TECHNICAL MEMORANDUM

To: **Ian McAllister, Ashleigh Crompton, Mike Champion, Jackie Boruch and Ryan Schucroft (Woodfibre LNG)** **Date: 13 Sept 2024**

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

Subject: **PE-111578 Weekly Discharge and Compliance Report #30 for September 1 – 7**

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 for contact water discharges 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 #30) was prepared by Lorax Environmental and summarizes monitoring conducted the week of (September 1 – 7) for contact waters directed to a Wastewater Treatment Plant (WWTP) or a sedimentation pond. Monitoring data and pending results from prior monitoring periods available at the time of reporting are tabulated and included as appendices to this memorandum. Report #30 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 memorandum. Sedimentation pond photographs are included in Appendix A, and monitoring results are tabulated in Appendix B through Appendix E 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, overburden and bedrock excavation, and construction of contact water management facilities. Shoring works along the shoreline and foreshore areas were initiated in December 2023, and in early 2024 construction of water management infrastructure commenced and has continued through the September 1 – 7 monitoring period. The East WWTP and East Sedimentation Pond are commissioned for operation and discharge since April 15, 2024. The West WWTP and West Sedimentation Pond are constructed. The non-contact and contact water conveyance ditches described in PE-111578 are partially constructed or will be constructed when site preparation activities are completed (*e.g.*, site grading, bedrock excavation). The PE-111578 water management facilities that are completed or were under construction during the reporting period are shown in Figure 1. Established contact water collection and dewatering locations and photographs of the sedimentation ponds are shown in Appendix A, Figure 2 through Figure 5.

The non-contact water diversion ditch west of Mill Creek was upgraded and commissioned for use on April 7 and discharges to Mill Creek at station OUT-06 (Figure 1). Other pre-existing diversion ditches west of Mill Creek have been partially upgraded and discharge at station OUT-02. During heavy precipitation these ditches also convey non-contact water to station OUT-01. Although a culvert has been installed for the planned non-contact water diversion ditch that will discharge at OUT-11, there is currently no water directed to this culvert and station.

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

A revised schedule is being developed to complete the installation of the East and West Sedimentation Pond permanent outfall structures. 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 not commissioned for discharge. Surplus water in the West Sedimentation Pond is pumped to the East WWTP for treatment prior to discharge through the East Sedimentation Pond.

Pilot testing of the East WWTP continued during the monitoring period (September 1 – 7). Contaminated and potentially contaminated contact waters from the 1100 and 4200 excavations, and water stored in the West Sedimentation Pond were directed to the East WWTP for treatment, as well as water recirculated from the East Sedimentation Pond (Appendix A, Figure 2 and Figure 3). A total of 4,017 m^3 of treated WWTP effluent was discharged to the East Sedimentation Pond during the reporting period (September 1 – 7). Daily East WWTP effluent flows are provided in Appendix C (Table C-2). There were no discharges from the East Sedimentation Pond during the reporting period.

The West Sedimentation Pond is complete, except for the outfall structure, and has not been commissioned for discharge. Some of the water stored in the pond was transferred to the East WWTP for treatment. There were no discharges from the West Sedimentation Pond to Howe Sound during the monitoring period.

The West WWTP is undergoing early-stage pilot trials. During the monitoring period (September 1 – 7), the West WWTP received water from the West Sedimentation Pond each day except September 3 since the plant was not operational that day. A total of 138 m^3 of treated WWTP effluent was discharged to the West Sedimentation Pond as part of pilot testing.

The weather was mostly sunny during the monitoring period (September 1 – 7), and there was no precipitation recorded at the Woodfibre site weather station. 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
09-01-2024	0.0	26.1	15.5	Sunny
09-02-2024	0.0	22.3	14.7	Partly cloudy
09-03-2024	0.0	20.5	15.0	Overcast
09-04-2024	0.0	22.5	13.5	Sunny
09-05-2024	0.0	27.3	16.1	Sunny
09-06-2024	0.0	26.7	15.4	Sunny
09-07-2024	0.0	26.3	15.7	Sunny

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

2. Monitoring Summary

The PE-111578 authorized works were under construction during the September 1 – 7 monitoring period. Compliance monitoring stations are progressively established as water management infrastructure is completed. Monitoring is conducted by the on-site Environmental Monitors (Roe Environmental). Analytical samples are submitted by Roe Environmental to ALS Environmental in Burnaby, BC, for testing.

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

- Creek water (SW-01, SW-02, SW-03, SW-04, SW-07).
- Howe Sound reference and initial dilution zone (IDZ) locations (WQR1, WQR2, IDZ-E1 and IDZ-E2).
- Non-contact diversion ditch outlets (OUT-01, OUT-02, OUT-06, and OUT-11). Although a station was previously established at OUT-11, water is not currently directed to this outlet.
- Contact water monitoring locations (WWTP-E-IN, WWTP-E-OUT, SP-E-IN-2, SP-E-OUT, SP-E-NE, SP-E-NW, WWTP-W-IN, WWTP-W-OUT, SP-W-W, and SP-W-E).

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. In-pond monitoring stations have been established for the West Sedimentation Pond at locations SP-W-W and SP-W-E and are used for pond water quality monitoring during the West WWTP pilot trials.

Water quality was monitored at stations IDZ-E1, IDZ-E2, WWTP-E-IN, WWTP-E-OUT, SP-E-NE, SP-E-NW, WWTP-W-IN, WWTP-W-OUT, SP-W-W, and SP-W-E during the monitoring period (September 1 – 7). Sampling dates and parameters tested are summarized in Table 2. Daily field parameters and weekly analytical samples were not collected at influent station SP-E-IN-2 and effluent station SP-E-OUT as the East Sedimentation Pond did not receive contact water inflows and did not discharge during the monitoring period.

Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (September 1 – 7) were met, except for weekly analytical parameters at the East WWTP influent and effluent stations (WWTP-E-IN and WWTP-E-OUT, respectively). Field measurements were collected each day at both WWTP-E-IN and WWTP-E-OUT except on September 4 and 7 since the East WWTP was not discharging at the time of monitoring. Follow-up investigation has been conducted with the QEP to shift the scheduled WWTP monitoring for better alignment with periods when the WWTP is operating. This item is being tracked in Table 8.

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

Sampling Date	Sample	Description	Parameters Tested	Monitoring Frequency
September 1, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality	Field, Physical & General Parameters, Total, Dissolved and Speciated Metals.	
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
September 2, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality		
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
	WWTP-W-OUT	West WWTP effluent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	P
	WWTP-W-IN	West WWTP influent		
September 3, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality		
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
September 4, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	WWTP-E-IN	East WWTP influent	Field Parameters.	D
	WWTP-W-OUT	West WWTP effluent	Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease.	P
	WWTP-W-IN	West WWTP influent		
	SP-W-E [1]	West Sedimentation Pond, in-pond sample, represents effluent quality	Field & Physical Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-W-W [1]	West Sedimentation Pond, in-pond sample, represents influent quality	Physical Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	IDZ-E1-0.5	Howe Sound IDZ station E1; 0.5 m below surface	Field & Physical Parameters.	W_3
	IDZ-E1-2m	Howe Sound IDZ station E1; 2 m below surface		
	IDZ-E1-SF	Howe Sound IDZ station E1; 2 m above the seafloor		
	IDZ-E2-0.5	Howe Sound IDZ station E2; 0.5 m below surface		
	IDZ-E2-2m	Howe Sound IDZ station E2; 2 m below surface		
	IDZ-E2-SF	Howe Sound IDZ station E2; 2 m above the seafloor		
September 5, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality		
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
September 6, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality		
	WWTP-E-OUT	East WWTP effluent	Field Parameters.	D
	WWTP-E-IN	East WWTP influent		
September 7, 2024	SP-E-NE [1]	East Sedimentation Pond, in-pond sample, represents effluent quality	Field, Physical & General Parameters, EPHs & PAHs, Total, Dissolved and Speciated Metals.	P
	SP-E-NW [1]	East Sedimentation Pond, in-pond sample, represents influent quality		

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 – initial high frequency monitoring for physical parameters at IDZ stations (weekly for the first 5 weeks of monitoring).
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. Similarly, the West Sedimentation Pond in-pond stations, SP-W-W and SP-W-E are monitored for water management purposes. The monitoring of in-pond stations is not a PE-111578 requirement and is conducted at the discretion of field staff.

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, PE-111578 discharge limits as well as Canadian, Federal and BC water quality guidelines (WQGs). The screening results are discussed in Section 3. 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 are relevant for water quality characterization.

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

3.2 Summary of Reported Results

Field measurements and analytical results available at the time of reporting for samples collected during the monitoring period (September 1 – 7) and for other samples that have not been previously reported are listed below in Table 3. Analytical results not available at the time of reporting will be included in future weekly reports when testing is completed. Testing for methylmercury, dioxins and furans typically requires up to four weeks to complete. Results are pending for the following samples and parameters:

- WWTP-W-IN and WWTP-E-OUT collected September 2 (dioxins and furans)
- WWTP-W-IN and WWTP-E-OUT collected September 4 (dioxins and furans)

Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #30.

Sample	Description	Sampling Date	Parameters Reported
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	August 30, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	September 1, 2024	Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium.
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	September 2, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		
WWTP-W-OUT	West WWTP effluent		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
WWTP-W-IN	West WWTP influent		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	September 3, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	September 4, 2024	Field (SP-E-NE only), Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		
SP-W-E	West Sedimentation Pond, in-pond sample, represents effluent quality		Field (SP-W-W only), Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-W-W	West Sedimentation Pond, in-pond sample, represents influent quality		
WWTP-W-OUT	West WWTP effluent		Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury.
WWTP-W-IN	West WWTP influent		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	September 5, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	September 6, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		
SP-E-NE	East Sedimentation Pond, in-pond sample, represents effluent quality	September 7, 2024	Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs.
SP-E-NW	East Sedimentation Pond, in-pond sample, represents influent quality		

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 Canadian, Federal and BC 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 through Table B-3 (analytical results) and Table B-4 (field measurements) of Appendix B. Screening results are summarized in Table 4 and Table 5 for parameter concentrations that exceeded WQGs and discharge limits, respectively in sedimentation pond effluent.

During the monitoring period (September 1 – 7), the East Sedimentation Pond received East WWTP treated effluent each day. The sedimentation pond did not receive contact water and did not discharge during the monitoring period; therefore, field measurements and analytical samples at stations SP-E-IN-2 and SP-E-OUT were not collected. Field measurements were taken daily at the in-pond effluent quality station (SP-E-NE) and the in-pond influent quality station (SP-E-NW) during the monitoring period except on September 1 and September 4, respectively.

Field pH ranged from 6.3 to 7.4 at SP-E-NE during the monitoring period (September 1 – 7), while dissolved oxygen ranged from 7.07 to 15.84 mg/L, and turbidity ranged from 6.2 to 15.0 NTU (Appendix B, Table B-4). Dissolved oxygen measured at station SP-E-NE on September 6 (7.07 mg/L) was below the lower limit of the WQG (≥8 mg/L; Table 4). Low dissolved oxygen has been observed in sedimentation pond effluent and a field investigation was conducted in the week of September 8 during active discharge from the East Sedimentation Pond, which confirmed that dissolved oxygen met WQG within the initial dilution zone as defined in PE-111578.

Analytical samples collected at the in-pond effluent (SP-E-NE) and influent (SP-E-NW) stations on August 30 (as discussed in Weekly Report #29), and from September 1 through 7 were available at the time of reporting. TSS concentrations measured at SP-E-NE on September 3 (28.9 mg/L) and September 4 (28.5 mg/L) were above the discharge limit of 25 mg/L. Total zinc concentrations measured at station SP-E-NE from September 2 through September 5 (0.0155-0.0175 mg/L) were above the discharge limit of 0.0133 mg/L. However, the pond did not discharge on those days and therefore non-compliant effluent was not discharged to Howe Sound. Water quality at the in-pond effluent station (SP-E-NE) met discharge limits in samples collected on September 6 and 7.

Table 4:
Summary of Parameters Exceeding WQGs at the In-Pond Effluent Quality Station SP-E-NE during the Monitoring Period (September 1 – 7)

Parameter	Units	WQG	N	N >WQG	Commentary
Field Dissolved Oxygen	mg/L	≥8	3	1	Field dissolved oxygen measured at SP-E-NE on September 6 (7.07 mg/L) was below the lower limit of the WQG. The East Sedimentation Pond did not discharge on that day. A field investigation was conducted in the week of September 8 during active discharge from the East Sedimentation Pond, which confirmed that dissolved oxygen met WQG within the initial dilution zone as defined in PE-111578.

N = number of samples.
Non-detect results are screened using the detection limit value.

Table 5:
Summary of Parameters Exceeding PE-111578 Discharge Limits at the In-Pond Effluent Quality Station SP-E-NE during the Monitoring Period (September 1 – 7)

Parameter	Units	PE-111578 Discharge Limit	N	N > Discharge Limit	Commentary
TSS	mg/L	25	7	2	TSS concentrations measured at station SP-E-NE on September 3 (28.9 mg/L) and September 4 (28.5 mg/L) were above the discharge limit of 25 mg/L. The pond did not discharge on those days.
Total Zinc	mg/L	0.00133	7	4	Total zinc concentrations measured at station SP-E-NE from September 2 through September 5 (0.0155-0.0175 mg/L) were above the discharge limit of 0.0133 mg/L. However, the pond did not discharge on those days.

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 the design MDOs. The analytical results, daily field measurements, and the design MDOs are summarized in Table C-1 (analytical results) and Table C-2 (field measurements) of Appendix C. Screening results are summarized in Table 6 for parameter concentrations that do not meet the design MDOs in WWTP effluent.

The East WWTP received contact water as well as recirculated water from the East Sedimentation Pond (daily) and water transferred from the West Sedimentation Pond during the monitoring period. The influent waters were treated by the East WWTP and discharged to the East Sedimentation Pond. Field measurements were collected each day at the influent (WWTP-E-IN)

and effluent (WWTP-E-OUT) stations except on September 4 and 7 (Section 2). Field pH ranged from 6.4 to 8.6 at WWTP-E-IN during the monitoring period (September 1 – 7), while dissolved oxygen ranged from 6.26 to 17.41 mg/L, and turbidity ranged from 5.73 to 12.00 NTU (Appendix C, Table C-2).

Field pH, dissolved oxygen, and turbidity in the WWTP effluent (WWTP-E-OUT) ranged from pH 6.0 to 8.4, 0.90 to 5.30 mg/L, and 3.42 to 14.90 NTU, respectively. Field measurements for pH did not meet the design MDOs in the WWTP-E-OUT samples collected during the monitoring period except September 5. However, all pH measurements met the sedimentation pond discharge limits for pH that are specified in PE-111578.

Weekly PE-111578 analytical parameters from the East WWTP influent and effluent stations were not collected during the monitoring period (September 1 – 7). Follow-up investigation and review with the QEP has been completed and this item is being tracked in Table 8.

Methylmercury analytical results were available at the time of reporting for the East WWTP influent and effluent samples collected on August 29 (as discussed in Weekly Report #29). Methylmercury concentration was 0.000051 µg/L at WWTP-E-IN, and 0.000038 µg/L at WWTP-E-OUT.

Table 6:
Summary of Parameters Outside Design Minimum Discharge Objectives (MDOs) at East WWTP Effluent Station WWTP-E-OUT during the Monitoring Period (September 1 – 7).

Parameter	Units	MDO	N	N >MDO	Commentary
Field pH	s.u.	7.0-8.7	5	4	Field pH ranged from pH 6.0 to 6.9 in effluent samples collected on September 1-3, and September 6, which was below the lower design MDO. The WWTP is being operated to meet the sedimentation pond discharge limits for pH that are specified in PE-111578.

MDO = Minimum discharge objective which the East WWTP was designed to meet.
N = number of samples.
Non-detect results are screened using the detection limit value.

3.5 West Sedimentation Pond

The West Sedimentation Pond influent and effluent results are screened against PE-111578 discharge limits. Parameters without a discharge limit are screened against Canadian, Federal and BC WQGs for the protection of marine water aquatic life. Influent water is not discharged from site, therefore only effluent water quality is assessed for exceedances. The analytical results, discharge limits and WQGs are summarized in Table D-1 of Appendix D.

Field measurements and analytical results were available at the time of reporting for samples collected September 4 from the in-pond influent station (SP-W-W) and in-pond effluent station (SP-W-E). Effluent quality monitored at the in-pond station SP-W-E met PE-111578 discharge

limits and WQGs. The West Sedimentation Pond is not commissioned for discharge and did not discharge during the monitoring period.

3.6 West Wastewater Treatment Plant

The West 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 the design MDOs. The analytical results and the design MDOs for the West WWTP pilot testing are summarized in Table E-1 and Table E-2 (analytical results) of Appendix E. Screening results are summarized in Table 7 for parameter concentrations that do not meet the design MDOs.

Field measurements and analytical results were available at the time of reporting for samples collected September 2 and 4 from the West WWTP influent and effluent stations. West WWTP effluent quality monitored at WWTP-W-OUT on September 2 and 4 achieved design MDOs for all parameters except field pH, total copper, and total zinc (Table 9). The West WWTP is undergoing early-stage pilot trials.

Methylmercury analytical results were available at the time of reporting for the West WWTP influent and effluent samples collected on August 28 and 29 (as discussed in Weekly Report #29) and September 2 and 4 (this report). Methylmercury concentrations ranged from 0.000021 to 0.000038 µg/L at WWTP-W-IN and from <0.000020 to 0.000024 µg/L at WWTP-W-OUT.

Table 7:
Summary of Parameters Outside Design Minimum Discharge Objectives (MDOs) at West WWTP Effluent Station WWTP-W-OUT.

Parameter	Units	MDO	N	N >MDO	Commentary
Field pH	s.u.	7.0-8.7	2	2	The West WWTP effluent quality monitored at WWTP-W-OUT on September 2 and 4 did not meet the design MDOs for field pH (6.1-6.2), total copper (0.00274-0.00466 mg/L), and total zinc (0.0252-0.0465 mg/L). The West WWTP is undergoing early-stage pilot trials and deviations from design MDOs may occur during these trials.
Total Copper	mg/L	0.002	2	2	
Total Zinc	mg/L	0.01	2	2	

MDO = Minimum discharge objective which the West WWTP was designed to meet.
N = number of samples.
Non-detect results are screened using the detection limit value.

3.7 Non-Contact Water Diversion Ditch Outlets

Water quality results were not available for the non-contact water diversion ditch outlets at the time of reporting. Monthly sampling was not conducted at stations OUT-01, OUT-02, and OUT-06 in August since there was no flowing water at the time of monitoring. Water has not been directed

to station OUT-11 as the clean water diversion ditch leading to this outlet has not been established, therefore a sample was not collected at this station. The QEP has revised the non-contact water monitoring procedures to conduct additional diversion ditch outlet monitoring during or after heavy rain periods when there is the highest likelihood of flowing water in these ditches. The monitoring of non-contact water is also being tracked as a quality control item in Table 8.

3.8 Freshwater and Estuarine Water Receiving Environment

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

3.9 Marine Water Receiving Environment

Water quality results were not available for the marine water receiving environment at the time of reporting.

4. Quality Control

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 8). The evaluation includes a review of field and lab QC, completeness of the weekly report (*e.g.*, pending data), completeness of the monitoring program, confirmation of recordkeeping, evaluation of compliance and review of water management activities. Items flagged for follow-up in Section 3 are also tracked in Table 8. Any items flagged for follow-up are carried forward to future reports until they are closed.

Table 8: Weekly Report QC Evaluations and Ongoing Items

QC Procedure	Observation	Investigation/Resolution
Reporting Period (September 1 – 7, Report #30)		
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 undergoing pilot testing. The West Sedimentation Pond is not commissioned for 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. This item remains open.
Monitoring Program Evaluation	Sampling was not conducted as prescribed in PE-111578 on multiple occasions.	Field and analytical samples were not collected as per the monitoring requirements in PE-111578. For the monitoring period of September 1- 7, Field measurements were collected each day at WWTP-E-IN and WWTP-E-OUT except on September 4 and 7 since the East WWTP was not discharging at the time of monitoring. The weekly analytical parameters were not collected at stations WWTP-E-IN and WWTP-E-OUT during this reporting period. In August, OUT-01, OUT-02, and OUT-06 were not sampled as there was no flowing water at the time of monitoring that month. Water has not been directed to OUT-11 as the clean water diversion ditch leading to this outlet has not been established, therefore a sample was not collected at this station. Monitoring requirements were reviewed with site staff responsible for sample collection. The monitoring procedures have been revised to conduct additional diversion ditch outlet monitoring during or after heavy rain periods when the likelihood of flowing water is highest, and to shift the scheduled WWTP monitoring for better alignment with periods when the WWTP is operating. Follow-up investigation and review have been completed with the QEP. This item is closed.
Pending Data	Dioxins and furans results for samples collected September 2 and 4 were not reported.	Analytical results for dioxins and furans were not complete at the time of Report #30 preparation for samples collected September 2 and 4. Testing of dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.
Weekly Report #29 Corrections	Corrections made to Report #29	• Updated Section 3.2 to indicate that results were pending for samples collected at SP-E-NE and SP-E-NW on August 30 at the time of issuing Report #29. Results are reported in Section 3.3 of Report #30. • Removed footnote 1 under Table 5. • Field dissolved oxygen measured at the in-pond effluent quality station (SP-E-NE) was reported as 0.22 mg/L in Report #29. Field staff later confirmed that the dissolved oxygen value was entered incorrectly in the field sheet and the actual reading was 9.22 mg/L. The field sheet and WLNG water quality database have been updated. • Updated Appendix A Figure 3: West Catchment dewatering areas. Contact water from the 4200 Area was pumped to the East WWTP during the August 25-31, 2024 monitoring period. • A revised version of Report#29 will be re-issued with the indicated corrections. This item is closed.
Ongoing Items from Previous Weekly Reports		
Report #21: WWTP Performance Evaluation	Dissolved oxygen is frequently outside the treatment MDO.	Previous weekly reports have indicated there was a design MDO for dissolved oxygen, this was incorrect, rather the marine WQG for dissolved oxygen water was evaluated as an MDO. This has been clarified in Appendix C, Table C-1 beginning with Report #24. However, low dissolved oxygen has been observed in sedimentation pond effluent. It is speculated warm weather conditions led to the depletion of oxygen in contact water stored in baker tanks and in the East Sedimentation Pond. As of August 10, a field investigation is planned to be conducted during the next discharge event to confirm that East Sedimentation Pond effluent with low dissolved oxygen concentrations will mix with Howe Sound at the top of the water column and meet the WQG for dissolved oxygen within the initial dilution zone defined in PE-111578. This item remains open.
Report #27: Pending Data	Analytical results for samples collected August 12, 16, and 17 and dioxins and furans results for samples collected August 13 were not reported.	Analytical results for samples collected August 12, 16, and 17 are discussed in Sections 3.5, 3.6, and 3.9 of Report #28. Dioxin and furan results for samples collected August 12 are discussed in Sections 3.5 and 3.6 of Report #28. Dioxin and furan results for samples collected August 13, 16 and 17 were not complete at the time of Report #30 preparation. Testing of dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.
Report #27: Sample Integrity	Dioxin and furans could not be tested in the July 19 IDZ-E1 sample from 2 m below surface.	The laboratory reports that the sample bottles for dioxin and furans were broken during trans-shipment between testing facilities while the sample was under laboratory custody, therefore results for this sample are not available. Root cause investigation by the laboratory is underway. This item remains open.
Report #28: Pending Data	Analytical results for samples collected August 21 and 23 were not reported.	Available analytical results for samples collected August 21 are discussed in Sections 3.3 and 3.4 of Report #29 with dioxins and furans results still pending. Testing of dioxins and furans typically requires up to 4 weeks to complete. Analytical results for samples collected August 23 were not complete at the time of Report #30 preparation. The pending results will be included in future weekly reports when available. This item remains open.
Report #29: Monitoring Program Evaluation	Field and physical parameters not collected from IDZ-E1 and IDZ-E2.	Weekly field and physical parameters were not collected at stations IDZ-E1 and IDZ-E2 during the reporting period. Follow-up investigation and review have been completed with the QEP, additional staff are being hired to and it is anticipated this will aid in meeting required monitoring frequencies. This item is closed.
Report #29: Pending Data	Analytical results for samples collected at marine reference stations on August 26 and the estuarine receiving environment on August 28 were not reported.	Analytical results were not complete at the time of Report #30 preparation for samples collected from marine reference stations on August 26 and the estuarine receiving environment station on August 28. The pending results will be included in future weekly reports when available. This item remains open.

QC Procedure	Observation	Investigation/Resolution
Report #29: Pending Data	Methylmercury, dioxins and furans results for samples collected August 26 – 29 were not reported.	Methylmercury results are discussed in Sections 3.4 and 3.6 of Report #30. Analytical results for dioxins and furans were not complete at the time of Report #30 preparation for samples collected August 26, 27, 28, and 29. Testing of dioxins and furans typically requires up to 4 weeks to complete. The pending results will be included in future weekly reports when available. This item remains open.

Notes:

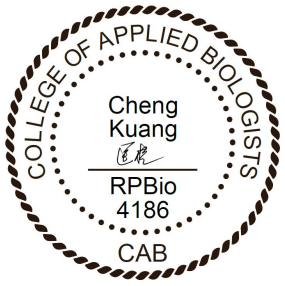
Result QA/QC screening includes the evaluation of field and lab QC results, comparison of total and dissolved metal results and review for modified detection limits.
Pending data are outstanding results from monitoring samples reported in the current or previous weekly reports.
Monitoring program evaluation is an assessment of the completeness of the monitoring program compared to PE-111578 specified or implied requirements.
WWTP performance evaluation is an assessment of WWTP effluent quality compared to design MDO's and WQG (for dissolved oxygen and total vanadium only).
Data review under QC Procedure indicates an evaluation of data trends or inter-parameter relationships that suggest a test result may not be representative of water quality at the time of monitoring.

5. Closure

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

Regards,

LORAX ENVIRONMENTAL SERVICES LTD.



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LEGEND

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

DATE SAVED:	Sep 12, 2024
DRAWN BY:	DM
REVIEWED:	PM
VERSION:	1

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

1:6,000

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 (September 7, 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: East Catchment dewatering areas. Contact water from the 1100 Area was directed to the East WWTP during the monitoring period (September 1 – 7).

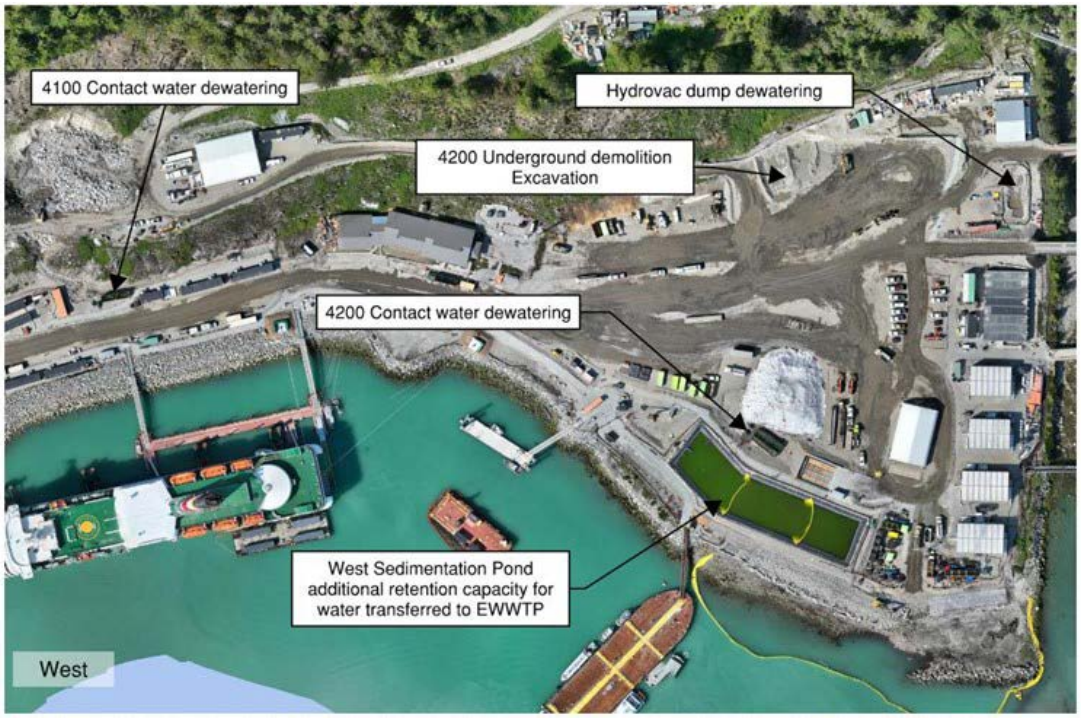

Figure 3: West Catchment dewatering areas. Contact water from the 4200 Area and the West Sedimentation Pond was directed to the East WWTP during the monitoring period (September 1 – 7).

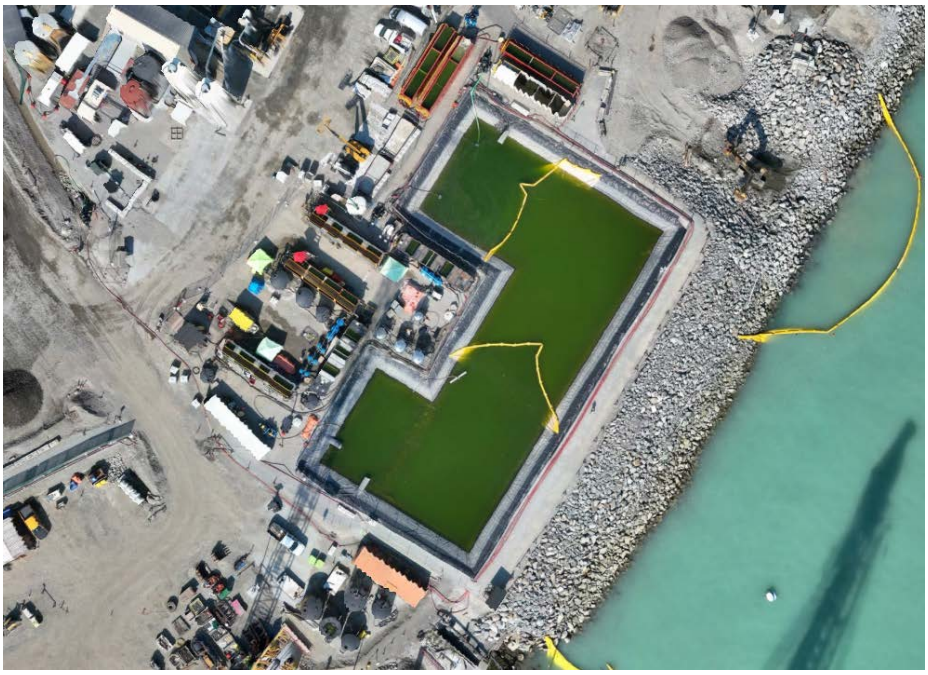

Figure 4: Aerial view of the East Sedimentation Pond showing the placement of two sediment curtains (September 6, 2024). The East WWTP is located on the left side of the pond.

Figure 5: Aerial view of the West Sedimentation Pond showing the placement of two sediment curtains (September 6, 2024). The West WWTP is located on the right side of the pond.

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]		PE-111578 Discharge Limit	East Sedimentation Pond					
					In-Pond at Influent Location	In-Pond at Effluent Location	In-Pond at Influent Location	In-Pond at Effluent Location	In-Pond at Influent Location	In-Pond at Effluent Location
					SP-E-NW	SP-E-NE	SP-E-NW	SP-E-NE	SP-E-NW	SP-E-NE
					VA24C2588-002	VA24C2588-001	VA24C2659-002	VA24C2659-001	VA24C2804-002	VA24C2804-001
		Long Term	Short Term		8/30/2024	8/30/2024	9/1/2024	9/1/2024	9/2/2024	9/2/2024
General Parameters										
pH - Field	pH units	- [2]	-	5.5 - 9.0	7.5	6.3	7.9	-	7.4	7.0
Conductivity - Field	µS/cm	-	-	-	1381	1135	1417	-	1373	1292
Temperature - Field	℃	-	-	-	25.1	22.6	26.3	-	24.6	21.7
Salinity - Field	ppt	-	-	-	0.69	0.59	0.69	-	0.69	0.69
Turbidity - Field	NTU	-	-	-	17.8	5.46	15.5	-	16.6	11.6
TSS	mg/L	-	-	25	24.1	3.5	25.6	9.6	25.9	20.5
Dissolved Oxygen - Field	mg/L	>=8	-	-	15.89	8.03	17.16	-	16.02	15.84
Anions and Nutrients										
Sulphate	mg/L	-	-	-	59.3	58.3	58.9	53.8	61.7	59.4
Chloride	mg/L	-	-	-	61.1	33.0	60.3	36.5	61.3	59.1
Fluoride	mg/L	-	1.5	-	0.216	0.238	0.217	0.255	0.233	0.24
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	0.0071	0.0053	<0.0050	<0.0050	0.044	0.0106
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	<0.0050	0.0055	<0.0050	0.0066	<0.0050	<0.0050
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	<0.0250	0.94	<0.0250	0.554	<0.0250	<0.0250
Total Metals										
Aluminum, total (T-Al)	mg/L	-	-	-	0.553	0.124	0.318	0.0744	0.309	0.229
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00234	0.00215	0.00243	0.00208	0.00239	0.00213
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00243	0.00273	0.00241	0.00204	0.00236	0.00228
Barium, total (T-Ba)	mg/L	-	-	-	0.0103	0.00368	0.0093	0.00672	0.00932	0.0102
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Boron, total (T-B)	mg/L	1.2	-	-	0.166	0.154	0.157	0.186	0.167	0.186
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000218	0.0000172	<0.0000300	<0.0000250	<0.0000300	<0.0000300
Chromium, total (T-Cr)	mg/L	-	-	-	0.00159	0.00094	0.00113	<0.00050	0.00099	0.00094
Cobalt, total (T-Co)	mg/L	-	-	-	0.0003	0.00013	0.00017	<0.00010	0.00017	0.00016
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00349	0.00201	0.00257	0.00154	0.00254	0.0021
Iron, total (T-Fe)	mg/L	-	-	-	0.348	0.06	0.206	0.036	0.201	0.157
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.00126	0.000179	0.000686	0.000158	0.000626	0.000598
Manganese, total (T-Mn)	mg/L	-	-	-	0.024	0.00439	0.0117	0.00594	0.0117	0.0199
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0726	0.088	0.0775	0.0683	0.0752	0.0778
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00096	0.00051	0.0006	<0.00050	0.00056	0.00076
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000254	0.000421	0.000288	0.000336	0.000293	0.000257
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.0325	0.025	0.0322	0.031	0.032	0.0343
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.0053	0.00663	0.00516	0.00336	0.0044	0.00454
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0243	0.0064	0.0085	0.0080	0.0078	0.0175
Hexavalent Chromium, total	mg/L	0.0015	-	-	0.00077	<0.00050	0.00086	<0.00050	0.00065	<0.00050
Dissolved Metals										
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	0.0000199	0.0000161	<0.0000300	<0.0000300	<0.0000150	<0.0000250
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00191	0.0017	0.00133	0.00116	0.0012	0.00107
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.028	0.011	<0.010	<0.010	<0.010	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000152	0.000054	0.000052	<0.000050	<0.000050	0.000076
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00644	0.00328	0.00284	0.00502	0.00208	0.0151
Nickel, dissolved (D-Ni)	mg/L	-	-	-	0.00058	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0984	0.0638	0.104	0.13	0.105	0.121
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00314	0.0058	0.0014	0.00242	0.00106	0.00175
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0048	0.0044	0.0026	0.0062	0.0028	0.0128
Polycyclic Aromatic Hydrocarbons (PAHs)										
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020	-	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050
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.
Results in orange text exceeded the PE-11578 East Sedimentation Pond Discharge Limit.
The East Sedimentation Pond did not discharge during the monitoring period (September 1 – 7).
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document.
[4] The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.
[5] When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

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

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	East Sedimentation Pond					
					In-Pond at Influent Location	In-Pond at Effluent Location	In-Pond at Influent Location	In-Pond at Effluent Location	In-Pond at Influent Location	In-Pond at Effluent Location
					SP-E-NW	SP-E-NE	SP-E-NW	SP-E-NE	SP-E-NW	SP-E-NE
					VA24C2801-002	VA24C2801-001	VA24C2955-002	VA24C2955-001	VA24C3178-002	VA24C3178-001
		Long Term	Short Term		9/3/2024	9/3/2024	9/4/2024	9/4/2024	9/5/2024	9/5/2024
General Parameters										
pH - Field	pH units	- [2]	-	5.5 - 9.0	6.7	7.1	-	7.4	6.9	7.1
Conductivity - Field	µS/cm	-	-	-	1302	1331	-	1427	1390	886
Temperature - Field	°C	-	-	-	22.7	23.2	-	26.2	23	24.8
Salinity - Field	ppt	-	-	-	0.68	0.69	-	0.3	0.73	0.44
Turbidity - Field	NTU	-	-	-	9.44	11.6	-	15	12.4	11.9
TSS	mg/L	-	-	25	21.7	28.9	15.9	28.5	11.6	25
Dissolved Oxygen - Field	mg/L	>=8	-	-	9.01	-[6]	-	-[6]	8.8	-[6]
Anions and Nutrients										
Sulphate	mg/L	-	-	-	59	59	56.1	57.5	44.3	52.6
Chloride	mg/L	-	-	-	53.7	58.6	52.6	57.8	41	57
Fluoride	mg/L	-	1.5	-	0.246	0.249	0.251	0.257	0.198	0.195
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	0.0068	<0.0050	0.005	<0.0050	0.0081	<0.0050
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	0.0844	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Total Metals										
Aluminum, total (T-Al)	mg/L	-	-	-	0.288	0.412	0.128	0.25	0.283	0.173
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00221	0.0022	0.00223	0.00223	0.00208	0.0021
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00219	0.00225	0.00206	0.00222	0.00289	0.00212
Barium, total (T-Ba)	mg/L	-	-	-	0.0107	0.011	0.0103	0.0109	0.00749	0.0097
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Boron, total (T-B)	mg/L	1.2	-	-	0.125	0.178	0.102	0.164	0.072	0.159
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000200	<0.0000300	<0.0000200	<0.0000200	<0.0000400	<0.0000400
Chromium, total (T-Cr)	mg/L	-	-	-	<0.00050	0.00102	<0.00050	0.00097	0.00088	0.00078
Cobalt, total (T-Co)	mg/L	-	-	-	0.00014	0.00019	<0.00010	0.00016	0.00016	0.00012
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00256	0.00254	0.00177	0.0025	0.00264	0.00254
Iron, total (T-Fe)	mg/L	-	-	-	0.212	0.312	0.09	0.181	0.178	0.11
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.000508	0.000923	0.000227	0.000582	0.000529	0.000356
Manganese, total (T-Mn)	mg/L	-	-	-	0.0106	0.0197	0.00664	0.0213	0.0133	0.0148
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	0.0000052	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0614	0.0783	0.0534	0.0791	0.08	0.0743
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00052	0.00056	<0.00050	0.00053	0.00066	<0.00050
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000274	0.000301	0.00023	0.000253	0.00034	0.000252
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000012	<0.000010	0.000013	0.00001	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.0313	0.0335	0.0282	0.0318	0.0238	0.0344
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00413	0.0046	0.00313	0.00436	0.0066	0.00428
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0074	0.0168	0.0072	0.0159	0.0097	0.0155
Hexavalent Chromium, total	mg/L	0.0015	-	-	<0.00050	<0.00050	<0.00050	<0.00050	0.00056	<0.00050
Dissolved Metals										
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000150	<0.0000200	<0.0000150	<0.0000200	<0.0000250	<0.0000200
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00091	0.00117	0.00087	0.00135	0.00142	0.00124
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010	<0.010	<0.010	0.012	<0.010	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	0.00006	<0.000050
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00538	0.00815	0.00625	0.00594	0.00862	0.00304
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.135	0.113	0.16	0.119	0.083	0.115
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00129	0.00135	0.00115	0.00128	0.00385	0.001
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0044	0.0098	0.0052	0.0086	0.0059	0.0075
Polycyclic Aromatic Hydrocarbons (PAHs)										
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
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.
Results in orange text exceeded the PE-11578 East Sedimentation Pond Discharge Limit.
The East Sedimentation Pond did not discharge during the monitoring period (September 1 – 7).
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document.
[4] The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.
[5] When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.
[6] Suspected erroneous dissolved oxygen values measured at SP-E-NE on September 3 (20.24 mg/L), September 4 (23.27 mg/L), and September 5 (24.08 mg/L) are removed from the table.

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

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	East Sedimentation Pond			
					In-Pond at Influent Location	In-Pond at Effluent Location	In-Pond at Influent Location	In-Pond at Effluent Location
					SP-E-NW	SP-E-NE	SP-E-NW	SP-E-NE
					VA24C3266-002	VA24C3266-001	VA24C3331-002	VA24C3331-001
		Long Term	Short Term		9/6/2024	9/6/2024	9/7/2024	9/7/2024
General Parameters								
pH - Field	pH units	- [2]	-	5.5 - 9.0	6.6	6.3	7.0	6.5
Conductivity - Field	µS/cm	-	-	-	1378	1257	1190	1309
Temperature - Field	℃	-	-	-	24	23.1	25	24
Salinity - Field	ppt	-	-	-	0.7	0.65	0.59	0.67
Turbidity - Field	NTU	-	-	-	9.51	7.73	10.26	6.2
TSS	mg/L	-	-	25	16.4	15	22.3	11.3
Dissolved Oxygen - Field	mg/L	>=8	-	-	12.92	***7.07***	18.97	9.76
Anions and Nutrients								
Sulphate	mg/L	-	-	-	51.1	48.5	49.4	46.9
Chloride	mg/L	-	-	-	44.4	65.1	47.9	95.5
Fluoride	mg/L	-	1.5	-	0.297	0.317	0.214	0.271
Ammonia (N-NH_3)	mg/L	Variable [3]	Variable [3]	-	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (N-NO_2)	mg/L	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (N-NO_3)	mg/L	3.7	339	-	<0.0250	<0.0250	<0.0250	<0.0250
Total Metals								
Aluminum, total (T-Al)	mg/L	-	-	-	0.22	0.146	0.172	0.118
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00211	0.0019	0.00215	0.00198
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00275	0.00233	0.00262	0.00246
Barium, total (T-Ba)	mg/L	-	-	-	0.00885	0.00585	0.0092	0.00583
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000100	<0.000100	<0.000100	<0.000100
Boron, total (T-B)	mg/L	1.2	-	-	0.081	0.104	0.102	0.094
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	<0.0000400	<0.0000425	<0.0000250	<0.0000300
Chromium, total (T-Cr)	mg/L	-	-	-	0.0008	0.00058	0.00078	0.00072
Cobalt, total (T-Co)	mg/L	-	-	-	0.00015	0.00011	0.00011	<0.00010
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00237	0.00207	0.00217	0.00178
Iron, total (T-Fe)	mg/L	-	-	-	0.142	0.083	0.094	0.067
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.000447	0.000356	0.000327	0.000288
Manganese, total (T-Mn)	mg/L	-	-	-	0.0176	0.0102	0.015	0.00766
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0852	0.0817	0.08	0.0803
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00061	<0.00050	0.00053	0.00054
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000205	0.000259	0.000229	0.000186
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	0.000011	<0.000010	<0.000010	<0.000010
Uranium, total (T-U)	mg/L	-	-	-	0.0246	0.0364	0.0282	0.0389
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.0064	0.00488	0.00538	0.00592
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0109	0.0077	0.0171	0.0068
Hexavalent Chromium, total	mg/L	0.0015	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals								
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000300	<0.0000300	<0.0000250	<0.0000200
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00137	0.00129	0.00147	0.00118
Iron, dissolved (D-Fe)	mg/L	-	-	-	0.011	<0.010	0.019	<0.010
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.000069	0.000053	0.000131	0.000066
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.0139	0.00374	0.0118	0.00401
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.0892	0.0803	0.0957	0.0674
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00348	0.00284	0.00301	0.00367
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0078	0.0050	0.0141	0.0043
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	mg/L	0.006	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.012	-	-	<0.000010	<0.000010	<0.000010	<0.000010
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050
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.
Results in orange text exceeded the PE-11578 East Sedimentation Pond Discharge Limit.
The East Sedimentation Pond did not discharge during the monitoring period (September 1 – 7).
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document.
[4] The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.
[5] When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

Table B-4: Summary of East Sedimentation Pond Daily Field Parameters September 1 – 7.

Parameter		Temperature	Dissolved Oxygen (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		-	-	-	-	5.5 - 9.0	-	-	-[3]
Lowest Applicable Guideline [1]		-	>=8	-	-	-[2]	-	-	-
Station ID [4]	**Date**								
SP-E-NW	9/1/2024 17:42	26.3	17.16	0.69	15.5	7.9	1417	No	0
SP-E-NW	9/2/2024 13:41	24.6	16.02	0.69	16.6	7.4	1373	No	0
SP-E-NE	9/2/2024 14:04	21.7	15.84	0.69	11.6	7.0	1292	No	0
SP-E-NE	9/3/2024 16:27	23.2	-[5]	0.69	11.6	7.1	1331	No	0
SP-E-NW	9/3/2024 17:57	22.7	9.01	0.68	9.44	6.7	1302	No	0
SP-E-NE	9/4/2024 17:27	26.2	-[5]	0.30	15.0	7.4	1427	No	0
SP-E-NE	9/5/2024 11:20	24.8	-[5]	0.44	11.9	7.1	886	No	0
SP-E-NW	9/5/2024 11:58	23.0	8.80	0.73	12.4	6.9	1390	No	0
SP-E-NE	9/6/2024 10:50	23.1	***7.07***	0.65	7.73	6.3	1257	No	0
SP-E-NW	9/6/2024 11:20	24.0	12.92	0.70	9.51	6.6	1378	No	0
SP-E-NE	9/7/2024 17:50	24.0	9.76	0.67	6.20	6.5	1309	No	0
SP-E-NW	9/7/2024 17:58	25.0	18.97	0.59	10.26	7.0	1190	No	0

Notes:
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
Results in orange text exceeded the PE-11578 East Sedimentation Pond Discharge Limit.
All SP-E-OUT samples collected from May 27 to the time of writing were taken from the sample port which is located near the inlet end of the temporary discharge hose.
The East Sedimentation Pond did not discharge during the monitoring period (September 1 – 7).
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] The 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.
[4] The sedimentation pond did not receive non-contaminated contact water influent September 1 – 7, therefore daily measurements for station SP-E-IN-2 were not collected. The East Sedimentation Pond did not discharge September 1 – 7, therefore daily measurements for station SP-E-OUT were not collected. 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.
[5] Suspected erroneous dissolved oxygen values measured at SP-E-NE on September 3 (20.24 mg/L), September 4 (23.27 mg/L), and September 5 (24.08 mg/L) are removed from the table.

Appendix C: East Wastewater Treatment Plant Results

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

Parameter	Unit	East WWTP	
		Influent	**Effluent**
		WWTP-E-IN	**WWTP-E-OUT**
		VA24C2418-002	**VA24C2418-001**
		8/29/2024	**8/29/2024**
Methylmercury	**µg/L**	0.000051	0.000038

Table C-2: Summary of East Wastewater Treatment Plant Daily Field Parameters September 1 – 7.

Parameter		**Temperature**	**Dissolved Oxygen (DO)**	**Salinity**	**Turbidity**	**pH**	**Conductivity**	**Visibility of Sheen**	**Total Daily Discharge from the East WWTP**
Unit		**°C**	**mg/L**	**ppt**	**NTU**	**s.u.**	**µS/cm**		**m^3**
PE-111578 Discharge Limit [1]		-	-	-	-	-	-	-	1,100
Minimum Discharge Objective [2]		-	>=8 [3]	-	-	7.0 - 8.7	-	-	-
Station ID	**Date**								
WWTP-E-IN	9/1/2024 16:57	23.8	17.41	0.61	6.57	***6.9***	1195	No	-
WWTP-E-OUT	9/1/2024 17:02	31.4	***0.90***	0.68	10.88	***6.9***	1547	No	515
WWTP-E-IN	9/2/2024 13:53	22.5	9.45	0.35	10.7	7.1	688	No	-
WWTP-E-OUT	9/2/2024 13:47	24.1	***4.20***	0.70	3.42	***6.2***	1362	No	546
WWTP-E-IN	9/3/2024 16:32	21.7	***6.26***	0.67	5.73	***6.8***	1251	No	-
WWTP-E-OUT	9/3/2024 17:13	22.9	***5.30***	0.68	6.43	***6.3***	1296	No	612
WWTP-E-IN	9/4/2024 17:54	22.2	10.01	-[4]	11.2	7.3	-[4]	No	-
WWTP-E-OUT	9/4/2024	-[5]	-[5]	-[5]	-[5]	-[5]	-[5]	-[5]	615
WWTP-E-IN	9/5/2024 11:54	25.6	8.90	0.87	12	8.6	1362	No	-
WWTP-E-OUT	9/5/2024 12:05	30.8	***1.36***	0.33	14.9	8.4	761	No	536
WWTP-E-IN	9/6/2024 10:53	23	***7.42***	0.65	6.26	***6.4***	1255	No	-
WWTP-E-OUT	9/6/2024 10:59	23.5	***4.01***	0.73	6.96	***6.0***	1412	No	570
WWTP-E-IN	9/7/2024	-[5]	-[5]	-[5]	-[5]	-[5]	-[5]	-[5]	-
WWTP-E-OUT	9/7/2024	-[5]	-[5]	-[5]	-[5]	-[5]	-[5]	-[5]	623

Notes:
[1] PE-111578 East WWTP Discharge Limit is applied to effluent compliance station WWTP-E-OUT.
[2] Design minimum discharge objectives (MDOs) for WWTP effluent that are listed in the WWTP design report.
[3] A design MDO for dissolved oxygen was not specified in the WWTP design report. The water quality guideline is provided in place of an MDO for reference purposes only.
[4] Field salinity and conductivity measurements were not recorded for WWTP-E-IN on September 4.
[5] Field measurements were collected each day at the influent (WWTP-E-IN) and effluent (WWTP-E-OUT) stations except on September 4 and 7 since the East WWTP was not discharging at the time of monitoring.
Results ***underlined in bold italics*** do not meet the applicable minimum discharge objective (except DO).

Appendix D: West Sedimentation Pond Results

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

Parameter	Unit	Lowest Applicable Guideline [1]		PE-111578 Discharge Limit	West Sedimentation Pond	
					In-Pond at Influent Location	In-Pond at Effluent Location
					SP-W-W	SP-W-E
					VA24C2955-006	VA24C2955-005
		Long Term	Short Term		9/4/2024	9/4/2024
General Parameters						
pH - Field	pH units	- [2]	-	5.5 - 9.0	-	6.95
Conductivity - Field	µS/cm	-	-	-	-	1775
Temperature - Field	°C	-	-	-	-	26
Salinity - Field	ppt	-	-	-	-	0.88
Turbidity - Field	NTU	-	-	-	-	7.99
TSS	mg/L	-	-	25	26.7	13.5
Dissolved Oxygen - Field	mg/L	>=8	-	-	-	23.9
Anions and Nutrients						
Sulphate	mg/L	-	-	-	57.6	64.7
Chloride	mg/L	-	-	-	119	261
Fluoride	mg/L	-	1.5	-	0.18	0.107
Ammonia ($N\text{-}NH_3$)	mg/L	Variable [3]	Variable [3]	-	<0.0050	<0.0050
Nitrite ($N\text{-}NO_2$)	mg/L	-	-	-	<0.0050	<0.0050
Nitrate ($N\text{-}NO_3$)	mg/L	3.7	339	-	<0.0250	<0.0250
Total Metals						
Aluminum, total (T-Al)	mg/L	-	-	-	0.210	0.274
Antimony, total (T-Sb)	mg/L	-	0.27 [4]	-	0.00240	0.00306
Arsenic, total (T-As)	mg/L	0.0125	0.0125	-	0.00207	0.00227
Barium, total (T-Ba)	mg/L	-	-	-	0.019	0.0332
Beryllium, total (T-Be)	mg/L	0.1	-	-	<0.000100	<0.000100
Boron, total (T-B)	mg/L	1.2	-	-	0.147	0.089
Cadmium, total (T-Cd)	mg/L	0.00012	-	-	0.0000293	0.0000495
Chromium, total (T-Cr)	mg/L	-	-	-	0.00104	0.00108
Cobalt, total (T-Co)	mg/L	-	-	-	0.00016	0.00015
Copper, total (T-Cu)	mg/L	- [2]	- [2]	0.0043	0.00202	0.00278
Iron, total (T-Fe)	mg/L	-	-	-	0.148	0.139
Lead, total (T-Pb)	mg/L	- [2]	- [2]	0.0035	0.00181	0.000882
Manganese, total (T-Mn)	mg/L	-	-	-	0.028	0.0121
Mercury, total (T-Hg)	mg/L	0.000016 [5]	-	-	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	-	-	0.0619	0.0375
Nickel, total (T-Ni)	mg/L	0.0083	-	-	0.00075	0.00062
Selenium, total (T-Se)	mg/L	0.002	-	-	0.000273	0.000221
Silver, total (T-Ag)	mg/L	0.0015	0.003	-	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	-	-	<0.000010	0.000012
Uranium, total (T-U)	mg/L	-	-	-	0.026	0.0141
Vanadium, total (T-V)	mg/L	- [2]	-	0.0081	0.00396	0.00545
Zinc, total (T-Zn)	mg/L	- [2]	- [2]	0.0133	0.0155	0.0073
Hexavalent Chromium, total	mg/L	0.0015	-	-	<0.00050	0.0006
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	-	-	-	<0.0000275	0.0000381
Copper, dissolved (D-Cu)	mg/L	-	-	-	0.00118	0.00171
Iron, dissolved (D-Fe)	mg/L	-	-	-	<0.010	0.014
Lead, dissolved (D-Pb)	mg/L	-	-	-	0.00019	0.000134
Manganese, dissolved (D-Mn)	mg/L	-	-	-	0.00886	0.00754
Nickel, dissolved (D-Ni)	mg/L	-	-	-	<0.00050	0.00051
Strontium, dissolved (D-Sr)	mg/L	-	-	-	0.154	0.258
Vanadium, dissolved (D-V)	mg/L	-	-	-	0.00150	0.00415
Zinc, dissolved (D-Zn)	mg/L	-	-	-	0.0089	0.0049
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	0.006	-	-	<0.000010	0.000022
Acridine	mg/L	-	-	-	<0.000010	<0.000010
Anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	-	-	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	-	-	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	-	-	<0.000010	<0.000010
Fluoranthene	mg/L	-	-	-	<0.000010	0.000013
Fluorene	mg/L	0.012	-	-	<0.000010	0.000023
1-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	-	-	<0.000010	<0.000010
Naphthalene	mg/L	0.001	-	-	<0.000050	<0.000050
Phenanthrene	mg/L	-	-	-	<0.000020	0.000025
Pyrene	mg/L	-	-	-	<0.000010	<0.000010
Quinoline	mg/L	-	-	-	<0.000050	<0.000050
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.
Results in orange text exceeded the PE-11578 West Sedimentation Pond Discharge Limit.
The West Sedimentation Pond did not discharge during the monitoring period (September 1 – 7).
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] The WQG was not evaluated for parameters with discharge limits.
[3] The BC WQG for total ammonia is salinity, pH and temperature dependent; see Tables 26E and 26F in BC WQG guidance document.
[4] The working BC WQG for trivalent antimony [SB(III)] is 0.27 mg/L and is applied to total antimony results.
[5] When MeHg ≤0.5% of total Hg, the BC WQG = 0.00002 mg/L. The Canadian WQG = 0.000016 mg/L.

Appendix E: West Wastewater Treatment Plant Results

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

Parameter	Unit	Minimum Discharge Objective [1]	West WWTP			
			Influent	Effluent	Influent	Effluent
			WWTP-W-IN	WWTP-W-OUT	WWTP-W-IN	WWTP-W-OUT
			VA24C2805-002	VA24C2805-001	VA24C2955-003	VA24C2955-004
			9/2/2024	9/2/2024	9/4/2024	9/4/2024
General Parameters						
pH - Field	pH units	7.0 - 8.7	7.6	***6.2***	7.2	***6.1***
Conductivity - Field	µS/cm	-	1930	2439	1776	2043
Temperature - Field	℃	-	23.9	24	26.2	23.9
Salinity - Field	ppt	-	1	1.2	0.88	1.07
Turbidity - Field	NTU	-	8.33	5.41	7.27	1.68
TSS	mg/L	-	7.7	<3.0	11.7	3.9
Dissolved Oxygen - Field	mg/L	>=8 [2]	8.43	***6.35***	8.46	***6.06***
Anions and Nutrients						
Sulphate	mg/L	-	78.5	87.5	67.2	71
Chloride	mg/L	-	378	520	257	395
Fluoride	mg/L	-	<0.200	<0.200	0.125	<0.200
Ammonia (N-NH_3)	mg/L	Variable	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (N-NO_2)	mg/L	-	<0.0100	<0.0100	<0.0050	<0.0100
Nitrate (N-NO_3)	mg/L	3.7	<0.0500	<0.0500	<0.0250	<0.0500
Total Metals						
Aluminum, total (T-Al)	mg/L	-	0.396	0.0623	0.252	0.0583
Antimony, total (T-Sb)	mg/L	-	0.00323	0.00229	0.00304	0.00274
Arsenic, total (T-As)	mg/L	0.0125	0.00272	0.00218	0.00219	0.00155
Barium, total (T-Ba)	mg/L	-	0.0396	0.0588	0.0313	0.055
Beryllium, total (T-Be)	mg/L	0.1	<0.000100	<0.000100	<0.000100	<0.000100
Boron, total (T-B)	mg/L	1.2	0.066	0.014	0.092	0.018
Cadmium, total (T-Cd)	mg/L	0.00012	<0.0000700	0.0000155	0.0000503	0.0000137
Chromium, total (T-Cr)	mg/L	-	0.00119	0.00091	0.00101	0.00121
Cobalt, total (T-Co)	mg/L	-	0.00019	<0.00010	0.00014	<0.00010
Copper, total (T-Cu)	mg/L	0.002	***0.0176***	***0.00466***	***0.00327***	***0.00274***
Iron, total (T-Fe)	mg/L	-	0.198	0.205	0.126	0.611
Lead, total (T-Pb)	mg/L	0.002	***0.0024***	0.00102	0.00112	0.000432
Manganese, total (T-Mn)	mg/L	-	0.0113	0.00725	0.0115	0.00673
Mercury, total (T-Hg)	mg/L	0.000016	0.0000057	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total (T-Mo)	mg/L	-	0.026	0.0109	0.0377	0.00971
Nickel, total (T-Ni)	mg/L	0.0083	0.00129	0.0019	0.00056	0.00364
Selenium, total (T-Se)	mg/L	0.002	0.000223	0.000122	0.000228	0.000145
Silver, total (T-Ag)	mg/L	0.0015	0.000011	<0.000010	<0.000010	<0.000010
Thallium, total (T-Tl)	mg/L	-	0.000011	<0.000010	0.000011	<0.000010
Uranium, total (T-U)	mg/L	-	0.00893	0.00562	0.0147	0.00396
Vanadium, total (T-V)	mg/L	0.005	***0.0063***	0.00077	***0.00541***	0.00077
Zinc, total (T-Zn)	mg/L	0.01	***0.0256***	***0.0465***	***0.0105***	***0.0252***
Hexavalent Chromium, total	mg/L	0.0015	0.00082	<0.00050	0.00068	<0.00050
Dissolved Metals						
Cadmium, dissolved (D-Cd)	mg/L	-	0.0000369	0.000009	0.0000473	0.0000094
Copper, dissolved (D-Cu)	mg/L	-	0.00213	0.00362	0.00226	0.00146
Iron, dissolved (D-Fe)	mg/L	-	<0.010	0.304	<0.010	0.489
Lead, dissolved (D-Pb)	mg/L	-	0.000124	0.00023	0.000341	0.00022
Manganese, dissolved (D-Mn)	mg/L	-	0.00284	0.00703	0.00622	0.00533
Nickel, dissolved (D-Ni)	mg/L	-	<0.00050	0.00187	0.00051	0.00341
Strontium, dissolved (D-Sr)	mg/L	-	0.304	0.37	0.259	0.334
Vanadium, dissolved (D-V)	mg/L	-	0.00579	0.00072	0.00427	<0.00050
Zinc, dissolved (D-Zn)	mg/L	-	0.0057	0.0634	0.0106	0.0388
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/L	0.006	0.000025	<0.000010	0.000022	<0.000010
Acridine	mg/L	-	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	-	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chrysene	mg/L	0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	-	0.000031	<0.000010	0.000013	<0.000010
Fluorene	mg/L	0.012	0.000035	<0.000010	0.000025	<0.000010
1-methylnaphthalene	mg/L	0.001	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.001	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.001	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	-	0.000024	<0.000020	0.000025	<0.000020
Pyrene	mg/L	-	0.000011	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050
Volatile Organic Compounds (VOCs)						
Benzene	mg/L	0.11	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.25	<0.00050	<0.00050	<0.00050	<0.00050
Methyl-tert-butyl-ether	mg/L	5	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.215	<0.00040	<0.00040	<0.00040	<0.00040
Total Xylenes	mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.025	<0.00050	<0.00050	<0.00050	<0.00050
1,2-Dichlorobenzene	mg/L	0.042	<0.00050	<0.00050	<0.00050	<0.00050

Notes:

[1] Design minimum discharge objectives (MDOs) for WWTP effluent that are listed in the WWTP design report.

[2] A design MDO for dissolved oxygen was not specified in the WWTP design report. The water quality guideline is provided in place of an MDO for reference purposes only.

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

Table E-2: Summary of West Wastewater Treatment Plant Water Quality Results for Methylmercury Received at the Time of Reporting.

Parameter	Unit	West WWTP							
		Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
		WWTP-W-IN	WWTP-W-OUT	WWTP-W-IN	WWTP-W-OUT	WWTP-W-IN	WWTP-W-OUT	WWTP-W-IN	WWTP-W-OUT
		VA24C2368-002	VA24C2368-003	VA24C2417-002	VA24C2417-001	VA24C2417-002	VA24C2417-001	VA24C2417-002	VA24C2417-001
		8/28/2024	8/28/2024	8/29/2024	8/29/2024	9/2/2024	9/2/2024	9/4/2024	9/4/2024
Methylmercury	**µg/L**	0.000032	<0.000020	0.000036	<0.000020	0.000021	<0.000020	0.000038	0.000024