

TECHNICAL MEMORANDUM

To: Ashleigh Crompton, Mike Champion, Jackie Boruch, Ryan Schucroft, Jamie Maxwell (Woodfibre LNG) **Date:** 7 June 2024

From: Holly Pelletier and Patrick Mueller (Lorax) **Project #:** A633-7

Subject: PE-111578 Weekly Discharge and Compliance Report #16 for May 26 – June 1

Waste Discharge Authorization Effluent Permit PE-111578 was issued by the British Columbia Energy Regulator (BCER) to Woodfibre LNG on February 9, 2024. The permit specifies monitoring and reporting requirements that are required to be met by Woodfibre LNG during construction of the LNG Export Facility. Reporting is required on a weekly basis.

Discharge and compliance monitoring 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 for Woodfibre LNG.

This technical memorandum (Report #16) was prepared by Lorax Environmental and summarizes monitoring conducted the week of May 26 – June 1 for contact waters directed to a WWTP or a sedimentation pond and presents monitoring data that were available at the time of reporting including results that were pending from prior reporting periods. Figures referenced in the report discussion are included at the end of this report. Report #16 has been prepared to meet the reporting requirements specified in Condition 4.2 of WDA Effluent Permit 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.”

The site layout is shown in Figure 1 at the end of this report. Sedimentation pond photographs are included in Appendix A, and monitoring results are tabulated in Appendix B through Appendix G for contact water and receiving environment samples.

1. Current Conditions

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, bedrock excavation and sedimentation pond and WWTP construction. Shoring works along the shoreline and foreshore areas were initiated in December 2023, and in early 2024 construction of water management infrastructure was initiated and has continued through the May 26 – June 1 monitoring period. The East WWTP, and East and West sedimentation ponds have been completed, and the West WWTP is being assembled. The PE- 111578 water management facilities that are completed or were under construction during the reporting period are shown in Figure 1.

The East and West Catchment contact water conveyance ditches described in PE-111578 will be constructed following completion of site preparation activities (*e.g.*, site grading, bedrock excavation) along the ditch lines. Until the ditches are operational, non-contaminated contact waters are managed to remain on site or are directed to the East Sedimentation Pond. Contaminated contact waters are contained and directed to the East WWTP.

A revised schedule is being developed to complete the installation of the East Sedimentation Pond permanent outfall structure. Until those structures are constructed, a temporary discharge system (*i.e.*, pump, hosing and diffusor) is used to convey East Sedimentation Pond effluent to the authorized discharge location when necessary for the discharge of excess water, and if the effluent water quality meets the requirements set out in PE-111578.

The West Sedimentation Pond is complete, except for the outfall structure, and has not been commissioned for discharge. The West WWTP is being assembled. Commissioning of the pond is anticipated for June, and commissioning of the WWTP will follow shortly thereafter. The schedule for completion of the pond outfall structure is being revised.

The completed non-contact water diversion ditch west of Mill Creek was commissioned for use on April 7. The diversion ditch discharges to Mill Creek at OUT-06 (Figure 1). Monitoring stations OUT-01, OUT-02, and OUT-11 at pre-existing culvert outlets have been established. Non-contact water diversion ditches leading to these outlets will be upgraded and extended, later in the construction schedule.

The weather was variable during the monitoring period (May 26 – June 1) and rain was recorded each day at the on-site weather station, except May 31. Precipitation totalled 30.9 mm for the period, with 15.7 mm recorded on a single day (May 28). 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
2024/05/26	8.6	11.4	7.9	Overcast and Rainy
2024/05/27	3.6	14.0	9.8	Mix of sun and cloud
2024/05/28	15.7	11.8	8.2	Rainy
2024/05/29	0.7	13.8	7.9	Overcast
2024/05/30	0.6	14.9	7.3	Sun and cloud
2024/05/31	0	16.7	6.6	Sun and Cloud
2024/06/01	1.7	14.8	11.4	Overcast

Pilot testing of the East WWTP continued during the monitoring period (May 26 – June 1). Contaminated and potentially contaminated contact waters from excavations within the East Catchment (Excavation Areas 1100, 1200, 1300) and the West Catchment (Excavation Areas 4100 and 4200, and the Hydrovac dump) were directed to the East WWTP for treatment, as well as water recirculated from the East Sedimentation Pond. The contact water source areas are shown in Figure 2 and Figure 3 in Appendix A. A total of 2,882 m³ of treated WWTP effluent was discharged to the East Sedimentation Pond during the reporting period (May 26 – June 1). Daily WWTP effluent flows are provided in Appendix C (Table C-3).

During the monitoring period (May 26 – June 1), the East Sedimentation Pond received treated WWTP effluent each day. Contact waters were not directed to the East and West Sedimentation Ponds. The East and West Sedimentation Ponds did not discharge except on May 27, 28 and 31 when there were effluent discharges from the East Sedimentation Pond. A total of 1,760 m³ were discharged to Howe Sound. Photographs of the ponds are included in Appendix A (Figure 4 and Figure 5). Daily sedimentation pond effluent flows are provided in Appendix B (Table B-4).

2. Monitoring Summary

The PE-111578 authorized works were under construction during the May 26 – June 1 monitoring period. Compliance monitoring stations are progressively established by as water management infrastructure is completed. Monitoring is conducted by the on-site Environmental Monitors (Roe Environmental). Analytical samples are submitted by Roe Environmental to ALS Environmental in Burnaby, BC, for testing.

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

- Creek water (SW-01, SW-02, SW-03, SW-04, SW-07).
- Howe Sound reference and IDZ locations (WQR1, WQR2, IDZ-E1 and IDZ-E2).
- Non-contact diversion ditch outlets (OUT-01, OUT-02, OUT-06, and OUT-11).

- Contact water monitoring locations (WWTP-E-IN, WWTP-E-OUT, SP-E-IN-2, SP-E-OUT, SP-E-NE, and SP-E-NW).

East Sedimentation Pond influent and effluent stations SP-E-NW and SP-E-NE, respectively, are in-pond stations that may be monitored in place of stations SP-E-IN-2 and SP-E-OUT when there is no influent to, or discharge from the East Sedimentation Pond.

Stations SW-01, SW-02, SW-03, SW-04, SW-07, OUT-02, IDZ-E1, IDZ-E2, WQR1, WWTP-E-IN, WWTP-E-OUT, and SP-E-NE were monitored during the monitoring period (May 26 – June 1). Sampling dates and parameters tested are summarized in Table 1.

All monitoring was conducted per the requirements of PE-111578 except for the following instances:

- The spring high frequency sampling for all parameters for the marine receiving environment stations on May 28 (5-in-30 day sampling event 5 of 5) was not conducted at reference station WQR2. This was due to poor sea conditions that slowed the marine sampling program and prevented sample collection before the end of the day.
- Analytical samples were not collected during the reporting period for the East WWTP influent station (WWTP-E-IN), therefore the weekly sampling requirement for physical parameters was not completed for this monitoring station. This was an oversight by field staff. Daily field measurements were collected for the East WWTP influent station, when there were inflows at the time of monitoring.
- The East Sedimentation Pond (SP-E-IN-2) was not sampled during the reporting period as the sedimentation pond did not receive contact water.

Table 2: Summary of PE-111578 monitoring samples collected May 26 – June 1.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
May 26, 2024	SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins and Furans, and Methyl Mercury.	W ₃
	SW-03	Lower Reach of Mill Creek (near the mouth, in the estuarine zone)		
	SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)		
	SW-07	Upstream Mill Creek (at the diversion inlet)		
	SP-E-NE ¹	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
WWTP-E-OUT	East WWTP effluent			
May 27, 2024	SW-01	Lower Reach of Woodfibre Creek (near the mouth)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins and Furans, and Methyl Mercury.	W ₃
	OUT-02	Non-Contact Water Diversion Ditch Outlet	Field, Physical & General Parameters, Total and Dissolved Metals, Glycols, Oil and Grease, and Methyl Mercury.	W ₃
	SP-E-OUT	East Sedimentation Pond effluent (compliance point)	Field, Physical, and General Parameters, Total and Dissolved Metals	W ₁ , W ₂
	SP-E-NE ¹	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent		
May 28, 2024	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface.	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins and Furans, and Methyl Mercury.	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.		
	WQR1-0.5	Reference site 1; 0.5 m below surface.		
	WQR1-2m	Reference site 1; 2 m below surface.		
	WQR1-SF	Reference site 1; 2 m above the seafloor.		
	SP-E-NE ¹	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	SP-E-OUT	East Sedimentation Pond effluent (compliance point)		
	WWTP-E-IN	East WWTP influent		
	WWTP-E-OUT	East WWTP effluent		
May 29, 2024	SP-E-NE ¹	East Sedimentation Pond, in-pond sample, represents effluent quality	Field and Physical Parameters, Total, Dissolved and Speciated Metals, EPHs and PAHs.	D, P
	WWTP-E-IN	East WWTP influent	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent		
May 30, 2024	SP-E-NE ¹	East Sedimentation Pond, in-pond sample, represents effluent quality	Field and Physical Parameters, Total, Dissolved and Speciated Metals, EPHs and PAHs.	D, W ₁
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
May 31, 2024	SP-E-NE ¹	East Sedimentation Pond, in-pond sample, represents effluent quality	Field and Physical Parameters, Total, Dissolved and Speciated Metals, EPHs and PAHs.	D, P
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
June 1, 2024	SP-E-NE ¹	East Sedimentation Pond, in-pond sample, represents effluent quality	Field and Physical Parameters, Total, Dissolved and Speciated Metals, EPHs and PAHs.	D, P
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface.	Field, Physical and General Parameters, Total and Dissolved Metals.	P
	IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface.		
	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.		
	WQR1-0.5	Reference site 1; 0.5 m below surface.		
WQR1-2m	Reference site 1; 2 m below surface.			

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.

W₁ – initial high frequency monitoring for physical parameters at WWTP and sedimentation pond influent and effluent stations (weekly for the first 6 months of monitoring).W₂ – initial high frequency monitoring for all parameters at WWTP and sedimentation pond influent and effluent stations (weekly for the first 5 weeks of monitoring)W₃ – spring and fall high frequency sampling for all parameters receiving environment stations (5 samples collected over a 30 day period).

P – periodic monitoring for targeted parameters that is supplementary to PE-111578 requirements.

¹ In-Pond station SP-E-NE of the East Sedimentation Pond is monitored in place of station SP-E-OUT when there is no discharge from the East Sedimentation Pond.

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 and PE-111578 discharge limits. The screening results are discussed and items outside the screening criteria are also summarized in the Section 4 tracking table (Table 6).

All water quality results are stored 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 useful for water quality characterization.

Federal and Provincial Water Quality Guidelines (WQG) are not specified for dioxins and furans. The general term “dioxins and furans” refers to a grouping of hundreds of individual compounds with similar chemical composition and properties. To simplify result presentation and interpretation, the results of individual compounds are converted to a total toxic equivalent (TEQ) value and are summed to produce single TEQ values for each sample by the laboratory. Consistent with the pre-construction monitoring program, a lower-bound TEQ value is reported. The lower-bound TEQ is calculated assuming a concentration of zero for results reported as not detected, therefore, if individual compounds are not detected the TEQ will equal zero.

3.2 Summary of Reported Results

Field measurements and analytical results for the monitoring period (May 26 – June 1) that were available at the time of reporting are listed below in Table 3. Analytical results not available at the time of reporting will be included in future weekly reports when they are available for the following samples:

- SW-02, SW-03, SW-04, and SW-07 collected May 26 (only field results available)
- SW-01 collected May 27 (only field results available)
- OUT-02 collected May 27 (only field results available)
- IDZ-E1, IDZ-E2, and WQR1 collected May 28 (only field results available)

Methylmercury analytical results for samples collected April 28 – 30 and described in Weekly Report #12 were available at the time of reporting (Table 3). Dioxin and furan analytical results for samples collected May 8 – 10 and described in Weekly Report #14 were also available at the time of reporting (Table 3).

Analytical results for samples collected May 22 – 24 and described in Report #15 were available at the time of reporting for parameters listed in Table 3. Results for methyl mercury, dioxins and furans are pending for the following samples and will be included in future weekly reports when available:

- SW-01 collected May 22 (methyl mercury, dioxins and furans)
- SW-02, SW-03, SW-04, and SW-07 collected May 23 (methyl mercury, dioxins and furans)
- OUT-01 collected May 23 (methyl mercury only)
- SP-E-OUT collected May 23 (methyl mercury, dioxins and furans)
- IDZ-E1, IDZ-E2, WQR1, and WQR2 collected May 24 (methyl mercury, dioxins and furans)

Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #16.

Sample	Description	Sampling Date	Parameters Reported		
SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	April 28, 2024	Methylmercury		
SW-03	Lower Reach of Mill Creek (near the mouth, in the estuarine zone)				
SW-07	Upstream Mill Creek (at the diversion inlet)				
OUT-06	Non-Contact Water Diversion Ditch Outlet				
SW-01	Lower Reach of Woodfibre Creek (near the mouth)	April 29, 2024	Methylmercury		
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)				
OUT-01	Non-Contact Water Diversion Ditch Outlet				
OUT-02	Non-Contact Water Diversion Ditch Outlet				
OUT-11	Non-Contact Water Diversion Ditch Outlet				
SP-E-OUT	East Sedimentation Pond effluent (compliance point)	April 30, 2024	Methylmercury		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface				
IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface				
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				
WQR1-0.5	Reference site 1; 0.5 m below surface.				
WQR1-2m	Reference site 1; 2 m below surface.				
WQR1-SF	Reference site 1; 2 m above the seafloor.				
WQR2-0.5	Reference site 2; 0.5 m below surface.				
WQR2-2m	Reference site 2; 2 m below surface.				
WQR2-SF	Reference site 2; 2 m above the seafloor.				
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface			May 8, 2024	Dioxins and Furans
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				
WQR1-0.5	Reference site 1; 0.5 m below surface.				
WQR1-2m	Reference site 1; 2 m below surface.				
WQR1-SF	Reference site 1; 2 m above the seafloor.				
WQR2-0.5	Reference site 2; 0.5 m below surface.				
WQR2-2m	Reference site 2; 2 m below surface.				
WQR2-SF	Reference site 2; 2 m above the seafloor.				
SP-E-OUT	East Sedimentation Pond effluent (compliance point)				
SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	May 9, 2024	Dioxins and Furans		
SW-03	Lower Reach of Mill Creek (near the mouth, in the estuarine zone)				
SW-07	Upstream Mill Creek (at the diversion inlet)				
SW-01	Lower Reach of Woodfibre Creek (near the mouth)	May 10, 2024	Dioxins and Furans		
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)				
WWTP-E-IN	East WWTP influent				
WWTP-E-OUT	East WWTP effluent				
SW-01	Lower Reach of Woodfibre Creek (near the mouth)	May 22, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.		
SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	May 23, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.		
SW-03	Lower Reach of Mill Creek (near the mouth, in the estuarine zone)				
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)				
SW-07	Upstream Mill Creek (at the diversion inlet)				
OUT-01	Non-Contact Water Diversion Ditch Outlet				
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	May 24, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.		
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				
WQR1-0.5	Reference site 1; 0.5 m below surface.				
WQR1-2m	Reference site 1; 2 m below surface.				
WQR1-SF	Reference site 1; 2 m above the seafloor.				
WQR2-0.5	Reference site 2; 0.5 m below surface.				
WQR2-2m	Reference site 2; 2 m below surface.				
WQR2-SF	Reference site 2; 2 m above the seafloor.				
SP-E-OUT	East Sedimentation Pond effluent (compliance point)			May 27, 2024	Field, Physical, and General Parameters, Total and Dissolved Metals.
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality			May 29, 2024	Field and Physical Parameters, Total, Dissolved Metals, Hexavalent Chromium, and PAHs.
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	May 30, 2024	Field and Physical Parameters, Total, Dissolved Metals, Hexavalent Chromium, and PAHs.		
WWTP-E-OUT	East WWTP effluent				
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	May 31, 2024 (two samples)	Field and Physical Parameters, Total, Dissolved Metals, Hexavalent Chromium, and PAHs.		
WWTP-E-OUT	East WWTP effluent				
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	June 1, 2024	Field and Physical Parameters, Total, Dissolved Metals, Hexavalent Chromium, and PAHs.		
WWTP-E-OUT	East WWTP effluent				

3.3 East Sedimentation Pond

The East Sedimentation Pond influent and effluent results are screened against PE-111578 discharge limits. Parameters without a discharge limit are screened against BC, Canadian and Federal water quality guidelines (WQGs) for the protection of marine water aquatic life. Influent water is not discharged from site, therefore only effluent water quality is assessed for exceedances. The analytical results, daily field parameters, discharge limits and WQGs are summarized in Table B-1, Table B-2, and Table B-3 (analytical results) and Table B-4 (field measurements) of Appendix B.

During the monitoring period (May 26 – June 1), the East Sedimentation Pond received East WWTP effluent each day. The sedimentation pond did not receive non-contaminated contact water, therefore field measurements at station SP-E-IN-2 were not collected. Field measurements at in-pond and discharge stations SP-E-NE and SP-E-OUT, respectively, met PE-111578 discharge limits for pH and WQG for dissolved oxygen, except on May 26 when pH was 9.2, above the upper limit of pH 9.0. However, the pond did not discharge on this day, therefore this is not considered an exceedance. The elevated pH measured on May 26 originated from the East WWTP effluent and was corrected May 27 as part of the WWTP pilot trial treatment process adjustments.

The in-pond effluent samples (station SP-E-NE) collected May 29, 30, 31 and June 1 proximal to the effluent intake (Figure 1) were tested for total and dissolved metals, hexavalent chromium, and PAHs and met PE-111578 discharge limits for the tested parameters except total copper, total lead, and total zinc on May 29. The in-pond samples met WQGs for parameters without discharge limits except total mercury from the sample collected May 29 (0.000019 mg/L) which was 1.2 times greater than the WQG (0.000016 mg/L), benzo(a)pyrene which was detected at a concentration of 0.0000156 mg/L on May 29, 1.6 times above the WQG value of 0.00001 mg/L, and total nickel from the sample collected June 1 which was 1.6 times greater than the WQG (0.0083 mg/L). However, the pond did not discharge on May 29 nor June 1 and therefore results from samples collected on these dates are not considered discharge limit exceedances.

The East Sedimentation Pond intermittently discharged a total of 1,760 m³ during the monitoring period (May 26 – June 1) on May 27, 28 and 31. Field measurements and analytical results for the East Sedimentation Pond effluent sample (station SP-E-OUT) collected on May 27 met PE-111578 discharge limits and were within WQGs.

Dioxins and furans analytical results were available at the time of reporting for the May 8 sample discussed in Weekly Report #13 for the East Sedimentation Pond discharge point (SP-E-OUT). The lower bound polychlorinated dibenzodioxins/dibenzofurans (PCDD/F; dioxins and furans) toxic equivalency (TEQ) was 0.0249 pg/L in the effluent sample (SP-E-OUT) collected May 8.

Methylmercury analytical results were available at the time of reporting for the April 29 sample discussed in Weekly Report #12 for the East Sedimentation Pond discharge point (SP-E-OUT). The methylmercury concentration at SP-E-OUT was 0.000031 µg/L.

3.4 East Wastewater Treatment Plant

The East WWTP influent and effluent results are screened against the minimum discharge objectives (MDOs) which the WWTP was designed to meet. Contaminated contact water is directed to the WWTP influent, and it is expected that influent water is unlikely to meet MDOs, therefore only effluent water quality is assessed for exceedances. The analytical results, daily field measurements, and MDOs are summarized in Table C-1 (analytical results) and Table C-2 (field measurements) of Appendix C. Screening results are summarized in Table for parameter concentrations that are above a MDOs.

The East WWTP discharged treated effluent to the East Sedimentation Pond each day of the monitoring period (May 26 – June 1). Field measurements were collected each day at the influent and effluent stations, WWTP-E-IN and WWTP-E-OUT, respectively, except the influent station on May 27 as no water sources were flowing to the East WWTP at the time of monitoring. Analytical samples were collected from the effluent station on May 30, 31, and June 1 and were measured for general parameters, total and dissolved metals, hexavalent chromium, and PAHs.

Field measurements of pH at East WWTP influent (station WWTP-E-IN) collected during the monitoring period (May 26 – June 1) ranged from pH 7.6 to 8.9 and were generally within the MDO (pH 7.0 – 8.7); however, dissolved oxygen was generally below the minimum MDO value (8 mg/L), and ranged from 3.54 to 11.13 mg/L.

East WWTP effluent quality at WWTP-E-OUT water quality was circum-neutral and turbid on May 29. Field pH, turbidity and dissolved oxygen in effluent samples ranged from pH 8.2 to 9.3, 0 to 77 NTU and 6.66 to 10.8 mg/L, respectively (Appendix C, Table C-4). The effluent field measurements met the MDOs, except pH on May 26 and May 27 (pH 9.3 and 9.1, respectively). Influent pH was elevated on May 26 (pH 8.9) and likely contributed to the elevated effluent values observed May 26 and 27. Field records indicate the East WWTP resumed producing effluent that met the pH MDO from May 28 onwards. Pilot testing of the East WWTP is underway and occasional, deviations from MDOs may occur during this phase of WWTP operation. Elevated turbidity (77 NTU) was observed on May 29 and is attributed to pilot trial process adjustments that were ongoing May 27 to 31 and were stopped on June 1. Turbidity remained below 10 NTU from May 30 to June 1.

Analytical samples of East WWTP effluent (station WWTP-E-OUT) were collected May 30, 31 and June 1 and the results met MDOs, except for total copper, total vanadium and total zinc. The total copper concentrations in the samples collected from the East WWTP effluent on May 31 and

June 1 were 2.0 and 1.1 times greater, respectively, than the MDO (0.002 mg/L) and is attributed to the soluble form of the metal. The total vanadium concentration in the effluent sample collected on June 1 was 1.1 times greater than the MDO (0.005 mg/L) and is attributed to the soluble forms of the metal. The total zinc concentrations in the two effluent samples collected May 31 were 1.6 and 2.8 times the MDO value (0.01 mg/L). Total zinc concentrations are only partially attributed to the soluble fraction. Process adjustments are underway as part of the East WWTP pilot trials to improve the removal of dissolved metals (*i.e.*, copper, vanadium and zinc).

Dioxins and furans analytical results were available at the time of reporting for the May 10 samples discussed in Weekly Report #13 for the East WWTP influent and effluent stations. The lower bound PCDD/F TEQ was 3.97 pg/L in the East WWTP influent sample (WWTP-E-IN) and 0.0108 pg/L in the effluent sample (WWTP-E-OUT).

Table 4:
Summary of MDO Exceedances for the East WWTP at Effluent Station WWTP-E-OUT.

Parameter	Units	MDO	N	N >MDO	Commentary
Field pH	s.u.	7.0-8.7	7	2	Field pH was 0.60 and 0.40 s.u. above the upper MDO for pH in the field measurements collected from WWTP-E-OUT on May 26 (pH 9.3) and May 27 (pH 9.1), respectively. Field records indicate the East WWTP resumed producing effluent that met the MDO for pH from May 28 – June 1. Influent pH was elevated on May 26 (pH 8.9) and likely contributed to the elevated effluent values. Pilot testing of the East WWTP is underway and occasional deviations from MDOs may occur during the pilot period.
Field Dissolved Oxygen (DO)	mg/L	>=8	7	1	Field DO was below the lower limit MDO for DO in the field measurement collected from WWTP-E-OUT on May 26 (6.66 mg/L). Field records indicate the East WWTP resumed producing effluent that met the MDO for DO from May 27 – June 1. Pilot testing of the East WWTP is underway and occasional deviations from MDOs may occur during this phase of WWTP operation.
Total Copper	mg/L	0.002	4	2	The total copper concentrations were 2.0 and 1.1 times greater than the MDO in the samples from WWTP-E-OUT collected on May 31 (0.00400 mg/L) and June 1 (0.00216 mg/L), respectively. Process adjustments are underway as part of the WWTP pilot trials to improve copper removal.
Total Vanadium	mg/L	0.005	4	1	The total vanadium concentration was 1.1 times greater than the MDO in the sample from WWTP-E-OUT collected on June 1 (0.00535 mg/L). Process adjustments are underway as part of the WWTP pilot trials to improve vanadium removal.
Total Zinc	mg/L	0.01	4	2	The total zinc concentrations in the two samples from WWTP-E-OUT collected on May 31 (0.0158 and 0.0281 mg/L) were 1.6 and 2.8 times greater than the MDO. Process adjustments are underway as part of the WWTP pilot trials to improve zinc removal.

MDO = Minimum discharge objective.

N = number of samples.

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

3.5 Non-Contact Water Diversion Ditch Outlets

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

Analytical results for May 27 non-contact water monitoring (Table 2) were not available at the time of reporting. Field measurements will be reported when the corresponding analytical results are available.

Analytical results for the May 23 non-contact water diversion ditch outlet sample (OUT-01) described in Weekly Report #15 were available at the time of reporting and met WQGs except for total aluminum, dissolved copper and dissolved zinc. The concentrations of total aluminum and dissolved copper were within the concentration ranges observed in the pre-construction baseline monitoring program for creek water, and are therefore not considered to be exceedances. The

concentration of dissolved zinc is near the upper range observed in the pre-construction baseline monitoring program.

Methylmercury analytical results were available at the time of reporting for the April 28 and 29 samples discussed in Weekly Report #12 for non-contact water diversion ditch outlet stations (OUT-01, OUT-02, OUT-06, and OUT-11). Methylmercury concentrations were $<0.000020 \mu\text{g/L}$ in samples collected from OUT-01, OUT-02, and OUT-11. The methylmercury concentration at OUT-06 was $0.000030 \mu\text{g/L}$. Methylmercury concentrations are within the range observed in the pre-construction baseline monitoring program for freshwater creeks within the CPA.

3.6 Freshwater and Estuarine Water Receiving Environment

Freshwater and estuarine water receiving environment samples are screened against BC, Canadian and Federal WQGs for the protection of freshwater or estuarine water aquatic life. The analytical results, field parameters and WQGs are summarized in Appendix E and Appendix F for freshwater and estuarine water, respectively.

Analytical results for May 26 and 27 freshwater and estuarine water monitoring (Table 2) were not available at the time of reporting. Field measurements will be reported when the corresponding analytical results are available.

Analytical results were available for the May 22 and 23 samples discussed in Weekly Report #15 for freshwater and estuarine water receiving environment samples collected at Woodfibre Creek (station SW-01), Mill Creek (stations SW-02, SW-03 and SW-07) and East Creek (station SW-04).

All stations are freshwater except the estuarine water collected near the mouth of Mill Creek (station SW-03). Parameter concentrations met WQGs at Mill Creek stations, except field pH, total aluminum, and dissolved copper (stations SW-02 and SW-07) and at Woodfibre and East Creek stations, except dissolved copper at East Creek (station SW-04; Appendix E). Field pH values and the concentrations of total aluminum and dissolved copper were within the concentration ranges observed in the pre-construction baseline monitoring program and are therefore not considered to be exceedances.

Dioxins and furans analytical results were available at the time of reporting for the May 8 and 9 samples discussed in Weekly Report #13 for freshwater and estuarine water receiving environment stations. The lower bound PCDD/F TEQ ranged from 0 to 0.0159 pg/L in freshwater samples from Woodfibre Creek (SW-01), Mill Creek (SW-02 and SW-07), and East Creek (SW-04). The lower bound PCDD/F TEQ in the lower reach of Mill Creek (SW-03) was 0 pg/L . The reported concentrations of dioxins and furans compounds observed in the freshwater and estuarine water

samples are within the concentration ranges observed in the pre-construction baseline monitoring program.

Methylmercury analytical results were available at the time of reporting for the April 28 and 29 samples discussed in Weekly Report #12 for freshwater and estuarine water receiving environment stations. Methylmercury concentrations were <0.000020 $\mu\text{g/L}$ in freshwater samples from Woodfibre Creek (SW-01), Mill Creek (SW-02 and SW-07), and East Creek (SW-04) as well as the sample collected from the Mill Creek estuary (SW-03). Methylmercury concentrations are within the ranges observed in the pre-construction baseline monitoring program.

3.7 Marine Water Receiving Environment

Marine water receiving environment samples are screened against BC, Canadian and Federal WQGs for the protection of marine water aquatic life. Parameter concentrations above a WQG value, but within the range of values observed in the baseline monitoring program are considered to represent the natural condition of the water and are not flagged as exceedances. The analytical results, field parameters and WQGs are summarized in Appendix G (Table G-1 and G-2). Screening results are summarized in Table 4 for parameter concentrations that are above WQGs and considered an exceedance.

Analytical results for May 28 marine water monitoring (Table 2) were not available at the time of reporting. Field measurements will be reported when the corresponding analytical results are available.

Analytical results were available for the May 24 samples discussed in Weekly Report #15 for marine receiving environment stations IDZ-E1, IDZ-E2, WQR1, and WQR2 at 0.5 and 2 m below the water surface and 2 m above the seafloor and met WQGs except for total boron in samples collected at 2 m above the seafloor as well as dissolved oxygen in one sample collected at 2 m above the seafloor. The concentrations of total boron in the samples ranged from 0.51 to 4.05 mg/L and were above the WQG (1.2 mg/L) in all samples collected from 2 m above the seafloor at IDZ-E1, IDZ-E2, WQR1, and WQR2. Field dissolved oxygen values were below the lower limit of the WQG (8.0 mg/L) in one sample collected from 2 m above the seafloor at WQR1 (7.84 mg/L). The reported concentrations of total boron and dissolved oxygen observed in the marine water samples are within the concentration ranges observed in the pre-construction baseline monitoring program and are therefore not considered to be exceedances.

Analytical results for June 1 marine water monitoring at 0.5 and 2 m below the water surface at IDZ-E1, IDZ-E2, and WQR1 (Table 1) were available at the time of reporting. These samples were collected as periodic monitoring for targeted parameters that is supplementary to PE-111578 requirements. The analytical samples were measured for physical and general parameters as well

as total and dissolved metals and met WQGs except for total boron in two samples collected at 2 m below the water surface, total copper in all samples, and total lead in all but one sample.

The concentrations of total boron in the samples ranged from 0.39 to 1.38 mg/L and were above the WQG (1.2 mg/L) in samples collected from 2 m below the water surface at IDZ-E1 and IDZ-E2. Total copper was above the long-term and short-term WQG (0.002 and 0.003 mg/L, respectively) in all samples collected from 0.5 and 2 m below the water surface at IDZ-E1, IDZ-E2, and the reference station WQR1. Total copper concentrations ranged from 0.00357 to 0.00802 mg/L at IDZ-E1 and IDZ-E2 while concentrations ranged from 0.00355 to 0.00444 mg/L at reference station WQR1. Total lead was above the WQG (0.002 mg/L) in samples collected at 0.5 and 2 m below the water surface at IDZ-E1 and WQR1 and in the sample collected from 2 m below the water surface at IDZ-E2. The total lead concentrations ranged from 0.00099 to 0.0216 mg/L and 0.00438 to 0.00750 mg/L at the IDZ and WQR1 stations, respectively.

The reported concentrations of total boron, total copper and total lead observed in the marine water samples are within the concentration ranges observed in the pre-construction baseline monitoring program and are therefore not considered to be exceedances, except for the total lead concentration observed in the sample collected at 2 m below the water surface (0.0216 mg/L). The observed total lead concentration at 2 m below the water surface at IDZ-E2 was above the upper range observed in the pre-construction baseline dataset. The East Sedimentation Pond discharged 832 m³ effluent to Howe Sound on May 31. Evaluation of East Sedimentation Pond water quality results from samples collected from the in-pond station (SP-E-NE) on May 31 and June 1 showed total lead concentrations below the WQG (0.002 mg/L), therefore it is unlikely that the June 1 WQG exceedance originated from the East Sedimentation Pond effluent that was discharged on May 31.

**Table 5:
Summary of WQG Exceedances for Marine Water Analytical Samples Collected June 1, 2024.**

Parameter	Units	WQG (LT)	Location	N	N >WQG	Commentary
Total Lead (T-Pb)	mg/L	0.002 (BC)	0.5 m below surface	6	1	Total lead exceeded the WQG in the sample collected at 2 m below surface at station IDZ-E2. The observed total lead value is above the upper range observed in pre-construction baseline samples. Evaluation of East Sedimentation Pond water quality results from samples collected from the in-pond station (SP-E-NE) on May 31 and June 1 showed total lead concentrations below the WQG (0.002 mg/L), therefore it is unlikely that the June 1 WQG exceedance originated from the East Sedimentation Pond effluent that was discharged on May 31.
			2 m below surface	0	-	

WQG = British Columbia or Canadian Water Quality Guideline for the Protection of Aquatic Life. LT = long-term marine aquatic life guideline. N = number of samples.

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

Dioxins and furans analytical results were available at the time of reporting for the May 8 samples discussed in Weekly Report #13 for marine receiving environment stations IDZ-E1, IDZ-E2, WQR1, and WQR2 at 0.5 and 2 m below the water surface and 2 m above the seafloor. The lower bound PCDD/F TEQ concentration ranged from 0 to 0.0158 pg/L at station IDZ-E1, 0.000215 to 0.0384 pg/L at station IDZ-E2, 0 to 0.0179 pg/L at reference station WQR1 and ranged from 0 to 0.0278 pg/L at reference station WQR2. The reported concentrations of dioxins and furans compounds observed in the marine water samples are within the concentration ranges observed in the pre-construction baseline monitoring program.

Methylmercury analytical results were available at the time of reporting for the April 30 samples discussed in Weekly Report #12 for marine receiving environment stations IDZ-E1, IDZ-E2, WQR1, and WQR2 at 0.5 and 2 m below the water surface and 2 m above the seafloor. Methylmercury concentrations were <0.000020 µg/L in all marine receiving environment samples and are within the concentrations ranges observed in the pre-construction baseline monitoring program.

4. Quality Control

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 4). The evaluation includes a review of field and lab QC, completeness of the weekly report (*i.e.*, pending data), completeness of the monitoring program, confirmation of recordkeeping, evaluation of compliance and review of water management activities. Any items flagged for follow-up will be carried forward in future reports until they are closed.

Table 6: Weekly Report QC Evaluations and Ongoing Items

QC Procedure	Observation	Investigation/Resolution
Reporting Period (May 26 – June 1, Report #16)		
Monitoring Program Evaluation	PE-111578 contact water, non-contact water and initial dilution zone monitoring stations have not been fully established.	The PE-111578 authorized works were under construction during the reporting period. Monitoring stations are progressively established as water management infrastructure is completed. The East Sedimentation Pond and East WWTP are completed, and pilot testing of the East WWTP is ongoing. The East Sedimentation Pond was commissioned for discharge on April 15. The West Sedimentation Pond is complete, except the outfall structure and West WWTP is under construction. The West Sedimentation Pond is not commissioned for discharge and did not discharge. The non-contact water diversion ditch that discharges at station OUT-06 has been commissioned, and stations for pre-existing outfalls OUT-01, OUT-02, and OUT-11 have also been established.
Recordkeeping Evaluation	Confirmation of the completeness of the daily recordkeeping specified in PE-111578 Conditions 2.1.3, 2.1.4, 2.2.3 and 2.2.4 is not included QC evaluation procedures.	Daily records are maintained by on-site Environmental Monitors and are used for the preparation of the weekly report. Daily flow records pertaining to the cited permit conditions are collected and maintained. Site has recently transitioned to electronic flow monitoring of the sedimentation pond effluent. Overall, the electronic system is effective although it is sensitive to power outages. Daily manual flow records will be kept in parallel as back-up records. This item remains open until the parallel recordkeeping system is verified.
Pending Data	Analytical results for samples collected May 26 – 28 were not reported.	Analytical results were not available at the time of preparing Report #16 and are expected to be available for the next reporting period. This item remains open.
Ongoing Items from Previous Weekly Reports		
Report #10: Water Management Evaluation	April 16 monitoring results for East Sedimentation Pond influent (station SP-E-IN-2) indicated contaminated contact water was directed to the pond.	On April 16, non-contaminated contact water that was previously pumped to a baker tank for storage was transferred to the sedimentation pond as influent. On April 18, after receiving the test results, site staff determined that the baker tank was previously used to store contaminated contact water and that residues from the tank were likely entrained in the water that was transferred from the baker tank to the pond influent. Corrective actions were implemented by site staff on April 18 and included suspending further discharges until WQ monitoring indicated PAHs have been removed from the sedimentation pond, and recirculating water from the baker tanks used for storing non-contaminated contact water through the East WWTP until influent PAH concentrations indicate residual contamination has been removed. Site staff collected a pond sample on April 18 proximal to the intake for the effluent discharge pump located in the northeast corner of the pond (SP-E-POND). PAHs met WQG in the April 18 sedimentation pond sample indicating the residual PAHs were removed from the pond waters. Additional influent monitoring was conducted April 29 and May 17 (SP-E-IN-2). PAHs were detected in the influent sample, and this is attributed to elevated TSS in the samples (192 and 20 mg/L, respectively). Note the concurrent April 29 and May 17 East Sedimentation Pond effluent samples met WQGs for PAHs. Additional influent monitoring was conducted May 20 and 21 (SP-E-IN-2). PAHs were detected in the influent sample collected May 21, and this is attributed to elevated TSS in the sample (32 mg/L). The PAHs are associated with TSS and are removed when TSS is removed. All site contact waters are being directed to the East WWTP since May 21 to treat for PAHs. A TSS removal system will be installed to remove TSS from sedimentation pond influent. This item is closed.
Report #12: Pending Data	Methyl mercury, dioxin and furan results for samples collected April 28-30 were not reported.	Available analytical results are discussed in Sections 3.2 through 3.6 of Report #12 and available dioxin and furan results are discussed in Section 3.2 through 3.6 of Report #15. Methyl mercury results were available at the time of reporting and are discussed in Sections 3.2 through 3.6 of Report #16. This item is closed.
Report #13: WWTP Performance Evaluation	May 6 monitoring results for East WWTP indicate dissolved vanadium was not being removed by the treatment process.	The total vanadium concentration was predominately in the dissolved form and dissolved vanadium concentrations were comparable in the East WWTP influent (WWTP-E-IN; 0.00614 mg/L) and the effluent (0.00606 mg/L). Process adjustments are underway to improve vanadium removal as part of the WWTP pilot trials. This item remains open.
Report #13: Pending Data	Methyl mercury, dioxin and furans results for samples collected May 8 – 10 have not been reported.	Available analytical results are discussed in Sections 3.2 through 3.6 of Report #14 and available dioxin and furan results are discussed in Section 3.2 through 3.6 of Report #16. Methyl mercury results were not complete at the time of reporting. Testing of these parameters typically requires up to 4 weeks to complete. The pending results are expected in mid June. This item remains open.
Report #14: Pending Data	Methyl mercury, dioxin and furan results for samples collected May 14 - 16 were not reported.	Available analytical results are discussed in Sections 3.2 through 3.6 of Report #15. Methyl mercury, dioxins and furans results were not complete at the time of reporting. Testing of these parameters typically requires up to 4 weeks to complete. The pending results are expected in late June. This item remains open.
Report #15: Pending Data	Methyl mercury, dioxin and furan results for samples collected May 22 – 24 were not reported.	Available analytical results are discussed in Sections 3.2 through 3.6 of Report #16. Methyl mercury, dioxins and furans results were not complete at the time of reporting. Testing of these parameters typically requires up to 4 weeks to complete. The pending results are expected in early July. This item remains open.

Notes:

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

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

Monitoring program evaluation is an assessment of the completeness of the monitoring program compared to PE-111578 requirements.

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, Woodfibre LNG and Keystone Environmental staff are conducted as needed to confirm the information presented in this report.

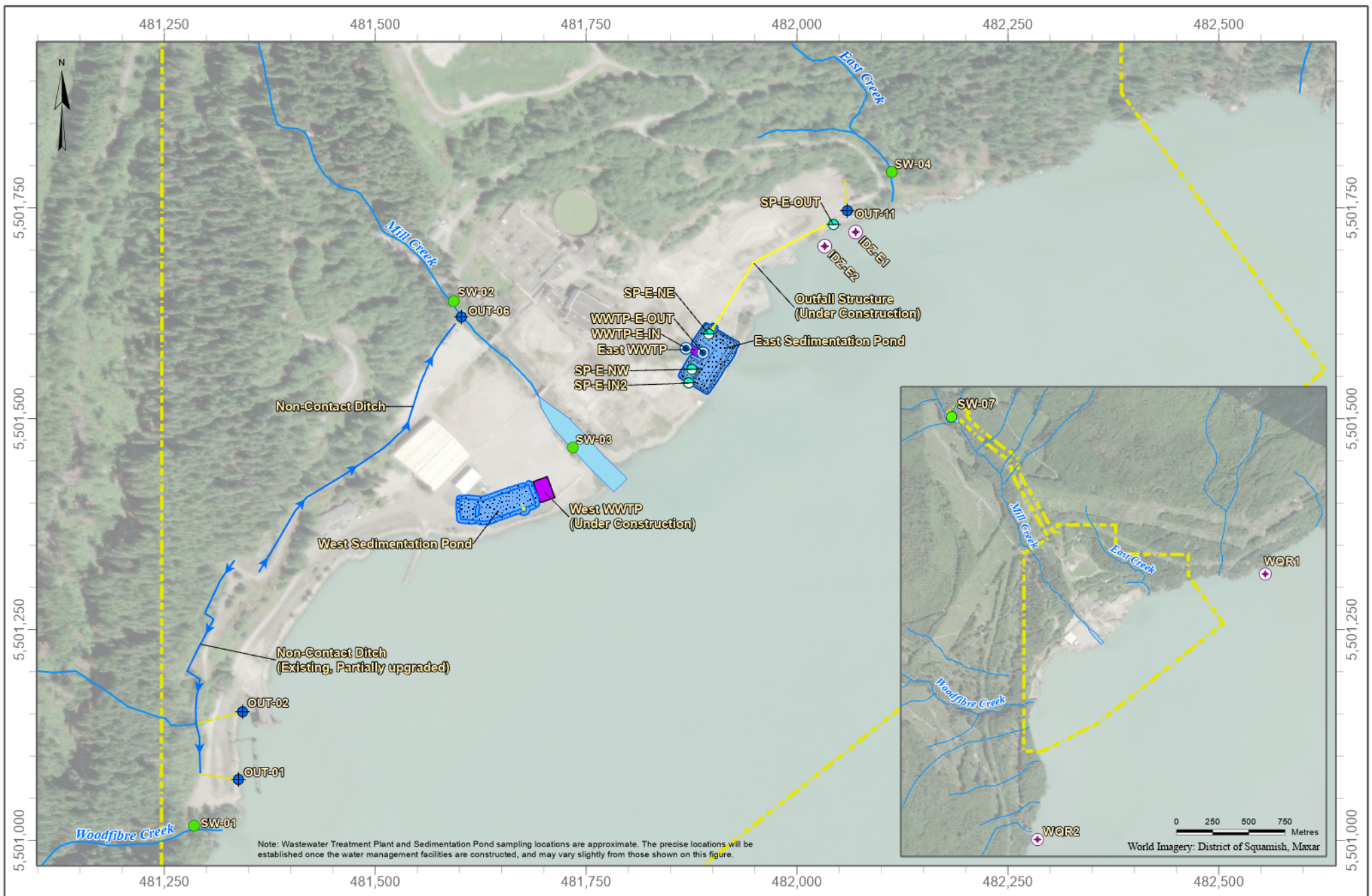
Regards,

LORAX ENVIRONMENTAL SERVICES LTD.

Holly Pelletier, B.Sc., GIT
Environmental Geoscientist



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



LEGEND	
	Freshwater Monitoring Station
	Marine Water Monitoring Station
	Certified Project Area
	Waterbody
	Watercourse
	Non-Contact Diversion Ditch
	Outfall
	Culvert Pipe
	Clean Water Diversion Discharge Station
	Sediment Pond
	Sediment Pond Monitoring Stations (Water Quality)
	WWTP

DATE SAVED:	Jun 06, 2024
DRAWN BY:	DM
REVIEWED:	PM
VERSION:	1

Coordinate System: NAD 1983 UTM Zone 10N
 Projection: Transverse Mercator
 Datum: North American 1983
 Units: Metre
 1:6,000

CLIENT:

PROJECT:

Woodfibre LNG Project Construction Phase

TITLE:
 Completed or Under Construction Water Management Facilities and Established PE-111578 Monitoring Stations (June 1, 2024)

PROJECT #: A633-7

FIGURE: 1

Appendix A: East and West Catchment Photographs

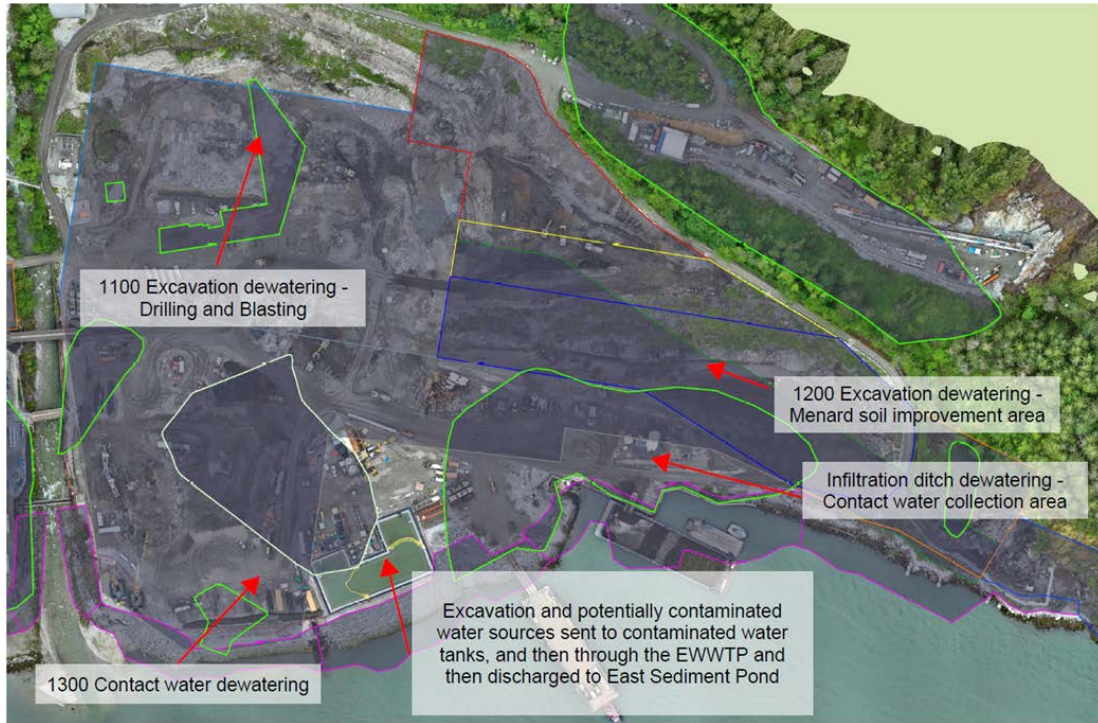


Figure 2: East Catchment Areas Dewatered to the East WWTP May 26 to June 1.



Figure 3: West Catchment Areas Dewatered to the East WWTP May 26 to June 1.

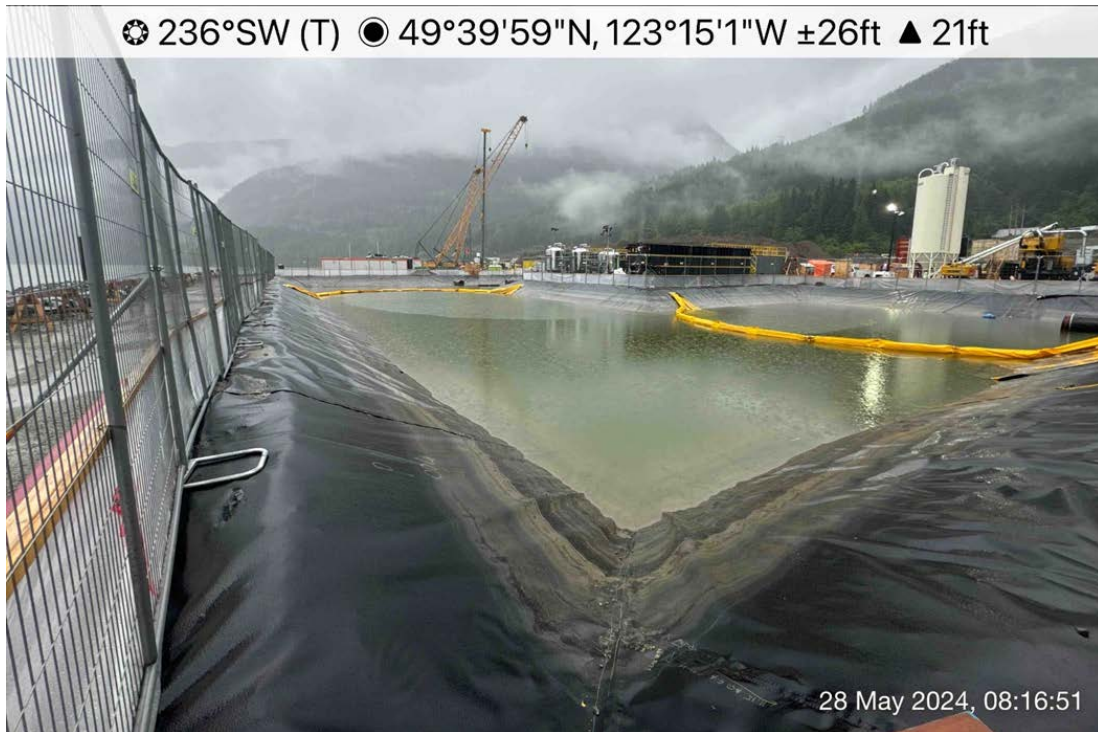


Figure 4: Ground level view of the East Sedimentation Pond, viewing southwest from the northeast corner of the Pond (May 28, 2024).



Figure 5: Ground level view of the West Sedimentation Pond, viewing northeast from the southwest corner of the Pond (May 29, 2024).

Appendix B: East Sedimentation Pond Results

Table B-2: Summary of East Sedimentation Pond Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

Parameter	Unit	East Sedimentation Pond
		Effluent
		SP-E-OUT
		L2755648-13
		2024-05-08 10:12
Lower Bound PCDD/F TEQ	pg/L	0.0249

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).

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

Parameter	Unit	East Sedimentation Pond
		Effluent
		SP-E-OUT
		VA24A9284-002
		2024-04-29 16:20
Methylmercury	µg/L	0.000031

Table B-4: Summary of East Sedimentation Pond Daily Field Parameters Received at the Time of Reporting.

Parameter	Temperature	DO	Salinity	Turbidity	pH	Conductivity	Visibility of Sheen	Total Daily Discharge from the East Sedimentation Pond to Howe Sound	
Unit	°C	mg/L	ppt	NTU	s.u.	µS/cm		m ³	
PE-111578 Discharge Limit ¹	-	-	-	-	5.5 - 9.0	-	-	- ²	
Lowest Applicable Guideline ^{3,4}	-	>=8	-	-	- ⁵	-	-	-	
Station ID	Date								
SP-E-NE	2024-05-26 13:41	15.6	8.63	1.24	0.05	9.2	1958	No	0
SP-E-OUT	2024-05-27 13:39	15.1	9.21	0.97	0.21	8.3	1534	No	45
SP-E-NE	2024-05-27 13:01	14.5	10.39	0.74	1.06	8.1	1173	No	
SP-E-OUT	2024-05-28 15:06	15.0	12.30	1.12	0.21	8.8	2180	No	883
SP-E-NE	2024-05-28 13:08	14.3	11.32	1.09	4.38	8.7	2116	No	
SP-E-NE	2024-05-29 10:51	13.3	10.81	0.47	37.53	8.6	732	No	0
SP-E-NE	2024-05-30 16:35	15.2	10.67	0.43	22.50	8.9	713	No	0
SP-E-NE	2024-05-31 9:22	15.1	10.97	10.97	8.85	7.8	838	No	832
SP-E-NE	2024-06-01 13:02	17.4	8.70	0.80	7.60	8.0	1350	No	0

Notes:

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

Results in **orange** text exceeded the PE11578 East Sedimentation Pond Discharge Limit.

¹ PE-111578 East Sedimentation Pond Discharge Limit applies only to the point of discharge from the East Sedimentation Pond (SP-E-OUT).

² The annual average authorized discharge rate from the East Sedimentation Pond is 650 m³/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, daily discharge flows above 650 m³/day are not considered an exceedance of the annual average rate.

³ Approved British Columbia Water Quality Guidelines for the protection of marine aquatic life (BC ENV, 2021). Where an approved guideline is not established, the working guideline is applied.

⁴ Canadian Water Quality Guideline for the protection of marine aquatic life (CCME, 2021).

⁵ Discharge limit applies therefore the water quality guideline was not evaluated.

The sedimentation pond was not receiving influent at the time of monitoring each day May 26 – June 1, therefore measurements for station SP-E-IN-2 were not collected.

No discharge from the East Sedimentation Pond occurred May 26 and May 29, May 30 and June 1.

Appendix C: East Wastewater Treatment Plant Results

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

Parameter	Unit	Minimum Discharge Objective ¹	East WWTP			
			Effluent	Effluent	Effluent	Effluent
			WWTP-E-OUT	WWTP-E-OUT	WWTP-E-OUT	WWTP-E-OUT
			VA24B2378-002	VA24B2437-002	VA24B2505-002	VA24B2553-002
			2024-05-30 16:14	2024-05-31 8:40	2024-05-31 16:36	2024-06-01 13:15
General Parameters						
pH - Field	pH units	7.0 - 8.7	8.5	8.4	-	8.2
Specific Conductivity - Field	µS/cm	-	712	767	-	1261
Temperature - Field	°C	-	17.6	15.2	-	17.1
Salinity - Field	ppt	-	0.41	8.73	-	0.76
Turbidity - Field	NTU	-	3.35	0.38	-	8.97
TSS	mg/L	-	<3	<3	25.6	<3
Dissolved Oxygen - Field	mg/L	>=8	9.33	8.73	-	8.96
Anions and Nutrients						
Sulphate	mg/L	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-
Fluoride	mg/L	-	-	-	-	-
Ammonia (N-NH ₃)	mg/L	Variable ⁴	-	-	-	-
Nitrite (N-NO ₂)	mg/L	-	-	-	-	-
Nitrate (N-NO ₃)	mg/L	3.7	-	-	-	-
Total Metals						
Aluminum, total (T-Al)	mg/L	-	0.164	0.14	0.688	0.138
Antimony, total (T-Sb)	mg/L	-	0.00247	0.00253	0.00252	0.00251
Arsenic, total (T-As)	mg/L	0.0125	0.00225	0.00236	0.00466	0.00284
Barium, total (T-Ba)	mg/L	-	0.00843	0.00952	0.0345	0.0156
Beryllium, total (T-Be)	mg/L	0.1	<0.0001	<0.0001	<0.0001	<0.0001
Boron, total (T-B)	mg/L	1.2	0.034	0.029	0.038	0.054
Cadmium, total (T-Cd)	mg/L	0.00012	<0.00001	<0.00002	<0.000035	<0.00002
Chromium, total (T-Cr)	mg/L	-	0.00055	<0.0005	0.00269	0.00091
Cobalt, total (T-Co)	mg/L	-	<0.0001	<0.0001	0.00028	<0.0001
Copper, total (T-Cu)	mg/L	0.002	0.00139	0.00118	<u>0.00400</u>	<u>0.00216</u>
Iron, total (T-Fe)	mg/L	-	0.032	0.019	0.492	0.042
Lead, total (T-Pb)	mg/L	0.002	0.000168	0.000087	0.00148	0.00030
Manganese, total (T-Mn)	mg/L	-	0.00098	0.0011	0.0706	0.0311
Mercury, total (T-Hg)	mg/L	0.000016	<0.000005	<0.000005	0.0000052	<0.000005
Molybdenum, total (T-Mo)	mg/L	-	0.0228	0.0247	0.0276	0.0296
Nickel, total (T-Ni)	mg/L	0.0083	0.00073	0.00072	0.00161	0.00053
Selenium, total (T-Se)	mg/L	0.002	0.000235	0.000185	0.000227	0.000181
Silver, total (T-Ag)	mg/L	0.0015	<0.00001	<0.00001	0.00001	<0.00001
Thallium, total (T-Tl)	mg/L	-	<0.00001	<0.00001	0.000034	0.000058
Uranium, total (T-U)	mg/L	-	0.013	0.0137	0.00992	0.0171
Vanadium, total (T-V) ⁸	mg/L	0.005	0.00386	0.00400	0.00432	<u>0.00535</u>
Zinc, total (T-Zn)	mg/L	0.01	0.0060	<u>0.0158</u>	<u>0.0281</u>	0.0060
Hexavalent Chromium, total	mg/L	0.0015	0.00054	<0.0005	<0.0005	0.00091
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	-	<0.00001	<0.00001	<0.00002	<0.00002
Copper, dissolved (D-Cu)	mg/L	-	0.0011	0.00103	0.00131	0.00122
Iron, dissolved (D-Fe)	mg/L	-	<0.01	<0.01	<0.01	<0.01
Lead, dissolved (D-Pb)	mg/L	-	<0.00005	<0.00005	<0.00005	0.00005
Manganese, dissolved (D-Mn)	mg/L	-	0.00032	0.00055	0.0271	0.03
Strontium, dissolved (D-Sr)	mg/L	-	0.164	0.204	0.164	0.234
Vanadium, dissolved (D-V)	mg/L	-	0.00381	0.00363	0.0033	0.00498
Zinc, dissolved (D-Zn)	mg/L	-	0.0043	0.0145	0.0101	0.0047
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	0.006	<0.00001	<0.00001	<0.00001	<0.00001
Acridine	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001
Anthracene	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001
Benz(a)anthracene	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)pyrene	mg/L	0.00001	<0.000005	<0.000005	<0.000005	<0.000005
Chrysene	mg/L	0.0001	<0.00001	<0.00001	<0.00001	<0.00001
Fluoranthene	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001
Fluorene	mg/L	0.012	<0.00001	<0.00001	<0.00001	<0.00001
1-methylnaphthalene	mg/L	0.001	<0.00001	<0.00001	<0.00001	<0.00001
2-methylnaphthalene	mg/L	0.001	<0.00001	<0.00001	<0.00001	<0.00001
Naphthalene	mg/L	0.001	<0.00005	<0.00005	<0.00005	<0.00005
Phenanthrene	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002
Pyrene	mg/L	-	<0.00001	<0.00001	0.000012	<0.00001
Quinoline	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005
Volatile Organic Compounds (VOCs)						
Benzene	mg/L	0.11	-	-	-	-
Ethylbenzene	mg/L	0.25	-	-	-	-
Methyl-tert-butyl-ether	mg/L	5	-	-	-	-
Styrene	mg/L	-	-	-	-	-
Toluene	mg/L	0.215	-	-	-	-
Total Xylenes	mg/L	-	-	-	-	-
Chlorobenzene	mg/L	0.025	-	-	-	-
1,2-Dichlorobenzene	mg/L	0.042	-	-	-	-

Notes:

¹ Minimum discharge objective for the WWTP effluent.

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

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

Parameter	Unit	East WWTP	
		Influent	Effluent
		WWTP-E-IN	WWTP-E-OUT
		L2755695-6	L2755695-7
		2024-05-10 11:15	2024-05-10 10:45
Lower Bound PCDD/F TEQ	pg/L	3.97	0.0108

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).

Table C-2: Summary of East Wastewater Treatment Plant Daily Field Parameters Received at the Time of Reporting.

Parameter		Temperature	DO	Salinity	Turbidity	pH	Conductivity	Visibility of Sheen	Total Daily Discharge from East WWTP to East Sedimentation Pond
Unit		°C	mg/L	ppt	NTU	s.u.	µS/cm		m ³
PE-111578 Discharge Limit ¹		-	-	-	-	-	-	-	1,100
Minimum Discharge Objective ²		-	>=8	-	-	7.0 - 8.7	-	-	-
Station ID	Date								
WWTP-E-IN	2024-05-26 13:45	16.4	8.85	1.3	1.72	<u>8.9</u>	2092	Yes	-
WWTP-E-OUT	2024-05-26 13:37	15.5	<u>6.66</u>	1.18	0	<u>9.3</u>	1874	No	433
WWTP-E-OUT	2024-05-27 13:01	14	10.67	0.56	0.2	<u>9.1</u>	879	No	443
WWTP-E-IN	2024-05-28 10:29	11.9	11.13	1.23	0.52	7.6	1780	No	-
WWTP-E-OUT	2024-05-28 10:02	14.4	10.82	1.11	3.17	8.6	2152	No	477
WWTP-E-IN	2024-05-29 11:02	16.4	<u>5.34</u>	1.22	5.45	8.0	1972	No	-
WWTP-E-OUT	2024-05-29 10:46	12.7	8.68	0.17	77	8.2	270	No	321
WWTP-E-IN	2024-05-30 11:36	22.6	<u>7.67</u>	1.14	8.79	8.6	2123	No	-
WWTP-E-OUT	2024-05-30 16:20	17.6	9.33	0.41	3.35	8.5	712	No	502
WWTP-E-IN	2024-05-31 9:30	19	<u>3.54</u>	3.54	9.71	8.1	2121	No	-
WWTP-E-OUT	2024-05-31 9:09	15.2	8.73	8.73	0.38	8.4	767	No	281
WWTP-E-IN	2024-06-01 13:36	18	8.62	1.14	16.65	8.7	1921	No	-
WWTP-E-OUT	2024-06-01 13:28	17.1	8.96	0.76	8.97	8.2	1261	No	426

Notes:

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

² Minimum discharge objective for the WWTP effluent.

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

Appendix D: Non-Contact Diversion Outlet Results

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

Parameter	Unit	Lowest Applicable Guideline ^{1,2}		Station OUT-01
				Non-Contact Water Diversion Ditch Outlet
				OUT-01
				VA24B1636-002 2024-05-23 16:00
		Long Term	Short Term	
General Parameters				
pH - Field	pH units	6.5 - 9.0	-	7.0
Specific Conductivity - Field	µS/cm	-	-	24.7
Temperature - Field	°C	-	-	11.7
Salinity - Field	ppt	-	-	0.01
Turbidity - Field	NTU	-	-	0.14
TSS	mg/L	-	-	<3
Dissolved Oxygen - Field	mg/L	>=8	>=5	12.19
Anions and Nutrients				
Sulphate	mg/L	128 ³	-	1.71
Chloride	mg/L	120	600	<0.5
Fluoride	mg/L	-	0.40 ³	<0.02
Ammonia (N-NH ₃)	mg/L	1.83 ³	20.3 ³	0.0063
Nitrite (N-NO ₂)	mg/L	0.02 ³	0.06 ³	<0.001
Nitrate (N-NO ₃)	mg/L	3	32.8	0.0445
Total Metals				
Aluminum, total (T-Al)	mg/L	0.069 ³	-	<u>0.101</u>
Antimony, total (T-Sb)	mg/L	0.074	-	<0.0001
Arsenic, total (T-As)	mg/L	0.005	-	0.00013
Barium, total (T-Ba)	mg/L	1	-	0.00339
Beryllium, total (T-Be)	mg/L	0.00013	-	<0.0001
Boron, total (T-B)	mg/L	1.2	29	<0.01
Cadmium, total (T-Cd)	mg/L	0.000036 ³	0.00011 ³	<0.000005
Chromium, total (T-Cr) ⁵	mg/L	0.001	-	<0.0005
Cobalt, total (T-Co)	mg/L	0.001	0.11	<0.0001
Copper, total (T-Cu)	mg/L	-	-	0.00067
Iron, total (T-Fe)	mg/L	0.3	1	0.036
Lead, total (T-Pb)	mg/L	0.0034 ³	0.0030 ³	0.000057
Manganese, total (T-Mn)	mg/L	0.77 ³	0.82 ³	0.00179
Mercury, total (T-Hg)	mg/L	0.00002	-	<0.000005
Molybdenum, total (T-Mo)	mg/L	0.073	46	0.000272
Nickel, total (T-Ni)	mg/L	0.025 ³	-	<0.0005
Selenium, total (T-Se)	mg/L	0.001	-	<0.00005
Silver, total (T-Ag)	mg/L	0.00005 ³	0.0001 ³	<0.00001
Thallium, total (T-Tl)	mg/L	0.0008	-	<0.00001
Uranium, total (T-U)	mg/L	0.0085	0.033	0.000056
Vanadium, total (T-V)	mg/L	0.12	-	<0.0005
Zinc, total (T-Zn)	mg/L	-	-	0.011
Hexavalent Chromium, total	mg/L	0.001	-	-
Dissolved Metals				
Cadmium, dissolved (D-Cd)	mg/L	0.000024 ³	0.000038 ³	<0.000005
Copper, dissolved (D-Cu)	mg/L	0.0003 ³	0.0008 ³	<u>0.00065</u>
Iron, dissolved (D-Fe)	mg/L	-	0.35	0.028
Lead, dissolved (D-Pb)	mg/L	0.0036 ³	-	<0.00005
Manganese, dissolved (D-Mn)	mg/L	0.38 ³	1.97 ³	0.0014
Strontium, dissolved (D-Sr)	mg/L	2.5	-	0.00783
Vanadium, dissolved (D-V)	mg/L	-	-	<0.0005
Zinc, dissolved (D-Zn)	mg/L	0.010 ³	0.019 ³	<u>0.0105</u>
Polycyclic Aromatic Hydrocarbons (PAHs)				
Acenaphthene	mg/L	0.0058	-	-
Acridine	mg/L	0.003	-	-
Anthracene	mg/L	0.00012	-	-
Benz(a)anthracene	mg/L	0.00018	-	-
Benzo(a)pyrene	mg/L	0.00001	-	-
Chrysene	mg/L	-	-	-
Fluoranthene	mg/L	0.00004	-	-
Fluorene	mg/L	0.003	-	-
1-methylnaphthalene	mg/L	-	-	-
2-methylnaphthalene	mg/L	-	-	-
Naphthalene	mg/L	0.001	0.001	-
Phenanthrene	mg/L	0.0003	-	-
Pyrene	mg/L	0.00002	-	-
Quinoline	mg/L	0.0034	-	-
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 Approved British Columbia Water Quality Guidelines for the protection of freshwater aquatic life (BC ENV, 2023). Where an approved guideline is not established, the working guideline is applied.

² Canadian Water Quality Guideline for the protection of freshwater aquatic life (CCME, 2021). Federal Water Quality Guidelines (FWQG) are used for total Al, Co, and V, and for dissolved Cu, Sr, and Pb (Environment and Climate Change Canada).

³ 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.

⁴ When MeHg ≤ 0.5% of total Hg, BC WQG = 0.00002 mg/L.

⁵ 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: Summary of Freshwater Quality Results for Methylmercury Results Received at the Time of Reporting.

Parameter	Unit	Station OUT-01	Station OUT-02	Station OUT-06	Station OUT-11
		Non-Contact Water Diversion Ditch Outlet	Non-Contact Water Diversion Ditch Outlet	Non-Contact Water Diversion Ditch Outlet	Non-Contact Water Diversion Ditch Outlet
		OUT-01	OUT-02	OUT-06	OUT-11
		VA24A9285-003	VA24A9285-004	VA24A9263-003	VA24A9285-005
		2024-04-29 11:30	2024-04-29 11:45	2024-04-28 15:00	2024-04-29 13:45
Methylmercury	µg/L	<0.000020	<0.000020	0.000030	<0.000020

Appendix E: Freshwater Receiving Environment Results

Table E-2: Summary of Freshwater Quality Results for Dioxin and Furan Results Received at the Time of Reporting.

Parameter	Unit	Station SW-01	Station SW-02	Station SW-07	Station SW-04
		Woodfibre Creek Lower Reach	Mill Creek Mid-Reach	Mill Creek Background	East Creek Lower Reach
		SW-01	SW-02	SW-07	SW-04
		L2755695-1	L2755677-1	L2755677-3	L2755695-2
		2024-05-10 13:00	2024-05-09 14:00	2024-05-09 13:00	2024-05-10 10:20
Lower Bound PCDD/F TEQ	pg/L	0.000306	0.0	0.0159	0.000594

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 compounds are assigned a value of zero (0).

Table E-3: Summary of Freshwater Quality Results for Methylmercury Results Received at the Time of Reporting.

Parameter	Unit	Station SW-01	Station SW-02	Station SW-07	Station SW-04
		Lower Reach of Woodfibre Creek (near the mouth)	Upper Reach of Mill Creek (upstream of the third bridge)	Upstream Mill Creek (at the diversion inlet)	Lower Reach of East Creek (near the outlet to the outfall culvert)
		SW-01	SW-02	SW-07	SW-04
		VA24A9285-001	VA24A9263-002	VA24A9263-001	VA24A9285-002
		2024-04-29 11:00	2024-04-28 14:50	2024-04-28 13:30	2024-04-29 13:15
Methylmercury	µg/L	<0.000020	<0.000020	<0.000020	<0.000020

Appendix F: Estuarine Receiving Environment Results

Table F-1: Summary of Mill Creek Estuary Water Quality Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline ^{1,2}		Station SW-03
				Mill Creek Estuary
		SW-03		
		VA24B1636-002 2024-05-23 16:00		
		Long Term	Short Term	
General Parameters				
pH - Field	pH units	7.0 - 8.7	-	8.4
Specific Conductivity - Field	µS/cm	-	-	11.6
Temperature - Field	°C	-	-	9.9
Salinity - Field	ppt	-	-	0.0
Turbidity - Field	NTU	-	-	3.09
TSS	mg/L	-	-	<3
Dissolved Oxygen - Field	mg/L	-	-	12.85
Anions and Nutrients				
Sulphate	mg/L	-	-	1.22
Chloride	mg/L	-	-	<0.5
Fluoride	mg/L	-	-	<0.02
Ammonia (N-NH ₃)	mg/L	-	-	<0.005
Nitrite (N-NO ₂)	mg/L	-	-	<0.001
Nitrate (N-NO ₃)	mg/L	-	-	0.0213
Total Metals				
Aluminum, total (T-Al)	mg/L	-	-	0.0865
Antimony, total (T-Sb)	mg/L	-	-	<0.0001
Arsenic, total (T-As)	mg/L	-	-	0.0001
Barium, total (T-Ba)	mg/L	-	-	0.00176
Beryllium, total (T-Be)	mg/L	-	-	<0.0001
Boron, total (T-B)	mg/L	-	-	<0.01
Cadmium, total (T-Cd)	mg/L	-	-	<0.000005
Chromium, total (T-Cr)	mg/L	-	-	<0.0005
Cobalt, total (T-Co)	mg/L	-	-	<0.0001
Copper, total (T-Cu)	mg/L	0.002	0.003	<0.0005
Iron, total (T-Fe)	mg/L	-	-	0.02
Lead, total (T-Pb)	mg/L	0.002	0.14	0.000058
Manganese, total (T-Mn)	mg/L	-	-	0.00078
Mercury, total (T-Hg) ³	mg/L	0.00002	-	<0.000005
Molybdenum, total (T-Mo)	mg/L	-	-	0.000389
Nickel, total (T-Ni)	mg/L	-	-	<0.0005
Selenium, total (T-Se)	mg/L	-	-	<0.00005
Silver, total (T-Ag)	mg/L	0.0015	0.003	<0.00001
Thallium, total (T-Tl)	mg/L	-	-	<0.00001
Uranium, total (T-U)	mg/L	-	-	0.000182
Vanadium, total (T-V)	mg/L	-	-	<0.0005
Zinc, total (T-Zn)	mg/L	-	-	<0.003
Hexavalent Chromium, total	mg/L	-	-	<0.0005
Dissolved Metals				
Cadmium, dissolved (D-Cd)	mg/L	-	-	<0.000005
Copper, dissolved (D-Cu)	mg/L	-	-	0.00023
Iron, dissolved (D-Fe)	mg/L	-	-	<0.01
Lead, dissolved (D-Pb)	mg/L	-	-	<0.00005
Manganese, dissolved (D-Mn)	mg/L	-	-	0.00055
Strontium, dissolved (D-Sr)	mg/L	-	-	0.00511
Vanadium, dissolved (D-V)	mg/L	-	-	<0.0005
Zinc, dissolved (D-Zn)	mg/L	-	-	0.001
Polycyclic Aromatic Hydrocarbons (PAHs)				
Acenaphthene	mg/L	-	-	<0.00001
Acridine	mg/L	-	-	<0.00001
Anthracene	mg/L	-	-	<0.00001
Benz(a)anthracene	mg/L	-	-	<0.00001
Benzo(a)pyrene	mg/L	-	-	<0.000005
Chrysene	mg/L	-	-	<0.00001
Fluoranthene	mg/L	-	-	<0.00001
Fluorene	mg/L	-	-	<0.00001
1-methylnaphthalene	mg/L	-	-	<0.00001
2-methylnaphthalene	mg/L	-	-	<0.00001
Naphthalene	mg/L	-	-	<0.00005
Phenanthrene	mg/L	-	-	<0.00002
Pyrene	mg/L	-	-	<0.00001
Quinoline	mg/L	-	-	<0.00005
Volatile Organic Compounds (VOCs)				
Benzene	mg/L	-	-	<0.0005
Ethylbenzene	mg/L	-	-	<0.0005
Methyl-tert-butyl-ether	mg/L	-	-	<0.0005
Styrene	mg/L	-	-	<0.0005
Toluene	mg/L	-	-	<0.0004
Total Xylenes	mg/L	-	-	<0.0005
Chlorobenzene	mg/L	-	-	<0.0005
1,2-Dichlorobenzene	mg/L	-	-	<0.0005

Notes:

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

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

¹ Approved British Columbia Water Quality Guidelines for the protection of estuarine aquatic life (BC ENV, 2021). Where an approved guideline is not established, the working guideline is applied.

² Canadian Water Quality Guideline for the protection of estuarine aquatic life (CCME, 2021).

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

Table F-2: Summary of Mill Creek Estuary Water Quality Results for Dioxin and Furan Results Received at the Time of Reporting.

Parameter	Unit	Station SW-03
		Mill Creek Estuary
		SW-03
		L2755677-2
		2024-05-09 14:45
Lower Bound PCDD/F TEQ	pg/L	0.0

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 compounds are assigned a value of zero (0).

Table F-3: Summary of Mill Creek Estuary Water Quality Results for Methylmercury Results Received at the Time of Reporting.

Parameter	Unit	Station SW-03
		Mill Creek Estuary
		SW-03
		VA24A9263-004
		2024-04-28 16:00
Methylmercury	µg/L	<0.000020

Appendix G: Marine Water Receiving Environment Results

Table G-4: Summary of IDZ Marine Water Quality Results for Dioxins and Furans Received at the Time of Reporting

Parameter	Unit	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
		L2755648-4	L2755648-5	L2755648-6	L2755648-7	L2755648-8	L2755648-9
		2024-05-08 11:45	2024-05-08 11:30	2024-05-08 11:15	2024-05-08 12:30	2024-05-08 13:00	2024-05-08 12:05
Lower Bound PCDD/F TEQ	pg/L	0.015800	0.0	0.00400	0.0384	0.0216	0.000215

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 compounds are assigned a value of zero (0).

Table G-5: Summary of Reference Station Marine Water Quality Results for Dioxins and Furans Received at the Time of Reporting

Parameter	Unit	Reference Station WQR1			Reference Station WQR2		
		0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
		WQR1-0.5	WQR1-2m	WQR1-SF	WQR2-0.5	WQR2-2m	WQR2-SF
		L2755648-10	L2755648-11	L2755648-12	L2755648-1	L2755648-2	L2755648-3
		2024-05-08 14:30	2024-05-08 14:15	2024-05-08 13:45	2024-05-08 10:45	2024-05-08 10:30	2024-05-08 9:15
Lower Bound PCDD/F TEQ	pg/L	0.0	0.0179	0.0156	0.0278	0.0	0.00413

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 compounds are assigned a value of zero (0).

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

Parameter	Unit	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
		VA24A9402-001	VA24A9402-002	VA24A9402-003	VA24A9402-004	VA24A9402-005	VA24A9402-006
		2024-04-30 12:15	2024-04-30 11:45	2024-04-30 11:15	2024-04-30 14:30	2024-04-30 14:15	2024-04-30 12:30
Methylmercury	µg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020

Table G-7: Summary of Reference Station Marine Water Quality Results for Methylmercury Received at the Time of Reporting

Parameter	Unit	Station WQR1			Station WQR2		
		0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor	0.5 m Below Surface	2 m Below Surface	2 m Above Seafloor
		WQR1-0.5	WQR1-2m	WQR1-SF	WQR2-0.5	WQR2-2m	WQR2-SF
		VA24A9402-007	VA24A9402-008	VA24A9402-009	VA24A9402-010	VA24A9402-011	VA24A9402-012
		2024-04-30 15:45	2024-04-30 15:30	2024-04-30 15:00	2024-04-30 11:00	2024-04-30 10:30	2024-04-30 10:00
Methylmercury	µg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020