TECHNICAL MEMORANDUM

To:	**Ian McAllister, Ashleigh Crompton, Mike Champion, Jackie Boruch and Ryan Schucroft (Woodfibre LNG)**	**Date:**	**21 Feb 2025**
From:	**Holly Pelletier, Cheng Kuang and Patrick Mueller (Lorax)**	**Project #:**	**A633-9**
Subject:	**PE-111578 Weekly Discharge and Compliance Report #51 for February 9 – February 15**		

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 #51) was prepared by Lorax Environmental and summarizes WDA monitoring conducted for the period of February 9 – February 15. 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 #51 has been prepared to meet the requirements specified in Condition 4.2 of PE-111578:

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

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

1. Current Conditions

1.1 Water Management Infrastructure

The Construction Phase of the Woodfibre LNG Export Facility commenced in October 2023. Early-stage civil works are ongoing, and these include site grading, levelling, overburden and bedrock excavation, pouring of concrete foundations and construction of contact water management facilities. Shoring works along the foreshore areas were initiated in December 2023, and in early 2024 construction of water management infrastructure commenced and has continued through the February 9 – February 15, 2025 monitoring period. Land-based construction occurs within two areas east and west of Mill Creek. Non-contact water is intercepted and diverted around the construction areas to Howe Sound and Mill Creek. Contact water collected within the east and west catchment areas (7.12 and 5.92 ha, respectively) is conveyed to the East Wastewater Treatment Plant (WWTP) or the East and West Sedimentation Ponds for treatment or settling of suspended particulate.

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

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

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

Flocculant-based TSS settling systems are used at the East and West Sedimentation Ponds to remove TSS from non-contaminated contact water at the time of discharge. Some of the clarified water may be recirculated back to the ponds. The first West Sedimentation Pond TSS settling system (ESC) was commissioned for use on September 25, 2024, with an 820 m^3/day installed capacity. A second TSS settling system (W500GPM) was added and commissioned for use on November 28 and provides an additional 2,725 m^3/day installed capacity for clarifying water. A TSS settling system (E500GPM) for the East Sedimentation Pond was commissioned on December 4, 2024, also with 2,725 m^3/day installed capacity.

Contaminated contact water from within the East and West Catchments, and non-contaminated contact water stored in the East Sedimentation Pond are directed to the East WWTP for treatment prior to discharge to Howe Sound. Direct discharge of East WWTP treated contact water to Howe Sound was implemented October 28, 2024, until January 23, 2025, when WWTP effluent was redirected to sedimentation pond and the East Sedimentation Pond was the only source of effluent directed to Howe Sound for discharge.

The east and west catchment permanent outfall structures have not been completed. 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. In the east catchment, treated WWTP effluent is either directed to the pond or discharge tank. Clarified E500GPM effluent is directed to the discharge tank prior to discharge at location SP-E-OUT since December 2, 2024. The west catchment discharge location, SP-W-OUT, receives the combined clarified effluents from the ESC and W500GPM TSS settling systems since November 28, 2024. Each of the authorized discharge locations has an initial dilution zone (IDZ) where discharged water mixes with Howe Sound surface waters. The IDZ is defined in PE-111578 and extends 150 m from each point of discharge into Howe Sound.

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

1.2 Weather and Water Management

Variable weather was observed during the monitoring period (February 9 – February 15), with light precipitation recorded February 9 and 15. The total precipitation amount during the monitoring period was 6.0 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
02-09-2025	1.4	1.8	-3.5	Mix of Sun and Cloud
02-10-2025	0.2	4.0	-5.6	Mix of Sun and Cloud
02-11-2025	0.2	2.3	-6.6	Mix of Sun and Cloud
02-12-2025	0	4.3	-6.1	Mix of Sun and Cloud
02-13-2025	0	7.3	-4.3	Mix of Sun and Cloud
02-14-2025	0	7.8	-1.8	Mix of Sun and Cloud
02-15-2025	4.2	2.0	-0.5	Overcast

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

From February 9 – February 15, the East Sedimentation Pond did not receive any contact water (Appendix A, Figure 2). Contact waters from Area 4100 sump were directed to the West Sedimentation Pond (Appendix A, Figure 3).

Routine operation of the East WWTP continued during the monitoring period. Contact waters from the concrete batch plant were periodically directed to the East WWTP for treatment, as well as water stored in the East Sedimentation Pond (Appendix A, Figure 2 and Figure 3). East WWTP treated effluent was discharged to the East Sedimentation Pond each day during the monitoring period and East Sedimentation Pond water clarified through the E500GPM TSS settling system was recirculated to the East Sedimentation Pond on February 9, 14, and 15. The East Catchment did not discharge to Howe Sound February 9 – February 15. Daily water volumes processed by the East WWTP and the East TSS settling system (E500GPM) are provided in Appendix B (Table B-6).

West Sedimentation Pond water was clarified through the W500GPM settling system and recirculated to the West Sedimentation Pond on February 13, 14, and 15. The ESC TSS settling system was not operational during the monitoring period. The West Catchment did not discharge to Howe Sound February 9 – February 15. Daily clarified effluent volumes from the TSS settling systems are provided in Appendix C (Table C-3).

2. Monitoring Summary

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

Compliance and supplementary monitoring stations have been established:

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

- Creek water monitoring stations for Woodfibre, Mill and East Creek (SW-01, SW-02, SW-03, SW-04, SW-07).
- Contact water monitoring locations (SP-E-IN, SP-E-NE, SP-E-NW, E500GPM-IN, E500GPM-OUT, WWTP-E-IN, WWTP-E-OUT, SP-W-IN, SP-W-W, SP-W-E, ESC-W-IN, ESC-W-OUT, W500GPM-IN and W500GPM-OUT).
- Effluent compliance stations (SP-E-OUT and SP-W-OUT).
- Howe Sound reference and IDZ monitoring stations (WQR1, WQR2, IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2).

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

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

Water quality was monitored at stations IDZ-E1, IDZ-E2, IDZ-W1, IDZ-W2, WWTP-E-IN, WWTP-E-OUT, SP-E-IN, E500GPM-IN, E500GPM-OUT, SP-W-IN, W500GPM-IN, and W500GPM-OUT during the monitoring period (February 9 – February 15). Sampling dates and parameters tested are summarized in Table 2.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (February 9 – February 15) were met. Non-contact water diversion ditch outlet OUT-06 was dry at times of monitoring throughout the month of January. A monitoring sample for non-contact diversion ditch outlet (OUT-06) was collected February 1 following a precipitation event, and the monthly monitoring requirement is considered met with this sample for the month of January.

Daily field parameters were not collected at effluent stations SP-E-OUT and SP-W-OUT (February 9 – February 15) since there was no effluent discharged from the authorized discharge locations during the monitoring period. 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 February 9 – February 15.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
February 9, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
February 10, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters, Total and Dissolved Mercury.	D, P
	WWTP-E-OUT	East WWTP at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
February 11, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
February 12, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
February 13, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
February 14, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	WWTP-E-IN	East WWTP at the influent meter box	Field Parameters.	D
	WWTP-E-OUT	East WWTP at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field Parameters.	D
	W500GPM-IN	West Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field Parameters.	P
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
February 15, 2025	SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W_1, W_2
	WWTP-E-IN	East WWTP at the influent meter box	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W_1, W_2
	WWTP-E-OUT	East WWTP at the effluent meter box		
	E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box	Field & Physical Parameters, Total, Dissolved and Speciated Metals, & Methylmercury.	P
	E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
	SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans.	D, W_1, W_2
	W500GPM-OUT	West Sedimentation Pond 500 GPM TSS settling system at the effluent meter box	Field Parameters.	P
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field and Physical Parameters.	W_3
	IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
	IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
	IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
	IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
	IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
	IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface		
	IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
	IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
	IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
	IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
	IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		

Notes:
Monitoring frequency requirements under PE-111578 are indicated as follows:
D – daily monitoring of field parameters at WWTP and sedimentation pond influent and effluent stations.
M – monthly monitoring for all parameters at WWTP, sedimentation pond and receiving environment stations.
W_1 – initial high frequency monitoring for physical parameters at WWTP and sedimentation pond influent and effluent stations.
W_2 – initial high frequency monitoring for all parameters at WWTP and sedimentation pond influent and effluent stations.
W_3 – initial high frequency monitoring for physical parameters at IDZ stations.
P – periodic monitoring for targeted parameters that is supplementary to PE-111578 requirements.

3. Water Quality Results

3.1 Screening and Reporting Overview

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

Canadian, Federal and BC WQGs are not specified for dioxins and furans. The general term "dioxins and furans" refers to 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 levels that could harm wildlife that consumes fish. Therefore, if methylmercury results are reported, the 0.0001 µg/L value is presented as a methylmercury WQG to support the interpretation of total mercury and methylmercury results.

3.2 Summary of Reported Results

Field measurements and analytical results available at the time of reporting for samples collected during the monitoring period (February 9 – February 15) 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:

- WWTP-E-IN and WWTP-E-OUT collected January 24 (dioxins and furans)
- SW-01, SW-02, and SW-03 collected January 24 (dioxins and furans)
- SW-04 and SW-07 collected January 25 (dioxins and furans)
- WWTP-E-IN and WWTP-E-OUT collected January 28 (dioxins and furans)
- SP-W-IN collected January 30 (dioxins and furans)
- SP-E-OUT collected January 31 (dioxins and furans)
- SP-W-OUT collected February 1 (dioxins and furans)
- WWTP-E-IN and WWTP-E-OUT collected February 5 (dioxins and furans)
- SP-E-IN and SP-W-IN collected February 7 (methylmercury, dioxins and furans)
- SP-E-IN, WWTP-E-IN, WWTP-E-OUT, E500GPM-OUT, E500GPM-IN, and SP-W-IN collected February 15 (all analytical parameters)
- IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 collected February 15 (field and all analytical parameters)

Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #51.

Sample	Description	Sampling Date	Parameters Reported
IDZ-E-SED	Marine sediment from the East Catchment IDZ	December 23, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, Methylmercury, Dioxins and Furans.
IDZ-W-SED	Marine sediment from the West Catchment IDZ		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface	January 9, 2025	Dioxins and Furans.
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
WQR2-0.5	Reference site 2; 0.5 m below surface		
WQR2-2m	Reference site 2; 2 m below surface		
WQR2-SF	Reference site 2; 2 m above the seafloor		
WWTP-E-IN	East WWTP at the influent meter box	January 14, 2025	Dioxins and Furans.
WWTP-E-OUT	East WWTP at the effluent meter box		
SP-W-IN	West Sedimentation Pond influent entering the pond and collected at cell 1		
SP-W-OUT	West Sedimentation Pond clarified effluent discharge to Howe Sound, collected at sampling port		
SP-E-IN	East Sedimentation Pond influent entering the pond and collected at cell 1	January 16, 2025	Dioxins and Furans.
SP-E-OUT	East Sedimentation Pond clarified and/or treated effluent discharge to Howe Sound, collected at sampling port		
OUT-01	Non-contact water diversion ditch outlet	January 31, 2025	Methylmercury.
OUT-02	Non-contact water diversion ditch outlet		
OUT-06	Non-contact water diversion ditch outlet	February 1, 2025	Field, Physical and General Parameters, Total and Dissolved Metals, and Methylmercury.
WWTP-E-IN	East WWTP at the influent meter box	February 5, 2025	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
WWTP-E-OUT	East WWTP at the effluent meter box		
E500GPM-IN	East Sedimentation Pond 500 GPM TSS settling system at the influent meter box		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
E500GPM-OUT	East Sedimentation Pond 500 GPM TSS settling system at the effluent meter box		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	February 7, 2025	Field and Physical Parameters.
IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
IDZ-W1-0.5	Howe Sound IDZ station W1; 0.5 m below surface		
IDZ-W1-2m	Howe Sound IDZ station W1; 2 m below surface		
IDZ-W1-SF	Howe Sound IDZ station W1; 2 m above the seafloor		
IDZ-W2-0.5	Howe Sound IDZ station W2; 0.5 m below surface		
IDZ-W2-2m	Howe Sound IDZ station W2; 2 m below surface		
IDZ-W2-SF	Howe Sound IDZ station W2; 2 m above the seafloor		
WWTP-E-IN	East WWTP at the influent meter box	February 10, 2025	Field Parameters, Total and Dissolved Mercury.
WWTP-E-OUT	East WWTP at the effluent meter box		

3.3 East Catchment

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

During the monitoring period (February 9 – February 15), the East Catchment did not discharge to Howe Sound.

Field measurements were collected February 9 – February 15 at multiple influent and effluent locations, as outlined in Section 2, and are tabulated in Appendix B, Table B-5. Analytical samples collected on February 5 (stations WWTP-E-IN, WWTP-E-OUT, E500GPM-IN, and E500GPM-OUT as discussed in Report #50) and February 10 (stations WWTP-E-IN and WWTP-E-OUT) were available at the time of reporting. Only field parameters, total and dissolved mercury were collected February 10. Screening results for East Catchment contact water quality are tabulated in Table B-1 and Table B-2, respectively, of Appendix B.

Field pH was above the upper limit of the MDO in the East WWTP effluent sample (WWTP-E-OUT) collected February 10. East WWTP treated effluent was directed to the East Sedimentation Pond and did not discharge to Howe Sound on February 10. This item is tracked in Table 5.

Methylmercury analytical results were available at the time of reporting for WWTP influent and effluent (WWTP-E-IN and WWTP-E-OUT, respectively) collected February 5 (as discussed in Report #50). Methylmercury was detected at 0.000069 µg/L in the WWTP-E-OUT sample and met the WQG (0.0001 µg/L, refer to Section 3.1). The East WWTP effluent was recirculated to the East Sedimentation Pond and did not discharge to Howe Sound on February 5. Results are tabulated in Appendix B, Table B-3.

Dioxin and furan analytical results were reported for WWTP influent and effluent (WWTP-E-IN and WWTP-E-OUT) collected January 14 (as discussed in Report #47). Results were also reported for East Sedimentation Pond influent (SP-E-IN) and effluent discharged at station SP-E-OUT on January 16 (as discussed in Report #47). The PCDD/F TEQ concentrations in the effluent sample

collected January 16 at SP-E-OUT were 0.0142 pg/L (lower bound) and 0.726 pg/L (upper bound). Results are presented in Appendix B, Table B-4.

3.4 West Catchment

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

During the monitoring period (February 9 – February 15), the West Catchment did not discharge to Howe Sound.

Field measurements were collected February 9 – February 15 at multiple influent and effluent locations, as outlined in Section 2, and are tabulated in Appendix C, Table C-2. Analytical results were not available at the time of reporting for West Sedimentation Pond influent (station SP-W-IN) collected February 15.

Dioxin and furan results were reported for West Sedimentation Pond influent (station SP-W-IN) and effluent discharged at station SP-W-OUT on January 14 (as discussed in Report #47). The PCDD/F TEQ concentrations in the January 14 station SP-W-OUT effluent sample was 0.00832 pg/L (lower bound) and 1.01 pg/L (upper bound). Results are presented in Appendix C, Table C-1.

3.5 Non-Contact Water Diversion Ditch Outlets

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

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

Analytical results were available at the time of reporting for the February 1 non-contact water diversion ditch outlet samples collected at station OUT-06 (as discussed in Report #49). Parameter concentrations met WQGs, and PAHs were not detected.

Methylmercury analytical results were available at the time of reporting for non-contact water diversion ditch outlet samples collected January 31 (OUT-01 and OUT-02) and February 1 at OUT-06 (as discussed in Report #49). Methylmercury concentrations ranged from 0.000034 to 0.000055 µg/L and met the WQG (0.0001 µg/L, refer to Section 3.1) in all samples. Results are tabulated in Appendix D, Table D-2.

3.6 Freshwater and Estuarine Water Receiving Environment

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

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

3.7 Marine Receiving Environment

3.7.1 Marine Water Quality

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

Analytical results and field measurements were available at the time of reporting for marine water samples collected at 0.5 and 2 m below the water surface and 2 m above the seafloor on February 7 at IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2 (as discussed in Report #50). Only field and physical parameters were collected on February 7. Parameter concentrations met WQGs except dissolved oxygen in some samples (Appendix E; Tables E-1 through E-2).

In the marine samples collected 2 m above the seafloor at IDZ-E1, IDZ-E2, IDZ-W1, and IDZ-W2, and in the sample collected at 2 m below the water surface at IDZ-E2 on February 7, dissolved oxygen was below the lower limit of the WQG (<8 mg/L) and ranged from 5.94 to 7.92 mg/L. Low concentrations of dissolved oxygen are indicative of influence from the deeper saline waters in the northern basin of Howe Sound and are a natural condition of the marine water at the WDA monitoring stations. The dissolved oxygen concentrations observed at the IDZ monitoring stations are within concentrations that have been observed in the pre-construction baseline monitoring program or within background ranges observed at marine reference stations and are therefore not attributed to project influence.

Dioxins and furans analytical results were available at the time of reporting for marine samples collected from 0.5 and 2 m below the water surface and 2 m above the seafloor at stations IDZ-W1, IDZ-W2, and marine reference station WQR2 on January 9 (as discussed in Weekly Report #46). For all samples, the lower and upper bound PCDD/F TEQ concentrations ranged from 0 to 0.00598 pg/L, and 0.737 to 1.38 pg/L, respectively. The lower and upper bound PCDD/F TEQ concentrations were within the concentration ranges observed in the baseline monitoring program or within background ranges observed at marine reference stations. Results are tabulated in Appendix E, Table E-3.

3.7.2 Marine Sediment Quality

Annual monitoring of marine sediment collected within the IDZ was conducted in December 2024. Sediment quality is screened against British Columbia Contaminated Sites Regulation (CSR) Schedule 3.4 generic numerical marine and estuarine sediment standard for sensitive use, Canadian Council of Ministers of the Environment (CCME) interim sediment quality guidelines (ISQG) and probable effects levels (PEL), as well as the British Columbia working sediment quality guidelines (BC WSQG) for the protection of benthic aquatic life in marine environments. Parameter concentrations above a reference value and outside the upper range of values observed in the baseline monitoring program are evaluated for project influence.

Analytical results for sediment samples collected from the East and West Catchment IDZs (IDZ-E-SED and IDZ-W-SED, respectively) were available at the time of reporting (Appendix E, Table E-4). Marine sediments were monitored within the IDZ of the sedimentation pond discharge locations (Figure 6). Concentrations of several total metals (arsenic, cadmium, copper, lead, mercury and zinc) were above the corresponding interim sediment quality guidelines (ISQG) and probable effects levels (PEL), by up to 32.1 times and 5.6 times respectively. Of the metal parameters, concentrations of copper most frequently exceeded the guideline. Concentrations of PAHs (acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, 2-methylnaphthalene, naphthalene, phenanthrene and pyrene) in the samples collected from the east and east IDZ areas were above the

corresponding Canadian and BC reference values. Marine sediment samples collected from the west IDZ (west of Mill Creek) were noted to contain woody debris with visible creosote and an oily sheen at the time of sampling, and the PAH concentrations were up to 226 times greater than the samples collected from the east IDZ.

Concentrations of Aroclor 1254 and total polychlorinated biphenyls (PCB) were below detection limit in all marine sediment samples; however, detection limits are up to 28 times greater than the ISQG value and up to 3.2 times greater than the PEL value (total PCB).

The lower-bound and upper-bound PCDD/F TEQ concentrations were up to 101 times greater than the ISQG value and up to 4 times greater than the PEL value in the IDZ samples, with the highest values detected in sediment from the west IDZ.

The concentrations of the parameters that exceed reference values were within the upper ranges observed during baseline monitoring and are not attributable to project influence, except PCDD/F TEQ (Table 4). The PCDD/F TEQ concentrations in the IDZ sediment samples ranged from 35.2 to 86.0 ng/kg above the upper range observed during baseline monitoring (26.4 ng/kg), with the highest values from the west IDZ samples that were noted to contain creosote and hydrocarbon residues. During baseline monitoring significant variability was observed in the west IDZ field duplicate and a similar observation is noted for the west IDZ field duplicate collected in 2024, therefore it is speculated the PCDD/F results reflect heterogeneous distribution of these compounds in marine sediments rather than influence from construction contact water effluent.

Table 4:
Summary of Parameters Exceeding Sediment Reference Values in IDZ-E and IDZ-W Samples for Analytical Results Available at the Time of Reporting

Parameter	Units	N	N > CSR	N > CCME ISQG	N > CCME PEL	N > BC WSQG (Lower)	N > BC WSQG (Upper)	Commentary
Aroclor 1254	mg/kg	4	0	4	0	0	0	Concentrations of Aroclor 1254 were below detection limit in all marine sediment samples; however, detection limits are up to 3.2 times greater than the ISQG value. Concentrations of total PCBs were below detection limit in all marine sediment samples; however, detection limits are up to 28.0 times greater than the ISQG value, up to 3.2 times greater than the PEL value, and up to 162,973 times greater than the lower BC WSQG. Values were above the upper ranges observed during baseline monitoring; however, all values were below detected limits.
Total Polychlorinated Biphenyls (PCB)	mg/kg	4	0	4	4	4	0	
PCDD/F TEQ Lower Bound	ng/kg	4	0	4	4	0	0	Lower-bound and upper-bound PCDD/F TEQ concentrations were up to 101 times greater than the ISQG value and up to 4 times greater than the PEL value. Concentrations were above the upper ranges observed during baseline monitoring, with the highest values from the west IDZ samples that were noted to contain creosote and hydrocarbon residues. Creosote is not discharged from the project to Howe Sound, therefore it is speculated the PCDD/F results reflect sediment heterogeneity within the IDZ areas due to residual sediment contamination from historic pulp mill operations.
PCDD/F TEQ Upper Bound	ng/kg	4	0	4	4	0	0	

Notes:

CSR= CSR Schedule 3.4 generic numerical sediment standard – marine and estuarine sediment standard for sensitive use.
CCME = Canadian Council of Ministers of the Environment
ISQG = Interim Sediment Quality Guidelines
PEL = Probable Effects Levels
BC WSQG = British Columbia working sediment quality guideline for the protection of benthic aquatic life in marine environments. The lower BC WSQG is equivalent to the CCME ISQG and the upper BC WSQG is equivalent to the CCME PEL.
N = number of samples.
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. 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.

4. Quality Control

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

Table 5: Weekly Report QC Evaluations and Ongoing Items

QC Procedure	Observation	Investigation/Resolution
Reporting Period (February 9 – February 15, Report #51)		
Authorized Works and Monitoring Program Evaluation	The authorized works and monitoring stations have not been established as described in PE-111578.	The PE-111578 authorized works were under construction during the reporting period. The East and West Sedimentation Ponds and WWTPs have been constructed. The sedimentation pond conveyance ditches have not been constructed, and influent culverts have not been activated, and the associated influent monitoring stations have not been established. 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, 2024, and the plant has been repurposed to evaluate alternative treatment processes. The lower reach of East Creek has been temporarily diverted through OUT-11 outfall since September 17, 2024, to facilitate replacement of the East Creek outfall culvert (OUT-12). East Creek is monitored at SW-04 therefore monitoring at OUT-11 has been suspended. As communicated to BCER, the East Catchment discharge pathway for authorized discharge location SP-E-OUT was reconfigured on October 28, 2024, to direct sedimentation pond water to the East WWTP and to discharge East WWTP treated effluent. On November 28 and December 4, 2024, TSS settling systems were commissioned for use at the West and East Sedimentation Ponds, respectively, and are configured to discharge the clarified sediment pond water to Howe Sound. This item remains open.
WWTP Performance Evaluation	Field pH, T-Cu, T-Hg, T-Zn, and hexavalent Cr above the MDO	This item was first noted in Report #46 (January 8 sample) and has been updated with January 14 results (Report #47), January 24 and January 28 results (Report #49), February 5 and 6 results (Report #50), and February 10 results (this report). The total copper concentration was 0.00809, 0.00595, 0.00895, and 0.00518 mg/L in samples collected at WWTP-E-OUT on January 8, 14, 24, and 28, respectively. The total mercury concentrations were 0.0000355 and 0.000185 mg/L in samples collected on January 24 and 30, the total zinc concentration was 0.0137 mg/L in the sample collected on January 24, and hexavalent chromium concentrations were 0.00197 and 0.00166 mg/L in samples collected January 24 and 28 at WWTP- E-OUT. Field pH was 9.1, 9.2, and 9.6 in samples collected at WWTP-E-OUT on February 5, 6 and 10, respectively. Review of possible causes is ongoing. The effluent discharged to Howe Sound at SP-E-OUT met the discharge limits on January 8. East WWTP effluent was routed to the pre-discharge holding tank and did not discharge to Howe Sound on January 14. East WWTP effluent has been directed to the East Sedimentation Pond since January 24. This item remains open.
Pending Data	Analytical results not reported.	Analytical results for contact water and receiving environment samples collected February 15 were not complete at the time of Report #51 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Ongoing Items from Previous Weekly Reports		
Report #46: Pending Data	Analytical results not reported.	Dioxins and furans results for marine receiving environment samples collected January 9 are discussed in Section 3.7 of Report #51. This item is closed.
Report #47: Pending Data	Analytical results not reported.	Dioxins and furans results for samples collected January 14 and 16 are discussed in Sections 3.3 and 3.4 of Report #51. This item is closed.
Report #48: Pending Data	Analytical results not reported.	Dioxins and furans results for samples collected January 24 and 25 were not complete at the time of Report #51 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #49: Non-Compliant Effluent	Non-compliant discharge from the East Catchment on January 31.	Total copper measured in one of four replicate samples collected at station SP-E-OUT on January 31 was 1.2 times above the PE-111578 discharge limit. These results are included in an enhanced sampling and testing program for total copper and zinc that is ongoing. Results to date suggest copper contamination is introduced in the sampling and/or testing process; however, the source has not yet been isolated. BCER was notified on February 3. Review of the non-compliance is underway, and outcomes will be communicated to BCER. This item remains open.
Report #49: Data QC	D-Cu and D-Zn greater than T-Cu and T-Zn	The dissolved copper and zinc concentrations were 2.2 to 2.5 times greater than the total copper concentration and 1.5 to 1.8 times the total zinc concentrations in two of four replicate samples collected at SP-E-OUT on January 31. It is suspected that the dissolved metal sample bottles were contaminated during sample processing. Enhanced sampling and testing for copper and zinc is ongoing to identify specific sources of contamination. This item remains open.
Report #49: Pending Data	Analytical results not reported.	Analytical results for non-contact water diversion ditch outlet sample (OUT-06) collected February 1 are discussed in Section 3.5 of Report #51. Methylmercury results for samples collected January 31 are discussed in Section 3.5 of Report #51. Dioxin and furans results for samples collected January 28, 30, 31, and February 1 were not complete at the time of Report #51 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #50: Pending Data	Analytical results not reported.	Analytical results for samples collected February 5 and 7 are discussed in Sections 3.3 and 3.7 of Report #51, respectively. Methylmercury, dioxin and furans results for samples collected February 5 and 7 were not complete at the time of Report #51 preparation. The pending results will be included in future weekly reports when available. This item remains open.

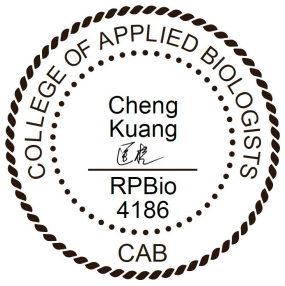
Notes:
Result QA/QC screening includes the evaluation of field and lab QC results, comparison of total and dissolved metal results and review for modified detection limits.
Pending data are outstanding results from monitoring samples reported in the current or previous weekly reports.
Authorized works 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.

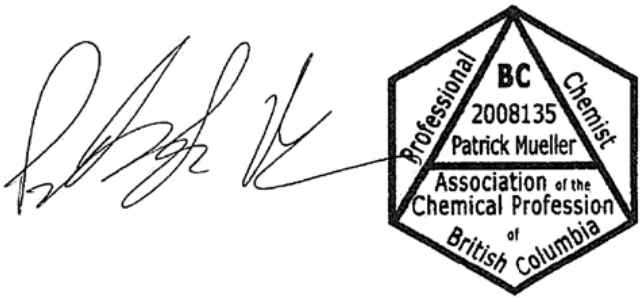
Regards,

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

LEGEND

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

DATE SAVED:	Feb 20, 2025
DRAWN BY:	DM
REVIEWED:	PM
VERSION:	1

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

1:6,000

0 50 100 150 Metres

CLIENT: Woodfibre LNG

LORAX ENVIRONMENTAL

PROJECT:

Woodfibre LNG Project Construction Phase

TITLE:
Completed or Under Construction Water Management Facilities and Established PE-111578 Monitoring Stations (February 15, 2025)

PROJECT #: A633-7 FIGURE: 1

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

Figure 2: East Catchment contact water management facilities (February 9 – February 15).

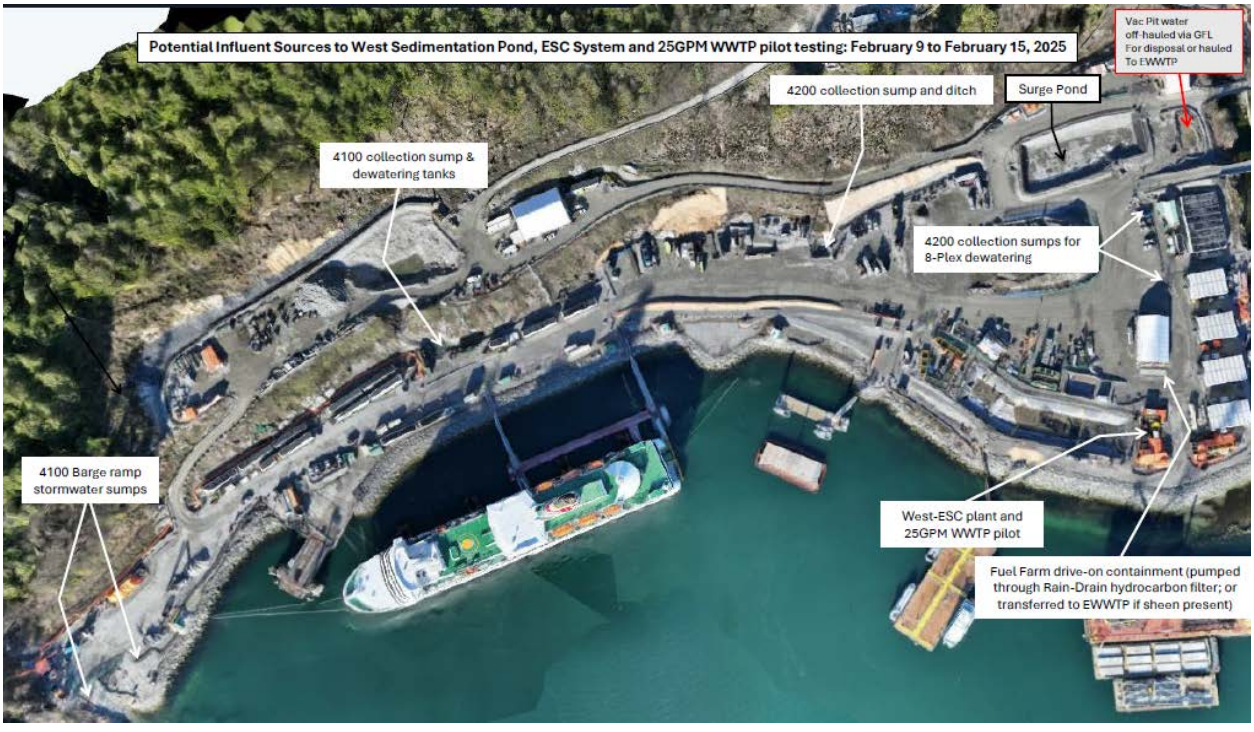


Figure 3: West Catchment contact water management facilities (February 9 – February 15).

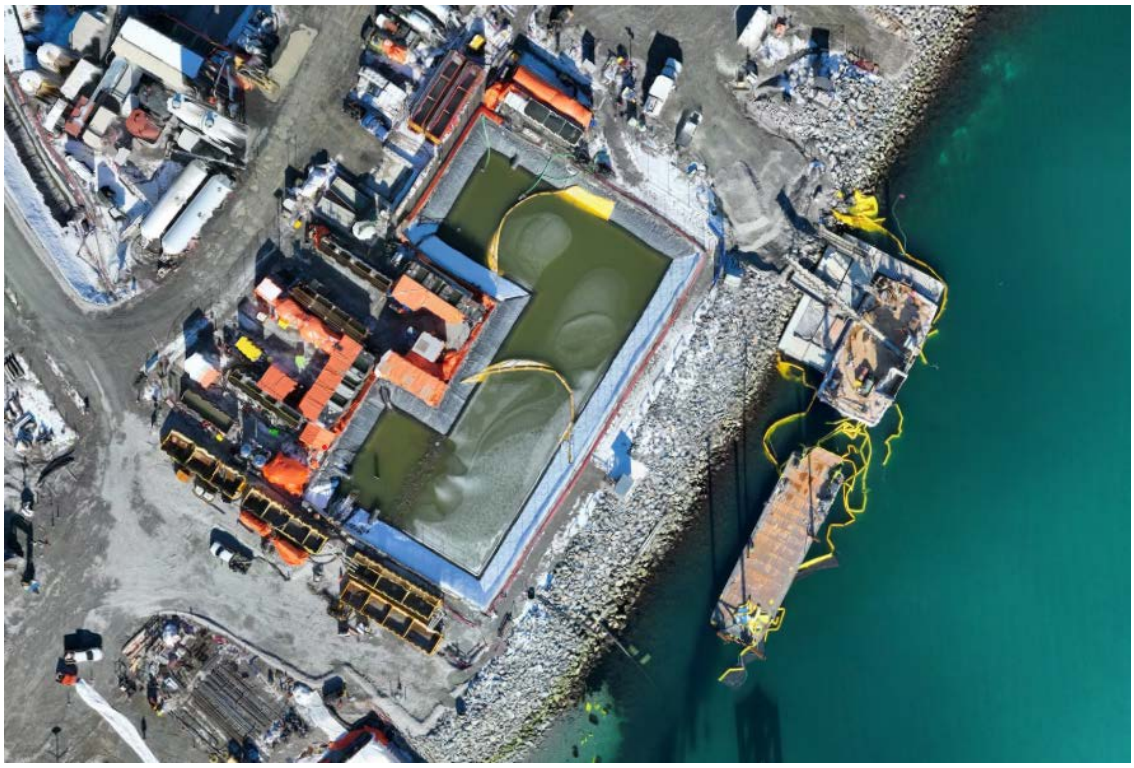


Figure 4: Aerial view of the East Sedimentation Pond (February 14, 2025). The East WWTP is located on the left side and the E500GPM TSS settling system is situated along the bottom edge of the pond.

Figure 5: Aerial view of the West Sedimentation Pond (February 14, 2025). The TSS settling systems are located to the left (W500GPM) and right (ESC) of the pond.

LEGEND

- IDZ Marine Sediment Sampling (December 2024)
- IDZ Baseline Sediment Sampling
- Outfall
- Watercourse
- East Creek Temporary Diversion

DATE SAVED:	Feb 21, 2025
DRAWN BY:	DM
REVIEWED:	PM
VERSION:	1

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

1:3,000

0 20 40 60 80 Metres

CLIENT: Woodfibre LNG

LORAX ENVIRONMENTAL

PROJECT: **Woodfibre LNG Project Construction Phase**

TITLE: IDZ Marine Sediment Monitoring Locations

PROJECT #: A633-7

FIGURE: 6

P:\@Drafting\Woodfibre\Drafting Figures\APRX\WLNG Marine Sediment Sampling\2024 Sampling\2024 Sampling\2024 Sampling.aprx Figure 6 IDZ - Marine Environment Monitoring

Appendix B: East Catchment Monitoring Results

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

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	Station WWTP-E-IN	Station E500GPM-IN	Station WWTP-E-IN
					Influent	Influent	Influent
					WWTP-E-IN	E500GPM-IN	WWTP-E-IN
					VA25A2524-001	VA25A2524-003	VA25A2962-001
		Long Term	Short Term		2025-02-05 11:20	2025-02-05 10:00	2025-02-10 14:35
General Parameters							
pH - Field	pH units	- [2]	-	5.5 - 9.0	8.9	8.9	8.7
Conductivity - Field	µS/cm	-	-	-	1386	1354	1634
Temperature - Field	°C	-	-	-	1.2	0.7	3.1
Salinity - Field	ppt	-	-	-	1.29	1.28	1.44
Turbidity - Field	NTU	-	-	-	2.64	1.43	0.84
TSS	mg/L	-	-	25 [6]	<3.0	<3.0	-[8]
Dissolved Oxygen - Field	mg/L	≥8	-	-	15.10	15.62	14.42
Anions and Nutrients							
Sulphate	mg/L	-	-	-	756	741	-[8]
Chloride	mg/L	-	-	-	18.9	19	-[8]
Fluoride	mg/L	-	1.5	-	<0.400	<0.400	-[8]
Ammonia (N-NH_3)	mg/L	0.69 [3]	4.6 [3]	-	<0.0050	<0.0050	-[8]
Nitrite (N-NO_2)	mg/L	-	-	-	0.0296	0.0351	-[8]
Nitrate (N-NO_3)	mg/L	3.7	339	-	0.435	0.424	-[8]
Total Metals							
Aluminum, total (T-Al)	mg/L	-	-	-	0.0974	0.0863	-[8]
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00136	0.00139	-[8]
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00294	0.00291	-[8]
Barium, total (T-Ba)	mg/L	-	-	-	0.00516	0.00463	-[8]
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000040	<0.000040	-[8]
Boron, total (T-B)	mg/L	1.2	-	-	<0.020	<0.020	-[8]
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000300	<0.0000250	-[8]
Chromium, total (T-Cr)	mg/L	-	-	-	0.00129	0.00131	-[8]
Cobalt, total (T-Co)	mg/L	-	-	-	<0.00020	<0.00020	-[8]
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00317	0.00152	-[8]
Iron, total (T-Fe)	mg/L	-	-	-	0.037	0.044	-[8]
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.000179	<0.000100	-[8]
Manganese, total (T-Mn)	mg/L	-	-	-	0.0112	0.0117	-[8]
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	***0.0000198***	***0.0000178***	***0.0000497***
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.12	0.12	-[8]
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00100	<0.00100	-[8]
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000474	0.00049	-[8]
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000020	<0.000020	-[8]
Thallium, total (T-Tl)	mg/L	-	-	-	0.000023	0.000026	-[8]
Uranium, total (T-U)	mg/L	-	-	-	0.0312	0.0315	-[8]
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00183	0.00187	-[8]
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	<0.0060	<0.0060	-[8]
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00080	0.00078	-[8]
Dissolved Metals							
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000250	<0.0000300	-[8]
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00216	0.00128	-[8]
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.020	<0.020	-[8]
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000100	<0.000100	-[8]
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0108	0.0115	-[8]
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00100	<0.00100	-[8]
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.149	0.15	-[8]
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00165	0.0017	-[8]
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0020	<0.0020	-[8]
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010	-[8]
Acridine	mg/L	-	-	-	<0.000010	<0.000010	-[8]
Anthracene	mg/L	-	-	-	<0.000010	<0.000010	-[8]
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010	-[8]
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050	-[8]
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	-[8]
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010	-[8]
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010	-[8]
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	-[8]
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	-[8]
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	-[8]
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020	-[8]
Pyrene	mg/L	-	-	-	<0.000010	<0.000010	-[8]
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	-[8]
Volatile Organic Compounds (VOCs)							
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050	-[8]
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	-[8]
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	-[8]
Styrene	mg/L	-	-	-	<0.00050	<0.00050	-[8]
Toluene	mg/L	0.215	-	-	<0.00040	<0.00050	-[8]
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	-[8]
Chlorobenzene	mg/L	0.025	-	-	<0.00050	-[7]	-[8]
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	-[7]	-[8]

Notes: Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-111578 East Sedimentation Pond Discharge Limit.
The East Sedimentation Pond did not discharge during the monitoring period (February 9 – February 15).
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document.
[4] The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.
[5] When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.
[6] The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for Wet Conditions. Wet Conditions did not apply during the monitoring period.
[7] Chlorobenzene and 1,2-dichlorobenzene were not tested in the E500GPM-IN sample collected February 5.
[8] Only field parameters and total and dissolved mercury were tested for the WWTP-E-IN sample collected February 10.

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

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	Station WWTP-E-OUT	Station E500GPM-OUT	Station WWTP-E-OUT
					Effluent	Effluent	Effluent
					WWTP-E-OUT	E500GPM-OUT	WWTP-E-OUT
					VA25A2524-002	VA25A2524-004	VA25A2962-002
		Long Term	Short Term		2025-02-05 11:00	2025-02-05 10:30	2025-02-10 14:42
General Parameters							
pH - Field	pH units	- [2]	-	5.5 - 9.0	9.1 [7]	8.8	9.6 [7]
Conductivity - Field	µS/cm	-	-	-	1371	1481	1756
Temperature - Field	°C	-	-	-	0.9	3.1	4.2
Salinity - Field	ppt	-	-	-	1.29	1.3	1.51
Turbidity - Field	NTU	-	-	-	1.02	0.62	0.97
TSS	mg/L	-	-	25 [6]	<3.0	<3.0	-[9]
Dissolved Oxygen - Field	mg/L	≥8	-	-	15.55	14.78	14.57
Anions and Nutrients							
Sulphate	mg/L	-	-	-	707	735	-[9]
Chloride	mg/L	-	-	-	18	18.7	-[9]
Fluoride	mg/L	-	1.5	-	<0.400	<0.400	-[9]
Ammonia (N-NH_3)	mg/L	0.44-0.69 [3]	2.9-4.6 [3]	-	<0.0050	<0.0050	-[9]
Nitrite (N-NO_2)	mg/L	-	-	-	0.0307	0.0319	-[9]
Nitrate (N-NO_3)	mg/L	3.7	339	-	0.442	0.413	-[9]
Total Metals							
Aluminum, total (T-Al)	mg/L	-	-	-	0.0663	0.0618	-[9]
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00133	0.00137	-[9]
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00301	0.00283	-[9]
Barium, total (T-Ba)	mg/L	-	-	-	0.00419	0.00448	-[9]
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000040	<0.000040	-[9]
Boron, total (T-B)	mg/L	1.2	-	-	<0.020	<0.020	-[9]
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000250	<0.0000300	-[9]
Chromium, total (T-Cr)	mg/L	-	-	-	0.0012	0.00116	-[9]
Cobalt, total (T-Co)	mg/L	-	-	-	<0.00020	<0.00020	-[9]
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00141	0.00129	-[9]
Iron, total (T-Fe)	mg/L	-	-	-	<0.020	<0.020	-[9]
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	<0.000100	<0.000100	-[9]
Manganese, total (T-Mn)	mg/L	-	-	-	0.0062	0.0122	-[9]
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	***0.0000171***	0.0000139	***0.0000306***
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.118	0.122	-[9]
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.00100	<0.00100	-[9]
Selenium, total (T-Se)	mg/L	0.002	-	-	0.00039	0.000412	-[9]
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000020	<0.000020	-[9]
Thallium, total (T-Tl)	mg/L	-	-	-	<0.000020	0.000021	-[9]
Uranium, total (T-U)	mg/L	-	-	-	0.0312	0.0328	-[9]
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00168	0.00184	-[9]
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	<0.0060	<0.0060	-[9]
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00078	0.00079	-[9]
Dissolved Metals							
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000250	<0.0000200	-[9]
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00118	0.0012	-[9]
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.020	<0.020	-[9]
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000100	<0.000100	-[9]
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0061	0.0122	-[9]
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00100	<0.00100	-[9]
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.154	0.149	-[9]
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.0016	0.00174	-[9]
Zinc, dissolved (D-Zn)	mg/L	-	-	-	<0.0020	<0.0020	-[9]
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010	-[9]
Acridine	mg/L	-	-	-	<0.000010	<0.000010	-[9]
Anthracene	mg/L	-	-	-	<0.000010	<0.000010	-[9]
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010	-[9]
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050	-[9]
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	-[9]
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010	-[9]
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010	-[9]
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	-[9]
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	-[9]
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	-[9]
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020	-[9]
Pyrene	mg/L	-	-	-	<0.000010	<0.000010	-[9]
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	-[9]
Volatile Organic Compounds (VOCs)							
Benzene	mg/L	0.11	-	-	<0.00050	<0.00050	-[9]
Ethylbenzene	mg/L	0.25	-	-	<0.00050	<0.00050	-[9]
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.00050	<0.00050	-[9]
Styrene	mg/L	-	-	-	<0.00050	<0.00050	-[9]
Toluene	mg/L	0.215	-	-	<0.00040	<0.00050	-[9]
Total Xylenes	mg/L	-	-	-	<0.00050	<0.00050	-[9]
Chlorobenzene	mg/L	0.025	-	-	<0.00050	-[8]	-[9]
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.00050	-[8]	-[9]

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 did not discharge during the monitoring period (February 9 – February 15).
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 27E and 27F in BC WQG guidance document.
[4] The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.
[5] When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.
[6] The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for each day of Wet Conditions. Wet Conditions did not apply during the monitoring period.
[7] The East Catchment did not discharge on February 5 nor February 10.
[8] Chlorobenzene and 1,2-dichlorobenzene were not tested in the E500GPM-OUT sample collected February 5.
[9] Only field parameters and total and dissolved mercury were tested for the WWTP-E-OUT sample collected February 10.

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

Parameter					**Total Methylmercury**	**Total Mercury**
Unit					**µg/L**	**µg/L**
Lowest Applicable Guideline[1]					0.0001 [2]	0.020 [3,4]
Station	**Water Type**	**Sample ID**	**Lab ID**	**Sampling Date**		
Influent						
WWTP-E-IN	Influent	WWTP-E-IN	VA25A2524-001	2025-02-05	0.000075	0.0198
Effluent						
WWTP-E-OUT	Effluent	WWTP-E-OUT	VA25A2524-002	2025-02-05	0.000069	0.0171

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

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

Parameter					**Lower Bound PCDD/F TEQ**	**Upper Bound PCDD/F TEQ**
Unit					**pg/L**	**pg/L**
Station	**Water Type**	**Sample ID**	**Lab ID**	**Sampling Date**		
Influent						
SP-E-IN	Influent	SP-E-IN	L2758702-1	2025-01-16	0.00777	0.872
WWTP-E-IN	Influent	WWTP-E-IN	L2758679-1	2025-01-14	0.0369	1.15
Effluent						
SP-E-OUT	Effluent	SP-E-OUT	L2758702-2	2025-01-16	0.0142	0.726
WWTP-E-OUT	Effluent	WWTP-E-OUT	L2758679-2	2025-01-14	0.0140	0.884

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

Table B-5: East Catchment Field Measurements Collected During the Monitoring Period (February 9 – February 15).

Parameter			Temp.	Dissolved Oxygen (DO)	Salinity	Turbidity	Estimated TSS [3]	pH	Conductivity	Visibility of Sheen
Unit			**°C**	**mg/L**	**ppt**	**NTU**	**mg/L**	**s.u.**	**µS/cm**	
PE-111578 Discharge Limit			-	-	-	-	25 [6]	5.5 - 9.0	-	-
Lowest Applicable Guideline [1]			-	≥8	-	-	- [2]	- [2]	-	-
Station ID	**Water Type**	**Date**								
Influent [4]										
SP-E-IN	Influent	2025-02-09 12:29	2.9	14.65	1.41	4.79	6.6	8.1	1592	No
SP-E-IN	Influent	2025-02-10 14:30	3.3	14.73	1.52	1.71	4.3	9.6	1724	No
SP-E-IN	Influent	2025-02-11 16:02	3.2	14.34	1.57	0.39	3.3	9.5	1776	No
SP-E-IN	Influent	2025-02-12 12:53	3.8	14.27	1.57	0.52	3.4	7.4	1799	No
SP-E-IN	Influent	2025-02-13 13:54	4.8	13.26	1.5	7.53	8.6	6.9	1777	No
SP-E-IN	Influent	2025-02-14 10:51	3.8	12.99	1.47	7.09	8.3	7.0	1697	No
SP-E-IN	Influent	2025-02-15 11:40	3.8	14.83	1.53	2.58	4.9	7.6	1759	No
WWTP-E-IN	Influent	2025-02-09 12:38	2.6	14.67	1.36	0.97	3.7	7.8	1523	No
WWTP-E-IN	Influent	2025-02-10 14:35	3.1	14.42	1.44	0.84	3.6	8.7	1634	No
WWTP-E-IN	Influent	2025-02-11 16:10	3.1	14.35	1.54	1.07	3.8	9.8	1738	No
WWTP-E-IN	Influent	2025-02-12 12:36	3.3	13.85	1.56	1.00	3.7	7.9	1770	No
WWTP-E-IN	Influent	2025-02-13 13:45	4.7	13.48	1.59	4.15	6.1	7.1	1876	No
WWTP-E-IN	Influent	2025-02-14 10:42	3.4	13.39	1.61	6.99	8.2	7.2	1834	No
WWTP-E-IN	Influent	2025-02-15 15:03	3.9	14.43	1.54	4.23	6.2	7.3	1776	No
E500GPM-IN	Influent	2025-02-15 14:00	3.7	14.35	1.54	2.95	5.2	7.2	1769	No
Effluent [5]										
WWTP-E-OUT	Effluent	2025-02-09 12:41	4.4	13.63	1.46	1.34	4.0	8.1	1718	No
WWTP-E-OUT	Effluent	2025-02-10 14:42	4.2	14.57	1.51	0.97	3.7	9.6 [7]	1756	No
WWTP-E-OUT	Effluent	2025-02-11 16:06	4.5	13.64	1.74	0.57	3.4	7.6	2033	No
WWTP-E-OUT	Effluent	2025-02-12 12:40	4.5	13.71	1.54	2.33	4.7	6.8	1812	No
WWTP-E-OUT	Effluent	2025-02-13 13:46	5.2	13.14	1.45	3.77	5.8	6.4	1744	No
WWTP-E-OUT	Effluent	2025-02-14 10:45	4.6	12.84	1.53	5.37	7.0	6.8	1800	No
WWTP-E-OUT	Effluent	2025-02-15 15:40	4.5	12.4	1.60	0.99	3.7	6.3	1873	No
E500GPM-OUT	Effluent	2025-02-15 14:04	4.2	14.42	1.54	0.77	3.6	7.5	1796	No

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-111578 East Sedimentation Pond Discharge Limit.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] TSS concentration is estimated from field turbidity measurements using a site-specific relationship TSS = 0.7458 * [turbidity as NTU] + 3.
[4] Daily field measurements for station SP-E-IN were collected from cell 1 of the East Sedimentation Pond.
[5] There was no discharge at the authorized discharge location (SP-E-OUT) February 9 – February 15, therefore daily field measurements for SP-E-OUT were not collected on those days.
[6] 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.
[7] The East Catchment did not discharge on February 10.

Table B-6: East Catchment Daily Discharge Volumes for the Monitoring Period (February 9 – February 15).

	East Sedimentation Pond Effluent	East TSS Settling System (E500GPM) Clarified Effluent (Station E500GPM-OUT)	East WWTP Treated Effluent (Station WWTP-E-OUT)	Discharge to Howe Sound (Station SP-E-OUT)
Unit	**m^3**	**m^3**	**m^3**	**m^3**
PE-111578 Discharge Limit	- [1]	- [1]	1100	- [1]
Date				
2025-02-09	0	673 [2]	617 [2]	0
2025-02-10	0	0	749 [2]	0
2025-02-11	0	0	760 [2]	0
2025-02-12	0	0	778 [2]	0
2025-02-13	0	0	732 [2]	0
2025-02-14	0	393 [2]	792 [2]	0
2025-02-15	0	1830 [2]	603 [2]	0

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-111578 East Sedimentation Pond Discharge Limit.
[1] The annual average authorized discharge rate from the East Sedimentation Pond is 650 m^3/day. As noted in PE-111578 Condition 2.1.4, the actual discharge rate may deviate from the annual average rate due to annual variations in precipitation amounts within the catchment area. Therefore, the annual average authorized discharge rate is not evaluated as a discharge limit.
[2] East WWTP treated effluent and clarified effluent from the E500GPM TSS Settling System were recirculated to the East Sedimentation Pond.

Appendix C: West Catchment Monitoring Results

Table C-1: West Catchment Dioxin and Furan Toxicity Equivalency Quantity (TEQ) Results Received at the Time of Reporting.

Parameter					**Lower Bound PCDD/F TEQ**	**Upper Bound PCDD/F TEQ**
Unit					**pg/L**	**pg/L**
Station	**Water Type**	**Sample ID**	**Lab ID**	**Sampling Date**		
Influent						
SP-W-IN	Influent	SP-W-IN	L2758679-3	2025-01-14	0.0113	0.935
Effluent						
SP-W-OUT	Effluent	SP-W-OUT	L2758679-4	2025-01-14	0.00832	1.01

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

Table C-2: West Catchment Field Measurements Collected During the Monitoring Period (February 9 – February 15).

Parameter			**Temperature**	**Dissolved Oxygen (DO)**	**Salinity**	**Turbidity**	**Estimated TSS [3]**	**pH**	**Conductivity**	**Visibility of Sheen**
Unit			**°C**	**mg/L**	**ppt**	**NTU**	**mg/L**	**s.u.**	**µS/cm**	
PE-111578 Discharge Limit			-	-	-	-	25 [6]	5.5 - 9.0	-	-
Lowest Applicable Guideline [1]			-	≥8	-	-	- [2]	- [2]	-	-
Station ID	**Water Type**	**Date**								
Influent [4]										
SP-W-IN	Influent	2025-02-09 12:02	0.7	15.19	0.08	5.01	6.7	8.2	94	No
SP-W-IN	Influent	2025-02-10 15:00	1.3	15.23	0.09	4.11	6.1	8.1	100	No
SP-W-IN	Influent	2025-02-11 15:39	1.9	14.08	0.09	4.67	6.5	8.4	107	No
SP-W-IN	Influent	2025-02-12 13:13	1.5	14.88	0.08	24.46	21.2	7.7	98	No
SP-W-IN	Influent	2025-02-13 14:07	2.5	14.77	0.09	447.97	337.1	8.2	108	No
SP-W-IN	Influent	2025-02-14 11:05	2.7	15.22	0.12	186.2	141.9	7.9	148	Yes
SP-W-IN	Influent	2025-02-15 11:08	2.6	16.21	0.23	9.95	10.4	8.4	273	No
W500GPM-IN	Influent	2025-02-09 11:52	4.7	14.68	0.1	5.65	7.2	8.4	125	No
W500GPM-IN	Influent	2025-02-10 15:10	4.6	14.76	0.08	1.96	4.5	7.9	101	No
W500GPM-IN	Influent	2025-02-11 15:31	3.1	14.23	0.13	3.4	5.5	8.6	165	No
W500GPM-IN	Influent	2025-02-12 13:09	4.9	14.88	0.08	0.27	3.2	7.5	109	No
W500GPM-IN	Influent	2025-02-13 14:19	5.6	14.16	0.08	3.16	5.4	7.8	101	No
W500GPM-IN	Influent	2025-02-14 0:00	2.6	15.15	0.09	53.3	42.8	8.2	103	No
Effluent [5]										
W500GPM-OUT	Effluent	2025-02-09 11:58	4.7	13.7	0.1	2.85	5.1	8.1	128	No
W500GPM-OUT	Effluent	2025-02-10 15:04	4.3	13.62	0.09	1.15	3.9	8.5	117	No
W500GPM-OUT	Effluent	2025-02-11 15:35	6.9	13.54	0.08	1.49	4.1	8.5	116	No
W500GPM-OUT	Effluent	2025-02-12 13:07	14	12.03	2.5	2.22	4.7	7.3	3	No
W500GPM-OUT	Effluent	2025-02-13 14:11	5.7	13.92	0.07	1.01	3.8	7.8	89	No
W500GPM-OUT	Effluent	2025-02-14 11:11	7.2	14.62	0.08	2.25	4.7	8.1	117	No
W500GPM-OUT	Effluent	2025-02-15 16:28	3.3	16.04	0.12	0.83	3.6	7.2	153	No

Notes: Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-111578 West Sedimentation Pond Discharge Limit.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] TSS concentration is estimated from field turbidity measurements using a site-specific relationship TSS = 0.7458 * [turbidity as NTU] + 3.
[4] Daily field measurements for station SP-W-IN were collected from cell 1 of the West Sedimentation Pond.
[5] There was no discharge at the authorized discharge location (SP-W-OUT) February 9 – February 15, therefore daily field measurements for SP-W-OUT were not collected on those days.
[6] The PE-111578 discharge limit for TSS is 25 mg/L under dry conditions and 75 mg/L for each day of Wet Conditions. Wet Conditions did not apply during the monitoring period.

Table C-3: West Catchment Daily Discharge Volumes for the Monitoring Period (February 9 – February 15).

	West Sedimentation Pond Effluent	**West TSS Settling System (W500GPM) Clarified Effluent (Station W500GPM-OUT)**	**West TSS Settling System (ESC) Clarified Effluent (Station ESC-W-OUT)**	**West WWTP Treated Effluent [1] (Station WWTP-W-OUT)**	**Discharge to Howe Sound (Station SP-W-OUT)**
Unit	**m^3**	**m^3**	**m^3**	**m^3**	**m^3**
PE-111578 Discharge Limit	- [2]	- [2]	- [2]	120	- [2]
Date					
2025-02-09	0	0	0	0	0
2025-02-10	0	0	0	0	0
2025-02-11	0	0	0	0	0
2025-02-12	0	0	0	0	0
2025-02-13	0	295 [3]	0	0	0
2025-02-14	0	1990 [3]	0	0	0
2025-02-15	0	1770 [3]	0	0	0

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-111578 West Sedimentation Pond Discharge Limit.
[1] The West WWTP is not being operated, therefore discharges are not expected from this facility.
[2] The annual average authorized discharge rate from the West Sedimentation Pond is 310 m^3/day. As noted in PE-111578 Condition 2.1.4, the actual discharge rate may deviate from the annual average rate due to annual variations in precipitation amounts within the catchment area. Therefore, the annual average authorized discharge rate is not evaluated as a discharge limit.
[3] Clarified effluent from the W500GPM TSS Settling System was recirculated to the West Sedimentation Pond.

Appendix D: Non-Contact Water Diversion Ditch Outlets Results

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

Parameter	Unit	Lowest Applicable Guideline [1, 2]		Station OUT-06 Non-Contact Water Diversion Ditch Outlet OUT-06 VA25A2339-001
		Long Term	Short Term	2025-02-01 14:20
General Parameters				
pH - Field	pH units	6.5 - 9.0	-	7.7
Specific Conductivity - Field	µS/cm	-	-	19
Temperature - Field	°C	-	-	1.9
Salinity - Field	ppt	-	-	0.01
Turbidity - Field	NTU	-	-	2.1
TSS	mg/L	-	-	<3.0
Dissolved Oxygen - Field	mg/L	>=8	>=5	13.01
Anions and Nutrients				
Sulphate [2]	mg/L	128	-	2.14
Chloride	mg/L	120	600	0.66
Fluoride [2]	mg/L	-	0.57	<0.020
Ammonia ($N\text{-}NH_3$) [2]	mg/L	2.05	10.7	0.0072
Nitrite ($N\text{-}NO_2$) [2]	mg/L	0.02	0.06	<0.0010
Nitrate ($N\text{-}NO_3$)	mg/L	3	32.8	0.288
Total Metals				
Aluminum, total (T-Al) [2]	mg/L	0.24	-	0.235
Antimony, total (T-Sb)	mg/L	0.074	-	0.00020
Arsenic, total (T-As)	mg/L	0.005	-	0.00034
Barium, total (T-Ba)	mg/L	1	-	0.00379
Beryllium, total (T-Be)	mg/L	0.00013	-	<0.000020
Boron, total (T-B)	mg/L	1.2	29	<0.010
Cadmium, total (T-Cd) [2]	mg/L	0.000036	0.00031	<0.0000050
Chromium, total (T-Cr) [4]	mg/L	0.001	-	<0.00050
Cobalt, total (T-Co)	mg/L	0.001	0.11	<0.00010
Copper, total (T-Cu)	mg/L	-	-	0.00104
Iron, total (T-Fe)	mg/L	0.3	1	0.099
Lead, total (T-Pb)	mg/L	-	-	0.000322
Manganese, total (T-Mn) [2]	mg/L	0.768	0.816	0.00309
Mercury, total (T-Hg) [3]	mg/L	0.00002	-	0.00000546
Molybdenum, total (T-Mo)	mg/L	0.073	46	0.000647
Nickel, total (T-Ni) [2]	mg/L	0.025	-	<0.00050
Selenium, total (T-Se)	mg/L	0.001	-	<0.000050
Silver, total (T-Ag) [2]	mg/L	0.000050	0.00010	<0.000010
Thallium, total (T-Tl)	mg/L	0.0008	-	<0.000010
Uranium, total (T-U)	mg/L	0.0085	0.033	0.000103
Vanadium, total (T-V)	mg/L	0.12	-	0.00076
Zinc, total (T-Zn)	mg/L	-	-	<0.0030
Hexavalent Chromium, total	mg/L	0.001	-	-
Dissolved Metals				
Cadmium, dissolved (D-Cd) [2]	mg/L	0.000052	0.000083	<0.0000050
Copper, dissolved (D-Cu) [2]	mg/L	0.0013	0.0075	0.00084
Iron, dissolved (D-Fe)	mg/L	-	0.35	0.02
Lead, dissolved (D-Pb) [2]	mg/L	0.0057	-	0.000098
Manganese, dissolved (D-Mn) [2]	mg/L	0.32	1.97	0.00107
Nickel, dissolved (D-Ni) [2]	mg/L	0.0014	0.017	<0.00050
Strontium, dissolved (D-Sr)	mg/L	2.5	-	0.0209
Vanadium, dissolved (D-V)	mg/L	-	-	0.00056
Zinc, dissolved (D-Zn) [2]	mg/L	0.0034	0.011	<0.0010
Polycyclic Aromatic Hydrocarbons (PAHs)				
Acenaphthene	mg/L	0.0058	-	<0.000010
Acridine	mg/L	0.003	-	<0.000010
Anthracene	mg/L	0.000012	-	<0.000010
Benz(a)anthracene	mg/L	0.000018	-	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	<0.0000050
Chrysene	mg/L	-	-	<0.000010
Fluoranthene	mg/L	0.00004	-	<0.000010
Fluorene	mg/L	0.003	-	<0.000010
1-methylnaphthalene	mg/L	-	-	<0.000010
2-methylnaphthalene	mg/L	-	-	<0.000010
Naphthalene	mg/L	0.001	0.001	<0.000050
Phenanthrene	mg/L	0.0003	-	<0.000020
Pyrene	mg/L	0.00002	-	<0.000010
Quinoline	mg/L	0.0034	-	<0.000050
Volatile Organic Compounds (VOCs)				
Benzene	mg/L	0.04	-	-
Ethylbenzene	mg/L	0.09	-	-
Methyl-tert-butyl-ether	mg/L	10	3.4	-
Styrene	mg/L	0.072	-	-
Toluene	mg/L	0.0005	-	-
Total Xylenes	mg/L	0.03	-	-
Chlorobenzene	mg/L	-	-	-
1,2-Dichlorobenzene	mg/L	-	-	-

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of freshwater aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of freshwater aquatic life.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] BC WQG or CWQG indicated to be variable are calculated from sample-specific measurements for temperature, field pH, total hardness and dissolved organic carbon (DOC) content.
[3] When MeHg $\leqslant$ 0.5% of total Hg, BC WQG = 0.00002 mg/L.
[4] The approved BC WQG for hexavalent chromium [Cr(VI)] is 0.001 mg/L and 0.0089 mg/L for trivalent chromium [Cr(III)]. The more conservative criteria for Cr(VI) is applied to total chromium results.
The lowest applicable guidelines are shown in the table; however, water quality data was screened to all applicable guidelines.

Table D-2: Non-Contact Water Diversion Ditch Outlet Methylmercury and Corresponding Total Mercury Results Received at the Time of Reporting.

Parameter					**Total Methylmercury**	**Total Mercury**
Unit					**µg/L**	**µg/L**
Lowest Applicable Guideline[1]					0.0001 [2]	0.0041 – 0.0099 [3,4]
Station	**Water Type**	**Sample ID**	**Lab ID**	**Sampling Date**		
OUT-01	Non-Contact Water Diversion Ditch Outlet	OUT-01	VA25A2292-001	2025-01-31	0.000034	0.00140
OUT-02	Non-Contact Water Diversion Ditch Outlet	OUT-02	VA25A2292-002	2025-01-31	0.000037	0.00286
OUT-06	Non-Contact Water Diversion Ditch Outlet	OUT-06	VA25A2339-001	2025-02-01	0.000055	0.00546

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of freshwater aquatic life.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] From BC Ambient Water Quality Guidelines for Mercury Overview Report. The methylmercury concentration threshold of 0.0001 µg/L (0.1 ng/L) is indicated as a WQG for the protection of wildlife and is set at a concentration that protects fish from mercury bioaccumulation to a level that may harm wildlife that consume fish.
[3] CCME guideline for total mercury = 0.026 µg/L.
[4] When MeHg ≤ 0.5% of total Hg, BC WQG = 0.02 µg/L. When MeHg > 0.5% of total Hg, BC WQG = 0.0001/(MeHg/Total Hg). Detection limit values are used to calculate the WQG for result reported as not detected. Non-detect results are screened using the detection limit value.

Appendix E: Marine Receiving Environment Results

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

Parameter	Unit	Lowest Applicable Guideline [1]		Station IDZ-E1			Station IDZ-E2		
				0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-E1-0.5	IDZ-E1-2m	IDZ-E1-SF	IDZ-E2-0.5	IDZ-E2-2m	IDZ-E2-SF
				VA25A2782-001	VA25A2782-002	VA25A2782-003	VA25A2782-004	VA25A2782-005	VA25A2782-006
		Long Term	Short Term	2025-02-07 10:40	2025-02-07 10:41	2025-02-07 10:42	2025-02-07 10:25	2025-02-07 10:27	2025-02-07 10:29
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	7.67	7.64	7.62	7.65	7.63	7.59
Specific Conductivity - Field	µS/cm	-	-	30069	30368	30847	29936	30553	31414
Temperature - Field	°C	-	-	7.7	7.8	8.0	7.6	7.9	8.4
Salinity - Field	ppt	Narrative [2]	-	28.77	28.95	29.27	28.70	29.07	29.57
Turbidity - Field	NTU	Narrative [2]	Narrative [2]	1.31	1.31	1.30	1.32	1.32	1.32
TSS	mg/L	Narrative [2]	Narrative [2]	<2.0	2.8	<2.0	<2.0	2.1	<2.0
Dissolved Oxygen - Field	mg/L	≥8	-	9.26	8.35	***7.59***	8.57	***7.92***	***7.23***

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. Salinity WQG was not evaluated. The water quality data presented in the table were collected when the site was not discharging, therefore the turbidity and TSS WQGs were not evaluated.

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

Parameter	Unit	Lowest Applicable Guideline [1]		Station IDZ-W1			Station IDZ-W2		
				0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
				IDZ-W1-0.5	IDZ-W1-2m	IDZ-W1-SF	IDZ-W2-0.5	IDZ-W2-2m	IDZ-W2-SF
				VA25A2782-007	VA25A2782-008	VA25A2782-009	VA25A2782-010	VA25A2782-011	VA25A2782-012
		Long Term	Short Term	2025-02-07 15:00	2025-02-07 15:02	2025-02-07 15:04	2025-02-07 15:05	2025-02-07 15:06	2025-02-07 15:08
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	7.66	7.65	7.56	7.72	7.68	7.58
Specific Conductivity - Field	µS/cm	-	-	30237	30379	32751	29819	30345	32788
Temperature - Field	°C	-	-	8.0	8.0	9.3	7.8	8.0	9.3
Salinity - Field	ppt	Narrative [2]	-	28.65	28.79	30.16	28.43	28.76	30.17
Turbidity - Field	NTU	Narrative [2]	Narrative [2]	1.37	1.38	1.28	1.99	1.37	1.33
TSS	mg/L	Narrative [2]	Narrative [2]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Oxygen - Field	mg/L	≥8	-	8.92	8.31	***5.94***	9.35	8.43	***6.05***

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. Salinity WQG was not evaluated. The water quality data presented in the table were collected when the site was not discharging, therefore the turbidity and TSS WQGs were not evaluated.

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

Parameter					Lower Bound PCDD/F TEQ	Upper Bound PCDD/F TEQ
Unit					pg/L	pg/L
Station	Water Type	Sample ID	Lab ID	Sampling Date		
Station IDZ-W1						
IDZ-W1	0.5 m Below Surface	IDZ-W1-0.5	L2758634-1	2025-01-09	0	1.30
IDZ-W1	2 m Below Surface	IDZ-W1-2m	L2758634-2	2025-01-09	0.000927	0.906
IDZ-W1	2 m Above Seafloor	IDZ-W1-SF	L2758634-3	2025-01-09	0.00148	0.915
Station IDZ-W2						
IDZ-W2	0.5 m Below Surface	IDZ-W2-0.5	L2758634-4	2025-01-09	0.00598	1.12
IDZ-W2	2 m Below Surface	IDZ-W2-SF	L2758634-5	2025-01-09	0.00218	1.11
IDZ-W2	2 m Above Seafloor	IDZ-W2-2M	L2758634-6	2025-01-09	0	0.757
Reference Station WQR2						
WQR2	0.5 m Below Surface	WQR2-0.5	L2758634-7	2025-01-09	0.00130	1.38
WQR2	2 m Below Surface	WQR2-2m	L2758634-8	2025-01-09	0	0.737
WQR2	2 m Above Seafloor	WQR2-SF	L2758634-9	2025-01-09	0	1.25

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

Table E-4: Summary of Marine Sediment Quality Results Received at the Time of Reporting

Parameter		Units	Sediment Quality Guideline					IDZ-E-Sed	IDZ-E-Sed-Dup	IDZ-W-Sed	IDZ-W-Sed-Dup
			CSR[1]	CCME[2]		BC ENV[3]		VA24D4379-001	VA24D4379-002	VA24D4379-003	VA24D4379-004
			Sensitive Use	ISQG	PEL	Lower SWQG	Upper SWQG	23-Dec-2024	23-Dec-2024	23-Dec-2024	23-Dec-2024
General Parameters	Soluble (2:1) pH	pH	-	-	-	-	-	7.34	7.29	7.9	7.69
	Moisture	%	-	-	-	-	-	58.6	60.5	60.1	60
	Total Carbon	%	-	-	-	-	-	4.84	2.41	4.17	5.41
	Total Inorganic Carbon (TIC)	%	-	-	-	-	-	0.216	0.193	0.67	0.388
	Total Organic Carbon (TOC)	%	-	-	-	-	-	4.62	2.22	3.5	5.02
Particle Size	Passing(0.063mm)	%	-	-	-	-	-	74	79.7	87.8	86.3
	Passing(0.125mm)	%	-	-	-	-	-	80.5	86.5	94.3	93.1
	Passing(0.250mm)	%	-	-	-	-	-	86.9	92.8	98.1	97.6
	Passing(0.50mm)	%	-	-	-	-	-	91.5	96.8	99.7	99.4
	Passing(1.0mm)	%	-	-	-	-	-	93.2	98.5	100	99.9
	Passing(2.0mm)	%	-	-	-	-	-	94.3	99.7	100	100
Metals	Total Aluminum (Al)	mg/kg	-	-	-	-	-	23400	22300	26700	25000
	Total Antimony (Sb)	mg/kg	-	-	-	-	-	0.36	0.47	7.1	20.8
	Total Arsenic (As)	mg/kg	26	7.24	41.6	7.24	41.6	5.17	5.58	**15.4**	**23.5**
	Total Barium (Ba)	mg/kg	-	-	-	-	-	180	170	230	265
	Total Beryllium (Be)	mg/kg	-	-	-	-	-	0.23	0.23	0.4	0.48
	Total Bismuth (Bi)	mg/kg	-	-	-	-	-	0.11	0.12	0.49	0.49
	Total Boron (B)	mg/kg	-	-	-	-	-	23.9	27.5	50.6	68
	Total Cadmium (Cd)	mg/kg	2.6	0.7	4.2	0.7	4.2	0.246	0.237	0.52	**0.824**
	Total Calcium (Ca)	mg/kg	-	-	-	-	-	10400	10900	18400	17900
	Total Chromium (Cr)	mg/kg	99	52.3	160	52.3	160	25.5	29.7	36.1	44.2
	Total Cobalt (Co)	mg/kg	-	-	-	-	-	11.6	11.9	14.5	17.8
	Total Copper (Cu)	mg/kg	67	18.7	108	18.7	108	**55.1**	**64.3**	**224**	**600**
	Total Iron (Fe)	mg/kg	-	-	-	-	-	30600	32000	45300	61400
	Total Lead (Pb)	mg/kg	69	30.2	112	30.2	112	12.6	17	**177**	**360**
	Total Lithium (Li)	mg/kg	-	-	-	-	-	18.1	18.5	29.4	28.6
	Total Magnesium (Mg)	mg/kg	-	-	-	-	-	12300	12700	13600	13700
	Total Manganese (Mn)	mg/kg	-	-	-	-	-	531	532	1410	1450
	Total Mercury (Hg)	mg/kg	0.43	0.13	0.7	0.13	0.7	0.0902	0.11	**0.197**	**0.404**
	Total Molybdenum (Mo)	mg/kg	-	-	-	-	-	3.06	3.39	9.43	17.9
	Total Nickel (Ni)	mg/kg	-	-	-	30	50	16.3	18	**35.9**	**78.1**
	Total Phosphorous (P)	mg/kg	-	-	-	-	-	1130	1080	1830	2480
	Total Potassium (K)	mg/kg	-	-	-	-	-	5900	5620	5360	5090
	Total Selenium (Se)	mg/kg	-	-	-	-	-	0.25	0.24	0.54	0.88
	Total Silver (Ag)	mg/kg	-	-	-	1	2.2	0.114	0.135	0.194	0.28
	Total Sodium (Na)	mg/kg	-	-	-	-	-	7470	8350	10800	11800
	Total Strontium (Sr)	mg/kg	-	-	-	-	-	117	119	196	264
	Total Sulfur (S)	mg/kg	-	-	-	-	-	17400	8950	9070	14200
	Total Thallium (Tl)	mg/kg	-	-	-	-	-	0.201	0.212	0.22	0.214
	Total Tin (Sn)	mg/kg	-	-	-	-	-	1.44	2.11	23	62
	Total Titanium (Ti)	mg/kg	-	-	-	-	-	1860	1760	1620	1460
	Total Uranium (U)	mg/kg	-	-	-	-	-	1.63	1.42	4.47	5.2
	Total Vanadium (V)	mg/kg	-	-	-	-	-	80.6	80.2	99	116
	Total Zinc (Zn)	mg/kg	170	124	271	124	271	88.2	91.9	**178**	**287**
	Total Zirconium (Zr)	mg/kg	-	-	-	-	-	4.0	4.1	4.1	5.9
Speciated Metals	T-MeHg	mg/kg	-	-	-	-	-	1.4	0.946	0.211	0.225
	Trivalent Chromium	mg/kg	-	-	-	-	-	31.6	29.5	38.8	40.7
	Hexavalent Chromium	mg/kg	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1
	Acid Volatile Sulfides	mg/kg	-	-	-	-	-	-	-	-	-
Polycyclic Aromatics	Index of Additive Cancer Risk (IACR) (Calculated)	N/A	-	-	-	-	-	3.8	4.73	126	83.8
	Low Molecular Weight PAH`s (Calculated)	ug/g	-	-	-	3.7	7.8	-	-	-	-
	High Molecular Weight PAH`s (Calculated)	ug/g	-	-	-	9.6	53	-	-	-	-
	Total PAHs	ug/g	10	-	-	-	-	-	-	-	-
	B[a]P TPE Total Potency Equivalents (Calculated)	ug/g	-	-	-	-	-	0.288	0.368	8.05	5.4
	Acenaphthene	mg/kg	0.055	0.00671	0.0889	0.00671	0.0889	**0.0755**	**0.0832**	**13.5**	**5.98**
	Acenaphthylene	mg/kg	0.079	0.00587	0.128	0.00587	0.128	**0.0259**	**0.0311**	**0.436**	**0.336**
	Acridine-Solid	mg/kg	-	-	-	-	-	0.024	0.026	1.12	0.82
	Anthracene	mg/kg	0.15	0.0469	0.245	0.0469	0.245	**0.114**	**0.144**	**15.1**	**7.09**
	Benzene	mg/kg	-	-	-	-	-	0.031	0.0201	0.0471	0.0201
	Benzo(a)anthracene	mg/kg	0.43	0.0748	0.693	0.0748	0.693	**0.214**	**0.265**	**13.6**	**8.41**
	Benzo(a)pyrene	mg/kg	0.47	0.0888	0.763	0.0888	0.763	**0.189**	**0.24**	**4.97**	**3.34**
	Benzo(b&j)fluoranthene	mg/kg	-	-	-	2.3	4.5	0.265	0.323	**7.4**	**5.02**
	Benzo(b+j+k)fluoranthene-Solid	mg/kg	-	-	-	-	-	0.379	0.463	9.97	6.87
	Benzo(b)fluoranthene	mg/kg	-	-	-	2.3	4.5				
	Benzo(g,h,i)perylene	mg/kg	-	-	-	0.31	0.78	0.088	0.115	**1.24**	**1.03**
	Benzo(k)fluoranthene	mg/kg	-	-	-	2.3	4.5	0.114	0.14	**2.57**	1.85

Table E-4 (continued): Summary of Marine Sediment Quality Results Received at the Time of Reporting

Parameter		Units	Sediment Quality Guideline					IDZ-E-Sed	IDZ-E-Sed-Dup	IDZ-W-Sed	IDZ-W-Sed-Dup
			CSR[1]	CCME[2]		BC ENV[3]		VA24D4379-001	VA24D4379-002	VA24D4379-003	VA24D4379-004
			Sensitive Use	ISQG	PEL	Lower WSQG	Upper WSQG	23-Dec-2024	23-Dec-2024	23-Dec-2024	23-Dec-2024
Polycyclic Aromatics (continued)	Chrysene	mg/kg	0.52	0.108	0.846	0.108	0.846	**0.224**	**0.317**	**14.8**	**9.19**
	Dibenz(a,h)anthracene	mg/kg	0.084	0.00622	0.135	0.00622	0.135	**0.0263**	**0.0385**	**0.419**	**0.312**
	Fluoranthene	mg/kg	0.93	0.113	1.494	0.113	1.494	**0.603**	**0.682**	**59.3**	**33.7**
	Fluorene	mg/kg	0.089	0.0212	0.144	0.0212	0.144	**0.071**	**0.077**	**17.4**	**6.7**
	Indeno(1,2,3-cd)pyrene	mg/kg	-	-	-	0.34	0.88	0.101	0.128	**1.4**	**1.14**
	1-Methylnaphthalene	mg/kg	-	-	-	-	-	0.028	0.024	2.62	1.03
	2-Methylnaphthalene	mg/kg	0.12	0.02	0.202	0.02	0.202	**0.036**	**0.033**	**3.1**	**1.32**
	Naphthalene	mg/kg	0.24	0.0346	0.391	0.0346	0.391	**0.113**	**0.117**	**3.11**	**2.62**
	Phenanthrene	mg/kg	0.34	0.0867	0.544	0.0867	0.544	**0.277**	**0.288**	**56**	**24.4**
	Pyrene	mg/kg	0.87	0.153	1.398	0.153	1.398	**0.528**	**0.57**	**37.2**	**22.6**
	Quinoline	mg/kg	-	-	-	-	-	<0.01	<0.01	<0.071	<0.085
	Toluene	mg/kg	-	-	-	-	-	<0.05	<0.05	0.117	<0.05
VOCs	1-1-1-2-Tetrachloroethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-1-1-Trichloroethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-1-2-2-Tetrachloroethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-1-2-Trichloroethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-1-Dichloroethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-1-Dichloroethylene	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	cis-1-2-dichloroethylene	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	trans-1-2-dichloroethylene	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-2-Dichlorobenzene	mg/kg	-	-	-	0.055-0.124 [1]	-	<0.05	<0.05	<0.05	<0.05
	1-2-Dichloroethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-2-Dichloropropane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-3-Dichlorobenzene	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-3-dichloropropylene(cis+trans)	mg/kg	-	-	-	-	-	<0.075	<0.075	<0.075	<0.075
	1-3-dichloropropylene-cis	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	1-3-dichloropropylene-trans	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Bromoform	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Carbon Tetrachloride	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Chlorobenzene	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Chloroethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Chloroform	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Chloromethane	mg/kg	-	-	-	-	-	<0.05	<0.05	0.055	<0.05
	Dibromochloromethane	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Dichloromethane	mg/kg	-	-	-	-	-	<0.045	<0.045	<0.045	<0.045
	Ethylbenzene	mg/kg	-	-	-	-	-	<0.019	<0.02	0.052	<0.021
	meta-para-Xylene	mg/kg	-	-	-	-	-	<0.05	<0.05	0.121	<0.05
	Methyl-tert-butyl-ether	mg/kg	-	-	-	-	-	<0.04	<0.04	<0.04	<0.04
	ortho-Xylene	mg/kg	-	-	-	-	-	<0.05	<0.05	0.065	<0.05
	Styrene	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Tetrachloroethylene	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
	Total_Xylenes	mg/kg	-	-	-	-	-	<0.075	<0.075	0.186	<0.075
	Trichloroethylene	mg/kg	-	-	-	-	-	<0.019	<0.02	0.024	<0.021
	Trichlorofluoromethane	mg/kg	-	-	-	-	-	0.104	<0.05	<0.05	<0.05
	Vinyl Chloride	mg/kg	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Hydrocarbons	LEPH	mg/kg	-	-	-	-	-	-	-	-	-
	HEPH	mg/kg	-	-	-	-	-	-	-	-	-
	EPH (C10-C19)	mg/kg	-	-	-	-	-	<200	<200	300	200
	EPH (C19-C32)	mg/kg	-	-	-	-	-	<200	<200	1160	740
	F1(C6-C10)	mg/kg	-	-	-	-	-	<5	<6.6	<7.9	<5
	F1-BTEX	mg/kg	-	-	-	-	-	<5	<6.6	<7.9	<5
	F2(C10-C16)	mg/kg	-	-	-	-	-	<27	<30	<153	<157
	F3(C16-C34)	mg/kg	-	-	-	-	-	118	156	1530	768
	F4(C34-C50)	mg/kg	-	-	-	-	-	80	114	951	416
	VH (C6-C10)	mg/kg	-	-	-	-	-	<10	<10	<10	<10
	VPHs	mg/kg	-	-	-	-	-	<10	<10	<10	<10

Table E-4 (continued): Summary of Marine Sediment Quality Results Received at the Time of Reporting

Parameter		Units	Sediment Quality Guideline					IDZ-E-Sed	IDZ-E-Sed-Dup	IDZ-W-Sed	IDZ-W-Sed-Dup
			CSR[1]	CCME[2]		BC ENV[3]		VA24D4379-001	VA24D4379-002	VA24D4379-003	VA24D4379-004
			Sensitive Use	ISQG	PEL	Lower WSQG	Upper WSQG	23-Dec-2024	23-Dec-2024	23-Dec-2024	23-Dec-2024
Dioxins and Furans	1-2-3-4-6-7-8-HpCDD	ng/kg	-	-	-	-	-	95.6	101	1280	1660
	1-2-3-4-7-8-HxCDD	ng/kg	-	-	-	-	-	2.13	1.71	4.29	9.15
	1-2-3-6-7-8-HxCDD	ng/kg	-	-	-	-	-	79.3	86.1	68.0	103
	1-2-3-7-8-9-HxCDD	ng/kg	-	-	-	-	-	36.3	38.7	26.3	44.7
	1-2-3-7-8-PeCDD	ng/kg	-	-	-	-	-	8.17	7.40	9.08	17.0
	2-3-7-8-TCDD	ng/kg	-	-	-	-	-	2.60	2.00	1.13	2.42
	OCDD	ng/kg	-	-	-	-	-	400	388	10600	7480
	1-2-3-4-6-7-8-HpCDF	ng/kg	-	-	-	-	-	21.0	22.4	240	401
	1-2-3-4-7-8-9-HpCDF	ng/kg	-	-	-	-	-	0.30	0.92	4.9	8.08
	1-2-3-4-7-8-HxCDF	ng/kg	-	-	-	-	-	1.43	1.54	13.8	16.7
	1-2-3-6-7-8-HxCDF	ng/kg	-	-	-	-	-	1.50	1.73	9.57	19.0
	1-2-3-7-8-9-HxCDF	ng/kg	-	-	-	-	-	0.50	0.56	5.51	7.79
	1-2-3-7-8-PeCDF	ng/kg	-	-	-	-	-	3.60	4.14	17.5	19.9
	2-3-4-6-7-8-HxCDF	ng/kg	-	-	-	-	-	0.98	1.25	12.9	17.8
	2-3-4-7-8-PeCDF	ng/kg	-	-	-	-	-	5.58	6.34	9.95	60.7
	2-3-7-8-TCDF	ng/kg	-	-	-	-	-	103	112	31.7	29.7
	OCDF	ng/kg	-	-	-	-	-	17.3	19.1	241	322
	Total-HpCDD	ng/kg	-	-	-	-	-	239	245	3590	5420
	Total-HpCDF	ng/kg	-	-	-	-	-	40.4	43.6	496	760
	Total-HxCDD	ng/kg	-	-	-	-	-	567	617	699	1260
	Total-HxCDF	ng/kg	-	-	-	-	-	27.5	30.7	338	629
	Total-PeCDD	ng/kg	-	-	-	-	-	173	76.0	129	286
	Total-PeCDF	ng/kg	-	-	-	-	-	38.5	44.0	394	1140
	Total-TCDD	ng/kg	-	-	-	-	-	497	101	104	200
	Total-TCDF	ng/kg	-	-	-	-	-	225	241	260	595
	Lower Bound Total Dioxin and Furan TEQ	ng/kg	-	0.85	21.5	-	-	36.4	35.2	49.4	86.0
	Upper Bound Total Dioxin and Furan TEQ	ng/kg	-	0.85	21.5	-	-	36.4	37.2	49.4	86.0
Polychlorinated Biphenyls	Aroclor1016	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1221	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1232	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1242	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1248	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1254	mg/kg	-	0.0633	0.709	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1260	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1262	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Aroclor1268	mg/kg	-	-	-	-	-	<0.0973	<0.102	<0.199	<0.201
	Total PCBs	mg/kg	-	0.0215	0.189	0.0000037	-	**<0.292**	**<0.306**	**<0.597**	**<0.603**

Notes:

CSR= British Columbia Contaminated Sites Regulation (CSR) Schedule 3.4 generic numerical sediment standard – marine and estuarine sediment standard for sensitive use.

CCME = Canadian Council of Ministers of the Environment.

ISQG = Interim Sediment Quality Guidelines.

PEL = Probable Effects Levels.

BC WSQG = British Columbia working sediment quality guideline for the protection of benthic aquatic life in marine environments. The lower BC WSQG is equivalent to the CCME ISQG and the upper BC WSQG is equivalent to the CCME PEL.

N = number of samples.

Results in red font are above the CSR numerical standard.

Results in light grey shading are above the CCME ISQG.

Results in dark grey shading are above the CCME PEL.

Results in **bold text** are above the lower BC WSQG.

Results in **bold and underlined** are above the upper BC WSQG.

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. 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.

[1] The 1,2,-dichlorobenzne guideline is dependent on the total carbon content of the sample.