

## TECHNICAL MEMORANDUM

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**To:** Ian McAllister, Ashleigh Crompton, Mike Champion,  
Jackie Boruch and Ryan Schucroft (Woodfibre LNG) **Date:** 29 Nov 2024

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

**Subject:** PE-111578 Weekly Discharge and Compliance Report #41 for November 17 – 23

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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 #41) was prepared by Lorax Environmental and summarizes WDA monitoring conducted the week of November 17 – 23. 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 #41 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 F for contact water, treated water and receiving environment samples.

## 1. Current Conditions

### 1.1 Water Management Infrastructure

The Construction Phase of the Woodfibre LNG Export Facility commenced in October 2023. Early stage civil works are ongoing, and these include site grading, levelling, overburden and bedrock excavation, and construction of contact water management facilities. Shoring works along the foreshore areas were initiated in December 2023, and in early 2024 construction of water management infrastructure commenced and has continued through the November 17 – 23 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.

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

A flocculant-based TSS settling system (ESC system) is used at the West Sedimentation Pond to remove TSS from non-contaminated contact water stored in the pond prior to discharge. Some of the TSS clarified water is recirculated to the West Sedimentation Pond. Similarly, water from the East Sedimentation Pond, and concrete contact water are directed to the East WWTP for treatment prior to discharge to Howe Sound, or recirculation back to the pond. The direct discharge to Howe Sound of TSS clarified, and East WWTP treated contact water has been implemented since October 28 to ensure that effluent discharged to Howe Sound meets PE 111578 discharge limits.

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

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 (Figure 1). During heavy precipitation non-contact water is also conveyed to Howe Sound via station OUT-01. Non-contact water flows to the East Catchment are diverted along pre-existing road ditches that flow to East Creek or Mill Creek. To facilitate the replacement of the East Creek discharge culvert, the lower reach of East Creek was temporarily diverted to the adjacent culvert, OUT-11, on September 17 (Figure 1).

Construction phase water management 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 (November 17 – 23), with precipitation recorded each day. The total weekly precipitation amount was 55.4 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
11-17-2024	5.8	3.1	3.1	Mix of sun and cloud
11-18-2024	4.2	2.4	2.4	Mix of sun and cloud
11-19-2024	11.0	0.7	0.7	Rain
11-20-2024	15.4	2.4	2.4	Rain
11-21-2024	0.6	4.4	4.4	Mix of sun and cloud
11-22-2024	6.4	3.9	3.9	Mix of sun and cloud
11-23-2024	12.0	5.6	5.6	Rain

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

During the November 17 – 23 monitoring period, the East Sedimentation Pond received contact water from the 1100 collection area, dewatering tanks and contact water sump, the 1200C contact water sump and dewatering tanks, and the 1300 contact water sump (Appendix A, Figure 2).

Routine operation of the East WWTP continued during the monitoring period (November 17 – 23). Contaminated and potentially contaminated contact waters from the soil anchor pad and the concrete batch plant contact water ditch were directed to the East WWTP for treatment, as well as water stored in the East Sedimentation Pond (Appendix A, Figure 2). Intermittent direct discharge of treated effluent from the East WWTP to Howe Sound occurred each day during the monitoring period. A total of 3,935 m<sup>3</sup> of treated WWTP effluent was discharged to Howe Sound from the authorized discharge location (station SP-E-OUT). Total daily discharge volumes to Howe Sound from station SP-E-OUT are provided in Appendix B (Table B-3) and are equivalent to the treated effluent volume produced by the East WWTP (Appendix C, Table C-2).

During the November 17 – 23 monitoring period, contact waters from the 4100 collection sump, dewatering tanks, 4100 road runoff collection area, the 4200 collection sump and dewatering tanks, the surge pond, the wash bay and the 4200 collection sump for the fuel farm and 8-plex parking area dewatering (Figure 3) were directed to the West Sedimentation Pond. Intermittent discharge from the West Sedimentation Pond via the West TSS settling system to Howe Sound occurred each day during the monitoring period (November 17 – 23). A total of 4,034 m<sup>3</sup> of clarified effluent was discharged to Howe Sound from the authorized discharge location (station SP-W-OUT). Daily discharge volumes from station SP-W-OUT are provided in Appendix D (Table D-4).

## 2. Monitoring Summary

The PE-111578 authorized works were under construction during the November 17 – 23 monitoring period. Compliance monitoring stations are progressively established as water management infrastructure is completed. Monitoring is conducted by the on-site Environmental Monitors (Roe Environmental). Analytical samples are submitted by Roe Environmental to ALS Environmental in Burnaby, BC, for testing.

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

- Non-contact diversion ditch outlets (OUT-01, OUT-02, OUT-06, and OUT-11). East Creek water was temporarily diverted to OUT-11 on September 17 and is monitored at the inlet to temporary diversion (station SW-04), therefore OUT-11 is not currently monitored.
- Creek water (SW-01, SW-02, SW-03, SW-04, SW-07).
- Contact water monitoring locations (WWTP-E-IN, WWTP-E-OUT, SP-E-IN, SP-E-OUT, SP-E-NE, SP-E-NW, WWTP-W-IN, WWTP-W-OUT, ESC-W-IN, ESC-W-OUT, SP-W-IN, SP-W-W, SP-W-E, and SP-W-OUT).
- Howe Sound reference and IDZ locations (WQR1, WQR2, IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2).

East Sedimentation Pond 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 as 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 influent quality reporting to the East Sedimentation Pond and the West Sedimentation Pond, respectively. A flocculant-based TSS settling system (the ESC system) has been in use at the West Sedimentation Pond since September 25. Station ESC-W-IN is established to characterize influent quality reporting to the ESC system.

Water quality was monitored at stations SW-04, IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, WQR2, WWTP-E-IN, WWTP-E-OUT, SP-E-IN, SP-E-OUT, ESC-W-IN, SP-W-IN, ESC-W-OUT, and SP-W-OUT during the monitoring period (November 17 – 23). Sampling dates and parameters tested are summarized in Table 2.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (November 17 – 23) were met.

Daily field parameters were not collected at the influent stations SP-E-IN (November 17, 18, 19, 21, 22) and SP-W-IN (November 18 and 22) since there was no influent reporting to the East and West Sedimentation Ponds 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 November 17 – 23.**

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
November 17, 2024	SP-E-OUT/ WWTP-E-OUT <sup>2</sup>	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent at the meter box and discharged to holding tanks		
	WWTP-E-IN	East WWTP influent	Field Parameters.	D
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1		
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.		
	SP-W-OUT/ ESC-W-OUT <sup>3</sup>	West TSS settling system effluent discharged at station SP-W-OUT	Field Parameters.	D
	ESC-W-OUT	West TSS settling system effluent at the ESC meter box	Field Parameters.	P
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	M	
November 18, 2024	SP-E-OUT/ WWTP-E-OUT <sup>2</sup>	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent at the meter box and discharged to holding tanks		
	WWTP-E-IN	East WWTP influent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, 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.	D
	SP-W-OUT/ ESC-W-OUT <sup>3</sup>	West TSS settling system effluent discharged at station SP-W-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W <sub>1</sub> , W <sub>2</sub>
ESC-W-OUT	West TSS settling system effluent at the ESC meter box	Field Parameters.	P	
November 19, 2024	SP-E-OUT/ WWTP-E-OUT <sup>2</sup>	East WWTP effluent discharged at station SP-E-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W <sub>1</sub> , W <sub>2</sub>
	WWTP-E-OUT	East WWTP effluent at the meter box and discharged to holding tanks	Field Parameters.	D
	WWTP-E-IN	East WWTP influent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins & Furans.	D, W <sub>1</sub> , W <sub>2</sub>
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1		
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.		
	SP-W-OUT/ ESC-W-OUT <sup>3</sup>	West TSS settling system effluent discharged at station SP-W-OUT	Field Parameters.	D
	ESC-W-OUT	West TSS settling system effluent at the meter box	Field Parameters.	P
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	W <sub>3</sub> , P, Q
	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	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-E2-2m	Howe Sound IDZ station E2; 2 m below surface			
IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor			
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface			
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor			
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface			
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor			
November 20, 2024	SP-E-IN	East Sedimentation Pond influent entering the pond at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins & Furans.	D, W <sub>1</sub> , W <sub>2</sub>
	SP-E-OUT/ WWTP-E-OUT <sup>2</sup>	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent at the meter box and discharged to holding tanks		
	WWTP-E-IN	East WWTP influent	Field Parameters.	D
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1		
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.		
	SP-W-OUT/ ESC-W-OUT <sup>3</sup>	West TSS settling system effluent discharged at station SP-W-OUT	Field Parameters.	D
ESC-W-OUT	West TSS settling system effluent at the ESC meter box	Field Parameters.	P	
November 21, 2024	SP-E-OUT/ WWTP-E-OUT <sup>2</sup>	East WWTP effluent discharged at station SP-E-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury.	D, W <sub>1</sub>
	WWTP-E-OUT	East WWTP effluent at the meter box and discharged to holding tanks	Field Parameters.	D
	WWTP-E-IN	East WWTP influent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury.	D, W <sub>1</sub>
	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.	D, W <sub>1</sub>
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT <sup>3</sup>	West TSS settling system effluent discharged at station SP-W-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury.	D, W <sub>1</sub>
	ESC-W-OUT	West TSS settling system effluent at the ESC meter box	Field Parameters.	P

**Table 2 (Continued): Summary of PE-111578 Monitoring Samples Collected November 17 – 23.**

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
November 22, 2024	SP-E-OUT/ WWTP-E-OUT <sup>2</sup>	East WWTP effluent discharged at station SP-E-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury.	D, W <sub>1</sub>
	WWTP-E-OUT	East WWTP effluent at the meter box and discharged to holding tanks	Field Parameters.	D
	WWTP-E-IN	East WWTP influent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury.	D, W <sub>1</sub>
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT <sup>3</sup>	West TSS settling system effluent discharged at station SP-W-OUT	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury.	D, W <sub>1</sub>
	ESC-W-OUT	West TSS settling system effluent at the ESC meter box	Field Parameters.	P
November 23, 2024	SP-E-IN	East Sedimentation Pond influent entering the pond at cell 1	Field Parameters.	D
	SP-E-OUT/ WWTP-E-OUT <sup>2</sup>	East WWTP effluent discharged at station SP-E-OUT	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent at the meter box and discharged to holding tanks		
	WWTP-E-IN	East WWTP influent		
	SP-W-IN	West Sedimentation Pond influent entering the pond at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury.	D, W <sub>1</sub>
	ESC-W-IN	Influent to the West Sedimentation Pond TSS settling system.	Field Parameters.	D
	SP-W-OUT/ ESC-W-OUT <sup>3</sup>	West TSS settling system effluent discharged at station SP-W-OUT	Field Parameters.	D
	ESC-W-OUT	West TSS settling system effluent at the ESC meter box	Field Parameters.	P

**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> In-Pond East Sedimentation Pond stations SP-E-NW and SP-E-NE, and West Sedimentation Pond stations, SP-W-W and SP-W-E are monitored for water management purposes.

The monitoring of in-pond stations is not a PE- 111578 requirement and is conducted at the discretion of field staff.

<sup>2</sup> As a result of the reconfigured pathway for effluent discharge at station SP-E-OUT effective October 28, contact water was stored in the East Sedimentation Pond and directed to the East WWTP for treatment. East WWTP effluent was discharged at station SP-E-OUT each day during the monitoring period (November 17 – November 23). During the monitoring period, field measurements and analytical samples were collected at station SP-E-OUT, and also fulfill the water quality monitoring requirements for station WWTP-E-OUT.

<sup>3</sup> As a result of the reconfigured pathway for effluent discharge at station SP-W-OUT effective October 28, the West Sedimentation Pond discharged through the TSS settling system (ESC system) each day during the monitoring period (November 17 – November 23). During the monitoring period, field measurements and analytical samples were collected at station SP-W-OUT. Additional field measurements were collected from TSS settling system influent and effluent (stations ESC-W-IN and ESC-W-OUT) each day during the monitoring period. There are no PE-111578 monitoring requirements established for stations ESC-W-IN and ESC-W-OUT; however, these stations are monitored to evaluate the performance of the TSS settling system (ESC).

### 3. Water Quality Results

#### 3.1 Screening and Reporting Overview

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

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

The BC WQG for total mercury is a sample-specific calculated value that is based on the concentration of methylmercury in a sample. Although an approved BC WQG for the protection of aquatic life for methylmercury has not been explicitly established, the BC Ambient Water Quality Guidelines for Mercury Overview Report indicates the total mercury WQG is derived from a methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) that is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that 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 (November 17 – 23) 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, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, and WQR2 collected November 14 (methylmercury, dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, and WQR2 collected November 15 (methylmercury)
- SW-04 collected November 17 (field parameters and all analytical parameters)
- WWTP-E-IN collected November 18 (dioxins and furans)
- SP-W-OUT/ESC-W-OUT collected November 18 (methylmercury, dioxins and furans)
- SP-E-OUT/WWTP-E-OUT collected November 19 (all analytical parameters)
- SP-W-IN collected November 19 (dioxins and furans)
- IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WQR1, and WQR2 collected November 19 (field parameters and all analytical parameters)
- SP-E-IN collected November 20 (all analytical parameters)
- SP-E-OUT/WWTP-E-OUT, WWTP-E-IN, SP-W-IN, and SP-W-OUT/ESC-W-OUT collected November 21 (methylmercury)
- SP-E-OUT/WWTP-E-OUT, WWTP-E-IN, and SP-W-OUT/ESC-W-OUT collected November 22 (methylmercury)
- SP-W-IN collected November 23 (all analytical parameters)

**Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #41.**

Sample	Description	Sampling Date	Parameters Reported
OUT-02	Non-contact water diversion ditch outlets	October 23, 2024	Methylmercury.
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		
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface	October 24, 2024	Methylmercury.
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
SP-E-OUT/ WWTP-E-OUT <sup>1</sup>	East WWTP effluent discharged at station SP-E-OUT	October 30, 2024	Methylmercury.
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system effluent discharged at station SP-W-OUT		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	November 14, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
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		
SP-E-IN	East Sedimentation Pond influent	November 15, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
WWTP-E-IN	East WWTP influent		
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system effluent discharged at station SP-W-OUT		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		
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	November 18, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
WQR2-0.5	Reference site 2; 0.5 m below surface		
WWTP-E-IN	East WWTP influent	November 19, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
SP-W-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system effluent discharged at station SP-W-OUT		
SP-W-IN	West Sedimentation Pond influent	November 21, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
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 effluent discharged at station SP-W-OUT (duplicates)	November 22, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
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-OUT/ ESC-W-OUT <sup>2</sup>	West TSS settling system effluent discharged at station SP-W-OUT (duplicates)		

**Notes:**

<sup>1</sup> As a result of the reconfigured pathway for effluent discharge at station SP-E-OUT effective October 28, contact water was stored in the East Sedimentation Pond and directed to the East WWTP for treatment. East WWTP effluent was discharged at station SP-E-OUT each day during the monitoring period (November 17 – November 23). During the monitoring period, field measurements and analytical samples were collected at station SP-E-OUT, and also fulfill the water quality monitoring requirements for station WWTP-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 discharged through the TSS settling system (ESC system) each day during the monitoring period (November 17 – November 23). During the monitoring period, field measurements and analytical samples were collected at station SP-W-OUT. Additional field measurements were collected from TSS settling system effluent (station ESC-W-OUT) each day during the monitoring period. There are no PE-111578 monitoring requirements established for station ESC-W-OUT; however, this station is monitored to evaluate the performance of the TSS settling system (ESC).

### 3.3 East 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 (East Sedimentation Pond influent and pond water quality, and all discharges to Howe Sound) and Appendix C (East WWTP influent and effluent). Exceedances of PE-111578 discharge limits and WQGs in samples of effluent discharged to Howe Sound are summarized below. Results received for methylmercury are also discussed.

During the monitoring period (November 17 – 23), all discharge to Howe Sound from the East Catchment was East WWTP treated effluent that was monitored at the authorized discharge location (station SP-E-OUT). Therefore, monitoring results from station SP-E-OUT also represent East WWTP treated effluent that would otherwise be collected at station WWTP-E-OUT. Daily field measurements for November 17 – 23, and analytical samples collected November 21 and 22 at station SP-E-OUT were available at the time of reporting.

Screening results for East Sedimentation Pond influent and East Catchment discharge water quality are tabulated in Appendix B (Tables B-1 and B-3). East WWTP influent and effluent water quality screening results are tabulated in Appendix C (Tables C-1 and C-2). Analytical samples and field measurements for discharge at station SP-E-OUT met PE-111578 discharge limits and WQGs except for hexavalent chromium on November 21 and 22 (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	N	N >WQG	Commentary
Hexavalent Chromium	mg/L	0.0015	2	2	Hexavalent chromium measured at station SP-E-OUT on November 21 (0.00157 mg/L) and November 22 (0.00164 mg/L) was 1.05 and 1.1 times greater than the long-term WQG, respectively.

N = number of samples.

A methylmercury analytical result was available at the time of reporting for the East WWTP effluent discharged to Howe Sound at station SP-E-OUT collected on October 30 (as discussed in

Weekly Report #38) and is tabulated in Appendix B, Table B-2. The methylmercury concentration was 0.000046 µg/L in the October 30 sample of East WWTP effluent discharged at station SP-E-OUT. Methylmercury and the associated total mercury results met the WQG (Appendix B, Table B-2).

### **3.4 West Catchment**

The West Catchment water quality results for the West Sedimentation Pond and West WWTP monitoring stations are discussed in this section. Results for sedimentation pond 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 collected from West Sedimentation Pond influent and in-pond stations, TSS settling system stations, and discharges to Howe Sound available at the time of reporting are presented in Appendix D. Operation of the West WWTP is currently suspended 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 are summarized below.

During the monitoring period (November 17 – 23) all discharges from the West Catchment to Howe Sound were routed through the authorized discharge location (SP-W-OUT). Clarified water from the West Sedimentation Pond TSS settling system (ESC system) discharged to Howe Sound each day.

Analytical results for effluent discharged at station SP-W-OUT were available at the time of reporting for samples collected November 15 (as discussed in Weekly Report #40), November 18, 21 (duplicates), and 22. During the monitoring period (November 17 – 23), field measurements and analytical samples collected at stations SP-W-OUT and ESC-W-OUT represent TSS clarified water. West Sedimentation Pond influent and effluent water quality screening results are presented in Appendix D, Tables D-1, D-2 and D-4. Analytical samples and field measurements for samples of TSS clarified water discharged to Howe Sound via station SP-W-OUT met PE-111578 discharge limits and WQGs.

A methylmercury analytical result was available at the time of reporting for a sample of West Sedimentation Pond effluent collected on October 30 (as discussed in Weekly Report #38) and is tabulated in Appendix D, Table D-3. The methylmercury concentration in the October 30 station SP-W-OUT sample was 0.000045 µg/L, which met the WQG. The associated total mercury result also met the WQG.

### **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 E.

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.

A methylmercury analytical result was available at the time of reporting for the October 23 sample from the non-contact water diversion ditch outlet station OUT-02 (as discussed in Weekly Report #37). The methylmercury concentration in the October 23 OUT-02 sample was <0.000020 µg/L, which met the WQG. The associated total mercury concentration also met the WQG (Appendix E; Table E-1).

### **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 exceedances.

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

### **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 are considered to represent the natural condition of the water and are not flagged as exceedances. It is expected that samples collected within the IDZ (*i.e.*, mixing zone) defined in PE-111578 for the authorized discharge locations may have parameter concentrations above baseline or background (*i.e.*, reference station) concentrations due to project influence. The analytical results, field parameters and WQGs are summarized in Appendix F.

Analytical results were available at the time of reporting for the November 14 and November 15 marine water receiving environment samples collected at IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, and reference stations WQR1 and WQR2 at 0.5 m below the water surface. Parameter

concentrations met WQGs except field pH at marine reference station WQR2 on November 15 (pH 6.8). The marine reference station represents background conditions and is not flagged for exceedances.

Methylmercury analytical results were available at the time of reporting for the marine water receiving environment samples collected from station IDZ-W1 and IDZ-W2 on October 24 (as discussed in Weekly Report #37) at 0.5 and 2 m below the water surface and 2 m above the seafloor. A raised detection limit ( $<0.000080 \mu\text{g/L}$ ) was reported for most of the samples due to sample matrix interferences. The methylmercury concentrations at all stations were below the WQG indicated in Section 3.1 ( $0.0001 \mu\text{g/L}$ ) and the associated total mercury concentrations also met the WQG (Appendix F; Table F-3).

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

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 5). The evaluation includes a review of field and lab QC, completeness of the weekly report (*e.g.*, pending data), completeness of the monitoring program, confirmation of recordkeeping, evaluation of compliance and review of water management activities. Items flagged for follow-up in Section 3 are also tracked in Table 5. Any items flagged for follow-up are carried forward to future reports until they are closed.

**Table 5: Weekly Report QC Evaluations and Ongoing Items**

QC Procedure	Observation	Investigation/Resolution
<b>Reporting Period (November 17 – 23, Report #41)</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>Authorized Works Non-Compliance</b>	The East WWTP effluent is bypassing the East Sedimentation Pond since October 28.	The site received significant rainfall (104.6 mm) from October 26 to 28, and on October 28 it was necessary to place contact water directly into the East Sedimentation Pond thereby increasing the risk that effluent discharged from the pond would not meet PE-111578 discharge limits. Therefore, on October 28 water management was rearranged to store contact water in the East Sedimentation Pond, route the pond water to the East WWTP, and discharge treated water from the East WWTP treatment system directly to Howe Sound through the SP-E-OUT authorized discharge location. The modification to the discharge pathway has been communicated to BCER. This item has been transferred to the authorized works and monitoring program evaluation table entry (above) for tracking, therefore this table entry is now closed.
<b>Pending Data</b>	Analytical results were not reported for samples collected November 17, 19, 20, and 23. Methylmercury, dioxins and furans results were not reported for samples collected November 18, 19, 21, and 22.	Analytical results for samples collected November 17, 19, 20, and 23 were not complete at the time of Report #41 preparation. Methylmercury, dioxins and furans results for samples collected November 18, 19, 21, and 22 were not complete at the time of Report #41 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 #36: Pending Data</b>	Methylmercury, dioxins and furans results were not reported for samples collected October 13 and 19.	Dioxins and furans results for samples collected October 13 and 19 were not complete at the time of Report #41 preparation. Testing of dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.
<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. It is possible the East Creek water quality at station SW-04 was influenced by discharge from the Fortis controlled portal area for the Eagle Mountain Pipeline Tunnel project. Follow-up with Woodfibre LNG staff is on-going. This item remains open.
<b>Report #37: Pending Data</b>	Methylmercury, dioxins and furans results were not reported for samples collected October 23, 24, 25, and 26.	Methylmercury results for samples collected October 23 and 24 are discussed in Sections 3.5 and 3.7 of Report #41. Methylmercury, dioxins and furans results for samples collected October 25 and 26 were not complete at the time of Report #41 preparation. Testing of methylmercury, dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.
<b>Report #38: Pending Data</b>	Analytical results were not reported for samples collected November 1 and 2. Methylmercury, dioxins and furans results were not reported for samples collected October 27, 28, and 30.	Analytical results for samples collected November 1 and 2 were not complete at the time of Report #41 preparation. Methylmercury results for SP-E-OUT and SP-W-OUT samples collected October 30 are discussed in Sections 3.3 and 3.4 of Report #41. Methylmercury, dioxins and furans results for samples collected October 27, 28, and 30 were not complete at the time of Report #41 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. Review of the preventive measure to prevent reoccurrence is underway. This item remains open.
<b>Report #39: Data QC</b>	Elevated TSS concentration at IDZ-W1 correlates poorly with observed turbidity values on October 30.	The total suspended solids (TSS) concentration at IDZ-W1 was above the calculated WQG in the sample collected at 2 m above the seafloor on October 30. The elevated TSS in the sample correlates poorly with field and lab turbidity measurements (0.89 and 0.40 NTU, respectively). A reanalysis for TSS has been completed and the originally reported result was not confirmed. A corrective action investigation was completed, and an incorrect method was used at the laboratory to derive the originally reported result. The corrected TSS value reported for the sample was a raised detection limit (<10 mg/L) due to low sample volume. This item is closed.
<b>Report #39: Pending Data</b>	Analytical results were not reported for samples collected November 4. Methylmercury, dioxins and furans results were not reported for samples collected November 3, 5, 6, 7, 8, and 9.	Analytical results for samples collected November 4 were not complete at the time of Report #41 preparation. Methylmercury results for samples collected November 3, 5, 6, 7, 8, and 9, and dioxins and furans results for samples collected November 3 and 4 were not complete at the time of Report #41 preparation. The pending results will be included in future weekly reports when available. This item remains open.
<b>Report #40: Non-Complaint Effluent</b>	Non-complaint discharge from the East and West Sedimentation Ponds on November 12, 13 and 14.	Field pH measured at station SP-E-OUT on November 12 at 08:41 (pH 10) was above the upper limit of the PE-111578 discharge limit, and the root cause is being investigated. Contact water stored in the East and West Sedimentation Ponds was discharged to Howe Sound on November 13 at 17:18 to November 15 at 03:04, and November 13 at 17:05 through November 15 at 06:12, respectively. The East and West Sedimentation Pond discharges exceeded multiple discharge limits on November 13 and November 14. The discharge of untreated and non-clarified contact water is due to high runoff flows from significant rainfall November 11-14. Discharge limit exceedances are attributed to elevated TSS in the discharged water. The anticipated potential for exceedances were communicated to BCER prior to commencing discharge. Review of these non-compliances is underway and outcomes will be communicated to BCER. This item remains open.
<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 will be completed at a monthly monitoring program review meeting scheduled for Dec 11. This item remains open.
<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 (0.00044 mg/L) was 1.42 times greater than the maximum concentration observed in the pre-construction baseline monitoring program at Mill Creek. A further investigation is underway with the QEP. This item remains open.
<b>Report #40: Pending Data</b>	Analytical results were not reported for samples collected November 10, 11, 12, and 16. Methylmercury, dioxins and furans results were not reported for samples collected November 10, 11, 12, 13, 14, and 15.	Available analytical results for sample collected November 14 and 15 are discussed in Sections 3.3, 3.4, and 3.7 of Report #41. Analytical results for samples collected November 10, 11, 12, and 16 were not complete at the time of Report #41 preparation. Methylmercury, dioxins and furans results for samples collected November 10, 11, 12, 13, 14, and 15 were not complete at the time of Report #41 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.

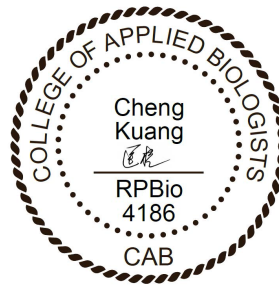
## 5. Closure

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**



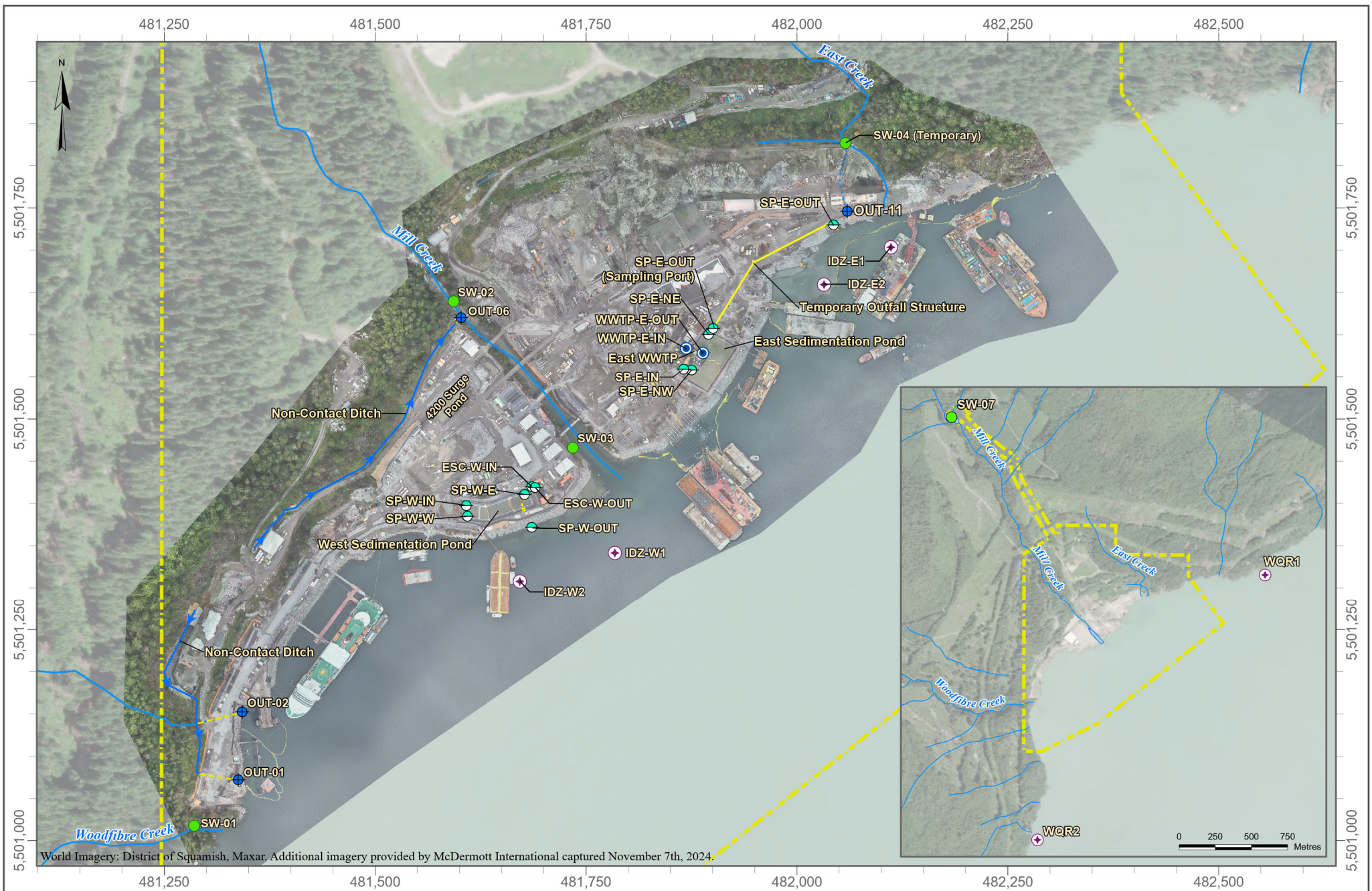
**Cheng Kuang, M.Sc., RPBio.  
Environmental Scientist**

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





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

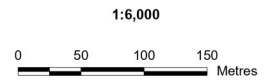


World Imagery: District of Squamish, Maxar. Additional imagery provided by McDermott International captured November 7th, 2024.

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:	Nov 29, 2024
DRAWN BY:	DM
REVIEWED:	PM
VERSION:	1

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



CLIENT: Woodfibre LNG  
 PROJECT: Woodfibre LNG Project Construction Phase

TITLE: Completed or Under Construction Water Management Facilities and Established PE-111578 Monitoring Stations (November 23, 2024)  
 PROJECT #: A633-7  
 FIGURE: 1





Figure 2: East Catchment contact water management facilities (November 17 – 23).



Figure 3: West Catchment contact water management facilities (November 17 – 23).





**Figure 4:** Aerial view of the East Sedimentation Pond (November 21, 2024). The East WWTP is located on the left side of the pond.



**Figure 5:** Aerial view of the West Sedimentation Pond (November 21, 2024). The TSS settling system (ESC System) and the West WWTP are located to the right of the pond.

## **Appendix B: East Sedimentation Pond Results**

**Table B-1: Summary of Water Quality Results Received at the Time of Reporting for East Sedimentation Pond Influent and East WWTP Effluent discharged at SP-E-OUT.**

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		PE-111578 Discharge Limit	Station SP-E-IN	Station SP-E-OUT <sup>7</sup>	Station SP-E-OUT <sup>7</sup>
					Influent	Effluent	Effluent
		SP-E-IN	SP-E-OUT		SP-E-OUT		
		VA24D1125-003	VA24D1699-007		VA24D1801-003		
		Long Term	Short Term		2024-11-15 11:30	2024-11-21 13:42	2024-11-22 13:37
<b>General Parameters</b>							
pH - Field	pH units	- <sup>2</sup>	-	5.5 - 9.0	8.6	7.0	6.5
Conductivity - Field	µS/cm	-	-	-	281	274	270
Temperature - Field	°C	-	-	-	10	7.2	6.4
Salinity - Field	ppt	-	-	-	0.19	0.2	0.2
Turbidity - Field	NTU	-	-	-	3904.51	0.54	1.9
TSS	mg/L	-	-	25 <sup>6</sup>	5400	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	11.52	12.54	11.93
<b>Anions and Nutrients</b>							
Sulphate	mg/L	-	-	-	22.2	52.4	46.7
Chloride	mg/L	-	-	-	10.3	6.25	6.07
Fluoride	mg/L	-	1.5	-	0.264	0.134	0.124
Ammonia (N-NH <sub>3</sub> )	mg/L	Variable <sup>3</sup>	Variable <sup>3</sup>	-	0.995	0.148	0.173
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	-	0.149	0.143	0.153
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	-	5.92	3.04	3.31
<b>Total Metals</b>							
Aluminum, total (T-Al)	mg/L	-	-	-	228	0.0593	0.11
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	-	<0.00200	0.00172	0.00189
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.104	0.00224	0.00246
Barium, total (T-Ba)	mg/L	-	-	-	2.84	0.00161	0.00146
Beryllium, total (T-Be)	mg/L	0.1	-	-	0.00411	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	<0.200	0.042	0.05
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.00468	<0.0000225	<0.0000150
Chromium, total (T-Cr)	mg/L	-	-	-	0.0721	0.00186	0.00177
Cobalt, total (T-Co)	mg/L	-	-	-	0.0888	0.00026	0.00027
Copper, total (T-Cu)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0043	0.473	0.0027	0.00286
Iron, total (T-Fe)	mg/L	-	-	-	226	0.021	0.035
Lead, total (T-Pb)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0035	0.351	0.000075	0.000136
Manganese, total (T-Mn)	mg/L	-	-	-	7.06	0.00351	0.0047
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	-	0.000494	0.00000279	0.00000437
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0612	0.0415	0.0467
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.065	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	<0.00100	0.000232	0.000229
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.00154	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.00277	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.103	0.0138	0.0126
Vanadium, total (T-V)	mg/L	- <sup>2</sup>	-	0.0081	0.382	0.00394	0.00445
Zinc, total (T-Zn)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0133	0.889	<0.0030	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00084	0.00157	0.00164
<b>Dissolved Metals</b>							
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000200	<0.0000150	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.0042	0.00258	0.00277
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.012	0.010	0.016
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	<0.000050	0.000062
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0146	0.00314	0.00418
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.106	0.0360	0.0382
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00328	0.00368	0.00439
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	0.0012	0.0015
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>							
Acenaphthene	mg/L	0.006	-	-	0.000108	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000046	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000106	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	0.000329	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	0.000329	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	0.000316	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	0.00062	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	0.000114	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	0.000138	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	0.000143	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000099	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	0.000408	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	0.000666	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000122	<0.000050	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>							
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040	<0.00050	<0.00050
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050	- <sup>8</sup>	- <sup>8</sup>
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	- <sup>8</sup>	- <sup>8</sup>

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 each day during the monitoring period (November 17 – 23).

<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 did not apply during the monitoring period.

<sup>7</sup> From November 17 to November 23, East WWTP treated effluent was discharged at station SP-E-OUT. Field measurements and analytical samples were collected at station SP-E-OUT.

<sup>8</sup> Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the SP-E-OUT sample collected on November 21 and 22.

**Table B-2: Summary of Methylmercury Water Quality Results Received at the Time of Reporting for East WWTP Effluent discharged at Station SP-E-OUT.**

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>	Station SP-E-OUT <sup>5</sup>
			Effluent
			WWTP-E-OUT
			VA24C9383-001
			2024-10-30
<b>Total Methylmercury</b>	<b>µg/L</b>	0.0001 <sup>2</sup>	0.000046
<b>Total Mercury</b>	<b>µg/L</b>	0.011 <sup>3,4</sup>	<0.0050

**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.

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

**Table B-3: Summary of Daily Field Parameters for East Sedimentation Pond Influent and East WWTP Effluent discharged at SP-E-OUT November 17 – 23.**

Parameter		Temperature	Dissolved Oxygen (DO)	Salinity	Turbidity	pH	Conductivity	Visibility of Sheen	Total Daily Discharge to Howe Sound from Station SP-E-OUT
Unit		°C	mg/L	ppt	NTU	s.u.	µS/cm		m <sup>3</sup>
<b>PE-111578 Discharge Limit</b>		-	-	-	-	5.5 - 9.0	-	-	_ <sup>3</sup>
<b>Lowest Applicable Guideline <sup>1</sup></b>		-	>=8	-	-	_ <sup>2</sup>	-	-	-
Station ID <sup>4</sup>	Date								
SP-E-OUT/WWTP-E-OUT <sup>5</sup>	2024-11-17 17:34	7.3	11.69	0.24	0.57	6.2	330	No	741
SP-E-OUT/WWTP-E-OUT <sup>5</sup>	2024-11-18 11:45	6.9	12.64	0.38	1.14	6.4	504	No	296
SP-E-OUT/WWTP-E-OUT <sup>5</sup>	2024-11-19 17:32	7.1	11.72	0.26	1.73	6.4	346	No	468
SP-E-OUT/WWTP-E-OUT <sup>5</sup>	2024-11-20 13:15	6.4	13.64	0.20	1.51	7.0	267	No	539
SP-E-IN	2024-11-20 13:32	5.5	13.10	86.1	0.10	9.4	828	No	
SP-E-IN	2024-11-20 14:16	7.0	11.61	183.8	0.13	8.9	691	No	
SP-E-OUT/WWTP-E-OUT <sup>5</sup>	2024-11-21 13:42	7.2	12.54	0.20	0.54	7.0	274	No	731
SP-E-OUT/WWTP-E-OUT <sup>5</sup>	2024-11-22 13:37	6.4	11.93	0.20	1.90	6.5	270	No	567
SP-E-OUT/WWTP-E-OUT <sup>5</sup>	2024-11-23 15:49	7.4	11.73	0.27	0.55	6.5	364	No	592
SP-E-IN	2024-11-23 16:52	8.9	11.57	0.10	3477.61	9.5	152	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.

All SP-E-OUT samples collected from May 27 to the time of writing were taken from the sample port which is located near the inlet end of the temporary discharge hose.

The East Sedimentation Pond discharged each day during the monitoring period (November 17 – 23).

<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 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.

<sup>4</sup> Site staff noted there was no active input of influent sources to the pond at the time of monitoring on November 17, 18, 19, 21, and 22, therefore daily measurements for station SP-E-IN were not collected.

<sup>5</sup> From November 17 to November 23, East WWTP treated effluent was discharged at station SP-E-OUT. Field measurements were collected at station SP-E-OUT.



## ***Appendix C: East Wastewater Treatment Plant Results***

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

Parameter	Unit	Operational Minimum Discharge Objective <sup>1</sup>	Station WWTP-E-IN	Station WWTP-E-IN	Station WWTP-E-IN	Station SP-E-OUT <sup>2</sup>	Station WWTP-E-IN	Station SP-E-OUT <sup>2</sup>
			Influent	Influent	Influent	Effluent	Influent	Effluent
			WWTP-E-IN	WWTP-E-IN	WWTP-E-IN	SP-E-OUT	WWTP-E-IN	SP-E-OUT
			VA24D1125-002 2024-11-15 12:45	VA24D1241-001 2024-11-18 11:52	VA24D1699-006 2024-11-21 11:45	VA24D1699-007 2024-11-21 13:42	VA24D1801-002 2024-11-22 11:39	VA24D1801-003 2024-11-22 13:37
<b>General Parameters</b>								
pH - Field	pH units	5.5 – 9.0	8.6	7.4	7.7	7.0	8.1	6.5
Conductivity - Field	µS/cm	-	163	187	245	274	253	270
Temperature - Field	°C	-	8.7	7.1	6.4	7.2	7.6	6.4
Salinity - Field	ppt	-	0.11	0.14	0.18	0.2	0.18	0.2
Turbidity - Field	NTU	-	214.82	78.8	71.8	0.54	50.57	1.9
TSS	mg/L	-	79.7	17.1	31.1	<3.0	42.1	<3.0
Dissolved Oxygen - Field	mg/L	-	11.37	11.72	12.4	12.54	11.27	11.93
<b>Anions and Nutrients</b>								
Sulphate	mg/L	-	24.6	28.7	48.6	52.4	44.7	46.7
Chloride	mg/L	-	4.2	5.77	6.19	6.25	6.13	6.07
Fluoride	mg/L	-	0.123	0.143	0.13	0.134	0.131	0.124
Ammonia (N-NH <sub>3</sub> )	mg/L	-	0.0912	0.153	0.223	0.148	0.222	0.173
Nitrite (N-NO <sub>2</sub> )	mg/L	-	0.0807	0.0985	0.143	0.143	0.16	0.153
Nitrate (N-NO <sub>3</sub> )	mg/L	-	2.14	2.57	3.14	3.04	3.55	3.31
<b>Total Metals</b>								
Aluminum, total (T-Al)	mg/L	-	12.3	5.43	4.22	0.0593	2.85	0.11
Antimony, total (T-Sb)	mg/L	-	0.00168	0.00165	0.00169	0.00172	0.00184	0.00189
Arsenic, total (T-As)	mg/L	0.0125	0.0066	0.00448	0.00402	0.00224	0.00331	0.00246
Barium, total (T-Ba)	mg/L	-	0.121	0.0567	0.0457	0.00161	0.0321	0.00146
Beryllium, total (T-Be)	mg/L	0.1	0.000192	0.000094	0.000067	<0.000020	0.000047	<0.000020
Boron, total (T-B)	mg/L	1.2	0.043	0.047	0.044	0.042	0.044	0.05
Cadmium, total (T-Cd)	mg/L	0.00012	<b>0.000165</b>	0.0000948	0.0000852	<0.0000225	0.0000492	<0.0000150
Chromium, total (T-Cr)	mg/L	-	0.00583	0.00358	0.00357	0.00186	0.00319	0.00177
Cobalt, total (T-Co)	mg/L	-	0.00349	0.00138	0.00144	0.00026	0.00104	0.00027
Copper, total (T-Cu)	mg/L	0.0043	<b>0.0195</b>	<b>0.0105</b>	<b>0.0121</b>	0.0027	<b>0.0099</b>	0.00286
Iron, total (T-Fe)	mg/L	-	9.04	3.25	3.03	0.021	1.94	0.035
Lead, total (T-Pb)	mg/L	0.0035	<b>0.0164</b>	<b>0.00721</b>	<b>0.00681</b>	0.000075	<b>0.00554</b>	0.000136
Manganese, total (T-Mn)	mg/L	-	0.277	0.107	0.121	0.00351	0.0769	0.0047
Mercury, total (T-Hg)	mg/L	0.000016	<b>0.0000312</b>	<b>0.0000179</b>	0.0000147	0.00000279	0.000015	0.00000437
Molybdenum, total (T-Mo)	mg/L	-	0.031	0.0436	0.0402	0.0415	0.0468	0.0467
Nickel, total (T-Ni)	mg/L	0.0083	0.00328	0.00135	0.00166	<0.00050	0.0013	<0.00050
Selenium, total (T-Se)	mg/L	-	0.000322	0.000263	0.000331	0.000232	0.000264	0.000229
Silver, total (T-Ag)	mg/L	0.0015	0.000067	0.000066	0.000056	<0.000010	0.000049	<0.000010
Thallium, total (T-Tl)	mg/L	-	0.000072	0.000037	0.000038	<0.000010	0.000022	<0.000010
Uranium, total (T-U)	mg/L	-	0.0132	0.0172	0.0169	0.0138	0.0174	0.0126
Vanadium, total (T-V)	mg/L	0.0081	<b>0.0236</b>	<b>0.0107</b>	<b>0.0099</b>	0.00394	0.00802	0.00445
Zinc, total (T-Zn)	mg/L	0.0133	<b>0.0651</b>	<b>0.0238</b>	<b>0.0241</b>	<0.0030	<b>0.0215</b>	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	<b>0.00167</b>	<b>0.00185</b>	<b>0.00164</b>	<b>0.00157</b>	<b>0.00195</b>	<b>0.00164</b>
<b>Dissolved Metals</b>								
Cadmium, dissolved (D-Cd)	mg/L	0.00012	<0.0000125	<0.0000300	<0.0000150	<0.0000150	<0.0000150	<0.0000150
Copper, dissolved (D-Cu)	mg/L	-	0.00208	0.00317	0.00516	0.00258	0.00458	0.00277
Iron, dissolved (D-Fe)	mg/L	-	0.010	0.013	<0.010	0.01	0.011	0.016
Lead, dissolved (D-Pb)	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000062
Manganese, dissolved (D-Mn)	mg/L	-	0.00856	0.0177	0.0331	0.00314	0.024	0.00418
Nickel, dissolved (D-Ni)	mg/L	-	<0.00050	<0.00050	0.00051	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	0.0912	0.107	0.116	0.036	0.121	0.0382
Vanadium, dissolved (D-V)	mg/L	-	0.00545	0.00417	0.0039	0.00368	0.00374	0.00439
Zinc, dissolved (D-Zn)	mg/L	-	0.0016	0.0058	0.0039	0.0012	0.0046	0.0015
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>								
Acenaphthene	mg/L	-	0.000050	0.000046	0.000026	<0.000010	0.000024	<0.000010
Acridine	mg/L	-	<0.000011	<0.000015	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	0.000016	<0.000015	<0.000013	<0.000010	<0.000020	<0.000010
Benz(a)anthracene	mg/L	-	0.000034	0.000013	0.000022	<0.000010	0.000013	<0.000010
Benzo(a)pyrene	mg/L	0.00001	0.0000304	0.0000123	0.0000216	<0.000050	0.000009	<0.000050
Chrysene	mg/L	0.0001	0.000033	<0.000016	<0.000028	<0.000010	<0.000020	<0.000010
Fluoranthene	mg/L	-	0.000123	0.000078	0.000078	<0.000010	0.000066	<0.000010
Fluorene	mg/L	0.012	0.000033	0.000034	0.000017	<0.000010	0.000015	<0.000010
1-methylnaphthalene	mg/L	-	0.000015	0.000016	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	-	0.000016	0.000015	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	<0.000050	0.000055	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	0.000050	0.000037	0.000034	<0.000020	0.000023	<0.000020
Pyrene	mg/L	-	0.000116	0.000069	0.000070	<0.000010	0.000059	<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	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	<0.00050	<0.00050	<0.00050	<0.00050
Total Xylenes	mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	-	<0.00050	<0.00050	<sub>-3</sub>	<sub>-3</sub>	<sub>-3</sub>	<sub>-3</sub>
1,2-Dichlorobenzene	mg/L	-	<0.00050	<0.00050	<sub>-3</sub>	<sub>-3</sub>	<sub>-3</sub>	<sub>-3</sub>

**Notes:**

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

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

<sup>2</sup> From November 17 to November 23, most of the East WWTP treated effluent was discharged at station SP-E-OUT, and the balance was recirculated within the plant. Field measurements and analytical samples of East WWTP treated effluent discharged to Howe Sound were collected at station SP-E-OUT.

<sup>3</sup> Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the WWTP-E-IN and WWTP-E-OUT sample collected on November 21 and 22.

**Table C-2: Summary of East Wastewater Treatment Plant Daily Field Parameters November 17 – 23.**

Parameter	Temperature	Dissolved Oxygen (DO)	Salinity	Turbidity	pH	Conductivity	Visibility of Sheen	Total Daily Discharge from the East WWTP	
Unit	°C	mg/L	ppt	NTU	s.u.	µS/cm		m <sup>3</sup>	
PE-111578 Discharge Limit <sup>1</sup>	-	-	-	-	-	-	-	1,100	
Minimum Discharge Objective <sup>2</sup>	-	-	-	-	5.5 – 9.0	-	-	-	
Station ID <sup>3</sup>	Date								
WWTP-E-IN	2024-11-17 12:51	7.4	11.69	0.12	119.32	8.3	174	No	741
WWTP-E-OUT	2024-11-17 12:55	7.2	11.19	0.26	0.29	5.7	352	No	
WWTP-E-IN	2024-11-18 11:52	7.1	11.72	0.14	78.80	7.4	187	No	296
WWTP-E-OUT	2024-11-18 12:07	7.0	12.40	0.40	4.52	6.8	531	No	
WWTP-E-IN	2024-11-19 12:50	6.3	12.65	0.20	63.48	7.8	270	No	468
WWTP-E-OUT	2024-11-19 12:52	6.3	12.31	0.38	1.57	7.6	503	No	
WWTP-E-IN	2024-11-20 13:56	6.0	11.88	0.18	49.44	7.3	240	No	539
WWTP-E-OUT	2024-11-20 13:50	6.0	11.98	0.20	0.39	6.7	266	No	
WWTP-E-IN	2024-11-21 11:45	6.4	12.40	0.18	71.80	7.7	245	No	731
WWTP-E-OUT	2024-11-21 12:15	7.2	13.14	0.21	0.97	7.2	286	No	
WWTP-E-IN	2024-11-22 11:39	7.6	11.27	0.18	50.57	8.1	253	No	567
WWTP-E-OUT	2024-11-22 11:52	6.4	10.17	0.19	0.79	6.9	252	No	
WWTP-E-IN	2024-11-23 12:13	7.1	11.49	0.18	127.48	7.9	245	No	592
WWTP-E-OUT	2024-11-23 12:06	7.4	11.12	0.27	0.93	6.5	371	No	

**Notes:**

Results ***underlined in bold italics*** do not meet the applicable minimum discharge objective.

<sup>1</sup> PE-111578 East WWTP Discharge Limit is applied to effluent compliance station WWTP-E-OUT.

<sup>2</sup> Operational minimum discharge objectives (MDOs) for WWTP effluent that are listed in Appendix B of the Construction Wastewater Treatment Plant Operations Environmental Protection Plan dated February 7, 2024.

<sup>3</sup> From November 17 to November 23, East WWTP treated effluent was discharged at station SP-E-OUT. Daily field measurements were collected from the meter box at station WWTP-E-OUT.

## ***Appendix D: West Sedimentation Pond Results***

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		PE-111578 Discharge Limit	Station SP-W-OUT <sup>7</sup>	Station SP-W-OUT <sup>7</sup>	Station SP-W-IN	Station SP-W-IN
					Effluent	Effluent	Influent	Influent
					SP-W-OUT	SP-W-OUT	SP-W-IN	SP-W-IN
					VA24D1125-001	VA24D1241-002	VA24D1314-001	VA24D1699-001
		Long Term	Short Term		2024-11-15 15:30	2024-11-18 12:34	2024-11-19 11:19	2024-11-21 11:17
<b>General Parameters</b>								
pH - Field	pH units	- <sup>2</sup>	-	5.5 - 9.0	8.0	7.5	8.6	7.7
Conductivity - Field	µS/cm	-	-	-	149	133	121	100
Temperature - Field	°C	-	-	-	8.5	7.4	6	7.8
Salinity - Field	ppt	-	-	-	0.1	0.1	0.09	0.07
Turbidity - Field	NTU	-	-	-	0.78	0.05	138.56	59.1
TSS	mg/L	-	-	25 <sup>6</sup>	<3.0	<3.0	74.9	114
Dissolved Oxygen - Field	mg/L	>=8	-	-	11.98	12.2	13.1	11.09
<b>Anions and Nutrients</b>								
Sulphate	mg/L	-	-	-	14.7	12.3	14.3	13.2
Chloride	mg/L	-	-	-	5.28	2.33	2.04	2.42
Fluoride	mg/L	-	1.5	-	0.109	0.056	0.052	0.070
Ammonia (N-NH <sub>3</sub> )	mg/L	Variable <sup>3</sup>	Variable <sup>3</sup>	-	0.0842	<0.0050	0.0138	0.0144
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	-	0.0601	0.0054	0.0063	0.0116
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	-	3.02	1.07	0.809	1.19
<b>Total Metals</b>								
Aluminum, total (T-Al)	mg/L	-	-	-	0.143	0.0233	10	5.49
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	-	0.00131	0.0014	0.00158	0.00139
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00238	0.00156	0.00423	0.00324
Barium, total (T-Ba)	mg/L	-	-	-	0.00536	0.0069	0.0924	0.0466
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	<0.000020	0.000145	0.000108
Boron, total (T-B)	mg/L	1.2	-	-	0.022	0.027	0.025	0.028
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000100	<0.0000050	<u>0.000152</u>	<0.000115
Chromium, total (T-Cr)	mg/L	-	-	-	0.00114	<0.00050	0.006	0.00371
Cobalt, total (T-Co)	mg/L	-	-	-	0.00023	<0.00010	0.00273	0.00176
Copper, total (T-Cu)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0043	0.0017	0.00137	0.0192	0.0168
Iron, total (T-Fe)	mg/L	-	-	-	0.018	<0.010	7.52	3.65
Lead, total (T-Pb)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0035	<0.000050	<0.000050	0.0188	0.0134
Manganese, total (T-Mn)	mg/L	-	-	-	0.00058	0.00054	0.187	0.133
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	-	0.00000166	0.00000081	<u>0.0000428</u>	<u>0.0000228</u>
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0302	0.012	0.0126	0.0212
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00050	<0.00050	0.00334	0.00214
Selenium, total (T-Se)	mg/L	0.002	-	-	0.00016	0.000081	0.000188	0.000179
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	<0.000010	0.00006	0.000052
Thallium, total (T-Tl)	mg/L	-	-	-	<0.000010	<0.000010	0.000078	0.000039
Uranium, total (T-U)	mg/L	-	-	-	0.013	0.00528	0.00768	0.0146
Vanadium, total (T-V)	mg/L	- <sup>2</sup>	-	0.0081	0.00292	0.00158	0.0165	0.0112
Zinc, total (T-Zn)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0133	<0.0030	<0.0030	0.0895	0.0276
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00122	0.0005	0.00111	0.00099
<b>Dissolved Metals</b>								
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000100	<0.0000100	<0.0000100	<0.0000050
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.0015	0.00108	0.00161	0.00166
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010	<0.010	<0.010	0.016
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	0.000083
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00108	0.0006	0.00468	0.00579
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0821	0.0776	0.0832	0.0645
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00273	0.00139	0.00251	0.00314
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	<0.0010	0.0031	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>								
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010	0.000038	0.000020
Acridine	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010	0.000019	0.000011
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010	0.000027	0.000024
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050	<u>0.0000293</u>	<u>0.0000228</u>
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	0.00003	<0.000023
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010	0.00011	0.000064
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010	0.000029	0.000013
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	0.000011	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	0.000016	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020	0.000077	0.000042
Pyrene	mg/L	-	-	-	<0.000010	<0.000010	0.00010	0.000060
Quinoline	mg/L	-	-	-	<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
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00040	<0.00040	<0.00040	<0.00050
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<0.00050	<0.00050	<0.00050	- <sup>8</sup>
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	<0.00050	<0.00050	- <sup>8</sup>

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

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

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

The West Sedimentation Pond discharged each day during the monitoring period (November 17 – 23).

<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 did not apply during the monitoring period.

<sup>7</sup> The West Sedimentation Pond discharged through the TSS settling system (ESC system) on November 17 through November 23. From November 17 through November 23, field measurements and analytical samples were collected at station SP-W-OUT.

<sup>8</sup> Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the WWTP-E-IN and WWTP-E-OUT sample collected on November 21.

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>		PE-111578 Discharge Limit	Station SP-W-OUT <sup>7</sup>	Station SP-W-OUT <sup>7</sup>	Station SP-W-OUT <sup>7</sup>
					Effluent	Effluent	Effluent
					SP-W-OUT	SP-W-OUT-Dup	SP-W-OUT
					VA24D1699-002	VA24D1699-003	VA24D1801-001
		Long Term	Short Term		2024-11-21 11:33	2024-11-21 11:50	2024-11-22 14:49
<b>General Parameters</b>							
pH - Field	pH units	- <sup>2</sup>	-	5.5 - 9.0	7.3	7.3	7.6
Conductivity - Field	µS/cm	-	-	-	128	128	105
Temperature - Field	°C	-	-	-	6.8	6.8	6.8
Salinity - Field	ppt	-	-	-	0.09	0.09	0.08
Turbidity - Field	NTU	-	-	-	1.32	1.32	1.57
TSS	mg/L	-	-	25 or 75 <sup>6</sup>	<3.0	<3.0	<3.0
Dissolved Oxygen - Field	mg/L	>=8	-	-	12.81	12.81	12.26
<b>Anions and Nutrients</b>							
Sulphate	mg/L	-	-	-	14.4	14.5	13.8
Chloride	mg/L	-	-	-	2.35	2.35	2.37
Fluoride	mg/L	-	1.5	-	0.095	0.093	0.113
Ammonia (N-NH <sub>3</sub> )	mg/L	Variable <sup>3</sup>	Variable <sup>3</sup>	-	<0.0050	<0.0050	<0.0050
Nitrite (N-NO <sub>2</sub> )	mg/L	-	-	-	0.0075	0.0073	0.0096
Nitrate (N-NO <sub>3</sub> )	mg/L	3.7	339	-	1.0	1.0	0.984
<b>Total Metals</b>							
Aluminum, total (T-Al)	mg/L	-	-	-	0.0807	0.0759	0.0466
Antimony, total (T-Sb)	mg/L	-	0.27 <sup>4</sup>	-	0.00167	0.00174	0.00156
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00133	0.00137	0.0015
Barium, total (T-Ba)	mg/L	-	-	-	0.008	0.00845	0.0059
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000020	<0.000020	<0.000020
Boron, total (T-B)	mg/L	1.2	-	-	0.025	0.026	0.021
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000175	<0.0000175	<0.0000100
Chromium, total (T-Cr)	mg/L	-	-	-	0.0009	0.00077	0.00082
Cobalt, total (T-Co)	mg/L	-	-	-	<0.00010	<0.00010	<0.00010
Copper, total (T-Cu)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0043	0.00122	0.00121	0.00128
Iron, total (T-Fe)	mg/L	-	-	-	0.03	0.026	<0.010
Lead, total (T-Pb)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0035	0.000123	0.000096	<0.000050
Manganese, total (T-Mn)	mg/L	-	-	-	0.0033	0.00314	0.00091
Mercury, total (T-Hg)	mg/L	0.000016 <sup>5</sup>	-	-	0.00000068	0.00000066	0.00000072
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0219	0.023	0.0257
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00050	<0.00050	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000156	0.000127	0.000116
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000015	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.0228	0.0227	0.0242
Vanadium, total (T-V)	mg/L	- <sup>2</sup>	-	0.0081	0.00206	0.00205	0.00214
Zinc, total (T-Zn)	mg/L	- <sup>2</sup>	- <sup>2</sup>	0.0133	<0.0030	<0.0030	<0.0030
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00069	0.00070	0.00089
<b>Dissolved Metals</b>							
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000100	<0.0000100	<0.0000100
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.001	0.001	0.0012
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010	<0.010	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	<0.000050	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00293	0.003	0.00085
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0969	0.0966	0.0719
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00188	0.00186	0.00213
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0010	<0.0010	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>							
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	<0.000050
<b>Volatile Organic Compounds (VOCs)</b>							
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	-	-	<0.00050	<0.00050	<0.00050
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	-	-	<u><sup>8</sup></u>	<u><sup>8</sup></u>	<u><sup>8</sup></u>
1,2-Dichlorobenzene	mg/L	0.042	-	-	<u><sup>8</sup></u>	<u><sup>8</sup></u>	<u><sup>8</sup></u>

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

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

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

The West Sedimentation Pond discharged each day during the monitoring period (November 17 – 23).

<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 did not apply during the monitoring period.

<sup>7</sup> The West Sedimentation Pond discharged through the TSS settling system (ESC system) on November 17 through November 23. From November 17 through November 23, field measurements and analytical samples were collected at station SP-W-OUT.

<sup>8</sup> Chlorobenzene and 1,2-dichlorobenzene were not analyzed in the WWTP-E-IN and WWTP-E-OUT sample collected on November 21.

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>	Station SP-W-OUT
			Effluent
			ESC-W-OUT
			VA24C9383-002
			2024-10-30
<b>Total Methylmercury</b>	<b>µg/L</b>	0.0001 <sup>2</sup>	0.000045
<b>Total Mercury</b>	<b>µg/L</b>	0.011 <sup>3,4</sup>	<0.0050

**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 D-4: Summary of West Sedimentation Pond Daily Field Parameters November 17 – 23.**

Parameter	Temperature	Dissolved Oxygen (DO)	Salinity	Turbidity	pH	Conductivity	Visibility of Sheen	Total Daily Discharge to Howe Sound from station SP-W-OUT
Unit	°C	mg/L	ppt	NTU	s.u.	µS/cm		m <sup>3</sup>
<b>PE-111578 Discharge Limit</b>	-	-	-	-	5.5 - 9.0	-	-	- <sup>3</sup>
<b>Lowest Applicable Guideline <sup>1</sup></b>	-	>=8	-	-	- <sup>2</sup>	-	-	-
Station ID <sup>4</sup>	Date							
ESC-W-IN	2024-11-17 12:33	7.6	11.71	0.10	77.2	7.0	141	No
ESC-W-OUT	2024-11-17 12:37	7.2	12.30	0.08	0.21	7.8	117	No
SP-W-IN	2024-11-17 13:17	8.7	11.46	0.09	52.56	7.4	124	No
SP-W-OUT	2024-11-17 12:42	7.3	11.86	0.09	0.86	7.9	120	No
ESC-W-IN	2024-11-18 11:26	6.9	11.87	0.10	77.43	7.0	132	No
ESC-W-OUT	2024-11-18 11:31	7.0	12.71	0.08	0.60	7.5	114	No
SP-W-OUT	2024-11-18 12:34	7.4	12.20	0.10	0.05	7.5	133	No
SP-W-IN	2024-11-19 11:19	6.0	13.10	0.09	138.56	8.6	121	No
ESC-W-IN	2024-11-19 13:01	6.3	12.03	0.15	63.23	7.8	197	No
ESC-W-OUT	2024-11-19 13:04	6.3	12.57	0.09	0.76	7.7	128	No
SP-W-OUT	2024-11-19 13:10	6.3	12.51	0.10	0.41	7.7	137	No
ESC-W-OUT	2024-11-20 11:15	5.8	12.80	0.09	0.23	7.2	123	No
ESC-W-IN	2024-11-20 11:17	5.8	12.15	0.11	139.75	6.8	143	No
SP-W-IN	2024-11-20 14:28	7.8	10.90	0.08	1770.17	9.0	107	No
SP-W-OUT	2024-11-20 11:33	5.8	12.83	0.09	0.43	7.2	126	No
SP-W-IN	2024-11-21 11:17	7.8	11.09	0.07	59.1	7.7	100	No
ESC-W-OUT	2024-11-21 11:22	6.9	12.62	0.09	1.99	7.7	127	No
ESC-W-IN	2024-11-21 11:29	6.7	11.95	0.10	145.4	7.1	139	No
SP-W-OUT	2024-11-21 11:33	6.8	12.81	0.09	1.32	7.3	128	No
ESC-W-OUT	2024-11-22 14:33	6.8	12.43	0.08	3.57	7.3	106	No
ESC-W-IN	2024-11-22 14:38	6.8	11.91	0.07	70.33	7.9	102	No
SP-W-OUT	2021-11-22 14:49	6.8	12.26	0.08	1.57	7.6	105	No
ESC-W-IN	2024-11-23 12:32	7.7	11.66	0.09	47.52	8.4	122	No
ESC-W-OUT	2024-11-23 16:01	7.5	12.16	0.08	0.95	6.9	119	No
SP-W-IN	2024-11-23 16:47	10.9	11.39	0.06	830.63	8.2	98	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.

The West Sedimentation Pond discharged each day during the monitoring period (November 17 – 23).

<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 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.

<sup>4</sup> Site staff noted there was no active input of influent sources to the pond at the time of monitoring on November 18 and 22, therefore daily measurements for station SP-W-IN were not collected on these days. The West Sedimentation Pond discharged through the TSS settling system (ESC system) November 17 to November 23. Field measurements were collected from TSS settling system effluent station ESC-W-OUT each day during the monitoring period, and from station SP-W-OUT if there was discharge at the time of monitoring.



# **Appendix E: Non-Contact Water Diversion Ditch Outlets Results**

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

Parameter	Unit	Lowest Applicable Guideline <sup>1</sup>	Station OUT-02
			Non-Contact Water Diversion Ditch Outlet
			OUT-02
			VA24C8483-001
			2024-10-23
<b>Total Methylmercury</b>	<b>µg/L</b>	0.0001 <sup>2</sup>	<0.000020
<b>Total Mercury</b>	<b>µg/L</b>	0.026 <sup>3,4</sup>	<0.0050

**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 = 0.026 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: Marine Water Receiving Environment Results***

**Table F-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	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
				VA24D0945-001	VA24D0945-002	VA24D0945-003	VA24D0945-004	VA24D0945-005	VA24D0945-006
		Long Term	Short Term	2024-11-14 14:25	2024-11-14 11:45	2024-11-14 10:15	2024-11-14 10:40	2024-11-14 12:10	2024-11-14 12:45
<b>General Parameters</b>									
pH - Field	pH units	7.0 - 8.7	-	7.1	7.4	7.6	7.4	7.3	7.4
Specific Conductivity - Field	µS/cm	-	-	7450	7369	4412	5337	5060	4668
Temperature - Field	°C	-	-	7.9	7.7	7.1	7.2	7.3	7.2
Salinity - Field	ppt	Narrative <sup>2</sup>	-	6.27	6.24	3.67	4.48	4.22	3.89
Turbidity - Field	NTU	Narrative <sup>2</sup>	Narrative <sup>2</sup>	7.45	5.8	3.87	5.14	5.14	6.26
TSS	mg/L	Narrative <sup>2</sup>	Narrative <sup>2</sup>	6.9	6.0	2.7	4.2	5.6	7.1
Dissolved Oxygen - Field	mg/L	>=8	-	11.04	11.18	11.73	11.54	11.4	11.49
<b>Anions and Nutrients</b>									
Sulphate	mg/L	-	-	503	562	215	322	503	321
Chloride	mg/L	-	-	3660	4020	1680	2410	3650	2400
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	Variable <sup>3</sup>	Variable <sup>3</sup>	0.01	0.0082	<0.0050	0.0084	0.01	0.0087
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	0.65	<0.50	<0.50	<0.50	<0.50
<b>Total Metals</b>									
Aluminum, total (T-Al)	mg/L	-	-	0.582	0.350	0.245	0.458	0.285	0.357
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	0.00063	0.0005	<0.00040	0.00042	0.00046	<0.00040
Barium, total (T-Ba)	mg/L	-	-	0.0105	0.0102	0.0066	0.0089	0.0096	0.0098
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	-	0.81	0.84	0.34	0.51	0.70	0.50
Cadmium, total (T-Cd)	mg/L	0.00012	-	0.000035	0.00003	<0.000020	0.000025	0.000025	<0.000020
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000256	0.00017	0.000122	0.00018	0.000159	0.000171
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00176	0.00158	0.00073	0.00177	0.00112	0.00119
Iron, total (T-Fe)	mg/L	-	-	0.405	0.253	0.127	0.312	0.218	0.286
Lead, total (T-Pb)	mg/L	0.002	0.14	0.00039	0.00017	<0.00010	0.00052	<0.00010	0.0001
Manganese, total (T-Mn)	mg/L	-	-	0.0149	0.0106	0.00562	0.0118	0.00977	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	-	-	0.00297	0.00242	0.00098	0.00174	0.00211	0.0014
Nickel, total (T-Ni)	mg/L	0.0083	-	0.00068	<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	-	-	0.000826	0.000688	0.000398	0.000641	0.000561	0.00039
Vanadium, total (T-V)	mg/L	0.005	-	0.00156	0.00112	0.00057	0.00102	0.00101	0.0011
Zinc, total (T-Zn)	mg/L	0.01	0.055	0.0047	0.004	<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	-	-	0.000031	0.000036	0.000022	<0.000020	0.000028	<0.000020
Copper, dissolved (D-Cu)	mg/L	-	-	0.00091	0.00098	<0.00050	0.00063	0.00092	0.00084
Iron, dissolved (D-Fe)	mg/L	-	-	0.024	0.027	0.026	0.022	0.04	0.037
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.0064	0.0051	0.00633	0.00376	0.00618	0.00558
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	0.00069	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	1.32	1.27	0.526	0.718	0.928	0.806
Vanadium, dissolved (D-V)	mg/L	-	-	0.00063	0.0006	<0.00050	<0.00050	0.00051	0.00053
Zinc, dissolved (D-Zn)	mg/L	-	-	0.0027	0.0023	0.0012	0.0012	0.0023	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>									
Acenaphthene	mg/L	0.006	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	0.000017	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
<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. The water quality data presented in the table were collected when the site was not discharging, therefore the guidelines were not evaluated.

<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 F-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
				VA24D1069-001	VA24D1069-002	VA24D1069-003	VA24D1069-004	VA24D1069-005	VA24D1069-006
		Long Term	Short Term	2024-11-15 9:30	2024-11-15 11:45	2024-11-15 10:30	2024-11-15 10:00	2024-11-15 14:25	2024-11-15 13:15
<b>General Parameters</b>									
pH - Field	pH units	7.0 - 8.7	-	7.3	7.3	7.4	7.4	7.4	<b><u>6.8</u></b>
Specific Conductivity - Field	µS/cm	-	-	4813	7174	4052	3874	15057	6666
Temperature - Field	°C	-	-	6.8	7.4	6.6	6.6	8.1	7.2
Salinity - Field	ppt	Narrative <sup>2</sup>	-	4.06	6.13	3.4	3.24	13.34	5.69
Turbidity - Field	NTU	Narrative <sup>2</sup>	Narrative <sup>2</sup>	4.27	3.77	4.25	3.41	3.02	3.54
TSS	mg/L	Narrative <sup>2</sup>	Narrative <sup>2</sup>	3.8	3.5	<2.0	2.5	3.3	3.3
Dissolved Oxygen - Field	mg/L	>=8	-	11.43	10.87	11.62	11.77	10.44	11.22
<b>Anions and Nutrients</b>									
Sulphate	mg/L	-	-	278	274	133	157	476	380
Chloride	mg/L	-	-	2160	2140	1100	1300	3610	2910
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	Variable <sup>3</sup>	Variable <sup>3</sup>	0.0111	0.0111	0.0154	0.0087	0.0105	0.0105
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	-	-	0.243	0.247	0.205	0.213	0.208	0.258
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	<0.00040	<0.00040	<0.00040	<0.00040	0.00042	<0.00040
Barium, total (T-Ba)	mg/L	-	-	0.0091	0.0098	0.0074	0.0078	0.01	0.0103
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	-	0.47	0.62	0.39	0.40	0.83	0.70
Cadmium, total (T-Cd)	mg/L	0.00012	-	<0.000020	<0.000020	<0.000020	<0.000020	0.000023	0.000026
Chromium, total (T-Cr)	mg/L	-	-	<0.00050	<0.00050	0.00103	0.00119	<0.00050	<0.00050
Cobalt, total (T-Co)	mg/L	-	-	0.000144	0.000143	0.000164	0.000241	0.000149	0.000155
Copper, total (T-Cu)	mg/L	0.002	0.003	0.00127	0.00165	0.00102	0.0011	0.0011	0.00116
Iron, total (T-Fe)	mg/L	-	-	0.2	0.201	0.156	0.17	0.179	0.222
Lead, total (T-Pb)	mg/L	0.002	0.14	<0.00010	0.00022	0.00014	<0.00010	<0.00010	0.00017
Manganese, total (T-Mn)	mg/L	-	-	0.0104	0.0106	0.00806	0.00905	0.00987	0.0108
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	-	-	0.0014	0.00169	0.00113	0.0012	0.00212	0.00178
Nickel, total (T-Ni)	mg/L	0.0083	-	<0.00050	<0.00050	0.00056	0.00071	<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	-	-	0.000403	0.000458	0.000346	0.000376	0.000641	0.000493
Vanadium, total (T-V)	mg/L	0.005	-	0.00086	0.00091	0.00066	0.00068	0.00093	0.00098
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	-	-	<0.000020	<0.000020	<0.000020	<0.000020	0.000025	<0.000020
Copper, dissolved (D-Cu)	mg/L	-	-	0.00107	0.00097	0.00074	0.00071	0.0007	0.00082
Iron, dissolved (D-Fe)	mg/L	-	-	0.044	0.04	0.038	0.037	0.038	0.042
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00744	0.00707	0.00632	0.00616	0.00679	0.00755
Nickel, dissolved (D-Ni)	mg/L	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	0.777	1.02	0.674	0.666	1.37	1.03
Vanadium, dissolved (D-V)	mg/L	-	-	0.00055	0.00058	<0.00050	<0.00050	0.0006	0.00056
Zinc, dissolved (D-Zn)	mg/L	-	-	0.0015	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>									
Acenaphthene	mg/L	0.006	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
<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. The water quality data presented in the table were collected when the site was not discharging, therefore the guidelines were not evaluated.

<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 F-3: Summary of Marine Water Quality Results for Methylmercury 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
			VA24C8528-002	VA24C8690-001	VA24C8690-002	VA24C8528-001	VA24C8690-003	VA24C8690-004
			2024-10-23	2024-10-24	2024-10-24	2024-10-23	2024-10-24	2024-10-24
<b>Total Methylmercury</b>	<b>µg/L</b>	0.0001 <sup>2</sup>	<0.000080	<0.000080	<0.000080	0.000028	<0.000080	<0.000080
<b>Total Mercury</b>	<b>µg/L</b>	0.0063 <sup>3,4</sup>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

**Notes:**

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

<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.