TECHNICAL MEMORANDUM

To:	**Ian McAllister, Ashleigh Crompton, Mike Champion, Jackie Boruch and Ryan Schucroft (Woodfibre LNG)**	**Date:**	**15 Nov 2024**
From:	**Cheng Kuang, Holly Pelletier and Patrick Mueller (Lorax)**	**Project #:**	**A633-8**
Subject:	**PE-111578 Weekly Discharge and Compliance Report #39 for November 3 – 9**		

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 #39) was prepared by Lorax Environmental and summarizes WDA monitoring conducted the week of November 3 – 9. 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 #39 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 E 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, 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 November 3 – 9 monitoring period. The East Wastewater Treatment Plant (WWTP), East Sedimentation Pond and West Sedimentation Pond are commissioned for operation. The East WWTP treatment process was upgraded on October 14 to enhance treatment for copper, vanadium and zinc.

Pilot testing of the West WWTP was suspended September 25. The suspension was implemented for the temporary reconfiguration of the plant to allow 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 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 sumps, ditches and baker tanks for intermediate storage and are then directed to the East and West Sedimentation Ponds.

A flocculant-based TSS settling system (ESC system) is used at the West Sedimentation Pond to remove TSS from non-contaminated contact water stored in the pond prior to discharge. Some of the TSS clarified water is recirculated to the West Sedimentation Pond. Similarly, water from the East Sedimentation Pond, and concrete contact water are directed to the East WWTP for treatment prior to discharge to Howe Sound, or recirculation back to the pond.

The East and West Catchment permanent outfall structures have not been constructed. Temporary discharge systems (i.e., pumps, hosing and diffusors) are used to convey clarified and treated effluent to the discharge locations authorized for the East and West Catchments, when necessary for the discharge of excess water. Each of the authorized discharge locations 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.

A non-contact water diversion ditch west of Mill Creek has been upgraded and discharges to Mill Creek at station OUT-06 (Figure 1). Other pre-existing diversion ditches west of Mill Creek have been partially upgraded and discharge at station OUT-02. During heavy precipitation these ditches also convey non-contact water to station OUT-01. Non-contact water flows to the East Catchment are diverted along pre-existing road ditches that flow to East Creek or Mill Creek. To facilitate the replacement of the East Creek discharge culvert, the lower reach of East Creek was temporarily diverted to the adjacent culvert, OUT-11, on September 17 (Figure 1).

Construction phase water management facilities that are completed or were under construction during the reporting period are shown in Figure 1. Contact water collection and dewatering locations and photographs of the sedimentation ponds are shown in Figure 2 through Figure 5.

1.2 Weather and Water Management Activities

Variable weather characterized the monitoring period (November 3 – 9) with heavy rains on November 4. The total weekly precipitation amount was 60.0 mm with the majority (36.8 mm) received on November 4. 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
11-03-2024	1.0	10.2	6.5	Overcast
11-04-2024	36.8	8.4	4.3	Heavy Rain
11-05-2024	0.0	10.6	3.7	Overcast
11-06-2024	0.0	9.4	5.4	Overcast
11-07-2024	0.0	10.5	7.2	Overcast
11-08-2024	14.6	11.9	8.0	Scattered Showers
11-09-2024	7.6	9.5	7.9	Scattered Showers

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

On October 28 water management was rearranged to store contact water in the sedimentation ponds and to discharge treated water from the East WWTP treatment system and clarified water from the West Sedimentation Pond TSS settling system to Howe Sound through the authorized discharge locations. The discharge pathway rearrangement continued through the November 3 – 9 monitoring period and is intended to ensure that effluent discharged to Howe Sound meets PE-111578 discharge limits.

During the November 3 – 9 monitoring period, the East Sedimentation Pond received East WWTP treated water and received contact water from the 1100 collection area, dewatering tanks and contact water sump, the 1200C contact water sump and dewatering tanks, and the 1300 contact water sump (Appendix A, Figure 2).

Routine operation of the East WWTP continued during the monitoring period (November 3 – 9). Contaminated and potentially contaminated contact waters from the batch plant contact water ditch

were directed to the East WWTP for treatment, as well as water stored in the East Sedimentation Pond (Appendix A, Figure 2). Intermittent direct discharge of treated effluent from the East WWTP to Howe Sound occurred each day November 3 – 9. A total of 2,552 m^3 of treated WWTP effluent was discharged to Howe Sound from station SP-E-OUT during the monitoring period. Daily discharge volumes from station SP-E-OUT are provided in Appendix B, Table B-2, and the total daily volumes processed by the East WWTP are provided in Appendix C (Table C-2).

During the November 3 – 9 monitoring period, contact waters from the 4100 collection sump, dewatering tanks, road runoff, the 4200 collection sump and dewatering tanks, the surge pond, the wash bay and fuel farm collection sumps and the 8-plex parking area (Figure 3) were directed to the West Sedimentation Pond, as well as water recirculated from the TSS settling system. Intermittent discharge from the West Sedimentation Pond via the West TSS settling system to Howe Sound occurred from November 3 through November 6 and on November 9. A total of 2,661 m^3 of effluent was discharged from the authorized discharge location (SP-W-OUT) during the monitoring period (November 3 – 9). Daily discharge volumes from station SP-W-OUT are provided in Appendix D, Table D-3.

2. Monitoring Summary

The PE-111578 authorized works were under construction during the November 3 – 9 monitoring period. Compliance monitoring stations are progressively established as water management infrastructure is completed. 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.

The following monitoring stations have been established (Figure 1):

- Non-contact diversion ditch outlets (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 (SW-01, SW-02, SW-03, SW-04, SW-07).
- Contact water monitoring locations (WWTP-E-IN, WWTP-E-OUT, SP-E-IN, SP-E-OUT, SP-E-NE, SP-E-NW, WWTP-W-IN, WWTP-W-OUT, ESC-W-IN, ESC-W-OUT, SP-W-IN, SP-W-W, SP-W-E, and SP-W-OUT).
- Howe Sound reference and IDZ locations (WQR1, WQR2, IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2).

East Sedimentation Pond influent and effluent stations SP-E-NW and SP-E-NE, respectively, are in-pond stations that may be monitored when there is no influent to, or discharge from the East Sedimentation Pond, for water management purposes. Influent to the East Sedimentation Pond is

monitored at temporary station SP-E-IN. Similarly, in-pond monitoring stations established for the West Sedimentation Pond at locations SP-W-W and SP-W-E and may be used for pond water quality monitoring when there is no influent to or discharge from the pond. Influent directed to the West Sedimentation Pond is monitored at temporary station SP-W-IN. Station ESC-W-IN is the influent to the TSS settling system for the West Sedimentation Pond.

Water quality was monitored at stations IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WWTP-E-IN, WWTP-E-OUT, SP-E-NE, SP-E-NW, SP-E-IN, SP-E-OUT, ESC-W-IN, SP-W-IN, SP-W-E, SP-W-W, and SP-W-OUT during the monitoring period (November 3 – 9). Sampling dates and parameters tested are summarized in Table 2.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (November 3 – 9) were met.

Daily field parameters were not collected for influent to the East Sedimentation Pond at SP-E-IN (on November 3, and November 5 through November 9) and West Sedimentation Pond at SP-W-IN (on November 5 and November 8) as field staff noted there was no active input of contact water into the ponds at the time of monitoring.

Daily field parameters were not collected from the East Catchment discharge location (station SP-E-OUT) on November 4, 5, and 7, and the West Catchment discharge location (station SP-W-OUT) on November 6, 7 and 8 as there was no discharge at the time of monitoring.

Daily field parameters were not collected at the influent station of the East WWTP (WWTP-E-IN) on November 6 as there was intermittent flow of influent to the East WWTP on that day and there was no active input of influent to the East WWTP 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 the West WWTP was not operated during the monitoring period.

Table 2: Summary of PE-111578 Monitoring Samples Collected November 3 – 9.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
November 3, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, may represent effluent quality	Field Parameters.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, may represent influent quality		
	SP-E-OUT/ WWTP-E-OUT [2]	East WWTP effluent discharged at station SP-E-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	D, W_1, W_2
	WWTP-E-IN	East WWTP influent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins & Furans, Glycols, Oil and Grease.	D, W_1, W_2
	SP-W-E [1]	West Sedimentation Pond, in-pond sample, may represent effluent quality	Field Parameters.	P
	SP-W-W [1]	West Sedimentation Pond, in-pond sample, may represent influent quality		
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 4	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins & Furans, Glycols, Oil and Grease.	D, W_1, W_2
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT [3]	West TSS settling system effluent discharged at station SP-W-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	D, W_1, W_2
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field and Physical Parameters.	W_3
	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		
November 4, 2024	SP-E-IN	East Sedimentation Pond influent entering the pond at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins & Furans, Glycols, Oil and Grease.	D, W_1, W_2
	WWTP-E-OUT	East WWTP effluent at the meter box	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 4	Field Parameters.	D
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT [3]	West TSS settling system effluent discharged at station SP-W-OUT	Field Parameters.	D
	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, Glycols, Oil and Grease.	M, W_3, W_4
	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	Field and Physical Parameters.	W_3
	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		
November 5, 2024	WWTP-E-OUT	East WWTP effluent at the meter box	Field Parameters.	D
	WWTP-E-IN	East WWTP influent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Glycols, Oil and Grease.	D, W_1
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT [3]	West TSS settling system effluent discharged at station SP-W-OUT	Field Parameters.	D
November 6, 2024	SP-E-OUT/ WWTP-E-OUT [2]	East WWTP effluent discharged at station SP-E-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Glycols, Oil and Grease.	D, W_1
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 4	Field Parameters.	D
	ESC-W-OUT [3]	West TSS settling system effluent at the meter box	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Glycols, Oil and Grease.	P
November 7, 2024	WWTP-E-OUT	East WWTP effluent at the meter box	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Glycols, Oil and Grease.	D, W_1
	ESC-W-OUT [3]	West TSS settling system effluent at the meter box	Field Parameters.	P

Table 2 (Continued): Summary of PE-111578 Monitoring Samples Collected November 3 – 9.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
November 8, 2024	SP-E-OUT/ WWTP-E-OUT [2]	East WWTP effluent discharged at station SP-E-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Glycols, Oil and Grease.	D, W_1
	WWTP-E-IN	East WWTP influent		
November 9, 2024	SP-E-OUT/ WWTP-E-OUT [2]	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Glycols, Oil and Grease.	D, W_1
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT [3]	West TSS settling system effluent discharged at station SP-W-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Glycols, Oil and Grease.	D, W_1

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.
W_1 – initial high frequency monitoring for physical parameters at WWTP and sedimentation pond influent and effluent stations.
W_2 – initial high frequency monitoring for all parameters at WWTP and sedimentation pond influent and effluent stations.
W_3 – initial high frequency monitoring for physical parameters at IDZ stations.
W_4 – spring and fall high frequency sampling for all parameters at receiving environment stations (5 samples collected over a 30-day period).
P - periodic monitoring for targeted parameters that is supplementary to PE-111578 requirements.
[1] In-Pond East Sedimentation Pond stations SP-E-NW and SP-E-NE, and West Sedimentation Pond stations, SP-W-W and SP-W-E are monitored for water management purposes. The monitoring of in-pond stations is not a PE- 111578 requirement and is conducted at the discretion of field staff.
[2] As a result of the reconfigured pathway for effluent discharge at station SP-E-OUT effective October 28, contact water was stored in the East Sedimentation Pond and direct to the East WWTP for treatment. East WWTP effluent was discharged at station SP-E-OUT during the monitoring period. On November 3, 6, 8, and 9, field measurements and analytical samples were collected at station SP-E-OUT and fulfill the water quality monitoring requirements for station WWTP-E-OUT. Field measurements and analytical samples were collected at the East WWTP effluent station (WWTP-E-OUT) on November 4, 5, and 7 since no active discharge was observed by site staff at the time of monitoring at station SP-E-OUT.
[3] As a result of the reconfigured pathway for effluent discharge at station SP-W-OUT effective October 28, the West Sedimentation Pond discharged through the TSS settling system (ESC system) during the monitoring period. From November 3 through 5 and on November 9, field measurements and analytical samples were collected at station SP-W-OUT. Field measurements and an analytical sample were collected from TSS settling system effluent station (ESC-W-OUT) on November 6 and 7 since no discharge was observed by site staff at the time of monitoring at station SP-W-OUT. There are no PE-111578 monitoring requirements established for station ESC-W-OUT; however, this station is monitored to evaluate the performance of the TSS settling system (ESC).

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 chlorinated dibenzo-*p*-dioxins and chlorinated dibenzofurans. A sub-set of 17 polychlorinated dibenzo-*p*-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are typically evaluated for toxicity and the individual parameter concentrations are converted to toxic equivalent (TEQ) values that are summed and reported 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 sub-set of 17 individual 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 a level that may harm wildlife that consume 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 concentrations that exceed the total mercury guideline.

3.2 Summary of Reported Results

Field measurements and analytical results available at the time of reporting for samples collected during the monitoring period (November 3 – 9) 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-E-OUT/WWTP-E-OUT and WWTP-E-IN collected November 3 (all analytical parameters)
- SP-W-OUT/ESC-W-OUT collected November 3 (methylmercury, dioxins and furans)
- SP-W-IN collected November 3 (dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 collected November 3 (field parameters and all analytical parameters)
- SP-E-IN collected November 4 (dioxins and furans)
- IDZ-W1 and IDZ-W2 collected November 4 (field parameters and all analytical parameters)
- WWTP-E-IN collected November 5 (methylmercury)
- SP-E-OUT/WWTP-E-OUT collected November 6 (methylmercury)
- ESC-W-OUT collected November 6 (methylmercury)
- SP-W-IN collected November 7 (methylmercury)
- SP-E-OUT/WWTP-E-OUT and WWTP-E-IN collected November 8 (methylmercury)
- SP-W-OUT/ESC-W-OUT and SP-W-IN collected November 9 (methylmercury)

Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #39.

Sample	Description	Sampling Date	Parameters Reported
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface	October 18, 2024	Methylmercury.
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		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface	October 23, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	October 30, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, and PAHs.
IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
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-W-IN	West Sedimentation Pond influent	November 3, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
SP-W-OUT/ ESC-W-OUT [2]	West TSS settling system effluent discharged at station SP-W-OUT		
SP-E-IN	East Sedimentation Pond influent	November 4, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
WWTP-E-IN	East WWTP influent	November 5, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
SP-E-OUT/ WWTP-E-OUT [1]	East WWTP effluent discharged at station SP-E-OUT	November 6, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
ESC-W-OUT [2]	West TSS settling system effluent		
SP-W-IN	West Sedimentation Pond influent	November 7, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
SP-E-OUT/ WWTP-E-OUT [1]	East WWTP effluent discharged at station SP-E-OUT	November 8, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
WWTP-E-IN	East WWTP influent		
SP-W-IN	West Sedimentation Pond influent	November 9, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs.
SP-W-OUT/ ESC-W-OUT [2]	West TSS settling system effluent discharged at station SP-W-OUT		

Notes:

[1] As a result of the reconfigured pathway for effluent discharge at station SP-E-OUT effective October 28, effluent from the East WWTP was discharged at station SP-E-OUT during the monitoring period. On November 3, 6, 8, and 9, field measurements and analytical samples were collected at station SP-E-OUT. Field measurements and analytical samples were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) on November 4, 5, and 7 since no active discharge was observed by site staff at the time of monitoring at station SP-E-OUT.

[2] As a result of the reconfigured pathway for effluent discharge at station SP-W-OUT effective October 28, the West Sedimentation Pond discharged through the TSS settling system (ESC system) during the monitoring period. From November 3 through 5 and on November 9, field measurements and analytical samples were collected at station SP-W-OUT. Field measurements and an analytical sample were collected from TSS settling system effluent (station ESC-W-OUT) on November 6 and 7 since no discharge was observed by site staff at the time of monitoring at station SP-W-OUT. There are no PE-111578 monitoring requirements established for station ESC-W-OUT; however, is monitored to evaluate the performance of the TSS settling system (ESC system).

3.3 East Sedimentation Pond and East Catchment Discharges

The East Catchment discharged effluent results 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. Influent water is not discharged from site, therefore only discharged effluent water quality is assessed for exceedances. The analytical results, daily field parameters, discharge limits and WQGs for East Sedimentation Pond influent, in-pond samples and for effluent discharged at the West Catchment authorized discharge station (SP-E-OUT) are summarized in Table B-1 (analytical results) and Table B-2 (field measurements) of Appendix B.

During the monitoring period (November 3 – 9), the East Sedimentation Pond received East WWTP treated effluent each day. The sedimentation pond also received contact water each day from November 3 to November 9 as described in Section 1; therefore, field measurements and an analytical sample were collected at station SP-E-IN on November 4. Additional daily field measurements of the pond influent were not collected during the monitoring period as site staff noted no influent was actively routed to the East Sedimentation Pond at the time of monitoring. Field measurements were also collected at the in-pond influent and effluent quality stations (SP-E-NW and SP-E-NE, respectively) on November 3.

Influent concentrations of dissolved oxygen, turbidity, and pH were 12.1 mg/L, 536 NTU, and pH 9.3 at station SP-E-IN on November 4 (Appendix B, Table B-2). Analytical results for the SP-E-IN sample collected November 4 showed elevated levels of TSS, total metals (arsenic, cadmium, copper, lead, mercury, nickel, vanadium, zinc, and hexavalent chromium), benzo(a)pyrene, and chrysene as compared to PE-111578 discharge limits and WQGs (Appendix B, Table B-1).

Field measurements collected at the in-pond stations on November 3 showed field pH of 6.9 and 7.0, dissolved oxygen of 10.8 and 10.7 mg/L, and turbidity of 45.3 and 18.8 mg/L at the in-pond influent (SP-E-NW) and effluent (SP-E-NE) quality stations, respectively (Appendix B, Table B-2).

Treated East WWTP effluent was intermittently discharged to Howe Sound from station SP-E-OUT each day of the monitoring period (November 3 – 9). On November 3, 6, 8, and 9, field measurements and analytical samples were collected at the authorized discharge location (SP-E-OUT). Field measurements and analytical samples were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) on November 4, 5, and 7 since no active discharge was observed by site staff at the time of monitoring at station SP-E-OUT. Given the structure of this report, results for the November 4, 5, and 7 WWTP treated effluent samples are discussed in this section as well as in Section 3.4.

Analytical samples and field measurements for effluent discharged at station SP-E-OUT met PE-111578 discharge limits and WQGs (Appendix B, Table B-1 and B-2).

3.4 East Wastewater Treatment Plant

The East WWTP influent and effluent results are screened against the operational minimum discharge objectives (MDOs) which the WWTP is operated to meet. Concrete contact water and contact water stored in the East Sedimentation Pond is directed to the WWTP influent. It is expected that influent water is unlikely to meet the operational MDOs, therefore only treated effluent water quality is assessed against the MDOs. The analytical results, daily field measurements, and the operational MDOs are summarized in Table C-1 (analytical results) and Table C-2 (field measurements) of Appendix C.

The East WWTP received contact water from site and from the East Sedimentation Pond each day during the monitoring period (November 3 – 9). Following reconfiguration of the discharge pathway on October 28 (Section 1 and Section 3.3), most of the East WWTP treated effluent was discharged to Howe Sound at the authorized discharge location (SP-E-OUT), and the balance of the treated effluent was returned to the pond. Daily field measurements for WWTP treated effluent were collected at station SP-E-OUT on November 3, 6, 8, and 9, and from the meter box at WWTP-E-OUT on November 4, 5, and 7.

Field measurements were collected each day during the monitoring period (November 3 – 9) at the influent (WWTP-E-IN) and effluent (SP-E-OUT) stations except at WWTP-E-IN on November 6 since there was no influent actively routed to the East WWTP at the time of monitoring. Field pH ranged from 6.8 to 8.3 at WWTP-E-IN, while dissolved oxygen ranged from 10.5 to 11.1 mg/L, and turbidity ranged from 16.73 to 58.94 NTU (Appendix C, Table C-2). Field pH, dissolved oxygen, and turbidity in the East WWTP effluent (WWTP-E-OUT/SP-E-OUT) ranged from pH 5.6 to 7.4, 10.5 to 11.5 mg/L, and 0.31 to 7.31 NTU, respectively.

Analytical results for samples collected from the East WWTP influent station on November 5 and 8, and from the effluent station (WWTP-E-OUT) on November 6 and 8 were available at the time of reporting. Station WWTP-E-IN influent water quality met operational MDOs except total copper and hexavalent chromium in the samples collected November 5 and November 8 as well as total lead in the sample collected on November 5. Treated water quality monitored at WWTP-E-OUT on November 6 and November 8 achieved operational MDOs for all parameters (Appendix C, Table C-1).

3.5 West Sedimentation Pond and West Catchment Discharges

The West Catchment discharged effluent results 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. Influent water is not discharged from site, therefore only discharged effluent water quality is assessed for exceedances. The analytical results, discharge limits and WQGs for sedimentation pond influent, in-pond samples and effluent discharged at the authorized discharge station (SP-W-OUT) are summarized in Table D-1 and Table D-2 (analytical results) and Table D-3 (field measurements) of Appendix D. Screening results are summarized below for parameter concentrations that exceeded PE-111578 discharge limits and WQGs in effluent discharged to Howe Sound (Table 4).

The West Sedimentation Pond received contact water each day November 3 – 9. A flocculant-based TSS settling system (the ESC system) has been in use at the West Sedimentation Pond since September 25. Contact water influent was routed through the TSS settling system into the pond until October 28 when the discharge pathway was reconfigured to discharge pond effluent through the TSS setting system (ESC system) to Howe Sound.

Field measurements for pH, dissolved oxygen, and turbidity of West Sedimentation Pond influent for samples collected at station ESC-W-IN (influent to the TSS settling system) on November 3, 4, 5, and 9 ranged from pH 7.6 to 8.5, 11.5 to 12.0 mg/L, 14.4 to 93.3 NTU, respectively (Appendix D, Table D-3). Analytical results of West Sedimentation Pond influent were available at the time of reporting for influent samples collected at station SP-W-IN on November 3, 7, and 9. The pond influent quality was elevated in TSS, total metals (copper, lead, mercury, vanadium, zinc, hexavalent chromium), and benzo(a)pyrene (Appendix D, Table D-1 and Table D-2). Field measurements were collected at station SP-W-IN on November 3, 4, 6, 7, and 9. Field pH ranged from 7.8 to 9.4, while dissolved oxygen varied from 11.0 to 12.6 mg/L, and turbidity varied from 7.17 to 192.90 NTU.

Field measurements were collected at the in-pond influent (SP-W-W) and effluent (SP-W-E) stations on November 3. Field pH varied from 8.5 to 8.6, while dissolved oxygen varied from 11.8 to 12.2 mg/L, and turbidity varied from 23.93 to 26.87 NTU in the West Sedimentation Pond (Appendix D, Table D-3).

Field measurements of effluent were collected from the TSS settling system effluent station (ESC-W-OUT) on November 6 and 7 and an analytical sample was collected November 6 since no active discharge was observed by site staff at station SP-W-OUT at the time of monitoring. Field measurements and the analytical sample collected at station ESC-W-OUT on November 6 and 7 are representative of effluent quality, noting that effluent discharge ceased on November 6, and no effluent was discharged on November 7 and 8. Field pH was 7.5 and 7.9, while dissolved oxygen was 8.7 and 9.6 mg/L, and turbidity was 15.26 and 16.38 NTU (Appendix D, Table D-3). Analytical results for the ESC-W-OUT sample collected on November 6 met PE-111578 discharge limits and WQGs except for total copper; however, the West Sedimentation Pond was not

discharging to Howe Sound at the time of sample collection and this sample is not considered representative of effluent that was discharged on November 6.

The West Sedimentation Pond discharged through the TSS settling system (ESC system) from November 3 through November 6, and on November 9. Field measurements of discharged effluent were collected at the authorized discharge location (station SP-W-OUT) on November 3, 4, 5, and 9, and analytical samples were collected on November 3 and 9. Field measurements and analytical results met PE-111578 discharge limits but were above WQGs for nitrate and hexavalent chromium in the sample collected November 3 (Table 4).

Table 4:
Summary of Parameters Exceeding WQGs in Effluent Discharged from the West Sedimentation Pond (November 3 – 9)

Parameter	Units	WQG	N	N >WQG	Commentary
Nitrate	mg/L	3.7	3	1	Nitrate measured in West Sedimentation Pond effluent on November 3 (4.11) was 1.1 times greater than the long-term WQG. The nitrate concentrations met the short-term WQG (339 mg/L).
Hexavalent Chromium	mg/L	0.0015	3	1	Hexavalent chromium measured in West Sedimentation Pond effluent on November 3 (0.00158 mg/L) was 1.1 times greater than the long-term WQG.

N = number of samples.
Non-detect results are screened using the detection limit value.

3.6 West Wastewater Treatment Plant

The West WWTP was not active during the monitoring period and pilot trials have been suspended since September 25. The suspension was implemented for the temporary reconfiguration of the plant to allow pilot-scale evaluation of an alternative treatment process 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. Field measurements and analytical samples were not collected during the monitoring period at the influent (WWTP-W-IN) and effluent (WWTP-W-OUT) stations.

3.7 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 outlets.

3.8 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 exceedances.

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

3.9 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 are considered to represent the natural condition of the water and are not flagged as exceedances. 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 E.

Analytical results were available at the time of reporting for the October 23 marine water receiving environment reference station samples collected at IDZ-W1 and IDZ-W2 at 0.5 m below the water surface. Analytical results were available at the time of reporting for samples collected at 0.5 m below the water surface at IDZ-E1 and IDZ-E2 on October 30. Results were also available for samples collected at IDZ-W1 and IDZ-W2 on October 30 at 0.5 and 2 m below the water surface and 2 m above the seafloor.

Parameter concentrations met WQGs except pH, TSS, dissolved oxygen, total boron, and total copper in one or more samples. Field pH was below the lower limit of the WQG (pH 7.0) in the IDZ-W1 sample collected at 0.5 m below the water surface on October 23 (pH 6.7) and slightly below the background pH values observed at reference stations. Dissolved oxygen was below the lower limit of the WQG (>8 mg/L) in the IDZ-W1 and IDZ-W2 samples collected at 2 m above the seafloor on October 30 and was within baseline ranges observed in the monitoring program for the marine reference stations.

The total suspended solids (TSS) concentration at IDZ-W1 was above the calculated WQG in the sample collected at 2 m above the seafloor on October 30. The elevated TSS in the sample correlates poorly with field and lab turbidity measurements (0.89 and 0.40 NTU, respectively). A reanalysis for TSS has been requested with the laboratory and this item is tracked in Table 5.

The total boron concentrations were above the long-term WQG (1.2 mg/L) in samples collected at IDZ-W1 and IDZ-W2 on October 30 at 2 m below the surface and 2 m above the seafloor. Concentrations of total boron were within the concentration ranges observed in the baseline monitoring program for the marine reference stations.

The total copper concentration was above the short-term and long-term WQGs (0.003 and 0.002 mg/L, respectively) in the sample collected at IDZ-W2 at 2 m below the water surface (0.00324 mg/L). The observed concentration is within baseline range observed in the baseline monitoring program for the marine reference stations.

Methylmercury analytical results were available at the time of reporting for the marine water receiving environment samples collected from station IDZ-W2 on October 18 (as discussed in Weekly Report #36) at 0.5 and 2 m below the water surface and 2 m above the seafloor. The methylmercury concentrations were below detectable limits (<0.000020 to <0.000040 µg/L) in all samples collected at IDZ-W2 on October 18. A raised detection limit was reported for the sample collected from 0.5 m below surface (<0.000040 µg/L) due to sample matrix interferences. The observed methylmercury concentrations are within baseline ranges, or background concentrations observed at reference stations, and meet the WQG indicated in Section 3.1. The associated total mercury concentrations also met the WQG (Appendix E, Table E-4)

4. Quality Control

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 5). 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 5. Any items flagged for follow-up are carried forward to future reports until they are closed.

Table 5: Weekly Report QC Evaluations and Ongoing Items

QC Procedure	Observation	Investigation/Resolution
Reporting Period (November 3 – 9, Report #39)		
Monitoring Program Evaluation	PE-111578 contact water, non-contact water and initial dilution zone monitoring stations have not been fully established.	The PE-111578 authorized works were under construction during the reporting period. The East Sedimentation Pond and East WWTP are completed. The West Sedimentation Pond is completed. Temporary outfalls are used for both ponds until the permanent structures are completed. West WWTP pilot testing is suspended since September 25, and the plant has been repurposed to evaluate alternative treatment processes. The lower reach of East Creek is temporarily diverted through OUT-11 outfall since September 17 to facilitate replacement of the East Creek outfall culvert (OUT-12). This item remains open.
Authorized Works Non-Compliance	The East WWTP effluent is bypassing the East Sedimentation Pond since October 28	The site received significant rainfall (104.6 mm) from October 26 to 28, and on October 28 it was necessary to place contact water directly into the East Sedimentation Pond thereby increasing the risk that effluent discharged from the pond would not meet PE-111578 discharge limits. Therefore, on October 28 water management was rearranged to store contact water in the East Sedimentation Ponds, route the pond water to the East WWTP, and discharge treated water from the East WWTP treatment system directly to Howe Sound through the SP-E-OUT authorized discharge location. The modification to the discharge pathway has been communicated to BCER. This item remains open.
Data QC	Elevated TSS concentration at IDZ-W1 correlates poorly with observed turbidity values on October 30.	The total suspended solids (TSS) concentration at IDZ-W1 was above the calculated WQG in the sample collected at 2 m above the seafloor on October 30. The elevated TSS in the sample correlates poorly with field and lab turbidity measurements (0.89 and 0.40 NTU, respectively). A reanalysis for TSS has been requested with the laboratory. This item remains open.
Pending Data	Analytical results were not reported for samples collected November 3 and 4. Methylmercury, dioxins and furans results were not reported for samples collected November 3, 4, 5, 6, 7, 8, and 9.	Analytical results for samples collected November 3 and 4 were not complete at the time of Report #39 preparation. Methylmercury results for samples collected November 3, 5, 6, 7, 8, and 9, and dioxins and furans results for samples collected November 3 and 4 were not complete at the time of Report #39 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Ongoing Items from Previous Weekly Reports		
Report #33: Pending Data	Analytical results for samples collected September 28 were not reported.	Analytical results for dioxins and furans were not complete at the time of Report #39 preparation for the SW-01 and SW-04 samples collected September 28. Testing of dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.
Report #35: Pending Data	Methylmercury, dioxins and furans results for samples collected October 6, 8, and 12 were not reported.	Methylmercury results for samples collected October 12 and dioxins and furans results for samples collected October 6, 8, and 12 were not complete at the time of Report #39 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #36: Monitoring Program Evaluation	Sampling was not conducted as prescribed in PE-111578 on occasion.	Daily field parameters were not collected at SP-W-OUT on October 19. Weekly high frequency (5-in-30) monitoring was not conducted at stations IDZ-E1, IDZ-E2, and IDZ-W1 at 2 m below surface and 2 m above the seafloor. Dioxins and furans were omitted from the suite of test parameters for the October 13 samples collected at WQR1 and WQR2. A review of monitoring requirements with the QEP and site staff has been completed. This item is closed.
Report #36: Data QC	Raised detection limits for marine reference station samples collected October 6 and IDZ-W samples collected October 9.	Detection limits for anions, total and dissolved metals were raised for samples collected at WQR1 and WQR2 on October 6 and, in some cases, the raised detection limits were above the respective WQG. Samples were misidentified as freshwater samples rather than seawater upon submission to the laboratory. This was an oversight by field staff. Detection limits for anions were raised for samples collected at IDZ-W1 and IDZ-W2 on October 9, resulting in detection limits for fluoride to be above the WQG. The incorrect analytical method was used at the laboratory. Follow-up with the QEP and a review of monitoring requirements has been completed. This item is closed.
Report #36: Pending Data	Methylmercury, dioxins and furans results were not reported for samples collected October 13, 18, and 19.	Methylmercury results for samples collected October 18 (IDZ-W2) are discussed in Section 3.9 of Report #39. Dioxins and furans results for samples collected October 13, 18, and 19 were not complete at the time of Report #39 preparation. Testing of dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.
Report #37: Monitoring Program Evaluation	Sampling was not conducted as prescribed in PE-111578 on occasion.	Daily field parameters were not collected at ESC-W-IN on October 21. The general parameters bottle was omitted from laboratory submission for the October 26 sample collected at IDZ-E2-2m. A review of monitoring requirements with the QEP and site staff has been completed. This item is closed.
Report #37: Potential Project Influence on Receiving Environment	Total iron, dissolved copper and dissolved nickel at East Creek were above concentration ranges observed in the pre-construction baseline program.	This item was first noted in Report #35. The total iron concentration observed at the East Creek station (SW-04) on September 28 and October 22 were 1.3 and 1.7 times the maximum concentration observed in the pre-construction baseline monitoring program at East Creek, respectively. Total iron, dissolved copper, and dissolved nickel concentrations observed at the East Creek station (SW-04) on October 4 were 4.2, 3.1, and 7.3 times greater than the maximum concentrations observed in the pre-construction baseline monitoring program at East Creek, respectively. It is possible the East Creek water quality at station SW-04 was influenced by discharge from the Fortis controlled portal area for the Eagle Mountain Pipeline Tunnel project. Follow-up with Woodfibre LNG staff is on-going. This item remains open.
Report #37: Pending Data	Analytical results were not reported for samples collected October 23, 25 and 26. Methylmercury, dioxins and furans results were not reported for samples collected October 23 and 26.	Available analytical results for samples collected October 21 (IDZ samples) and 23 are discussed in Section 3.9 of Report #38. Methylmercury results for samples collected October 21 are discussed in Section 3.9 of Report #39. Analytical results for samples collected October 25 and 26 were not complete at the time of Report #39 preparation. Methylmercury, dioxins and furans results for samples collected October 23 and 26 were not complete at the time of Report #39 preparation. Testing of methylmercury, dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.
Report #38: Pending Data	Analytical results were not reported for samples collected October 30, 31, November 1 and 2. Methylmercury, dioxins and furans results were not reported for samples collected October 27, 28, and 29.	Available analytical results for samples collected October 30 are discussed in Section 3.9 of Report #39. Analytical results for samples collected October 31, November 1, and 2 were not complete at the time of Report #39 preparation. Methylmercury, dioxins and furans results for samples collected October 27, 28, 29, and 30 were not complete at the time of Report #39 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #39: Non-Complaint Effluent	East Sedimentation Pond effluent on October 28 and 30 did not meet the pH discharge limit.	East Sedimentation Pond discharge was below the lower discharge limit for field pH on October 28 and 30 (pH 5.1 to 5.3). Review of the non-compliant pH values is currently underway by the QEP. This item remains open.
Report #39: Monitoring Program Evaluation	Sampling was not conducted as prescribed in PE-111578 on occasion.	Daily field parameters were not collected at SP- W- IN on October 29, 30, 31. The physical and general parameters bottle was omitted from the laboratory submission for the November 1 sample collected at WQR1-SF. A review of monitoring requirements with the QEP and site staff has been completed. This item is closed.

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.
Monitoring program evaluation is an assessment of the completeness of the 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.

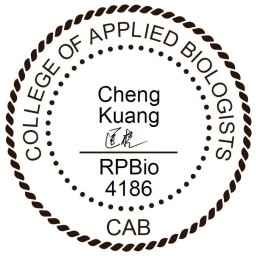
5. Closure

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.

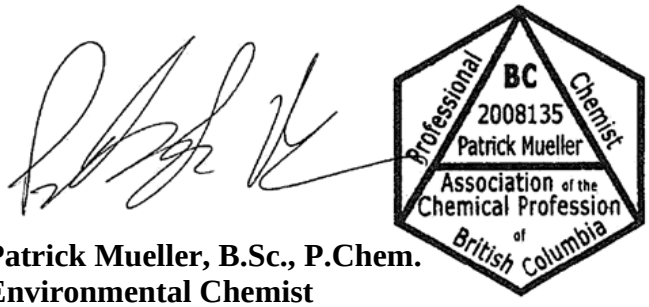
Regards,

LORAX ENVIRONMENTAL SERVICES LTD.

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

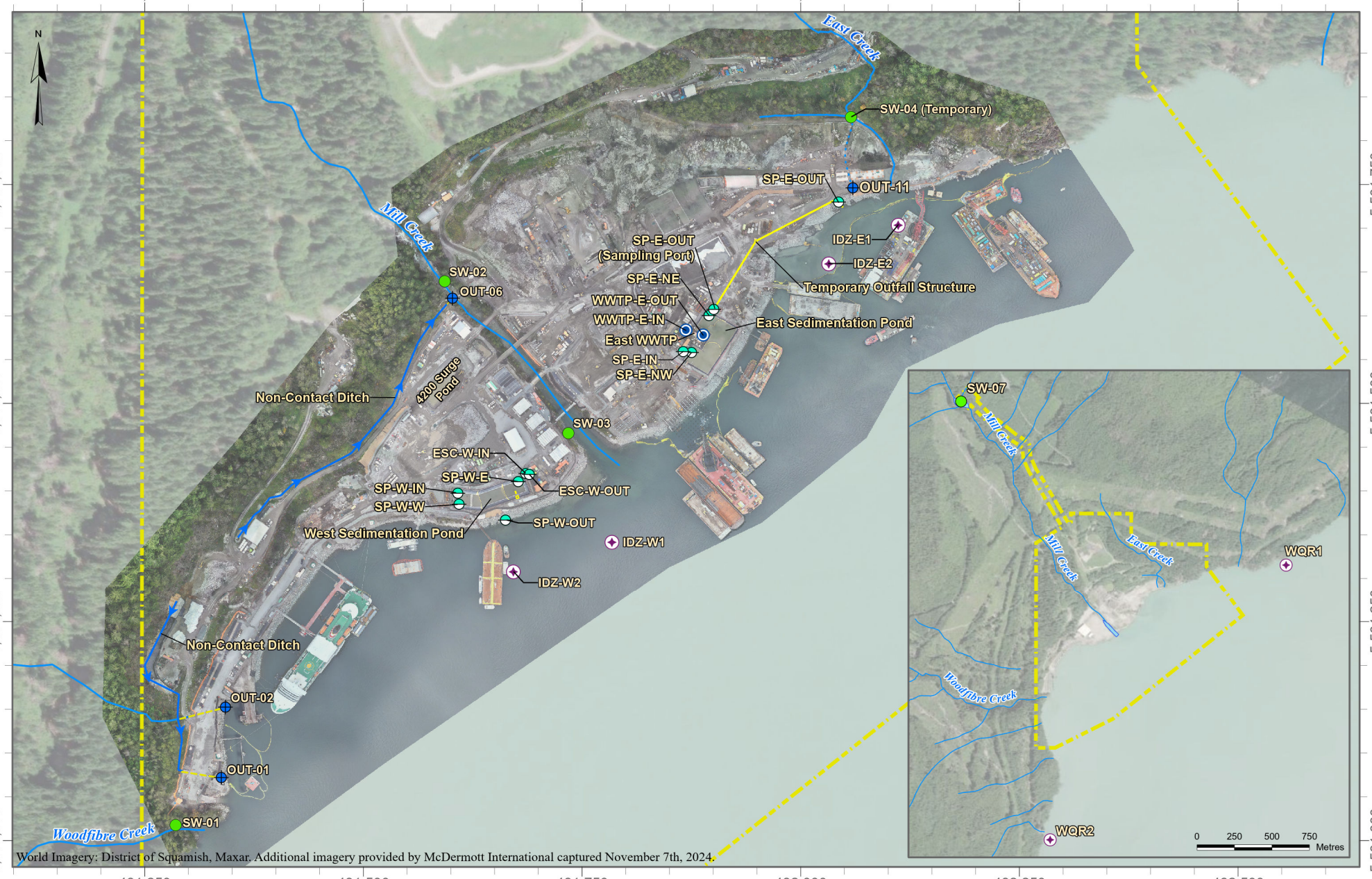


Cheng Kuang, M.Sc., RPBio.
Environmental Scientist



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

Appendix A: Figures and Site Images



LEGEND

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

DATE SAVED:	Nov 15, 2024
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

0 50 100 150 Metres

CLIENT: Woodfibre LNG

LORAX ENVIRONMENTAL

PROJECT:

Woodfibre LNG Project Construction Phase

TITLE:
Completed or Under Construction Water Management Facilities and Established PE-111578 Monitoring Stations (November 9, 2024)

PROJECT #: A633-7 FIGURE: 1

P:\@Drafting\Woodfibre\Drafting Figures\APRX\WLNG Construction Phase 2024\WLNG Construction Phase 2024 - Weekly Reporting.aprx Figure 1 Monitoring and Compliance Locations

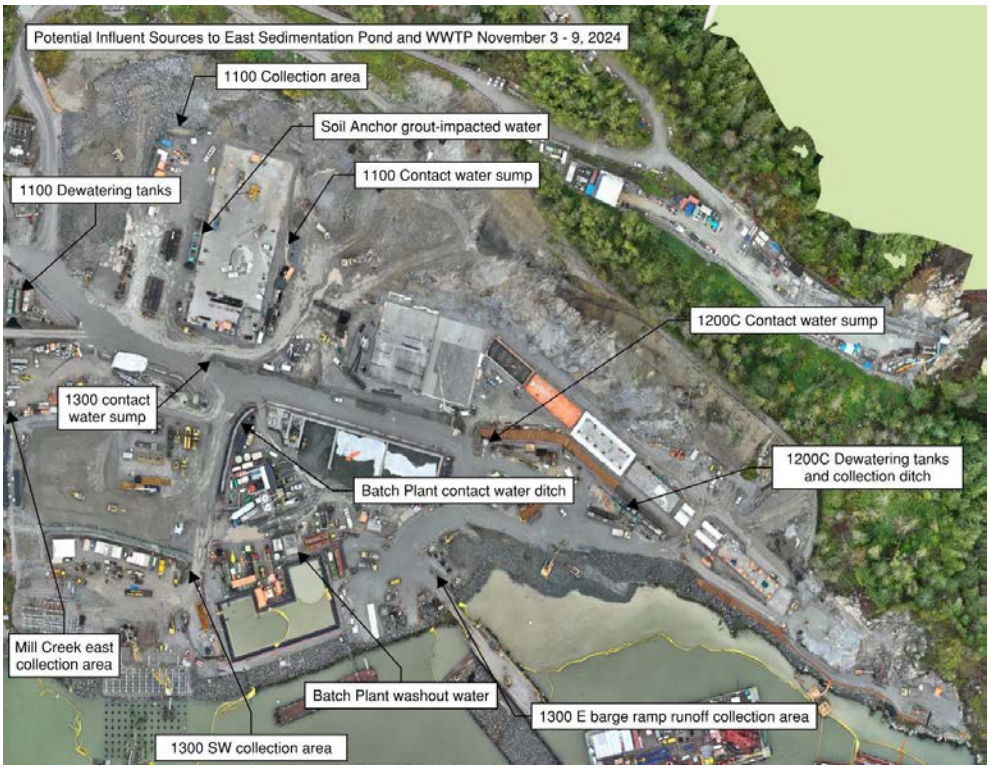


Figure 2: East Catchment contact water management facilities (November 3 – 9).

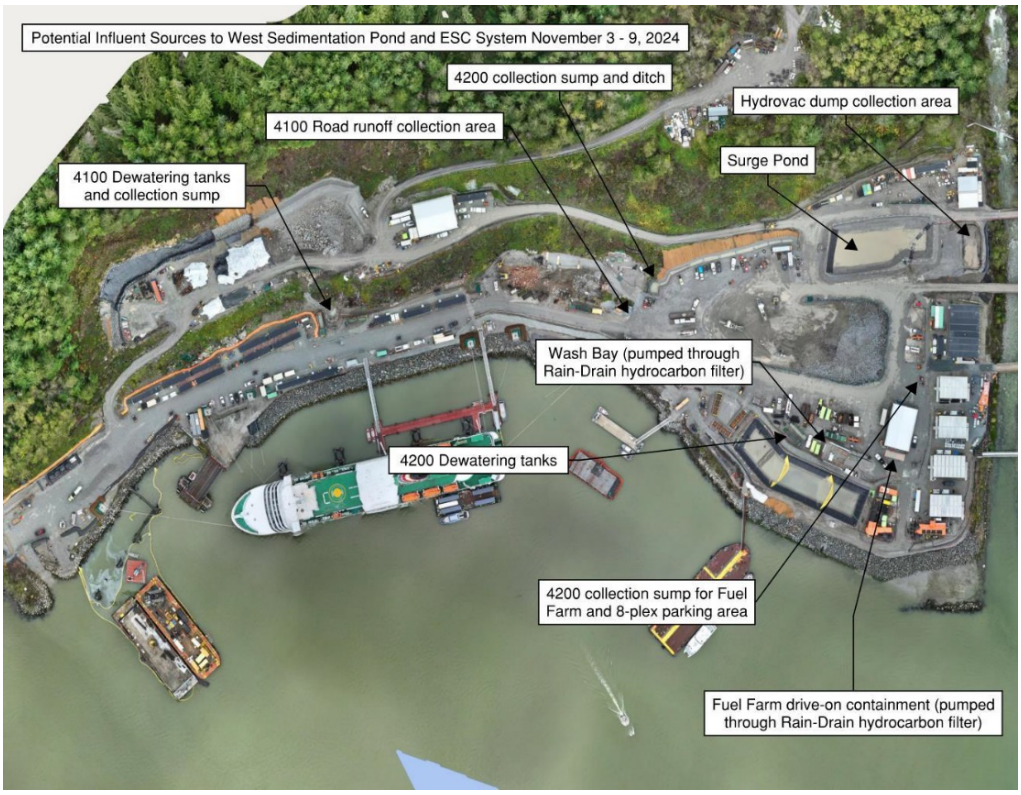


Figure 3: West Catchment contact water management facilities (November 3 – 9).

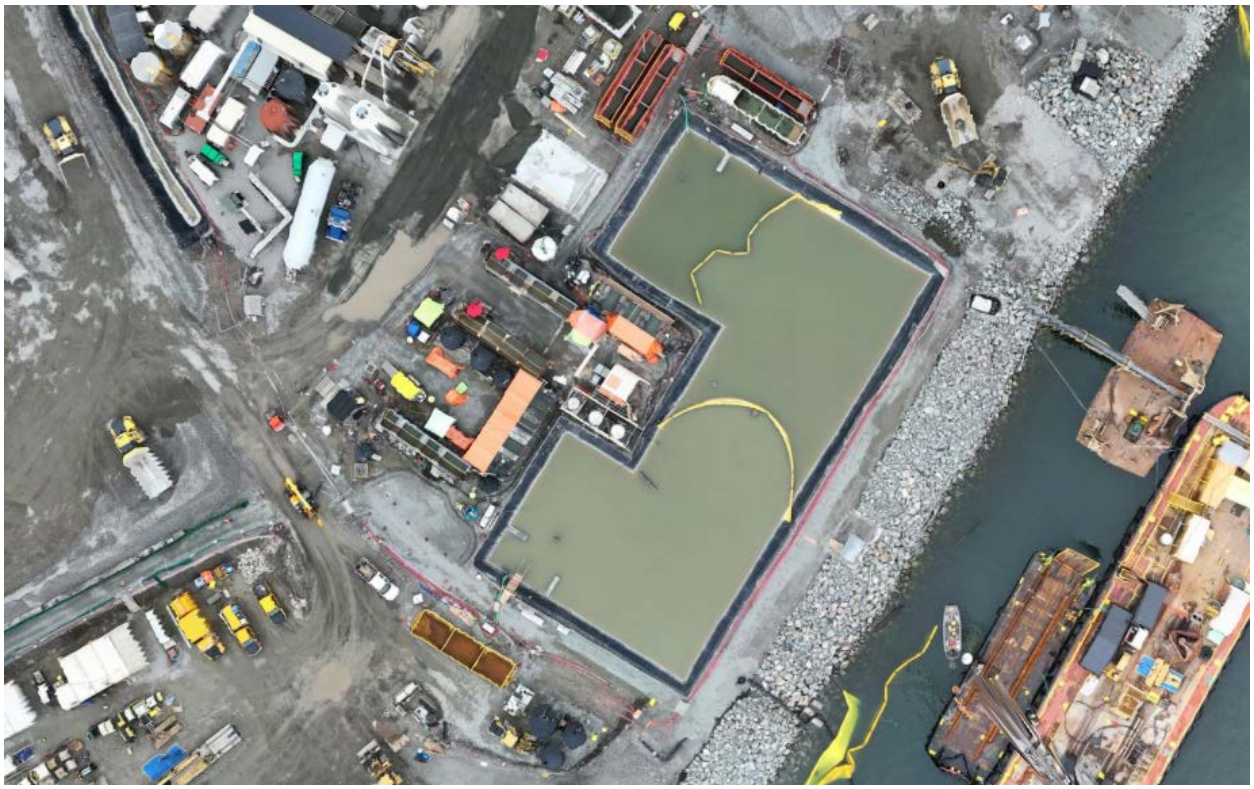


Figure 4: Aerial view of the East Sedimentation Pond (November 7, 2024). The East WWTP is located on the left side of the pond.

Figure 5: Aerial view of the West Sedimentation Pond (November 7, 2024). The TSS settling system (ESC System) and the West WWTP are located to the right of the pond.

Appendix B: East Sedimentation Pond Results

Table B-1: Summary of East Sedimentation Pond Water Quality Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	Station SP-E-IN	Station SP-E-OUT [7]	Station SP-E-OUT [7]
					In-Pond at Effluent Location	Effluent	Effluent
					SP-E-IN	WWTP-E-OUT	WWTP-E-OUT
					VA24C9820-001	VA24D0154-001	VA24D0440-002
		Long Term	Short Term		2024-11-04 12:00	2024-11-06 16:10	2024-11-08 12:30
General Parameters							
pH - Field	pH units	- [2]	-	5.5 - 9.0	9.3	7.4	6.1
Conductivity - Field	µS/cm	-	-	-	116.3	627	332
Temperature - Field	°C	-	-	-	6.9	8.7	9.8
Salinity - Field	ppt	-	-	-	0.1	0.45	0.23
Turbidity - Field	NTU	-	-	-	536.2	7.31	0.7
TSS	mg/L	-	-	25 or 75[6]	2620	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	12.1	11.05	10.54
Anions and Nutrients							
Sulphate	mg/L	-	-	-	16.1	329	76.3
Chloride	mg/L	-	-	-	10.8	13	12.6
Fluoride	mg/L	-	1.5	-	0.054	0.113	0.112
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	0.235	0.443	0.279
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	0.25	0.518	0.58
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	1.2	4.7	5.35
Total Metals							
Aluminum, total (T-Al)	mg/L	-	-	-	74	0.182	0.193
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00313	0.00156	0.00206
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	***0.0253***	0.00116	0.00129
Barium, total (T-Ba)	mg/L	-	-	-	0.594	0.00695	0.00196
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.001	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.06	0.05	0.071
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	***0.00109***	<0.0000150	<0.0000175
Chromium, total (T-Cr)	mg/L	-	-	-	0.0565	<0.00050	0.00151
Cobalt, total (T-Co)	mg/L	-	-	-	0.0246	0.00058	0.00056
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.146	0.00158	0.00223
Iron, total (T-Fe)	mg/L	-	-	-	54.4	0.042	0.036
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.156	0.000208	0.000154
Manganese, total (T-Mn)	mg/L	-	-	-	1.56	0.00863	0.00634
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	***0.000423***	0.00000369	0.0000035
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0616	0.0378	0.0513
Nickel, total (T-Ni)	mg/L	0.0083	-	-	***0.0344***	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000548	0.000247	0.000269
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000372	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000619	0.000017	0.000011
Uranium, total (T-U)	mg/L	-	-	-	0.0146	0.0224	0.00716
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.134	0.00349	0.00365
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.373	<0.0030	0.0033
Hexavalent Chromium, total	mg/L	0.0015	-	-	***0.00405***	<0.00050	0.00135
Dissolved Metals							
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	0.000097	<0.0000100	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.0161	0.00143	0.00206
Iron, dissolved (D-Fe)	mg/L	-	-	-	4.15	0.018	0.025
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.0147	0.00006	0.000082
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.121	0.00837	0.00628
Nickel, dissolved (D-Ni)	mg/L	-	-	-	0.00304	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0811	0.24	0.0574
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.0174	0.00337	0.00343
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0302	0.0015	0.0028
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	mg/L	0.006	-	-	0.000346	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000140	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	0.000648	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	0.00171	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	***0.00128***	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	***0.00188***	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	0.00344	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	0.000372	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	0.000071	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	0.000103	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	0.000136	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	0.00179	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	0.00304	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	<0.000050
Volatile Organic Compounds (VOCs)							
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040	<0.00040	<0.00050
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050	<0.00050	-[8]
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	<0.00050	-[8]

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-11578 East Sedimentation Pond Discharge Limit.
The East Sedimentation Pond discharged each day during the monitoring period (November 3 – November 9).
[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 Wet Conditions. Wet Conditions applied on November 4.
[7] From November 3 to November 9, East WWTP treated effluent was discharged at station SP-E-OUT. On November 3, 6, 8, and 9, field measurements and analytical samples were collected at station SP-E-OUT. Field measurements and analytical samples were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) on November 4, 5, and 7 since no active discharge was observed by site staff at the time of monitoring at station SP-E-OUT.
[8] Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the SP-E-OUT sample collected on November 8.

Table B-2: Summary of East Sedimentation Pond Daily Field Parameters November 3 – 9.

Parameter		Temperature	Dissolved Oxygen (DO)	Salinity	Turbidity	pH	Conductivity	Visibility of Sheen	Total Daily Discharge to Howe Sound from station SP-E-OUT
Unit		**°C**	**mg/L**	**ppt**	**NTU**	**s.u.**	**µS/cm**		**m^3**
PE-111578 Discharge Limit		-	-	-	-	5.5 - 9.0	-	-	-[3]
Lowest Applicable Guideline [1]		-	>=8	-	-	-[2]	-	-	-
Station ID [4]	**Date**								
SP-E-NE	2024-11-03 10:15	9.2	10.68	0.19	18.75	7.0	277	No	474
SP-E-NW	2024-11-03 10:26	9.4	10.58	0.18	45.28	6.9	263	No	
SP-E-OUT/ WWTP-E-OUT[5]	2024-11-03 10:02	9.7	11.21	0.20	0.31	5.6	288	No	
SP-E-IN	2024-11-04 12:00	6.9	12.10	0.10	536.2	9.3	116	No	285
WWTP-E-OUT[5]	2024-11-04 10:17	9.1	11.47	0.2	0.36	5.8	234	No	
WWTP-E-OUT[5]	2024-11-05 10:20	9.1	11.53	0.48	0.41	7.4	679	No	410
SP-E-OUT/ WWTP-E-OUT[5]	2024-11-06 16:10	8.7	11.05	0.45	7.31	7.4	627	No	317
WWTP-E-OUT[5]	2024-11-07 9:53	9.1	11.38	0.32	2.01	7.2	452	No	237
SP-E-OUT/ WWTP-E-OUT[5]	2024-11-08 12:30	9.8	10.54	0.23	0.70	6.1	332	No	385
SP-E-OUT/ WWTP-E-OUT[5]	2024-11-09 12:12	9.8	10.51	0.30	4.09	5.8	432	No	444

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-11578 East Sedimentation Pond Discharge Limit.
All SP-E-OUT samples collected from May 27 to the time of writing were taken from the sample port which is located near the inlet end of the temporary discharge hose.
The East Sedimentation Pond discharged each day during the monitoring period (November 3 – November 9).
[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 annual average authorized discharge rate from the East Sedimentation Pond is 650 m^3/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.
[4] The sedimentation pond received non-contaminated contact water influent each day during the monitoring period; however, site staff noted there was no active input of influent sources to the pond at the time of monitoring on November 3 and November 5 through 9, therefore daily measurements for station SP-E-IN/SP-E-IN-1/SP-E-IN-2 were not collected. The East Sedimentation Pond discharged each day during the monitoring period (November 3 – November 9). Daily field measurements and weekly analytical samples were collected. In-Pond stations SP-E-NW and SP-E-NE may be monitored in place of stations SP-E-IN-1/SP-E-IN-2 and SP-E-OUT, respectively when there is no influent to, or discharge from the East Sedimentation Pond at the time of monitoring.
[5] From November 3 to November 9 East WWTP treated effluent was discharged at station SP-E-OUT. On November 3, 6, 8, and 9, field measurements and analytical samples were collected at station SP-E-OUT. Field measurements and analytical samples were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) on November 4, 5, and 7 since no active discharge was observed by site staff at the time of monitoring at station SP-E-OUT.

Appendix C: East Wastewater Treatment Plant Results

Table C-1: Summary of East Wastewater Treatment Plant Water Quality Results Received at the Time of Reporting.

Parameter	Unit	Operational Minimum Discharge Objective [1]	Station WWTP-E-IN Influent WWTP-E-IN VA24C9976-001 2024-11-05 12:10	Station SP-E-OUT [2] Effluent WWTP-E-OUT VA24D0154-001 2024-11-06 16:10	Station WWTP-E-IN Influent WWTP-E-IN VA24D0440-001 2024-11-08 12:05	Station SP-E-OUT [2] Effluent WWTP-E-OUT VA24D0440-002 2024-11-08 12:30
General Parameters						
pH - Field	pH units	5.5 – 9.0	8.1	7.4	8.3	6.1
Conductivity - Field	µS/cm	-	244	627	249	332
Temperature - Field	°C	-	8.7	8.7	9.6	9.8
Salinity - Field	ppt	-	0.17	0.45	0.17	0.23
Turbidity - Field	NTU	-	35.56	7.31	24.2	0.7
TSS	mg/L	-	11.7	<3.0	9.3	<3.0
Dissolved Oxygen - Field	mg/L	-	11.08	11.05	10.83	10.54
Anions and Nutrients						
Sulphate	mg/L	-	45.0	329	45.9	76.3
Chloride	mg/L	-	12.2	13	12.6	12.6
Fluoride	mg/L	-	0.12	0.113	0.13	0.112
Ammonia (N-NH_3)	mg/L	-	0.517	0.443	0.47	0.279
Nitrite (N-NO_2)	mg/L	-	0.343	0.518	0.366	0.58
Nitrate (N-NO_3)	mg/L	-	4.79	4.70	5.18	5.35
Total Metals						
Aluminum, total (T-Al)	mg/L	-	1.74	0.182	1.23	0.193
Antimony, total (T-Sb)	mg/L	-	0.00197	0.00156	0.00209	0.00206
Arsenic, total (T-As)	mg/L	0.0125	0.00256	0.00116	0.00256	0.00129
Barium, total (T-Ba)	mg/L	-	0.0221	0.00695	0.0161	0.00196
Beryllium, total (T-Be)	mg/L	0.1	0.000029	<0.000020	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	0.059	0.05	0.055	0.071
Cadmium, total (T-Cd)	mg/L	0.00012	<0.0000500	<0.0000150	<0.0000350	<0.0000175
Chromium, total (T-Cr)	mg/L	-	0.00245	<0.00050	0.00231	0.00151
Cobalt, total (T-Co)	mg/L	-	0.00095	0.00058	0.00078	0.00056
Copper, total (T-Cu)	mg/L	0.0043	***0.00704***	0.00158	***0.00628***	0.00223
Iron, total (T-Fe)	mg/L	-	1.16	0.042	0.694	0.036
Lead, total (T-Pb)	mg/L	0.0035	***0.00389***	0.000208	0.00218	0.000154
Manganese, total (T-Mn)	mg/L	-	0.0463	0.00863	0.0307	0.00634
Mercury, total (T-Hg)	mg/L	0.000016	<0.0000050	0.00000369	0.00000837	0.0000035
Molybdenum, total (T-Mo)	mg/L	-	0.0449	0.0378	0.0479	0.0513
Nickel, total (T-Ni)	mg/L	0.0083	0.00096	<0.00050	0.00062	<0.00050
Selenium, total (T-Se)	mg/L		0.00034	0.000247	0.000301	0.000269
Silver, total (T-Ag)	mg/L	0.0015	0.000019	<0.000010	0.00002	<0.000010
Thallium, total (T-Tl)	mg/L	-	0.000014	0.000017	0.000012	0.000011
Uranium, total (T-U)	mg/L	-	0.0148	0.0224	0.0151	0.00716
Vanadium, total (T-V)	mg/L	0.0081	0.00598	0.00349	0.00559	0.00365
Zinc, total (T-Zn)	mg/L	0.0133	0.0124	<0.0030	0.0077	0.0033
Hexavalent Chromium, total	mg/L	0.0015	***0.00164***	<0.00050	***0.00197***	0.00135
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	0.00012	<0.0000200	<0.0000100	<0.0000150	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	0.00413	0.00143	0.00465	0.00206
Iron, dissolved (D-Fe)	mg/L	-	0.018	0.018	0.013	0.025
Lead, dissolved (D-Pb)	mg/L	-	<0.000050	0.00006	<0.000050	0.000082
Manganese, dissolved (D-Mn)	mg/L	-	0.013	0.00837	0.0102	0.00628
Nickel, dissolved (D-Ni)	mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	0.125	0.24	0.121	0.0574
Vanadium, dissolved (D-V)	mg/L	-	0.00336	0.00337	0.00393	0.00343
Zinc, dissolved (D-Zn)	mg/L	-	0.0040	0.0015	0.0022	0.0028
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	-	0.000071	<0.000010	0.000085	<0.000010
Acridine	mg/L	-	<0.000016	<0.000010	<0.000020	<0.000010
Anthracene	mg/L	-	<0.000025	<0.000010	0.000018	<0.000010
Benz(a)anthracene	mg/L	-	0.000017	<0.000010	0.000012	<0.000010
Benzo(a)pyrene	mg/L	0.00001	0.000013	<0.0000050	0.0000099	<0.0000050
Chrysene	mg/L	0.0001	<0.000024	<0.000010	0.000014	<0.000010
Fluoranthene	mg/L	-	0.000104	<0.000010	0.000091	<0.000010
Fluorene	mg/L	0.012	0.000063	<0.000010	0.000062	<0.000010
1-methylnaphthalene	mg/L	-	0.00002	<0.000010	0.000018	<0.000010
2-methylnaphthalene	mg/L	-	0.000018	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	0.000078	<0.000020	0.000033	<0.000020
Pyrene	mg/L	-	0.000079	<0.000010	0.000063	<0.000010
Quinoline	mg/L	-	0.000051	<0.000050	<0.000050	<0.000050
Volatile Organic Compounds (VOCs)						
Benzene	mg/L	0.11	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	<0.00050	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	0.44	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	<0.00040	<0.00040	<0.00050	<0.00050
Total Xylenes	mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	-	<0.00050	<0.00050	-[3]	-[3]
1,2-Dichlorobenzene	mg/L	-	<0.00050	<0.00050	-[3]	-[3]

Notes:

Results ***underlined in bold italics*** exceed the applicable minimum discharge objective.

[1] Operational minimum discharge objectives (MDOs) for WWTP effluent that are listed in Appendix B of the Construction Wastewater Treatment Plant Operations Environmental Protection Plan dated February 7, 2024.

[2] From November 3 to November 9 East WWTP treated effluent was discharged at station SP-E-OUT. On November 3, 6, 8, and 9, field measurements and analytical samples were collected at station SP-E-OUT. Field measurements and analytical samples were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) on November 4, 5, and 7 since no active discharge was observed by site staff at the time of monitoring at station SP-E-OUT.

[3] Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the WWTP-E-IN and WWTP-E-OUT sample collected on November 8.

Table C-2: Summary of East Wastewater Treatment Plant Daily Field Parameters November 3 – 9.

Parameter		**Temperature**	**Dissolved Oxygen (DO)**	**Salinity**	**Turbidity**	**pH**	**Conductivity**	**Visibility of Sheen**	**Total Daily Discharge from the East WWTP**
Unit		**°C**	**mg/L**	**ppt**	**NTU**	**s.u.**	**µS/cm**		**m^3**
PE-111578 Discharge Limit [1]		-	-	-	-	-	-	-	1,100
Minimum Discharge Objective [2]		-	-	-	-	5.5 – 9.0	-	-	-
Station ID [3]	**Date**								
WWTP-E-IN	2024-11-03 10:08	9.3	10.50	0.19	17.79	6.9	274	No	-
SP-E-OUT/ WWTP-E-OUT[3]	2024-11-03 10:02	9.7	11.21	0.20	0.31	5.6	288	No	513
WWTP-E-IN	2024-11-04 10:25	8.7	10.87	0.18	58.94	6.8	257	No	-
WWTP-E-OUT[3]	2024-11-04 10:17	9.1	11.47	0.20	0.36	5.8	234	No	449
WWTP-E-IN	2024-11-05 12:10	8.7	11.08	0.17	35.56	8.1	244	No	-
WWTP-E-OUT[3]	2024-11-05 10:20	9.1	11.53	0.48	0.41	7.4	679	No	393
WWTP-E-IN	2024-11-06	-[4]	-[4]	-[4]	-[4]	-[4]	-[4]	-[4]	-
SP-E-OUT/ WWTP-E-OUT[3]	2024-11-06 16:10	8.7	11.05	0.45	7.31	7.4	627	No	318
WWTP-E-IN	2024-11-07 9:48	9.1	11.00	0.20	28.03	8	284	No	-
WWTP-E-OUT[3]	2024-11-07 9:53	9.1	11.38	0.32	2.01	7.2	452	No	263
WWTP-E-IN	2024-11-08 12:05	9.6	10.83	0.17	24.2	8.3	249	No	-
SP-E-OUT/ WWTP-E-OUT[3]	2024-11-08 12:30	9.8	10.54	0.23	0.70	6.1	332	No	322
WWTP-E-IN	2024-11-09 12:03	9.2	10.57	0.19	16.73	7.4	271	No	-
SP-E-OUT/ WWTP-E-OUT[3]	2024-11-09 12:12	9.8	10.51	0.30	4.09	5.8	432	No	416

Notes:
Results ***underlined in bold italics*** do not meet the applicable minimum discharge objective.
[1] PE-111578 East WWTP Discharge Limit is applied to effluent compliance station WWTP-E-OUT.
[2] Operational minimum discharge objectives (MDOs) for WWTP effluent that are listed in Appendix B of the Construction Wastewater Treatment Plant Operations Environmental Protection Plan dated February 7, 2024.
[3] From November 3 to November 9 East WWTP treated effluent was discharged at station SP-E-OUT. On November 3, 6, 8, and 9, field measurements and analytical samples were collected at station SP-E-OUT. Field measurements and analytical samples were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) on November 4, 5, and 7 since no active discharge was observed by site staff at the time of monitoring at station SP-E-OUT.
[4] Field measurements were not collected from the East WWTP influent station WWTP-E-IN on October 6 as there was no active input of influent to the East WWTP at the time of monitoring.

Appendix D: West Sedimentation Pond Results

Table D-1: Summary of West Sedimentation Pond Water Quality Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	Station SP-W-IN	Station SP-W-OUT [7]	Station ESC-W-OUT [7]	Station SP-W-IN
					Influent	Effluent	Effluent	Influent
					SP-W-IN	ESC-W-OUT	ESC-W-OUT	SP-W-IN
					VA24C9750-001	VA24C9750-002	VA24D0154-002	VA24D0298-001
		Long Term	Short Term		2024-11-03 9:36	2024-11-03 9:28	2024-11-06 17:10	2024-11-07 14:30
General Parameters								
pH - Field	pH units	- [2]	-	5.5 - 9.0	8.7	7.9	7.9	8.5
Conductivity - Field	µS/cm	-	-	-	240.6	180	134	176
Temperature - Field	°C	-	-	-	8.9	9.2	9.1	10.1
Salinity - Field	ppt	-	-	-	0.2	0.12	0.09	0.12
Turbidity - Field	NTU	-	-	-	47.9	1.81	16.38	7.17
TSS	mg/L	-	-	25 or 75[6]	47.9	<3.0	12.2	7.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	12.6	12.62	9.61	10.99
Anions and Nutrients								
Sulphate	mg/L	-	-	-	23.7	29.3	18.1	23.6
Chloride	mg/L	-	-	-	6.44	8.56	5.3	5.92
Fluoride	mg/L	-	1.5	-	0.093	0.102	0.08	0.092
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	-	0.203	0.212	0.0454	0.141
Nitrite (N-NO_2)	mg/L	-	-	-	0.223	0.334	0.114	0.139
Nitrate (N-NO_3)	mg/L	3.7	339	-	3.09	***4.11***	2.58	3.67
Total Metals								
Aluminum, total (T-Al)	mg/L	-	-	-	3.38	0.127	1.11	0.598
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00174	0.00205	0.00159	0.00197
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00293	0.00254	0.00202	0.00294
Barium, total (T-Ba)	mg/L	-	-	-	0.0349	0.00767	0.0147	0.0113
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.000055	<0.000020	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.041	0.019	0.03	0.047
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000637	<0.0000150	0.0000247	<0.0000250
Chromium, total (T-Cr)	mg/L	-	-	-	0.00279	0.00144	0.00148	0.00156
Cobalt, total (T-Co)	mg/L	-	-	-	0.00124	0.00039	0.00047	0.00042
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00863	0.00161	0.00434	0.00575
Iron, total (T-Fe)	mg/L	-	-	-	2.41	0.018	0.722	0.303
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.00683	<0.000050	0.00196	0.00114
Manganese, total (T-Mn)	mg/L	-	-	-	0.0708	0.00033	0.0209	0.0115
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	0.0000092	<0.0000050	0.00000590	0.00000435
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0325	0.0394	0.0248	0.0289
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.0013	<0.00050	0.00068	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000229	0.000252	0.000188	0.000305
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000033	<0.000010	<0.000010	0.000018
Thallium, total (T-Tl)	mg/L	-	-	-	0.000027	<0.000010	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.00932	0.00992	0.0066	0.0108
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00895	0.00393	0.00448	0.00706
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0162	<0.0030	0.0111	0.0033
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00139	***0.00158***	0.00087	0.00138
Dissolved Metals								
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000150	<0.0000150	<0.0000100	<0.0000100
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00333	0.00151	0.00174	0.00583
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.021	0.013	0.037	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000056	<0.000050	<0.000050	0.0001
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0039	0.00029	0.00425	0.00449
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0945	0.112	0.0684	0.101
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00417	0.00396	0.00276	0.00575
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	<0.0010	0.0020	0.0016
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	mg/L	0.006	-	-	0.000061	<0.000010	<0.000010	0.000037
Acridine	mg/L	-	-	-	0.000015	<0.000010	<0.000010	<0.000013
Anthracene	mg/L	-	-	-	0.000017	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	0.000027	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	***0.000021***	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	0.000033	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	0.000129	<0.000010	0.000015	0.000045
Fluorene	mg/L	0.012	-	-	0.00005	<0.000010	<0.000010	0.000026
1-methylnaphthalene	mg/L	0.001	-	-	0.000014	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	0.000014	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	0.000071	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	0.00011	<0.000010	0.000019	0.000054
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Volatile Organic Compounds (VOCs)								
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040	<0.00040	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	<0.00050	<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-11578 West Sedimentation Pond Discharge Limit.
The West Sedimentation Pond discharged during the monitoring period (November 3 – November 9) on November 3 to November 6 and on November 9.
[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. Wet Conditions applied on November 4.
[7] The West Sedimentation Pond discharged through the TSS settling system (ESC system) on November 3 to November 6 and on November 9. From November 3 through 5 and on November 9, field measurements and analytical samples were collected at station SP-W-OUT. Field measurements and an analytical sample were collected from TSS settling system effluent (station ESC-W-OUT) on November 6 and 7 since no discharge was observed by site staff at the time of monitoring at station SP-W-OUT. Field measurements and analytical samples collected from station ESC-W-OUT on November 6 and 7 are analogous to the in-pond effluent quality station.

Table D-2: Summary of West Sedimentation Pond Water Quality Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	Station SP-W-IN	Station SP-W-OUT [7]	Station SP-W-OUT [7]
					Influent	Effluent	Effluent
					SP-W-IN	ESC-W-OUT	ESC-W-OUT-Dup
					VA24D0500-001	VA24D0500-002	VA24D0500-003
		Long Term	Short Term		2024-11-09 10:30	2024-11-09 11:00	2024-11-09 11:00
General Parameters							
pH - Field	pH units	- [2]	-	5.5 - 9.0	9.4	8.2	8.2
Conductivity - Field	µS/cm	-	-	-	183.3	163.9	163.9
Temperature - Field	°C	-	-	-	9.8	10	10
Salinity - Field	ppt	-	-	-	0.1	0.1	0.1
Turbidity - Field	NTU	-	-	-	92.7	2.1	2.1
TSS	mg/L	-	-	25[6]	45.4	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	11.2	11.6	11.6
Anions and Nutrients							
Sulphate	mg/L	-	-	-	26.5	20.2	20.2
Chloride	mg/L	-	-	-	7.85	5.45	5.45
Fluoride	mg/L	-	1.5	-	0.143	0.082	0.082
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	0.165	0.0185	0.0193
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	0.147	0.0764	0.0761
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	***3.75***	2.58	2.58
Total Metals							
Aluminum, total (T-Al)	mg/L	-	-	-	4.92	0.223	0.224
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00208	0.00171	0.00172
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00368	0.00195	0.00196
Barium, total (T-Ba)	mg/L	-	-	-	0.0458	0.00725	0.00717
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.000072	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.05	0.018	0.018
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000735	<0.0000100	<0.0000125
Chromium, total (T-Cr)	mg/L	-	-	-	0.00994	0.00096	0.00098
Cobalt, total (T-Co)	mg/L	-	-	-	0.00165	0.00022	0.00022
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00872	0.00195	0.002
Iron, total (T-Fe)	mg/L	-	-	-	3.27	0.058	0.059
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.00668	0.000317	0.000325
Manganese, total (T-Mn)	mg/L	-	-	-	0.101	0.00175	0.00179
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	***0.0000197***	0.00000173	0.00000175
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0675	0.0263	0.0268
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00142	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000373	0.000208	0.000232
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000029	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000031	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.0118	0.00795	0.00818
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.013	0.0031	0.00306
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0239	<0.0030	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	-	***0.00892***	0.00088	0.00105
Dissolved Metals							
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000150	<0.0000100	<0.0000100
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00251	0.00152	0.00153
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.013	<0.010	0.01
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	0.000075	0.000084
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00163	0.0004	0.00051
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0959	0.0865	0.0895
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.0069	0.00284	0.00281
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	mg/L	0.006	-	-	0.000052	<0.000010	<0.000010
Acridine	mg/L	-	-	-	0.000018	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	0.000024	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	0.000022	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	***0.0000117***	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	0.000023	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	0.000112	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	0.000046	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	0.000019	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	0.00002	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	0.000083	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	0.000112	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	0.000431	<0.000050	<0.000050
Volatile Organic Compounds (VOCs)							
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00050	<0.00050	<0.00050
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	-[8]	-[8]	-[8]
1,2-Dichlorobenzene	mg/L	0.042	-	-	-[8]	-[8]	-[8]

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-11578 West Sedimentation Pond Discharge Limit.
The West Sedimentation Pond discharged during the monitoring period (November 3 – November 9) on November 3 to November 6 and on November 9.
[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. Wet Conditions applied on November 4.
[7] The West Sedimentation Pond discharged through the TSS settling system (ESC system) on November 3 to November 6 and on November 9. From November 3 through 5 and on November 9, field measurements and analytical samples were collected at station SP-W-OUT. Field measurements and an analytical sample were collected from TSS settling system effluent (station ESC-W-OUT) on November 6 and 7 since no discharge was observed by site staff at the time of monitoring at station SP-W-OUT. Field measurements and analytical samples collected from station ESC-W-OUT on November 6 and 7 are analogous to the in-pond effluent quality station.
[8] Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the SP-W-IN and SP-W-OUT samples collected on November 9.

Table D-3: Summary of West Sedimentation Pond Daily Field Parameters November 3 – 9.

Parameter		Temperature	Dissolved Oxygen (DO)	Salinity	Turbidity	pH	Conductivity	Visibility of Sheen	Total Daily Discharge from the West Sedimentation Pond to Howe Sound
Unit		**°C**	**mg/L**	**ppt**	**NTU**	**s.u.**	**µS/cm**		**m^3**
PE-111578 Discharge Limit		-	-	-	-	5.5 - 9.0	-	-	-[3]
Lowest Applicable Guideline [1]		-	>=8	-	-	-[2]	-	-	-
Station ID [4]	**Date**								
ESC-W-IN	2024-11-03 9:11	9.7	11.50	0.14	19.92	7.6	209	No	716
SP-W-E	2024-11-03 9:40	9.1	12.23	0.15	26.87	8.6	222	No	
SP-W-W	2024-11-03 9:46	9.3	11.82	0.13	23.93	8.5	194	No	
SP-W-IN	2024-11-03 9:36	8.9	12.59	0.17	47.90	8.7	241	No	
SP-W-OUT/ ESC-W-OUT[4]	2024-11-03 9:28	9.2	12.62	0.12	1.81	7.9	180	No	
ESC-W-IN	2024-11-04 11:12	7.8	11.96	0.10	49.63	7.6	135	No	611
SP-W-IN	2024-11-04 11:25	7.9	-[5]	0.10	192.90	7.8	83	No	
SP-W-OUT/ ESC-W-OUT[4]	2024-11-04 11:20	7.8	12.41	0.11	1.33	8.1	157	No	
ESC-W-IN	2024-11-05 10:57	8.7	11.86	0.07	93.33	8.5	98	No	617
SP-W-OUT/ ESC-W-OUT[4]	2024-11-05 10:49	9.0	12.52	0.07	2.07	7.9	100	No	
SP-W-IN	2024-11-06 17:03	8.3	11.55	0.08	28.33	8.0	113	No	283
ESC-W-OUT[4]	2024-11-06 17:10	9.1	9.61	0.09	16.38	7.9	134	No	
SP-W-IN	2024-11-07 14:30	10.1	10.99	0.12	7.17	8.5	176	No	0
ESC-W-OUT[4]	2024-11-07 10:04	8.6	8.70	0.10	15.26	7.5	137	No	
-[4]	2024-11-08	-[4]	-[4]	-[4]	-[4]	-[4]	-[4]	-[4]	0
SP-W-IN	2024-11-09 10:30	9.8	11.20	0.10	92.70	9.4	183	No	434
ESC-W-IN	2024-11-09 11:38	9.9	11.50	0.10	14.40	8.3	199	No	
SP-W-OUT/ ESC-W-OUT[4]	2024-11-09 11:00	10.0	11.60	0.10	2.10	8.2	164	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-11578 West Sedimentation Pond Discharge Limit.
The West Sedimentation Pond discharged during the monitoring period (October 20 - 26) on November 3 to November 6 and on November 9.
[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 annual average authorized discharge rate from the West Sedimentation Pond is 310 m^3/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.
[4] The West ESC system was not active at the time of monitoring on November 7 and November 8, therefore daily measurements for station ESC-W-IN were not collected. Contact water was directly discharged into Cell 4 of the West Sedimentation Pond at SP-W-E on November 3, 4, and 6, and field measurements and an analytical sample were collected of this influent source (SP-W-IN) on November 3 and field measurements were also collected on November 4 and 6. Contact water was directly discharged into Cell 1 of the West Sedimentation Pond at SP-W-W on November 7 and 9, and field measurements and an analytical sample were collected of this influent source (SP-W-IN) on November 7 and field measurements were also collected on November 9. There was no active input of influent to the West Sedimentation Pond on November 5 and 8, therefore daily field measurements for station SP-W-IN were not collected. The West Sedimentation Pond discharged through the TSS settling system (ESC system) on November 3 to November 6 and on November 9. From November 3 through 5 and on November 9, field measurements and analytical samples were collected at station SP-W-OUT. Field measurements and an analytical sample were collected from TSS settling system effluent (station ESC-W-OUT) on November 6 and 7 since no discharge was observed by site staff at the time of monitoring at station SP-W-OUT. There are no PE-111578 monitoring requirements established for station ESC-W-OUT; however, this station is analogous to the in-pond effluent station and is monitored to evaluate the performance of the TSS settling system (ESC). The West Sedimentation Pond did not discharge November 7 and November 8, therefore daily measurements for station SP-W-OUT were not collected. In-Pond stations SP-W-W and SP-W-E may be monitored in place of stations SP-W-IN/SP-W-IN-1/SP-W-IN-2 and SP-W-OUT, respectively when there is no influent to, or discharge from the West Sedimentation Pond at the time of monitoring.
[5] The field measurement for DO on November 4 of the West Sedimentation Pond influent source (SP-W-IN) was 1.70 mg/L and is suspected to be a measurement error.

Appendix E: Marine Water Receiving Environment Results

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

Parameter	Unit	Lowest Applicable Guideline [1]		Station IDZ-W1 0.5 m Below Surface IDZ-W1-0.5 VA24C8528-002	Station IDZ-W2 0.5 m Below Surface IDZ-W2-0.5 VA24C8528-001
		Long Term	Short Term	2024-10-23 9:40	2024-10-23 11:29
General Parameters					
pH - Field	pH units	7.0 - 8.7	-	***6.7***	7.8
Specific Conductivity - Field	µS/cm	-	-	9015	7557
Temperature - Field	°C	-	-	8.7	8.6
Salinity - Field	ppt	Narrative[2]	-	7.43	6.26
Turbidity - Field	NTU	Narrative[2]	Narrative[2]	14.60	8.23
TSS	mg/L	Narrative[2]	Narrative[2]	5.6	5.2
Dissolved Oxygen - Field	mg/L	>=8	-	10.31	10.68
Anions and Nutrients					
Sulphate	mg/L	-	-	533	508
Chloride	mg/L	-	-	4080	3880
Fluoride	mg/L	-	1.5	<1.0	<1.0
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	0.0149	0.0124
Nitrite (N-NO_2)	mg/L	-	-	<0.10	<0.10
Nitrate (N-NO_3)	mg/L	3.7	339	<0.50	<0.50
Total Metals					
Aluminum, total (T-Al)	mg/L	-	-	0.416	0.38
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	0.00177	0.00145
Barium, total (T-Ba)	mg/L	-	-	0.0168	0.0172
Beryllium, total (T-Be)	mg/L	0.1	-	<0.00050	<0.00050
Boron, total (T-B)	mg/L	1.2	-	0.89	0.82
Cadmium, total (T-Cd)	mg/L	0.00012	-	0.00002	0.000032
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000203	0.000213
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00173	0.00134
Iron, total (T-Fe)	mg/L	-	-	0.341	0.32
Lead, total (T-Pb)	mg/L	0.002	0.14	0.00013	<0.00010
Manganese, total (T-Mn)	mg/L	-	-	0.0166	0.0174
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.00232	0.00225
Nickel, total (T-Ni)	mg/L	0.0083	-	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	0.00071	<0.00050
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00010	<0.00010
Thallium, total (T-Tl)	mg/L	-	-	<0.000050	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000799	0.000716
Vanadium, total (T-V)	mg/L	0.005	-	0.00128	0.00124
Zinc, total (T-Zn)	mg/L	0.01	0.055	<0.0030	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	<0.00150	<0.00150
Dissolved Metals					
Cadmium, dissolved (D-Cd)	mg/L	-	-	<0.000020	0.000023
Copper, dissolved (D-Cu)	mg/L	-	-	<0.00050	0.00055
Iron, dissolved (D-Fe)	mg/L	-	-	0.013	0.014
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.0104	0.00889
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	1.46	1.04
Vanadium, dissolved (D-V)	mg/L	-	-	0.00059	0.0005
Zinc, dissolved (D-Zn)	mg/L	-	-	<0.0010	<0.0010
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	-	-	<0.000050	<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.
[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. The water quality data presented in the table were collected when the site was not discharging, therefore the guidelines were not evaluated.
[3] The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F 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, BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

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

Parameter	Unit	Lowest Applicable Guideline [1]		Station IDZ-E1	Station IDZ-E2	Station IDZ-W1		
				0.5 m Below Surface	0.5 m Below Surface	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-E1-0.5	IDZ-E2-0.5	IDZ-W1-0.5	IDZ-W1-2m	IDZ-W1-SF
				VA24C9386-001	VA24C9386-002	VA24C9386-003	VA24C9386-005	VA24C9386-007
		Long Term	Short Term	2024-10-30 13:40	2024-10-30 13:20	2024-10-30 13:15	2024-10-30 13:40	2024-10-30 14:05
General Parameters								
pH - Field	pH units	7.0 - 8.7	-	7.4	7.5	7.4	7.5	7.3
Specific Conductivity - Field	µS/cm	-	-	13533	23385	11999	24508	32796
Temperature - Field	℃	-	-	9.3	10.3	9.5	10.6	9.2
Salinity - Field	ppt	Narrative[2]	-	11.48	20.24	10.15	21.15	30.29
Turbidity - Field	NTU	Narrative[2]	Narrative[2]	2.74	1.55	2.78	0.92	0.89
TSS	mg/L	Narrative[2]	Narrative[2]	4.7	4.0	<2.0	5.1	***13.4***
Dissolved Oxygen - Field	mg/L	>=8	-	10.19	9.17	10.40	8.79	***4.50***
Anions and Nutrients								
Sulphate	mg/L	-	-	673	496	228	1180	2530
Chloride	mg/L	-	-	4940	3700	1790	8530	18000
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0	<1.0	<1.0
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	0.0152	0.015	0.014	0.0146	0.005
Nitrite (N-NO_2)	mg/L	-	-	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate (N-NO_3)	mg/L	3.7	339	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals								
Aluminum, total (T-Al)	mg/L	-	-	0.183	0.21	0.167	0.0932	0.0311
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	<0.00080	<0.00080	<0.00040	<0.00120	<0.00160
Barium, total (T-Ba)	mg/L	-	-	0.0099	0.0102	0.0085	0.0112	0.0115
Beryllium, total (T-Be)	mg/L	0.1	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total (T-B)	mg/L	1.2	-	1.12	0.93	0.66	***2.36***	***3.94***
Cadmium, total (T-Cd)	mg/L	0.00012	-	0.000034	0.000023	0.000035	0.000055	0.000085
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.00016	0.000161	0.000135	0.000176	0.000223
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00118	0.00148	0.00146	0.00104	0.00057
Iron, total (T-Fe)	mg/L	-	-	0.16	0.178	0.136	0.08	0.031
Lead, total (T-Pb)	mg/L	0.002	0.14	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, total (T-Mn)	mg/L	-	-	0.00916	0.00933	0.00741	0.00689	0.00926
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.00304	0.002	0.0017	0.005	0.0085
Nickel, total (T-Ni)	mg/L	0.0083	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	<0.00050	<0.00050	<0.00050	<0.00050	0.00061
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thallium, total (T-Tl)	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000882	0.000665	0.000483	0.00157	0.00247
Vanadium, total (T-V)	mg/L	0.005	-	0.00102	0.00102	0.00072	0.00115	0.00141
Zinc, total (T-Zn)	mg/L	0.01	0.055	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	<0.00150	<0.00150	<0.00150	<0.00150	<0.00150
Dissolved Metals								
Cadmium, dissolved (D-Cd)	mg/L	-	-	0.000043	0.000029	0.00002	0.00004	0.000091
Copper, dissolved (D-Cu)	mg/L	-	-	0.00086	0.00216	0.00078	0.00084	0.00052
Iron, dissolved (D-Fe)	mg/L	-	-	0.019	0.022	0.022	0.015	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00593	0.00665	0.00598	0.00613	0.0078
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	2.64	2.05	1.61	3.11	6.65
Vanadium, dissolved (D-V)	mg/L	-	-	0.00085	0.00075	0.00065	0.00095	0.00146
Zinc, dissolved (D-Zn)	mg/L	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	mg/L	0.006	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	0.000012	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	0.000024	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Volatile Organic Compounds (VOCs)								
Benzene	mg/L	0.11	-	-	-	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	-	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	-	-	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	-	<0.00040	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	-	-	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	-	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	-	<0.00050	<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.
[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. The water quality data presented in the table were collected when the site was discharging, therefore the guidelines were evaluated. Turbidity and TSS BC WQG were evaluated using Reference Station WQR2 at 0.5 m and 2 m below the water surface and 2 m above the seafloor on October 29 as applicable as the background station for samples collected October 30. Reference stations are considered to be background stations.
[3] The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F 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, BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

Table E-3: Summary of Marine Water Quality Results Received at the Time of Reporting

Parameter	Unit	Lowest Applicable Guideline [1]		Station IDZ-W2		
				0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-W2-0.5	IDZ-W2-2m	IDZ-W2-SF
				VA24C9386-004	VA24C9386-006	VA24C9386-008
		Long Term	Short Term	2024-10-30 12:55	2024-10-30 12:35	2024-10-30 12:05
General Parameters						
pH - Field	pH units	7.0 - 8.7	-	7.1	7.5	7.3
Specific Conductivity - Field	µS/cm	-	-	13420	24372	32797
Temperature - Field	℃	-	-	9.1	10.6	9.2
Salinity - Field	ppt	Narrative[2]	-	11.43	21.04	30.28
Turbidity - Field	NTU	Narrative[2]	Narrative[2]	2.06	0.80	0.34
TSS	mg/L	Narrative[2]	Narrative[2]	2.6	2.3	4.4
Dissolved Oxygen - Field	mg/L	>=8	-	10.01	8.82	***4.91***
Anions and Nutrients						
Sulphate	mg/L	-	-	303	613	2340
Chloride	mg/L	-	-	2320	4540	16600
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	0.015	0.0158	0.0083
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	<0.10	<0.10	<0.10
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	<0.50	<0.50	<0.50
Total Metals						
Aluminum, total (T-Al)	mg/L	-	-	0.198	0.14	0.041
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	<0.0010	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	<0.00040	<0.00080	<0.00160
Barium, total (T-Ba)	mg/L	-	-	0.0091	0.0097	0.0113
Beryllium, total (T-Be)	mg/L	0.1	-	<0.00050	<0.00050	<0.00050
Boron, total (T-B)	mg/L	1.2	-	0.57	***1.35***	***3.82***
Cadmium, total (T-Cd)	mg/L	0.00012	-	<0.000020	0.000027	0.000065
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.00013	0.000145	0.000215
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00106	***0.00324***	0.00066
Iron, total (T-Fe)	mg/L	-	-	0.156	0.115	0.042
Lead, total (T-Pb)	mg/L	0.002	0.14	<0.00010	<0.00010	0.00014
Manganese, total (T-Mn)	mg/L	-	-	0.00814	0.00735	0.00808
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.0013	0.00306	0.00809
Nickel, total (T-Ni)	mg/L	0.0083	-	<0.00050	<0.00050	0.00054
Selenium, total (T-Se)	mg/L	0.002	-	<0.00050	<0.00050	0.00092
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00010	<0.00010	<0.00010
Thallium, total (T-Tl)	mg/L	-	-	<0.000050	<0.000050	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000427	0.000892	0.00231
Vanadium, total (T-V)	mg/L	0.005	-	0.00075	0.00095	0.0014
Zinc, total (T-Zn)	mg/L	0.01	0.055	<0.0030	<0.0030	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	<0.00150	<0.00150	<0.00150
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	-	-	<0.000020	0.000038	0.00008
Copper, dissolved (D-Cu)	mg/L	-	-	0.0008	0.00058	0.00084
Iron, dissolved (D-Fe)	mg/L	-	-	0.029	0.017	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00623	0.00529	0.00818
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	0.00051
Strontium, dissolved (D-Sr)	mg/L	-	-	1.00	2.36	5.97
Vanadium, dissolved (D-V)	mg/L	-	-	0.00055	0.00078	0.00135
Zinc, dissolved (D-Zn)	mg/L	-	-	<0.0010	<0.0010	<0.0020
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	0.006	-	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	<0.000050	<0.000050	<0.000050
Volatile Organic Compounds (VOCs)						
Benzene	mg/L	0.11	-	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	<0.00040	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	<0.00050	<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.
[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. The water quality data presented in the table were collected when the site was discharging, therefore the guidelines were evaluated. Turbidity and TSS BC WQG were evaluated using Reference Station WQR2 at 0.5 m and 2 m below the water surface and 2 m above the seafloor on October 29 as applicable as the background station for samples collected October 30. Reference stations are considered to be background stations.
[3] The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F 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, BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

Table E-4: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline[1]	Station IDZ-W2		
			0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
			IDZ-W2-0.5	IDZ-W2-2m	IDZ-W2-SF
			VA24C7985-001	VA24C7985-002	VA24C7985-003
			2024-10-18	2024-10-18	2024-10-18
Methylmercury	**µg/L**	0.0001 [2]	<0.000040	<0.000020	<0.000020
Total Mercury	**µg/L**	0.013 [3,4]	<0.0050	<0.0050	<0.0050

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine aquatic life.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] From BC Ambient Water Quality Guidelines for Mercury Overview Report. The methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) is indicated as a WQG for the protection of wildlife and is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that consume fish.
[3] CCME guideline for total mercury = 0.016 µg/L.
[4] When MeHg ≤ 0.5% of total Hg, BC WQG = 0.02 µg/L. When MeHg > 0.5% of total Hg, BC WQG = 0.0001/(MeHg/Total Hg). Detection limit values are used to calculate the WQG for result reported as not detected.
Non-detect results are screened using the detection limit value.