.95	3.16	3.01
nickel	181	10	11	10.7	9.83	10.3	9.42	8.75	8.03	---	---	10.4	9.06	11.2	9.87
selenium	14	10	2.19	1.88	2	2.21	2.11	2.15	2.04	---	---	2.63	2.54	2.58	2.23
thallium	5	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05
vanadium	656	10	6	6.3	5.3	4.3	3.3	2.3	2.1	---	---	2.9	3.1	4.1	3.97
zinc	1,868	10	261	254	277	293	290	291	289	---	---	339	233	309	284
Unregulated Parameters (mg/kg dry)	**Class A Biosolids Limit (mg/kg dry)***	**# of samples**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
aluminum	n/a	10	2,940	2,310	2,100	1,870	1,530	1,370	1,170	---	---	1,790	1,530	1,920	1,853
antimony	n/a	10	1.02	0.85	0.85	0.93	0.82	0.76	0.79	---	---	1.31	0.91	0.89	0.91
barium	n/a	10	52	51.7	54.8	52.5	49.1	41.6	37.9	---	---	48.7	50.2	56.7	49.5
beryllium	n/a	10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	---	---	<0.2	<0.2	<0.2	<0.2
bismuth	n/a	10	16.6	14	14.3	14.9	14.4	14.6	15.3	---	---	17.4	12.7	15.2	14.9
boron	n/a	10	43.3	37.7	40.4	45.3	42.4	53.6	42.4	---	---	61.3	45.9	38.7	45.1
calcium	n/a	10	9,380	8,530	8,560	8,600	9,020	9,240	7,890	---	---	8,850	7,760	10,000	8,783
iron	n/a	10	4,990	4,760	4,280	4,080	3,290	2,850	2,480	---	---	4,020	3,670	4,310	3,873
lithium	n/a	10	2.59	2.64	2.09	1.97	1.57	1.56	1.38	---	---	1.47	1.65	1.69	1.86
magnesium	n/a	10	4,660	4,770	5,300	5,210	5,280	5,340	4,460	---	---	3,240	2,850	3,260	4,437
manganese	n/a	10	178	156	136	141	123	108	94.1	---	---	161	143	240	148

Unregulated Parameters (mg/kg dry)	Class A Biosolids Limit (mg/kg dry)*	# of samples	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
moisture	n/a	10	99	99	99	99	99	99	99	---	---	100	99	99	99
phosphorus	n/a	10	18,400	17,100	18,800	19,800	20,900	20,200	18,700	---	---	13,600	11,000	12,900	17,140
potassium	n/a	10	11,100	10,600	10,900	12,100	12,100	12,300	11,400	---	---	7,410	6,120	6,410	10,044
silver	n/a	10	4.2	4.1	4.07	4.16	5.61	6.07	4.52	---	---	4.29	3.82	4.52	4.54
sodium	n/a	10	7,950	8,880	8,550	6,340	6,370	10,600	7,870	---	---	9,350	6,100	6,250	7,826
soluble 2:1 pH	n/a	10	6.57	6.37	6.08	6.62	6.46	6.45	6.45	---	---	6.39	6.53	6.54	6.45
Strontium	n/a	10	43.2	52.5	46.5	42.9	39.4	40.5	37.7	---	---	45	39.9	50.7	43.8
tin	n/a	10	12.5	11.4	11.6	13.2	12.7	11.8	12.4	---	---	18.6	16.7	17.8	13.9
titanium	n/a	10	28.3	28.3	28	25	21.1	21.3	15.7	---	---	14.7	15.8	19.9	21.8
total solids	n/a	10	0.9	1.5	1.1	1	1	0.8	1.1	---	---	0.5	0.7	0.6	0.92
tungsten	n/a	10	0.6	0.63	0.51	0.56	0.55	<0.5	<0.5	---	---	0.55	<0.5	0.53	0.56
uranium	n/a	10	0.21	0.174	0.179	0.16	0.2	0.181	0.105	---	---	0.161	0.181	0.226	0.18
zirconium	n/a	10	0.88	0.7	1.42	0.81	1.42	1.19	1.25	---	---	1.52	1.71	1.83	1.27

Notes:
Shading indicates exceedance of regulatory limit.

--- sample was not collected.

** From Organic Matter Recycling Regulation (B.C. Reg. 18/2002, Schedule 4 Section 3, February 28, 2019) which references Trade Memorandum T-4-93 'Safety Guidelines for Fertilizers and Supplements' (Sept 1997) and contains maximum acceptable metal concentrations based on annual application rates (mg metal/kg product) 4400 kg/ha –yr.*

APPENDIX B

MALIVIEW WWTP

Appendix B1 Maliview WWTP Effluent Flow 2025 (m^3/day)

	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C	F S	Sec	T C
1	68	68	136	35	71	106	34	59	93	52	65	117	0	50	50	0	42	42	0	19	19	0	7	7	0	18	18	12	32	44	3	57	60	38	68	106
2	54	72	126	41	69	110	28	59	87	43	60	103	0	45	45	0	45	45	0	16	16	1	11	12	0	27	27	6	35	41	37	84	121	28	63	91
3	49	77	126	37	78	115	27	58	85	40	62	102	0	48	48	0	41	41	0	19	19	0	9	9	0	18	18	0	45	45	10	85	95	22	71	93
4	61	78	139	28	75	103	19	56	75	32	65	97	0	46	46	0	41	41	0	23	23	0	19	19	0	17	17	0	42	42	0	54	54	18	69	87
5	74	74	148	26	72	98	19	55	74	29	64	93	0	48	48	0	36	36	0	26	26	0	17	17	0	14	14	0	35	35	1	52	53	40	74	114
6	84	72	156	28	70	98	19	54	73	29	60	89	0	42	42	0	31	31	0	30	30	0	11	11	0	25	25	0	43	43	0	56	56	60	75	135
7	69	63	132	27	71	98	17	58	75	49	70	119	0	41	41	0	28	28	0	22	22	0	16	16	0	20	20	0	31	31	13	75	88	46	73	119
8	53	80	133	30	71	101	17	62	79	60	57	117	0	42	42	0	28	28	0	13	13	0	14	14	0	24	24	0	42	42	6	90	96	38	65	103
9	44	74	118	26	71	97	63	63	126	63	66	129	0	42	42	0	31	31	0	24	24	0	16	16	0	14	14	0	3	3	4	81	85	73	67	140
10	39	64	103	28	74	102	88	63	151	51	60	111	0	38	38	0	29	29	0	26	26	0	10	10	1	16	16	0	76	76	0	67	67	85	71	156
11	43	67	110	20	62	82	60	51	111	45	62	107	0	40	40	0	26	26	0	22	22	0	13	13	0	22	22	0	34	34	0	64	64	145	75	220
12	44	63	107	23	77	100	57	65	122	31	64	95	0	45	45	0	29	29	0	21	21	0	7	7	0	23	23	0	30	30	1	60	61	104	73	177
13	44	65	109	19	76	95	63	62	125	27	63	90	0	32	32	0	32	32	0	26	26	0	2	2	0	19	19	0	31	31	0	52	52	69	68	137
14	33	44	77	16	72	88	49	66	115	27	66	93	0	35	35	0	31	31	0	19	19	0	3	3	0	26	26	0	32	32	5	65	70	54	68	122
15	31	60	91	10	71	81	44	73	117	22	61	83	0	35	35	0	32	32	0	17	17	1	13	14	0	32	32	0	29	29	3	74	77	74	76	150
16	29	58	87	19	67	86	50	69	119	18	58	76	0	34	34	0	30	30	0	11	11	0	21	21	0	30	30	0	25	25	11	80	91	88	54	142
17	25	59	84	67	82	149	51	73	124	12	59	71	0	33	33	0	8	8	0	9	9	0	18	18	0	29	29	1	21	22	9	78	87	123	81	203
18	25	57	82	89	89	178	45	68	113	6	64	70	0	46	46	0	29	29	0	7	7	0	37	37	2	29	31	0	19	19	2	63	65	140	80	220
19	27	101	128	74	73	147	34	64	98	38	32	70	0	47	47	0	25	25	1	5	6	0	36	36	0	25	25	0	31	31	2	74	76	106	75	180
20	26	58	84	92	70	162	32	69	101	0	60	60	0	49	49	0	26	26	0	4	4	0	35	35	1	33	34	0	47	47	0	73	73	84	70	154
21	8	54	62	68	70	138	29	64	93	2	61	63	2	45	46	0	25	25	0	9	9	0	30	30	0	29	29	0	22	22	0	69	69	67	66	133
22	7	70	77	71	68	139	46	67	113	1	58	59	0	43	43	0	28	28	0	16	16	0	32	32	0	35	35	0	29	29	0	60	60	81	72	153
23	8	65	73	140	73	213	51	65	116	0	55	55	0	41	41	0	35	35	1	8	8	0	12	12	0	26	26	0	26	26	0	57	57	78	69	147
24	6	60	66	140	76	216	80	67	147	0	50	50	0	37	37	0	29	29	1	10	11	0	9	9	0	33	33	0	28	28	3	70	73	77	71	148
25	11	65	76	99	65	164	99	61	160	0	52	52	0	39	39	0	29	29	0	8	8	0	12	12	0	30	30	0	33	33	0	70	70	80	67	147
26	8	60	68	67	58	125	102	68	170	0	46	46	0	47	47	0	25	25	0	3	3	0	8	8	0	35	35	0	48	48	25	65	90	64	67	131
27	13	62	75	53	68	121	72	63	135	0	48	48	0	31	31	0	26	26	0	10	10	0	9	9	0	36	36	0	47	47	47	70	117	63	68	131
28	13	62	75	43	67	110	143	68	211	0	50	50	0	41	41	2	27	29	1	12	12	0	9	9	0	29	29	0	49	49	99	70	169	42	63	105
29	11	60	71	0	0	0	84	65	149	0	40	40	0	38	38	0	24	24	0	7	7	0	14	14	10	28	37	0	45	45	75	72	147	40	62	101
30	8	62	70	---	---	---	66	71	137	1	51	52	0	38	38	0	24	24	2	10	11	1	13	13	8	41	49	0	65	65	52	69	121	30	52	82
31	9	59	68	---	---	---	56	65	121	---	---	---	0	34	34	---	---	---	0	7	7	0	21	21	---	---	---	1	47	47	---	---	---	30	59	89
Min	6	44	62	10	58	81	17	51	73	0	32	40	0	31	31	0	8	8	0	3	3	0	2	2	0	14	14	0	3	3	0	52	52	18	52	82
Max	84	101	156	140	89	216	143	73	211	63	70	129	2	50	50	2	45	45	2	30	30	1	37	37	10	41	49	12	76	76	99	90	169	145	81	220
Mean	33	65	98	49	69	118	53	63	116	23	57	80	0	41	41	0	30	30	0	15	15	0	15	15	1	26	27	1	36	37	14	68	82	67	69	136
Total Flows	1,024	2,025	3,049	1,416	1,999	3,414	1,644	1,962	3,606	678	1,722	2,400	2	1,263	1,265	2	888	889	4	451	455	2	477	479	20	777	797	20	1,114	1,134	407	2,050	2,457	2,083	2,127	4,210

Annual Min	**0**	**2**	**2**
Annual Max	**145**	**101**	**220**
Annual Mean	**20**	**46**	**66**

Notes:

F-S: Fine-screened; Sec: Secondary; T-C: Total combined.

Shading indicates exceedance of regulatory limit (250 m^3/day T-C). .
The SCADA flowmeter was malfunctioning, so
some recorded daily flows are likely much lower than actual daily flows.

Appendix B2 Maliview WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent (Undisinfected)						Secondary Effluent Final Combined (secondary + screened)							
	TSS (mg/L)	BOD (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/ 100 mL)	NH_3 (mg/L N)	pH	TSS (mg/L)	TSS Applicable Limit (mg/L)	BOD (mg/L)	CBOD (mg/L)	CBOD Applicable Limit (mg/L)	FC (CFU/ 100 mL)	Ammonia (mg/L N)	pH
January	88	211	4,400,000	17	16	11	59,000	19	7.3	46	130	18	13	130	68,000	22	7.3
February	276	198	2,100,000	26	24	22	73,000	12	7.3	97	130	105	76	130	4,600,000	19	7.9
March	77	109	33,000,000	25	23	16	380,000	15	7.3	21	130	30	15	130	120,000	16	7.4
April	373	288	21,000,000	37	41	31	490,000	26	7.4	39	130	44	34	130	580,000	27	7.5
May	268	238	3,600,000	59	69	60	2,500,000	30	7.4	61	45	67	62	45	1,500,000	30	7.5
June	420	414	22,000,000	38	73	73	4,800,000	45	7.5	39	45	81	64	45	4,300,000	44	7.5
July	178	403	5,000,000	43	68	50	1,700,000	51	7.4	38	45	62	51	45	1,600,000	48	7.5
August	121	203	58,000,000	52	63	63	870,000	31	7.3	67	45	70	67	45	870,000	31	7.2
September	550	471	11,000,000	26	46	43	900,000	30	7.4	28	45	46	51	45	1,500,000	31	7.4
October	400	465	9,700,000	28	52	47	750,000	45	7.4	33	45	50	43	45	840,000	45	7.3
November	156	204	3,400,000	35	55	20	850,000	32	7.5	40	130	51	39	130	680,000	33	7.5
December	96	71	33,000,000	22	23	18	65,000	0	7.2	24	130	24	22	130	1,300,000	0	7.2
Mean	250	273	10,482,716	34	43	28	533,431	28	7.4	44	---	54	45	---	880,694	29	7.4
Min	77	71	2,100,000	17	16	11	59,000	0	7.2	21	---	18	13	---	68,000	0	7.2
Max	550	471	58,000,000	59	73	73	4,800,000	51	7.5	97	---	105	76	---	4,600,000	48	7.9
n	12	12	12	12	12	12	12	12	12	12	---	12	12	---	12	11	12
Mean Daily Loading	kg/day			kg/day				kg/day	---	kg/day	---			---		kg/day	---
	17	---	---	1.6	---	---	---	1.3	---	2.9	---	---	---	---	---	1.9	---

Notes:
TSS and CBOD shading indicates exceedance of the applicable regulatory limit.
FC = Fecal Coliforms, TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, TRC = total residual chlorine, NH_3 = ammonia
TSS/CBOD secondary effluent (disinfected limit) = 45 mg/L when flow ≤60, and = 130 mg/L when flow >60.

APPENDIX C

SCHOONER WWTP

Appendix C1 Schooner WWTP Effluent Flow 2025 (m^3/day)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	422	300	451	362	216	189	189	125	177	177	238	265
2	384	321	396	347	198	164	161	160	157	129	233	257
3	360	318	322	354	217	152	155	175	142	109	251	211
4	377	303	309	356	215	155	134	175	148	133	240	233
5	382	294	304	359	229	153	173	167	151	120	233	247
6	400	289	285	338	227	145	165	173	103	129	231	322
7	346	303	290	316	197	155	153	163	125	117	251	322
8	333	277	262	350	137	191	158	125	143	126	270	298
9	328	280	324	323	170	172	143	146	128	112	265	302
10	313	284	343	323	197	154	155	154	125	130	280	355
11	317	308	320	265	255	150	132	155	134	132	270	390
12	315	266	316	277	237	147	162	134	128	117	267	522
13	321	263	352	280	189	142	172	146	125	166	203	405
14	305	276	335	286	220	163	150	173	127	163	236	363
15	255	265	305	257	224	164	149	139	142	135	262	331
16	309	255	353	249	180	151	159	182	123	131	240	326
17	277	327	350	245	203	146	141	176	121	126	226	358
18	283	334	337	255	241	152	129	158	100	135	216	627
19	278	317	308	259	203	164	161	156	101	131	187	480
20	276	329	309	258	201	141	167	156	84	195	151	416
21	267	331	298	292	203	187	176	175	86	199	167	406
22	256	328	316	268	196	175	146	125	123	178	227	415
23	295	353	313	238	166	167	166	147	175	163	225	418
24	247	382	311	222	175	163	162	158	170	151	272	446
25	247	410	315	221	179	95	117	143	163	160	280	449
26	268	421	308	232	181	205	163	145	164	152	245	369
27	279	436	367	231	175	141	168	145	169	192	299	419
28	266	447	477	241	184	171	168	189	173	227	322	363
29	252	---	393	228	175	147	167	126	188	221	327	352
30	247	---	374	230	143	209	145	159	178	227	270	355
31	242	---	358	---	161	---	178	177	---	240	---	350
Min	242	255	262	221	137	95	117	125	84	109	151	211
Max	422	447	477	362	255	209	189	189	188	240	327	627
Mean	305	322	336	282	197	160	157	156	139	156	246	367
Total Flows	9,447	9,017	10,401	8,462	6,094	4,810	4,864	4,827	4,173	4,823	7,384	11,372

Notes: shading indicates exceedance of regulatory limit (640 m^3/day), --- indicates no data available

Annual Min	**84**
Annual Max	**627**
Annual Mean	**235**

Appendix C2 Schooner WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent		Secondary Effluent Disinfected						
	TSS (mg/L)	BOD (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/ 100 mL)	NH_3 (mg/L N)	pH	Unionized NH_3 (mg/L)
Regulatory Limit						45 max / 25 mean		45 max / 25 mean	200			1.25
January	90	73	2,300,000	2	1	<2	<3	<3	1	<0.1	5.9	<0.1
February	153	130	1,500,000	2	10	<2	<2.26	<2.42	1	<0.1	6.4	<0.1
March	71	72	1,100,000	11	430,000	034	<3	<7.47	31,000	<0.1	6.8	<0.1
April	130	123	9,500,000	2	1	<2	<3	<3	<1	0.206	4.9	<0.1
May	70	75	1,100,000	3	100	<2.5	<3	<3	<1	1.57	4.6	<0.1
June	208	238	10,000,000	16	100	<1	<3	<3	<1	3.09	5.7	<0.1
July	118	173	34,000,000	2	100	<2	<3	<3	<2	3.54	4.3	<0.1
August	190	203	21,000,000	2	90	<2	1.87	<3	32	2.35	4.6	<0.1
September	207	136	11,000,000	2	100	<2	<4	<4	2	48.4	7.5	0.222
October	172	242	12,000,000	2	36	<2	<3	<3	<1	<0.1	6.8	<0.1
November	196	260	10,000,000	2	100	<2	<3	<3	<1	<0.1	6.4	<0.1
December	102	113	5,900,000	2	4	<2	<3	<3	<1	0.49	7.1	<0.1
Mean	142	153	6,006,494	3	35,865	3.75	2	2	2,587	5	5.9	0.064
Min	70	72	1,100,000	<2	<1	<2	<2	<2	<1	<0.10	4.3	<0.1
Max	208	260	34,000,000	16	430,000	34	2	4	31,000	48	7.5	0.222
n	12	12	12	12	12	12	12	12	12	12.0	12	12
Mean Daily Loading	kg/day			kg/day		kg/day				kg/day		kg/day
	33	---	---	0.7	---	0.9	---	---	---	1.2	---	0.015

Notes:
TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, FC = fecal coliforms, TRC = total residual chlorine, NH_3 = ammonia
--- data not collected.
Shading indicates exceedance of regulatory limit

APPENDIX D

PORT RENFREW WWTP

Appendix D1 Port Renfrew WWTP Effluent Flow 2025 (m^3/day)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	63	55	38	38	24	35	37	30	35	57	104	48
2	53	40	39	33	31	35	44	33	33	123	85	45
3	56	40	32	30	32	31	37	38	35	67	63	37
4	55	43	45	30	26	28	32	33	47	52	49	45
5	60	34	47	32	26	37	37	30	28	40	82	74
6	50	36	57	43	25	26	37	56	31	32	85	69
7	45	35	51	48	50	30	41	42	36	41	79	67
8	32	43	137	70	42	28	32	37	33	15	60	157
9	33	38	85	57	32	26	35	37	33	73	53	96
10	43	38	60	52	40	21	34	40	30	42	59	215
11	38	38	79	46	31	40	37	45	25	55	49	146
12	32	38	74	39	47	32	39	47	26	52	45	106
13	29	38	60	46	36	25	33	31	45	51	92	75
14	27	43	49	28	23	33	37	31	38	39	58	100
15	30	60	55	32	30	30	35	100	26	27	56	137
16	36	76	58	26	28	28	39	70	31	32	58	130
17	34	59	52	30	40	26	28	54	28	36	54	118
18	39	44	40	34	33	32	35	57	31	55	44	139
19	32	67	40	39	47	26	35	50	26	74	39	112
20	33	54	72	37	51	23	33	49	28	51	43	101
21	27	70	101	29	47	37	35	49	61	62	40	117
22	30	95	70	24	54	30	38	39	42	52	89	103
23	27	85	173	24	30	34	32	40	43	63	86	97
24	28	76	182	28	37	27	31	35	28	83	65	85
25	27	113	154	30	41	30	35	34	28	76	53	79
26	28	70	101	25	30	35	37	35	33	91	47	119
27	23	56	95	21	30	30	51	35	63	62	56	67
28	25	50	75	23	28	35	40	37	46	68	44	45
29	32	---	98	32	35	39	33	36	99	61	38	36
30	34	---	66	24	33	47	42	41	52	56	35	39
31	68	---	48	---	32	---	28	38	---	104	---	52
Min	23	34	32	21	23	21	28	30	25	15	35	36
Max	68	113	182	70	54	47	51	100	99	123	104	215
Mean	38	55	75	35	35	31	36	43	38	58	60	92
Total Flows	1,164	1,533	2,330	1,050	1,091	935	1,116	1,325	1,136	1,792	1,805	2,854

Notes:
Shading indicates exceedance of regulatory limit (220 m^3/day).

Annual Min	**15**
Annual Max	**215**
Annual Mean	**50**

Appendix D2 Port Renfrew WWTP Compliance and Treatment Plant Performance 2025

Date	Influent			Secondary Effluent					
	TSS (mg/L)	BOD (mg/L)	FC (CFU/ 100 mL)	TSS (mg/L)	BOD (mg/L)	CBOD (mg/L)	FC (CFU/ 100 mL)	NH_3 (mg/L N)	pH
Regulatory Limit				60		45			
January	207	284	11,000,000	14	8	<4	4500	00.208	6.2
February	196	265	2,600,000	31	17	8.8	20000	00.218	6.7
March	153	198	3,100,000	28	20	4	52000	<0.1	6.2
April	367	619	9,800,000	14	11	5.42	9900	00.715	6.5
May	58	102	4,100,000	34	13	5.83	27000	00.4	6.6
June	142	231	4,200,000	9	7	4.79	3600	01.64	7.7
July	162	256	94,000,000	22	14	8.52	660000	00.618	6.7
August	340	265	8,000,000	27	12	6.22	73000	00.843	5.9
September	170	206	3,900,000	24	9	5.3	7200	00.608	5.9
October	282	221	4,900,000	16	6	<3	4500	<0.1	6.4
November	147	210	2,100,000	2	9	6.31	6700	00.876	7.3
December	112	110	3,000,000	4	3	<4	690	<0.1	7.4
Mean	195	247	5,767,450	19	11	5	13,366	0.5	6.6
Min	58	102	2,100,000	2	3	<3	690	<0.1	5.9
Max	367	619	94,000,000	34	20	9	660,000	1.6	7.7
N	12	12	12	12	12	12	12	12.0	12
Mean Daily Loading	kg/day			kg/day				kg/day	
	10	---	---	0.6	---	---	---	0.03	---

Notes:
TSS = total suspended solids, BOD = biochemical oxygen demand, CBOD = carbonaceous biochemical oxygen demand, FC = fecal coliforms, NH_3 = ammonia
--- data not calculated.
Shading indicates regulatory exceedance.

APPENDIX E

BURGOYNE BAY WASTE TRANSFER FACILITY

Appendix E1 Burgoyne Bay Waste Transfer Facility Septage Concentrations 2025

Regulated Parameters (mg/kg dry)	Class A Biosolids Limit (mg/kg dry)*	# of samples	Jan	Apr	Jul	Oct	Mean
Metals							
arsenic	75	4	1.88	3.12	3.22	2.65	2.72
cadmium	20	4	0.925	2.55	1.47	1.18	1.53
chromium	1,060	4	8.47	13.7	11.2	14.5	12.0
cobalt	151	4	1.92	1.88	1.7	2.07	1.89
copper	757	4	562	577	562	541	561
lead	505	4	9.83	22.3	12.8	19.2	16.0
mercury	5	4	0.395	0.416	0.53	0.812	0.54
molybdenum	20	4	3.26	6.49	7.51	6.01	5.82
nickel	181	4	12	16.5	17.3	16.5	15.6
selenium	14	4	2.18	2.63	3.88	3.1	2.95
thallium	5	4	<0.05	0.06	<0.05	<0.05	0.03
vanadium	656	4	6.3	7.2	5.5	6.3	6.33
zinc	1,868	4	283	727	824	805	660
Unregulated Parameters (mg/kg dry)	**Class A Biosolids Limit (mg/kg dry)***	**# of samples**	**Jan**	**Apr**	**Jul**	**Oct**	**Mean**
aluminum	n/a	4	3,140	11,500	6,930	6,890	7,115
antimony	n/a	4	1.13	1.88	1.37	1.23	1.40
barium	n/a	4	58	96.1	80.9	124	89.8
beryllium	n/a	4	<0.2	<0.2	<0.2	<0.2	<0.2
bismuth	n/a	4	18.3	67	30.6	23.7	34.9
boron	n/a	4	46.3	42.6	56.7	43	47.2
calcium	n/a	4	10,400	14,200	14,100	19,800	14,625
iron	n/a	4	5,350	5,200	3,460	5,280	4,823
lithium	n/a	4	2.83	3.46	2.45	1.9	2.66
magnesium	n/a	4	5,010	4,150	2,740	3,130	3,758
manganese	n/a	4	191	162	137	191	170
moisture	n/a	4	98	99	98	98	98.3
potassium	n/a	4	20,000	13,300	10,400	11,900	13,900
silver	n/a	4	12,000	9,430	5,130	4,380	7,735
sodium	n/a	4	4.63	5.04	4.87	10.8	6.34
soluble (2:1) pH	n/a	4	8,500	7,690	7,150	4,870	7,053
strontium	n/a	4	6.62	7.39	7.01	7.02	7.01
tin	n/a	4	47.7	62.6	56.8	67.7	58.7
titanium	n/a	4	13.6	23.2	26	21.4	21.1
total solids	n/a	4	30.5	62.9	46.5	44.2	46.0
tungsten	n/a	4	1.6	1.2	1.6	2.1	1.63
uranium	n/a	4	0.66	1.27	0.64	0.67	0.81
zirconium	n/s	4	0.225	0.325	0.721	0.864	0.53

Notes:
Shading indicates exceedance of regulatory limit.
--- sample was not collected.
** From Organic Matter Recycling Regulation (B.C. Reg. 18/2002, Schedule 4 Section 3, February 28, 2019) which references Trade Memorandum T-4-93 'Safety Guidelines for Fertilizers and Supplements' (Sept 1997) and contains maximum acceptable metal concentrations based on annual application rates (mg metal/kg product) 4400 kg/ha –yr.*