

## TECHNICAL MEMORANDUM

---

**To:** Ian McAllister, Ashleigh Crompton, Mike Champion,  
Jackie Boruch and Ryan Schucroft (Woodfibre LNG) **Date:** 14 Dec 2024

**From:** Cheng Kuang, Holly Pelletier and Patrick Mueller (Lorax) **Project #:** A633-8

**Subject:** PE-111578 Weekly Discharge and Compliance Report #43 for December 1 – 7

---

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 #43) was prepared by Lorax Environmental and summarizes WDA monitoring conducted the week of December 1 – 7. 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 #43 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 G for contact water, treated water and receiving environment samples.

## 1. Current Conditions

### 1.1 Water Management Infrastructure

The Construction Phase of the Woodfibre LNG Export Facility commenced in October 2023. Early stage civil works are ongoing, and these include site grading, levelling, overburden and bedrock excavation, pouring of concrete foundations and construction of contact water management facilities. Shoring works along the foreshore areas were initiated in December 2023, and in early 2024 construction of water management infrastructure commenced and has continued through the December 1 – 7 monitoring period. The East Wastewater Treatment Plant (WWTP), East Sedimentation Pond and West Sedimentation Pond are commissioned for operation.

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

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

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

Flocculant-based TSS settling systems are used at the East and West Sedimentation Ponds to remove TSS from non-contaminated contact water at the time of discharge. Some of the clarified water may be recirculated back to the ponds. The first West Sedimentation Pond TSS settling system (ESC) was commissioned for use on September 25 with an 820 m<sup>3</sup>/day installed capacity. A second TSS settling system (W500GPM) was added and commissioned for use on November 28, and provides an additional 2,725 m<sup>3</sup>/day installed capacity for clarifying water. A

TSS settling system (E500GPM) for the East Sedimentation Pond was commissioned on December 4, also with 2,725 m<sup>3</sup>/day installed capacity.

Contaminated contact water from within the East and West Catchments, and non-contaminated contact water stored in the East Sedimentation Pond are directed to the East WWTP for treatment prior to discharge to Howe Sound. Direct discharge to Howe Sound of East WWTP treated contact water has been implemented since October 28.

The East and West Catchment permanent outfall structures have not been completed. Temporary discharge systems (*i.e.*, pumps, hosing and diffusers) are used to convey clarified or treated effluent to the discharge locations authorized for the East and West Catchments. In the East Catchment, treated WWTP effluent and clarified E500GPM effluent are combined to discharge at location SP-E-OUT since December 2. Similarly, since November 28 the West Catchment discharge location, SP-W-OUT receives the combined clarified effluents from the ESC and W500GPM TSS settling systems. Each of the authorized discharge locations has an initial dilution zone (IDZ) where discharged water mixes with Howe Sound surface waters. The IDZ is defined in PE-111578 and extends 150 m from each point of discharge into Howe Sound.

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

## 1.2 Weather and Water Management Activities

Variable weather was observed during the monitoring period (December 1 – 7), with precipitation recorded on December 6 and 7. The total weekly precipitation amount was 50.8 mm. 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
12-01-2024	0.0	8.9	2.7	Overcast
12-02-2024	0.2	8.7	1.7	Overcast
12-03-2024	0.0	10.4	2.2	Mix of Sun and Cloud
12-04-2024	0.0	13.1	3.3	Overcast
12-05-2024	0.2	7.6	2.6	Mix of sun and cloud
12-06-2024	21.4	9.2	6.1	Rain
12-07-2024	29.0	11.4	5.5	Rain

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

During the December 1 – 7 monitoring period, the East Sedimentation Pond received contact water from Area 1100 Sump and Pad, Area 1200 Sump and Baker Tanks, Area 1300 Stormwater Sump, ponded water at the Batch Plant, and from the Surge Pond (Appendix A, Figure 2 and Figure 3).

Routine operation of the East WWTP continued during the monitoring period (December 1 – 7). Contact waters from the West Catchment fuel farm sump, and site concrete contact water were periodically directed to the East WWTP for treatment, as well as water stored in the East Sedimentation Pond (Appendix A, Figure 2 and Figure 3). A total of 791 m<sup>3</sup> of treated effluent from the East WWTP was directed to the authorized discharge location, SP-E-OUT on December 4, 5, and 7. Commissioning of the TSS settling system (E500GPM) for the East Sedimentation Pond was completed and the system was commissioned for discharge on December 4, and 681 m<sup>3</sup> of clarified effluent was directed to authorized discharge location SP-E-OUT on December 4 and 7. Daily discharge volumes from East WWTP, East TSS settling system (E500GPM) and the authorized discharge location SP-E-OUT are provided in Appendix B, Table B-6.

During the December 1 – 7 monitoring period, contact waters from Area 4100 and Area 4200 sumps and tanks were directed to the West Sedimentation Pond (Appendix A, Figure 3). West Sedimentation Pond water was clarified through the ESC and W500GPM TSS settling systems prior to discharge. Clarified effluent totaling 311 m<sup>3</sup> from the ESC system was directed to the SP-W-OUT authorized discharge location on December 5 and 7, and a total of 1,008 m<sup>3</sup> effluent was clarified through the W500GPM system and directed to the SP-W-OUT discharge location on December 4, 5 and 7. Daily clarified effluent volumes from the ESC and W500GPM TSS settling systems, and volumes discharged to Howe Sound from the West Catchment authorized discharge location (SP-W-OUT) are provided in Appendix C (Table C-6).

## 2. Monitoring Summary

The PE-111578 authorized works were under construction during the December 1 – 7 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 (SP-E-IN, SP-E-NE, SP-E-NW, E500GPM-IN, E500GPM-OUT, WWTP-E-IN, WWTP-E-OUT, SP-E-OUT, SP-W-IN, SP-W-W, SP-W-E, ESC-W-IN, ESC-W-OUT, W500GPM-IN, W500GPM-OUT and SP-W-OUT,).

- Howe Sound reference and IDZ locations (WQR1, WQR2, IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2).

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

The influent culverts for East and West Sedimentation Ponds are not yet operational and the associated influent stations defined in PE-111578 (SP-E-IN-1, SP-E-IN-2, SP-W-IN-1 and SP-W-IN-2) have not been established. Hence, temporary monitoring stations SP-E-IN and SP-W-IN are used to characterize the water quality of contact water directed to the East Sedimentation Pond and the West Sedimentation Pond, respectively.

A flocculant-based TSS settling system (ESC) has been in use at the West Sedimentation Pond since September 25 and a second system (W500GPM) was added on November 28 (Section 1.2). The influent and effluent station names for these systems are ESC-W-IN and ESC-W-OUT (first system) and W500GPM-IN and W500GPM-OUT (second system). A TSS settling system (E500GPM) at the East Sedimentation Pond was commissioned for use on December 4. The influent and effluent stations for this system are E500GPM-IN and E500GPM-OUT, respectively. There are no PE- 111578 monitoring requirements for TSS settling system stations, therefore they are monitored at the discretion of field staff.

Water quality was monitored at stations SW-01, IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, WQR2, WWTP-E-IN, WWTP-E-OUT, E500GPM-IN, E500GPM-OUT, SP-E-IN, SP-E-OUT, ESC-W-IN, ESC-W-OUT, W500GPM-IN, W500GPM-OUT SP-W-IN and SP-W-OUT, during the monitoring period (December 1 – 7). Sampling dates and parameters tested are summarized in Table 2.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (December 1 – 7) were met.

Daily field parameters were not collected at the influent stations SP-E-IN (December 3, 4, 5, and 6), SP-W-IN (December 2, 3, 4, and 5), SP-E-OUT (December 2, 3 and 6) and SP-W-OUT (December 1 and 6) since there was no influent reporting to the East and West Sedimentation Ponds or discharged from the authorized discharge locations 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 operational during the monitoring period.

**Table 2: Summary of PE-111578 Monitoring Samples Collected December 1 – 7.**

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency		
December 1, 2024	SP-E-IN	East Sedimentation Pond influent entering the pond at cell 1	Field Parameters.	D		
	SP-E-OUT <sup>1</sup>	East Sedimentation Pond treated effluent holding tank				
	WWTP-E-OUT	East WWTP at the effluent meter box				
	WWTP-E-IN	East WWTP at the influent meter box				
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P		
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box				
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1	Field Parameters.	D		
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P		
W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box					
December 2, 2024	SP-E-IN	East Sedimentation Pond influent entering the pond at cell 1	Field Parameters.	D		
	WWTP-E-IN	East WWTP at the influent meter box				
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P		
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box				
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P		
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box				
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port				
December 3, 2024	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P		
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box				
	ESC-W-OUT	West TSS settling system effluent at the ESC meter box	Field Parameters.	P		
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box				
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box				
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port				
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field and Physical Parameters.	W <sub>3</sub>		
	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					
December 4, 2024	SP-E-OUT	East Sedimentation Pond clarified and/or treated effluent discharge to Howe Sound, collected at sampling port			Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box			Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box				
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P		
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box				
SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans and Acute Toxicity.	D, W <sub>1</sub> , W <sub>2</sub> , Q			
December 5, 2024	SP-E-OUT	East Sedimentation Pond clarified and/or treated effluent discharge to Howe Sound, collected at sampling port	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans and Acute Toxicity.	D, W <sub>1</sub> , W <sub>2</sub> , Q		
	WWTP-E-OUT	East WWTP at the effluent meter box	Field Parameters.	D		
	WWTP-E-IN	East WWTP at the influent meter box				
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P		
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box				
	WQR1-0.5	Reference site 1; 0.5 m below surface				
	WQR1-2m	Reference site 1; 2 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M		
WQR1-SF	Reference site 1; 2 m above the seafloor					
December 6, 2024	WWTP-E-OUT	East WWTP at the effluent meter box	Field Parameters.	D		
	WWTP-E-IN	East WWTP at the influent meter box				
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1	Field Parameters.	D		
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box				
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box	Field Parameters.	P		
	SW-01	Lower Reach of Woodfibre Creek (near the mouth)				
	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.	M		
	WQR2-2m	Reference site 2; 2 m below surface				
WQR2-SF	Reference site 2; 2 m above the seafloor					

**Table 2 (continued): Summary of PE-111578 Monitoring Samples Collected December 1 – 7.**

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
December 7, 2024	SP-E-IN	East Sedimentation Pond influent entering the pond at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W <sub>1</sub> , W <sub>2</sub>
	SP-E-OUT	East Sedimentation Pond clarified and/or treated effluent discharge to Howe Sound, collected at sampling port	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W <sub>1</sub> , W <sub>2</sub>
	WWTP-E-IN	East WWTP at the influent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, and Methylmercury.	P
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W <sub>1</sub> , W <sub>2</sub>
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	P
	ESC-W-OUT	West TSS settling system effluent at the ESC meter box		
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, and Methylmercury.	D, W <sub>1</sub>

**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<sub>1</sub> – initial high frequency monitoring for physical parameters at WWTP and sedimentation pond influent and effluent stations.

W<sub>2</sub> – initial high frequency monitoring for all parameters at WWTP and sedimentation pond influent and effluent stations.

W<sub>3</sub> – initial high frequency monitoring for physical parameters at IDZ stations.

W<sub>4</sub> – 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.

Q – quarterly acute toxicity.

<sup>1</sup> The sample for station SP-E-OUT was collected from the discharge holding tank, there was no discharge to Howe Sound on December 1.

### 3. Water Quality Results

#### 3.1 Screening and Reporting Overview

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

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

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



### 3.2 Summary of Reported Results

Field measurements and analytical results available at the time of reporting for samples collected during the monitoring period (December 1 – 7) 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:

- IDZ-E1 collected November 10 (dioxins and furans)
- OUT-06 collected November 11 (methylmercury)
- IDZ-E2 collected November 12 (methylmercury, dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, and WQR2 collected November 19 (methylmercury, dioxins and furans)
- SP-W-OUT collected December 4 (methylmercury, dioxins, furans, and acute toxicity)
- SP-E-OUT collected December 5 (methylmercury, dioxins, furans, and acute toxicity)
- WQR1 collected December 5 (field parameters and all analytical parameters)
- SW-01 collected December 6 (methylmercury, dioxins and furans)
- WQR2 collected December 6 (field parameters and all analytical parameters)
- SP-E-IN, WWTP-E-IN, WWTP-E-OUT, E500GPM-OUT collected December 7 (field parameters and all analytical parameters)
- SP-W-IN and SP-W-OUT collected December 7 (field parameters and all analytical parameters)
- Chronic toxicity testing of samples collected from WQR1, WQR2, IDZ-W1, and IDZ-W2 on September 25, 2024 were received on December 9, and data interpretation is in progress. The September 25 toxicity test results will be included in the next weekly report.
-

**Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #43.**

Sample	Description	Sampling Date	Parameters Reported
WWTP-E-IN	East WWTP influent	October 29, 2024	Dioxins and Furans.
WQR1-0.5	Reference site 1; 0.5 m below surface	November 1, 2024	Dioxins and Furans.
WQR1-2m	Reference site 1; 2 m below surface		
WQR1-SF	Reference site 1; 2 m above the seafloor		
SP-E-IN	East Sedimentation Pond influent	November 3, 2024	Dioxins and Furans.
SP-E-OUT/ WWTP-E-OUT <sup>1</sup>	East WWTP effluent discharged at station SP-E-OUT		
WWTP-E-IN	East WWTP influent		
SP-W-IN	West Sedimentation Pond influent		
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system (ESC) effluent discharged at station SP-W-OUT	November 4, 2024	Dioxins and Furans.
SP-E-IN	East Sedimentation Pond influent		
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-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		
IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface	November 10, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs and Methylmercury.
IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
OUT-06	Non-contact water diversion ditch outlet	November 11, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium.
IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface	November 12, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
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		
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system (ESC) effluent discharged at station SP-W-OUT	November 15, 2024	Methylmercury.
WWTP-E-IN	East WWTP influent	November 18, 2024	Dioxins and Furans. Methylmercury, Dioxins and Furans.
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system (ESC) effluent discharged at station SP-W-OUT		
SP-E-OUT/ WWTP-E-OUT <sup>1</sup>	East WWTP effluent discharged at station SP-E-OUT	November 19, 2024	Methylmercury.  Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
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		
WQR2-0.5	Reference site 2; 0.5 m below surface		
WWTP-E-IN	East WWTP influent	November 21, 2024	Methylmercury.
SP-E-OUT/ WWTP-E-OUT <sup>1</sup>	East WWTP effluent discharged at station SP-E-OUT		
SP-W-IN	West Sedimentation Pond influent		
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system (ESC) effluent discharged at station SP-W-OUT	November 22, 2024	Methylmercury.
WWTP-E-IN	East WWTP influent		
SP-E-OUT/ WWTP-E-OUT <sup>1</sup>	East WWTP effluent discharged at station SP-E-OUT	November 23, 2024	Methylmercury.
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system (ESC) effluent discharged at station SP-W-OUT		
SP-W-IN	West Sedimentation Pond influent	November 24, 2024	Methylmercury.
WWTP-E-IN	East WWTP influent		
SP-E-IN	East Sedimentation Pond influent		
SP-E-OUT/ WWTP-E-OUT <sup>1</sup>	East WWTP effluent discharged at station SP-E-OUT		
SP-W-IN	West Sedimentation Pond influent		
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system (ESC) effluent discharged at station SP-W-OUT	November 25, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs and Methylmercury.
W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box		
W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box	November 27, 2024	Methylmercury.
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system (ESC) effluent discharged at station SP-W-OUT		
SP-W-IN	West Sedimentation Pond influent	November 29, 2024	Methylmercury. Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and Methylmercury.
E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box		
E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	December 3, 2024	Field and Physical Parameters.
IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface		
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station 2; 2 m above the seafloor		

**Table 3 (continued): Summary of Analytical Results Included in Weekly Discharge and Compliance Report #43.**

Sample	Description	Sampling Date	Parameters Reported
SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port	December 4, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
SP-E-OUT	East Sedimentation Pond clarified and/or treated effluent discharge to Howe Sound, collected at sampling port	December 5, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
SW-01	Lower Reach of Woodfibre Creek (near the mouth)	December 6, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.

**Notes:**

<sup>1</sup> As a result of the reconfigured pathway for effluent discharge at station SP-E-OUT effective October 28, contact water stored in the East Sedimentation Pond is directed to the East WWTP for treatment and East WWTP effluent is discharged at station SP-E-OUT. Field measurements and analytical samples collected at station SP-E-OUT also fulfill the water quality monitoring requirements for station WWTP-E-OUT until December 3. Beginning December 4, contact water stored in the pond is also clarified using the E500GPM TSS settling system and the clarified effluent is combined with East WWTP treated effluent prior to monitoring and discharge at SP-E-OUT.

<sup>2</sup> As a result of the reconfigured pathway for effluent discharge at station SP-W-OUT effective October 28, the West Sedimentation Pond discharge is routed through a TSS settling system (ESC) prior to discharge and the monitoring results are considered representative of water quality at station ESC-W-OUT until November 28 when clarified effluent from the second TSS settling system (W500GPM) was combined with effluent from ESC system prior to monitoring and discharge at SP-W-OUT. There are no PE-111578 monitoring requirements for TSS settling systems (ESC and W500GPM), therefore stations at these facilities are monitored at the discretion of field staff.

### 3.3 East Catchment

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

During the monitoring period (December 1 – 7), East WWTP treated effluent (December 4, 5 and 7) and clarified water (December 4 and 7) from the East Sedimentation Pond TSS settling system (E500GPM) were combined in the SP-E-OUT discharge tank, and intermittently discharged to Howe Sound at the authorized discharge location (station SP-E-OUT). Field measurements were collected at multiple influent and effluent locations, as outlined in Section 2 and tabulated in Appendix B, Table B-5. Daily discharge volumes from the East Catchment are summarized in appendix B, Table B-6.

Analytical samples collected on November 29 (E500GMP-IN and E500GPM-OUT) and December 5 (SP-E-OUT) were available at the time of reporting. Screening results for East Catchment contact water influent quality and effluent quality are tabulated in Table B-1 and Table B-2 of Appendix B, respectively. During the monitoring period (December 1 – 7), analytical results and field measurements monitored at station SP-E-OUT met PE-111578 discharge limits and WQGs except for hexavalent chromium on December 5 (Table 4).

**Table 4:**  
**Summary of Parameters Exceeding WQGs in Effluent Discharged from SP-E-OUT for Field and Analytical Results Available at the Time of Reporting**

Parameter	Units	WQG <sup>1</sup>	N	N >WQG	Commentary
Hexavalent Chromium	mg/L	0.0015	1	1	Hexavalent chromium concentrations at station SP-E-OUT on December 5 (0.00242 mg/L) was 1.6 times greater than the long-term WQG.

N = number of samples.

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

Methylmercury analytical results were available at the time of reporting for influent and effluent samples collected from the East Catchment on November 19, 21, 22, 24, and 29 (as discussed in

Reports #41 and 42). East WWTP treated effluent discharged at station SP-E-OUT had methylmercury concentrations ranging from 0.000044 to 0.000076 µg/L. Methylmercury and the associated total mercury results for the effluent samples met WQGs (Appendix B, Table B-3).

Dioxin and furan results were reported for East Sedimentation Pond influent (station SP-E-IN) collected November 4 (as discussed in Report #39). Results were also reported for WWTP influent (WWTP-E-IN) collected October 29, November 3, and November 8, and WWTP effluent (WWTP-E-OUT) collected November 3 (as discussed in Reports #38 and #39). The WWTP-E-OUT sample is also considered to represent SP-E-OUT water quality because WWTP treated effluent was discharged at station SP-E-OUT on November 3. The lower bound and upper bound PCDD/F TEQ for the November 3 effluent sample was 0.00119 and 0.481 pg/L, respectively.

### **3.4 West Catchment**

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

During the monitoring period (December 1 – 7), the TSS settling systems (ESC and W500GPM) intermittently treated water stored in the West Sedimentation Pond and produced clarified effluent that was combined and discharged to Howe Sound on December 4, 6 and 7 at the authorized discharge location, SP-W-OUT. Daily clarified effluent and discharge volumes from the West Catchment are summarized in Appendix C, Table C-6.

Field measurements were collected during the monitoring period (December 1 – 7) at multiple influent and effluent locations, as outlined in Section 2, and are tabulated in Appendix C, Table C-5. Analytical samples collected on November 25 (W500GPM-IN and W500GPM-OUT) and December 4 (SP-W-OUT) were available at the time of reporting. Screening results for West Catchment contact water influent quality and effluent quality are tabulated in Table C-1 and Table C-2 of Appendix C, respectively.

During the monitoring period (December 1 – 7), analytical results and field measurements monitored at station SP-W-OUT met PE-111578 discharge limits and WQGs. The

W500GPM-OUT sample collected on November 25 had high pH (9.05), but the clarified effluent was recirculated to the West Sedimentation Pond and not discharged to Howe Sound on that day. Methylmercury analytical results were available at the time of reporting for influent and effluent samples collected from the West Catchment on November 15, 18, 21, 22, 23, 24, 27, and 29 (as discussed in Reports #40, #41, and #42). Samples of West Sedimentation Pond clarified effluent discharged at SP-W-OUT on November 15, 18, 21, 22, 24, and 27 met WQGs for methylmercury and total mercury (Appendix C, Table C-3). The W500GPM-OUT sample collected on November 25 exceeded WQGs for methylmercury and total mercury, but the clarified effluent was recirculated to the West Sedimentation Pond and not discharged to Howe Sound on that day.

Dioxin and furan results were reported for West Sedimentation Pond influent (station SP-W-IN) collected November 3, and TSS clarified effluent discharged at SP-W-OUT on November 3 and 18 (as discussed in Reports #39 and #41). The lower bound and upper bound PCDD/F TEQ for the November 3 effluent sample was 0.0607 and 0.885 pg/L, respectively. The lower bound and upper bound PCDD/F TEQ for November 18 effluent sample was 0 and 1.16 pg/L, respectively.

### 3.5 Non-Contact Water Diversion Ditch Outlets

Non-contact water diversion ditch samples are screened against Canadian, Federal and BC WQGs for the protection of freshwater aquatic life. The analytical results, field parameters, and WQGs are summarized in Appendix D.

East Creek was temporarily diverted to OUT-11 on September 17 to facilitate replacement of the OUT-12 culvert through which East Creek previously discharged. Only East Creek water is flowing through the OUT-11 culvert. East Creek is monitored at freshwater receiving environment station SW-04 and station OUT-11 is not monitored while diversion is in place.

Analytical results were available at the time of reporting for the November 11 non-contact water diversion ditch outlet sample collected at station OUT-06 (as discussed in Weekly Report #40). Parameter concentrations met WQGs except total aluminum and dissolved copper (Table 5).

**Table 5:  
Summary of Parameters Exceeding WQGs at Non-Contact Water Diversion Ditch Outlets**

Parameter	Units	WQG	N	N >WQG	Commentary
T-Al	mg/L	0.073	1	1	The total aluminum concentration measured at OUT-06 (0.219 mg/L) on November 11 was 3.0 times greater than the calculated long-term WQG.
D-Cu	mg/L	0.00030	1	1	The dissolved copper concentration measured at OUT-06 (0.00087 mg/L) on November 11 was 2.9 times greater than the calculated long-term WQG.

N = number of samples.

Non-detect results are screened using the detection limit value.

### **3.6 Freshwater and Estuarine Water Receiving Environment**

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

Analytical results were available at the time of reporting for a freshwater sample collected near the mouth of Woodfibre Creek (SW-01) on December 6. The water quality met WQGs except total aluminum which was measured at 0.150 mg/L (Appendix E; Table E-1). The observed concentration of total aluminum was within concentration ranges observed in the pre-construction baseline monitoring program at Woodfibre Creek.

Methylmercury results were available at the time of reporting for the October 25 and 26 freshwater and estuarine water samples (as discussed in Weekly Report #37). The methylmercury concentrations were <0.000020 µg/L in Woodfibre Creek (SW-01), Mill Creek (SW-02), and the Mill Creek Estuary (SW-03). A raised detection limit was reported for the upstream Mill Creek (SW-07) and East Creek (SW-04) samples (<0.000080 µg/L). Methylmercury results met the WQG. The corresponding total mercury results also met WQGs. Results are tabulated in Appendix E, Table E-2 (freshwater) and Appendix F, Table F-1 (estuarine water).

### **3.7 Marine Water Receiving Environment**

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

Analytical results and field measurements were available at the time of reporting for marine water samples collected at 0.5 and 2 m below the water surface and 2 m above the seafloor on November 10 and 12 at IDZ-E1 and IDZ-E2 (as discussed in Weekly Report #40) and all IDZ stations on December 3. Only field and physical parameters were collected on December 3. Analytical results were also available for the November 19 marine water receiving environment

samples collected at IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, and marine reference stations WQR1 and WQR2 at 0.5 m below the water surface (as discussed in Weekly Report #41). Parameter concentrations in all samples met WQGs except TSS, turbidity, dissolved oxygen, total boron, and total copper in one or more samples (Appendix G; Tables G-1 and G-2).

Total suspended solids (TSS) and turbidity concentrations at IDZ-E1 were above the calculated long-term WQGs in the sample collected at 0.5 m below the surface on November 10. The effluent discharged from SP-E-OUT on November 10 had low concentrations of TSS (<3.0 mg/L) and turbidity (< 2 NTU) (Report #40) and is therefore not a likely source of these parameters in the east IDZ. There were no other contact water discharges from the East Catchment, and Marine foreshore works were also not active east of Mill Creek on November 10. Mill Creek and East Creek were clear (< 2 NTU). The source of the elevated TSS and turbidity is not identified and may be due to spatial variation in shallow marine water quality within the monitoring station network.

In some of the marine samples collected 2 m below the surface and 2 m above the seafloor on November 10, 12 and December 3, dissolved oxygen was below the lower limit of the WQG (<8 mg/L) and ranged from 4.50 to 7.10 mg/L. Total boron was above the WQG (1.2 mg/L) and ranged from 2.21 to 3.32 mg/L in some samples collected November 10, 12 and 19. Low concentrations of dissolved oxygen and elevated concentrations of total boron are indicative of influence from the deeper saline waters in the northern basin of Howe Sound and are a natural condition of the marine water at the WDA monitoring stations. Total copper was above the WQG (0.002 mg/L) and ranged from 0.00217 to 0.00363 mg/L in some samples collected on November 10 and 12 at 0.5 and 2 m below the surface, and is attributed to TSS in the fresh water influenced samples collected from the top of the marine water column.

The turbidity, TSS, dissolved oxygen, total boron, and total copper concentrations observed at the IDZ monitoring stations are within concentrations that have been observed at baseline and reference marine monitoring stations and are therefore not attributed to project influence.

Methylmercury analytical results were available at the time of reporting for the marine water receiving environment samples collected from station IDZ-E1 on November 10 (discussed in Weekly Report #40) at 0.5 m and 2 m below the water surface and 2 m above the seafloor. For all samples, methylmercury concentrations ranged from <0.000020 to 0.000023 ug/L and were below the WQG indicated in Section 3.1 (0.0001 µg/L). The associated total mercury concentrations also met the WQG (Appendix G; Tables G-5).

Dioxins and furans analytical results were available at the time of reporting for marine samples collected from 0.5 and 2 m below surface and 2 m above the seafloor at marine reference station WQR1 on November 1 (as discussed in Weekly Report #38) and at station IDZ-W1 on November 4 (as discussed in Weekly Report #39). For all samples, the lower and upper bound



PCDD/F TEQ concentrations ranged from 0.000717 to 0.0406 pg/L, and 0.720 to 1.13 pg/L, respectively. The lower and upper bound PCDD/F TEQ concentrations were within the concentration ranges observed in the baseline monitoring program for marine reference stations or within background ranges observed at marine reference stations. Dioxins and furans results are presented in Appendix G, Table G-6.

#### **4. Quality Control**

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 6). 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 6. Any items flagged for follow-up are carried forward to future reports until they are closed.

**Table 6: Weekly Report QC Evaluations and Ongoing Items**

QC Procedure	Observation	Investigation/Resolution
<b>Reporting Period (December 1 – 7, Report #43)</b>		
<b>Authorized Works and Monitoring Program Evaluation</b>	The authorized works and monitoring stations have not been established as described in PE-111578.	The PE-111578 authorized works were under construction during the reporting period. The East and West Sedimentation Ponds and WWTPs have been constructed. The sedimentation pond influent culverts have not been activated, and the associated influent monitoring stations have not been established. Temporary outfalls are used for the East and West authorized discharge locations until the permanent structures are completed. Operation of the West WWTP has been suspended since September 25, and the plant has been repurposed to evaluate alternative treatment processes. The lower reach of East Creek has been temporarily diverted through OUT-11 outfall since September 17 to facilitate replacement of the East Creek outfall culvert (OUT-12). East Creek is monitored at SW-04 therefore monitoring at OUT-11 has been suspended. As communicated to BCER, the East Catchment discharge pathway for authorized discharge location SP-E-OUT was reconfigured on October 28 to direct sedimentation pond effluent to the East WWTP and to only discharge East WWTP treated effluent. This item remains open.
<b>Pending Data</b>	Analytical results were not reported for samples collected December 5, 6, and 7. Methylmercury, dioxins and furans results were not reported for samples collected December 4, 5, and 6.	Analytical results for samples collected December 5, 6, and 7 were not complete at the time of Report #43 preparation. Methylmercury, dioxins and furans results for samples collected December 4, 5, and 6 were not complete at the time of Report #43 preparation. The pending results will be included in future weekly reports when available. This item remains open.
<b>Ongoing Items from Previous Weekly Reports</b>		
<b>Report #37: Potential Project Influence on Receiving Environment</b>	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 12 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. The total iron and dissolved copper concentrations observed at the East Creek station (SW-04) on October 26 were 1.8 and 1.01 times greater than the maximum concentrations observed in the pre-construction baseline monitoring program at East Creek, respectively. Follow-up investigation indicates several sources may account for the observed metal concentrations including temporary untreated effluent discharge from the Fortis work area October 3 and 4 to the upper tributary, and seepage of groundwater to the lower tributary of East Creek during periods of heavy rain. There are visible metallic objects protruding from in the hillslope above the lower tributary that appear to be remnants of a historic landfill and some visible iron oxide staining along the bottom of the lower tributary streambed (observed December 12) that may be linked to seepage emanating from the hillside. There is limited LNG facility construction activity along the lower tributary which is the northern boundary of the East Catchment. The temporary water treatment issue at the Fortis controlled area has been resolved and recent monitoring data indicate SW-04 has returned to baseline conditions. Therefore, project influence is inferred to be transient incident. This item is closed.
<b>Report #37: Pending Data</b>	Methylmercury results were not reported for samples collected October 25, and 26.	Methylmercury results for samples collected October 25 and 26 are discussed in Section 3.6 of Report #43. This item is closed.
<b>Report #38: Pending Data</b>	Dioxins and furans results were not reported for samples collected October 27, 28, and 30.	Dioxin and furan results for samples collected November 1 are discussed in Section 3.7 of Report #43. Dioxin and furan results for samples collected October 27, 28, 30, and November 2 were not complete at the time of Report #43 preparation. The pending results will be included in future weekly reports when available. This item remains open.
<b>Report #38: Non-Complaint Effluent</b>	East Sedimentation Pond effluent on October 28 and 30 did not meet the pH discharge limit.	East Catchment discharge at SP-E-OUT ( <i>i.e.</i> , East WWTP effluent) was below the lower discharge limit for field pH on October 28 and 30 (pH 5.1 to 5.3). The low pH values are attributed to carbon dioxide used for final pH adjustment in the WWTP treatment process. As has been communicated to BCER, operational procedures have been updated to prevent discharge of effluent outside the discharge limit range, this includes weekly inspection of the automated effluent control system to ensure it is always activated. The control system monitors pH and automatically stops discharge if pH is outside limits. This item is closed.
<b>Report #39: Pending Data</b>	Dioxins and furans results were not reported for samples collected November 3 and 4.	Dioxin and furan results for samples collected November 3 and 4 are discussed in Sections 3.3, 3.4, and 3.7 of Report #43. This item is closed.
<b>Report #40: Monitoring Program Evaluation</b>	Sampling was not conducted as prescribed in PE-111578 on occasion.	Weekly monitoring for physical parameters was not conducted at stations IDZ-W1 and IDZ-W2 at 2 m below the water surface nor at 2 m above the seafloor. A review of monitoring requirements with the QEP and site staff was completed December 11. This item is closed.
<b>Report #40: Potential Project Influence on Receiving Environment</b>	Dissolved copper near the mouth of Mill Creek was above concentration ranges observed in the pre-construction baseline program.	The dissolved copper concentration observed in Mill Creek (station SW-02) on October 25 at 12:45 (0.00044 mg/L) was 1.42 times greater than the maximum concentration observed in the pre-construction baseline monitoring program at Mill Creek. Site inspection and data review indicate this station is upstream of LNG facility construction areas and is unlikely to have been influenced by construction activities. The only upstream water quality influence that is monitored is background Mill Creek water quality (Station SW-07) which has ranged from <0.0002 to 0.00054 mg/L of dissolved copper since January 2024. Other possible influences at SW-02 that are not monitored include runoff from the roadside ditch at the base of the covered landfill, runoff from a small stream on the east side of Mill Creek and runoff through a ditch that flows between historic landfill areas on the west side of Mill Creek. A water quality sample collected earlier on October 25 at 9:53 for another monitoring program returned a dissolved copper result of 0.00027 mg/L. The SW-02 station is upstream of construction influence and monitoring results on October 25 indicate dissolved copper can vary from 0.00027 to 0.00044 mg/L in a single day. The SW-02 results are within the range observed at SW-07 background station in 2024 (<0.0002 to 0.00054 mg/L). Therefore, the October 25 SW-02 dissolved copper concentration is considered to represent the natural condition of Mill Creek water and is unlikely to be a result of project influence. This item is closed.
<b>Report #40: Pending Data</b>	Methylmercury, dioxins and furans results were not reported for samples collected November 10, 11, 12, 13, 14, 15, and 16.	Analytical results for samples collected November 10, 11, and 12 are discussed in Sections 3.5 and 3.7 of Report #43. Methylmercury results for samples collected November 15 are discussed in Section 3.4 of Report #43. Methylmercury results for samples collected November 10, 11, 12, and 16 and dioxins and furans results for samples collected November 10, 11, 12, 13, 14, 15, and 16 were not complete at the time of Report #43 preparation. The pending results will be included in future weekly reports when available. This item remains open.
<b>Report #41: Pending Data</b>	Methylmercury, dioxins and furans results were not reported for samples collected November 17, 19, 20, and 23.	Analytical results for samples collected November 19 are discussed in Section 3.7 of Report #43. Methylmercury, dioxins and furans results for samples collected November 18 and methylmercury results for the SP-E-OUT sample collected November 19 and samples collected November 21 and 22 are discussed in Sections 3.3 and 3.4 of Report #43. Methylmercury, dioxins and furans results for samples collected November 17, 19, 20, and 23 were not complete at the time of Report #43 preparation. The pending results will be included in future weekly reports when available. This item remains open.
<b>Report #42: Pending Data</b>	Analytical results were not reported for samples collected November 25 and 26. Methylmercury, dioxins and furans results were not reported for samples collected November 24 and 28.	Analytical results for samples collected November 25 and 26 were not complete at the time of Report #43 preparation. Methylmercury results for samples collected November 24, 27, and 29 are discussed in Sections 3.3 and 3.4 of Report #43. Methylmercury results for samples collected November 28 and dioxins and furans results for samples collected November 24 and 28 were not complete at the time of Report #43 preparation. The pending results will be included in future weekly reports when available. This item remains open.

**Notes:**

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

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

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

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

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

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

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

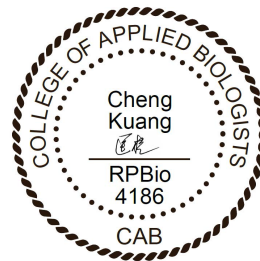
## 5. Closure

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

Regards,

**LORAX ENVIRONMENTAL SERVICES LTD.**

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



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

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



## ***Appendix A: Figures and Site Images***





World Imagery: District of Squamish, Maxar. Additional imagery provided by McDermott International captured December 4th, 2024.

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

DATE SAVED:	Dec 12, 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

CLIENT:

PROJECT:

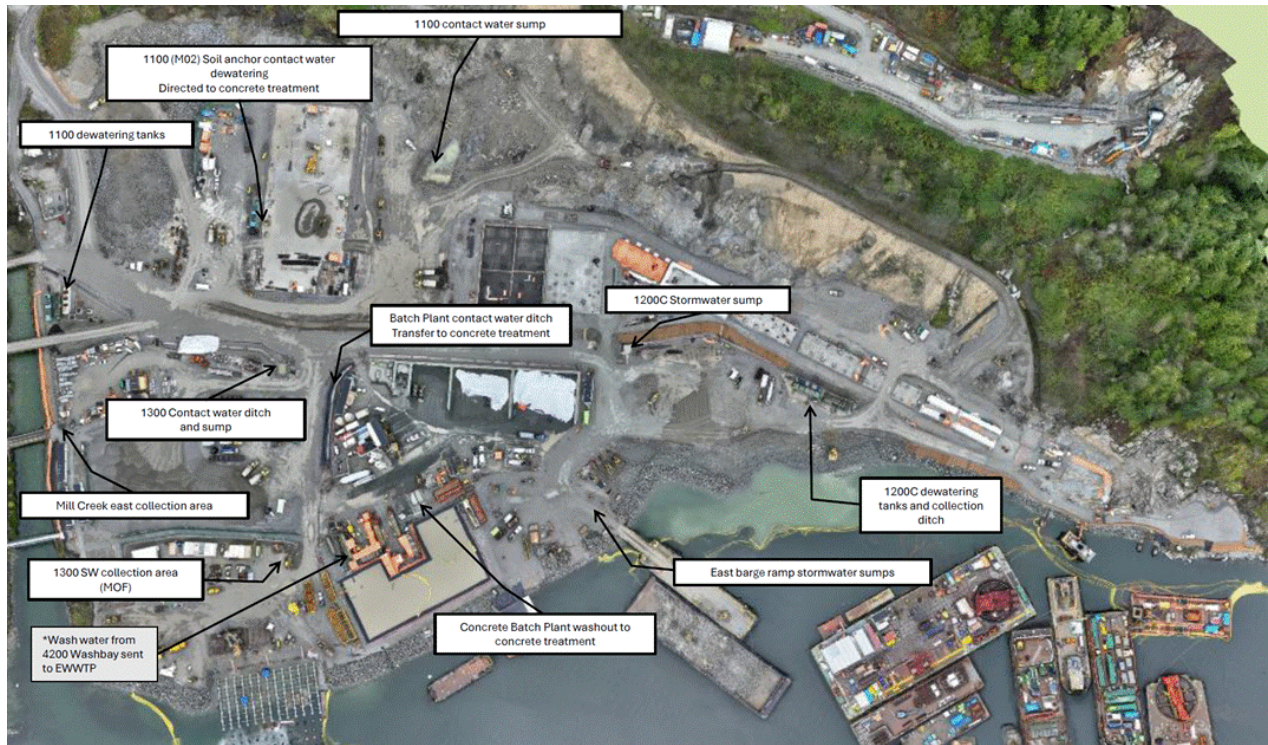
### Woodfibre LNG Project Construction Phase

TITLE:  
 Completed or Under Construction Water Management Facilities and Established PE-111578 Monitoring Stations (December 7, 2024)

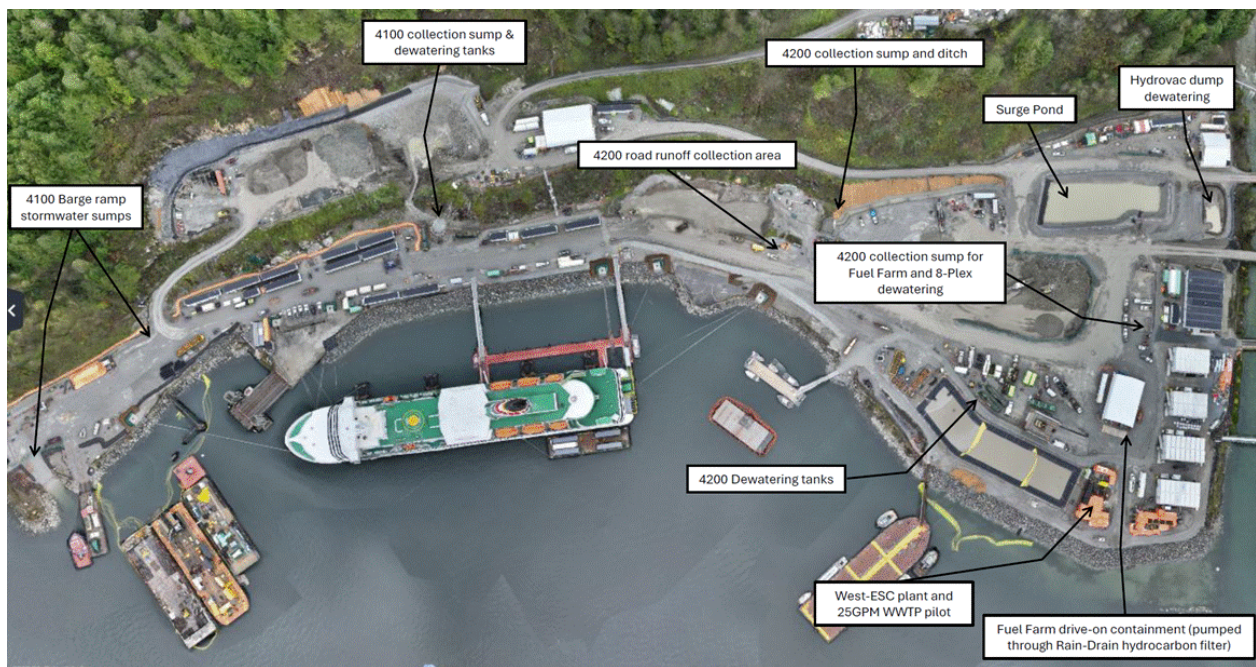
PROJECT #: A633-7

FIGURE: 1





**Figure 2: East Catchment contact water management facilities (December 1 – 7).**



**Figure 3: West Catchment contact water management facilities (December 1 – 7).**





**Figure 4:** Aerial view of the East Sedimentation Pond (December 6, 2024). The East WWTP is located on the left side and the E500GPM TSS settling system is situated along the bottom edge of the pond.



**Figure 5:** Aerial view of the West Sedimentation Pond (December 6, 2024). The TSS settling systems are located to the left (W500GPM) and right (ESC) of the pond.

## ***Appendix B: East Catchment Monitoring Results***



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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		PE-111578 Discharge Limit	Station E500GPM-IN
					Influent
		E500GPM-IN			
		VA24D2430-001			
		Long Term	Short Term	2024-11-29 14:25	
<b>General Parameters</b>					
pH - Field	pH units	- <sup>2</sup>	-	5.5 - 9.0	7.19
Conductivity - Field	µS/cm	-	-	-	271
Temperature - Field	°C	-	-	-	6.0
Salinity - Field	ppt	-	-	-	0.20
Turbidity - Field	NTU	-	-	-	297.49
TSS	mg/L	-	-	25 <sup>6</sup>	35.9
Dissolved Oxygen - Field	mg/L	>=8	-	-	13.23
<b>Anions and Nutrients</b>					
Sulphate	mg/L	-	-	-	32.1
Chloride	mg/L	-	-	-	12.4
Fluoride	mg/L	-	1.5	-	0.148
Ammonia (N-NH <sub>3</sub> )	mg/L	29 <sup>3</sup>	191 <sup>3</sup>	-	0.101
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	-	0.208
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	-	3.4
<b>Total Metals</b>					
Aluminum, total (T-Al)	mg/L	-	-	-	4.04
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	-	0.00172
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.0043
Barium, total (T-Ba)	mg/L	-	-	-	0.0399
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.000062
Boron, total (T-B)	mg/L	1.2	-	-	0.051
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000744
Chromium, total (T-Cr)	mg/L	-	-	-	0.00303
Cobalt, total (T-Co)	mg/L	-	-	-	0.00135
Copper, total (T-Cu)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0043	<b><u>0.0102</u></b>
Iron, total (T-Fe)	mg/L	-	-	-	2.95
Lead, total (T-Pb)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0035	<b><u>0.00793</u></b>
Manganese, total (T-Mn)	mg/L	-	-	-	0.101
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	-	<b><u>0.000018</u></b>
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0566
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00172
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000246
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000034
Thallium, total (T-Tl)	mg/L	-	-	-	0.00003
Uranium, total (T-U)	mg/L	-	-	-	0.0294
Vanadium, total (T-V)	mg/L	- <sup>2</sup>	-	0.0081	<b><u>0.00974</u></b>
Zinc, total (T-Zn)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0133	<b><u>0.0192</u></b>
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00109
<b>Dissolved Metals</b>					
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000325
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00307
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.011
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000101
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0259
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.126
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00354
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0011
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>					
Acenaphthene	mg/L	0.006	-	-	0.000025
Acridine	mg/L	-	-	-	<0.000010
Anthracene	mg/L	-	-	-	<0.000012
Benz(a)anthracene	mg/L	-	-	-	0.00002
Benzo(a)pyrene	mg/L	0.00001	-	-	0.0000202
Chrysene	mg/L	0.0001	-	-	<0.000019
Fluoranthene	mg/L	-	-	-	0.000067
Fluorene	mg/L	0.012	-	-	0.000015
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050
Phenanthrene	mg/L	-	-	-	0.000036
Pyrene	mg/L	-	-	-	0.000066
Quinoline	mg/L	-	-	-	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>					
Benzene	mg/L	0.11	-	-	-
Ethylbenzene	mg/L	0.25	-	-	-
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-
Styrene	mg/L	-	-	-	-
Toluene	mg/L	0.215	-	-	-
Total Xylenes	mg/L	-	-	-	-
Chlorobenzene	mg/L	0.025	-	-	-
1,2-Dichlorobenzene	mg/L	0.042	-	-	-

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

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

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

The East Sedimentation Pond discharged during the monitoring period (December 1 – 7) on December 4, 5, and 7.

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

<sup>2</sup> The WQG was not evaluated for parameters with discharge limits.

<sup>3</sup> The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document.

<sup>4</sup> The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.

<sup>5</sup> When MeHg ≤ 0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

<sup>6</sup> The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for Wet Conditions. Wet Conditions applied December 6 and 7.

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		PE-111578 Discharge Limit	Station E500GPM-OUT <sup>8</sup>	Station SP-E-OUT <sup>7</sup>
					Effluent	Effluent
		E500GPM-OUT	SP-E-OUT			
		VA24D2430-002	VA24D2836-001			
		Long Term	Short Term		2024-11-29 14:35	2024-12-05 8:56
<b>General Parameters</b>						
pH - Field	pH units	- <sup>2</sup>	-	5.5 - 9.0	8.56	6.0
Conductivity - Field	µS/cm	-	-	-	312.3	416
Temperature - Field	°C	-	-	-	4.8	5.8
Salinity - Field	ppt	-	-	-	0.25	0.32
Turbidity - Field	NTU	-	-	-	1.81	7.05
TSS	mg/L	-	-	25 <sup>6</sup>	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	12.96	12.13
<b>Anions and Nutrients</b>						
Sulphate	mg/L	-	-	-	32.7	74.7
Chloride	mg/L	-	-	-	21.6	10.7
Fluoride	mg/L	-	1.5	-	0.179	0.134
Ammonia (N-NH <sub>3</sub> )	mg/L	1.7-29 <sup>3</sup>	11-191 <sup>3</sup>	-	0.140	0.118
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	-	0.108	0.187
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	-	1.1	2.69
<b>Total Metals</b>						
Aluminum, total (T-Al)	mg/L	-	-	-	0.0311	0.0644
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	-	0.00166	0.00176
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00369	0.00224
Barium, total (T-Ba)	mg/L	-	-	-	0.008	0.00522
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.011	0.030
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000100	<0.0000200
Chromium, total (T-Cr)	mg/L	-	-	-	0.00058	0.00268
Cobalt, total (T-Co)	mg/L	-	-	-	0.00016	0.00021
Copper, total (T-Cu)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0043	0.00125	0.00171
Iron, total (T-Fe)	mg/L	-	-	-	0.016	0.013
Lead, total (T-Pb)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0035	<0.000050	0.000099
Manganese, total (T-Mn)	mg/L	-	-	-	0.0293	0.0175
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	-	0.00000115	0.00000486
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0435	0.0681
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.00029	0.00032
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000036	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.0234	0.0232
Vanadium, total (T-V)	mg/L	- <sup>2</sup>	-	0.0081	0.00135	0.00165
Zinc, total (T-Zn)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0133	<0.0030	0.0036
Hexavalent Chromium, total	mg/L	0.0015	-	-	<0.00050	<b>0.00242</b>
<b>Dissolved Metals</b>						
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000200	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00113	0.00146
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	0.000072
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.029	0.0166
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.125	0.15
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00122	0.00155
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	0.0028
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>						
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>						
Benzene	mg/L	0.11	-	-	-	<0.00050
Ethylbenzene	mg/L	0.25	-	-	-	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-	<0.00050
Styrene	mg/L	-	-	-	-	<0.00050
Toluene	mg/L	0.215	-	-	-	<0.00040
Total Xylenes	mg/L	-	-	-	-	<0.00050
Chlorobenzene	mg/L	0.025	-	-	-	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	-	<0.00050

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

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

Results in orange text exceeded the PE-11578 East Sedimentation Pond Discharge Limit.

The East Sedimentation Pond discharged during the monitoring period (December 1 – 7) on December 4, 5, and 7.

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

<sup>2</sup> The WQG was not evaluated for parameters with discharge limits.

<sup>3</sup> The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document.

<sup>4</sup> The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.

<sup>5</sup> When MeHg ≤ 0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

<sup>6</sup> The PE-11578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for Wet Conditions. Wet Conditions applied December 6 and 7.

<sup>7</sup> Field measurements and analytical samples were collected at the SP-E-OUT sample collection port.

<sup>8</sup> E500GPM TSS system was undergoing pilot testing on November 29, clarified effluent was recirculated to the East Sedimentation Pond on this day.

**Table B-3: East Catchment Methylmercury and Corresponding Total Mercury Results Received at the Time of Reporting.**

Parameter					Total Methylmercury	Total Mercury
Unit					µg/L	µg/L
Lowest Applicable Guideline <sup>1</sup>					0.0001 <sup>2</sup>	0.0037 – 0.020 <sup>3,4</sup>
Station	Water Type	Sample ID	Lab ID	Sampling Date		
Influent						
SP-E-IN	Influent	SP-E-IN	VA24D1856-001	2024-11-24	<b><u>0.00569</u></b>	<b><u>1.8</u></b>
E500GPM-IN	Influent	E500GPM-IN	VA24D2430-001	2024-11-29	<b><u>0.000155</u></b>	<b><u>0.0180</u></b>
WWTP-E-IN	Influent	WWTP-E-IN	VA24D1699-006	2024-11-21	<b><u>0.000145</u></b>	<b><u>0.0147</u></b>
WWTP-E-IN	Influent	WWTP-E-IN	VA24D1801-002	2024-11-22	<b><u>0.000110</u></b>	<b><u>0.0150</u></b>
WWTP-E-IN	Influent	WWTP-E-IN	VA24D1856-002	2024-11-24	<b><u>0.000202</u></b>	<b><u>0.0213</u></b>
Effluent						
SP-E-OUT and WWTP-E-OUT <sup>5</sup>	Effluent	SP-E-OUT	VA24D1563-001	2024-11-19	0.000058	0.00324
SP-E-OUT and WWTP-E-OUT <sup>5</sup>	Effluent	SP-E-OUT	VA24D1699-007	2024-11-21	0.000044	0.00279
SP-E-OUT and WWTP-E-OUT <sup>5</sup>	Effluent	SP-E-OUT	VA24D1801-003	2024-11-22	0.000076	0.00437
SP-E-OUT and WWTP-E-OUT <sup>5</sup>	Effluent	SP-E-OUT	VA24D1856-003	2024-11-24	0.000070	0.00465
E500GPM-OUT <sup>6</sup>	Effluent	E500GPM-OUT	VA24D2430-002	2024-11-29	0.000031	0.00115

**Notes:**

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

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

<sup>2</sup> From BC Ambient Water Quality Guidelines for Mercury Overview Report. The methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) is indicated as a WQG for the protection of wildlife and is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that consume fish.

<sup>3</sup> CCME guideline for total mercury = 0.016 µg/L.

<sup>4</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.02 µg/L. When MeHg > 0.5% of total Hg, BC WQG = 0.0001/(MeHg/Total Hg). Detection limit values are used to calculate the WQG for result reported as not detected.

<sup>5</sup> East WWTP treated effluent was discharged at station SP-E-OUT on this day, therefore these results are considered representative of water quality at station WWTP-E-OUT at the time of sampling.

Non-detect results are screened using the detection limit value.

<sup>6</sup> E500GPM TSS system was undergoing pilot testing on November 29, clarified effluent was recirculated to the East Sedimentation Pond on this day.

**Table B-4: East Catchment Dioxin and Furan Toxicity Equivalency Quantity (TEQ) Results Received at the Time of Reporting.**

Parameter					Lower Bound PCDD/F TEQ	Upper Bound PCDD/F TEQ
Unit					pg/L	pg/L
Station	Water Type	Sample ID	Lab ID	Sampling Date		
Influent						
WWTP-E-IN	Influent	WWTP-E-IN	L2757963-1	2024-10-29	0.156	1.83
WWTP-E-IN	Influent	WWTP-E-IN	L2758009-1	2024-11-03	0.0117	1.58
WWTP-E-IN	Influent	WWTP-E-IN	L2758158-1	2024-11-18	0.300	2.00
SP-E-IN	Influent	SP-E-IN	L2758018-1	2024-11-04	24.5	26.5
Effluent						
SP-E-OUT and WWTP-E-OUT <sup>1</sup>	Effluent	WWTP-E-OUT	L2758009-2	2024-11-03	0.00119	0.481

**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.

<sup>1</sup> East WWTP treated effluent was discharged at station SP-E-OUT on this day, therefore these results are considered representative of water quality at station WWTP-E-OUT at the time of sampling.

**Table B-5: East Catchment Field Measurements Collected During the Monitoring Period (December 1 – 7).**

Parameter			Temp.	Dissolved Oxygen (DO)	Salinity	Turbidity	Estimated TSS <sup>3</sup>	pH	Conductivity	Visibility of Sheen
Unit			°C	mg/L	ppt	NTU	mg/L	s.u.	µS/cm	
<b>PE-111578 Discharge Limit</b>			-	-	-	-	25 or 75 <sup>5</sup>	5.5 - 9.0	-	-
<b>Lowest Applicable Guideline<sup>1</sup></b>			-	>=8	-	-	- <sup>2</sup>	- <sup>2</sup>	-	-
Station ID <sup>4</sup>	Water Type	Date								
<b>Influent<sup>4</sup></b>										
SP-E-IN	Influent	2024-12-01 14:16	8.2	11.47	0.22	94.48	<b>73.5</b>	8.5	305	No
SP-E-IN	Influent	2024-12-02 14:56	6.5	11.49	0.23	43.10	<b>35.1</b>	8.6	310	No
SP-E-IN	Influent	2024-12-07 12:18	7.7	11.82	0.12	1049.07	<b>785.4</b>	<b>9.3</b>	168	No
WWTP-E-IN	Influent	2024-12-01 14:08	8.9	12.01	0.27	2.23	4.7	7.5	388	No
WWTP-E-IN	Influent	2024-12-02 14:48	11.1	9.41	0.26	1.87	4.4	7.5	396	No
WWTP-E-IN	Influent	2024-12-03 13:30	12.0	9.70	0.25	3.21	5.4	6.9	381	No
WWTP-E-IN	Influent	2024-12-04 14:35	5.9	12.70	0.24	11.06	11.2	6.9	310	No
WWTP-E-IN	Influent	2024-12-05 15:55	7.4	12.76	0.31	1.65	4.2	7.2	420	No
WWTP-E-IN	Influent	2024-12-06 12:40	11.0	10.68	0.24	1.90	4.4	7.2	508	No
WWTP-E-IN	Influent	2024-12-07 12:05	8.7	11.63	0.13	406.74	<b>306.3</b>	8.7	188	No
E500GPM-IN	Influent	2024-12-01 14:25	6.1	14.86	0.13	79.39	<b>62.2</b>	8.5	173	No
E500GPM-IN	Influent	2024-12-02 15:02	5.2	13.12	0.11	71.05	<b>56.0</b>	8.5	146	No
E500GPM-IN	Influent	2024-12-03 13:17	5.3	13.22	0.22	5.54	7.1	8.2	290	No
E500GPM-IN	Influent	2024-12-04 14:19	6.2	12.75	0.23	7.47	8.6	6.8	310	No
E500GPM-IN	Influent	2024-12-05 15:28	5.6	13.46	0.09	1.03	3.8	8.0	113	No
E500GPM-IN	Influent	2024-12-07 10:54	10.7	11.22	0.13	671.7	<b>504.0</b>	8.7	204	No
<b>Effluent<sup>4</sup></b>										
SP-E-OUT <sup>4</sup>	Effluent	2024-12-01 14:04	4.6	11.67	0.25	1.72	4.3	7.0	313	No
SP-E-OUT	Effluent	2024-12-04 11:42	5.3	13.00	0.25	10.91	11.1	6.4	318	No
SP-E-OUT	Effluent	2024-12-05 8:56	5.8	12.13	0.32	7.10	8.3	6.0	416	No
SP-E-OUT	Effluent	2024-12-07 12:13	8.0	12.03	0.24	3.56	5.7	6.5	334	No
WWTP-E-OUT	Effluent	2024-12-01 14:11	6.8	13.09	0.26	1.10	3.8	7.6	355	No
WWTP-E-OUT	Effluent	2024-12-04 14:38	7.2	12.10	0.32	1.64	4.2	6.3	428	No
WWTP-E-OUT	Effluent	2024-12-05 15:53	6.4	13.44	0.31	2.16	4.6	7.4	416	No
WWTP-E-OUT	Effluent	2024-12-06 12:38	7.5	11.62	0.34	4.25	6.2	7.3	469	No
WWTP-E-OUT	Effluent	2024-12-07 11:22	8.4	11.29	0.40	8.21	9.1	5.8	554	No
E500GPM-OUT	Effluent	2024-12-01 14:22	6.1	12.95	0.22	1.96	4.5	8.4	293	No
E500GPM-OUT	Effluent	2024-12-02 15:05	5.4	13.59	0.24	1.78	4.3	8.5	310	No
E500GPM-OUT	Effluent	2024-12-03 13:20	5.1	13.26	0.22	1.24	3.9	8.1	284	No
E500GPM-OUT	Effluent	2024-12-04 14:24	6.1	13.43	0.22	1.30	4.0	7.9	295	No
E500GPM-OUT	Effluent	2024-12-05 15:31	5.8	13.47	0.08	1.09	3.8	8.0	113	No
E500GPM-OUT	Effluent	2024-12-07 11:00	8.3	12.16	0.14	1.86 <sup>6</sup>	4.4	7.9	195	No

**Notes:**

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

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

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

The East Sedimentation Pond discharged during the monitoring period (December 1 – 7) on December 4, 5, and 7.

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

<sup>2</sup> The WQG was not evaluated for parameters with discharge limits.

<sup>3</sup> TSS concentration is estimated from field turbidity measurements using a site-specific relationship  $TSS = 0.7458 * [turbidity \text{ as NTU}] + 3$ .

<sup>4</sup> Site staff noted there was no active input of influent to the pond at the time of monitoring on December 3, 4, 5, and 6, therefore daily measurements for station SP-E-IN were not collected. On December 1 field measurements were collected from the SP-E-OUT discharge holding tank, effluent was not discharged to Howe Sound this day. There was no discharge December 2, 3 and 6, therefore daily measurements for SP-E-OUT were not collected on those days.

<sup>5</sup> The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for Wet Conditions. Wet Conditions applied December 6 and 7.

<sup>6</sup> Lab turbidity is reported for E500GPM-OUT on December 7. The field measurement for turbidity measured at E500GPM-OUT on December 7 (108.45 NTU) was determined to be erroneous and is not representative of water quality at the time of monitoring

**Table B-6: East Catchment Daily Discharge Volumes for the Monitoring Period (December 1 – 7).**

	East Sedimentation Pond Effluent	East TSS Settling System (E500GPM) Clarified Effluent (Station E500GPM-OUT)	East WWTP Treated Effluent (Station WWTP-E-OUT)	Discharge to Howe Sound (Station SP-E-OUT)
Unit	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
<b>PE-111578 Discharge Limit</b>	- <sup>1</sup>	- <sup>1</sup>	1100	- <sup>1</sup>
<b>Date</b>				
2024-12-01	0	0	0	0
2024-12-02	0	0	0	0
2024-12-03	0	0	0	0
2024-12-04	0	345	105	450
2024-12-05	0	0	228	228
2024-12-06	0	0	0	0
2024-12-07	0	336	458	794

**Notes:**

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

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

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

<sup>1</sup> The annual average authorized discharge rate from the East Sedimentation Pond is 650 m<sup>3</sup>/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.

## ***Appendix C: West Catchment Monitoring Results***

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		PE-111578 Discharge Limit	Station W500GPM-IN
		Long Term	Short Term		Influent W500GPM-IN VA24D1913-001 2024-11-25 14:10
<b>General Parameters</b>					
pH - Field	pH units	- <sup>2</sup>	-	5.5 - 9.0	8.48
Conductivity - Field	µS/cm	-	-	-	164.2
Temperature - Field	°C	-	-	-	7.7
Salinity - Field	ppt	-	-	-	0.12
Turbidity - Field	NTU	-	-	-	62.8
TSS	mg/L	-	-	25 <sup>6</sup>	30.9
Dissolved Oxygen - Field	mg/L	>=8	-	-	11.73
<b>Anions and Nutrients</b>					
Sulphate	mg/L	-	-	-	17.7
Chloride	mg/L	-	-	-	4.65
Fluoride	mg/L	-	1.5	-	0.119
Ammonia (N-NH <sub>3</sub> )	mg/L	1.2 <sup>3</sup>	7.9 <sup>3</sup>	-	0.115
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	-	0.067
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	-	2.07
<b>Total Metals</b>					
Aluminum, total (T-Al)	mg/L	-	-	-	4.04
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	-	0.00149
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00384
Barium, total (T-Ba)	mg/L	-	-	-	0.0402
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.000064
Boron, total (T-B)	mg/L	1.2	-	-	0.03
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000731
Chromium, total (T-Cr)	mg/L	-	-	-	0.00292
Cobalt, total (T-Co)	mg/L	-	-	-	0.00127
Copper, total (T-Cu)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0043	0.00953
Iron, total (T-Fe)	mg/L	-	-	-	2.71
Lead, total (T-Pb)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0035	0.00763
Manganese, total (T-Mn)	mg/L	-	-	-	0.0884
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	-	0.0000146
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0336
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00143
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000236
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000029
Thallium, total (T-Tl)	mg/L	-	-	-	0.000029
Uranium, total (T-U)	mg/L	-	-	-	0.0182
Vanadium, total (T-V)	mg/L	- <sup>2</sup>	-	0.0081	0.00915
Zinc, total (T-Zn)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0133	0.0179
Hexavalent Chromium, total	mg/L	0.0015	-	-	<u>0.00157</u>
<b>Dissolved Metals</b>					
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00236
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.011
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00904
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0867
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00363
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>					
Acenaphthene	mg/L	0.006	-	-	0.000022
Acridine	mg/L	-	-	-	<0.000010
Anthracene	mg/L	-	-	-	<0.000010
Benz(a)anthracene	mg/L	-	-	-	0.000014
Benzo(a)pyrene	mg/L	0.00001	-	-	<u>0.0000129</u>
Chrysene	mg/L	0.0001	-	-	0.000014
Fluoranthene	mg/L	-	-	-	0.000047
Fluorene	mg/L	0.012	-	-	0.000016
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050
Phenanthrene	mg/L	-	-	-	0.000031
Pyrene	mg/L	-	-	-	0.000045
Quinoline	mg/L	-	-	-	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>					
Benzene	mg/L	0.11	-	-	-
Ethylbenzene	mg/L	0.25	-	-	-
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-
Styrene	mg/L	-	-	-	-
Toluene	mg/L	0.215	-	-	-
Total Xylenes	mg/L	-	-	-	-
Chlorobenzene	mg/L	0.025	-	-	-
1,2-Dichlorobenzene	mg/L	0.042	-	-	-

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

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

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

The West Sedimentation Pond discharged during the monitoring period (December 1 – 7) on December 2, 3, 4, 5 and 7.

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

<sup>2</sup> The WQG was not evaluated for parameters with discharge limits.

<sup>3</sup> The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document.

<sup>4</sup> The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.

<sup>5</sup> When MeHg ≤ 0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

<sup>6</sup> 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 December 6 and 7.



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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		PE-111578 Discharge Limit	Station W500GPM-OUT <sup>8</sup>	Station SP-W-OUT <sup>7</sup>
					Effluent	Effluent
		W500GPM-OUT VA24D1913-002	SP-W-OUT VA24D2718-001			
		2024-11-25 14:30	2024-12-04 9:27			
<b>General Parameters</b>						
pH - Field	pH units	- <sup>2</sup>	-	5.5 - 9.0	9.05 <sup>8</sup>	8.20
Conductivity - Field	µS/cm	-	-	-	170.6	189
Temperature - Field	°C	-	-	-	7.3	6.6
Salinity - Field	ppt	-	-	-	0.12	0.14
Turbidity - Field	NTU	-	-	-	3.6	1.81
TSS	mg/L	-	-	25 <sup>6</sup>	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	12.5	13.35
<b>Anions and Nutrients</b>						
Sulphate	mg/L	-	-	-	14.4	12.6
Chloride	mg/L	-	-	-	8.78	12.8
Fluoride	mg/L	-	1.5	-	<0.103	0.154
Ammonia (N-NH <sub>3</sub> )	mg/L	0.31-1.8 <sup>3</sup>	2.1-12 <sup>3</sup>	-	0.0779	0.024
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	-	0.0186	0.0244
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	-	0.217	0.682
<b>Total Metals</b>						
Aluminum, total (T-Al)	mg/L	-	-	-	0.113	0.0224
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	-	0.00136	0.00114
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00232	0.00237
Barium, total (T-Ba)	mg/L	-	-	-	0.00364	0.00364
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	<0.010	<0.010
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000055	<0.0000050
Chromium, total (T-Cr)	mg/L	-	-	-	0.00062	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	-	0.00011	<0.00010
Copper, total (T-Cu)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0043	0.00112	0.00052
Iron, total (T-Fe)	mg/L	-	-	-	0.057	0.042
Lead, total (T-Pb)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0035	0.000186	0.000083
Manganese, total (T-Mn)	mg/L	-	-	-	0.012	0.0148
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	-	0.00000125	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0207	0.00951
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000177	0.00013
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000021	0.000023
Uranium, total (T-U)	mg/L	-	-	-	0.0135	0.00424
Vanadium, total (T-V)	mg/L	- <sup>2</sup>	-	0.0081	0.00106	<0.00050
Zinc, total (T-Zn)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0133	<0.0030	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00064	<0.00050
<b>Dissolved Metals</b>						
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000050	<0.0000050
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00098	0.00024
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.013	0.022
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0112	0.0144
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.106	0.0834
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00096	<0.00050
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>						
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benzo(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>						
Benzene	mg/L	0.11	-	-	-	<0.00050
Ethylbenzene	mg/L	0.25	-	-	-	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-	<0.00050
Styrene	mg/L	-	-	-	-	<0.00050
Toluene	mg/L	0.215	-	-	-	<0.00040
Total Xylenes	mg/L	-	-	-	-	<0.00050
Chlorobenzene	mg/L	0.025	-	-	-	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	-	-	-	<0.00050

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

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

Results in orange text exceeded the PE-11578 West Sedimentation Pond Discharge Limit.

The West Sedimentation Pond discharged during the monitoring period (December 1 – 7) on December 2, 3, 4, 5 and 7.

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

<sup>2</sup> The WQG was not evaluated for parameters with discharge limits.

<sup>3</sup> The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document.

<sup>4</sup> The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.

<sup>5</sup> When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

<sup>6</sup> 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 December 6 and 7.

<sup>7</sup> Field measurements and analytical samples were collected at the SP-W-OUT sampling port.

<sup>8</sup> The West TSS settling system (W500GPM) was undergoing pilot testing on November 25 all clarified effluent was recirculated to the West Sedimentation Pond.



**Table C-3: West Catchment Methylmercury and Corresponding Total Mercury Results Received at the Time of Reporting.**

Parameter					Total Methylmercury	Total Mercury
Unit					µg/L	µg/L
Lowest Applicable Guideline <sup>1</sup>					0.0001 <sup>2</sup>	0.00056 – 0.019 <sup>3,4</sup>
Station	Water Type	Sample ID	Lab ID	Sampling Date		
<b>Influent</b>						
SP-W-IN	Influent	SP-W-IN	VA24D1699-001	2024-11-21	<b><u>0.000164</u></b>	<b><u>0.0228</u></b>
SP-W-IN	Influent	SP-W-IN	VA24D1840-001	2024-11-23	<b><u>0.000144</u></b>	<b><u>0.0274</u></b>
SP-W-IN	Influent	SP-W-IN	VA24D1856-004	2024-11-24	<b><u>0.000378</u></b>	<b><u>0.0267</u></b>
SP-W-IN	Influent	SP-W-IN	VA24D2431-001	2024-11-29	<b><u>0.000115</u></b>	<b><u>0.0203</u></b>
W500GPM-IN	Influent	W500GPM-IN	VA24D1913-001	2024-11-25	<b><u>0.000128</u></b>	<b><u>0.0146</u></b>
<b>Effluent</b>						
SP-W-OUT and ESC-W-OUT <sup>5</sup>	Effluent	SP-W-OUT	VA24D1125-001	2024-11-15	0.000031	0.00166
SP-W-OUT and ESC-W-OUT <sup>5</sup>	Effluent	SP-W-OUT	VA24D1241-002	2024-11-18	<0.000020	0.00081
SP-W-OUT and ESC-W-OUT <sup>5</sup>	Effluent	SP-W-OUT	VA24D1699-002	2024-11-21	<0.000020	0.00068
SP-W-OUT and ESC-W-OUT <sup>5</sup>	Effluent	SP-W-OUT	VA24D1801-001	2024-11-22	<0.000020	0.00072
SP-W-OUT and ESC-W-OUT <sup>5</sup>	Effluent	SP-W-OUT	VA24D1856-005	2024-11-24	0.000032	0.00116
SP-W-OUT and ESC-W-OUT <sup>5</sup>	Effluent	SP-W-OUT	VA24D2157-001	2024-11-27	0.000029	0.00142
W500GPM-OUT	Effluent	W500GPM-OUT	VA24D1913-002	2024-11-25	<b><u>0.000224</u></b> <sup>6</sup>	<b><u>0.00125</u></b> <sup>6</sup>

**Notes:**

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

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

<sup>2</sup> From BC Ambient Water Quality Guidelines for Mercury Overview Report. The methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) is indicated as a WQG for the protection of wildlife and is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that consume fish.

<sup>3</sup> CCME guideline for total mercury = 0.016 µg/L.

<sup>4</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.02 µg/L. When MeHg > 0.5% of total Hg, BC WQG = 0.0001/(MeHg/Total Hg). Detection limit values are used to calculate the WQG for result reported as not detected.

<sup>5</sup> The West Sedimentation Pond discharged through the TSS settling system (ESC system) at SP-W-OUT, therefore results are also considered representative of water quality at station ESC-W-OUT at the time of sampling.

<sup>6</sup> The West TSS settling system (W500GPM) was undergoing pilot testing on November 25 and all clarified effluent was recirculated to the West Sedimentation Pond.

**Table C-4: West Catchment Dioxin and Furan Toxicity Equivalency Quantity (TEQ)  
Results Received at the Time of Reporting.**

Parameter					Lower Bound PCDD/F TEQ pg/L	Upper Bound PCDD/F TEQ pg/L
Unit						
Station	Water Type	Sample ID	Lab ID	Sampling Date		
Influent						
SP-W-IN	Influent	SP-W-IN	L2758008-1	2024-11-03	1.40	2.18
Effluent						
SP-W-OUT and ESC-W-OUT <sup>1</sup>	Effluent	ESC-W-OUT	L2758008-2	2024-11-03	0.0607	0.885
SP-W-OUT and ESC-W-OUT <sup>1</sup>	Effluent	SP-W-OUT	L2758158-2	2024-11-18	0	1.16

**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.

<sup>1</sup> The West Sedimentation Pond discharged through the TSS settling system (ESC system) at SP-W-OUT, therefore results at station SP-W-OUT are considered representative of water quality at Station ESC-W-OUT, and vice versa.

**Table C-5: West Catchment Field Measurements Collected During the Monitoring Period (December 1 – 7).**

Parameter			Temperature	Dissolved Oxygen (DO)	Salinity	Turbidity	Estimated TSS <sup>3</sup>	pH	Conductivity	Visibility of Sheen
Unit			°C	mg/L	ppt	NTU	mg/L	s.u.	µS/cm	
<b>PE-111578 Discharge Limit</b>			-	-	-	-	25 or 75 <sup>6</sup>	5.5 - 9.0	-	-
<b>Lowest Applicable Guideline<sup>1</sup></b>			-	>=8	-	-	- <sup>2</sup>	- <sup>2</sup>	-	-
Station ID <sup>4</sup>	Water Type	Date								
<b>Influent<sup>4</sup></b>										
SP-W-IN	Influent	2024-12-01 14:37	6.9	12.35	0.06	310.69	234.7	8.8	85	No
SP-W-IN	Influent	2024-12-06 12:17	6.7	8.17	0.05	9.47	10.1	7.2	67	No
SP-W-IN	Influent	2024-12-07 13:01	7.5	12.02	0.06	715.87	536.9	9.0	86	No
W500GPM-IN	Influent	2024-12-01 14:46	7.1	12.53	0.10	44.28	36.0	8.3	139	No
W500GPM-IN	Influent	2024-12-02 15:31	6.5	12.95	0.12	2.44	4.8	8.6	164	No
W500GPM-IN	Influent	2024-12-03 12:46	6.3	13.69	0.10	2.39	4.8	8.2	141	No
W500GPM-IN	Influent	2024-12-06 12:12	8.7	12.49	0.09	1.03	3.8	7.9	131	No
W500GPM-IN	Influent	2024-12-07 15:59	8.7	11.81	0.06	353.12	266.4	8.6	87	No
ESC-W-IN	Influent	2024-12-07 16:09	7.5	11.92	0.06	356.86	269.1	8.6	85	No
<b>Effluent<sup>4</sup></b>										
SP-W-OUT <sup>5</sup>	Effluent	2024-12-02 15:15	6.9	12.63	0.12	1.62	4.2	8.5	160	No
SP-W-OUT <sup>5</sup>	Effluent	2024-12-03 13:02	13.1	11.01	0.10	1.75	4.3	8.0	160	No
SP-W-OUT <sup>5</sup>	Effluent	2024-12-04 9:27	6.6	13.35	0.14	1.81	4.3	8.2	189	No
SP-W-OUT <sup>5</sup>	Effluent	2024-12-05 <sup>5</sup>	6.2 <sup>5</sup>	- <sup>5</sup>	- <sup>5</sup>	1.29 <sup>5</sup>	4.0	7.77 <sup>5</sup>	- <sup>5</sup>	- <sup>5</sup>
SP-W-OUT <sup>5</sup>	Effluent	2024-12-07 12:36	7.8	13.01	0.11	3.42	5.6	8.2	156	No
W500GPM-OUT	Effluent	2024-12-01 14:42	7.0	13.59	0.15	1.53	4.1	8.4	210	No
W500GPM-OUT	Effluent	2024-12-02 15:24	6.3	13.8	0.12	1.40	4.0	8.6	165	No
W500GPM-OUT	Effluent	2024-12-03 12:51	6.8	13.92	0.1	1.29	4.0	8.1	141	No
W500GPM-OUT	Effluent	2024-12-06 12:14	7.7	12.7	0.09	1.28	4.0	7.9	125	No
W500GPM-OUT	Effluent	2024-12-07 16:05	7.9	12.85	0.06	5.92	7.4	7.9	87	No
ESC-W-OUT	Effluent	2024-12-03 13:07	6.6	13.45	0.17	3.88	5.9	8.8	233	No
ESC-W-OUT	Effluent	2024-12-07 16:14	7.5	11.96	0.08	11.84	11.8	8.1	108	No

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

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

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

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

<sup>2</sup> The WQG was not evaluated for parameters with discharge limits.

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

<sup>4</sup> Site staff noted there was no active input of influent sources to the pond at the time of monitoring on December 2, 3, 4, and 5, therefore daily measurements for station SP-W-IN were not collected on these days.

<sup>5</sup> Field measurements collected from station SP-W-OUT on December 2 and 3 are residual water in the effluent hose, there was no discharge to Howe Sound on these days. Field measurements were not collected December 1 and 6 because there was no discharge. On December 5 field measurements were not collected because there was no discharge at the time of monitoring, average temperature, turbidity and pH measurements logged at the W500GPM-OUT meter box during the discharge period are reported.

<sup>6</sup> 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 December 6 and 7.

**Table C-6: West Catchment Daily Discharge Volumes for the Monitoring Period (December 1 – 7).**

	West Sedimentation Pond Effluent	West TSS Settling System (W500GPM) Clarified Effluent (Station W500GPM-OUT)	West TSS Settling System (ESC) Clarified Effluent (Station ESC-W-OUT)	West WWTP Treated Effluent <sup>1</sup> (Station WWTP-W-OUT)	Discharge to Howe Sound (Station SP-W-OUT)
Unit	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
<b>PE-111578 Discharge Limit</b>	- <sup>2</sup>	- <sup>2</sup>	- <sup>2</sup>	1100	- <sup>2</sup>
<b>Date</b>					
2024-12-01	0	0	0	0	0
2024-12-02	0	0	0	0	0
2024-12-03	0	0	0	0	0
2024-12-04	0	28	15	0	43
2024-12-05	0	483	0	0	483
2024-12-06	0	0	0	0	0
2024-12-07	0	497	161	0	658

**Notes:**

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

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

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

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

<sup>2</sup> The annual average authorized discharge rate from the West Sedimentation Pond is 310 m<sup>3</sup>/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.

**Appendix D:  
Non-Contact Water Diversion Ditch Outlets  
Results**

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

Parameter	Unit	Lowest Applicable Guideline <sup>1,2</sup>		Station OUT-06
		Long Term	Short Term	Non-Contact Water Diversion Ditch Outlet OUT-06 VA24D0615-001 2024-11-11 15:30
<b>General Parameters</b>				
pH - Field	pH units	6.5 - 9.0	-	6.5
Specific Conductivity - Field	µS/cm	-	-	33
Temperature - Field	°C	-	-	9.8
Salinity - Field	ppt	-	-	0.02
Turbidity - Field	NTU	-	-	0.4
TSS	mg/L	-	-	<3.0
Dissolved Oxygen - Field	mg/L	>=8	>=5	10.93
<b>Anions and Nutrients</b>				
Sulphate <sup>2</sup>	mg/L	128	-	2.54
Chloride	mg/L	120	600	0.61
Fluoride <sup>2</sup>	mg/L	-	0.666	<0.020
Ammonia (N-NH <sub>3</sub> ) <sup>2</sup>	mg/L	1.86	25.7	<0.0050
Nitrite (N-NO <sub>2</sub> ) <sup>2</sup>	mg/L	0.02	0.06	<0.0010
Nitrate (N-NO <sub>3</sub> )	mg/L	3	32.8	0.184
<b>Total Metals</b>				
Aluminum, total (T-Al) <sup>2</sup>	mg/L	0.073	-	<b><u>0.219</u></b>
Antimony, total (T-Sb)	mg/L	0.074	-	0.00014
Arsenic, total (T-As)	mg/L	0.005	-	0.00024
Barium, total (T-Ba)	mg/L	1	-	0.00686
Beryllium, total (T-Be)	mg/L	0.00013	-	<0.000020
Boron, total (T-B)	mg/L	1.2	29	<0.010
Cadmium, total (T-Cd) <sup>2</sup>	mg/L	0.000040	0.00039	0.0000068
Chromium, total (T-Cr) <sup>4</sup>	mg/L	0.001	-	<0.00050
Cobalt, total (T-Co)	mg/L	0.001	0.11	<0.00010
Copper, total (T-Cu)	mg/L	-	-	0.00104
Iron, total (T-Fe)	mg/L	0.3	1	0.052
Lead, total (T-Pb)	mg/L	-	-	0.000214
Manganese, total (T-Mn) <sup>2</sup>	mg/L	0.768	0.816	0.00197
Mercury, total (T-Hg) <sup>3</sup>	mg/L	0.00002	-	0.00000503
Molybdenum, total (T-Mo)	mg/L	0.073	46	0.000694
Nickel, total (T-Ni) <sup>2</sup>	mg/L	0.025	-	<0.00050
Selenium, total (T-Se)	mg/L	0.001	-	0.000068
Silver, total (T-Ag) <sup>2</sup>	mg/L	0.000050	0.00010	<0.000010
Thallium, total (T-Tl)	mg/L	0.0008	-	<0.000010
Uranium, total (T-U)	mg/L	0.0085	0.033	0.00009
Vanadium, total (T-V)	mg/L	0.12	-	0.00063
Zinc, total (T-Zn)	mg/L	-	-	<0.0030
Hexavalent Chromium, total	mg/L	0.001	-	-
<b>Dissolved Metals</b>				
Cadmium, dissolved (D-Cd) <sup>2</sup>	mg/L	0.000062	0.000106	<0.000005
Copper, dissolved (D-Cu) <sup>2</sup>	mg/L	0.00030	0.0020	<b><u>0.00087</u></b>
Iron, dissolved (D-Fe)	mg/L	-	0.35	0.014
Lead, dissolved (D-Pb) <sup>2</sup>	mg/L	0.0035	-	0.000074
Manganese, dissolved (D-Mn) <sup>2</sup>	mg/L	0.33	1.97	0.00083
Nickel, dissolved (D-Ni) <sup>2</sup>	mg/L	0.00090	0.014	<0.00050
Strontium, dissolved (D-Sr)	mg/L	2.5	-	0.0308
Vanadium, dissolved (D-V)	mg/L	-	-	<0.00050
Zinc, dissolved (D-Zn)	mg/L	0.010	0.015	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>				
Acenaphthene	mg/L	0.0058	-	-
Acridine	mg/L	0.003	-	-
Anthracene	mg/L	0.000012	-	-
Benz(a)anthracene	mg/L	0.000018	-	-
Benzo(a)pyrene	mg/L	0.00001	-	-
Chrysene	mg/L	-	-	-
Fluoranthene	mg/L	0.00004	-	-
Fluorene	mg/L	0.003	-	-
1-methylnaphthalene	mg/L	-	-	-
2-methylnaphthalene	mg/L	-	-	-
Naphthalene	mg/L	0.001	0.001	-
Phenanthrene	mg/L	0.0003	-	-
Pyrene	mg/L	0.00002	-	-
Quinoline	mg/L	0.0034	-	-
<b>Volatile Organic Compounds (VOCs)</b>				
Benzene	mg/L	0.04	-	-
Ethylbenzene	mg/L	0.09	-	-
Methyl-tert-butyl-ether	mg/L	10	3.4	-
Styrene	mg/L	0.072	-	-
Toluene	mg/L	0.0005	-	-
Total Xylenes	mg/L	0.03	-	-
Chlorobenzene	mg/L	-	-	-
1,2-Dichlorobenzene	mg/L	-	-	-

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

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

<sup>1</sup> The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.<sup>2</sup> BC WQG or CWQG indicated to be variable are calculated from sample-specific measurements for temperature, field pH, total hardness and dissolved organic carbon (DOC) content.<sup>3</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.00002 mg/L.<sup>4</sup> The approved BC WQG for hexavalent chromium [Cr(VI)] is 0.001 mg/L and 0.0089 mg/L for trivalent chromium [Cr(III)]. The more conservative criteria for Cr(VI) is applied to total chromium results.

The lowest applicable guidelines are shown in the table; however, water quality data was screened to all applicable guidelines.

## ***Appendix E: Freshwater Receiving Environment Results***

**Table E-1: Summary of Freshwater Water Quality Results Received at the Time of Reporting.**

Parameter	Unit	Lowest Applicable Guideline <sup>1,2</sup>		Station SW-01
				Woodfibre Creek Lower Reach
		Long Term	Short Term	SW-01 VA24D3006-001 2024-12-06 15:39
<b>General Parameters</b>				
pH - Field	pH units	6.5 - 9.0	-	7.1
Specific Conductivity - Field	µS/cm	-	-	8
Temperature - Field	°C	-	-	5.4
Salinity - Field	ppt	-	-	0.01
Turbidity - Field	NTU	-	-	1.6
TSS	mg/L	-	-	<3.0
Dissolved Oxygen - Field	mg/L	>=8	>=5	12.84
<b>Anions and Nutrients</b>				
Sulphate <sup>2</sup>	mg/L	128	-	0.50
Chloride	mg/L	120	600	0.58
Fluoride <sup>2</sup>	mg/L	-	0.400	<0.020
Ammonia (N-NH <sub>3</sub> ) <sup>2</sup>	mg/L	1.94	20.2	0.0067
Nitrite (N-NO <sub>2</sub> ) <sup>2</sup>	mg/L	0.020	0.060	<0.0010
Nitrate (N-NO <sub>3</sub> )	mg/L	3	32.8	0.035
<b>Total Metals</b>				
Aluminum, total (T-Al) <sup>2</sup>	mg/L	0.085	-	<b><u>0.150</u></b>
Antimony, total (T-Sb)	mg/L	0.074	-	<0.00010
Arsenic, total (T-As)	mg/L	0.005	-	0.00011
Barium, total (T-Ba)	mg/L	1	-	0.00163
Beryllium, total (T-Be)	mg/L	0.00013	-	<0.000020
Boron, total (T-B)	mg/L	1.2	29	<0.010
Cadmium, total (T-Cd) <sup>2</sup>	mg/L	0.000036	0.00011	<0.0000050
Chromium, total (T-Cr) <sup>4</sup>	mg/L	0.001	-	<0.00050
Cobalt, total (T-Co)	mg/L	0.001	0.11	<0.00010
Copper, total (T-Cu)	mg/L	-	-	<0.00050
Iron, total (T-Fe)	mg/L	0.3	1	0.042
Lead, total (T-Pb)	mg/L	-	-	0.000058
Manganese, total (T-Mn) <sup>2</sup>	mg/L	0.768	0.816	0.00093
Mercury, total (T-Hg) <sup>3</sup>	mg/L	0.00002	-	0.00000168
Molybdenum, total (T-Mo)	mg/L	0.073	46	0.000252
Nickel, total (T-Ni) <sup>2</sup>	mg/L	0.025	-	<0.00050
Selenium, total (T-Se)	mg/L	0.001	-	<0.000050
Silver, total (T-Ag) <sup>2</sup>	mg/L	0.000050	0.00010	<0.000010
Thallium, total (T-Tl)	mg/L	0.0008	-	<0.000010
Uranium, total (T-U)	mg/L	0.0085	0.033	0.000692
Vanadium, total (T-V)	mg/L	0.12	-	<0.00050
Zinc, total (T-Zn)	mg/L	-	-	<0.0030
Hexavalent Chromium, total	mg/L	0.001	-	<0.00050
<b>Dissolved Metals</b>				
Cadmium, dissolved (D-Cd) <sup>2</sup>	mg/L	0.000018	0.000038	<0.0000050
Copper, dissolved (D-Cu) <sup>2</sup>	mg/L	0.00038	0.0023	0.00024
Iron, dissolved (D-Fe)	mg/L	-	0.35	0.03
Lead, dissolved (D-Pb) <sup>2</sup>	mg/L	0.0019	-	<0.000050
Manganese, dissolved (D-Mn) <sup>2</sup>	mg/L	0.38	1.97	0.00053
Nickel, dissolved (D-Ni) <sup>2</sup>	mg/L	0.00080	0.012	<0.00050
Strontium, dissolved (D-Sr)	mg/L	2.5	-	0.00351
Vanadium, dissolved (D-V)	mg/L	-	-	<0.00050
Zinc, dissolved (D-Zn)	mg/L	0.0049	0.0099	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>				
Acenaphthene	mg/L	0.0058	-	<0.000010
Acridine	mg/L	0.003	-	<0.000010
Anthracene	mg/L	0.000012	-	<0.000010
Benz(a)anthracene	mg/L	0.000018	-	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050
Chrysene	mg/L	-	-	<0.000010
Fluoranthene	mg/L	0.00004	-	<0.000010
Fluorene	mg/L	0.003	-	<0.000010
1-methylnaphthalene	mg/L	-	-	<0.000010
2-methylnaphthalene	mg/L	-	-	<0.000010
Naphthalene	mg/L	0.001	0.001	<0.000050
Phenanthrene	mg/L	0.0003	-	<0.000020
Pyrene	mg/L	0.00002	-	<0.000010
Quinoline	mg/L	0.0034	-	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>				
Benzene	mg/L	0.04	-	<0.00050
Ethylbenzene	mg/L	0.09	-	<0.00050
Methyl-tert-butyl-ether	mg/L	10	3.4	<0.00050
Styrene	mg/L	0.072	-	<0.00050
Toluene	mg/L	0.0005	-	<0.00040
Total Xylenes	mg/L	0.03	-	<0.00050
Chlorobenzene	mg/L	-	-	<0.00050
1,2-Dichlorobenzene	mg/L	-	-	<0.00050

**Notes:**

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

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

<sup>2</sup> BC WQG or CWQG indicated to be variable are calculated from sample-specific measurements for temperature, field pH, total hardness and dissolved organic carbon (DOC) content.

<sup>3</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.00002 mg/L.

<sup>4</sup> The approved BC WQG for hexavalent chromium [Cr(VI)] is 0.001 mg/L and 0.0089 mg/L for trivalent chromium [Cr(III)]. The more conservative criteria for Cr(VI) is applied to total chromium results.

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>	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
			VA24C8965-002	VA24C8832-001	VA24C8832-004	VA24C8965-001
			2024-10-26	2024-10-25	2024-10-25	2024-10-26
<b>Total Methylmercury</b>	<b>µg/L</b>	0.0001 <sup>2</sup>	<0.000020	<0.000020	<0.000080	<0.000080
<b>Total Mercury</b>	<b>µg/L</b>	0.0063-0.02 <sup>3,4</sup>	<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 freshwater aquatic life.

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

<sup>2</sup> From BC Ambient Water Quality Guidelines for Mercury Overview Report. The methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) is indicated as a WQG for the protection of wildlife and is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that consume fish.

<sup>3</sup> CCME guideline for total mercury = 0.026 µg/L.

<sup>4</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.02 µg/L. When MeHg > 0.5% of total Hg, BC WQG = 0.0001/(MeHg/Total Hg). Detection limit values are used to calculate the WQG for result reported as not detected. Non-detect results are screened using the detection limit value.



## ***Appendix F: Estuarine Water Receiving Environment Results***

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>	Station SW-03
			Mill Creek Estuary
			SW-03
			VA24C8832-003
			2024-10-25
<b>Total Methylmercury</b>	<b>µg/L</b>	0.0001 <sup>2</sup>	<0.000020
<b>Total Mercury</b>	<b>µg/L</b>	0.0063 <sup>3,4</sup>	<0.0050

**Notes:**

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

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

<sup>2</sup> From BC Ambient Water Quality Guidelines for Mercury Overview Report. The methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) is indicated as a WQG for the protection of wildlife and is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that consume fish.

<sup>3</sup> CCME guideline for total mercury = 0.026 µg/L.

<sup>4</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.02 µg/L. When MeHg > 0.5% of total Hg, BC WQG = 0.0001/(MeHg/Total Hg). Detection limit values are used to calculate the WQG for result reported as not detected.

Non-detect results are screened using the detection limit value.

## ***Appendix G: Marine Water Receiving Environment Results***

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		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
				VA24D0515-001	VA24D0515-002	VA24D0515-003	VA24D0610-001	VA24D0610-002	VA24D0610-003
		Long Term	Short Term	2024-11-10 13:00	2024-11-10 13:45	2024-11-10 14:15	2024-11-12 10:04	2024-11-12 10:05	2024-11-12 10:08
<b>General Parameters</b>									
pH - Field	pH units	7.0 - 8.7	-	7.4	7.4	7.3	7.4	7.3	7.4
Specific Conductivity - Field	µS/cm	-	-	14630	26938	32787	5639	6761	32699
Temperature - Field	°C	-	-	8.7	10.2	9.8	7.4	7.6	10.2
Salinity - Field	ppt	Narrative <sup>2</sup>	-	12.7	23.75	29.83	4.72	5.7	29.35
Turbidity - Field	NTU	8.26 <sup>2</sup>	14.3 <sup>2</sup>	<b>8.28</b>	2.8	1.63	6.24	7.12	0.93
TSS	mg/L	12.1 <sup>2</sup>	32.1 <sup>2</sup>	<b>13.8</b>	9.6	4.1	6.7	5.1	4.8
Dissolved Oxygen - Field	mg/L	>=8	-	9.05	<b>7.10</b>	<b>4.50</b>	11.1	10.97	<b>4.80</b>
<b>Anions and Nutrients</b>									
Sulphate	mg/L	-	-	466	797	1840	321	419	1760
Chloride	mg/L	-	-	3880	6300	14000	2960	3630	13600
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ammonia (N-NH <sub>3</sub> )	mg/L	7.8-18 <sup>3</sup>	52-121 <sup>3</sup>	0.0125	0.0170	<0.0050	0.0107	0.0091	<0.0050
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
<b>Total Metals</b>									
Aluminum, total (T-Al)	mg/L	-	-	0.717	0.449	0.0805	0.377	0.350	0.288
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	0.00045	0.0007	0.00155	0.0004	<0.00040	0.00166
Barium, total (T-Ba)	mg/L	-	-	0.0169	0.017	0.0117	0.0106	0.0113	0.0127
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	-	0.80	<b>1.41</b>	<b>3.32</b>	0.63	0.83	<b>3.12</b>
Cadmium, total (T-Cd)	mg/L	0.00012	-	0.000024	0.000046	0.000072	<0.000020	0.000021	0.000076
Chromium, total (T-Cr)	mg/L	-	-	0.00074	0.00058	<0.00050	<0.00050	<0.00050	0.00051
Cobalt, total (T-Co)	mg/L	-	-	0.00048	0.000373	0.000212	0.00023	0.000223	0.000342
Copper, total (T-Cu)	mg/L	0.002	0.003	<b>0.00363</b>	<b>0.00267</b>	0.00076	<b>0.00217</b>	0.00191	0.00166
Iron, total (T-Fe)	mg/L	-	-	0.653	0.454	0.092	0.328	0.315	0.341
Lead, total (T-Pb)	mg/L	0.002	0.14	0.00019	0.00012	<0.00010	0.00016	0.00016	0.00048
Manganese, total (T-Mn)	mg/L	-	-	0.0215	0.016	0.00781	0.0113	0.0112	0.0115
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	0.00000162	0.00000091	<0.0000050	0.00000167	0.00000123	0.00000105
Molybdenum, total (T-Mo)	mg/L	-	-	0.00307	0.00406	0.00891	0.00173	0.0022	0.00825
Nickel, total (T-Ni)	mg/L	0.0083	-	0.00063	<0.00050	<0.00050	<0.00050	<0.00050	0.00069
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	0.00015
Thallium, total (T-Tl)	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Uranium, total (T-U)	mg/L	-	-	0.000802	0.00115	0.00269	0.000593	0.000684	0.00274
Vanadium, total (T-V)	mg/L	0.005	-	0.00217	0.00188	0.00169	0.00132	0.00129	0.00219
Zinc, total (T-Zn)	mg/L	0.01	0.055	<0.0030	0.0041	<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
<b>Dissolved Metals</b>									
Cadmium, dissolved (D-Cd)	mg/L	-	-	0.000030	0.000058	0.000066	0.000023	<0.000020	0.000055
Copper, dissolved (D-Cu)	mg/L	-	-	0.00121	0.00076	<0.00050	0.00122	0.00112	0.00076
Iron, dissolved (D-Fe)	mg/L	-	-	0.02	<0.010	<0.010	0.026	0.024	0.011
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00846	0.00539	0.00529	0.00479	0.00494	0.00492
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	1.41	4.50	5.23	1.27	1.63	4.42
Vanadium, dissolved (D-V)	mg/L	-	-	0.00067	0.00118	0.0013	0.00059	0.00067	0.00112
Zinc, dissolved (D-Zn)	mg/L	-	-	0.0014	0.0026	<0.0010	0.0025	0.0022	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>									
Acenaphthene	mg/L	0.006	-	0.000024	0.000013	<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	-	-	0.000027	0.000015	<0.000010	<0.000010	<0.000010	0.000016
Fluorene	mg/L	0.012	-	0.000023	0.000012	<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	-	0.000013	<0.000010	<0.000010	<0.000010	0.000012	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	0.000025	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	0.000018	0.000011	<0.000010	<0.000010	<0.000010	0.000011
Quinoline	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>									
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.

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

<sup>2</sup> Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. Salinity WQG was not evaluated. The water quality data presented in the table were collected when the site was discharging, therefore the turbidity and TSS WQGs were evaluated. Background values are the maximum measured in the November 14 WQR1 and WQR2 reference station samples at the 0.5 m depth (6.26 NTU and 7.1 mg/L TSS) (Report #41). Daily rainfall > 10mm was recorded each day November 10 to 14, therefore in the absence of reference samples on November 10 and 12, it is considered reasonable to use the November 14 reference stations as background stations for November 10 and 12 IDZ samples.

<sup>3</sup> The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document.

<sup>4</sup> The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.

<sup>5</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		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	0.5 m Below Surface
				IDZ-E1-0.5	IDZ-E2-0.5	IDZ-W1-0.5	IDZ-W2-0.5	WQR1-0.5	WQR2-0.5
				VA24D1567-001	VA24D1567-002	VA24D1567-003	VA24D1567-004	VA24D1567-005	VA24D1567-006
		Long Term	Short Term	2024-11-19 8:45	2024-11-19 8:40	2024-11-19 10:05	2024-11-19 9:35	2024-11-19 11:20	2024-11-19 10:45
<b>General Parameters</b>									
pH - Field	pH units	7.0 - 8.7	-	7.5	7.5	7.5	7.5	7.5	7.3
Specific Conductivity - Field	µS/cm	-	-	12629	13211	14578	17365	15558	11238
Temperature - Field	°C	-	-	7.2	7.3	7.5	8.0	7.6	6.9
Salinity - Field	ppt	Narrative <sup>2</sup>	-	11.31	11.85	13.09	15.4	14.02	10.06
Turbidity - Field	NTU	3.8 <sup>2</sup>	9.8 <sup>2</sup>	2.4	2.34	1.55	1.31	1.74	1.80
TSS	mg/L	7 <sup>2</sup>	27 <sup>2</sup>	2.4	4.3	<2.0	<2.0	<2.0	<2.0
Dissolved Oxygen - Field	mg/L	>=8	-	10.05	10.22	10.1	9.69	10.02	10.52
<b>Anions and Nutrients</b>									
Sulphate	mg/L	-	-	664	657	243	660	987	688
Chloride	mg/L	-	-	4940	4860	1820	4790	7140	4960
Fluoride	mg/L	-	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ammonia (N-NH <sub>3</sub> )	mg/L	12-18 <sup>3</sup>	77.7-121 <sup>3</sup>	0.0198	0.0174	0.0058	0.0142	0.0129	0.0162
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
<b>Total Metals</b>									
Aluminum, total (T-Al)	mg/L	-	-	0.242	0.139	0.089	0.0979	0.0843	0.0859
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total (T-As)	mg/L	0.0125	0.0125	0.00074	0.00091	<0.00040	0.00065	0.00079	0.00064
Barium, total (T-Ba)	mg/L	-	-	0.0116	0.011	0.007	0.0109	0.0116	0.0113
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	-	1.17	<b>1.84</b>	0.63	1.14	<b>1.7</b>	<b>1.21</b>
Cadmium, total (T-Cd)	mg/L	0.00012	-	0.000032	0.000048	0.000025	0.000032	0.000041	0.000031
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000163	0.000151	0.00009	0.000135	0.000155	0.000131
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00148	0.00134	0.00062	0.00095	0.00109	0.00098
Iron, total (T-Fe)	mg/L	-	-	0.176	0.125	0.054	0.143	0.125	0.135
Lead, total (T-Pb)	mg/L	0.002	0.14	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, total (T-Mn)	mg/L	-	-	0.0129	0.0101	0.00465	0.0112	0.0111	0.0113
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	0.00325	0.00449	0.0016	0.00286	0.00396	0.00277
Nickel, total (T-Ni)	mg/L	0.0083	-	<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
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	-	-	0.000874	0.00127	0.00055	0.000776	0.00112	0.000838
Vanadium, total (T-V)	mg/L	0.005	-	0.00102	0.00108	<0.00050	0.00088	0.00104	0.00085
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
<b>Dissolved Metals</b>									
Cadmium, dissolved (D-Cd)	mg/L	-	-	0.000025	0.000037	0.000028	0.000024	0.000035	0.000035
Copper, dissolved (D-Cu)	mg/L	-	-	0.00069	0.00071	<0.00050	0.00053	<0.00050	0.00053
Iron, dissolved (D-Fe)	mg/L	-	-	0.026	0.033	0.041	0.04	0.034	0.049
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00944	0.00999	0.00825	0.00886	0.00897	0.00981
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	1.69	2.34	1.62	1.69	2.41	1.74
Vanadium, dissolved (D-V)	mg/L	-	-	0.00062	0.0008	0.00064	0.00064	0.00077	0.00067
Zinc, dissolved (D-Zn)	mg/L	-	-	0.0017	0.0017	<0.0010	0.0031	<0.0010	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>									
Acenaphthene	mg/L	0.006	-	<0.000010	0.00001	0.000021	0.000043	0.000023	<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	-	-	0.00001	<0.000010	0.000015	0.000038	0.000016	<0.000010
Fluorene	mg/L	0.012	-	<0.000010	<0.000010	0.000016	0.000035	0.000018	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	0.000015	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	0.000014	0.000027	0.000016	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	0.000078	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	0.000029	0.000073	0.000037	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010	0.000023	0.00001	<0.000010
Quinoline	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>									
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.

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

<sup>2</sup> Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. Salinity WQG was not evaluated. The water quality data presented in the table were collected when the site was discharging, therefore the turbidity and TSS WQGs were evaluated using the maximum values reported for November 19 samples at WQR1 and WQR2 at 0.5 m below the water surface as the background values (1.80 NTU and <2.0 mg TSS/L).

<sup>3</sup> The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document.

<sup>4</sup> The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.

<sup>5</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		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
				VA24D2644-001	VA24D2644-002	VA24D2644-003	VA24D2644-004	VA24D2644-005	VA24D2644-006
		Long Term	Short Term	2024-12-03 12:22	2024-12-03 12:22	2024-12-03 12:23	2024-12-03 12:36	2024-12-03 12:37	2024-12-03 12:37
<b>General Parameters</b>									
pH - Field	pH units	7.0 - 8.7	-	7.5	7.5	7.4	7.5	7.5	7.4
Specific Conductivity - Field	µS/cm	-	-	23405	25733	32384	23366	26147	31163
Temperature - Field	°C	-	-	7.0	7.6	9.4	7.1	7.7	8.8
Salinity - Field	ppt	Narrative <sup>2</sup>	-	22.25	24.30	29.72	22.17	24.66	28.93
Turbidity - Field	NTU	Narrative <sup>2</sup>	Narrative <sup>2</sup>	1.77	1.64	1.39	1.71	1.77	1.34
TSS	mg/L	Narrative <sup>2</sup>	Narrative <sup>2</sup>	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Oxygen - Field	mg/L	>=8	-	9.55	8.92	<b>6.54</b>	9.37	8.71	<b>7.47</b>

**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.

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

<sup>2</sup> Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. The water quality data presented in the table were collected when the site was not discharging, therefore the guidelines were not evaluated.

**Table G-4: Summary of Marine Water Quality Results Received at the Time of Reporting**

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		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
				VA24D2644-007	VA24D2644-008	VA24D2644-009	VA24D2644-010	VA24D2644-011	VA24D2644-012
		Long Term	Short Term	2024-12-03 13:48	2024-12-03 13:48	2024-12-03 13:49	2024-12-03 13:43	2024-12-03 13:44	2024-12-03 13:46
<b>General Parameters</b>									
pH - Field	pH units	7.0 - 8.7	-	7.5	7.5	7.4	7.5	7.5	7.4
Specific Conductivity - Field	µS/cm	-	-	22424	26365	31870	24022	26529	33010
Temperature - Field	°C	-	-	7.2	7.7	9.1	7.4	7.6	9.6
Salinity - Field	ppt	Narrative <sup>2</sup>	-	21.10	24.85	29.40	22.67	25.07	30.20
Turbidity - Field	NTU	Narrative <sup>2</sup>	Narrative <sup>2</sup>	1.56	1.68	1.35	1.64	1.55	1.32
TSS	mg/L	Narrative <sup>2</sup>	Narrative <sup>2</sup>	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Oxygen - Field	mg/L	>=8	-	9.76	8.76	<b>7.05</b>	9.37	8.78	<b>5.73</b>

**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.

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

<sup>2</sup> Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. The water quality data presented in the table were collected when the site was not discharging, therefore the guidelines were not evaluated.

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>	Station IDZ-E1		
			0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
			IDZ-E1-0.5	IDZ-E1-2m	IDZ-E1-SF
			VA24D0515-001	VA24D0515-002	VA24D0515-003
			2024-11-10	2024-11-10	2024-11-10
<b>Total Methylmercury</b>	<b>µg/L</b>	0.0001 <sup>2</sup>	0.000023	<0.000020	<0.000020
<b>Total Mercury</b>	<b>µg/L</b>	0.0046-0.016 <sup>3,4</sup>	0.00162	0.00091	<0.00050

**Notes:**

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

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

<sup>2</sup> From BC Ambient Water Quality Guidelines for Mercury Overview Report. The methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) is indicated as a WQG for the protection of wildlife and is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that consume fish.

<sup>3</sup> CCME guideline for total mercury = 0.016 µg/L.

<sup>4</sup> When MeHg ≤ 0.5% of total Hg, BC WQG = 0.02 µg/L. When MeHg > 0.5% of total Hg, BC WQG = 0.0001/(MeHg/Total Hg). Detection limit values are used to calculate the WQG for result reported as not detected. Non-detect results are screened using the detection limit value.

**Table G-6: Summary of Marine Water Quality Results for Dioxins and Furans Received at the Time of Reporting.**

Parameter	Unit	Reference Station WQR1			Station IDZ-W1			
		0.5 m Below Surface	2 m Below Surface	2 m Above the Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above the Seafloor	
		WQR1-0.5	WQR1-2m	WQR1-SF	IDZ-W1-0.5	IDZ-W1-2m	IDZ-W1-SF	
		L2758002-1	L2758002-3	L2758002-4	L2758017-1	L2758017-2	L2758017-3	
			2024-11-01	2024-11-01	2024-11-01	2024-11-04	2024-11-04	2024-11-04
<b>Lower Bound PCDD/F TEQ</b>	<b>pg/L</b>	0.0406	0.0349	0.0263	0.00141	0.000717	0.00227	
<b>Upper Bound PCDD/F TEQ</b>	<b>pg/L</b>	0.892	0.933	0.823	0.720	0.832	1.13	

**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.