TECHNICAL MEMORANDUM

To:	**Ashleigh Crompton, Mike Champion, Jackie Boruch and Ryan Schucroft (Woodfibre LNG)**	**Date:**	**28 June 2024**
From:	**Holly Pelletier and Patrick Mueller (Lorax)**	**Project #:**	**A633-7**
Subject:	**PE-111578 Weekly Discharge and Compliance Report #19 for June 16 – 22**		

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 #19) was prepared by Lorax Environmental and summarizes monitoring conducted the week of June 16 – 22 for contact waters directed to a WWTP or a sedimentation pond. Monitoring data and pending results from prior reporting periods available at the time of reporting are tabulated and included as appendices. Figures referenced in the report discussion are presented after Section 5. Report #19 has been prepared to meet the 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 June 16 – 22 monitoring period. The East WWTP, and East and West sedimentation ponds have been completed, and the West WWTP is ready for commissioning. 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 schedule for completion of the pond outfall structure is being revised. The West WWTP has been assembled and commissioning of the WWTP is tentatively planned for the week of July 3 with the commencement of pilot trials.

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 noting that the outlets will be upgraded and extended later in the construction schedule. Additional construction is underway or has been completed for diversion ditching leading to OUT-02 and OUT-11.

The weather was generally warm and dry during the monitoring period (June 16 – 22) with minimal precipitation recorded June 16 – 17 and June 22 at the on-site weather station (<2 mm per day). 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
2024/06/16	0.6	14.2	8.1	Overcast
2024/06/17	0.2	15.3	10.7	Overcast
2024/06/18	0.0	18.8	11.7	Partly Cloudy
2024/06/19	0.0	22.2	10.1	Partly Cloudy
2024/06/20	0.0	25.0	12.3	Sunny
2024/06/21	0.0	24.4	14.0	Partly Cloudy
2024/06/22	1.7	21.2	14.5	Partly Cloudy

Pilot testing of the East WWTP continued during the monitoring period (June 16 – 22). Due to generally dry conditions, there were minimal flows of contact waters from excavations within the East and West Catchment, therefore the East WWTP and the East and West sedimentation ponds did not receive contact water June 16 – 22. Water was recirculated from the East Sedimentation Pond through the East WWTP which discharged a total of 3,418 m^3 of treated effluent to the East Sedimentation Pond. Daily WWTP effluent flows are provided in Appendix C (Table C-3).

There were no discharges from the East and West Sedimentation Ponds during the monitoring period (June 16 – 22), except on June 16 and June 22. The East Sedimentation Pond discharged intermittently during dayshift on June 22 and the June 22/23 nightshift. Discharge that occurred during day shift is reported as the June 22 discharge volume. The discharges that occurred on night shift will be reported with the June 23 volume in the next weekly report. Daily effluent flows are provided in Appendix B (Table B-4). Photographs of the ponds are included in Appendix A (Figure 2 and Figure 3).

2. Monitoring Summary

The PE-111578 authorized works were under construction during the June 16 – 22 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 IDZ-E1, IDZ-E2, WQR1, WQR2, WWTP-E-IN, WWTP-E-OUT, SP-E-NE, and SP-E-OUT were monitored during the monitoring period (June 16 – 22). Sampling dates and parameters tested are summarized in Table 1.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (June 16 – 22) were met. However, field parameters and analytical samples were not collected at station SP-E-IN-2, the East Sedimentation Pond non-contaminated contact water influent station. The pond did not receive contact water inflows, therefore daily field parameters and a weekly analytical sample were not collected at station SP-E-IN-2. Complete daily field parameters were not available from the effluent station of the East WWTP (WWTP-E-OUT) on June 21 as the results for some parameters (*i.e.*, temperature, DO, salinity and conductivity) were inadvertently not recorded.

Table 2: Summary of PE-111578 monitoring samples collected June 16 – 22.

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
June 16, 2024	SP-E-OUT	East Sedimentation Pond effluent (compliance point)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins and Furans, Methylmercury, Oil and Grease, and Glycols.	D, 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		
	WWTP-E-IN	East WWTP influent		
June 17, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent		
	WWTP-E-IN	East WWTP influent		
	WQR1-0.5	Reference site 1; 0.5 m below surface.	Field Parameters.	P
	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.		
June 18, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent		
	WWTP-E-IN	East WWTP influent		
June 19, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent		
	WWTP-E-IN	East WWTP influent		
June 20, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent		
	WWTP-E-IN	East WWTP influent		
June 21, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field Parameters.	D
	WWTP-E-OUT	East WWTP effluent		
	WWTP-E-IN	East WWTP influent		
June 22, 2024	WWTP-E-OUT	East WWTP effluent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins and Furans.	D, W_1, P
	WWTP-E-IN	East WWTP influent		
	SP-E-OUT	East Sedimentation Pond effluent (compliance point)	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Dioxins and Furans, and Methylmercury.	D, W_1, W_2
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field and Physical Parameters.	P
	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		

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 (weekly for the first 6 months of monitoring).
W_2 - initial high frequency monitoring for all parameters at WWTP and sedimentation pond influent and effluent stations (weekly for the first 5 weeks of monitoring).
W_3 – 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 stations SP-E-NW and SP-E-NE may be monitored in place of stations SP-E-IN-2 and SP-E-OUT, respectively when there is no influent to, or discharge from the East Sedimentation Pond at the time of monitoring.

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 5).

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 (June 16 – 22) that were available at the time of reporting are listed below in Table 3. Results for methylmercury, dioxins and furans are pending for the following samples and will be included in future weekly reports when available:

- SP-E-OUT collected June 16 (dioxins and furans)
- WWTP-E-IN and WWTP-E-OUT collected June 22 (dioxins and furans)
- SP-E-OUT collected June 22 (methylmercury, dioxins and furans)

Methylmercury analytical results for samples collected May 22 – 24 and described in Weekly Report #15 were available at the time of reporting. Dioxins and furans analytical results for samples collected May 14 – 16 and described in Weekly Report #14 and for samples collected May 22 – 24 and described in Weekly Report #15 were also available at the time of reporting.

Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #19.

Sample	Description	Sampling Date	Parameters Reported
SW-02	Upper Reach of Mill Creek (upstream of the third bridge)	May 14, 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)		
WWTP-E-OUT	East WWTP effluent	May 15, 2024	Dioxins and Furans.
OUT-02	Non-Contact Water Diversion Ditch Outlet	May 16, 2024	Dioxins and Furans.
SW-01	Lower Reach of Woodfibre Creek (near the mouth)		
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)		
SW-01	Lower Reach of Woodfibre Creek (near the mouth)	May 22, 2024	Methylmercury, Dioxins and Furans.
OUT-01	Non-Contact Water Diversion Ditch Outlet	May 23, 2024	Methylmercury, Dioxins and Furans.
SW-02	Upper Reach of Mill Creek (upstream of the third bridge)		
SW-03	Lower Reach of Mill Creek (near the mouth, in the estuarine zone)		
SW-04	Lower Reach of East Creek (near the outlet to the outfall culvert)		
SW-07	Upstream Mill Creek (at the diversion inlet)		
SP-E-OUT	East Sedimentation Pond effluent (compliance point)		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	May 24, 2024	Methylmercury, 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)	June 16, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and methylmercury.
WQR1-0.5	Reference site 1; 0.5 m below surface.	June 17, 2024	Field Parameters.
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)	June 22, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, and VOCs.
WWTP-E-IN	East WWTP influent		
WWTP-E-OUT	East WWTP effluent		
IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface		Field and Physical (TSS) 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		

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 and Table B-2 (analytical results) and Table B-3 (field measurements) of Appendix B.

During the monitoring period (June 16 – 22), the East Sedimentation Pond received East WWTP effluent each day. The sedimentation pond did not receive contact water during the monitoring period; therefore, field measurements at station SP-E-IN-2 were not collected. The East Sedimentation Pond discharged on June 16 for approximately 1 hour and intermittently during dayshift on June 22 and continuing overnight until June 23.

Daily field measurements at in-pond effluent station (SP-E-NE) met PE-111578 discharge limits for pH and the WQG for dissolved oxygen, except for dissolved oxygen measurements on June 20 and 21 when values were below the lower limit of the WQG (8.0 mg/L). However, the pond did not discharge June 20 – 21. Field measurements and analytical results for station SP-E-OUT collected on June 16 met PE- 111578 discharge limits and were within WQGs. The effluent sample (SP-E-OUT) collected on June 22 met PE- 111578 discharge limits and WQGs for parameters without discharge limits, except for dissolved oxygen (Table 4). Dissolved oxygen was 6.15 mg/L and did not meet the WQG (≥8 mg/L). However, with the mixing of sedimentation pond discharge in Howe Sound surface water the dissolved oxygen values would likely meet WQG within metres of the outfall (and within the initial dilution zone). Low dissolved oxygen concentrations at the in-pond effluent station correlate with the low dissolved oxygen values in WWTP Effluent measured June 20 – 22 (refer to Section 3.4).

Dioxins and furans analytical results were available at the time of reporting for the May 23 sample discussed in Weekly Report #15 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 0.00672 pg/L in the effluent sample (SP-E-OUT) collected May 23.

Methylmercury analytical results were available at the time of reporting for the May 23 sample discussed in Weekly Report #15 and for the June 16 sample for the East Sedimentation Pond discharge point (SP-E-OUT). The methylmercury concentration at SP-E-OUT was <0.000020 µg/L on May 23 and 0.000025 µg/L on June 16.

Table 4:
Summary of WQG Exceedances for the East Sedimentation Pond at Effluent Station SP-E-OUT.

Parameter	Units	WQG (LT)	N	N >WQG	Commentary
Dissolved Oxygen	mg/L	>= 8.0	2	1	The field measurement of dissolved oxygen at the effluent station (SP-E-OUT) on June 22 (6.15 mg/L) was below the lower limit of the WQG. This concentration is in the range of baseline values observed in marine water samples and the mixing zone model indicates the concentration would be raised above the lower limit of the WQG within the initial dilution zone defined in PE-111578.

WQG = British Columbia or Canadian Water Quality Guideline for the Protection of Aquatic Life. LT = long-term freshwater or estuarine aquatic life guideline. Variable dependant guidelines were calculated for each sample using sample specific parameter values. The nearest boundary value was used if a variable was outside the formula range.
N = number of samples.
Non-detect results are screened using the detection limit value.

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 5 for parameter concentrations that do not meet MDOs.

The East WWTP received only East Sedimenation Pond water each day during the monitoring period (June 16 – 22). The recirculated pond water was treated by the East WWTP and discharged back to the East Sedimentation Pond. Field measurements were collected each day at the influent and effluent stations, WWTP-E-IN and WWTP-E-OUT. The monitoring record is incomplete for field measurements collected June 21 at station WWTP-E-OUT and only pH and turbidity were recorded on that that day.

Field measurements of pH at East WWTP influent (station WWTP-E-IN) collected during the monitoring period (June 16 – 22) ranged from pH 7.0 to 7.5, dissolved oxygen ranged from 6.60 to 10.4 mg/L and turbidity readings ranged from 6.59 to 23.4 NTU. The field measurements met the MDOs for pH and dissolved oxygen, except on June 22 when dissolved oxygen (6.60 mg/L) was outside the MDO criteria (≥ 8 mg/L).

Field pH, turbidity and dissolved oxygen in East WWTP effluent samples (station WWTP-E-OUT) ranged from pH 6.9 to 9.5, 0 to 2.48 NTU and 6.33 to 10.42 mg/L, respectively (Appendix C, Table C-3). The effluent field measurements met the MDOs, except pH on June 16, 19, and 22 (pH 6.9, 9.5, and 6.9, respectively) and dissolved oxygen on June 16, 20, and 22 (7.57, 7.47, and

6.33 mg/L, respectively). Pilot testing of the East WWTP is underway and the deviations in pH are attributed to WWTP process adjustments during the monitoring period. Deviations from MDOs are expected to occasionally occur during the East WWTP pilot trial. Effluent turbidity concentrations ranged from 0 to 2.48 NTU.

An analytical sample of East WWTP effluent (station WWTP-E-OUT) was collected June 22 and tested for all parameters under PE-111578 except methylmercury (Table 2). The results met MDOs, except for total copper, total vanadium, and total zinc. The total copper concentration was 1.2 times greater than the MDO (0.002 mg/L) in the sample from WWTP-E-OUT collected on June 22 (0.00242 mg/L), due to both soluble and particle-bound forms of the metal. The total vanadium and zinc concentrations were 1.2 and 1.0 times greater, respectively, than the MDOs (0.005 and 0.01 mg/L, respectively) and is primarily attributed to the soluble forms of the metals present in the sample.

Dioxins and furans analytical results were available at the time of reporting for the May 15 sample discussed in Weekly Report #14 for the East WWTP effluent station. The lower bound PCDD/F TEQ was 0.0196 pg/L in the effluent sample (WWTP-E-OUT).

Table 5:
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	3	Field pH was below the lower limit of the MDO on June 16 (pH 6.9), June 19 (pH 9.5), and June 22 (pH 6.9). Process adjustments are underway and occasional deviations from MDOs may occur during the pilot period. This item remains open.
Field Dissolved Oxygen (DO)	mg/L	>=8	6	3	Field DO was below the lower limit MDO for DO in the field measurement collected from WWTP-E-OUT on June 16 (7.57 mg/L), June 20 (7.47 mg/L), and June 22 (6.33 mg/L). Process adjustments are underway and occasional deviations from MDOs may occur during the pilot period. This item remains open.
Total Copper	mg/L	0.002	1	1	The total copper concentration was 1.2 times greater than the MDO in the samples from WWTP-E-OUT collected on June 22 (0.00242 mg/L). Additional process adjustments are under development to improve the removal of copper. This item remains open.
Total Vanadium	mg/L	0.005	1	1	The total vanadium concentration was 1.2 times greater than the MDO in the sample from WWTP-E-OUT collected June 22 (0.00602 mg/L). Additional process adjustments are under development to improve the removal of vanadium. This item remains open.
Total Zinc	mg/L	0.01	1	1	The total zinc concentration was 1.0 times greater than the MDO in the sample from WWTP-E-OUT collected June 22 (0.0102 mg/L). Additional process adjustments are under development to improve the removal of zinc. This item remains open.

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.

Methylmercury analytical results were available at the time of reporting for the May 23 sample discussed in Weekly Report #15 for non-contact water diversion ditch outlet station OUT-01. The methylmercury concentration was 0.000021 µg/L and is 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.

Dioxins and furans analytical results were available at the time of reporting for the May 14 and 16 samples discussed in Weekly Report #14 and for the May 22 – 23 samples discussed in Weekly Report #15 for freshwater and estuarine water receiving environment stations. For the May 14 and 16 samples, the lower bound PCDD/F TEQ ranged from 0 to 0.00812 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 estuarine lower reach of Mill Creek (SW-03) was 0.000354 pg/L. For the May 22 – 23 samples, the lower bound PCDD/F TEQ ranged from 0 to 0.0323 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 estuarine lower reach of Mill Creek (SW-03) was 0.240 pg/L on May 23. 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 except for the reported concentration from Mill Creek (SW-03) on May 23 which were above the upper range observed in the pre-construction baseline monitoring program.

Methylmercury analytical results were available at the time of reporting for the May 22 – 23 samples discussed in Weekly Report #15 for freshwater and estuarine water receiving environment stations. Methylmercury concentrations were <0.000020 µg/L in the freshwater samples from Woodfibre Creek (SW-01), Mill Creek (SW-02 and SW-07), and East Creek (SW- 04). The methylmercury concentration in the estuarine lower reach of Mill Creek (SW-03) was <0.000020 µg/L. 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 to G-6).

Field measurements were collected June 17 from marine reference stations WQR1 and WQR2 at 0.5 and 2 m below the water surface and 2 m above the seafloor (Table 2). Marine receiving environment samples were collected June 22 at monitoring stations IDZ-E1 and IDZ-E2 at 0.5 and 2 m below the water surface and 2 m above the seafloor (Table 2) and tested for field and physical parameters. The June 17 and 22 samples met WQGs except for dissolved oxygen in two samples. Dissolved oxygen concentrations were below the lower limit of the WQG (≥8 mg/L) in the sample collected from 2 m above the seafloor at WQR1 on June 17 (6.71 mg/L) and at IDZ-E2 on June 22 (7.90 mg/L). The reported concentrations of 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.

Dioxins and furans analytical results were available at the time of reporting 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. The lower bound PCDD/F TEQ concentration ranged from 0.00283 to 0.0613 pg/L at station IDZ-E1, 0.0259 to 0.130 pg/L at station IDZ-E2, 0.0315 to 0.157 pg/L at reference station WQR1 and ranged from 0.00990 to 0.423 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 May 24 samples discussed in Weekly Report #15 for marine receiving environment stations IDZ-E1, IDZ-E2, WQR1, and WQR2. Methylmercury concentrations were <0.000020 µg/L in all marine receiving environment samples. The methylmercury values observed in the marine water samples 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 6). 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 in Table 6, and open items from the exceedance tables in Section 3 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 (June 16 – 22, Report #19)		
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.
Monitoring Program Evaluation	The monitoring records collected since commissioning of the East WWTP and East Sedimentation Pond are being reviewed regarding frequency and parameters tested.	This review is underway and will evaluate if any samples/parameters were omitted from the PE-111578 routine and high-frequency WDA monitoring programs that have been conducted since April 2024. Preliminary evaluation indicates samples were generally collected at the required frequencies and testing generally included the full parameter lists. If samples were not collected it was generally due to the absence of water at the time of monitoring. Weekly sampling frequencies were sometimes adjusted to align with timing of effluent discharge. Additional details will follow in the next weekly report. This item remains open.
Pending Data	Methyl mercury, dioxin and furan results for samples collected June 16 and June 22 were not reported.	Methylmercury (June 22 samples only), 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 July. This item remains open.
Ongoing Items from Previous Weekly Reports		
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 #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. Available methylmercury results are discussed in Sections 3.5 and 3.6 of Report #18 and available dioxins and furans data are discussed in Sections 3.4 through 3.7 of Report #19. This item is closed.
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. Available methylmercury, dioxins and furans results are discussed in Sections 3.3 through 3.7 of Report #19. This item is closed.
Report #16: Pending Data	Analytical results for samples collected May 26 – 28 were not reported.	Available analytical results are discussed in Sections 3.3 through 3.7 of Report #17. Methylmercury, 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.
Report #17: Pending Data	Methyl mercury, dioxin and furan results for samples collected June 3 – 4 and June 8 were not reported.	Available methylmercury results for the June 3 SP-E-OUT sample are discussed in Section 3.3 of Report #17. Available methylmercury results for the June 4 and June 8 samples are discussed in Section 3.3 of Report #18. Dioxin and furan results for samples collected June 3 – 4, and June 8 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 July. This item remains open.
Report # 18: Pending Data	Dioxin and furan results for samples collected June 10 were not reported.	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 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

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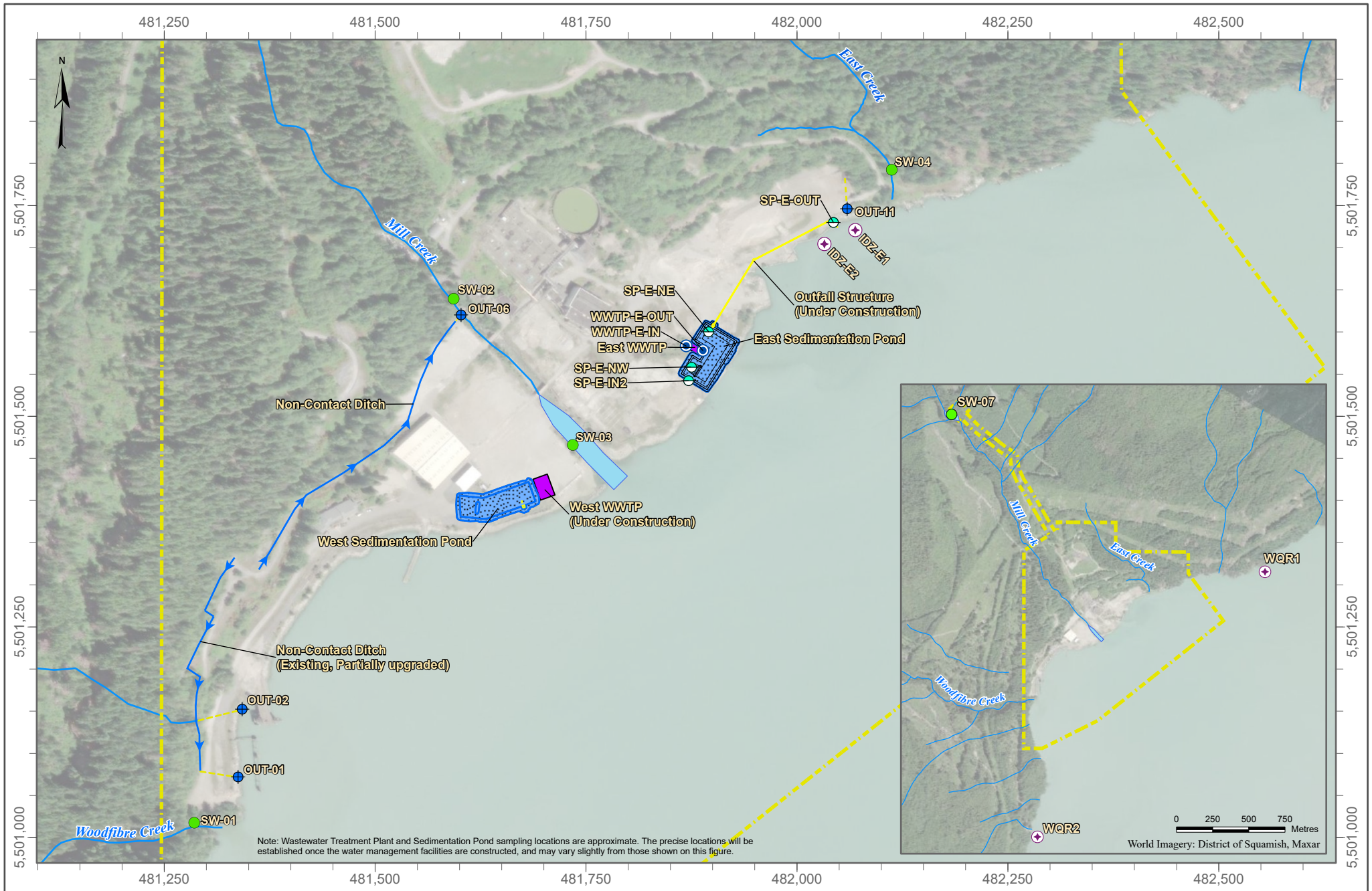
Environmental Chemist



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 27, 2024
DRAWN BY:	DM
REVIEWED:	PM
VERSION:	1

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

1:6,000

0 50 100 150 Metres

CLIENT: Woodfibre LNG

LORAX ENVIRONMENTAL

PROJECT:

Woodfibre LNG Project Construction Phase

TITLE: Completed or Under Construction Water Management Facilities and Established PE-111578 Monitoring Stations (June 22, 2024)

PROJECT #: A633-7

FIGURE: 1

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

Appendix A: East and West Catchment Photographs

Figure 2: Aerial view of the East Sedimentation Pond showing the placement of two sediment curtains (June 19, 2024).

Figure 3: Aerial view showing the West Sedimentation Pond and West WWTP (located to the right of the pond) on June 19, 2024.

Appendix B: East Sedimentation Pond Results

Table B-1: Summary of East Sedimentation Pond Water Quality Results Received at the Time of Reporting.

Parameter	Unit	Lowest Applicable Guideline [1, 2]		PE-111578 Discharge Limit *	East Sedimentation Pond	
					Effluent SP-E-OUT VA24B4112-001	Effluent SP-E-OUT VA24B4840-001
		Long Term	Short Term		2024-06-16 17:45	2024-06-22 12:50
General Parameters						
pH - Field	pH units	- [6]	-	5.5 - 9.0	6.8	6.9
Conductivity - Field	µS/cm	-	-	-	1164	1444
Temperature - Field	°C	-	-	-	17.6	21.3
Salinity - Field	ppt	-	-	-	0.68	0.78
Turbidity - Field	NTU	-	-	-	5.76	15.00
TSS	mg/L	-	-	25	<3	10.5
Dissolved Oxygen - Field	mg/L	>=8	-	-	9.12	***6.15***
Anions and Nutrients						
Sulphate	mg/L	-	-	-	55	60.5
Chloride	mg/L	-	-	-	288	333
Fluoride	mg/L	-	1.5	-	<0.1	<0.1
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	-	0.0339	0.0209
Nitrite (N-NO_2)	mg/L	-	-	-	0.0154	0.0096
Nitrate (N-NO_3)	mg/L	3.7	339	-	0.139	0.0827
Total Metals						
Aluminum, total (T-Al)	mg/L	-	-	-	0.316	0.820
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00191	0.00203
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.0023	0.00246
Barium, total (T-Ba)	mg/L	-	-	-	0.00812	0.0119
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.0001	<0.0001
Boron, total (T-B)	mg/L	1.2	-	-	0.068	0.074
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000109	<0.00003
Chromium, total (T-Cr)	mg/L	-	-	-	0.00103	0.00121
Cobalt, total (T-Co)	mg/L	-	-	-	0.00012	0.00028
Copper, total (T-Cu)	mg/L	- [6]	- [6]	0.0043	0.00210	0.00271
Iron, total (T-Fe)	mg/L	-	-	-	0.184	0.541
Lead, total (T-Pb)	mg/L	- [6]	- [6]	0.0035	0.000936	0.00226
Manganese, total (T-Mn)	mg/L	-	-	-	0.00524	0.0141
Mercury, total (T-Hg) [5]	mg/L	0.000016	-	-	<0.000005	0.0000062
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0246	0.0256
Nickel, total (T-Ni)	mg/L	0.0083	-	-	<0.0005	0.0006
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000125	0.000134
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.00001	<0.00001
Thallium, total (T-Tl)	mg/L	-	-	-	0.00002	0.000025
Uranium, total (T-U)	mg/L	-	-	-	0.0134	0.0144
Vanadium, total (T-V)	mg/L	- [6]	-	0.0081	0.00558	0.00712
Zinc, total (T-Zn)	mg/L	- [6]	- [6]	0.0133	0.0089	0.0098
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00091	0.00098
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	0.0000113	0.0000168
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00153	0.00113
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.01	<0.01
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000080	0.000165
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00204	0.00316
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.166	0.156
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00480	0.00541
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0076	0.0040
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	0.006	-	-	<0.00001	<0.00001
Acridine	mg/L	-	-	-	<0.00001	<0.00001
Anthracene	mg/L	-	-	-	<0.00001	<0.00001
Benz(a)anthracene	mg/L	-	-	-	<0.00001	<0.00001
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.000005	0.000010
Chrysene	mg/L	0.0001	-	-	<0.00001	<0.00001
Fluoranthene	mg/L	-	-	-	<0.00001	0.000018
Fluorene	mg/L	0.012	-	-	<0.00001	<0.00001
1-methylnaphthalene	mg/L	0.001	-	-	<0.00001	<0.00001
2-methylnaphthalene	mg/L	0.001	-	-	<0.00001	<0.00001
Naphthalene	mg/L	0.001	-	-	<0.00005	<0.00005
Phenanthrene	mg/L	-	-	-	<0.00002	<0.00002
Pyrene	mg/L	-	-	-	<0.00001	0.000019
Quinoline	mg/L	-	-	-	<0.00005	<0.00005
Volatile Organic Compounds (VOCs)						
Benzene	mg/L	0.11	-	-	<0.0005	<0.0005
Ethylbenzene	mg/L	0.25	-	-	<0.0005	<0.0005
Methyl-tert-butyl-ether	mg/L	5	0.44	-	<0.0005	<0.0005
Styrene	mg/L	-	-	-	<0.0005	<0.0005
Toluene	mg/L	0.215	-	-	<0.0004	<0.0004
Total Xylenes	mg/L	-	-	-	<0.0005	<0.0005
Chlorobenzene	mg/L	0.025	-	-	<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L	0.042	-	-	<0.0005	<0.0005

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 PE11578 East Sedimentation Pond Discharge Limit.
* The PE111578 East Sedimentation Pond Discharge Limit applies only to the point of discharge from the East Sedimentation Pond (SP-E-Out).
[1] 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.
[2] Canadian Water Quality Guideline for the protection of marine aquatic life (CCME, 2021).
[3] The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document (BC ENV, 2021).
[4] The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.
[5] When MeHg ⩽ 0.5% of total Hg, BC WQG = 0.00002 mg/L.
[6] Where discharge limits apply, the water quality guideline was not evaluated.
The lowest applicable guidelines are shown in the table; however, water quality data was screened to all applicable guidelines.

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
		L2755903-4
		2024-05-23 14:50
Lower Bound PCDD/F TEQ	**pg/L**	0.00672

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	Effluent
		SP-E-OUT	SP-E-OUT
		VA24B1636-004	VA24B4112-001
		2024-05-23 14:50	2024-06-16 17:45
Methylmercury	**µg/L**	<0.000020	0.000025

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	2024-06-16 9:09	-	-	-	7.19	6.9	-	-	110
SP-E-NE	2024-06-16 14:19	17.3	9.37	0.68	6.4	6.7	1153	No	
SP-E-OUT	2024-06-16 17:05	17.6	9.12	0.68	5.76	6.8	1164	No	
SP-E-NE	2024-06-17 14:13	17.7	10.4	0.71	20.7	6.8	1218	No	0
SP-E-NE	2024-06-17 16:51	-	-	-	18.8	7.3	-	-	
SP-E-NE	2024-06-18 14:14	21.9	9.71	0.73	18.4	7.1	1338	No	0
SP-E-NE	2024-06-18 16:18	-	-	-	16.9	7.6	-	-	
SP-E-NE	2024-06-19 9:07	-	-	-	20.2	7.4	-	-	0
SP-E-NE	2024-06-19 11:23	20.7	8.82	0.73	18.1	7.0	1338	No	
SP-E-NE	2024-06-20 9:00	-	-	-	17.4	-	-	-	0
SP-E-NE	2024-06-20 13:06	23.9	***7.29***	0.75	17.5	7.0	1465	No	
SP-E-NE	2024-06-21 11:55	23.5	***7.55***	0.78	14.5	7.0	1515	No	0
SP-E-OUT	2024-06-22 13:03	21.3	***6.15***	0.78	15	6.9	1444	No	319

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 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] 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.
[6] The sedimentation pond did not receive non-contaminated contact water influent June 16 – June 22, therefore daily measurements for station SP-E-IN-2 were not collected.
Intermittent discharge from the East Sedimentation Pond occurred June 16 and June 22. Discharge on June 22 continued into the nightshift on June 23. Only the discharge for the dayshift of June 22 is included in the table and the remaining discharge volume for June 23 will be included in the next weekly report.

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	
			Influent	Effluent
			WWTP-E-IN	WWTP-E-OUT
			VA24B4840-002	VA24B4840-003
			2024-06-22 16:00	2024-06-22 15:10
General Parameters				
pH - Field	pH units	7.0 - 8.7	7.2	6.9
Conductivity - Field	µS/cm	-	1565	1641
Temperature - Field	℃	-	21.9	21.9
Salinity - Field	ppt	-	0.79	0.79
Turbidity - Field	NTU	-	13.90	0.39
TSS	mg/L	-	8.1	<3
Dissolved Oxygen - Field	mg/L	>=8	***6.60***	***6.33***
Anions and Nutrients				
Sulphate	mg/L	-	59.8	59.4
Chloride	mg/L	-	330	330
Fluoride	mg/L	-	<0.1	<0.1
Ammonia (N-NH_3)	mg/L	Variable	0.0294	0.068
Nitrite (N-NO_2)	mg/L	-	0.0085	0.0072
Nitrate (N-NO_3)	mg/L	3.7	0.0811	0.0913
Total Metals				
Aluminum, total (T-Al)	mg/L	-	0.66	0.0795
Antimony, total (T-Sb)	mg/L	-	0.00203	0.00198
Arsenic, total (T-As)	mg/L	0.0125	0.00251	0.00223
Barium, total (T-Ba)	mg/L	-	0.0104	0.0044
Beryllium, total (T-Be)	mg/L	0.1	<0.0001	<0.0001
Boron, total (T-B)	mg/L	1.2	0.072	0.078
Cadmium, total (T-Cd)	mg/L	0.00012	<0.00003	<0.00001
Chromium, total (T-Cr)	mg/L	-	0.00114	0.00062
Cobalt, total (T-Co)	mg/L	-	0.00022	<0.0001
Copper, total (T-Cu)	mg/L	0.002	***0.00288***	***0.00242***
Iron, total (T-Fe)	mg/L	-	0.414	0.066
Lead, total (T-Pb)	mg/L	0.002	0.00177	0.000615
Manganese, total (T-Mn)	mg/L	-	0.0118	0.00064
Mercury, total (T-Hg)	mg/L	0.000016	<0.000005	<0.000005
Molybdenum, total (T-Mo)	mg/L	-	0.0256	0.0258
Nickel, total (T-Ni)	mg/L	0.0083	0.00056	<0.0005
Selenium, total (T-Se)	mg/L	0.002	0.000118	0.000156
Silver, total (T-Ag)	mg/L	0.0015	<0.00001	<0.00001
Thallium, total (T-Tl)	mg/L	-	0.000023	0.000022
Uranium, total (T-U)	mg/L	-	0.0138	0.0144
Vanadium, total (T-V)	mg/L	0.005	***0.00664***	***0.00602***
Zinc, total (T-Zn)	mg/L	0.01	***0.0119***	***0.0102***
Hexavalent Chromium, total	mg/L	0.0015	<0.0005	0.00071
Dissolved Metals				
Cadmium, dissolved (D-Cd)	mg/L	-	0.000013	<0.00001
Copper, dissolved (D-Cu)	mg/L	-	0.00181	0.00116
Iron, dissolved (D-Fe)	mg/L	-	<0.01	0.048
Lead, dissolved (D-Pb)	mg/L	-	<0.00005	0.000154
Manganese, dissolved (D-Mn)	mg/L	-	0.00231	0.00266
Strontium, dissolved (D-Sr)	mg/L	-	0.148	0.134
Vanadium, dissolved (D-V)	mg/L	-	0.00531	0.00568
Zinc, dissolved (D-Zn)	mg/L	-	0.0084	0.0132
Polycyclic Aromatic Hydrocarbons (PAHs)				
Acenaphthene	mg/L	0.006	<0.00001	<0.00001
Acridine	mg/L	-	<0.00001	<0.00001
Anthracene	mg/L	-	<0.00001	<0.00001
Benz(a)anthracene	mg/L	-	<0.00001	<0.00001
Benzo(a)pyrene	mg/L	0.00001	0.000010	<0.000005
Chrysene	mg/L	0.0001	<0.00001	<0.00001
Fluoranthene	mg/L	-	0.000017	<0.00001
Fluorene	mg/L	0.012	<0.00001	<0.00001
1-methylnaphthalene	mg/L	0.001	<0.00001	<0.00001
2-methylnaphthalene	mg/L	0.001	<0.00001	<0.00001
Naphthalene	mg/L	0.001	<0.00005	<0.00005
Phenanthrene	mg/L	-	<0.00002	<0.00002
Pyrene	mg/L	-	0.000018	<0.00001
Quinoline	mg/L	-	<0.00005	<0.00005
Volatile Organic Compounds (VOCs)				
Benzene	mg/L	0.11	<0.0005	<0.0005
Ethylbenzene	mg/L	0.25	<0.0005	<0.0005
Methyl-tert-butyl-ether	mg/L	5	<0.0005	<0.0005
Styrene	mg/L	-	<0.0005	<0.0005
Toluene	mg/L	0.215	<0.0004	<0.0004
Total Xylenes	mg/L	-	<0.0005	<0.0005
Chlorobenzene	mg/L	0.025	<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L	0.042	<0.0005	<0.0005

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
		Effluent
		WWTP-E-OUT
		L2755771-1
		2024-05-15 13:37
Lower Bound PCDD/F TEQ	**pg/L**	0.0196

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-3: 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 the East WWTP**
Unit		**°C**	**mg/L**	**ppt**	**NTU**	**s.u.**	**µS/cm**		**m^3**
PE-111578 Discharge Limit [1]		-	-	-	-	-	-	-	1,100
Minimum Discharge Objective [2]		-	>=8	-	-	7.0 - 8.7	-	-	-
Station ID	**Date**								
WWTP-E-IN	2024-06-16 14:21	17.2	9.43	0.68	6.59	7.0	1148	No	-
WWTP-E-OUT	2024-06-16 14:28	16.9	***7.57***	0.72	0.04	***6.9***	1209	No	459
WWTP-E-IN	2024-06-17 14:16	17.4	9.55	0.71	22.3	7.3	1209	No	-
WWTP-E-OUT	2024-06-17 14:07	17.7	10.13	0.71	0.95	7.3	1214	No	478
WWTP-E-IN	2024-06-18 14:17	17.9	8.43	0.73	23.4	7.5	1247	No	-
WWTP-E-OUT	2024-06-18 14:26	18.7	8.48	0.74	0	8.5	1291	No	523
WWTP-E-IN	2024-06-19 11:26	18.7	10.38	0.73	21.3	7.5	1270	No	-
WWTP-E-OUT	2024-06-19 11:33	19.1	10.42	0.74	2.48	***9.5***	1310	No	519
WWTP-E-IN	2024-06-20 13:08	21.3	9.15	0.75	18.1	7.2	1383	No	-
WWTP-E-OUT	2024-06-20 13:13	21.2	***7.47***	0.76	1.29	7.3	1408	No	450
WWTP-E-IN	2024-06-21 11:57	21.3	8.27	0.76	16.7	7.3	1406	No	-
WWTP-E-OUT	2024-06-21 12:07	-	-	-	0	7.4	-	No	471
WWTP-E-IN	2024-06-22 15:31	21.9	***6.60***	0.79	13.9	7.2	1565	No	-
WWTP-E-OUT	2024-06-22 14:47	21.9	***6.33***	0.79	0.39	***6.9***	1641	No	518

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.
[3] Complete field measurements were not available for WWTP-E-OUT on June 21 as field staff were not able to transcribe records from low quality images of the field probe readings.
Results ***underlined in bold italics*** exceed the applicable minimum discharge objective.

Appendix D: Non-Contact Diversion Outlet Results

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

Parameter	Unit	Station OUT-01
		Non-Contact Water Diversion Ditch Outlet
		OUT-01
		VA24B1636-006
		2024-05-23 15:50
Methylmercury	**µg/L**	0.000021

Appendix E: Freshwater Receiving Environment Results

Table E-1: Summary of Freshwater Quality Results for Dioxins and Furans 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
		L2755788-1	L2755770-1	L2755770-3	L2755788-2
		2024-05-16 12:26	2024-05-14 9:55	2024-05-14 12:35	2024-05-16 14:56
Lower Bound PCDD/F TEQ	**pg/L**	0	0	0	0.00812

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 E-2: Summary of Freshwater Quality Results for Dioxins and Furans 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
		L2755902-1	L2755903-1	L2755903-3	L2755903-5
		2024-05-22 15:50	2024-05-23 13:50	2024-05-23 12:56	2024-05-23 11:50
Lower Bound PCDD/F TEQ	**pg/L**	0.0102	0.0318	0	0.0323

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 E-1: 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
		VA24B1628-001	VA24B1636-001	VA24B1636-003	VA24B1636-005
		2024-05-22 15:50	2024-05-23 13:50	2024-05-23 12:56	2024-05-23 11:50
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 for Dioxins and Furans Results Received at the Time of Reporting.

Parameter	Unit	Station SW-03	Station SW-03
		Mill Creek Estuary	Mill Creek Estuary
		SW-03	SW-03
		L2755770-2	L2755903-2
		2024-05-14 11:15	2024-05-23 16:00
Lower Bound PCDD/F TEQ	**pg/L**	0.000354	0.240

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 F-2: 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
		VA24B1636-002
		2024-05-23 16:00
Methylmercury	**µg/L**	<0.000020

Appendix G: Marine Water Receiving Environment Results

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

Parameter	Unit	Lowest Applicable Guideline [1, 2]		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
				VA24B4840-004	VA24B4840-005	VA24B4840-006	VA24B4840-007	VA24B4840-008	VA24B4840-009
		Long Term	Short Term	2024-06-22 17:27	2024-06-22 17:36	2024-06-22 17:37	2024-06-22 17:15	2024-06-22 17:17	2024-06-22 17:20
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	9.0	8.8	8.4	8.5	8.6	8.4
Specific Conductivity - Field	µS/cm	-	-	11065	16495	44138	10345	16678	44517
Temperature - Field	℃	-	-	14.6	14.6	10.2	14.6	14.7	9.9
Salinity - Field	ppt	Narrative[3]	-	6.32	9.72	28.35	5.88	9.83	28.60
Turbidity - Field	NTU	Narrative[3]	Narrative[3]	4.71	3.42	0.35	5.09	3.43	0.33
TSS	mg/L	Narrative[3]	Narrative[3]	4.2	3.2	<2.0	4.5	3.2	<2.0
Dissolved Oxygen - Field	mg/L	>=8	-	10.71	10.32	8.35	10.71	10.29	***7.90***
Anions and Nutrients									
Sulphate	mg/L	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-
Fluoride	mg/L	-	1.5	-	-	-	-	-	-
Ammonia (N-NH_3)	mg/L	Variable [4]	Variable [4]	-	-	-	-	-	-
Nitrite (N-NO_2)	mg/L	-	-	-	-	-	-	-	-
Nitrate (N-NO_3)	mg/L	3.7	339	-	-	-	-	-	-
Total Metals									
Aluminum, total (T-Al)	mg/L	-	-	-	-	-	-	-	-
Antimony, total (T-Sb)	mg/L	-	0.27 [5]	-	-	-	-	-	-
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	-	-	-	-	-
Barium, total (T-Ba)	mg/L	-	-	-	-	-	-	-	-
Beryllium, total (T-Be)	mg/L	0.1	-	-	-	-	-	-	-
Boron, total (T-B)	mg/L	1.2	-	-	-	-	-	-	-
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	-	-	-	-	-
Chromium, total (T-Cr)	mg/L	-	-	-	-	-	-	-	-
Cobalt, total (T-Co)	mg/L	-	-	-	-	-	-	-	-
Copper, total (T-Cu)	mg/L	0.002	0.003	-	-	-	-	-	-
Iron, total (T-Fe)	mg/L	-	-	-	-	-	-	-	-
Lead, total (T-Pb)	mg/L	0.002	0.14	-	-	-	-	-	-
Manganese, total (T-Mn)	mg/L	-	-	-	-	-	-	-	-
Mercury, total (T-Hg)	mg/L	0.000016	-	-	-	-	-	-	-
Molybdenum, total (T-Mo)	mg/L	-	-	-	-	-	-	-	-
Nickel, total (T-Ni)	mg/L	0.0083	-	-	-	-	-	-	-
Selenium, total (T-Se)	mg/L	0.002	-	-	-	-	-	-	-
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	-	-	-	-	-
Thallium, total (T-Tl)	mg/L	-	-	-	-	-	-	-	-
Uranium, total (T-U)	mg/L	-	-	-	-	-	-	-	-
Vanadium, total (T-V)	mg/L	0.005 [7]	-	-	-	-	-	-	-
Zinc, total (T-Zn)	mg/L	0.01	0.055	-	-	-	-	-	-
Hexavalent Chromium, total	mg/L	0.0015	-	-	-	-	-	-	-
Dissolved Metals									
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	-	-	-	-	-
Copper, dissolved (D-Cu)	mg/L	-	-	-	-	-	-	-	-
Iron, dissolved (D-Fe)	mg/L	-	-	-	-	-	-	-	-
Lead, dissolved (D-Pb)	mg/L	-	-	-	-	-	-	-	-
Manganese, dissolved (D-Mn)	mg/L	-	-	-	-	-	-	-	-
Strontium, dissolved (D-Sr)	mg/L	-	-	-	-	-	-	-	-
Vanadium, dissolved (D-V)	mg/L	-	-	-	-	-	-	-	-
Zinc, dissolved (D-Zn)	mg/L	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)									
Acenaphthene	mg/L	0.006	-	-	-	-	-	-	-
Acridine	mg/L	-	-	-	-	-	-	-	-
Anthracene	mg/L	-	-	-	-	-	-	-	-
Benz(a)anthracene	mg/L	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/L	0.00001	-	-	-	-	-	-	-
Chrysene	mg/L	0.0001	-	-	-	-	-	-	-
Fluoranthene	mg/L	-	-	-	-	-	-	-	-
Fluorene	mg/L	0.012	-	-	-	-	-	-	-
1-methylnaphthalene	mg/L	0.001	-	-	-	-	-	-	-
2-methylnaphthalene	mg/L	0.001	-	-	-	-	-	-	-
Naphthalene	mg/L	0.001	-	-	-	-	-	-	-
Phenanthrene	mg/L	-	-	-	-	-	-	-	-
Pyrene	mg/L	-	-	-	-	-	-	-	-
Quinoline	mg/L	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)									
Benzene	mg/L	0.11	-	-	-	-	-	-	-
Ethylbenzene	mg/L	0.25	-	-	-	-	-	-	-
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-	-	-	-	-
Styrene	mg/L	-	-	-	-	-	-	-	-
Toluene	mg/L	0.215	-	-	-	-	-	-	-
Total Xylenes	mg/L	-	-	-	-	-	-	-	-
Chlorobenzene	mg/L	0.025	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/L	0.042	-	-	-	-	-	-	-

Notes:

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

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

[1] 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.

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

[3] Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. The water quality data presented in the table were collected when the site was discharging, therefore the guidelines were evaluated.

[4] The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document (BC ENV, 2021).

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

[6] When MeHg ⩽ 0.5% of total Hg, BC WQG = 0.00002 mg/L.

[7] Federal Water Quality Guideline for Vanadium (Environment and Climate Change Canada).

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

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

Parameter	Unit	Lowest Applicable Guideline [1, 2]		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
		Long Term	Short Term	2024-6-17 13:07	2024-6-17 13:02	2024-6-17 13:02	2024-6-17 12:36	2024-6-17 12:36	2024-6-17 12:34
General Parameters									
pH - Field	pH units	7.0 - 8.7	-	7.73	8.24	7.37	8.37	8.10	7.47
Specific Conductivity - Field	µS/cm	-	-	3073	18856	46042	1825	17246	44103
Temperature - Field	℃	-	-	11.7	14.6	8.8	11.4	13.2	10.2
Salinity - Field	ppt	Narrative[3]	-	1.61	11.23	29.61	0.93	10.19	28.33
Turbidity - Field	NTU	Narrative[3]	Narrative[3]	7.82	2.48	0.36	7.65	3.61	0.23
TSS	mg/L	Narrative[3]	Narrative[3]	-	-	-	-	-	-
Dissolved Oxygen - Field	mg/L	>=8	-	10.92	10.07	***6.71***	11.16	10.42	9.01
Anions and Nutrients									
Sulphate	mg/L	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-
Fluoride	mg/L	-	1.5	-	-	-	-	-	-
Ammonia (N-NH_3)	mg/L	Variable [4]	Variable [4]	-	-	-	-	-	-
Nitrite (N-NO_2)	mg/L	-	-	-	-	-	-	-	-
Nitrate (N-NO_3)	mg/L	3.7	339	-	-	-	-	-	-
Total Metals									
Aluminum, total (T-Al)	mg/L	-	-	-	-	-	-	-	-
Antimony, total (T-Sb)	mg/L	-	0.27 [5]	-	-	-	-	-	-
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	-	-	-	-	-
Barium, total (T-Ba)	mg/L	-	-	-	-	-	-	-	-
Beryllium, total (T-Be)	mg/L	0.1	-	-	-	-	-	-	-
Boron, total (T-B)	mg/L	1.2	-	-	-	-	-	-	-
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	-	-	-	-	-
Chromium, total (T-Cr)	mg/L	-	-	-	-	-	-	-	-
Cobalt, total (T-Co)	mg/L	-	-	-	-	-	-	-	-
Copper, total (T-Cu)	mg/L	0.002	0.003	-	-	-	-	-	-
Iron, total (T-Fe)	mg/L	-	-	-	-	-	-	-	-
Lead, total (T-Pb)	mg/L	0.002	0.14	-	-	-	-	-	-
Manganese, total (T-Mn)	mg/L	-	-	-	-	-	-	-	-
Mercury, total (T-Hg)	mg/L	0.000016	-	-	-	-	-	-	-
Molybdenum, total (T-Mo)	mg/L	-	-	-	-	-	-	-	-
Nickel, total (T-Ni)	mg/L	0.0083	-	-	-	-	-	-	-
Selenium, total (T-Se)	mg/L	0.002	-	-	-	-	-	-	-
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	-	-	-	-	-
Thallium, total (T-Tl)	mg/L	-	-	-	-	-	-	-	-
Uranium, total (T-U)	mg/L	-	-	-	-	-	-	-	-
Vanadium, total (T-V)	mg/L	0.005 [7]	-	-	-	-	-	-	-
Zinc, total (T-Zn)	mg/L	0.01	0.055	-	-	-	-	-	-
Hexavalent Chromium, total	mg/L	0.0015	-	-	-	-	-	-	-
Dissolved Metals									
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	-	-	-	-	-
Copper, dissolved (D-Cu)	mg/L	-	-	-	-	-	-	-	-
Iron, dissolved (D-Fe)	mg/L	-	-	-	-	-	-	-	-
Lead, dissolved (D-Pb)	mg/L	-	-	-	-	-	-	-	-
Manganese, dissolved (D-Mn)	mg/L	-	-	-	-	-	-	-	-
Strontium, dissolved (D-Sr)	mg/L	-	-	-	-	-	-	-	-
Vanadium, dissolved (D-V)	mg/L	-	-	-	-	-	-	-	-
Zinc, dissolved (D-Zn)	mg/L	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)									
Acenaphthene	mg/L	0.006	-	-	-	-	-	-	-
Acridine	mg/L	-	-	-	-	-	-	-	-
Anthracene	mg/L	-	-	-	-	-	-	-	-
Benz(a)anthracene	mg/L	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/L	0.00001	-	-	-	-	-	-	-
Chrysene	mg/L	0.0001	-	-	-	-	-	-	-
Fluoranthene	mg/L	-	-	-	-	-	-	-	-
Fluorene	mg/L	0.012	-	-	-	-	-	-	-
1-methylnaphthalene	mg/L	0.001	-	-	-	-	-	-	-
2-methylnaphthalene	mg/L	0.001	-	-	-	-	-	-	-
Naphthalene	mg/L	0.001	-	-	-	-	-	-	-
Phenanthrene	mg/L	-	-	-	-	-	-	-	-
Pyrene	mg/L	-	-	-	-	-	-	-	-
Quinoline	mg/L	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)									
Benzene	mg/L	0.11	-	-	-	-	-	-	-
Ethylbenzene	mg/L	0.25	-	-	-	-	-	-	-
Methyl-tert-butyl-ether	mg/L	5	0.44	-	-	-	-	-	-
Styrene	mg/L	-	-	-	-	-	-	-	-
Toluene	mg/L	0.215	-	-	-	-	-	-	-
Total Xylenes	mg/L	-	-	-	-	-	-	-	-
Chlorobenzene	mg/L	0.025	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/L	0.042	-	-	-	-	-	-	-

Notes:

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

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

[1] 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.

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

[3] Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. The water quality data presented in the table were collected when the site was discharging, therefore the guidelines were evaluated.

[4] The approved total ammonia nitrogen BC WQG is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document (BC ENV, 2021).

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

[6] When MeHg ⩽ 0.5% of total Hg, BC WQG = 0.00002 mg/L.

[7] Federal Water Quality Guideline for Vanadium (Environment and Climate Change Canada).

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

Table G-3: 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
		L2755934-4	L2755934-5	L2755934-6	L2755934-7	L2755934-8	L2755934-9
		2024-05-24 10:30	2024-05-24 10:45	2024-05-24 10:55	2024-05-24 11:35	2024-05-24 11:45	2024-05-24 12:00
Lower Bound PCDD/F TEQ	**pg/L**	0.00283	0.0613	0.0118	0.130	0.0644	0.0259

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 G-4: 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
		L2755934-1	L2755934-2	L2755934-3	L2755934-10	L2755934-11	L2755934-12
		2024-05-24 9:43	2024-05-24 9:56	2024-05-24 10:12	2024-05-24 12:15	2024-05-24 12:25	2024-05-24 12:35
Lower Bound PCDD/F TEQ	**pg/L**	0.0315	0.157	0.0410	0.00122	0.00990	0.423

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 G-5: 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
		VA24B1783-004	VA24B1783-005	VA24B1783-006	VA24B1783-007	VA24B1783-008	VA24B1783-009
		2024-05-24 10:30	2024-05-24 10:45	2024-05-24 10:55	2024-05-24 11:35	2024-05-24 11:45	2024-05-24 12:00
Methylmercury	**µg/L**	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020

Table G-6: Summary of Reference Station Marine Water Quality Results for Methyl Mercury 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
		VA24B1783-001	VA24B1783-002	VA24B1783-003	VA24B1783-010	VA24B1783-011	VA24B1783-012
		2024-05-24 9:43	2024-05-24 9:56	2024-05-24 10:12	2024-05-24 12:15	2024-05-24 12:25	2024-05-24 12:35
Methylmercury	**µg/L**	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020