

TECHNICAL MEMORANDUM

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Jackie Boruch and Ryan Schucroft (Woodfibre LNG) **Date:** 17 Apr 2025

From: Holly Pelletier, Cheng Kuang and Patrick Mueller (Lorax) **Project #:** A633-9

Subject: PE-111578 Weekly Discharge and Compliance Report #59 for April 6 – 12

Waste Discharge Authorization (WDA) Effluent Permit PE-111578 was issued by the British Columbia Energy Regulator (BCER) to Woodfibre LNG on February 9, 2024. The associated WDA discharge and compliance monitoring program is conducted by on-site Environmental Monitors (Roe Environmental) that are sub-contracted to the civil works contractor (LB LNG). Analytical samples are submitted by Roe Environmental to ALS Environmental in Burnaby, BC, for testing. Lorax Environmental provides water quality database management and WDA compliance reporting services to Woodfibre LNG.

This technical memorandum (Report #59) was prepared by Lorax Environmental and summarizes WDA monitoring conducted for the period of April 6 – 12. Monitoring data and pending results from prior monitoring periods available at the time of reporting are tabulated and included as appendices to this memorandum. Report #59 has been prepared to meet the requirements specified in Condition 4.2 of PE-111578:

“The Permittee shall summarize the results of the discharge and compliance monitoring program in a report that shall be submitted to the BCER weekly over the term of this permit. Reports must include suitable tabulated data. The table must include any applicable regulatory limits/guidelines e.g. permit limits, BC Water Quality Guidelines etc. Any exceedances of respective regulatory limits/guidelines must be clearly highlighted. Any missed sampling events/missing data must be identified with an explanation provided. Reporting frequency may be reduced upon a history of compliance and by written confirmation from the BCER. These reports shall be submitted to Waste.Management@bc-er.ca. A copy of the reports shall be provided to each First Nation consulted with regarding this subject permit, and also made publicly available on the Woodfibre LNG Environmental Reporting webpage.”

Site layout and water management figures, and site images are included in Appendix A. Monitoring results are tabulated in Appendix B through Appendix D for contact water, treated water and receiving environment samples.

1. Current Conditions

1.1 Water Management Infrastructure

The Construction Phase of the Woodfibre LNG Export Facility commenced in October 2023. Early-stage civil works are ongoing, and these include site grading, levelling, overburden and bedrock excavation, pouring of concrete foundations and construction of contact water management facilities. Shoring works along the foreshore areas were initiated in December 2023, and in early 2024 construction of water management infrastructure commenced and has continued through the April 6 – 12, 2025 monitoring period. Land-based construction occurs within two areas east and west of Mill Creek, referred to as the East and West Catchments, respectively. Non-contact water is intercepted and diverted around the construction areas to Howe Sound and Mill Creek. Stormwater runoff collected within the east and west catchment areas (7.12 and 5.92 ha, respectively) is managed as site contact water and is conveyed to the East Wastewater Treatment Plant (WWTP) or the East and West Sedimentation Ponds for treatment or settling of suspended particulate. Discharge to Howe Sound from the East and West Sedimentation Ponds commenced April and October 2024, respectively.

Non-contact water diversion ditches west of Mill Creek have been upgraded and discharge to Mill Creek at station OUT-06, or to Howe Sound at station OUT-02 (Appendix A, Figure 1). During heavy precipitation non-contact water from the diversion ditches is also conveyed to Howe Sound via station OUT-01. East of Mill Creek, non-contact water is diverted around the East Catchment along pre-existing road ditches that flow to East Creek or Mill Creek. To facilitate the replacement of the East Creek discharge culvert at OUT-12, the lower reach of East Creek was temporarily diverted to an adjacent culvert, OUT-11, on September 17, 2024.

The East and West catchments conveyance ditches described in PE- 111578 were designed to transport non-contaminated contact water (*i.e.*, stormwater) to the East and West Sedimentation Ponds and will be constructed following completion of site preparation activities (*e.g.*, site grading, bedrock excavation) along the ditch lines. Until the ditches are operational, contact waters within the catchments are managed to remain on site using a system of berms, sumps, temporary ditches and baker tanks for intermediate storage, and are then directed to the East and West Sedimentation Ponds for TSS settling prior to discharge.

Flocculant-based TSS settling systems are used at the East and West Sedimentation Ponds to remove TSS from non-contaminated contact water at the time of discharge. Some of the clarified water may be recirculated back to the ponds. The first West Sedimentation Pond TSS settling system (ESC) was commissioned for use on September 25, 2024, with an 820 m³/day installed capacity. A second TSS settling system (W500GPM) was added and commissioned for use on November 28 and provides an additional 2,725 m³/day installed capacity for clarifying water. A

TSS settling system (E500GPM) for the East Sedimentation Pond was commissioned on December 4, 2024, also with 2,725 m³/day installed capacity.

The West WWTP has been constructed, and pilot testing was conducted August and September 2024. Operation of the West WWTP was suspended September 25, 2024. The suspension was implemented for the temporary reconfiguration of the plant to conduct pilot-scale evaluation of alternative treatment processes for improving treatment outcomes. Any process modifications that may result from the pilot-scale evaluation will be submitted to BCER for approval prior to full-scale implementation. Site waters that require treatment will continue to be directed to the East WWTP while the operation of the West WWTP is suspended.

The east and west catchment permanent outfall structures have been completed; however, discharge from the East and West Sedimentation Ponds is controlled using pumps, effluent is clarified through a TSS settling system and is discharged to the authorized outfall structures adjacent to each pond. In the east catchment, treated WWTP effluent is directed to the East Sedimentation Pond. Since December 2, 2024, sedimentation pond effluent clarified through the E500GPM is directed to the discharge tank and from there is discharged to Howe Sound at location SP-E-OUT. The west catchment discharge location, SP-W-OUT, receives the combined clarified effluents from the ESC and W500GPM TSS settling systems since November 28, 2024. Each of the authorized discharge locations (SP-E-OUT and SP-W-OUT) has an initial dilution zone (IDZ) where discharged water mixes with Howe Sound surface waters. The IDZ is defined in PE-111578 and extends 150 m from each point of discharge into Howe Sound.

The construction phase water management layout and monitoring stations are shown in Appendix A, Figure 1. Contact water collection and dewatering locations and photographs of the sedimentation ponds are shown in Appendix A, Figure 2 through Figure 5.

1.2 Weather and Water Management

Variable weather was observed during the monitoring period (April 6 – 12), with precipitation recorded each day except on April 12. The total precipitation amount during the monitoring period was 97.6 mm with the heaviest rainfall on April 6 and April 8 (39.6 and 31.2 mm, respectively). The daily weather conditions are summarized in Table 1.

Table 1: Summary of Certified Project Area (CPA) Daily Weather Conditions.

Date	Precipitation (mm)	Max. Temp (°C)	Min. Temp (°C)	Weather Description
2025-04-06	39.6	12.0	7.7	Heavy Rain
2025-04-07	12.2	10.5	6.8	Rain
2025-04-08	31.2	8.9	5.8	Heavy Rain
2025-04-09	5.0	12.9	6.4	Overcast with Showers
2025-04-10	9.4	13.7	7.5	Overcast with Showers
2025-04-11	0.2	11.6	6.4	Mix of Sun and Cloud
2025-04-12	0	14.0	3.3	Clear

Note: Data retrieved from the Stantec Woodfibre site weather station.

From April 6 – 12, the East Sedimentation Pond received non-contaminated contact water from Area 1100 sump (Appendix A, Figure 2). Non-contaminated contact waters from Area 4100 Sump, Area 4200 Sump, and the 8-Plex Sumps were directed to the West Sedimentation Pond (Appendix A, Figure 3).

Routine operation of the East WWTP continued during the monitoring period. Concrete contact waters were periodically directed to the East WWTP for treatment, as well as water stored in the East Sedimentation Pond (Appendix A, Figure 2 and Figure 3). East WWTP treated effluent was discharged to the East Sedimentation Pond each day during the monitoring period (April 6 – 12). A portion of the pond water clarified through the E500GPM system was recirculated to the East Sedimentation Pond each day of the monitoring period. A total of 4,866 m³ of East Sedimentation Pond effluent clarified through the TSS settling system (E500GPM) was directed to the authorized discharge location SP-E-OUT during the monitoring period. Daily water volumes processed by the East WWTP and the East TSS settling system (E500GPM), and volumes discharged to Howe Sound from the East Catchment authorized discharge location (SP-E-OUT) are provided in Appendix B (Table B-4).

West Sedimentation Pond water was clarified through the W500GPM TSS settling systems prior to discharge. The ESC system was not operational during the monitoring period. A portion of the pond water clarified through the W500GPM settling system was recirculated to the West Sedimentation Pond on April 7, 10, 11, and 12. A total of 6,339 m³ of effluent was clarified through the W500GPM system and directed to the SP-W-OUT discharge location during the monitoring period. Daily clarified effluent volumes from the TSS settling systems, and volumes discharged to Howe Sound from the West Catchment authorized discharge location (SP-W-OUT) are provided in Appendix C (Table C-4).

2. Monitoring Summary

The locations of the compliance and supplementary monitoring stations are shown on Figure 1. Monitoring is conducted by the on-site Environmental Monitors (Roe Environmental). Analytical samples are submitted by Roe Environmental to ALS Environmental in Burnaby, BC, for testing.

Compliance and supplementary monitoring stations have been established:

- Non-contact diversion ditch outlet monitoring stations (OUT-01, OUT-02, OUT-06, and OUT-11). East Creek water was temporarily diverted to OUT-11 on September 17 and is monitored at the inlet to temporary diversion (station SW-04), therefore OUT-11 is not currently monitored.
- Creek water monitoring stations for Woodfibre, Mill and East Creek (SW-01, SW-02, SW-03, SW-04, SW-07).

- Contact water monitoring locations (SP-E-IN, SP-E-NE, SP-E-NW, E500GPM-IN, E500GPM-OUT, WWTP-E-IN, WWTP-E-OUT, SP-W-IN, SP-W-W, SP-W-E, ESC-W-IN, ESC-W-OUT, W500GPM-IN and W500GPM-OUT).
- Effluent compliance stations (SP-E-OUT and SP-W-OUT).
- Howe Sound reference and IDZ monitoring stations (WQR1, WQR2, IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2).

The influent culverts for East and West Sedimentation Ponds are not operational and the associated influent stations defined in PE-111578 (SP-E-IN-1, SP-E-IN-2, SP-W-IN-1 and SP-W-IN-2) have been replaced with temporary influent monitoring stations SP-E-IN and SP-W-IN (East and West Sedimentation Pond, respectively) located in-pond, at the influent end of each pond.

Two flocculant-based TSS settling systems are used at the West Sedimentation Pond (ESC and W500GPM). Influent and effluent are monitored for each system at stations ESC-W-IN, ESC-W-OUT, W500GPM-IN and W500GPM-OUT. One TSS settling system (E500GPM) is used at the East Sedimentation Pond. Influent and effluent are monitored at stations E500GPM-IN and E500GPM-OUT, respectively. The TSS settling system stations are supplemental to the PE-111578 monitoring requirements and are monitored at the discretion of field staff.

Water quality was monitored at stations OUT-01, OUT-02, OUT-06, SW-01, SW-02, SW-03, SW-04, SW-07, IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, WQR2, WWTP-E-IN, WWTP-E-OUT, SP-E-IN, SP-E-OUT, E500GPM-IN, E500GPM-OUT, SP-W-IN, SP-W-OUT, W500GPM-IN, and W500GPM-OUT during the monitoring period (April 6 – 12). Sampling dates and parameters tested are summarized in Table 2.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (April 6 – 12) were met.

Daily field parameters were not collected at effluent station SP-E-OUT on April 8 since there was no effluent discharged from the authorized discharge location at the time of monitoring. Daily field parameters and a weekly analytical sample were not collected at the influent and effluent stations of the West WWTP (WWTP-W-IN and WWTP-W-OUT, respectively) as it was not operational during the monitoring period.

Table 2: Summary of PE-111578 Monitoring Samples Collected April 6 – 12.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
April 6, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-E-OUT	East Sedimentation Pond clarified effluent discharge to Howe Sound, collected at the manhole adjacent to the outfall	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	OUT-02	Non-contact water diversion ditch outlet	Field, Physical & General Parameters, Total, Dissolved and Speciated Metals, Methylmercury.	M ₅
April 7, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-E-OUT	East Sedimentation Pond clarified effluent discharge to Howe Sound, collected at the manhole adjacent to the outfall	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M ₅
	SW-03	Mill Creek Estuary		
	SW-07	Upstream Mill Creek (at the diversion inlet)		
	OUT-01	Non-contact water diversion ditch outlet	Field, Physical & General Parameters, Total, Dissolved and Speciated Metals, Methylmercury.	M ₅
	OUT-06	Non-contact water diversion ditch outlet		
April 8, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box	Field Parameters.	P
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SW-01	Lower Reach of Woodfibre Creek (near the mouth)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M ₅
	SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)		
	IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M ₅
	IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
	IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
	IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
	IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
	IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
April 9, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W ₁ , W ₂
	SP-E-OUT	East Sedimentation Pond clarified effluent discharge to Howe Sound, collected at the manhole adjacent to the outfall	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W ₁ , W ₂
	WWTP-E-IN	East WWTP at the influent meter box	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W ₁ , W ₂
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W ₁ , W ₂
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W ₁ , W ₂

Table 2 (continued): Summary of PE-111578 Monitoring Samples Collected April 6 – 12.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
April 9, 2025 (continued)	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
April 10, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-E-OUT	East Sedimentation Pond clarified effluent discharge to Howe Sound, collected at the manhole adjacent to the outfall	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M ₅
	IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
	IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
	IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
	IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
	IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
April 11, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-E-OUT	East Sedimentation Pond clarified effluent discharge to Howe Sound, collected at the manhole adjacent to the outfall	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	OUT-01	Non-contact water diversion ditch outlet	Field, Physical & General Parameters, Total, Dissolved and Speciated Metals, Methylmercury.	M ₅
	OUT-02	Non-contact water diversion ditch outlet		
	OUT-06	Non-contact water diversion ditch outlet		
	WQR1-0.5	Reference site 1; 0.5 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M ₅
	WQR1-2m	Reference site 1; 2 m below surface		
	WQR1-SF	Reference site 1; 2 m above the seafloor		
	WQR2-0.5	Reference site 2; 0.5 m below surface		
	WQR2-2m	Reference site 2; 2 m below surface		
	WQR2-SF	Reference site 2; 2 m above the seafloor		
April 12, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-E-OUT	East Sedimentation Pond clarified effluent discharge to Howe Sound, collected at the manhole adjacent to the outfall	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M ₅
	SW-03	Mill Creek Estuary		
	SW-07	Upstream Mill Creek (at the diversion inlet)		

Notes:

Monitoring frequency requirements under PE-111578 are indicated as follows:
D – daily monitoring of field parameters at WWTP and sedimentation pond influent and effluent stations.
M – monthly monitoring for all parameters at WWTP, sedimentation pond and receiving environment stations.
M₅ – spring high frequency (5-in-30) sampling for receiving environment stations.
W₁ – initial high frequency monitoring for physical parameters at WWTP and sedimentation pond influent and effluent stations.
W₂ – initial high frequency monitoring for all parameters at WWTP and sedimentation pond influent and effluent stations.
W₃ – initial high frequency monitoring for physical parameters at IDZ stations.
P – periodic monitoring for targeted parameters that is supplementary to PE-111578 requirements.

3. Water Quality Results

3.1 Screening and Reporting Overview

Water quality and flow monitoring results are screened against field quality control (QC) criteria, benchmark values, operational minimum discharge objectives (MDOs) that the WWTPs are currently being operated to meet, PE-111578 discharge limits, as well as Canadian, Federal and BC water quality guidelines (WQGs). All water quality data are recorded in the Woodfibre LNG environmental monitoring database. However, for brevity, a sub-set of the results are presented in the weekly report appendices. Results are reported for parameters with a freshwater, estuarine or marine water quality guideline for the protection of aquatic life, parameters with a discharge limit, parameters of potential concern (*i.e.*, dioxins and furans) as well as other parameters that are relevant for water quality interpretation.

Canadian, Federal and BC WQGs are not specified for dioxins and furans. The general term “dioxins and furans” refers to a total of 210 polychlorinated dibenzo-*p*-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) compounds. A sub-set of 17 of the most toxic PCDDs and PCDFs are typically evaluated for toxicity by converting the individual parameter concentrations to toxic equivalent (TEQ) values that are summed and evaluated as a single PCDD/F TEQ parameter. To address uncertainties for results reported as not detected, two PCDD/F TEQ values are reported. A “lower-bound PCDD/F TEQ” is calculated assuming a concentration of zero for results reported as not detected, therefore, if all 17 of the individual compounds in the sub-set are not detected the lower-bound PCDD/F TEQ will equal zero. An “upper-bound PCDD/F TEQ” is calculated assuming a concentration equal to the detection limit for results reported as not detected. These two parameters span the range of possible TEQs if one or more of the PCDDs and PCDFs are reported as not detected.

The BC WQG for total mercury is a sample-specific calculated value that is based on the concentration of methylmercury in a sample. Although an approved BC WQG for the protection of aquatic life for methylmercury has not been explicitly established, the BC Ambient Water Quality Guidelines for Mercury Overview Report indicates the total mercury WQG is derived from a methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) that is set at a concentration that protects fish from mercury bioaccumulation to levels that could harm wildlife that consumes fish. Therefore, if methylmercury results are reported, the 0.0001 µg/L value is presented as a methylmercury WQG to support the interpretation of total mercury and methylmercury results.

3.2 Summary of Reported Results

Field measurements and analytical results available at the time of reporting for samples collected during the monitoring period (April 6 – 12) and for other samples that have not been previously reported are listed below in Table 3. Testing for methylmercury, dioxins and furans typically requires up to four weeks to complete. Analytical results not available at the time of reporting will be included in future weekly reports when testing is completed. Reporting of results is pending for the following samples and parameters:

- SP-W-IN and SP-W-OUT collected March 5 (dioxins and furans)
- SP-E-IN, SP-E-OUT, WWTP-E-IN, WWTP-E-OUT, SP-W-IN, and SP-W-OUT collected March 11 (dioxins and furans)
- IDZ-W1, IDZ-W2, and WQR2 collected March 12 (dioxins and furans)
- SP-E-IN, SP-E-OUT, WWTP-E-IN, and WWTP-E-OUT collected March 17 (dioxins and furans)
- SP-W-IN and SP-W-OUT collected March 18 (dioxins and furans)
- SP-E-IN, SP-E-OUT, WWTP-E-IN, WWTP-E-OUT, SP-W-IN, and SP-W-OUT collected March 24 (dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, WQR2 collected March 25 at 0.5 m below surface (chronic toxicity)
- SP-W-IN and SP-W-OUT collected March 31 (dioxins and furans)
- SP-E-IN, SP-E-OUT, WWTP-E-IN, and WWTP-E-OUT collected April 1 (methylmercury, dioxins and furans)
- SW-01, SW-02, SW-03, SW-04, and SW-07 collected April 2 (field and all analytical parameters)
- OUT-02 collected April 6 (field and all analytical parameters)
- OUT-01 and OUT-06 collected April 7 (field and all analytical parameters)
- SW-02, SW-03, SW-07 collected April 7 (field and all analytical parameters)
- SW-01 and SW-04 collected April 8 (field and all analytical parameters)
- IDZ-W1 and IDZ-W2 collected April 8 (field and all analytical parameters)
- SP-E-IN, SP-E-OUT, WWTP-E-IN, WWTP-E-OUT, SP-W-IN, and SP-W-OUT collected April 9 (methylmercury, dioxins and furans)

- IDZ-E1 and IDZ-E2 collected April 10 (field and all analytical parameters)
- OUT-01, OUT-02, and OUT-06 collected April 11 (field and all analytical parameters)
- WQR1 and WQR2 collected April 11 (field and all analytical parameters)
- SW-02, SW-03, and SW-07 collected April 12 (field and all analytical parameters)

Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #59.

Sample	Description	Sampling Date	Parameters Reported
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	March 13, 2025	Dioxins and Furans.
IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
WQR1-0.5	Reference site 1; 0.5 m below surface		
WQR1-2m	Reference site 1; 2 m below surface		
WQR1-SF	Reference site 1; 2 m above the seafloor		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	April 3, 2025	Field and Physical Parameters.
IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface		
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	April 9, 2025	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
SP-E-OUT	East Sedimentation Pond clarified effluent discharge to Howe Sound, collected at the manhole adjacent to the outfall		
WWTP-E-IN	East WWTP at the influent meter box		
WWTP-E-OUT	East WWTP at the effluent meter box		
SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1		
SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port		

3.3 East Catchment

The East Catchment water quality monitoring results for stations at the East Sedimentation Pond, East WWTP and the authorized discharge location are discussed in this section. Results for the sedimentation pond and authorized discharge location are screened against PE-111578 discharge limits. Parameters without a discharge limit are screened against Canadian, Federal and BC WQGs for the protection of marine water aquatic life. East WWTP monitoring results are screened against operational MDOs which are equivalent to the PE-111578 discharge limits and the lowest applicable WQGs for parameters without discharge limits. The screened water quality results for analytical samples available at the time of reporting and for field parameters collected during the monitoring period are presented in Appendix B. Exceedances of PE-111578 discharge limits and WQGs in samples of effluent discharged to Howe Sound and results received for methylmercury, dioxins and furans are summarized below.

During the monitoring period (April 6 – 12), clarified water from the East Sedimentation Pond TSS settling system (E500GPM) discharged to Howe Sound at the authorized discharge location (station SP-E-OUT) each day. Daily clarified effluent volumes, East WWTP treated effluent volumes, and discharge volumes from the East Catchment are summarized in Appendix B, Table B-4.

Field measurements were collected April 6 – 12 at multiple influent and effluent locations, as outlined in Section 2, and are tabulated in Appendix B, Table B-3. Analytical samples collected on April 9 (stations SP-E-IN, WWTP-E-IN, WWTP-E-OUT, and SP-E-OUT) were available at the time of reporting. Screening results for East Catchment contact water quality are tabulated in Table B-1 and Table B-2 of Appendix B.

During the monitoring period (April 6 – 12), field measurements and analytical results collected at station SP-E-OUT met PE-111578 discharge limits and WQGs.

3.4 West Catchment

The West Catchment water quality monitoring results for stations at the West Sedimentation Pond, the TSS settling systems (ESC and W500GPM) and West WWTP monitoring stations, and the authorized discharge location are discussed in this section. Results for sedimentation pond and TSS settling system influent and effluent stations are screened against PE-111578 discharge limits. Parameters without a discharge limit are screened against Canadian, Federal and BC WQGs for the protection of marine water aquatic life. The screened water quality results for analytical samples and field parameters are presented in Appendix C. Operation of the West WWTP is currently suspended (refer to Section 1.1) and monitoring results are therefore not available for this facility. Exceedances of PE-111578 discharge limits and WQGs in samples of effluent

discharged to Howe Sound and results received for methylmercury, dioxins and furans are summarized below.

During the monitoring period (April 6 – 12), the TSS settling system (W500GPM) treated water stored in the West Sedimentation Pond each day and produced clarified effluent that was discharged to Howe Sound at the authorized discharge location, SP-W-OUT, except on April 11. The smaller TSS settling system (ESC) was not operational during the monitoring period. Daily clarified effluent and discharge volumes from the West Catchment are summarized in Appendix C, Table C-4.

Field measurements were collected April 6 – 12 at multiple influent and effluent locations, as outlined in Section 2, and are tabulated in Appendix C, Table C-3. Analytical samples collected on April 9 (SP-W-IN and SP-W-OUT) were available at the time of reporting. Screening results for West Catchment contact water quality are tabulated in Table C-1 and Table C-2 of Appendix C.

During the monitoring period (April 6 – 12), field measurements and analytical results collected at station SP-W-OUT met PE-111578 discharge limits and WQGs.

3.5 Non-Contact Water Diversion Ditch Outlets

Non-contact water diversion ditch samples are screened against Canadian, Federal and BC WQGs for the protection of freshwater aquatic life. East Creek was temporarily diverted to OUT-11 on September 17 to facilitate replacement of the OUT-12 culvert through which East Creek previously discharged. Only East Creek water is flowing through the OUT-11 culvert. East Creek is monitored at freshwater receiving environment station SW-04 and station OUT-11 is not monitored while diversion is in place.

Analytical results were not available at the time of reporting for non-contact water diversion ditch outlet samples.

3.6 Freshwater and Estuarine Water Receiving Environment

Freshwater and estuarine water receiving environment samples are screened against Canadian, Federal and BC WQGs for the protection of freshwater and estuarine aquatic life. Parameter concentrations above a WQG value, but within the range of values observed in the baseline monitoring program are considered to represent the natural condition of the water and are not flagged as a possible indicator of project influence.

Analytical results were not available at the time of reporting for freshwater and estuarine water samples.

3.7 Marine Water Receiving Environment

Marine water receiving environment samples are screened against Canadian, Federal and BC WQGs for the protection of marine water aquatic life. Parameter concentrations above a WQG value, but within the range of values observed in the baseline monitoring program or reference stations are considered to represent the natural condition of the water and not flagged as a possible indicator of project influence. Similarly, WQG exceedances at marine reference stations are considered to represent background conditions that are not influenced by the project. It is expected that samples collected within the IDZ (*i.e.*, mixing zone) defined in PE-111578 for the authorized discharge locations may have parameter concentrations above baseline or background (*i.e.*, reference station) concentrations due to project influence. The analytical results, field parameters and WQGs are summarized in Appendix D.

Analytical results and field measurements were available at the time of reporting for marine water samples collected at 0.5 and 2 m below the water surface and 2 m above the seafloor at IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 on April 3. Parameter concentrations met WQGs except dissolved oxygen in one or more samples (Appendix D; Tables D-1 and D-2).

In the marine samples collected 2 m above the seafloor at IDZ-E1, IDZ-W1 and IDZ-W2 on April 3, dissolved oxygen was below the lower limit of the WQG (<8 mg/L) and ranged from 6.98 to 7.63 mg/L. Low concentrations of dissolved oxygen are indicative of influence from the deeper saline waters in the northern basin of Howe Sound and are a natural condition of the marine water at the WDA monitoring stations. The dissolved oxygen concentrations observed at the IDZ monitoring stations are within concentrations that have been observed in the pre-construction baseline monitoring program or within background ranges observed at marine reference stations and are therefore not attributed to project influence.

Dioxins and furans analytical results were available at the time of reporting for marine samples collected from 0.5 and 2 m below the water surface and 2 m above the seafloor at stations IDZ-E1, IDZ-E2, and marine reference station WQR1 on March 13 (as discussed in Report #55). For all samples, the lower and upper bound PCDD/F TEQ concentrations ranged from 0.00112 to 0.0933 pg/L, and 1.13 to 1.46 pg/L, respectively. The lower and upper bound PCDD/F TEQ concentrations were within the concentration ranges observed in the baseline monitoring program or within background ranges observed at marine reference stations. Results are tabulated in Appendix D, Table D-3.

4. Quality Control

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 4). The evaluation includes a review of field and lab QC, completeness of the weekly report (*e.g.*, pending data), completeness of the monitoring program, confirmation of

recordkeeping, evaluation of compliance and review of water management activities. Items flagged for follow-up in Section 3 are also tracked in Table 4. Any items flagged for follow-up are carried forward to future reports until they are closed.

Table 4: Weekly Report QC Evaluations and Ongoing Items

QC Procedure	Observation	Investigation/Resolution
Reporting Period (April 6 – 12, Report #59)		
Authorized Works and Monitoring Program Evaluation	The authorized works and monitoring stations have not been established as described in PE-111578.	The PE-111578 authorized works were under construction during the reporting period. The East and West Sedimentation Ponds and WWTPs have been constructed. The sedimentation pond conveyance ditches have not been constructed, and influent culverts have not been activated, and the associated influent monitoring stations have not been established. West Sedimentation Pond clarified water has been pumped through temporary hoses to the permanent outfall structure since December 2024 and pumping of East Sedimentation Pond to the permanent outfall structure commenced March 2025. Operation of the West WWTP has been suspended since September 25, 2024, and the plant has been repurposed to evaluate alternative treatment processes. The lower reach of East Creek has been temporarily diverted through OUT-11 outfall since September 17, 2024, to facilitate replacement of the East Creek outfall culvert (OUT-12). East Creek is monitored at SW-04 therefore monitoring at OUT-11 has been suspended. This item remains open.
Pending Data	Analytical results not reported.	Analytical results for receiving environment samples collected April 6, 7, 8, 10, 11, and 12 were not complete at the time of Report #59 preparation. Methylmercury, dioxins and furans results for contact water samples collected April 9 were not complete at the time of Report #59 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Ongoing Items from Previous Weekly Reports		
Report #54: Pending Data	Analytical results not reported.	Dioxins and furans results for contact water samples collected March 5 were not complete at the time of Report #59 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #55: Pending Data	Analytical results not reported.	Dioxins and furans results for receiving environment samples collected March 13 are discussed in Section 3.7 of Report #59. Dioxins and furans results for contact water samples collected March 11 were not complete at the time of Report #59 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #56: WWTP Performance Evaluation	Field pH, T-Cu, T-Hg, T-Zn, and hexavalent Cr above the MDO	<p>This item was first noted in Report #46 (January 8 sample) and has been updated with January 14 results (Report #47), January 24 and January 28 results (Report #49), February 5 and 6 results (Report #50), February 10 results (Report #51), February 15 and 20 results (Report #52), February 24 results (Report #53), March 8 results (Report #55), and March 17 results (Report #56). The total copper concentrations were 0.00809, 0.00595, 0.00895, 0.00518, 0.00542, 0.00525, and 0.00450 mg/L in samples collected at WWTP-E-OUT on January 8, 14, 24, 28, February 24, March 8, and 17 respectively, and ranged from 0.00613 to 0.0108 mg/L in four replicate samples collected on February 15. The total mercury concentrations were 0.0000355, 0.000185, 0.000223, and 0.0000882 mg/L in samples collected on January 24, 30, February 20 and 24, respectively, and were 0.0000615 and 0.0000644 mg/L in two replicate samples collected February 15. The total zinc concentrations were 0.0137, 0.0152, and 0.0156 mg/L in the samples collected on January 24, February 20 and 24, and were 0.0223 and 0.0234 mg/L in two of four replicate samples collected February 15. Hexavalent chromium concentrations were 0.00197 and 0.00166 mg/L in samples collected January 24 and 28 at WWTP- E-OUT. Field pH was 9.1, 9.2, and 9.6 in samples collected at WWTP-E-OUT on February 5, 6 and 10, respectively.</p> <p>The effluent discharged to Howe Sound at SP-E-OUT met the discharge limits on January 8. East WWTP effluent was routed to the pre-discharge holding tank and did not discharge to Howe Sound on January 14. East WWTP effluent has been directed to the East Sedimentation Pond since January 24.</p> <p>Review of possible causes has yielded inconclusive results. As of April 12, this item remains open until sufficient monitoring data are collected to indicate the issues are resolved.</p>
Report #56: Pending Data	Analytical results not reported.	Dioxins and furans results for contact water samples collected March 17 and 18 were not complete at the time of Report #59 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #57: Pending Data	Analytical results not reported.	Dioxins and furans results for contact water samples collected March 24 and chronic toxicity results for marine receiving environment samples collected March 25 were not complete at the time of Report #59 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #58: Pending Data	Analytical results not reported.	Analytical results for receiving environment samples collected April 3 are discussed in Section 3.7 of Report #59. Analytical results for receiving environment samples collected April 2 were not complete at the time of Report #59 preparation. Methylmercury, dioxins and furans results for contact water samples collected March 31 (dioxins and furans only) and April 1 were not complete at the time of Report #59 preparation. The pending results will be included in future weekly reports when available. This item remains open.

Notes:

Result QA/QC screening includes the evaluation of field and lab QC results, comparison of total and dissolved metal results and review for modified detection limits.

Pending data are outstanding results from monitoring samples reported in the current or previous weekly reports.

Authorized works and monitoring program evaluation is an assessment of the completeness of the authorized works and monitoring program compared to PE-111578 specified or implied requirements.

WWTP performance evaluation is an assessment of WWTP effluent quality compared to operational MDOs.

Data QC indicates an evaluation of data trends or inter-parameter relationships that suggest a test result may not be representative of water quality at the time of monitoring.

Non-compliant discharge indicates exceedance of a discharge limit or a discharge that bypasses the sedimentation pond discharge location.

Potential project influence is an assessment that water quality at creek and Howe Sound baseline stations are above the baseline concentration range and may indicate project influence at these stations.

5. Closure

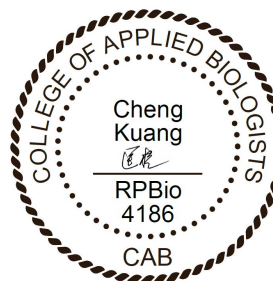
This weekly report is a desktop review by Lorax of the PE-111578 discharge and compliance monitoring program records, reports and results provided by Woodfibre LNG and prime contractor McDermott International and their sub-contractors. The records reviewed and analyzed by Lorax include ALS Environmental laboratory test reports and site reports (from Roe Environmental, LB LNG, McDermott and Woodfibre LNG). Verbal or electronic communications between Lorax, and Roe Environmental, LB LNG, McDermott, and Woodfibre LNG staff are conducted as needed to confirm the information presented in this report.

Regards,

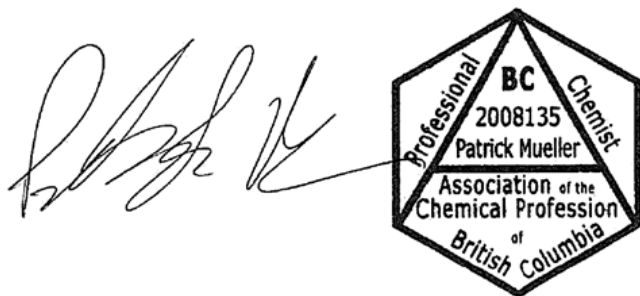
LORAX ENVIRONMENTAL SERVICES LTD.



Holly Pelletier, B.Sc., GIT.
Environmental Geoscientist



Cheng Kuang, M.Sc., RPBio.
Environmental Scientist



Patrick Mueller, B.Sc., P.Chem.
Environmental Chemist

Appendix A: Figures and Site Images



World Imagery: District of Squamish. Additional imagery provided by McDermott International captured March 21st, 2025.

- LEGEND**
- Freshwater Monitoring Station
 - Marine Water Monitoring Station
 - Certified Project Area
 - Watercourse
 - East Creek Temporary Diversion
 - Non Contact Ditch (Under Construction)
 - Outfall / Culvert
 - Clean Water Diversion Discharge Station
 - Sedimentation Pond Monitoring Stations (Water Quality)
 - Wastewater Treatment Plant (WWTP)

DATE SAVED: Apr 16, 2025
DRAWN BY: DM
REVIEWED: PM
VERSION: 1

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Units: Metre

1:6,000



CLIENT: Woodfibre LNG

PROJECT: **Woodfibre LNG Project Construction Phase**

TITLE: Completed or Under Construction Water Management Facilities and Established PE-111578 Monitoring Stations (April 12, 2025)

PROJECT #: A633-7

FIGURE: 1



Figure 2: East Catchment contact water management facilities (April 6 – 12).

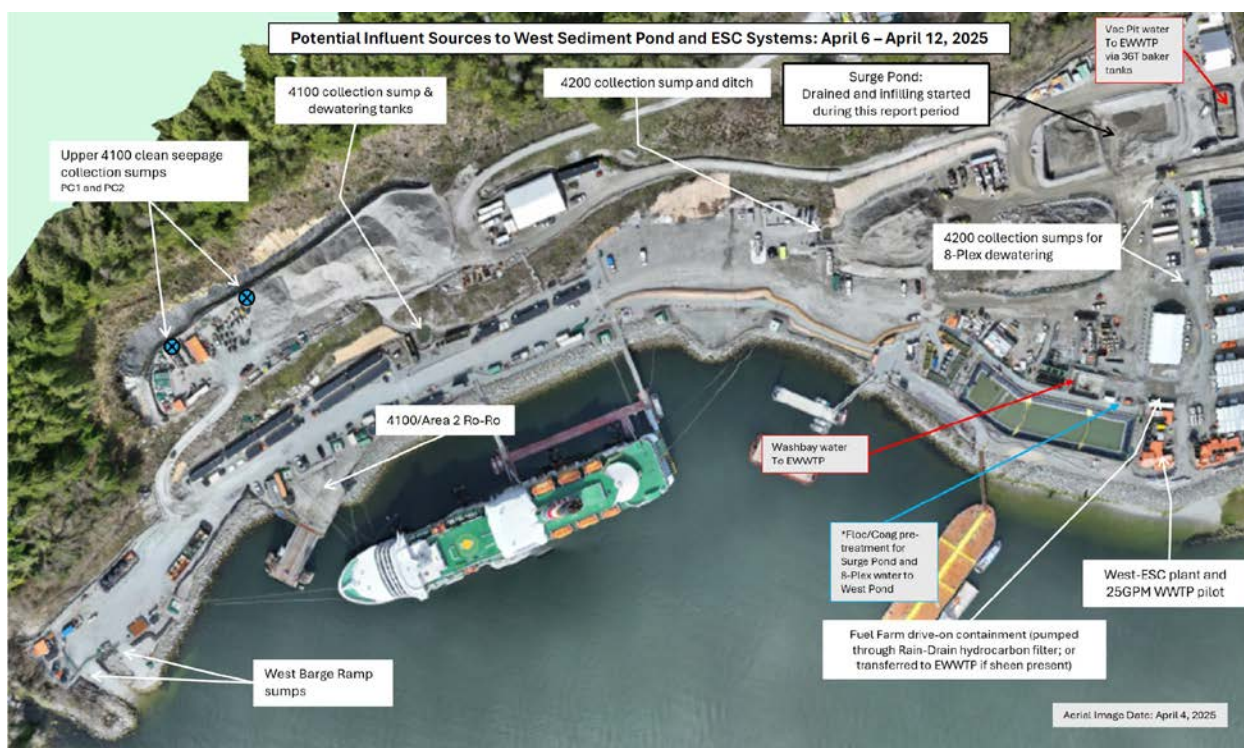


Figure 3: West Catchment contact water management facilities (April 6 – 12).



Figure 4: Aerial view of the East Sedimentation Pond (April 9, 2025). The East WWTP is located on the left side and the E500GPM TSS settling system is situated along the bottom edge of the pond.



Figure 5: Aerial view of the West Sedimentation Pond (April 9, 2025). The TSS settling systems are located to the left (W500GPM) and right (ESC) of the pond.

Appendix B: East Catchment Monitoring Results

Table B-1: East Catchment Contact Water Influent Analytical Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline ¹		PE-111578 Discharge Limit	Station WWTP-E-IN	Station SP-E-IN
					Influent	Influent
					WWTP-E-IN	SP-E-IN
		VA25A7962-001	VA25A7962-003			
		2025-04-09 8:45	2025-04-09 10:00			
General Parameters						
pH - Field	pH units	- ²	-	5.5 - 9.0	6.7	7.0
Conductivity - Field	µS/cm	-	-	-	551	549
Temperature - Field	°C	-	-	-	10.1	9.9
Salinity - Field	ppt	-	-	-	0.38	0.38
Turbidity - Field	NTU	-	-	-	69.07	42.43
TSS	mg/L	-	-	25 or 75 ⁶	30.7	34.3
Dissolved Oxygen - Field	mg/L	≥8	-	-	11.01	11.38
Anions and Nutrients						
Sulphate	mg/L	-	-	-	279	260
Chloride	mg/L	-	-	-	5.79	5.37
Fluoride	mg/L	-	1.5	-	0.125	0.138
Ammonia (N-NH ₃)	mg/L	20-29 ³	131-191 ³	-	<0.0050	<0.0050
Nitrite (N-NO ₂)	mg/L	-	-	-	0.0112	0.0097
Nitrate (N-NO ₃)	mg/L	3.7	339	-	0.693	0.685
Total Metals						
Aluminum, total (T-Al)	mg/L	-	-	-	4.06	3.87
Antimony, total (T-Sb)	mg/L	-	0.27 ⁴	-	0.00117	0.0012
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00295	0.00432
Barium, total (T-Ba)	mg/L	-	-	-	0.039	0.0335
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.00006	0.000067
Boron, total (T-B)	mg/L	1.2	-	-	0.053	0.058
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000847	0.0000956
Chromium, total (T-Cr)	mg/L	-	-	-	0.00642	0.00922
Cobalt, total (T-Co)	mg/L	-	-	-	0.00172	0.00109
Copper, total (T-Cu)	mg/L	- ²	- ²	0.0043	0.0120	0.0109
Iron, total (T-Fe)	mg/L	-	-	-	3.46	2.6
Lead, total (T-Pb)	mg/L	- ²	- ²	0.0035	0.00361	0.00410
Manganese, total (T-Mn)	mg/L	-	-	-	0.108	0.0915
Mercury, total (T-Hg)	mg/L	0.000016 ⁵	-	-	0.0000301	0.0000836
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0693	0.0707
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.0029	0.00154
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000359	0.000334
Silver, total (T-Ag)	mg/L	0.0005	0.0037	-	0.000019	0.000016
Thallium, total (T-Tl)	mg/L	-	-	-	0.000028	0.000024
Uranium, total (T-U)	mg/L	-	-	-	0.0105	0.0144
Vanadium, total (T-V)	mg/L	- ²	-	0.0081	0.0101	0.00753
Zinc, total (T-Zn)	mg/L	- ²	- ²	0.0133	0.0271	0.0222
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00156	0.00167
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000450	<0.0000400
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00242	0.00239
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.015	0.018
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.029	0.0268
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	0.0008
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.201	0.196
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00281	0.00278
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0142	0.0021
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	0.0000054	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	0.000016	0.000011
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	0.000012
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	0.000018
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	0.000018	0.000013
Quinoline	mg/L	-	-	-	0.000322	0.000221
Volatile Organic Compounds (VOCs)						
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	<0.00050

Notes: Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life. Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life. Results in **orange** text exceeded the PE-111578 East Sedimentation Pond Discharge Limit. The East Catchment discharged each day during the monitoring period (April 6 – April 12). ¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs. ² The WQG was not evaluated for parameters with discharge limits. ³ The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document. ⁴ The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results. ⁵ When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L. ⁶ The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for each day of Wet Conditions. The discharge limit for Wet Conditions applied during the monitoring period (March 30 – April 5) on April 6, 7, 8, and 9.

Table B-2: East Catchment Effluent Analytical Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline ¹		PE-111578 Discharge Limit	Station WWTP-E-OUT	Station SP-E-OUT
					Effluent	Effluent
					WWTP-E-OUT	SP-E-OUT
					VA25A7962-002	VA25A7962-004
		Long Term	Short Term		2025-04-09 10:00	2025-04-09 8:45
General Parameters						
pH - Field	pH units	- ²	-	5.5 - 9.0	6.3	7.3
Conductivity - Field	µS/cm	-	-	-	1161	560
Temperature - Field	°C	-	-	-	10.4	9.6
Salinity - Field	ppt	-	-	-	0.82	0.39
Turbidity - Field	NTU	-	-	-	6.67	0.25
TSS	mg/L	-	-	25 or 75 ⁶	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	≥8	-	-	10.50	13.58
Anions and Nutrients						
Sulphate	mg/L	-	-	-	658	276
Chloride	mg/L	-	-	-	5.97	6.1
Fluoride	mg/L	-	1.5	-	<0.200	0.126
Ammonia (N-NH ₃)	mg/L	18-20 ³	121-131 ³	-	<0.0050	<0.0050
Nitrite (N-NO ₂)	mg/L	-	-	-	0.0129	0.0115
Nitrate (N-NO ₃)	mg/L	3.7	339	-	0.476	0.621
Total Metals						
Aluminum, total (T-Al)	mg/L	-	-	-	0.134	0.0332
Antimony, total (T-Sb)	mg/L	-	0.27 ⁴	-	0.00103	0.00111
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00066	0.00109
Barium, total (T-Ba)	mg/L	-	-	-	0.00934	0.00562
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.04	0.045
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000200	<0.0000200
Chromium, total (T-Cr)	mg/L	-	-	-	<0.00050	0.00185
Cobalt, total (T-Co)	mg/L	-	-	-	<0.00010	0.00013
Copper, total (T-Cu)	mg/L	- ²	- ²	0.0043	0.00253	0.00148
Iron, total (T-Fe)	mg/L	-	-	-	<0.010	0.021
Lead, total (T-Pb)	mg/L	- ²	- ²	0.0035	0.000138	<0.000050
Manganese, total (T-Mn)	mg/L	-	-	-	0.00245	0.0416
Mercury, total (T-Hg)	mg/L	0.000016 ⁵	-	-	0.00000178	0.00000368
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.111	0.0633
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000294	0.000214
Silver, total (T-Ag)	mg/L	0.0005	0.0037	-	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000014	0.000019
Uranium, total (T-U)	mg/L	-	-	-	0.00263	0.00671
Vanadium, total (T-V)	mg/L	- ²	-	0.0081	0.00307	0.00171
Zinc, total (T-Zn)	mg/L	- ²	- ²	0.0133	0.0031	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	-	<0.00050	0.00096
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000250	<0.0000200
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00127	0.0012
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000063	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00259	0.0419
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.430	0.175
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.003	0.00165
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0021	0.0022
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	0.000095	<0.000050
Volatile Organic Compounds (VOCs)						
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	<0.00050

Notes: Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life. Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life. Results in **orange** text exceeded the PE-111578 East Sedimentation Pond Discharge Limit. The East Catchment discharged each day during the monitoring period (April 6 – April 12). ¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs. ² The WQG was not evaluated for parameters with discharge limits. ³ The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document. ⁴ The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results. ⁵ When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L. ⁶ The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for each day of Wet Conditions. The discharge limit for Wet Conditions applied during the monitoring period (March 30 – April 5) on April 6, 7, 8, and 9.

Table B-3: East Catchment Field Measurements Collected During the Monitoring Period (April 6 – 12).

Parameter			Temp.	Dissolved Oxygen (DO)	Salinity	Turbidity	Estimated TSS ³	pH	Conductivity	Visibility of Sheen
Unit			°C	mg/L	ppt	NTU	mg/L	s.u.	µS/cm	
PE-111578 Discharge Limit			-	-	-	-	25 or 75 ⁶	5.5 - 9.0	-	-
Lowest Applicable Guideline ¹			-	≥8	-	-	- ²	- ²	-	-
Station ID	Water Type	Date								
Influent ⁴										
SP-E-IN	Influent	2025-04-06 13:05	13.2	10.72	0.93	14.16	13.6	7.4	1412	No
SP-E-IN	Influent	2025-04-07 09:16	11.5	10.88	53.08	53.08	42.6	7.7	1085	No
SP-E-IN	Influent	2025-04-08 14:49	10.0	10.92	0.28	146.39	112.2	9.5	409	No
SP-E-IN	Influent	2025-04-09 10:00	9.9	11.38	0.38	42.43	34.6	7.0	549	No
SP-E-IN	Influent	2025-04-10 09:42	10.9	10.87	0.43	12.48	12.3	6.6	633	No
SP-E-IN	Influent	2025-04-11 15:14	11.2	12.54	0.35	16.44	15.3	7.1	527	No
SP-E-IN	Influent	2025-04-12 10:15	10.6	11.47	0.48	10.91	11.1	6.7	694	No
WWTP-E-IN	Influent	2025-04-06 13:15	13.3	10.87	0.93	11.19	11.3	7.2	1420	No
WWTP-E-IN	Influent	2025-04-07 09:10	11.5	10.47	0.60	64.75	51.3	6.8	894	No
WWTP-E-IN	Influent	2025-04-08 14:42	10.1	11.62	0.49	40.37	33.1	7.4	700	No
WWTP-E-IN	Influent	2025-04-09 08:45	10.1	11.01	0.38	69.07	54.5	6.7	551	No
WWTP-E-IN	Influent	2025-04-10 09:33	10.7	10.97	0.46	14.76	14.0	6.9	679	No
WWTP-E-IN	Influent	2025-04-11 15:32	11.4	11.21	0.32	38.84	32.0	7.3	479	No
WWTP-E-IN	Influent	2025-04-12 09:52	10.4	11.37	0.44	8.02	9.0	6.8	640	No
E500GPM-IN	Influent	2025-04-06 08:24	13.2	11.50	0.91	11.91	11.9	7.1	1378	No
E500GPM-IN	Influent	2025-04-06 12:57	13.1	11.69	0.94	14.31	13.7	7.4	1419	No
E500GPM-IN	Influent	2025-04-07 17:11	10.9	11.89	0.62	78.46	61.5	7.0	903	No
E500GPM-IN	Influent	2025-04-09 09:19	9.7	10.96	0.38	70.30	55.4	6.7	545	No
E500GPM-IN	Influent	2025-04-10 09:55	10.8	12.30	0.46	14.68	13.9	7.2	681	No
E500GPM-IN	Influent	2025-04-11 15:09	11.2	11.23	0.32	39.74	32.6	7.2	483	No
E500GPM-IN	Influent	2025-04-12 09:24	10.2	12.04	0.44	11.84	11.8	7.1	644	No
Effluent ⁵										
SP-E-OUT	Effluent	2025-04-06 09:22	12.9	10.75	0.89	1.09	3.8	7.2	1341	No
SP-E-OUT	Effluent	2025-04-07 17:18	11.5	11.00	0.61	3.90	5.9	7.3	902	No
SP-E-OUT ⁵	Effluent	2025-04-08 ⁵	11.0 ⁵	- ⁵	- ⁵	0.89 ⁵	3.7	6.8 ⁵	- ⁵	- ⁵
SP-E-OUT	Effluent	2025-04-09 08:45	9.6	13.58	0.39	0.25	3.2	7.3	560	No
SP-E-OUT	Effluent	2025-04-10 09:13	10.8	11.83	0.47	0.48	3.4	7.4	695	No
SP-E-OUT	Effluent	2025-04-11 15:29	11.0	12.03	0.34	0.84	3.6	7.4	506	No
SP-E-OUT	Effluent	2025-04-12 10:05	10.4	10.03	0.44	1.74	4.3	7.1	637	No
WWTP-E-OUT	Effluent	2025-04-06 13:12	13.5	10.46	1.01	2.04	4.5	7.0	1541	No
WWTP-E-OUT	Effluent	2025-04-07 09:24	11.9	10.38	0.92	4.01	6.0	7.5	1355	No
WWTP-E-OUT	Effluent	2025-04-08 14:46	10.4	9.64	0.69	3.14	5.3	6.7	987	No
WWTP-E-OUT	Effluent	2025-04-09 10:00	10.4	10.50	0.82	6.67	8.0	6.3	1161	No
WWTP-E-OUT	Effluent	2025-04-10 09:38	11.3	10.96	0.56	0.27	3.2	6.2	828	No
WWTP-E-OUT	Effluent	2025-04-11 15:18	10.7	9.86	0.43	1.80	4.3	6.6	630	No
WWTP-E-OUT	Effluent	2025-04-12 9:55	10.7	11.54	0.51	1.61	4.2	6.0	748	No
E500GPM-OUT	Effluent	2025-04-06 8:20	13.3	10.62	0.89	3.79	5.8	7.3	1350	No
E500GPM-OUT	Effluent	2025-04-06 13:02	13.0	10.75	0.94	1.55	4.2	7.4	1412	No
E500GPM-OUT	Effluent	2025-04-07 16:06	11.5	10.85	0.55	5.72	7.3	7.2	821	No
E500GPM-OUT	Effluent	2025-04-08 9:52	9.7	11.64	0.41	2.35	4.8	7.3	593	No
E500GPM-OUT	Effluent	2025-04-09 9:16	10.0	12.33	0.38	0.61	3.5	7.1	553	No
E500GPM-OUT	Effluent	2025-04-10 9:49	10.8	11.28	0.47	0.63	3.5	7.3	690	No
E500GPM-OUT	Effluent	2025-04-11 15:08	10.6	13.26	0.33	1.12	3.8	7.3	492	No
E500GPM-OUT	Effluent	2025-04-12 9:22	10.3	11.31	0.44	1.51	4.1	7.1	633	No

Notes:
Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-111578 East Sedimentation Pond Discharge Limit.
¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
² The WQG was not evaluated for parameters with discharge limits.
³ TSS concentration is estimated from field turbidity measurements using a site-specific relationship TSS = 0.7458 * [turbidity as NTU] + 3.
⁴ Daily field measurements for station SP-E-IN were collected from cell 1 of the East Sedimentation Pond.
⁵ There was no discharge at SP-E-OUT at the time of monitoring on April 8, therefore daily field measurements for SP-E-OUT were not collected. Average temperature, pH, and turbidity measurements logged at the E500GPM-OUT meter box during the discharge period are reported for April 8.
⁶The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for Wet Conditions. The discharge limit for Wet Conditions applied during the monitoring period (March 30 – April 5) on April 6, 7, 8, and 9.

Table B-4: East Catchment Daily Discharge Volumes for the Monitoring Period (April 6 – 12).

	East Sedimentation Pond Effluent	East TSS Settling System (E500GPM) Clarified Effluent (Station E500GPM-OUT)	East WWTP Treated Effluent (Station WWTP-E-OUT)	Discharge to Howe Sound (Station SP-E-OUT)
Unit	m ³	m ³	m ³	m ³
PE-111578 Discharge Limit	- ¹	- ¹	1100	- ¹
Date				
2025-04-06	0	1,892 ²	821 ³	1,160
2025-04-07	0	1,228 ²	675 ³	1,052
2025-04-08	0	819 ²	703 ³	751
2025-04-09	0	939 ²	680 ³	566
2025-04-10	0	925 ²	784 ³	850
2025-04-11	0	758 ²	300 ³	269
2025-04-12	0	1,191 ²	748 ³	218

Notes:

Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.

Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.

Results in **orange** text exceeded the PE-111578 East Sedimentation Pond Discharge Limit.

¹ The annual average authorized discharge rate from the East Sedimentation Pond is 650 m³/day. As noted in PE-111578 Condition 2.1.4, the actual discharge rate may deviate from the annual average rate due to annual variations in precipitation amounts within the catchment area. Therefore, the annual average authorized discharge rate is not evaluated as a discharge limit.

² E500GPM clarified effluent is discharged to Howe Sound or recirculated to the East Sedimentation Pond based on operational considerations. Therefore, the E500GPM clarified effluent volume is generally higher than the volume discharged to Howe Sound.

³ East WWTP treated effluent was recirculated to the East Sedimentation Pond.

Appendix C: West Catchment Monitoring Results

Table C-1: West Catchment Contact Water Influent Analytical Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline ¹		PE-111578 Discharge Limit	Station SP-W-IN
					Influent
					SP-W-IN
					VA25A7962-005
		Long Term	Short Term		
					2025-04-09 12:30
General Parameters					
pH - Field	pH units	- ²	-	5.5 - 9.0	8.7
Conductivity - Field	µS/cm	-	-	-	144.2
Temperature - Field	°C	-	-	-	10.8
Salinity - Field	ppt	-	-	-	0.1
Turbidity - Field	NTU	-	-	-	39.03
TSS	mg/L	-	-	25 or 75 ⁶	35.3
Dissolved Oxygen - Field	mg/L	≥8	-	-	11.91
Anions and Nutrients					
Sulphate	mg/L	-	-	-	27.3
Chloride	mg/L	-	-	-	14.9
Fluoride	mg/L	-	1.5	-	0.056
Ammonia (N-NH ₃)	mg/L	0.53 ³	3.5 ³	-	0.0132
Nitrite (N-NO ₂)	mg/L	-	-	-	0.0178
Nitrate (N-NO ₃)	mg/L	3.7	339	-	1.46
Total Metals					
Aluminum, total (T-Al)	mg/L	-	-	-	2.2
Antimony, total (T-Sb)	mg/L	-	0.27 ⁴	-	0.00116
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00207
Barium, total (T-Ba)	mg/L	-	-	-	0.0238
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.000035
Boron, total (T-B)	mg/L	1.2	-	-	0.022
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000438
Chromium, total (T-Cr)	mg/L	-	-	-	0.00249
Cobalt, total (T-Co)	mg/L	-	-	-	0.00065
Copper, total (T-Cu)	mg/L	- ²	- ²	0.0043	0.00466
Iron, total (T-Fe)	mg/L	-	-	-	1.64
Lead, total (T-Pb)	mg/L	- ²	- ²	0.0035	0.00274
Manganese, total (T-Mn)	mg/L	-	-	-	0.0532
Mercury, total (T-Hg)	mg/L	0.000016 ⁵	-	-	0.00000656
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0341
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00074
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000247
Silver, total (T-Ag)	mg/L	0.0005	0.0037	-	0.000012
Thallium, total (T-Tl)	mg/L	-	-	-	0.00002
Uranium, total (T-U)	mg/L	-	-	-	0.00686
Vanadium, total (T-V)	mg/L	- ²	-	0.0081	0.00527
Zinc, total (T-Zn)	mg/L	- ²	- ²	0.0133	0.0102
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00153
Dissolved Metals					
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00169
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00442
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0718
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00244
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010
Polycyclic Aromatic Hydrocarbons (PAHs)					
Acenaphthene	mg/L	0.006	-	-	<0.000012
Acridine	mg/L	-	-	-	<0.000010
Anthracene	mg/L	-	-	-	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010
Fluoranthene	mg/L	-	-	-	0.000027
Fluorene	mg/L	0.012	-	-	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020
Pyrene	mg/L	-	-	-	0.000027
Quinoline	mg/L	-	-	-	<0.000050
Volatile Organic Compounds (VOCs)					
Benzene	mg/L	0.11	-	-	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050
Styrene	mg/L	-	-	-	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040
Total Xylenes	mg/L	-	-	-	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050

Notes: Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life. Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life. Results in **orange** text exceeded the PE-111578 West Sedimentation Pond Discharge Limit. The West Catchment discharged each day during the monitoring period (April 6 – April 12) except on April 11. ¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs. ² The WQG was not evaluated for parameters with discharge limits. ³ The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document. ⁴ The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results. ⁵ When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L. ⁶ The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for each day of Wet Conditions. The discharge limit for Wet Conditions applied during the monitoring period (March 30 – April 5) on April 6, 7, 8, and 9.

Table C-2: West Catchment Contact Water Effluent Analytical Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline ¹		PE-111578 Discharge Limit	Station SP-W-OUT
					Effluent
					SP-W-OUT
		Long Term	Short Term		VA25A7962-006
					2025-04-09 12:30
General Parameters					
pH - Field	pH units	- ²	-	5.5 - 9.0	8.1
Conductivity - Field	µS/cm	-	-	-	130
Temperature - Field	°C	-	-	-	10.4
Salinity - Field	ppt	-	-	-	0.09
Turbidity - Field	NTU	-	-	-	2.76
TSS	mg/L	-	-	25 or 75 ⁶	<3.0
Dissolved Oxygen - Field	mg/L	≥8	-	-	11.89
Anions and Nutrients					
Sulphate	mg/L	-	-	-	20.2
Chloride	mg/L	-	-	-	13.1
Fluoride	mg/L	-	1.5	-	0.049
Ammonia (N-NH ₃)	mg/L	2 ³	13 ³	-	<0.0050
Nitrite (N-NO ₂)	mg/L	-	-	-	0.0132
Nitrate (N-NO ₃)	mg/L	3.7	339	-	1.00
Total Metals					
Aluminum, total (T-Al)	mg/L	-	-	-	0.138
Antimony, total (T-Sb)	mg/L	-	0.27 ⁴	-	0.00114
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00158
Barium, total (T-Ba)	mg/L	-	-	-	0.00243
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.014
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000100
Chromium, total (T-Cr)	mg/L	-	-	-	0.00109
Cobalt, total (T-Co)	mg/L	-	-	-	<0.00010
Copper, total (T-Cu)	mg/L	- ²	- ²	0.0043	0.00139
Iron, total (T-Fe)	mg/L	-	-	-	0.043
Lead, total (T-Pb)	mg/L	- ²	- ²	0.0035	0.000114
Manganese, total (T-Mn)	mg/L	-	-	-	0.0101
Mercury, total (T-Hg)	mg/L	0.000016 ⁵	-	-	0.00000112
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0241
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.0002
Silver, total (T-Ag)	mg/L	0.0005	0.0037	-	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000011
Uranium, total (T-U)	mg/L	-	-	-	0.005
Vanadium, total (T-V)	mg/L	- ²	-	0.0081	0.00174
Zinc, total (T-Zn)	mg/L	- ²	- ²	0.0133	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00109
Dissolved Metals					
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	0.0000084
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00109
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00948
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0587
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00164
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010
Polycyclic Aromatic Hydrocarbons (PAHs)					
Acenaphthene	mg/L	0.006	-	-	<0.000010
Acridine	mg/L	-	-	-	<0.000010
Anthracene	mg/L	-	-	-	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020
Pyrene	mg/L	-	-	-	<0.000010
Quinoline	mg/L	-	-	-	<0.000050
Volatile Organic Compounds (VOCs)					
Benzene	mg/L	0.11	-	-	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050
Styrene	mg/L	-	-	-	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040
Total Xylenes	mg/L	-	-	-	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050

Notes: Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life. Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life. Results in orange text exceeded the PE-111578 West Sedimentation Pond Discharge Limit. The West Catchment discharged each day during the monitoring period (April 6 – April 12) except on April 11. ¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs. ² The WQG was not evaluated for parameters with discharge limits. ³ The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document. ⁴ The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results. ⁵ When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L. ⁶ The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for each day of Wet Conditions. The discharge limit for Wet Conditions applied during the monitoring period (March 30 – April 5) on April 6, 7, 8, and 9.

Table C-3: West Catchment Field Measurements Collected During the Monitoring Period (April 6 – 12).

Parameter			Temperature	Dissolved Oxygen (DO)	Salinity	Turbidity	Estimated TSS ³	pH	Conductivity	Visibility of Sheen
Unit			°C	mg/L	ppt	NTU	mg/L	s.u.	µS/cm	
PE-111578 Discharge Limit			-	-	-	-	25 or 75 ⁶	5.5 - 9.0	-	-
Lowest Applicable Guideline ¹			-	≥8	-	-	_ ²	_ ²	-	-
Station ID	Water Type	Date								
Influent ⁴										
SP-W-IN	Influent	2025-04-06 12:08	11.7	11.44	0.08	9.37	10.0	8.2	121	No
SP-W-IN	Influent	2025-04-07 08:38	10.3	12.53	0.09	44.48	36.2	7.9	137	No
SP-W-IN	Influent	2025-04-08 15:23	8.9	12.13	0.09	181.44	138.3	8.5	126	No
SP-W-IN	Influent	2025-04-09 12:30	10.8	11.91	0.10	39.03	32.1	8.7	144	No
SP-W-IN	Influent	2025-04-10 10:07	9.0	12.41	0.08	6.77	8.0	8.4	122	No
SP-W-IN	Influent	2025-04-11 13:34	9.9	12.87	0.09	26.40	22.7	8.3	129	No
SP-W-IN	Influent	2025-04-12 12:29	10.7	11.78	0.08	17.03	15.7	8.2	127	No
W500GPM-IN	Influent	2025-04-06 10:20	11.9	12.11	0.08	7.99	9.0	8.7	121	No
W500GPM-IN	Influent	2025-04-06 12:00	12.3	11.52	0.08	7.87	8.9	8.6	122	No
W500GPM-IN	Influent	2025-04-07 08:33	10.9	10.91	0.08	93.09	72.4	8.0	125	No
W500GPM-IN	Influent	2025-04-08 15:29	9.2	11.10	0.09	96.63	75.1	8.5	136	No
W500GPM-IN	Influent	2025-04-09 11:32	9.8	11.46	0.08	110.07	85.1	8.5	123	No
W500GPM-IN	Influent	2025-04-10 15:20	9.7	11.23	0.09	16.29	15.1	8.5	130	No
W500GPM-IN	Influent	2025-04-11 13:26	9.9	11.82	0.09	61.46	48.8	8.3	129	No
W500GPM-IN	Influent	2025-04-12 12:22	10.8	11.95	0.09	38.82	32.0	8.1	131	No
Effluent ⁵										
SP-W-OUT	Effluent	2025-04-06 12:22	12.6	12.41	0.08	2.26	4.7	8.2	125	No
SP-W-OUT	Effluent	2025-04-07 08:45	10.5	13.63	0.08	6.22	7.6	8.2	124	No
SP-W-OUT	Effluent	2025-04-08 10:02	9.4	14.10	0.10	2.48	4.8	8.1	149	No
SP-W-OUT	Effluent	2025-04-09 12:30	10.4	11.89	0.09	2.76	5.1	8.1	130	No
SP-W-OUT	Effluent	2025-04-10 16:42	10.1	12.06	0.09	2.70	5.0	8.1	130	No
SP-W-OUT	Effluent	2025-04-12 12:37	11.3	13.17	0.09	2.07	4.5	7.9	135	No
W500GPM-OUT	Effluent	2025-04-06 10:36	12.3	12.01	0.08	2.92	5.2	7.8	124	No
W500GPM-OUT	Effluent	2025-04-06 13:32	12.6	13.23	0.08	3.47	5.6	8.0	125	No
W500GPM-OUT	Effluent	2025-04-07 08:31	10.9	13.35	0.08	4.72	6.5	8.0	124	No
W500GPM-OUT	Effluent	2025-04-08 09:41	10.5	11.55	0.09	2.18	4.6	7.9	137	No
W500GPM-OUT	Effluent	2025-04-08 15:27	9.4	14.61	0.09	1.78	4.3	8.3	138	No
W500GPM-OUT	Effluent	2025-04-09 11:17	10.0	13.42	0.09	2.25	4.7	8.1	132	No
W500GPM-OUT	Effluent	2025-04-10 15:16	9.9	14.56	0.09	1.82	4.4	8.1	132	No
W500GPM-OUT	Effluent	2025-04-11 13:23	10.4	14.33	0.09	1.56	4.2	8.0	131	No
W500GPM-OUT	Effluent	2025-04-12 12:19	11.3	12.04	0.09	2.47	4.8	7.3	135	No

Notes: Results underlined in bold italics exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.

Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.

Results in orange text exceeded the PE-111578 West Sedimentation Pond Discharge Limit.

¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.

² The WQG was not evaluated for parameters with discharge limits.

³ TSS concentration is estimated from field turbidity measurements using a site-specific relationship TSS = 0.7458 * [turbidity as NTU] + 3.

⁴ Daily field measurements for station SP-W-IN were collected from cell 1 of the West Sedimentation Pond.

⁵ There was no discharge at the authorized discharge location (SP-W-OUT) on April 11, therefore daily field measurements for SP-W-OUT were not collected on this day.

⁶ The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for Wet Conditions. The discharge limit for Wet Conditions applied during the monitoring period (March 30 – April 5) on April 6, 7, 8, and 9.

Table C-4: West Catchment Daily Discharge Volumes for the Monitoring Period (April 6 – 12).

	West Sedimentation Pond Effluent	West TSS Settling System (W500GPM) Clarified Effluent (Station W500GPM-OUT)	West TSS Settling System (ESC) Clarified Effluent (Station ESC-W-OUT)	West WWTP Treated Effluent ¹ (Station WWTP-W-OUT)	Discharge to Howe Sound (Station SP-W-OUT)
Unit	m ³	m ³	m ³	m ³	m ³
PE-111578 Discharge Limit	_ ²	_ ²	_ ²	120	_ ²
Date					
2025-04-06	0	836 ³	0	0	836
2025-04-07	0	1,362 ³	0	0	1,097
2025-04-08	0	2,179 ³	0	0	2,179
2025-04-09	0	730 ³	0	0	730
2025-04-10	0	1,258 ³	0	0	902
2025-04-11	0	392 ³	0	0	0
2025-04-12	0	613 ³	0	0	595

Notes:

Results underlined in bold italics exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.

Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.

Results in orange text exceeded the PE-111578 West Sedimentation Pond Discharge Limit.

¹ The West WWTP is not being operated, therefore discharges are not expected from this facility.

² The annual average authorized discharge rate from the West Sedimentation Pond is 310 m³/day. As noted in PE-111578 Condition 2.1.4, the actual discharge rate may deviate from the annual average rate due to annual variations in precipitation amounts within the catchment area. Therefore, the annual average authorized discharge rate is not evaluated as a discharge limit.

³ W500GPM clarified effluent is discharged to Howe Sound or recirculated to the West Sedimentation Pond based on operational considerations. Therefore, the W500GPM clarified effluent volume may be higher than the volume discharged to Howe Sound at station SP-W-OUT.

Appendix D: Marine Water Receiving Environment Results

Table D-1: Summary of Marine Water Quality Results Received at the Time of Reporting

Parameter	Unit	Lowest Applicable Guideline ¹		Station IDZ-E1			Station IDZ-E2		
				0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-E1-0.5	IDZ-E1-2m	IDZ-E1-SF	IDZ-E2-0.5	IDZ-E2-2m	IDZ-E2-SF
				VA25A7397-001	VA25A7397-002	VA25A7397-003	VA25A7397-004	VA25A7397-005	VA25A7397-006
		Long Term	Short Term	2025-04-03 10:08	2025-04-03 10:04	2025-04-03 10:00	2025-04-03 10:24	2025-04-03 10:23	2025-04-03 10:20
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	7.74	7.94	7.63	7.68	8.03	7.65
Specific Conductivity - Field	µS/cm	-	-	4333	23028	29203	5908	25251	- ³
Temperature - Field	°C	-	-	7.3	8.1	8.0	7.2	8.3	8.0
Salinity - Field	ppt	Narrative ²	-	3.58	21.19	27.54	4.18	23.33	27.52
Turbidity - Field	NTU	2.82-3.46 ²	8.82-9.46 ²	1.87	1.56	1.39	1.95	1.56	1.20
TSS	mg/L	7.0-8.5 ²	27.0-28.5 ²	<2.0	5.7	2.2	<2.0	2.5	2.8
Dissolved Oxygen - Field	mg/L	≥8	-	11.60	10.56	<u>7.63</u>	11.75	10.58	8.72

Notes:

Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.

Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.

¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.

² Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. Salinity WQG was not evaluated. The water quality data presented in the table were collected when the site was discharging, therefore the turbidity and TSS WQGs were evaluated. Background values used to evaluate the March April 3 IDZ-E1 and IDZ-E2 samples are the maximum values measured in the March 25 WQR1 and WQR2 reference station samples, respectively, at 0.5 and 2 m below the surface and 2 m above the seafloor (Report #57).

³ Field conductivity was not recorded at station IDZ-E2 at 2m above the seafloor due to a field probe malfunction.

Table D-2: Summary of Marine Water Quality Results Received at the Time of Reporting

Parameter	Unit	Lowest Applicable Guideline ¹		Station IDZ-W1			Station IDZ-W2		
				0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-W1-0.5	IDZ-W1-2m	IDZ-W1-SF	IDZ-W2-0.5	IDZ-W2-2m	IDZ-W2-SF
				VA25A7397-007	VA25A7397-008	VA25A7397-009	VA25A7397-010	VA25A7397-011	VA25A7397-012
		Long Term	Short Term	2025-04-03 11:19	2025-04-03 11:17	2025-04-03 11:15	2025-04-03 10:54	2025-04-03 10:52	2025-04-03 10:50
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	7.85	8.22	7.54	7.62	8.13	7.43
Specific Conductivity - Field	µS/cm	-	-	3968	25540	29796	4581	24263	30714
Temperature - Field	°C	-	-	7.4	8.4	8.0	7.5	8.4	8.1
Salinity - Field	ppt	Narrative ²	-	3.24	23.52	28.17	3.77	22.22	29.04
Turbidity - Field	NTU	2.82-3.46 ²	8.82-9.46 ²	1.91	1.29	1.41	1.95	1.39	1.06
TSS	mg/L	7.0-8.5 ²	27.0-28.5 ²	<2.0	3.5	2.1	<2.0	3.2	<2.0
Dissolved Oxygen - Field	mg/L	≥8	-	11.42	12.06	<u>7.54</u>	11.54	11.99	<u>6.98</u>

Notes:

Results **underlined in bold italics** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.

Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.

¹ The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.

² Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. Salinity WQG was not evaluated. The water quality data presented in the table were collected when the site was discharging, therefore the turbidity and TSS WQGs were evaluated. Background values used to evaluate the April 3 IDZ-W1 and IDZ-W2 samples are the maximum values measured in the March 25 WQR1 and WQR2 reference station samples, respectively, at 0.5 and 2 m below the surface and 2 m above the seafloor (Report #57).

Table D-3: Marine Water Dioxin and Furan Toxicity Equivalency Quantity (TEQ) Results Received at the Time of Reporting.

Parameter					Lower Bound PCDD/F TEQ	Upper Bound PCDD/F TEQ
Unit					pg/L	pg/L
Station	Water Type	Sample ID	Lab ID	Sampling Date		
Station IDZ-E1						
IDZ-E1	0.5 m Below Surface	IDZ-E1-0.5	L2759227-1	2025-03-13	0.00233	1.31
IDZ-E1	2 m Below Surface	IDZ-E1-2m	L2759227-2	2025-03-13	0.00167	1.24
IDZ-E1	2 m Above Seafloor	IDZ-E1-SF	L2759227-3	2025-03-13	0.00666	1.36
Station IDZ-E2						
IDZ-E2	0.5 m Below Surface	IDZ-E2-0.5	L2759227-4	2025-03-13	0.00410	1.25
IDZ-E2	2 m Below Surface	IDZ-E2-2m	L2759227-5	2025-03-13	0.00112	1.35
IDZ-E2	2 m Above Seafloor	IDZ-E2-SF	L2759227-6	2025-03-13	0.0306	1.46
Reference Station WQR1						
WQR1	0.5 m Below Surface	WQR1-0.5	L2759227-7	2025-03-13	0.00545	1.23
WQR1	2 m Below Surface	WQR1-2m	L2759227-8	2025-03-13	0.00221	1.13
WQR1	2 m Above Seafloor	WQR1-SF	L2759227-9	2025-03-13	0.0933	1.33

Notes:

PCDD = polychlorinated dibenzodioxins (dioxins)

PCDF = polychlorinated dibenzofurans (furans)

TEQ = toxic equivalency

Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).

Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.