TECHNICAL MEMORANDUM

To:	**Ian McAllister, Ashleigh Crompton, Mike Champion, Jackie Boruch and Ryan Schucroft (Woodfibre LNG)**	**Date:**	**11 Nov 2024**
From:	**Cheng Kuang, Holly Pelletier and Patrick Mueller (Lorax)**	**Project #:**	**A633-8**
Subject:	**PE-111578 Weekly Discharge and Compliance Report #38 for October 27 – November 2**		

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 #38) was prepared by Lorax Environmental and summarizes WDA monitoring conducted the week of October 27 – November 2. 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 #38 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 I 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 October 27 – November 2 monitoring period. The East Wastewater Treatment Plant (WWTP), East Sedimentation Pond and West Sedimentation Pond are commissioned for operation and discharge. The East WWTP treatment process was upgraded on October 14 to enhance the treatment of 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, non-contaminated and contaminated 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 WWTP for treatment or to the East and West Sedimentation Ponds for TSS settling and discharge.

A flocculant-based TSS settling system (ESC system) is used at the West Sedimentation Pond to remove TSS from non-contaminated contact water that is directed to the pond. The schedule for construction of the East and West Sedimentation Pond permanent outfall structures has not been finalized. A temporary discharge system (i.e., pump, hosing and diffusor) is used to convey East and West Sedimentation Pond effluent to their respective authorized discharge locations when necessary for the discharge of excess water, and if the effluent water quality is compliant with the requirements of PE-111578. Each of the authorized discharge locations has an initial dilution zone (IDZ) within where sedimentation pond discharges mix with Howe Sound surface waters. The IDZ is defined in PE-111578 and extends 150 m from 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.

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 (October 27 – November 2) with heavy rains on October 27. The total weekly precipitation amount was 88.8 mm with the majority (44.0 mm) received on October 27. 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
10-27-2024	44.0	12.3	8.6	Heavy Rain
10-28-2024	17.0	10.5	7.7	Scattered Showers
10-29-2024	0.8	10.4	6.9	Scattered Showers
10-30-2024	10.8	7.6	6.2	Scattered Showers
10-31-2024	5.8	9.1	5.9	Scattered Showers
11-02-2024	9.2	8.4	6.0	Scattered Showers
11-01-2024	1.2	8.8	5.9	Scattered Showers

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

Based on operational experience, the East and West Sedimentation ponds do not adequately settle suspended sediments (TSS) when contact water flows are elevated. However, the East WWTP treatment system and the West TSS settling system are effective for removing TSS, and in general all contact water has been routed through these systems prior to placement in the sedimentation ponds and subsequent discharge from the ponds to Howe Sound. However, 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 sedimentation ponds thereby increasing the risk that effluent discharged from the ponds would not meet PE-111578 discharge limits. Therefore, on October 28 water management was rearranged to store contact water in the sedimentation ponds and discharge treated water from the East WWTP treatment system and clarified water from the West TSS settling system to Howe Sound through the authorized discharge locations. The discharge rearrangement was communicated to BCER and is intended to ensure that effluent discharged to Howe Sound meets PE-111578 discharge limits.

Routine operation of the East WWTP continued during the monitoring period (October 27 – November 2). Contaminated and potentially contaminated contact waters from the 1100, 1200C,

and 1300 Areas, concrete batch plant contact water ditch and washout, and the soil anchor pad were directed to the East WWTP for treatment, as well as water recirculated from the East Sedimentation Pond (Appendix A, Figure 2). A total of 3,415 m^3 of treated WWTP effluent was discharged to the East Sedimentation Pond October 27 – November 2. Daily East WWTP effluent flows are provided in Appendix C (Table C-4).

The East Sedimentation Pond received East WWTP treated water on October 27 and October 28 and received contact water from the 1100 collection area and contact water sump, the 1200B collection area, the 1200C contact water sump and collection ditch, and the 1300 contact water sump on October 28 through November 2 (Figure 2). Discharge from the East Sedimentation Pond occurred on October 27, and direct discharge of treated effluent from the East WWTP to Howe Sound occurred from October 28 through November 2. During the monitoring period (October 27 – November 2) a total of 2,755 m^3 effluent was discharged from the authorized discharge location (SP-E-OUT) to Howe Sound. Daily discharge volumes from station SP-E-OUT are provided in Appendix B, Table B-5.

During the October 27 – November 2 monitoring period, contact waters from the 4100 collection sump and road runoff, the 4200 collection sump, the surge pond, the wash bay, the fuel farm collection sump and containment (Figure 3) were directed to the West Sedimentation Pond TSS settling system prior to deposition in the pond (October 27 and 28) and directly to the pond (October 29 to November 2). Discharge from the West Sedimentation Pond via the West TSS settling system to Howe Sound occurred from October 28 through November 2. A total of 3,399 m^3 effluent was discharged from the authorized discharge location (SP-W-OUT) during the monitoring period (October 27 – November 2). Daily discharge volumes from station SP-W-OUT are provided in Appendix D, Table D-5.

2. Monitoring Summary

The PE-111578 authorized works were under construction during the October 27 – November 2 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-1, SP-E-IN-2, 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 and IDZ-E2).

East Sedimentation Pond influent and effluent stations SP-E-NW and SP-E-NE, respectively, are in-pond stations that may be monitored in place of stations SP-E-IN-1, SP-E-IN-2 and SP-E-OUT, when there is no influent to, or discharge from the East Sedimentation Pond. 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 proximal to the influent and effluent locations when there is no influent to or discharge from the pond. Station ESC-W-IN is the influent station located at the inlet to the TSS settling system for the West Sedimentation Pond. Station SP-W-IN is the West Sedimentation Pond influent entering the pond at cell 4 (last stage of the pond prior to discharge).

Water quality was monitored at stations OUT-01, OUT-06, IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, WQR2, WWTP-E-IN, WWTP-E-OUT, SP-E-NE, SP-E-NW, SP-E-IN-1, SP-E-OUT, ESC-W-IN, SP-W-E, SP-W-W, and SP-W-OUT during the monitoring period (October 27 – November 2). Sampling dates and parameters tested are summarized in Table 2.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (October 27 – November 2) were met with the following minor exceptions. Daily field parameters were not collected at SP-W-IN (influent to the pond that bypassed the TSS settling system) 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. These items are tracked in Table 12.

Daily field parameters were not collected at influent stations SP-E-IN-1 and SP-E-IN-2 from October 27 as the East Sedimentation Pond did not receive contact water inflows on that day. Daily field parameters were not collected at SP-E-IN-1 or SP-E-IN-2 on October 31, November 1 and November 2 as field staff noted there was no active input of contact water into the East Sedimentation Pond at the time of monitoring. Daily field parameters were not collected at West Sedimentation Pond influent station SP-W-IN on November 2 as there was no active input of contact water to the West Sedimentation Pond at the time of monitoring. Daily field parameters were not collected at West Sedimentation Pond influent station ESC-W-IN on October 27, 29 and 30 as there was no contact water directed to the influent station 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 active during the monitoring period.

Table 2: Summary of PE-111578 Monitoring Samples Collected October 27 – November 2.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
October 27, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	SP-E-OUT	East Sedimentation Pond effluent	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-OUT	East WWTP effluent	Field Parameters.	P
	WWTP-E-IN	East WWTP influent		
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 4 (last stage of the pond prior to discharge)	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
	OUT-01	Non-contact water diversion ditch outlet	Field[2], Physical & General Parameters, Total, Dissolved and Speciated Metals, and Methylmercury.	M, W_4
	OUT-06	Non-contact water diversion ditch outlet		
October 28, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	P
	SP-E-IN-1	East Sedimentation Pond influent	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
	SP-E-OUT/ WWTP-E-OUT [4]	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 Parameters.	D
	ESC-W-IN	West Sedimentation Pond influent, located at the TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT [5]	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
	WQR1-0.5	Reference site 1; 0.5 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	M, W_4
	WQR1-2m	Reference site 1; 2 m below surface		
	WQR1-SF	Reference site 1; 2 m above the seafloor		
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	P
	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		
	IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
October 29, 2024	SP-E-IN-1	East Sedimentation Pond influent	Field Parameters.	P
	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-OUT/ WWTP-E-OUT [4]	East WWTP effluent discharged at station SP-E-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, Methylmercury, Glycols, Oil and Grease.	D, W_1
	WWTP-E-IN	East WWTP influent	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
	SP-W-W [1]	West Sedimentation Pond, in-pond sample, represents influent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-W-OUT/ ESC-W-OUT [5]	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
	WQR2-0.5	Reference site 2; 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_4
	WQR2-2m	Reference site 2; 2 m below surface		
	WQR2-SF	Reference site 2; 2 m above the seafloor		
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	P
	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		
	IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
October 30, 2024	SP-E-IN-1	East Sedimentation Pond influent	Field Parameters.	P
	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-OUT/ WWTP-E-OUT [4]	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	Field Parameters.	P
	SP-W-W [1]	West Sedimentation Pond, in-pond sample, represents influent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-W-OUT/ ESC-W-OUT [5]	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
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals, Methylmercury, Oil and Grease.	P
	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 & 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		
	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		

Table 2 (Continued): Summary of PE-111578 Monitoring Samples Collected October 27 – November 2.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
October 31, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	P
	SP-E-OUT/ WWTP-E-OUT [4]	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	ESC-W-IN	West Sedimentation Pond influent, located at the TSS settling system.	Field Parameters.	D
	SP-W-E [1]	West Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	P
	SP-W-W [1]	West Sedimentation Pond, in-pond sample, represents influent quality		
	SP-W-OUT/ ESC-W-OUT [5]	West TSS settling system effluent discharged at station SP-W-OUT	Field, Physical & General Parameters, Total, Dissolved and Speciated Metals.	D, W_1, P
	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 1, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality		
	SP-E-OUT/ WWTP-E-OUT [4]	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	SP-W-E [1]	West Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	P
	SP-W-W [1]	West Sedimentation Pond, in-pond sample, represents influent quality		
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 4 (last stage of the pond prior to discharge)	Field Parameters.	D
	ESC-W-IN	West Sedimentation Pond influent, located at the TSS settling system.		
	SP-W-OUT/ ESC-W-OUT [5]	West TSS settling system effluent discharged at station SP-W-OUT		
	WQR1-0.5	Reference site 1; 0.5 m below surface	Field, Physical & General Parameters[3], VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	M, W_4
	WQR1-2m	Reference site 1; 2 m below surface		
	WQR1-SF	Reference site 1; 2 m above the seafloor		
November 2, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality		
	SP-E-OUT/ WWTP-E-OUT [4]	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	SP-W-E [1]	West Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	P
	ESC-W-IN	West Sedimentation Pond influent, located at the TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT [5]	West TSS settling system effluent discharged at station SP-W-OUT		
	WQR2-0.5	Reference site 2; 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_4
	WQR2-2m	Reference site 2; 2 m below surface		
	WQR2-SF	Reference site 2; 2 m above the seafloor		

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 stations SP-E-NW and SP-E-NE may be monitored in place of stations 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. Similarly, the West Sedimentation Pond in-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] The field parameters for the OUT-01 sample were collected on October 27 were collected on October 28.
[3] The physical and general parameters bottle was omitted from the laboratory submission for the November 1 sample collected at station WQR1-SF.
[4] As a result of the reconfigured pathway for effluent discharge at station SP-E-OUT effective October 28, field measurements were collected from the meter box at the East WWTP effluent station (WWTP - E- OUT) from October 28 through October 30; however, the samples equally reflect the water quality and monitoring requirements for discharge from the authorized discharge location (station SP-E-OUT). From October 31 to November 2, field measurements were collected at station SP-E-OUT; however, the samples equally reflect the water quality and monitoring requirements for station WWTP-E-OUT.
[5] As a result of the reconfigured pathway for effluent discharge at station SP-W-OUT effective October 28, field measurements and analytical samples were collected from TSS settling system effluent (station ESC-W-OUT) from October 28 through October 30; however, the samples equally reflect the water quality and monitoring requirements for discharge from the authorized discharge location (station SP-W-OUT). From October 31 to November 2, field measurements and analytical samples were collected at station SP-W-OUT. There are no PE-111578 monitoring requirements established for station ESC-W-OUT; however, this station has been 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.

3.2 Summary of Reported Results

Field measurements and analytical results available at the time of reporting for samples collected during the monitoring period (October 27 – November 2) 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 collected October 27 (methylmercury, dioxins and furans)
- SP-W-IN collected October 27 (dioxins and furans)
- OUT-01 and OUT-06 collected October 27 (field parameters and all analytical parameters)

- SP-E-IN-1, SP-E-OUT/WWTP-E-OUT and SP-W-OUT/ESC-W-OUT collected October 28 (methylmercury, dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, and WQR1 collected October 28 (dioxins and furans)
- SP-E-OUT/WWTP-E-OUT and SP-W-OUT/ESC-W-OUT collected October 29 (methylmercury)
- WWTP-E-IN collected October 29 (methylmercury, dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, and WQR2 collected October 29 (dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 collected October 30 (field parameters and all analytical parameters)
- IDZ-E1 and IDZ-E2 collected October 31 (field parameters and all analytical parameters)
- WQR1 collected November 1 (field parameters and all analytical parameters)
- WQR2 collected November 2 (field parameters and all analytical parameters)

Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #38.

Sample	Description	Sampling Date	Parameters Reported
WWTP-E-OUT	East WWTP effluent	September 19, 2024	Dioxins and Furans.
WWTP-E-IN	East WWTP influent		
WWTP-W-OUT	West WWTP effluent		
WWTP-W-IN	West WWTP influent		
WWTP-W-OUT	West WWTP effluent	September 21, 2024	Dioxins and Furans.
WWTP-W-IN	West WWTP influent		
WWTP-E-OUT	East WWTP effluent	September 23, 2024	Dioxins and Furans.
WWTP-E-IN	East WWTP influent		
SW-01	Lower Reach of Woodfibre Creek (near the mouth)	October 3, 2024	Methylmercury, Dioxins and Furans.
SW-07	Upstream Mill Creek (at the diversion inlet)		
SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	October 4, 2024	Methylmercury, Dioxins and Furans.
SW-03	Lower Reach of Mill Creek (near the mouth, in the estuarine zone)		
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)		
OUT-01	Non-contact water diversion ditch outlet		Methylmercury.
WQR1-0.5	Reference site 1; 0.5 m below surface	October 6, 2024	Methylmercury.
WQR1-2m	Reference site 1; 2 m below surface		
WQR1-SF	Reference site 1; 2 m above the seafloor		
WQR2-0.5	Reference site 2; 0.5 m below surface		
WQR2-2m	Reference site 2; 2 m below surface		
WQR2-SF	Reference site 2; 2 m above the seafloor		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface	October 9, 2024	Dioxins and Furans.
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
SP-E-OUT	East Sedimentation Pond effluent	October 11, 2024	Dioxins and Furans.
SP-E-IN-1	East Sedimentation Pond influent	October 19, 2024	Methylmercury.
SP-E-OUT	East Sedimentation Pond effluent		
SP-W-IN	West Sedimentation Pond influent		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		
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		
WQR1-0.5	Reference site 1; 0.5 m below surface		
WQR2-0.5	Reference site 2; 0.5 m below surface		
W-GANGWAY	Contact water at west floatel gangway		Dioxins and Furans.
SP-E-IN-1	East Sedimentation Pond influent	October 20, 2024	Methylmercury.
SP-E-OUT	East Sedimentation Pond effluent		
SP-W-IN	West Sedimentation Pond influent		
SP-W-OUT	West Sedimentation Pond effluent		
ESC-W-IN	West Sedimentation Pond influent, located at the TSS settling system		
OUT-06	Non-contact water diversion ditch outlet		
W-G-RE	Howe Sound at floatel west gangway		
RE-2	Howe Sound at OUT-02		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		
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		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
WQR1-0.5	Reference site 1; 0.5 m below surface		
WQR1-2m	Reference site 1; 2 m below surface		
WQR2-0.5	Reference site 2; 0.5 m below surface		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	October 21, 2024	Methylmercury.
SP-E-OUT	East Sedimentation Pond effluent		
SP-W-OUT	West Sedimentation Pond effluent		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface		
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
SW-01	Lower Reach of Woodfibre Creek (near the mouth)	October 22, 2024	Methylmercury.
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)		
SW-02	Upper Reach of Mill Creek (upstream of the third bridge)		
SW-03	Lower Reach of Mill Creek (near the mouth, in the estuarine zone)		
SW-07	Upstream Mill Creek (at the diversion inlet)		
OUT-02	Non-contact water diversion ditch outlet	October 23, 2024	Methylmercury.
WWTP-E-OUT	East WWTP effluent	October 24, 2024	Methylmercury.
WWTP-E-IN	East WWTP influent		
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-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
SP-E-OUT	East Sedimentation Pond effluent	October 26, 2024	Methylmercury.
SP-W-OUT	West Sedimentation Pond effluent		
ESC-W-IN	West Sedimentation Pond influent, located at the TSS settling system		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-W-IN	West Sedimentation Pond influent	October 27, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
SP-E-OUT	East Sedimentation Pond effluent		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and VOCs

Table 3 (Continued): Summary of Analytical Results Included in Weekly Discharge and Compliance Report #38.

Sample	Description	Sampling Date	Parameters Reported
SP-E-IN-1	East Sedimentation Pond influent	October 28, 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		
SP-W-OUT/ ESC-W-OUT [2]	West TSS settling system effluent discharged at station SP-W-OUT		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
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		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
WQR1-0.5	Reference site 1; 0.5 m below surface		
WQR1-2m	Reference site 1; 2 m below surface		
WQR1-SF	Reference site 1; 2 m above the seafloor		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	October 29, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-W-W	West Sedimentation Pond, in-pond sample, represents influent quality		
SP-E-OUT/ WWTP-E-OUT [1]	East WWTP effluent discharged at station SP-E-OUT		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		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
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		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
WQR2-0.5	Reference site 2; 0.5 m below surface		
WQR2-2m	Reference site 2; 2 m below surface		
WQR2-SF	Reference site 2; 2 m above the seafloor		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	October 30, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-W-W	West Sedimentation Pond, in-pond sample, represents influent quality		
SP-E-OUT/ WWTP-E-OUT [1]	East WWTP effluent discharged at station SP-E-OUT		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
SP-W-OUT/ ESC-W-OUT [2]	West TSS settling system effluent discharged at station SP-W-OUT		
SP-W-OUT/ ESC-W-OUT [2]	West TSS settling system effluent discharged at station SP-W-OUT	October 31, 2024	Field, Physical & General Parameters, Total, Dissolved and Speciated Metals.

Notes:

[1] As a result of the reconfigured pathway for effluent discharge at station SP-E-OUT effective October 28, field measurements were collected from the meter box at the East WWTP effluent station (WWTP - E- OUT) from October 28 through October 30; however, the samples equally reflect the water quality and monitoring requirements for station SP-E-OUT. From October 31 to November 2, field measurements were collected at station SP-E-OUT; however, the samples equally reflect the water quality and monitoring requirements for station WWTP-E-OUT.

[2] As a result of the reconfigured pathway for effluent discharge at station SP-W-OUT effective October 28, field measurements and analytical samples were collected from TSS settling system effluent (station ESC-W-OUT) from October 28 through October 30; however, the samples equally reflect the water quality and monitoring requirements for station SP-W-OUT. From October 31 to November 2, field measurements and analytical samples were collected at station SP-W-OUT; however, the samples equally reflect the water quality for station ESC-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).

3.3 East Sedimentation Pond

The East Sedimentation Pond influent and 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 sedimentation pond influent, in-pond samples and effluent discharged at the authorized discharge station (SP-E-OUT) are summarized in Table B-1 through Table B-4 (analytical results) and Table B-5 (field measurements) of Appendix B. Screening results are summarized below for parameter concentrations that exceeded PE-111578 discharge limits and WQGs in effluent discharged to Howe Sound (Table 4, Table 5, and Table 6).

During the monitoring period (October 27 – November 2), the East Sedimentation Pond received East WWTP treated effluent each day. The sedimentation pond also received contact water each day October 28 to November 2 as described in Section 1; therefore, field measurements and an analytical sample were collected at station SP-E-IN-1 on October 28 and additional field measurements were collected October 29 and October 30. Field measurements were also collected November 1 and 2 at in-pond station SP-E-NW, located at the influent side of the pond.

Influent concentrations of dissolved oxygen, turbidity and pH ranged from 10.54 to 12.14 mg/L, 26 to 813 NTU and pH 6.9 to 8.5 (Appendix B, Table B-5). Analytical results for the SP-E-IN-1 sample showed elevated levels of TSS, nitrate, total metals (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 were taken daily at the in-pond effluent quality station (SP-E-NE) during the monitoring period (October 27 – November 2). Field pH ranged from 6.2 to 6.7 at SP-E-NE, while dissolved oxygen ranged from 10.5 to 11.1 mg/L, and turbidity ranged from 3.0 to 56 NTU (Appendix B, Table B-5). Analytical results for the samples collected at SP-E-NE on October 29 and 30 were available at the time of reporting. The October 29 SP-E-NE sample was elevated in nitrate, total copper, and total lead as compared to PE-111578 discharge limits and WQGs (Appendix B, Table B-1). Analytical results of the October 30 sample met PE-111578 discharge limits except for total copper and met WQGs except the long-term WQG for nitrate (Appendix B, Table B-2).

Construction effluent was discharged to Howe Sound from station SP-E-OUT each day of the monitoring period (October 27 – November 2). As described in Section 1, East Sedimentation Pond effluent was discharged on October 27, and following reconfiguration of the discharge pathway on October 28, pond water was routed through the East WWTP and treated WWTP

effluent was discharged to Howe Sound at the authorized discharge location (SP-E-OUT) from October 28 to November 2. Daily field measurements and analytical samples were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) from October 28 through October 30. The WWTP-E-OUT samples were deemed suitable for characterizing the water quality and satisfying the monitoring requirements for the authorized discharge location (station SP-E-OUT). On October 27, and October 31 to November 2 daily field measurements were collected at station SP-E-OUT, and an analytical sample was collected October 27. Given the structure of this report, results for the October 28 through November 2 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 SP-E-OUT met PE-111578 discharge limits except for field pH on October 28 (ranging from pH 5.1 to 5.2) and October 30 (pH 5.3) and met WQGs except the long-term WQG for nitrate on October 29 and October 30 (Appendix B, Table B-1 and B-2).

Table 4:
Summary of Parameters Exceeding PE-111578 Discharge Limits in Effluent Discharged at Station SP-E-OUT (October 27 – November 2)

Parameter	Units	Discharge Limit	N	N >Limit	Commentary
Field pH	s.u.	5.5-9.0	10	4	Field pH measurements on October 28 at 9:59 (pH 5.2), 15:59 (pH 5.1), and 16:38 (pH 5.1) and on October 30 at 14:25 (pH 5.3) were below the lower limit of the PE-111578 discharge limit.

N = number of samples.

Table 5:
Summary of Parameters Exceeding WQGs in Effluent Discharged from the East Sedimentation Pond (October 27 – November 2)

Parameter	Units	WQG	N	N >WQG	Commentary
Nitrate	mg/L	3.7	3	2	Nitrate measured at station SP-E-OUT on October 29 (5.96 mg/L) and October 30 (5.01 mg/L) was 1.6 and 1.4 times greater than the long-term WQG, respectively. The nitrate concentrations met the short-term WQG (339 mg/L).

N = number of samples.

Methylmercury analytical results were available at the time of reporting for the East Sedimentation Pond influent (SP-E-IN-1) samples collected on October 19 (as discussed in Weekly Report #36) and October 20 (as discussed in Weekly Report #37), as well as the in-pond effluent quality (SP-E-NE) sample collected October 21 (as discussed in Weekly Report #37). Methylmercury concentrations at SP-E-IN-1 were 0.000701 µg/L on October 19 and 0.000930 µg/L on October 20. The methylmercury concentration measured at SP-E-NE on October 21 was 0.000369 µg/L. Total mercury was above the calculated long-term BC WQG in SP-E-IN-1 samples collected October 19 and 20, and in the SP-E-NE sample collected October 21.

Methylmercury results were also available for the effluent (SP-E-OUT) samples collected on October 19 (as discussed in Weekly Report #36), October 20, October 21, and October 26 (as discussed in Weekly Report #37), and for the effluent sample (WWTP-E-OUT) collected October 30. Methylmercury concentrations were 0.000541 µg/L on October 19, 0.000677 µg/L on October 20, 0.000572 µg/L on October 21, 0.000128 µg/L on October 26, and 0.000046 µg/L on October 30 (Appendix B, Table B-3). Total mercury was above the calculated long-term BC WQG in SP-E-OUT samples collected October 19, October 20, October 21, and October 26 (Table 6).

Table 6:
Summary of Parameters Exceeding Total Mercury WQG in Effluent Discharged from the East Sedimentation Pond October 19 to 26

Parameter	Units	WQG	N	N >WQG	Commentary
Total Mercury	µg/L	0.0023-0.0061	5	4	Total mercury measured at station SP-E-OUT on October 19 (0.0308 µg/L), October 20 (0.0411 µg/L), October 21 (0.0132 µg/L), and October 26 (0.0059 µg/L) were 1.3 to 6.8 times greater than the calculated long-term BC WQG. The WQG is calculated using the methylmercury concentration of the sample.

N = number of samples.

Dioxins and furans analytical results were available at the time of reporting for the SP-E-OUT sample collected October 11 (as discussed in Weekly Report #35). The lower and upper bound PCDD/F TEQ concentrations were 0.0271 pg/L and 0.844 pg/L, respectively.

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. Contaminated contact water is directed to the WWTP influent, and 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 through C-3 (analytical results) and Table C-4 (field measurements) of Appendix C. Screening results are summarized below for parameter concentrations that were outside the operational MDOs for East WWTP effluent (Table 7).

The East WWTP received contact water from site and from the East Sedimentation Pond each day during the monitoring period (October 27 – November 2). The influent waters were treated by the East WWTP and discharged to the East Sedimentation Pond on October 27 and 28. 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) from October 28 to November 2, and the balance of the treated effluent was returned

to the pond. From October 31 to November 2, daily field measurements for WWTP treated effluent were collected at station SP-E-OUT.

Field measurements were collected each day during the monitoring period at the influent (WWTP-E-IN) and effluent (WWTP-E-OUT/SP-E-OUT) stations. Field pH ranged from 6.2 to 7.9 at WWTP-E-IN during the monitoring period (October 27 – November 2), while dissolved oxygen ranged from 10.3 to 11.3 mg/L, and turbidity ranged from 24.8 to 327 NTU (Appendix C, Table C-4). Field pH, dissolved oxygen, and turbidity in the East WWTP effluent (WWTP-E-OUT/SP-E-OUT) ranged from pH 5.1 to 7.1, 8.45 to 11.4 mg/L, and 1.03 to 13.78 NTU, respectively.

Analytical results for samples collected from the East WWTP influent station on October 29 and from the effluent station (WWTP-E-OUT/SP-E-OUT) on October 28, 29, and 30 were available at the time of reporting. Station WWTP-E-IN influent water quality met operational MDOs on October 29 except total copper, total lead, total vanadium, total zinc, and hexavalent chromium. However, the treated water quality monitored at WWTP-E-OUT on October 29 achieved operational MDOs for all parameters (Appendix C, Table C-1). Treated effluent water quality monitored on October 28 and October 30 met operational MDOs except for field pH (Table 7).

Table 7:
Summary of Parameters Outside Operational Minimum Discharge Objectives (MDOs) at East WWTP Effluent Station WWTP-E-OUT (October 27 – November 2).

Parameter	Units	MDO	N	N >MDO	Commentary
Field pH	s.u.	5.5-9.0	10	4	Field pH measurements on October 28 at 9:59 (pH 5.2), 15:59 (pH 5.1), and 16:38 (pH 5.1) and on October 30 at 14:25 (pH 5.3) were below the lower limit of MDO.

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

Methylmercury analytical results were available at the time of reporting for the East WWTP influent and effluent samples collected on October 24 (as discussed in Weekly Report #37). The methylmercury concentrations were 0.000098 µg/L at WWTP-E-IN and <0.000080 µg/L at WWTP-E-OUT (Appendix C, Table C-2).

Dioxins and furans analytical results were available at the time of reporting for the East WWTP influent and effluent samples collected on September 19 and 23 (as discussed in Weekly Report #32 and #33, respectively). The lower and upper bound PCDD/F TEQ concentrations were 0.00522 pg/L and 0.986 pg/L at WWTP-E-IN; and 0 pg/L and 1.50 pg/L at WWTP-E-OUT, respectively, on September 19. The lower and upper bound PCDD/F TEQ concentrations were 0.00113 pg/L and 2.01 pg/L at WWTP-E-IN; and 0.00105 pg/L and 2.74 pg/L at WWTP-E-OUT, respectively, on September 23.

3.5 West Sedimentation Pond

The West Sedimentation Pond influent and 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 through Table D-4 (analytical results) and Table D-5 (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 8 and Table 9).

The West Sedimentation Pond received contact water each day October 27 – November 2. 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.

Daily field measurements and analytical samples were collected from the TSS settling system outlet (station ESC-W-OUT) from October 28 through October 30 to characterize the effluent quality discharged to Howe Sound at station SP-W-OUT. From October 31 to November 2, daily field measurements and analytical samples were collected at station SP-W-OUT.

Analytical results of West Sedimentation Pond influent were available at the time of reporting for samples collected at station ESC-W-IN (influent to the TSS settling system) on October 26 (as discussed in Weekly Report #37) and ad-hoc station SP-W-IN (influent to the pond that bypassed the TSS settling system) collected on October 27. Pond influent quality captured at station ESC-W-IN on October 26 was elevated in TSS, total metals (cadmium, copper, lead, mercury, vanadium, zinc), and benzo(a)pyrene as compared to PE-111578 discharge limits and WQGs (Appendix D, Table D-1). Analytical results for the October 27 SP-W-IN sample also showed elevated levels of TSS, nitrate, total metals (cadmium, copper, lead, mercury, vanadium, zinc, hexavalent chromium), benzo(a)pyrene, and chrysene (Appendix D, Table D-1).

Field measurements were collected at the in-pond influent station (SP-W-W; October 29 – November 1) and in-pond effluent station (SP-W-E; October 31 – November 2). Field pH ranged from 7.6 to 8.6, while dissolved oxygen ranged from 10.6 to 11.8 mg/L, and turbidity ranged from 29 to 89 NTU in the West Sedimentation Pond.

During the monitoring period, daily field measurements were collected while the West Sedimentation Pond was discharging through the TSS settling system (October 28 – November 2). Analytical samples were collected October 28, 29, 30, and 31 (Appendix D, Table D-1). Field

measurements and analytical results met PE-111578 discharge limits but were above WQGs for nitrate in samples collected October 29, 30, and 31, and hexavalent chromium in the sample collected October 29 (Table 8).

Table 8:
Summary of Parameters Exceeding WQGs in Effluent Discharged from the West Sedimentation Pond (October 27 – November 2)

Parameter	Units	WQG	N	N >WQG	Commentary
Nitrate	mg/L	3.7	4	3	Nitrate measured in West Sedimentation Pond effluent on October 29 (4.26 mg/L), October 30 (4.28 mg/L), and October 31 (3.80 mg/L) was 1.0 to 1.2 times greater than the long-term WQG. The nitrate concentrations met the short-term WQG (339 mg/L).
Hexavalent Chromium	mg/L	0.0015	4	1	Hexavalent chromium measured in West Sedimentation Pond effluent on October 29 (0.00155 mg/L) was 1.0 times greater than the long-term WQG.

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

Methylmercury analytical results were also available at the time of reporting for the West Sedimentation Pond influent samples collected on October 20 at station ESC-W-IN and on October 19 and 20 at station SP-W-IN (as discussed in Weekly Report #37) as well as the influent sample collected on October 27 at SP-W-IN. Methylmercury concentrations at SP-W-IN were 0.000515 µg/L on October 19, 0.000087 µg/L on October 20, and 0.000306 µg/L on October 27. The methylmercury concentrations measured at ESC-W-IN on October 20 was 0.000213 µg/L. Total mercury was above the calculated long-term BC WQG in SP-W-IN samples collected October 19 and 27 and in the ESC-W-IN sample collected October 20 (Appendix D, Table D-3).

Methylmercury analytical results were available at the time of reporting for the SP-W-OUT samples collected on October 20, October 21, and October 26 (as discussed in Weekly Report #37). Methylmercury results were also available for the SP-W-OUT sample collected October 30. Methylmercury concentrations at SP-W-OUT were 0.000170 µg/L on October 20, 0.000093 µg/L on October 21, 0.000031 µg/L on October 26, and 0.000045 µg/L on October 30 (Appendix D, Table D-3). Total mercury was above the calculated long-term BC WQG in the SP-W-OUT sample collected October 20 (Table 9).

Dioxins and furans analytical results were available at the time of reporting for the sample of pooled road water collected October 19 at station W-GANGWAY (as discussed in Weekly Report #37). The lower and upper bound PCDD/F TEQ concentrations were 3.30 pg/L and 9.82 pg/L, respectively (Appendix D, Table D-4).

Table 9:
Summary of Parameters Exceeding Total Mercury WQG in Effluent Discharged from the West Sedimentation Pond on October 20

Parameter	Units	WQG	N	N >WQG	Commentary
Total Mercury	µg/L	0.0067-0.022	4	1	Total mercury measured at station SP-W-OUT on October 20 (0.0369 µg/L) was 1.7 times greater than the calculated long-term BC WQG. The WQG is calculated using the methylmercury concentration of the sample.

N = number of samples.

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.

Dioxins and furans analytical results were available at the time of reporting for the West WWTP influent and effluent samples collected on September 19 and 21 (as discussed in Weekly Report #32). The lower and upper bound PCDD/F TEQ concentrations varied from 0.0519 to 0.0572 pg/L and from 1.83 to 2.58 pg/L at WWTP-E-IN; and varied from 0.0173 to 0.0403 pg/L and 1.71 to 1.92 pg/L at WWTP-E-OUT, respectively (Appendix E, Table E-1).

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. The analytical results, field parameters and WQGs are summarized in Appendix F.

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.

Methylmercury analytical results were available at the time of reporting for the October 4 non-contact water diversion ditch outlets sample collected at station OUT-01 (as discussed in Weekly Report #34), for the October 20 sample collected at station OUT-06, and for the October 23 sample collected at station OUT-02 (as discussed in Weekly Report #37). Methylmercury concentrations were 0.000031 µg/L at OUT-01, 0.000115 µg/L at OUT-06, and <0.000020 µg/L

at OUT-02. Total mercury met WQGs except in the sample collected from OUT-06 on October 20 (Table 10). The October 20 observed concentration of total mercury at OUT-06 is attributed to TSS in the non-contact water that was intercepted by the OUT-06 clean water diversion ditch.

Table 10:
Summary of Parameters Exceeding WQGs at Non-Contact Water Diversion Ditch Outlets

Parameter	Units	WQG	N	N >WQG	Commentary
Total Mercury	mg/L	0.000015	3	1	Total mercury measured at station OUT-06 on October 20 (0.0000172 mg/L) was 1.1 times greater than the calculated long-term BC WQG.

N = number of samples.

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. The analytical results, field parameters and WQGs are summarized in Appendix G (freshwater) and Appendix H (estuarine).

Methylmercury analytical results were available at the time of reporting for freshwater and estuarine water samples collected near the mouth of Woodfibre Creek (station SW-01), upstream on Mill Creek (station SW-07), near the mouth of Mill Creek (station SW-02), the Mill Creek Estuary (station SW-03), and East Creek (station SW-04) on October 3 and 4 (as discussed in Weekly Report #34) and on October 22 (as discussed in Weekly Report #37). Methylmercury concentrations were <0.000020 µg/L in all samples collected from Woodfibre Creek and all samples collected upstream of and near the mouth of Mill Creek (stations SW-02 and SW-07). Methylmercury concentrations were 0.000027 µg/L on October 4 and below the detection limit (<0.000080 µg/L) on October 22 in samples collected from the Mill Creek estuary. Measured methylmercury concentrations in East Creek were 0.000117 and 0.000025 µg/L on October 4 and 22, respectively. The methylmercury concentrations were within the concentration ranges observed in the baseline monitoring program for the freshwater and estuarine water stations. Total mercury met WQGs except in the sample collected from East Creek on October 4. The concentration of total mercury observed in the October 4 East Creek sample is within the range observed in baseline samples and is attributed to TSS.

Dioxins and furans analytical results were available at the time of reporting for freshwater and estuarine water samples collected on October 3 and 4 (as discussed in Weekly Report #34). The lower and upper bound PCDD/F TEQ concentrations were 0 pg/L and 3.94 pg/L at Woodfibre Creek, 0 pg/L and 4.74 pg/L at Mill Creek, 0 pg/L and 4.24 pg/L at upstream Mill Creek, 0 pg/L

and 3.53 pg/L at the Mill Creek Estuary, and 0 pg/L and 3.56 pg/L at East Creek, respectively. The lower and upper bound PCDD/F TEQ concentrations were within the concentration ranges observed in the pre-construction baseline monitoring program for the freshwater and estuarine water 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 I.

Analytical results were available at the time of reporting for the October 21 marine water receiving environment reference station samples collected at IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 at 0.5 and 2 m below the water surface and 2 m above the seafloor. Analytical results were available at the time of reporting for samples collected at 0.5 m below the water surface at IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 on October 28 and 29. Results were also available for samples collected at WQR1 and WQR2 on October 28 and 29, respectively, at 0.5 and 2 m below the water surface and 2 m above the seafloor.

Parameter concentrations met WQGs except turbidity, TSS, dissolved oxygen, total boron, and total copper in one or more samples. Dissolved oxygen was below the lower limit of the WQG (>8 mg/L) in the IDZ-E1, IDZ-W1, and IDZ-W2 samples collected at 2 m above the seafloor on October 21, at WQR1 at 2 m above the seafloor on October 28, and at WQR2 at 2 m above the seafloor on October 29 and was within baseline ranges at all stations.

The total boron concentrations were above the long-term WQG (1.2 mg/L) in samples collected at IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 on October 21 at 2 m above the seafloor, at WQR1 on October 28 at 2 m above the seafloor, and at WQR2 on October 29 at 2 m above the seafloor. Concentrations of dissolved oxygen and total boron were within the concentration ranges observed in the baseline monitoring program for the marine reference stations.

Total suspended solids (TSS) concentrations at IDZ-E1 and IDZ-E2 were above the calculated WQGs in samples collected at 0.5 m and 2.0 m below the water surface on October 21. Turbidity was above the calculated WQGs in samples collected at IDZ-E1 and IDZ-E2 at 0.5 m and 2 m below the water surface and at IDZ-W1 and IDZ-W2 at 2 m below the surface. The elevated TSS and turbidity in these samples is attributed to high intensity rainfall associated with the

October 18 – 20 storm event and suggests some project-related influence of TSS within the IDZ (*i.e.*, mixing zone) on October 21.

Total copper concentrations were above the short-term and long-term WQGs (0.003 and 0.002 mg/L, respectively) in samples collected at IDZ-E1 and IDZ-E2 at 0.5 m and 2 m below the water surface and at IDZ-W1 at 2 m below the water surface on October 21. Total copper concentrations were also above the long-term WQG (0.002 mg/L) in samples collected at IDZ-W2 at 0.5 m below the water surface on October 21. The total copper concentrations above WQGs observed October 21 are correlated with elevated TSS in the samples (11.4 – 29.7 mg/L). The observed concentrations are within baseline ranges or background concentrations observed at reference stations and are attributed to high intensity rainfall associated with the October 18 – 20 storm event.

Methylmercury analytical results were available at the time of reporting for the marine water receiving environment samples collected from reference stations WQR1 and WQR2 on October 6 (as discussed in Weekly Report #35), stations IDZ-E1, IDZ-E2, IDZ-W1, WQR1, and WQR2 on October 19 (as discussed in Weekly Report #36), stations IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, and WQR2 on October 20, stations IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 on October 21, stations IDZ-W1 and IDZ-W2 on October 24 (as discussed in Weekly Report #37), stations IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 on October 28 and 29, station WQR1 on October 28, and station WQR2 on October 29. The methylmercury concentrations were below detectable limits (<0.000020 to <0.00080 µg/L) in all samples collected at WQR1 and WQR2 on October 6, at IDZ-W1 on October 21, at IDZ-W1 and IDZ-W2 on October 24, and at IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, and WQR2 on October 29.

Raised detection limits were reported for all samples collected on October 24 and 29 and in samples collected October 21 from 2 m below surface (IDZ-E2 and IDZ-W2) and 2 m above the seafloor (IDZ-W1 and IDZ-W2), and from WQR1-SF on October 28 due to sample matrix interferences. The maximum detectable methylmercury concentrations observed at IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 at 0.5 m below the water surface were 0.000042 µg/L (October 19), 0.000042 µg/L (October 20), 0.000036 µg/L (October 19), and 0.000027 µg/L (October 21), respectively. The maximum detectable methylmercury concentrations observed at reference stations WQR1 and WQR2 at 0.5 m below the water surface were 0.000026 µg/L (October 20) and 0.000033 µg/L (October 20), respectively. The observed methylmercury concentrations are within baseline ranges, or background concentrations observed at reference stations except for the methylmercury concentration measured at IDZ-E1 at 2 m below the water surface on October 21 (0.000078 µg/L).

Methylmercury analytical results were available at the time of reporting for ad-hoc stations W-G-RE and RE-2 monitored on October 20 (as discussed in Weekly Report #37). The

methylmercury concentrations were 0.000021 µg/L at W-G-RE and 0.000042 µg/L at RE-2. Total mercury met the WQGs at W-G-RE and RE-2 on October 20.

Dioxins and furans analytical results were available at the time of reporting for IDz-W1 and IDZ-W2 samples collected on October 9 (as discussed in Weekly Report #35). The lower and upper bound PCDD/F TEQ concentrations were 0 pg/L and 2.53 pg/L at 0.5 m below the water surface, respectively, at IDZ-W1 and IDZ-W2. The lower and upper bound PCDD/F TEQ concentrations varied from 0 to 0.00243 pg/L and 2.02 to 2.19 pg/L at 2 m below the water surface, respectively. The lower bound PCDD/F TEQ concentration was 0 pg/L at 2 m above the seafloor and the upper bound PCDD/F TEQ concentration varied from 1.61 to 1.97 pg/L. The lower and upper bound PCDD/F TEQ concentrations were within the concentration ranges observed in the pre-construction baseline monitoring program for marine reference stations.

4. Quality Control

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 12). 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 12. Any items flagged for follow-up are carried forward to future reports until they are closed.

Table 11: Weekly Report QC Evaluations and Ongoing Items

QC Procedure	Observation	Investigation/Resolution
Reporting Period (October 27 – November 2, Report #38)		
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.
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 will be completed the week of November 10. This item remains open.
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.
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.
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.	Analytical results for samples collected October 30, 31, November 1, and 2 were not complete at the time of Report #38 preparation. Methylmercury, dioxins and furans results for samples collected October 27, 28, and 29 were not complete at the time of Report #38 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Ongoing Items from Previous Weekly Reports		
Report #32: Pending Data	Analytical results were not reported for samples collected September 18, 19 and 21.	Analytical results for dioxins and furans are discussed in Sections 3.4 and 3.6 of Report #38. This item is closed.
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 #38 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.
	Methylmercury, dioxins and furans results were not reported for samples collected September 23.	Analytical results for dioxins and furans for samples collected September 23 are discussed in Section 3.4 of Report #38. This item is closed.
Report #34: Pending Data	Analytical results for samples collected October 3, and 4 were not reported. Dioxins and furans results for samples collected October 1 were not reported.	Methylmercury, dioxin and furan results for samples collected October 3 and 4 are discussed in Section 3.8 of Report #38. This item is closed.
Report #35: Pending Data	Methylmercury, dioxins and furans results for samples collected October 8, 9, 11 and 12 were not reported.	Methylmercury results for samples collected October 6 are discussed in Section 3.9 of Report #38. Dioxins and furans results for samples collected October 9 and 11 are discussed in Sections 3.9 and 3.3 of Report #38, respectively. 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 #38 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 will be completed the week of November 10. This item remains open.
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 laboratory is ongoing. A review of monitoring requirements with the QEP and site staff will be completed the week of November 10. This item remains open.
Report #36: Pending Data	Analytical results were not reported for samples collected October 13 and 19. Methylmercury, dioxins and furans results were not reported for samples collected October 13, 18, and 19.	Methylmercury results for samples collected October 19 are discussed in Sections 3.3, 3.5, 3.9 of Report #38. Methylmercury results for samples collected October 18 (IDZ-W2) and dioxins and furans results for samples collected October 13, 18, and 19 were not complete at the time of Report #38 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 #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 will be completed the week of November 11. This item remains open.
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 21, 25 and 26. Methylmercury, dioxins and furans results were not reported for samples collected October 20, 21, 22, 23, 24, and 26.	Analytical results for samples collected October 21, 25 and 26 were not complete at the time of Report #38 preparation. Methylmercury results for samples collected October 20, 21 (SP-E-NE, SP-E-OUT, SP-W-OUT), 22, 23 (OUT-02), 24, and 26 (SP-E-OUT and SP-W-OUT) are discussed in Sections 3.3, 3.4, 3.5, 3.7, and 3.9 of Report #38. Methylmercury, dioxins and furans results for samples collected October 21, 23, and 26 were not complete at the time of Report #38 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.

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

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Appendix A: Figures and Site Images

World Imagery: District of Squamish, Maxar. Additional imagery provided by McDermott International captured October 6th, 2024.

LEGEND

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

DATE SAVED:	Nov 08, 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 2, 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

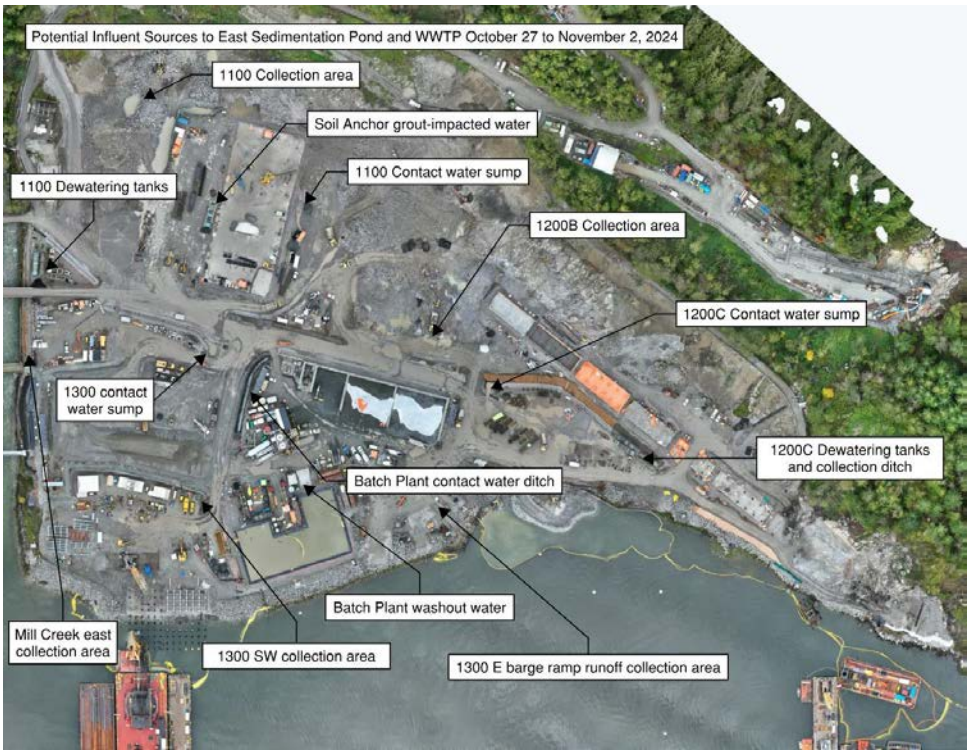

Figure 2: East Catchment contact water management facilities (October 27 – November 2).

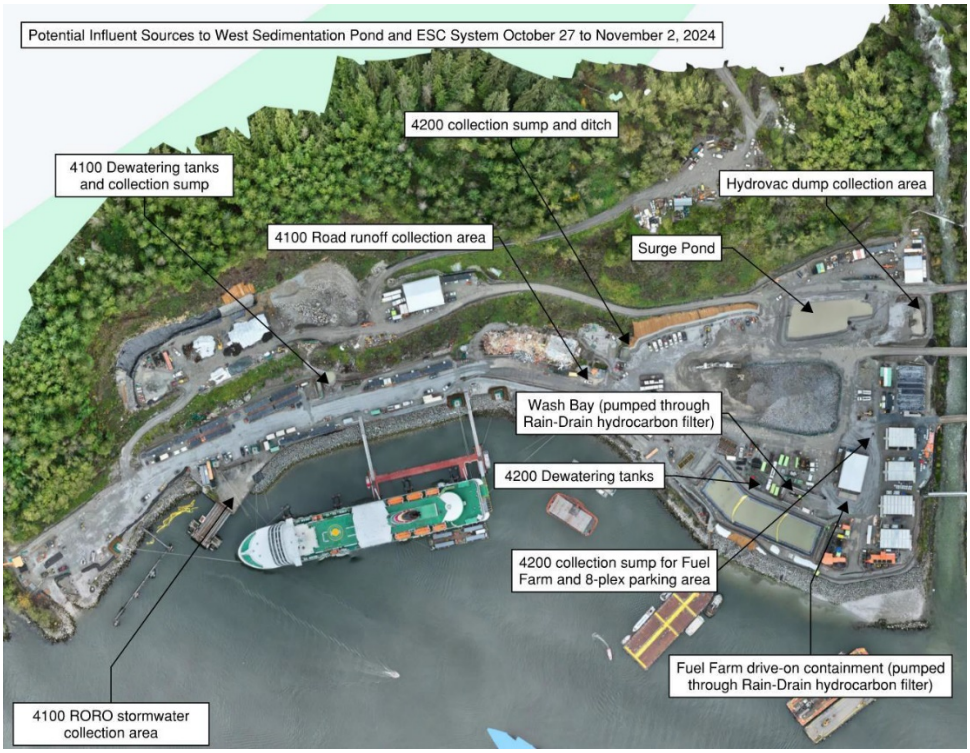

Figure 3: West Catchment contact water management facilities (October 27 – November 2).

Figure 4: Aerial view of the East Sedimentation Pond showing the placement of two sediment curtains (October 25, 2024). The East WWTP is located on the left side of the pond.

Figure 5: Aerial view of the West Sedimentation Pond showing the placement of two sediment curtains (November 2, 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-OUT	Station SP-E-IN-1	Station WWTP-E-OUT [7]	Station SP-E-NE
					Effluent	In-Pond at Effluent Location	Effluent	In-Pond at Effluent Location
					SP-E-OUT	SP-E-IN-1	SP-E-OUT	SP-E-NE
					VA24C9042-002	VA24C9042-001	VA24C9045-001	VA24C9188-004
		Long Term	Short Term		2024-10-27 17:39	2024-10-28 9:40	2024-10-28 15:59	2024-10-29 17:04
General Parameters								
pH - Field	pH units	- [2]	-	5.5 - 9.0	6.7	7.5	5.1	6.3
Conductivity - Field	µS/cm	-	-	-	379	205	859	354
Temperature - Field	°C	-	-	-	10.4	10.2	11.1	11.3
Salinity - Field	ppt	-	-	-	0.26	0.14	0.59	0.23
Turbidity - Field	NTU	-	-	-	6.05	444.29	1.2	56.4
TSS	mg/L	-	-	25 or 75[6]	<3.0	574	3.1	9.5
Dissolved Oxygen - Field	mg/L	>=8	-	-	10.83	11.16	8.45	10.65
Anions and Nutrients								
Sulphate	mg/L	-	-	-	51.6	22.4	451	80
Chloride	mg/L	-	-	-	11.4	7.74	12.6	9.42
Fluoride	mg/L	-	1.5	-	0.144	0.133	0.111	0.132
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	1.47	0.633	1.14	0.993
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	0.749	0.461	0.323	0.504
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	***9.20***	***4.64***	3.39	***5.76***
Total Metals								
Aluminum, total (T-Al)	mg/L	-	-	-	0.368	30.9	0.772	2.04
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00183	0.00187	0.00149	0.00185
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00134	0.00883	0.00152	0.00221
Barium, total (T-Ba)	mg/L	-	-	-	0.00714	0.252	0.0133	0.029
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	0.000453	0.000076	0.000037
Boron, total (T-B)	mg/L	1.2	-	-	0.06	0.043	0.065	0.053
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000300	***0.000545***	0.0000293	0.0000809
Chromium, total (T-Cr)	mg/L	-	-	-	0.00105	0.0137	0.00147	0.00226
Cobalt, total (T-Co)	mg/L	-	-	-	0.00123	0.00826	0.00061	0.00126
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.0034	0.0419	0.00355	0.00608
Iron, total (T-Fe)	mg/L	-	-	-	0.275	22.2	0.365	1.23
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.000918	0.041	0.00206	0.00353
Manganese, total (T-Mn)	mg/L	-	-	-	0.0262	0.618	0.0389	0.068
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	0.0000064	***0.0000962***	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0453	0.0391	0.0217	0.0393
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00094	***0.00841***	0.00069	0.0011
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000301	0.000541	0.000229	0.000331
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000012	0.000246	<0.000010	0.000023
Thallium, total (T-Tl)	mg/L	-	-	-	0.000021	0.000225	0.000029	0.000025
Uranium, total (T-U)	mg/L	-	-	-	0.0111	0.0137	0.00681	0.00914
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00343	0.0464	0.004	0.00682
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0102	0.132	0.0105	0.012
Hexavalent Chromium, total	mg/L	0.0015	-	-	<0.00050	***0.00223***	<0.00050	0.00103
Dissolved Metals								
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000200	<0.0000200	0.0000313	<0.0000450
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.0023	0.00326	0.00242	0.00274
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.03	0.113	0.047	0.017
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000066	0.000412	0.000618	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0196	0.00568	0.0372	0.0376
Nickel, dissolved (D-Ni)	mg/L	-	-	-	0.00074	<0.00050	0.00054	0.00054
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0557	0.0935	0.351	0.117
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00282	0.00598	0.00274	0.00364
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0076	0.0012	0.0092	0.0032
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	mg/L	0.006	-	-	<0.000010	0.000227	<0.000010	0.00012
Acridine	mg/L	-	-	-	<0.000010	<0.000042	<0.000010	<0.000016
Anthracene	mg/L	-	-	-	<0.000010	0.000081	<0.000010	<0.000014
Benz(a)anthracene	mg/L	-	-	-	<0.000010	0.000114	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	***0.000104***	<0.0000050	0.0000097
Chrysene	mg/L	0.0001	-	-	<0.000010	***0.00011***	<0.000010	0.000012
Fluoranthene	mg/L	-	-	-	0.000012	0.000392	<0.000010	0.000087
Fluorene	mg/L	0.012	-	-	<0.000010	0.000179	<0.000010	0.000088
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	0.000063	<0.000010	0.000032
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	0.000064	<0.000010	0.00003
Naphthalene	mg/L	0.001	-	-	<0.000050	0.000136	<0.000050	0.000072
Phenanthrene	mg/L	-	-	-	<0.000020	0.000331	<0.000020	0.000083
Pyrene	mg/L	-	-	-	0.00001	0.000342	<0.000010	0.000054
Quinoline	mg/L	-	-	-	<0.000050	0.000079	<0.000050	0.000051
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.
Results in orange text exceeded the PE-11578 East Sedimentation Pond Discharge Limit.
The East Sedimentation Pond discharged each day during the monitoring period (October 27 – November 2).
[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 October 27 and 28.
[7] From October 28 to November 2 East WWTP treated effluent was discharged 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) from October 28 through October 30. From October 31 to November 2, field measurements were collected at station SP-E-OUT.

Table B-2: 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 WWTP-E-OUT [7]	Station SP-E-NE	Station WWTP-E-OUT [7]
					Effluent	In-Pond at Effluent Location	Effluent
					SP-E-OUT	SP-E-NE	SP-E-OUT
					VA24C9188-002	VA24C9383-003	VA24C9383-001
		Long Term	Short Term		2024-10-29 14:22	2024-10-30 14:12	2024-10-30 14:25
General Parameters							
pH - Field	pH units	- [2]	-	5.5 - 9.0	7.1	6.5	5.3
Conductivity - Field	µS/cm	-	-	-	404	317	527
Temperature - Field	°C	-	-	-	11.1	9.7	10.2
Salinity - Field	ppt	-	-	-	0.27	0.22	0.36
Turbidity - Field	NTU	-	-	-	1.03	32.22	2.88
TSS	mg/L	-	-	25 [6]	<3.0	8.8	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	9.98	10.76	10.49
Anions and Nutrients							
Sulphate	mg/L	-	-	-	91	69.3	210
Chloride	mg/L	-	-	-	9.72	7.99	8.7
Fluoride	mg/L	-	1.5	-	0.239	0.101	0.108
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	0.779	0.814	0.78
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	0.572	0.432	0.519
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	***5.96***	***4.86***	***5.01***
Total Metals							
Aluminum, total (T-Al)	mg/L	-	-	-	0.526	1.37	0.504
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00187	0.00171	0.00161
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00243	0.00194	0.00149
Barium, total (T-Ba)	mg/L	-	-	-	0.00101	0.0231	0.00311
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	0.000028	0.000031
Boron, total (T-B)	mg/L	1.2	-	-	0.055	0.047	0.055
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000200	0.0000557	<0.0000150
Chromium, total (T-Cr)	mg/L	-	-	-	0.00126	0.00207	0.0009
Cobalt, total (T-Co)	mg/L	-	-	-	0.00073	0.00105	0.00066
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.0041	0.00525	0.00235
Iron, total (T-Fe)	mg/L	-	-	-	0.036	0.893	0.122
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.000135	0.00265	0.000423
Manganese, total (T-Mn)	mg/L	-	-	-	0.0027	0.0559	0.0118
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	0.0000066	0.0000078	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0452	0.0357	0.03
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00056	0.00092	0.00056
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000334	0.000299	0.00025
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	0.00002	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000012	0.000019	0.000013
Uranium, total (T-U)	mg/L	-	-	-	0.0343	0.00879	0.00537
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00729	0.00556	0.00365
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0081	0.0116	0.0036
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00138	0.00124	<0.00050
Dissolved Metals							
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000200	0.00004	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00328	0.00287	0.00189
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.029	0.015	0.051
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000056	<0.000050	0.000089
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00237	0.0367	0.0106
Nickel, dissolved (D-Ni)	mg/L	-	-	-	0.00052	0.00052	0.00141
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0314	0.126	0.0712
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00699	0.00372	0.00335
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0057	0.0027	0.0028
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	mg/L	0.006	-	-	<0.000010	0.000096	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000012	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000018	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	0.00001	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	0.0000068	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	0.000074	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	0.000072	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	0.000023	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	0.00002	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	0.000059	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	0.000048	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<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	-	-	<0.00050	-	<0.00040
Total Xylenes	mg/L	-	-	-	<0.00050	-	<0.00050
Chlorobenzene	mg/L	0.025	-	-	-[8]	-	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	-[8]	-	<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 East Sedimentation Pond Discharge Limit.
The East Sedimentation Pond discharged each day during the monitoring period (October 27 – November 2).
[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 October 27 and 28.
[7] From October 28 to November 2 East WWTP treated effluent was discharged 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) from October 28 through October 30. From October 31 to November 2, field measurements were collected at station SP-E-OUT.
[8] Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the SP-E-OUT sample collected on October 29.

Table B-3: Summary of East Sedimentation Pond Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station SP-E-IN-1	Station SP-E-OUT	Station SP-E-IN-1	Station SP-E-OUT	Station SP-E-NE	Station SP-E-OUT	Station SP-E-OUT	Station WWTP-E-OUT [4]
			Influent	Effluent	Influent	Effluent	In-Pond at Effluent Location	Effluent	Effluent	Effluent
			SP-E-IN-1	SP-E-OUT	SP-E-IN-1	SP-E-OUT	SP-E-NE	SP-E-OUT	SP-E-OUT	SP-E-OUT
			VA24C8024-001	VA24C8024-002	VA24C8023-002	VA24C8023-001	VA24C8160-001	VA24C8162-001	VA24C8882-002	VA24C9393-001
			2024-10-19	2024-10-19	2024-10-20	2024-10-20	2024-10-21	2024-10-21	2024-10-26	2024-10-30
Methylmercury	**µg/L**	**-**	0.000701	0.000541	0.000930	0.000677	0.000369	0.000572	0.000128	0.000046
Total Mercury	**µg/L**	0.0023 [1,2]	***0.0678***	***0.0308***	***0.238***	***0.0411***	***0.0146***	***0.0132***	***0.0059***	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
[4] From October 28 to November 2 East WWTP treated effluent was discharged 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) from October 28 through October 30.
Non-detect results are screened using the detection limit value.

Table B-4: Summary of East Sedimentation Pond Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	Station SP-E-OUT
		Effluent
		SP-E-OUT
		L2757753-1
		2024-10-11
Lower Bound PCDD/F TEQ	**pg/L**	0.0271
Upper Bound PCDD/F TEQ	**pg/L**	0.844

Notes:
PCDD = polychlorinated dibenzodioxins (dioxins)
PCDF = polychlorinated dibenzofurans (furans)
TEQ = toxic equivalency
Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).
Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.

Table B-5: Summary of East Sedimentation Pond Daily Field Parameters October 27 – November 2.

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	2024-10-27 13:41	10.6	11.10	0.16	2.98	6.5	241	No	825
SP-E-OUT	2024-10-27 17:39	10.4	10.83	0.26	6.05	6.7	379	No	
SP-E-IN-1	2024-10-28 9:40	10.2	11.16	0.14	444.29	7.5	205	No	170
SP-E-NE	2024-10-28 10:07	10.1	10.67	0.28	46.78	6.2	415	No	
WWTP-E-OUT/ SP-E-OUT [5]	2024-10-28 9:59	10.3	9.61	0.48	1.20	5.2	692	No	
WWTP-E-OUT/ SP-E-OUT [5]	2024-10-28 15:59	11.1	8.45	0.59	1.20	5.1	859	No	
WWTP-E-OUT/ SP-E-OUT [5]	2024-10-28 16:38	11.0	9.58	0.59	6.45	5.1	862	No	
SP-E-IN-1	2024-10-29 16:49	10.3	11.17	0.15	26.32	8.5	217.5	No	378
SP-E-NE	2024-10-29 17:04	11.3	10.65	0.23	56.40	6.3	354	No	
WWTP-E-OUT/ SP-E-OUT [5]	2024-10-29 14:22	11.1	9.98	0.27	1.03	7.1	404	No	
WWTP-E-OUT/ SP-E-OUT [5]	2024-10-29 17:11	11.2	10.04	0.35	3.46	5.6	530	No	
SP-E-NE	2024-10-30 14:12	9.7	10.76	0.22	32.22	6.5	317	No	434
SP-E-IN-1	2024-10-30 14:29	8.8	12.14	0.18	813.24	8.4	200	No	
WWTP-E-OUT/ SP-E-OUT [5]	2024-10-30 14:25	10.2	10.49	0.36	2.88	5.3	527	No	
SP-E-NE	2024-10-31 8:42	9.0	10.51	0.21	35.26	6.3	305	No	299
SP-E-OUT/ WWTP-E-OUT [5]	2024-10-31 8:53	9.4	11.11	0.28	1.53	5.6	407	No	
SP-E-NE	2024-11-01 8:35	8.8	10.65	0.20	40.51	6.7	282	No	145
SP-E-NW	2024-11-01 8:45	9.1	10.77	0.18	34.44	7.2	256	No	
SP-E-OUT/ WWTP-E-OUT [5]	2024-11-01 8:24	8.9	11.4	0.34	1.15	6.2	476	No	
SP-E-NW	2024-11-02 9:41	9.4	10.54	0.18	27.35	6.9	263	No	504
SP-E-NE	2024-11-02 9:53	8.8	10.67	0.21	31.18	6.6	293	No	
SP-E-OUT/ WWTP-E-OUT [5]	2024-11-02 13:03	10.5	10.62	0.21	13.78	5.6	307	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 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 (October 27 – November 2).
[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 did not receive non-contaminated contact water influent October 27, therefore daily measurements for station SP-E-IN-1/SP-E-IN-2 were not collected. The East Sedimentation Pond discharged each day during the monitoring period (October 27 – November 2). 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 October 28 to November 2 East WWTP treated effluent was discharged at station SP-E-OUT, field measurements were collected from the meter box at the East WWTP effluent station (WWTP-E-OUT) from October 28 through October 30. From October 31 to November 2, field measurements were collected 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-OUT [2] Effluent SP-E-OUT VA24C9045-001 2024-10-28 15:59	Station WWTP-E-IN Influent WWTP-E-IN VA24C9188-001 2024-10-29 12:49	Station WWTP-E-OUT [2] Effluent WWTP-E-OUT VA24C9188-002 2024-10-29 14:22	Station WWTP-E-OUT [2] Effluent WWTP-E-OUT VA24C9383-001 2024-10-30 14:25
General Parameters						
pH - Field	pH units	5.5 – 9.0	***5.1***	6.2	7.1	***5.3***
Conductivity - Field	µS/cm	-	859	346	404	527
Temperature - Field	°C	-	11.1	11	11.1	10.2
Salinity - Field	ppt	-	0.59	0.23	0.27	0.36
Turbidity - Field	NTU	-	1.2	56.31	1.03	2.88
TSS	mg/L	-	3.1	24.3	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	-	8.45	10.62	9.98	10.49
Anions and Nutrients						
Sulphate	mg/L	-	451	73.5	91	210
Chloride	mg/L	-	12.6	9.28	9.72	8.7
Fluoride	mg/L	-	0.111	0.133	0.239	0.108
Ammonia (N-NH_3)	mg/L	-	1.14	0.928	0.779	0.78
Nitrite (N-NO_2)	mg/L	-	0.323	0.496	0.572	0.519
Nitrate (N-NO_3)	mg/L	-	3.39	5.67	5.96	5.01
Total Metals						
Aluminum, total (T-Al)	mg/L	-	0.772	3.11	0.526	0.504
Antimony, total (T-Sb)	mg/L	-	0.00149	0.00177	0.00187	0.00161
Arsenic, total (T-As)	mg/L	0.0125	0.00152	0.00258	0.00243	0.00149
Barium, total (T-Ba)	mg/L	-	0.0133	0.0371	0.00101	0.00311
Beryllium, total (T-Be)	mg/L	0.1	0.000076	0.000054	<0.000020	0.000031
Boron, total (T-B)	mg/L	1.2	0.065	0.050	0.055	0.055
Cadmium, total (T-Cd)	mg/L	0.00012	0.0000293	0.0000908	<0.0000200	<0.0000150
Chromium, total (T-Cr)	mg/L	-	0.00147	0.00293	0.00126	0.0009
Cobalt, total (T-Co)	mg/L	-	0.00061	0.00152	0.00073	0.00066
Copper, total (T-Cu)	mg/L	0.0043	0.00355	***0.00826***	0.0041	0.00235
Iron, total (T-Fe)	mg/L	-	0.365	2.12	0.036	0.122
Lead, total (T-Pb)	mg/L	0.0035	0.00206	***0.00612***	0.000135	0.000423
Manganese, total (T-Mn)	mg/L	-	0.0389	0.0864	0.0027	0.0118
Mercury, total (T-Hg)	mg/L	0.000016	<0.0000050	0.0000055	0.0000066	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	0.0217	0.0377	0.0452	0.03
Nickel, total (T-Ni)	mg/L	0.0083	0.00069	0.00147	0.00056	0.00056
Selenium, total (T-Se)	mg/L		0.000229	0.000324	0.000334	0.00025
Silver, total (T-Ag)	mg/L	0.0015	<0.000010	0.000029	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	0.000029	0.000035	0.000012	0.000013
Uranium, total (T-U)	mg/L	-	0.00681	0.0095	0.0343	0.00537
Vanadium, total (T-V)	mg/L	0.0081	0.0040	***0.00883***	0.00729	0.00365
Zinc, total (T-Zn)	mg/L	0.0133	0.0105	***0.0298***	0.0081	0.0036
Hexavalent Chromium, total	mg/L	0.0015	<0.00050	***0.00164***	0.00138	<0.00050
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	0.00012	0.0000313	<0.0000450	<0.0000200	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	0.00242	0.00298	0.00328	0.00189
Iron, dissolved (D-Fe)	mg/L	-	0.047	0.03	0.029	0.051
Lead, dissolved (D-Pb)	mg/L	-	0.000618	<0.000050	0.000056	0.000089
Manganese, dissolved (D-Mn)	mg/L	-	0.0372	0.0356	0.00237	0.0106
Nickel, dissolved (D-Ni)	mg/L	-	0.00054	<0.00050	0.00052	0.00141
Strontium, dissolved (D-Sr)	mg/L	-	0.351	0.108	0.0314	0.0712
Vanadium, dissolved (D-V)	mg/L	-	0.00274	0.00393	0.00699	0.00335
Zinc, dissolved (D-Zn)	mg/L	-	0.0092	0.0104	0.0057	0.0028
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	-	<0.000010	0.00015	<0.000010	<0.000010
Acridine	mg/L	-	<0.000010	<0.000019	<0.000010	<0.000010
Anthracene	mg/L	-	<0.000010	<0.000024	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	<0.000010	0.000017	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	<0.0000050	0.0000182	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	<0.000010	0.000018	<0.000010	<0.000010
Fluoranthene	mg/L	-	<0.000010	0.000112	<0.000010	<0.000010
Fluorene	mg/L	0.012	<0.000010	0.000107	<0.000010	<0.000010
1-methylnaphthalene	mg/L	-	<0.000010	0.000039	<0.000010	<0.000010
2-methylnaphthalene	mg/L	-	<0.000010	0.000037	<0.000010	<0.000010
Naphthalene	mg/L	0.001	<0.000050	0.000091	<0.000050	<0.000050
Phenanthrene	mg/L	-	<0.000020	0.000106	<0.000020	<0.000020
Pyrene	mg/L	-	<0.000010	0.000085	<0.000010	<0.000010
Quinoline	mg/L	-	<0.000050	0.000058	<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	<0.00040
Total Xylenes	mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	-	<0.00050	<0.00050	-[3]	<0.00050
1,2-Dichlorobenzene	mg/L	-	<0.00050	<0.00050	-[3]	<0.00050

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 October 28 to November 2 East WWTP treated effluent was discharged 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) from October 28 through October 30.

[3] Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the WWTP-E-OUT sample collected on October 29.

Table C-2: Summary of East Wastewater Treatment Plant Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Station WWTP-E-IN	Station WWTP-E-OUT
		Influent	Effluent
		WWTP-E-IN	WWTP-E-OUT
		VA24C8688-001	VA24C8688-002
		2024-10-24	2024-10-24
Methylmercury	**µg/L**	0.000098	<0.000080

Table C-3: Summary of East Wastewater Treatment Plant Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	Station WWTP-E-IN	Station WWTP-E-OUT	Station WWTP-E-IN	Station WWTP-E-OUT
		Influent	Effluent	Influent	Effluent
		WWTP-E-IN	WWTP-E-OUT	WWTP-E-IN	WWTP-E-OUT
		L2757497-4	L2757497-3	L2757507-2	L2757507-1
		2024-09-19	2024-09-19	2024-09-23	2024-09-23
Lower Bound PCDD/F TEQ	**pg/L**	0.00522	0	0.00113	0.00105
Upper Bound PCDD/F TEQ	**pg/L**	0.986	1.50	2.01	2.74

Notes:
PCDD = polychlorinated dibenzodioxins (dioxins)
PCDF = polychlorinated dibenzofurans (furans)
TEQ = toxic equivalency
Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).
Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.

Table C-4: Summary of East Wastewater Treatment Plant Daily Field Parameters October 27 – November 2.

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	2024-10-27 13:45	10.5	10.84	0.19	327.16	7.9	278	No	-
WWTP-E-OUT	2024-10-27 13:54	10.3	10.01	0.29	1.39	5.8	429	No	500
WWTP-E-IN	2024-10-28 10:03	9.9	11.25	0.25	149.34	6.4	363	No	-
WWTP-E-OUT/ SP-E-OUT [3]	2024-10-28 9:59	10.3	9.61	0.48	1.20	***5.2***	692	No	544
WWTP-E-OUT/ SP-E-OUT [3]	2024-10-28 15:59	11.1	8.45	0.59	1.20	***5.1***	859	No	
WWTP-E-OUT/ SP-E-OUT [3]	2024-10-28 16:38	11.0	9.58	0.59	6.45	***5.1***	862	No	
WWTP-E-IN	2024-10-29 12:49	11.0	10.62	0.23	56.31	6.2	346	No	-
WWTP-E-OUT/ SP-E-OUT [3]	2024-10-29 14:22	11.1	9.98	0.27	1.03	7.1	404	No	508
WWTP-E-OUT/ SP-E-OUT [3]	2024-10-29 17:11	11.2	10.04	0.35	3.46	5.6	530	No	
WWTP-E-IN	2024-10-30 14:22	9.9	10.54	0.21	29.53	6.5	306	No	-
WWTP-E-OUT/ SP-E-OUT [3]	2024-10-30 14:25	10.2	10.49	0.36	2.88	***5.3***	527	No	456
WWTP-E-IN	2024-10-31 8:58	9.2	10.75	0.19	42.10	6.8	279	No	-
SP-E-OUT/ WWTP-E-OUT [3]	2024-10-31 8:53	9.4	11.11	0.28	1.53	5.6	407	No	506
WWTP-E-IN	2024-11-01 8:39	9.4	10.50	0.19	28.37	6.8	283	No	-
SP-E-OUT/ WWTP-E-OUT [3]	2024-11-01 8:24	8.9	11.40	0.34	1.15	6.2	476	No	370
WWTP-E-IN	2024-11-02 9:48	9.2	10.26	0.19	24.77	6.8	279	No	-
SP-E-OUT/ WWTP-E-OUT [3]	2024-11-02 13:03	10.5	10.62	0.21	13.78	5.6	307	No	531

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 October 28 to November 2 East WWTP treated effluent was discharged at station SP-E-OUT, field measurements were collected from the meter box at the East WWTP effluent station (WWTP - E- OUT) from October 28 through October 30. From October 31 to November 2, field measurements were collected at station SP-E-OUT.

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 ESC-W-IN	Station SP-W-IN	Station ESC-W-OUT [7]	Station SP-W-W
					Influent	Influent	Effluent	In-Pond Station at Influent Location
					ESC-W-IN	SP-W-IN	SP-W-OUT	SP-W-W
					VA24C8955-001	VA24C8952-001	VA24C9045-002	VA24C9188-005
		Long Term	Short Term		2024-10-26 14:36	2024-10-27 14:31	2024-10-28 17:04	2024-10-29 17:33
General Parameters								
pH - Field	pH units	- [2]	-	5.5 - 9.0	8.2	8.7	7.7	8.6
Conductivity - Field	µS/cm	-	-	-	131	221	160	167
Temperature - Field	°C	-	-	-	9.5	10.6	10.8	10.7
Salinity - Field	ppt	-	-	-	0.09	0.15	0.10	0.11
Turbidity - Field	NTU	-	-	-	512.63	250.87	2.72	69.25
TSS	mg/L	-	-	25 or 75[6]	506	303	<3.0	31.5
Dissolved Oxygen - Field	mg/L	>=8	-	-	11.64	11.21	11.13	10.57
Anions and Nutrients								
Sulphate	mg/L	-	-	-	15.2	29.4	20	21.2
Chloride	mg/L	-	-	-	4.71	11.3	6.63	7.24
Fluoride	mg/L	-	1.5	-	0.068	0.148	0.096	0.112
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	-	0.0965	0.895	0.283	0.434
Nitrite (N-NO_2)	mg/L	-	-	-	0.366	0.657	0.384	0.475
Nitrate (N-NO_3)	mg/L	3.7	339	-	3.13	***6.17***	3.31	***4.3***
Total Metals								
Aluminum, total (T-Al)	mg/L	-	-	-	30.7	20	0.183	2.92
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00167	0.00223	0.00164	0.00195
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00628	0.00706	0.00199	0.00296
Barium, total (T-Ba)	mg/L	-	-	-	0.249	0.154	0.00654	0.0287
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.000395	0.000266	<0.000020	0.000043
Boron, total (T-B)	mg/L	1.2	-	-	0.032	0.068	<0.010	0.035
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	***0.000286***	***0.000315***	<0.0000800	0.0000679
Chromium, total (T-Cr)	mg/L	-	-	-	0.0101	0.0111	0.00126	0.00331
Cobalt, total (T-Co)	mg/L	-	-	-	0.00821	0.0058	0.00034	0.00115
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.0311	0.0315	0.00226	0.00784
Iron, total (T-Fe)	mg/L	-	-	-	21.5	13.6	0.033	1.83
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.0259	0.0305	0.000094	0.00535
Manganese, total (T-Mn)	mg/L	-	-	-	0.699	0.371	0.00069	0.0538
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	***0.0000542***	***0.0000589***	<0.0000050	0.0000055
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0225	0.0537	0.0331	0.0365
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00672	0.00621	0.00194	0.00118
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000269	0.000462	0.000267	0.000311
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000083	0.00016	<0.000010	0.000033
Thallium, total (T-Tl)	mg/L	-	-	-	0.000158	0.000151	<0.000010	0.00002
Uranium, total (T-U)	mg/L	-	-	-	0.00712	0.0178	0.00741	0.00905
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.0446	0.0338	0.00244	0.0083
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.102	0.0736	<0.0030	0.014
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00112	***0.00286***	0.00130	***0.00165***
Dissolved Metals								
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000100	0.0000118	<0.0000100	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00237	0.00579	0.00128	0.0034
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.05	0.035	0.016	0.018
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000129	<0.000050	<0.000050	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00493	0.00524	0.00034	0.00243
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0731	0.104	0.0832	0.0847
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00383	0.00654	0.00238	0.00461
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	mg/L	0.006	-	-	0.000054	0.00028	<0.000010	0.00009
Acridine	mg/L	-	-	-	0.000017	0.000038	<0.000010	<0.000017
Anthracene	mg/L	-	-	-	0.00004	0.000086	<0.000010	<0.000013
Benz(a)anthracene	mg/L	-	-	-	0.000095	0.000119	<0.000010	0.000016
Benzo(a)pyrene	mg/L	0.00001	-	-	***0.0000726***	***0.000096***	<0.0000050	***0.000017***
Chrysene	mg/L	0.0001	-	-	0.000088	***0.00011***	<0.000010	0.000018
Fluoranthene	mg/L	-	-	-	0.000255	0.000345	<0.000010	0.000091
Fluorene	mg/L	0.012	-	-	0.000043	0.000211	<0.000010	0.000063
1-methylnaphthalene	mg/L	0.001	-	-	0.000014	0.000089	<0.000010	0.000018
2-methylnaphthalene	mg/L	0.001	-	-	0.000018	0.000092	<0.000010	0.000016
Naphthalene	mg/L	0.001	-	-	<0.000050	0.000241	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	0.000134	0.000377	<0.000020	0.000042
Pyrene	mg/L	-	-	-	0.000241	0.000302	<0.000010	0.000064
Quinoline	mg/L	-	-	-	<0.000050	0.00010	<0.000050	0.000052
Volatile Organic Compounds (VOCs)								
Benzene	mg/L	0.11	-	-	-	<0.00050	<0.00050	-
Ethylbenzene	mg/L	0.25	-	-	-	<0.00050	<0.00050	-
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-	<0.00050	<0.00050	-
Styrene	mg/L	-	-	-	-	<0.00050	<0.00050	-
Toluene	mg/L	0.215	-	-	-	<0.00040	<0.00040	-
Total Xylenes	mg/L	-	-	-	-	<0.00050	<0.00050	-
Chlorobenzene	mg/L	0.025	-	-	-	<0.00050	<0.00050	-
1,2-Dichlorobenzene	mg/L	0.042	-	-	-	<0.00050	<0.00050	-

Notes: Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-11578 West Sedimentation Pond Discharge Limit.
The West Sedimentation Pond discharged during the monitoring period (October 20 - 26) on October 28 through November 2.

[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 October 27 and 28.
[7] The West Sedimentation Pond discharged through the TSS settling system (ESC system) October 28 to November 2, field measurements and analytical samples were collected from TSS settling system effluent (station ESC-W-OUT) from October 28 through October 30; from October 31 to November 2, field measurements and analytical samples were collected at station SP-W-OUT.

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 ESC-W-OUT	Station SP-W-W	Station ESC-W-OUT [7]	Station SP-W-OUT
					Effluent	In-Pond Station at Influent Location	Effluent	Effluent
					SP-W-OUT	SP-W-W	SP-W-OUT	SP-W-OUT
					VA24C9188-003	VA24C9383-004	VA24C9383-002	VA24C9557-001
		Long Term	Short Term		2024-10-29 15:24	2024-10-30 15:10	2024-10-30 14:46	2024-10-31 10:55
General Parameters								
pH - Field	pH units	- [2]	-	5.5 - 9.0	7.9	8.6	7.7	8.0
Conductivity - Field	µS/cm	-	-	-	178	154	183	153
Temperature - Field	°C	-	-	-	11.0	9.9	9.9	9.5
Salinity - Field	ppt	-	-	-	0.12	0.10	0.12	0.10
Turbidity - Field	NTU	-	-	-	1.85	88.99	5.80	3.54
TSS	mg/L	-	-	25[6]	<3.0	15.2	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	11.54	10.68	11.32	11.62
Anions and Nutrients								
Sulphate	mg/L	-	-	-	21.6	20.1	21.0	18.4
Chloride	mg/L	-	-	-	7.26	6.91	7.19	6.54
Fluoride	mg/L	-	1.5	-	0.109	0.101	0.100	0.096
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	0.365	0.400	0.353	0.349
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	0.462	0.460	0.457	0.391
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	***4.26***	***4.06***	***4.28***	***3.80***
Total Metals								
Aluminum, total (T-Al)	mg/L	-	-	-	0.200	2.3	0.168	0.158
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00160	0.00164	0.00163	0.00160
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00224	0.00274	0.00225	0.00201
Barium, total (T-Ba)	mg/L	-	-	-	0.00700	0.024	0.00648	0.00582
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	0.000031	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.010	0.035	0.011	0.012
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000200	0.0000518	<0.0000100	<0.0000150
Chromium, total (T-Cr)	mg/L	-	-	-	0.00148	0.00264	0.00153	0.00134
Cobalt, total (T-Co)	mg/L	-	-	-	0.00043	0.001	0.00041	0.00037
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00147	0.00663	0.00137	0.00316
Iron, total (T-Fe)	mg/L	-	-	-	0.035	1.46	0.026	0.027
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.000078	0.00438	0.000056	0.000181
Manganese, total (T-Mn)	mg/L	-	-	-	0.00064	0.0423	0.00050	0.00052
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	<0.0000050	0.0000136	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0363	0.0343	0.0366	0.0325
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00050	0.00095	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000239	0.000294	0.000246	0.000219
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	0.000029	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	<0.000010	0.000016	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.00844	0.00952	0.00950	0.00765
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00331	0.0074	0.00340	0.00322
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	<0.0030	0.0103	<0.0030	0.0066
Hexavalent Chromium, total	mg/L	0.0015	-	-	***0.00155***	***0.00172***	0.00146	0.00139
Dissolved Metals								
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000150	<0.0000150	<0.0000100	<0.0000100
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00136	0.00319	0.00129	0.00160
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.018	0.018	0.016	0.013
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00047	0.00239	0.00031	0.00085
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0812	0.0913	0.0908	0.0808
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00304	0.00443	0.00351	0.00304
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	<0.0010	<0.0010	0.0019
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	mg/L	0.006	-	-	<0.000010	0.000083	<0.000010	-
Acridine	mg/L	-	-	-	<0.000010	<0.000015	<0.000010	-
Anthracene	mg/L	-	-	-	<0.000010	<0.000019	<0.000010	-
Benz(a)anthracene	mg/L	-	-	-	<0.000010	0.000017	<0.000010	-
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	***0.0000128***	<0.0000050	-
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000017	<0.000010	-
Fluoranthene	mg/L	-	-	-	<0.000010	0.000085	<0.000010	-
Fluorene	mg/L	0.012	-	-	<0.000010	0.000056	<0.000010	-
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	0.000013	<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	0.000029	<0.000020	-
Pyrene	mg/L	-	-	-	<0.000010	0.000065	<0.000010	-
Quinoline	mg/L	-	-	-	<0.000050	<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	-	-	<0.00050	-	<0.00040	-
Total Xylenes	mg/L	-	-	-	<0.00050	-	<0.00050	-
Chlorobenzene	mg/L	0.025	-	-	-[8]	-	<0.00050	-
1,2-Dichlorobenzene	mg/L	0.042	-	-	-[8]	-	<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 (October 20 - 26) on October 28 through November 2.
[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 October 27 and 28.
[7] As a result of the reconfigured pathway for West Sediment Pond discharge effective October 28, field measurements and analytical samples were collected from TSS settling system effluent (station ESC-W-OUT) from October 28 through October 30. From October 31 to November 2, field measurements and analytical samples were collected at station SP-W-OUT.
[8] Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the SP-W-OUT sample collected on October 29.

Table D-3: Summary of West Sedimentation Pond Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station SP-W-IN	Station SP-W-IN	Station ESC-W-IN	Station SP-W-OUT	Station SP-W-OUT	Station SP-W-OUT	Station SP-W-IN	Station ESC-W-OUT [5]
			Influent	Influent	Influent	Effluent	Effluent	Effluent	Influent	Effluent
			SP-W-IN	SP-W-IN	ESC-W-IN	SP-W-OUT	SP-W-OUT	SP-W-OUT	SP-W-IN	SP-W-OUT
			VA24C8024-003	VA24C8023-004	VA24C8165-001	VA24C8023-003	VA24C8162-002	VA24C8882-001	VA24C8952-001	VA24C9383-002
			2024-10-19	2024-10-20	2024-10-20	2024-10-20	2024-10-21	2024-10-26	2024-10-27	2024-10-30
Methylmercury	**µg/L**	-	0.000515	0.000087	0.000213	0.000170	0.000093	0.000031	0.000306	0.000045
Total Mercury	**µg/L**	0.0067 [1,2]	***0.116***	0.0206	***0.0533***	***0.0369***	0.0062	<0.0050	***0.0589***	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
[4] The West Sedimentation Pond discharged through the TSS settling system (ESC system) October 28 to November 2, field measurements and analytical samples were collected from TSS settling system effluent (station ESC-W-OUT) from October 28 through October 30. From October 31 to November 2, field measurements and analytical samples were collected 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).
Non-detect results are screened using the detection limit value.

Table D-4: Summary of West Catchment Area Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	Contact Water at West Floatel Gangway
		W-Gangway
		L2757835-1
		2024-10-19
Lower Bound PCDD/F TEQ	**pg/L**	3.30
Upper Bound PCDD/F TEQ	**pg/L**	9.82

Notes:
PCDD = polychlorinated dibenzodioxins (dioxins)
PCDF = polychlorinated dibenzofurans (furans)
TEQ = toxic equivalency
Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).
Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.

Table D-5: Summary of West Sedimentation Pond Daily Field Parameters October 27 – November 2.

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**								
SP-W-IN	2024-10-27 14:31	10.6	11.21	0.15	250.87	8.7	221	No	0
SP-W-IN	2024-10-27 16:38	10.6	10.83	0.15	182.26	9.0	226	No	
ESC-W-IN	2024-10-28 15:46	10.8	11.11	0.12	91.58	8.1	189	No	485
ESC-W-OUT/ SP-W-OUT	2024-10-28 17:04	10.8	11.13	0.10	2.72	7.7	160	No	
SP-W-W	2024-10-29 17:33	10.7	10.57	0.11	69.25	8.6	167	No	608
ESC-W-OUT/ SP-W-OUT	2024-10-29 15:24	11.0	11.54	0.12	1.85	7.9	178	No	
SP-W-W	2024-10-30 15:10	9.9	10.68	0.10	88.99	8.6	154	No	559
ESC-W-OUT/ SP-W-OUT	2024-10-30 14:46	9.9	11.32	0.12	5.80	7.7	183	No	
SP-W-E	2024-10-31 9:37	9.3	11.06	0.09	28.48	7.6	137	No	596
ESC-W-IN	2024-10-31 10:04	9.6	10.93	0.11	32.31	8.4	168	No	
SP-W-W	2024-10-31 10:45	9.7	10.64	0.10	33.89	8.1	154	No	
SP-W-OUT/ ESC-W-OUT	2024-10-31 10:55	9.5	11.62	0.10	3.54	8.0	153	No	
ESC-W-IN	2024-11-01 9:18	9.2	10.87	0.10	28.32	8.3	140	No	618
SP-W-W	2024-11-01 9:22	9.1	10.78	0.10	29.63	8.4	139	No	
SP-W-IN	2024-11-01 12:34	9.0	12.14	0.10	47.73	6.7	140	No	
SP-W-E	2024-11-01 0:00	8.9	11.07	0.09	29.79	8.3	128	No	
SP-W-OUT/ ESC-W-OUT	2024-11-01 9:47	8.6	12.27	0.10	1.28	8.3	140	No	
SP-W-E	2024-11-02 10:19	8.8	11.81	0.0	37.32	7.9	3.0	No	533
ESC-W-IN	2024-11-02 10:24	9.0	11.35	0.11	25.59	7.2	159	No	
SP-W-OUT/ ESC-W-OUT	2024-11-02 10:10	8.9	12.40	0.09	2.43	8.0	137	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 October 28 through November 2.
[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 October 27, 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 October 27 and November 1, and field measurements and an analytical sample were collected of this influent source (SP-W-IN) on October 27. Field measurements and analytical samples were collected from TSS settling system effluent (station ESC-W-OUT) from October 28 through October 30. From October 31 to November 2, field measurements and analytical samples were collected 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). The West Sedimentation Pond did not discharge October 27, 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-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.

Appendix E: West Wastewater Treatment Plant Results

Table E-1: Summary of West Wastewater Treatment Plant Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	West WWTP			
		Influent	Effluent	Influent	Effluent
		WWTP-W-IN	WWTP-W-OUT	WWTP-W-IN	WWTP-W-OUT
		L2757497-2	L2757497-1	L2757496-2	L2757496-1
		2024-09-19	2024-09-19	2024-09-21	2024-09-21
Lower Bound PCDD/F TEQ	**pg/L**	0.0572	0.0403	0.0519	0.0173
Upper Bound PCDD/F TEQ	**pg/L**	2.58	1.92	1.83	1.71

Notes:
PCDD = polychlorinated dibenzodioxins (dioxins)
PCDF = polychlorinated dibenzofurans (furans)
TEQ = toxic equivalency
Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).
Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.

Appendix F: Non-Contact Water Diversion Ditch Outlets Results

Table F-1: Summary of Non-Contact Water Diversion Ditch Outlet Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station OUT-01	Station OUT-06	Station OUT-02
			Non-Contact Water Diversion Ditch Outlet	Non-Contact Water Diversion Ditch Outlet	Non-Contact Water Diversion Ditch Outlet
			OUT-01	OUT-06	OUT-02
			VA24C6562-005	VA24C8159-007	VA24C8483-001
			2024-10-04	2024-10-20	2024-10-23
Methylmercury	**µg/L**	0.004	0.000031	0.000115	<0.000020
Total Mercury	**µg/L**	0.015 [1,2]	<0.0050	***0.0172***	<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] CCME guideline for total mercury = 0.026 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Appendix G: Freshwater Receiving Environment Results

Table G-1: Summary of Freshwater Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station SW-01	Station SW-02	Station SW-07	Station SW-04
			Lower Reach of Woodfibre Creek (near the mouth)	Upper Reach of Mill Creek (upstream of the third bridge)	Upstream Mill Creek (at the diversion inlet)	Lower Reach of East Creek (near the outlet to the outfall culvert)
			SW-01	SW-02	SW-07	SW-04
			VA24C6390-002	VA24C6562-001	VA24C6390-001	VA24C6562-004
			2024-10-03	2024-10-04	2024-10-03	2024-10-04
Total Methylmercury	**µg/L**	0.004	<0.000020	<0.000020	<0.000020	0.000117
Total Mercury	**µg/L**	0.0062 [1,2]	<0.0050	<0.0050	<0.0050	***0.0072***

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] CCME guideline for total mercury = 0.026 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table G-2: Summary of Freshwater Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station SW-01	Station SW-02	Station SW-07	Station SW-04
			Lower Reach of Woodfibre Creek (near the mouth)	Upper Reach of Mill Creek (upstream of the third bridge)	Upstream Mill Creek (at the diversion inlet)	Lower Reach of East Creek (near the outlet to the outfall culvert)
			SW-01	SW-02	SW-07	SW-04
			VA24C8331-001	VA24C8331-002	VA24C8331-005	VA24C8331-004
			2024-10-22	2024-10-22	2024-10-22	2024-10-22
Total Methylmercury	**µg/L**	0.004	<0.000020	<0.000020	<0.000020	0.000025
Total Mercury	**µg/L**	0.02 [1,2]	<0.0050	<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] CCME guideline for total mercury = 0.026 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table G-3: Summary of Freshwater Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	Station SW-01	Station SW-02	Station SW-07	Station SW-04
		Lower Reach of Woodfibre Creek (near the mouth)	Upper Reach of Mill Creek (upstream of the third bridge)	Upstream Mill Creek (at the diversion inlet)	Lower Reach of East Creek (near the outlet to the outfall culvert)
		SW-01	SW-02	SW-07	SW-04
		L2757664-2	L2757661-1	L2757664-1	L2757661-4
		2024-10-03	2024-10-04	2024-10-03	2024-10-04
Lower Bound PCDD/F TEQ	**pg/L**	0	0	0	0
Upper Bound PCDD/F TEQ	**pg/L**	3.94	4.74	4.24	3.56

Notes:
PCDD = polychlorinated dibenzodioxins (dioxins)
PCDF = polychlorinated dibenzofurans (furans)
TEQ = toxic equivalency
Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).
Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.

Appendix H: Estuarine Water Receiving Environment Results

Table H-1: Summary of Estuarine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station SW-03	Station SW-03
			Mill Creek Estuary	Mill Creek Estuary
			SW-03	SW-03
			VA24C6562-003	VA24C8331-003
			2024-10-04	2024-10-22
Methylmercury	**µg/L**	**-**	0.000027	<0.000080
Total Mercury	**µg/L**	**-**	<0.0050	<0.0050

Table H-2: Summary of Estuarine Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	Station SW-03
		Mill Creek Estuary
		SW-03
		L2757661-3
		2024-10-04
Lower Bound PCDD/F TEQ	**pg/L**	0
Upper Bound PCDD/F TEQ	**pg/L**	3.53

Notes:
PCDD = polychlorinated dibenzodioxins (dioxins)
PCDF = polychlorinated dibenzofurans (furans)
TEQ = toxic equivalency
Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).
Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.

Appendix I: Marine Water Receiving Environment Results

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

Parameter	Unit	Lowest Applicable Guideline [1]		Station IDZ-E1			Station IDZ-E2		
				0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-E1-0.5	IDZ-E1-2m	IDZ-E1-SF	IDZ-E2-0.5	IDZ-E2-2m	IDZ-E2-SF
				VA24C8164-001	VA24C8164-002	VA24C8164-003	VA24C8164-004	VA24C8164-005	VA24C8164-006
		Long Term	Short Term	2024-10-21 16:00	2024-10-21 16:08	2024-10-21 15:45	2024-10-21 16:10	2024-10-21 17:07	2024-10-21 16:37
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	7.9	8.3	7.8	8.0	7.7	7.9
Specific Conductivity - Field	µS/cm	-	-	4132	5599	32433	3927	4852	30226
Temperature - Field	℃	-	-	9.1	9.1	11.5	11.1	8.9	11.9
Salinity - Field	ppt	Narrative[2]	-	3.23	4.47	28.1	3.04	3.86	25.73
Turbidity - Field	NTU	Narrative[2]	Narrative[2]	***32.08***	***31.79***	5.33	***31.43***	***30.51***	3.10
TSS	mg/L	Narrative[2]	Narrative[2]	***29.7***	***20.8***	7.6	***27.2***	***26.8***	11.2
Dissolved Oxygen - Field	mg/L	>=8	-	11.08	9.49	***7.04***	11.12	11.22	8.00
Anions and Nutrients									
Sulphate	mg/L	-	-	250	192	2120	248	263	2100
Chloride	mg/L	-	-	1790	1430	15000	1800	1930	15000
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	0.0124	0.174	0.0062	0.008	0.0084	<0.0050
Nitrite (N-NO_2)	mg/L	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate (N-NO_3)	mg/L	3.7	339	<0.50	0.89	0.99	<0.50	<0.50	<0.50
Total Metals									
Aluminum, total (T-Al)	mg/L	-	-	1.70	1.60	0.196	1.82	1.88	0.297
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	0.00085	0.00119	0.0062	0.00107	0.00134	0.0068
Barium, total (T-Ba)	mg/L	-	-	0.0388	0.0323	0.0157	0.0397	0.0393	0.0153
Beryllium, total (T-Be)	mg/L	0.1	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total (T-B)	mg/L	1.2	-	0.39	0.34	***3.39***	0.38	0.45	***3.51***
Cadmium, total (T-Cd)	mg/L	0.00012	-	0.000024	0.000027	0.000079	0.000025	0.000028	0.000071
Chromium, total (T-Cr)	mg/L	-	-	0.00083	0.00088	<0.00050	0.00085	0.001	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000734	0.00072	0.000186	0.000772	0.000783	0.000234
Copper, total (T-Cu)	mg/L	0.002	0.003	***0.00429***	***0.00439***	0.00097	***0.00438***	***0.00426***	0.00096
Iron, total (T-Fe)	mg/L	-	-	1.29	1.2	0.181	1.41	1.43	0.319
Lead, total (T-Pb)	mg/L	0.002	0.14	0.00037	0.0007	0.00036	0.00033	0.00037	0.00044
Manganese, total (T-Mn)	mg/L	-	-	0.0441	0.0401	0.0098	0.0457	0.0465	0.012
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.00134	0.00384	0.00853	0.00106	0.00135	0.00922
Nickel, total (T-Ni)	mg/L	0.0083	-	<0.00200	<0.00200	<0.00150	<0.00200	<0.00200	<0.00150
Selenium, total (T-Se)	mg/L	0.002	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00010	<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	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000456	0.0013	0.00265	0.00046	0.000417	0.00284
Vanadium, total (T-V)	mg/L	0.005	-	0.00351	0.00346	0.00154	0.00371	0.00391	0.00183
Zinc, total (T-Zn)	mg/L	0.01	0.055	0.0040	0.0047	<0.0030	0.0043	0.0039	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	<0.00150	<0.00150	<0.00150	<0.00150	<0.00150	<0.00150
Dissolved Metals									
Cadmium, dissolved (D-Cd)	mg/L	-	-	0.000021	<0.000020	0.000077	<0.000020	0.000028	0.000064
Copper, dissolved (D-Cu)	mg/L	-	-	0.0009	0.00146	<0.00050	0.00097	0.00082	<0.00050
Iron, dissolved (D-Fe)	mg/L	-	-	0.032	0.044	<0.010	0.028	0.026	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	0.00017	<0.00010	<0.00010	0.00016
Manganese, dissolved (D-Mn)	mg/L	-	-	0.0156	0.0135	0.00514	0.0153	0.0145	0.00586
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00150	0.00686	<0.00150	<0.00150	<0.00150	<0.00150
Strontium, dissolved (D-Sr)	mg/L	-	-	0.685	0.564	6.63	0.689	0.818	6.17
Vanadium, dissolved (D-V)	mg/L	-	-	0.00057	0.00074	0.00122	0.00062	0.00057	0.00122
Zinc, dissolved (D-Zn)	mg/L	-	-	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Polycyclic Aromatic Hydrocarbons (PAHs)									
Acenaphthene	mg/L	0.006	-	<0.000010	<0.000012	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<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	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<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	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	0.000013
Fluorene	mg/L	0.012	-	<0.000010	0.000016	<0.000010	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	0.000022	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	<0.000010	0.000023	<0.000010	0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	0.000077	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020
Pyrene	mg/L	-	-	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	0.000015
Quinoline	mg/L	-	-	<0.000050	<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	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	<0.00050	<0.00050	<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	<0.00050	<0.00050
Styrene	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	<0.00040	<0.00040	<0.00040	0.00041	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	<0.00050	<0.00050	<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.

[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 below the water surface on October 20 as the background station for samples collected October 20 and 21. 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 I-2: Summary of Marine Water Quality Results Received at the Time of Reporting

Parameter	Unit	Lowest Applicable Guideline [1]		Station IDZ-W1			Station IDZ-W2		
				0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-W1-0.5	IDZ-W1-2m	IDZ-W1-SF	IDZ-W2-0.5	IDZ-W2-2m	IDZ-W2-SF
				VA24C8164-007	VA24C8164-008	VA24C8164-009	VA24C8164-010	VA24C8164-011	VA24C8164-012
		Long Term	Short Term	2024-10-21 17:00	2024-10-21 12:18	2024-10-21 11:33	2024-10-21 16:40	2024-10-21 15:19	2024-10-21 14:56
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	7.8	7.6	7.6	7.7	7.5	7.7
Specific Conductivity - Field	µS/cm	-	-	3867	11336	32920	3726	5273	32870
Temperature - Field	℃	-	-	8.9	9.7	10.3	9.2	9.1	10.1
Salinity - Field	ppt	Narrative[2]	-	3.02	9.38	29.49	2.88	4.19	29.61
Turbidity - Field	NTU	Narrative[2]	Narrative[2]	22.11	***25.30***	2.11	21.41	***24.30***	2.38
TSS	mg/L	Narrative[2]	Narrative[2]	8.1	11.4	8.0	12.8	11.4	6.8
Dissolved Oxygen - Field	mg/L	>=8	-	11.31	10.65	***5.72***	11.30	11.22	***5.35***
Anions and Nutrients									
Sulphate	mg/L	-	-	123	182	2260	170	168	2350
Chloride	mg/L	-	-	911	1340	16200	1270	1230	16400
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	0.0063	0.0051	<0.0050	0.0066	0.0058	<0.0050
Nitrite (N-NO_2)	mg/L	-	-	<0.10	<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	<0.50
Total Metals									
Aluminum, total (T-Al)	mg/L	-	-	0.728	1.02	0.0898	1.02	0.133	0.0959
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	0.00079	0.00097	0.00676	0.00104	0.00076	0.00606
Barium, total (T-Ba)	mg/L	-	-	0.0164	0.0225	0.0131	0.0236	0.0168	0.0134
Beryllium, total (T-Be)	mg/L	0.1	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total (T-B)	mg/L	1.2	-	<0.30	<0.30	***3.37***	<0.30	0.32	***3.51***
Cadmium, total (T-Cd)	mg/L	0.00012	-	<0.000020	0.000023	0.000064	<0.000020	<0.000020	0.000081
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	<0.00050	0.00053	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000322	0.000424	0.000126	0.000418	0.000145	0.000129
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00146	***0.00416***	<0.00050	***0.00261***	0.00095	<0.00050
Iron, total (T-Fe)	mg/L	-	-	0.472	0.714	0.08	0.69	0.075	0.082
Lead, total (T-Pb)	mg/L	0.002	0.14	0.00014	0.0002	0.00023	0.00024	<0.00010	0.00028
Manganese, total (T-Mn)	mg/L	-	-	0.018	0.0248	0.00657	0.0247	0.0118	0.00692
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.00076	0.001	0.00874	0.00111	0.00107	0.00874
Nickel, total (T-Ni)	mg/L	0.0083	-	<0.00050	<0.00200	<0.00150	<0.00150	<0.00150	<0.00150
Selenium, total (T-Se)	mg/L	0.002	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00010	<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	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000299	0.000382	0.00261	0.000371	0.000309	0.00277
Vanadium, total (T-V)	mg/L	0.005	-	0.00136	0.00190	0.00128	0.00198	0.00062	0.00134
Zinc, total (T-Zn)	mg/L	0.01	0.055	<0.0030	<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	<0.00150
Dissolved Metals									
Cadmium, dissolved (D-Cd)	mg/L	-	-	<0.000020	<0.000020	0.000061	<0.000020	0.00002	0.000066
Copper, dissolved (D-Cu)	mg/L	-	-	0.0007	0.00074	0.00074	0.00089	0.0015	<0.00050
Iron, dissolved (D-Fe)	mg/L	-	-	0.029	0.024	<0.010	0.025	0.264	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	0.00015	<0.00010	0.00019	0.00018
Manganese, dissolved (D-Mn)	mg/L	-	-	0.012	0.0121	0.00492	0.0126	0.0185	0.00658
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00150	<0.00150	<0.00150	<0.00150	<0.00150	<0.00150
Strontium, dissolved (D-Sr)	mg/L	-	-	0.609	0.588	5.75	0.66	0.484	6.08
Vanadium, dissolved (D-V)	mg/L	-	-	0.00053	<0.00050	0.00107	0.00054	0.00094	0.00109
Zinc, dissolved (D-Zn)	mg/L	-	-	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Polycyclic Aromatic Hydrocarbons (PAHs)									
Acenaphthene	mg/L	0.006	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<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	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<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	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	<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	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	<0.000050	<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	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	<0.00050	<0.00050	<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	<0.00050	<0.00050
Styrene	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	<0.00050	<0.00050	<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.
[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 below the water surface on October 20 as the background station for samples collected October 20 and 21. 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 I-3: 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	Station IDZ-W2	Reference Station WQR1		
				0.5 m Below Surface	0.5 m Below Surface	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-W2-0.5	WQR1-0.5	WQR1-2m	WQR1-SF
				VA24C9041-003	VA24C9041-004	VA24C9041-002	VA24C9041-001	VA24C9041-005	VA24C9041-006	VA24C9041-007
		Long Term	Short Term	2024-10-28 18:07	2024-10-28 17:43	2024-10-28 17:15	2024-10-28 17:18	2024-10-28 12:40	2024-10-28 12:40	2024-10-28 12:46
General Parameters										
pH - Field	pH units	7.0 - 8.7	-	7.2	7.5	7.2	7.5	7.3	7.5	7.3
Specific Conductivity - Field	µS/cm	-	-	6561	3716	6004	5032	3692	20562	32739
Temperature - Field	℃	-	-	9.0	8.6	8.7	8.6	8.1	10.2	9.6
Salinity - Field	ppt	Narrative[2]	-	5.3	2.93	4.88	4.04	2.95	17.53	29.95
Turbidity - Field	NTU	Narrative[2]	Narrative[2]	7.16	7.62	5.98	6.31	11.2	1.51	0.41
TSS	mg/L	Narrative[2]	Narrative[2]	6.6	6.5	6.2	5.9	9.8	10.6	2.6
Dissolved Oxygen - Field	mg/L	>=8	-	11.36	11.49	11.28	11.02	11.43	9.86	***5.35***
Anions and Nutrients										
Sulphate	mg/L	-	-	231	208	209	226	164	271	2320
Chloride	mg/L	-	-	1740	1600	1580	1700	1210	2060	16500
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	0.0088	0.0077	0.0088	0.0114	0.0091	0.0107	0.0078
Nitrite (N-NO_2)	mg/L	-	-	<0.10	<0.10	<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	<0.50	<0.50
Total Metals										
Aluminum, total (T-Al)	mg/L	-	-	0.422	0.404	0.386	0.45	0.622	0.542	0.0225
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.00320
Barium, total (T-Ba)	mg/L	-	-	0.0111	0.0104	0.0094	0.0109	0.0134	0.0137	0.013
Beryllium, total (T-Be)	mg/L	0.1	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total (T-B)	mg/L	1.2	-	0.38	0.35	0.35	0.34	<0.30	0.47	***3.62***
Cadmium, total (T-Cd)	mg/L	0.00012	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000084
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000196	0.000186	0.00017	0.000184	0.000228	0.000224	0.000142
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00157	0.00142	0.00113	0.00146	0.00175	0.0018	0.00054
Iron, total (T-Fe)	mg/L	-	-	0.308	0.294	0.246	0.305	0.432	0.419	0.021
Lead, total (T-Pb)	mg/L	0.002	0.14	0.00014	0.00013	0.00012	0.00014	0.00016	0.00014	<0.00010
Manganese, total (T-Mn)	mg/L	-	-	0.0117	0.0112	0.0094	0.0111	0.0148	0.0149	0.00987
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.00128	0.00106	0.00102	0.00111	0.00089	0.00129	0.00887
Nickel, total (T-Ni)	mg/L	0.0083	-	<0.00050	<0.00050	<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	<0.00050	<0.00050	0.00077
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00010	<0.00010	<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	<0.000050	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000357	0.00033	0.000354	0.000381	0.000323	0.00041	0.00264
Vanadium, total (T-V)	mg/L	0.005	-	0.00115	0.00104	0.00094	0.00107	0.00137	0.00138	0.00127
Zinc, total (T-Zn)	mg/L	0.01	0.055	<0.0030	<0.0030	<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	<0.00150	<0.00150
Dissolved Metals										
Cadmium, dissolved (D-Cd)	mg/L	-	-	<0.000020	0.000021	0.000025	0.00002	<0.000020	0.000032	0.000068
Copper, dissolved (D-Cu)	mg/L	-	-	0.00084	0.00084	0.00071	0.00072	0.00092	0.00146	0.00066
Iron, dissolved (D-Fe)	mg/L	-	-	0.025	0.029	0.022	0.026	0.03	0.023	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00542	0.00726	0.0052	0.00618	0.00626	0.00644	0.00488
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	0.682	0.586	0.846	0.594	0.45	1.32	4.08
Vanadium, dissolved (D-V)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00057	0.00098
Zinc, dissolved (D-Zn)	mg/L	-	-	<0.0010	<0.0010	<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	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<0.000010	<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	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<0.0000050	<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	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	<0.000010	<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	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	<0.000050	<0.000050	<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	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	<0.00050	<0.00050	<0.00050	<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	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	<0.00050	<0.00050	<0.00050	<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.

[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 WQR1 at 0.5 m below the water surface on October 28 as the background station for samples collected October 28. 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 I-4: 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	Station IDZ-W2	Reference Station WQR2		
				0.5 m Below Surface	0.5 m Below Surface	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-W2-0.5	WQR2-0.5	WQR2-2m	WQR2-SF
				VA24C9185-003	VA24C9185-004	VA24C9185-002	VA24C9185-001	VA24C9185-005	VA24C9185-006	VA24C9185-007
		Long Term	Short Term	2024-10-29 17:45	2024-10-29 17:48	2024-10-29 15:50	2024-10-29 18:04	2024-10-29 15:58	2024-10-29 13:58	2024-10-29 13:55
General Parameters										
pH - Field	pH units	7.0 - 8.7	-	7.3	7.5	7.4	7.5	7.3	7.5	7.4
Specific Conductivity - Field	µS/cm	-	-	13739	9248	10079	16839	3611	19794	32471
Temperature - Field	℃	-	-	9.5	9.2	9	9.9	8.3	10.1	10.6
Salinity - Field	ppt	Narrative[2]	-	11.59	7.63	8.41	14.33	2.86	17	28.8
Turbidity - Field	NTU	Narrative[2]	Narrative[2]	3.48	4.55	3.93	2.51	5.79	1.67	0.56
TSS	mg/L	Narrative[2]	Narrative[2]	4.8	4.6	4.8	4.3	4.0	6.2	3.6
Dissolved Oxygen - Field	mg/L	>=8	-	10.81	10.73	10.7	10.35	10.63	9.4	***5.8***
Anions and Nutrients										
Sulphate	mg/L	-	-	527	488	330	289	178	1250	1880
Chloride	mg/L	-	-	3760	3490	2400	2100	1330	8890	13200
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	0.0179	0.0122	0.0101	0.0144	0.0121	0.0151	0.016
Nitrite (N-NO_2)	mg/L	-	-	<0.10	<0.10	<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	<0.50	<0.50
Total Metals										
Aluminum, total (T-Al)	mg/L	-	-	0.305	0.323	0.318	0.305	0.319	0.22	0.0468
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	<0.0010	<0.0010	<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	<0.00040	<0.00040	<0.00080	<0.00120
Barium, total (T-Ba)	mg/L	-	-	0.0101	0.0106	0.0093	0.0093	0.0102	0.0102	0.0116
Beryllium, total (T-Be)	mg/L	0.1	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total (T-B)	mg/L	1.2	-	0.82	0.78	0.44	0.48	0.31	0.97	***2.87***
Cadmium, total (T-Cd)	mg/L	0.00012	-	0.000027	0.000025	<0.000020	<0.000020	<0.000020	0.000036	0.000072
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000202	0.000207	0.000164	0.000151	0.000161	0.000148	0.000176
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00151	0.00161	0.00115	0.00126	0.00127	0.00107	0.00062
Iron, total (T-Fe)	mg/L	-	-	0.243	0.262	0.24	0.219	0.241	0.175	0.039
Lead, total (T-Pb)	mg/L	0.002	0.14	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, total (T-Mn)	mg/L	-	-	0.0106	0.0109	0.00951	0.00934	0.0102	0.00864	0.00512
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.00251	0.00203	0.00132	0.00142	0.00092	0.00232	0.00679
Nickel, total (T-Ni)	mg/L	0.0083	-	0.00053	<0.00050	<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	<0.00050	<0.00050	<0.00050
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00010	<0.00010	<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	<0.000050	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000805	0.000653	0.000433	0.000416	0.000284	0.000721	0.00216
Vanadium, total (T-V)	mg/L	0.005	-	0.00111	0.00122	0.00106	0.00092	0.00095	0.00101	0.00131
Zinc, total (T-Zn)	mg/L	0.01	0.055	<0.0030	<0.0030	<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	<0.00150	<0.00150
Dissolved Metals										
Cadmium, dissolved (D-Cd)	mg/L	-	-	0.000043	0.000033	0.000033	<0.000020	<0.000020	0.000041	0.000064
Copper, dissolved (D-Cu)	mg/L	-	-	0.00078	0.00137	0.00078	0.00083	0.00069	0.00063	<0.00050
Iron, dissolved (D-Fe)	mg/L	-	-	0.016	0.016	0.02	0.024	0.033	0.015	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00568	0.00587	0.00573	0.00623	0.00618	0.00564	0.00445
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	2.77	2.50	2.04	1.57	0.573	3.14	5.07
Vanadium, dissolved (D-V)	mg/L	-	-	0.0009	0.00084	0.00075	0.0006	0.00052	0.00094	0.00125
Zinc, dissolved (D-Zn)	mg/L	-	-	<0.0010	0.0013	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020
Polycyclic Aromatic Hydrocarbons (PAHs)										
Acenaphthene	mg/L	0.006	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<0.000010	<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	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<0.0000050	<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	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	<0.000010	<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	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	0.000013	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	<0.000050	<0.000050	<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	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	<0.00050	<0.00050	<0.00050	<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	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Total Xylenes	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	<0.00050	<0.00050	<0.00050	<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.

[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 below the water surface on October 29 as the background station for samples collected October 29. 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.

[6] Field measurements for salinity are not available due to a field probe malfunction.

Table I-5: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station WQR1			Station WQR2		
			0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
			WQR1-0.5	WQR1-2m	WQR1-SF	WQR2-0.5	WQR2-2m	WQR2-SF
			VA24C6685-001	VA24C6685-002	VA24C6685-003	VA24C6685-004	VA24C6685-005	VA24C6685-006
			2024-10-06	2024-10-06	2024-10-06	2024-10-06	2024-10-06	2024-10-06
Methylmercury	**µg/L**	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Total Mercury	**µg/L**	0.016 [1,2]	<0.0050	<0.0050	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-6: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station IDZ-E1	Station IDZ-E2	Station IDZ-W1	Reference Station WQR1	Reference Station WQR2
			0.5 m Below Surface	0.5 m Below Surface	0.5 m Below Surface	0.5 m Below Surface	0.5 m Below Surface
			IDZ-E1-0.5	IDZ-E2-0.5	IDZ-W1-0.5	WQR1-0.5	WQR2-0.5
			VA24C8041-004	VA24C8041-001	VA24C8041-005	VA24C8041-003	VA24C8041-002
			2024-10-19	2024-10-19	2024-10-19	2024-10-19	2024-10-19
Methylmercury	**µg/L**	-	0.000042	0.000031	0.000036	0.000024	0.000024
Total Mercury	**µg/L**	0.012 [1,2]	<0.0050	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-7: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station IDZ-E1	Station IDZ-E2	Station IDZ-W1	Station IDZ-W2	Reference Station WQR1		Reference Station WQR2
			0.5 m Below Surface	0.5 m Below Surface	0.5 m Below Surface	0.5 m Below Surface	0.5 m Below Surface	2 m Below Surface	0.5 m Below Surface
			IDZ-E1-0.5	IDZ-E2-0.5	IDZ-W1-0.5	IDZ-W2-0.5	WQR1-0.5	WQR1-2m	WQR2-0.5
			VA24C8159-001	VA24C8159-006	VA24C8159-002	VA24C8159-003	VA24C8159-005	VA24C8041-006	VA24C8159-004
			2024-10-20	2024-10-20	2024-10-20	2024-10-20	2024-10-20	2024-10-20	2024-10-20
Methylmercury	**µg/L**	-	0.000041	0.000042	0.000028	0.000026	0.000026	0.000025	0.000033
Total Mercury	**µg/L**	0.012 [1,2]	<0.0050	<0.0050	<0.0050	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-8: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Howe Sound at OUT-02	Howe Sound at West Floatel Gangway
			RE-2	W-G-RE
			VA24C8163-001	VA24C8163-002
			2024-10-20	2024-10-20
Methylmercury	**µg/L**	-	0.000042	0.000021
Total Mercury	**µg/L**	0.012 [1,2]	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-9: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station IDZ-E1			Station IDZ-E2		
			0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
			IDZ-E1-0.5	IDZ-E1-2m	IDZ-E1-SF	IDZ-E2-0.5	IDZ-E2-2m	IDZ-E2-SF
			VA24C8164-001	VA24C8164-002	VA24C8164-003	VA24C8164-004	VA24C8164-005	VA24C8164-006
			2024-10-21	2024-10-21	2024-10-21	2024-10-21	2024-10-21	2024-10-21
Methylmercury	**µg/L**	-	0.000034	0.000078	<0.000020	0.000035	<0.000080	<0.000020
Total Mercury	**µg/L**	0.0063 [1,2]	<0.0050	<0.0050	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-10: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station IDZ-W1			Station IDZ-W2		
			0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
			IDZ-W1-0.5	IDZ-W1-2m	IDZ-W1-SF	IDZ-W2-0.5	IDZ-W2-2m	IDZ-W2-SF
			VA24C8164-007	VA24C8164-008	VA24C8164-009	VA24C8164-010	VA24C8164-011	VA24C8164-012
			2024-10-21	2024-10-21	2024-10-21	2024-10-21	2024-10-21	2024-10-21
Methylmercury	**µg/L**	-	<0.000020	<0.000020	<0.000080	0.000027	<0.000080	<0.000160
Total Mercury	**µg/L**	0.0016 [1,2]	<0.0050	<0.0050	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-11: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station IDZ-W1		Station IDZ-W2	
			2 m Below Surface	2 m Above Seafloor	2 m Below Surface	2 m Above Seafloor
			IDZ-W1-2m	IDZ-W1-SF	IDZ-W2-2m	IDZ-W2-SF
			VA24C8690-001	VA24C8690-002	VA24C8690-003	VA24C8690-004
			2024-10-24	2024-10-24	2024-10-24	2024-10-24
Methylmercury	**µg/L**	-	<0.000080	<0.000080	<0.000080	<0.000080
Total Mercury	**µg/L**	0.0063 [1,2]	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-12: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station IDZ-E1	Station IDZ-E2	Station IDZ-W1	Station IDZ-W2	Reference Station WQR1		
			0.5 m Below Surface	0.5 m Below Surface	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-W2-0.5	WQR1-0.5	WQR1-2m	WQR1-SF
			VA24C9041-003	VA24C9041-004	VA24C9041-002	VA24C9041-001	VA24C9041-005	VA24C9041-006	VA24C9041-007
			2024-10-28	2024-10-28	2024-10-28	2024-10-28	2024-10-28	2024-10-28	2024-10-28
Methylmercury	**µg/L**	-	<0.000020	<0.000020	<0.000020	0.000022	0.000022	0.000021	<0.000080
Total Mercury	**µg/L**	0.0063 [1,2]	<0.0050	<0.0050	<0.0050	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-13: Summary of Marine Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline	Station IDZ-E1	Station IDZ-E2	Station IDZ-W1	Station IDZ-W2	Reference Station WQR2		
			0.5 m Below Surface	0.5 m Below Surface	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-W2-0.5	WQR2-0.5	WQR2-2m	WQR2-SF
			VA24C9185-003	VA24C9185-004	VA24C9185-001	VA24C9185-002	VA24C9185-005	VA24C9185-006	VA24C9185-007
			2024-10-29	2024-10-29	2024-10-29	2024-10-29	2024-10-29	2024-10-29	2024-10-29
Methylmercury	**µg/L**	-	<0.000080	<0.000020	<0.000080	<0.000080	<0.000080	<0.000080	<0.000080
Total Mercury	**µg/L**	0.0063 [1,2]	<0.0050	<0.0050	<0.0050	<0.0050	<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] CCME guideline for total mercury = 0.016 µg/L.
[3] 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).
Non-detect results are screened using the detection limit value.

Table I-14: Summary of Marine Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	Station IDZ-W1			Station IDZ-W2		
		0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
		IDZ-W1-0.5	IDZ-W1-2m	IDZ-W1-SF	IDZ-W2-0.5	IDZ-W2-2m	IDZ-W2-SF
		L2757703-1	L2757703-2	L2757703-3	L2757703-4	L2757703-5	L2757703-6
		2024-10-09	2024-10-09	2024-10-09	2024-10-09	2024-10-09	2024-10-09
Lower Bound PCDD/F TEQ	**pg/L**	0	0	0	0	0.00243	0
Upper Bound PCDD/F TEQ	**pg/L**	2.53	2.02	1.97	2.53	2.19	1.61

Notes:
PCDD = polychlorinated dibenzodioxins (dioxins)
PCDF = polychlorinated dibenzofurans (furans)
TEQ = toxic equivalency
Lower bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned a value of zero (0).
Upper bound PCDD/F TEQ is the sum of the toxic equivalency results for the individual PCDD/F parameters. Non-detectable parameters are assigned the value of the detection limit.