# TECHNICAL MEMORANDUM

**To:** **Ian McAllister, Ashleigh Crompton, Mike Champion, Jackie Boruch and Ryan Schucroft (Woodfibre LNG)** **Date: 30 Aug 2024**

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

**Subject:** **PE-111578 Weekly Discharge and Compliance Report #28 for August 18 – 24**

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 #28) was prepared by Lorax Environmental and summarizes monitoring conducted the week of August 18 – 24 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 #28 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 F 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 was initiated and has continued through the August 18 – 24 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 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 completed non-contact water diversion ditch west of Mill Creek was commissioned for use on April 7 and discharges to Mill Creek at station OUT-06 (Figure 1). Monitoring stations OUT-01 and OUT-02 at pre-existing culvert outlets and associated with pre-existing ditching have been established. Although a station was previously established at OUT-11, there is no water directed to this outlet. 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.

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 (August 18 – 24). Contaminated and potentially contaminated contact waters from the 1200, 1300, and 4100 excavations and small amounts of concrete wash water 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 3,730 $m^3$ of treated WWTP effluent was discharged to the East Sedimentation Pond during the reporting period (August 18 – 24). Daily WWTP effluent flows

are provided in Appendix C (Table C-3). 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. The West WWTP is undergoing pilot trials is not commissioned for discharge. If it is necessary to remove water from the pond the water will be pumped to the East WWTP for treatment. The West WWTP pilot trials did not proceed during the monitoring period (August 18 – 24) and are expected to resume the week of August 25. A total of 9.5 $m^3$ of West Sedimentation Pond was recirculated through the West WWTP on August 24 to facilitate operator training on that day. There were no discharges from the West Sedimentation Pond during the monitoring period.

Daily temperature and precipitation records were not available from the local Woodfibre weather station during the monitoring period (August 18 – 24). Therefore, daily records were obtained from the Squamish Mainstreet weather station; however, temperature and precipitation records were not available for August 18. The weather was variable August 19 - 24. Small amounts of precipitation (<10 mm) were recorded at the Squamish Mainstreet weather station from August 19 to 22. Rainy conditions persisted on August 23 (13 mm) and 24 (18 mm). The daily weather conditions are summarized in Table 1.

**Table 1: Summary of Certified Project Area (CPA) Daily Weather Conditions.**

| Date | Precipitation (mm) | Max. Temp (°C) | Min. Temp (°C) | Weather Description |
|---|---|---|---|---|
| 08-18-2024 | - | - | - | - |
| 08-19-2024 | 0.3 | 23.6 | 16.2 | Sun and cloud |
| 08-20-2024 | 2.5 | 22.0 | 14.7 | Overcast |
| 08-21-2024 | 0.3 | 17.7 | 14.7 | Overcast |
| 08-22-2024 | 6.8 | 22.5 | 13.9 | Overcast |
| 08-23-2024 | 13.0 | 17.8 | 14.5 | Rainy |
| 08-24-2024 | 18.0 | 18.8 | 14.0 | Rainy |

Note: Data retrieved from the Squamish Mainstreet weather station. Records fore August 18 were not available.

## 2. Monitoring Summary

The PE-111578 authorized works were under construction during the August 18 – 24 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, and SP-E-NW during the monitoring period (August 18 – 24). Sampling dates and parameters tested are summarized in Table 2. Overall, the PE-111578 monitoring requirements that were applicable during the monitoring period (August 18 – 24) were met. 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. Daily field parameters were not collected August 22 at East WWTP influent and effluent stations (WWTP-E-IN and WWTP-E-OUT, respectively) as the East WWTP was not operating at the time of monitoring.

**Table 2: Summary of PE-111578 Monitoring Samples Collected August 18 – 24.**

| Sampling Date | Sample | Description | Parameters Tested | Monitoring Frequency |
|---|---|---|---|---|
| August 18, 2024 | SP-E-NE [1] | East Sedimentation Pond, in-pond sample, represents effluent quality | Field Parameters. | P |
| | WWTP-E-OUT | East WWTP effluent | Field Parameters. | D |
| | WWTP-E-IN | East WWTP influent | | |
| August 19, 2024 | SP-E-NE [1] | East Sedimentation Pond, in-pond sample, represents effluent quality | Field Parameters. | P |
| | WWTP-E-OUT | East WWTP effluent | Field Parameters. | D |
| | WWTP-E-IN | East WWTP influent | | |
| August 20, 2024 | SP-E-NE [1] | East Sedimentation Pond, in-pond sample, represents effluent quality | Field Parameters. | P |
| | WWTP-E-OUT | East WWTP effluent | Field Parameters. | D |
| | WWTP-E-IN | East WWTP influent | | |
| August 21, 2024 | SP-E-NE [1] | East Sedimentation Pond, in-pond sample, represents effluent quality | Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease, Chlorophyl-A | P |
| | SP-E-NW [1] | East Sedimentation Pond, in-pond sample, represents influent quality | | |
| | WWTP-E-OUT | East WWTP effluent | Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease. | D, $W_1$, $W_2$ |
| | WWTP-E-IN | East WWTP influent | | |
| August 22, 2024 | SP-E-NE [1] | East Sedimentation Pond, in-pond sample, represents effluent quality | Field Parameters. | P |
| August 23, 2024 | SP-E-NE [1] | East Sedimentation Pond, in-pond sample, represents effluent quality | Field Parameters. | P |
| | WWTP-E-OUT | East WWTP effluent | Field Parameters. | D |
| | WWTP-E-IN | East WWTP influent | | |
| | IDZ-E1-0.5 | Howe Sound IDZ station E1; 0.5 m below surface | Field, Physical & General Parameters, VH & BTEX, EPHs & PAHs, Total, Dissolved and Speciated Metals, VOCs, Methylmercury, Dioxins & Furans, Glycols, Oil and Grease. | $W_3$, M |
| | 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 | | |
| August 24, 2024 | SP-E-NE [1] | East Sedimentation Pond, in-pond sample, represents effluent quality | Field Parameters. | P |
| | WWTP-E-OUT | East WWTP effluent | Field Parameters. | D |
| | WWTP-E-IN | East WWTP influent | | |

**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. 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 (August 18 – 24) 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-OUT and WWTP-W-IN collected August 16 (dioxins and furans)
- WWTP-E-IN and WWTP-E-OUT collected August 17 (dioxins and furans)
- SP-E-NE, SP-E-NW, WWTP-E-OUT, and WWTP-E-IN collected August 21 (all analytical parameters)

- IDZ-E1 and IDZ-E2 collected August 23 (field measurements and all analytical parameters)

**Table 3: Summary of Analytical Results Included in Weekly Discharge and Compliance Report #28**.

| Sample | Description | Sampling Date | Parameters Reported |
|---|---|---|---|
| SP-W-E | West Sedimentation Pond, in-pond sample, represents effluent quality | August 12, 2024 | Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, Methylmercury, Dioxins and Furans. |
| SP-W-W | West Sedimentation Pond, in-pond sample, represents influent quality | | |
| WWTP-W-IN | West WWTP influent | | |
| WWTP-W-OUT | West WWTP effluent | | |
| WWTP-W-IN | West WWTP influent | August 16, 2024 | Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury. |
| WWTP-W-OUT | West WWTP effluent | | |
| WWTP-E-IN | East WWTP influent | August 17, 2024 | Field, Physical and General Parameters, Total and Dissolved Metals, Hexavalent Chromium, PAHs, VOCs, and Methylmercury. |
| WWTP-E-OUT | East WWTP effluent | | |
| IDZ-E1-0.5 | Howe Sound IDZ station E1; 0.5 m below surface | | Field and Physical Parameters. |
| IDZ-E1-2m | Howe Sound IDZ station E1; 2 m below surface | | |
| IDZ-E1-SF | Howe Sound IDZ station E1; 2 m above the seafloor | | |
| IDZ-E2-0.5 | Howe Sound IDZ station E2; 0.5 m below surface | | |
| IDZ-E2-2m | Howe Sound IDZ station E2; 2 m below surface | | |
| IDZ-E2-SF | Howe Sound IDZ station E2; 2 m above the seafloor | | |

### *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. Daily field parameters, discharge limits and WQGs are summarized in Table B-1 (field measurements) of Appendix B. Screening results are summarized in Table 4 for parameter concentrations that exceeded a WQG in sedimentation pond effluent.

During the monitoring period (August 18 – 24), 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) during the monitoring period and from the in-pond influent quality station (SP-E-NW) on August 21.

Field pH ranged from 6.4 to 7.0 at SP-E-NE during the monitoring period (August 18 – 24), while dissolved oxygen ranged from 6.88 to 14.54 mg/L, and turbidity ranged from 3.84 to 17.70 NTU (Appendix B, Table B-2). The field measurement of dissolved oxygen collected at station SP-E-NE on August 21 (6.88 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 is planned to confirm that effluent with low dissolved oxygen concentrations will meet the WQG for dissolved oxygen within the initial dilution zone defined in PE-111578 (Table 9).

Field measurements collected from the in-pond influent quality station SP-E-NW on August 21 showed a field pH value of 7.5, a dissolved oxygen concentration of 6.75 mg/L, and a turbidity value of 5.77 NTU. Dissolved oxygen was below the lower limit of the WQG (≥8 mg/L) on August 21 at SP-E-NW.

**Table 4:**
**Summary of Parameters Exceeding WQGs at the In-Pond Effluent Quality Station SP-E-NE**

| Parameter | Units | WQG | N | N >WQG | Commentary |
|---|---|---|---|---|---|
| Field Dissolved Oxygen | mg/L | ≥8 | 7 | 1 | Field dissolved oxygen measured at the in-pond location SP-E-NE on August 21 (6.88 mg/L) was below the lower limit of the WQG. A field investigation is planned to confirm that effluent with low dissolved oxygen will meet the WQG within the initial dilution zone defined in PE-111578. The East Sedimentation Pond did not discharge on August 21. |

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 through Table C-2 (analytical results) and Table C-3 (field measurements) of Appendix C. Screening results are summarized in Table 5 for parameter concentrations that do not meet the design MDOs in WWTP effluent.

The East WWTP received contact water and recirculated East Sedimentation Pond water each day August 18 – 24 (Section 2). 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 and effluent stations, WWTP-E-IN and WWTP-E-OUT, respectively, except on August 22 when the East WWTP was not operational at the time of monitoring. Field pH ranged from 3.9 to 7.9 at WWTP-E-IN during the monitoring period (August 18 – 24), while dissolved oxygen ranged from 7.01 to 9.68 mg/L, and turbidity ranged from 3.15 to 14.60 NTU (Appendix C, Table C-3).

Field pH, dissolved oxygen, and turbidity in the WWTP effluent (WWTP-E-OUT) ranged from pH 5.9 to 7.9, 1.57 to 6.45 mg/L, and 2.02 to 7.90 NTU, respectively. Field measurements for pH did not meet the design MDOs in the August 19, 20, 23, and 24 WWTP-E-OUT samples collected during the monitoring period. However, all pH measurements met the sedimentation pond discharge limits for pH that are specified in PE-111578.

Analytical results, including methylmercury for samples collected from the East WWTP influent and effluent stations on August 17 (discussed in Weekly Report #27) were available at the time of report preparation. Effluent quality monitored at WWTP-E-OUT achieved design MDOs for all parameters except for total copper (0.00242 mg/L) (Table 5). The methylmercury concentration at WWTP-E-IN was 0.000172 µg/L and 0.000234 µg/L at WWTP-E-OUT.

**Table 5:**
**Summary of Parameters Outside Design Minimum Discharge Objectives (MDOs) at East WWTP Effluent Station WWTP-E-OUT.**

| Parameter | Units | MDO | N | N >MDO | Commentary |
|---|---|---|---|---|---|
| Field pH | s.u. | 7.0-8.7 | 6 | 4 | Field pH ranged from pH 5.9 and 6.3 in effluent samples collected from August 19, 20, 23, and 24, 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. |
| Total Copper | mg/L | 0.002 | 1 | 1 | The total copper concentration in the August 17 sample (0.00242 mg/L) was 1.2 times above the design MDO. |

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. Screening results for sedimentation pond effluent are summarized in Table 6 for parameter concentrations that exceeded a WQG and in Table 7 for parameter concentrations that exceeded a PE-111578 discharge limit.

Field measurements and analytical results, including methylmercury, dioxins and furans were available at the time of reporting for samples collected August 12 from the in-pond influent quality station (SP-W-W) and in-pond effluent quality station (SP-W-E) discussed in Weekly Report #27. Field measurements at influent station SP-W-W showed a field pH of 6.1, a dissolved oxygen concentration of 4.48 mg/L, and a turbidity value of 11.90 NTU. Field measurements and analytical results at station SP-W-W met PE-111578 discharge limits or WQGs, except dissolved oxygen which was below the lower limit of the WQG (≥8 mg/L). The methylmercury, lower-bound PCDD/F TEQ and upper-bound TCDD/F TEQ concentrations were 0.000026 µg/L, 0.116 pg/L and 1.32 pg/L, respectively.

Field measurements collected at in-pond effluent station SP-W-E on August 12 showed a field pH value of 8.2, a dissolved oxygen concentration of 5.22 mg/L, and a turbidity value of 10.46 NTU. Dissolved oxygen was below the lower limit of the WQG (≥8 mg/L). Analytical results met PE-111578 discharge limits or WQGs except for total zinc (0.0149 mg/L) which was above the discharge limit value (0.0133 mg/L). The methylmercury, lower-bound PCDD/F TEQ and upper-bound TCDD/F TEQ concentrations were 0.000038 µg/L, 0.157 pg/L and 1.03 pg/L, respectively.

**Table 6:**
**Summary of Parameters Exceeding WQGs at the In-Pond Effluent Quality Station SP-W-E**

| Parameter | Units | WQG | N | N >WQG | Commentary |
|---|---|---|---|---|---|
| Field Dissolved Oxygen | mg/L | ≥8 | 1 | 1 | Field dissolved oxygen measured at the in-pond effluent location SP-W-E on August 12 (5.22 mg/L) was below the lower limit of the WQG. The West Sedimentation Pond is not commissioned for discharge and did not discharge on August 12. |

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

**Table 7:**
**Summary of Parameters Exceeding PE-111578 Discharge Limits at the In-Pond Effluent Quality Station SP-W-E**

| Parameter | Units | PE-111578 Discharge Limit[1] | N | N > Discharge Limit | Commentary |
|---|---|---|---|---|---|
| Total Zinc | mg/L | 0.0133 | 1 | 1 | The total zinc concentration in the August 12 sample collected from SP-W-E (0.0149 mg/L) was 1.1 times greater than the discharge limit. The West Sedimentation Pond is not commissioned for discharge and did not discharge on August 12. |

[1] PE-111578 discharge limits only apply to discharge compliance station SP-W-OUT. The West Sedimentation Pond has not been commissioned for discharge and station SP-W-OUT has not yet been established.
N = number of samples.
Non-detect results are screened using the detection limit value.

## *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 (analytical results) of Appendix E. Screening results are summarized in Table 8 for parameter concentrations that do not meet the design MDOs. The West WWTP pilot trials did not proceed during the monitoring period (August 18 – 24) and are expected to resume the week of August 25.

Field measurements and analytical results, including methylmercury were available at the time of reporting for West WWTP samples collected on August 12 and 16 from the influent and effluent stations WWTP-W-IN and WWTP-W-OUT, respectively (discussed in Weekly Report #27). Dioxin and Furan results were also available for the August 12 samples. Parameter concentrations measured in the influent at station WWTP-W-IN were below design MDOs except total cadmium, copper, vanadium and zinc in one or both samples (Table E-1 of Appendix E).

At effluent station WWTP-W-OUT the water quality in both samples met the design MDOs except field pH (Table 8). Early-stage pilot testing of the West WWTP is underway and deviations in effluent pH are expected during the pilot trial period.

On August 12 the methylmercury concentration was 0.000044 and <0.000020 µg/L at WWTP-W-IN and WWTP-W-OUT, respectively. The methylmercury concentration at both stations was <0.000020 µg/L on August 16.

Dioxin and furan analytical results for in the August 12 WWTP-W-IN and WWTP-W-OUT samples were 0.0255 and 0.327 pg/L, respectively for the lower bound PCDD/F TEQ, and 1.39 and 0.889 pg/L, respectively for the upper bound PCDD/F TEQ.

**Table 8:**
**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 | Field pH was pH 5.5 in the effluent sample collected August 12 and pH 9.5 in the effluent sample collected August 16, outside the range of the design MDO. Deviations in effluent pH are expected during the pilot trial period. |

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. There are no outstanding results for diversion ditch stations.

### *3.8 Freshwater and Estuarine Water Receiving Environment*

Water quality results were not available for the freshwater and estuarine water receiving environment stations at the time of reporting. There are no outstanding results for freshwater and estuarine water receiving environment stations.

### *3.9 Marine Water Receiving Environment*

Marine water receiving environment samples are screened against Canadian, Federal and BC WQGs for the protection of marine water aquatic life. Parameter concentrations above a WQG value, but within the range of values observed in the baseline monitoring program are considered to represent the natural condition of the water and are not flagged as exceedances. The analytical results, field parameters and WQGs are summarized in Appendix F.

Analytical results were available for August 17 marine receiving environment samples collected at stations IDZ-E1 and IDZ-E2 at 0.5 and 2 m below the water surface and 2 m above the seafloor (discussed in Weekly Report #27). The August 17 samples were tested for field and physical parameters. Field measurements were limited to field pH, turbidity, and temperature due to a field probe malfunction. Field and physical parameter concentrations met WQGs in all samples.

# 4. Quality Control

This section presents the results of the quality control (QC) evaluation for the PE-111578 weekly report (Table 9). 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 9. Any items flagged for follow-up are carried forward to future reports until they are closed.

**Table 9: Weekly Report QC Evaluations and Ongoing Items**

| QC Procedure | Observation | Investigation/Resolution |
|---|---|---|
| **Reporting Period (August 18 – 24, Report #28)** | | |
| **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. |
| **Pending Data** | Analytical results for samples collected August 21 and 23 were not reported. | Analytical results for samples collected August 21 and 23 were not complete at the time of Report #28 preparation. The pending results will be included in future weekly reports when available. This item remains open. |
| **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 #24: Pending Data** | Methyl mercury, dioxin and furan results for samples collected July 24, 26, and 27 were not reported. | Methylmercury results for samples collected July 26 and 27 are discussed in Section 3.4 of Report #25. Methylmercury results for samples collected July 24 are discussed in Sections 3.3 and 3.4 of Report #26. Dioxin and furan results for samples collected July 24, 26, and 27 were not complete at the time of Report #28 preparation. Testing of these parameters 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 #25: Pending Data** | Methyl mercury, dioxin and furan results for samples collected July 31 and August 2 were not reported. | Methylmercury results for samples collected August 2 are discussed in Section 3.4 of Report #26. Dioxin and furan results for samples collected July 31 were not complete at the time of Report #28 preparation. Testing of these parameters 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: 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 #28 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. |

**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.

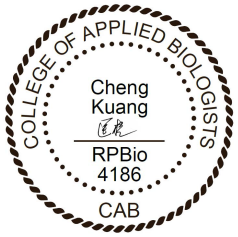
# 5. Closure

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.

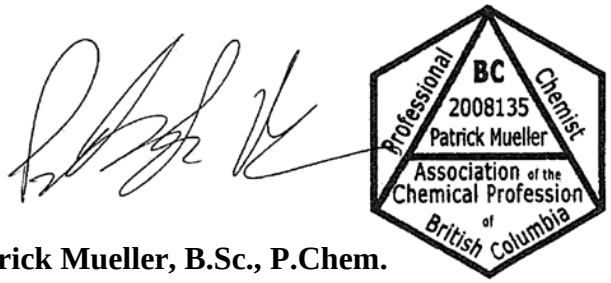
Regards,

**LORAX ENVIRONMENTAL SERVICES LTD.**

**Holly Pelletier, B.Sc., GIT.**
**Environmental Geoscientist**




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




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


**LEGEND**

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

| | |
|---|---|
| DATE SAVED: | Aug 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 (August 24, 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*

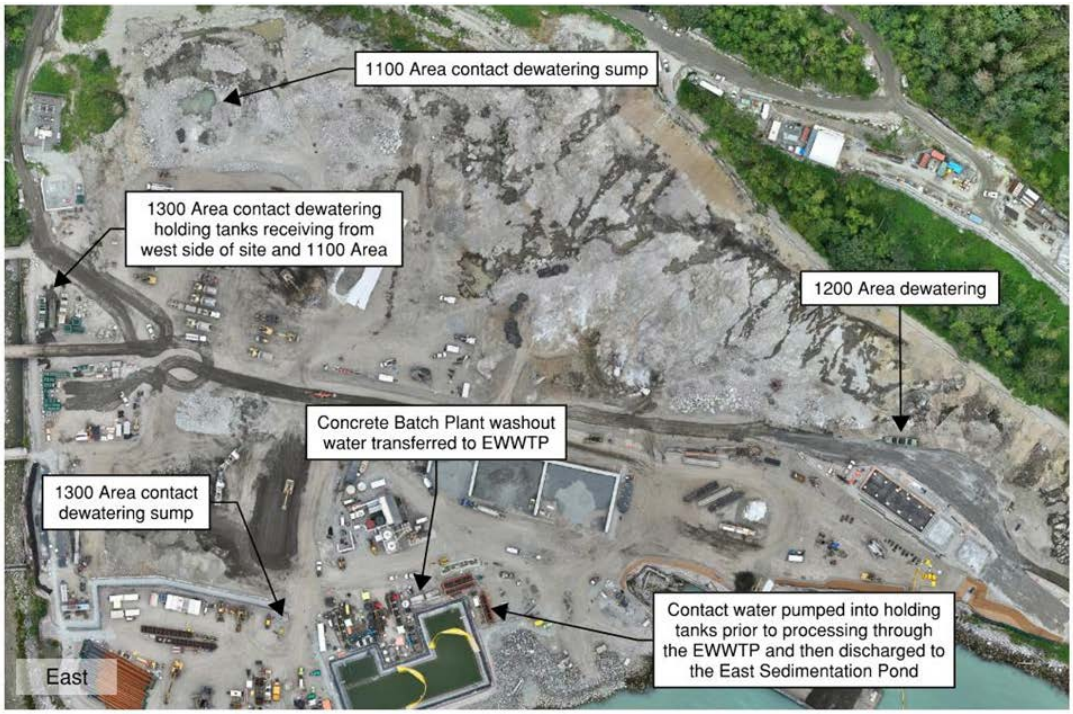



**Figure 2: East Catchment dewatering areas. Contact water from the 1100 and 1200 Areas and small amounts of concrete wash water were directed to the East WWTP during the August 18 – 24, 2024 monitoring period.**

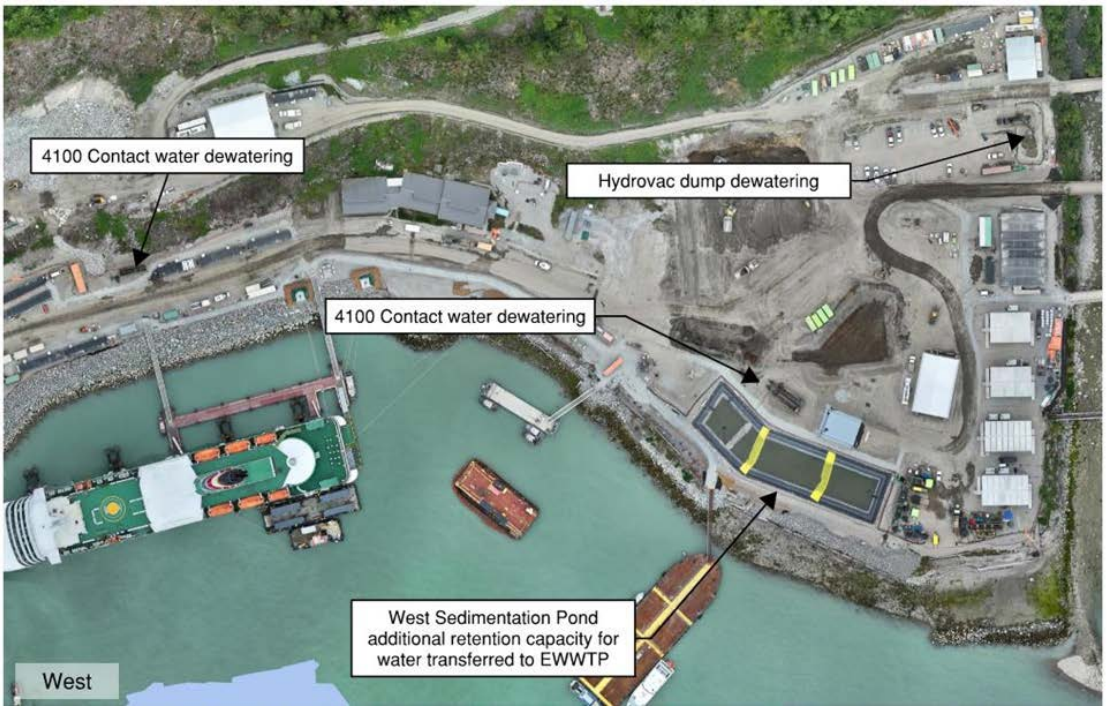



**Figure 3: West Catchment dewatering areas. Contact water from the 4100 Area was pumped to the East WWTP during the August 18 – 24, 2024 monitoring period.**

**Figure 4: Aerial view of the East Sedimentation Pond showing the placement of two sediment curtains (August 22, 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 (August 22, 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 Daily Field Parameters August 18 – 24.

| 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-NE | 2024-08-18 14:45 | 23.3 | -[5] | 0.75 | 4.79 | 6.7 | 1448 | No | 0 |
| SP-E-NE | 2024-08-19 14:45 | 23.9 | 8.76 | 0.74 | 4.80 | 6.8 | 1446 | No | 0 |
| SP-E-NE | 2024-08-20 16:28 | 23.6 | 8.29 | 0.74 | 5.27 | 7.0 | 1431 | No | 0 |
| SP-E-NE | 2024-08-21 17:37 | 20.1 | ***6.88*** | 0.73 | 3.84 | 6.6 | 1319 | No | 0 |
| SP-E-NW | 2024-08-21 18:52 | 19.9 | ***6.75*** | 0.73 | 5.77 | 7.5 | 1315 | No | |
| SP-E-NE | 2024-08-22 16:51 | 21.1 | 9.77 | 0.73 | 4.25 | 6.9 | 1344 | No | 0 |
| SP-E-NE | 2024-08-23 16:33 | 20.0 | 14.54 | 0.74 | 4.97 | 6.6 | 1334 | No | 0 |
| SP-E-NE | 2024-08-24 16:00 | 19.3 | 13.29 | 0.81 | 17.7 | 6.4 | 1427 | 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 (August 18 – 24).
[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 August 18 – August 24, therefore daily measurements for station SP-E-IN-2 were not collected. The East Sedimentation Pond did not discharge August 18 – August 24, 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 value measured at SP-E-NE on August 18 (17.42 mg/L) was removed from the table.

# *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 |
| | | | VA24C0972-003 | VA24C0972-004 |
| | | | 8/17/2024 17:15 | 8/17/2024 16:35 |
| **General Parameters** | | | | |
| pH - Field | pH units | 7.0 - 8.7 | 7.1 | ***5.9*** |
| Conductivity - Field | µS/cm | - | 1488 | 1405 |
| Temperature - Field | °C | - | 25.2 | 24.5 |
| Salinity - Field | ppt | - | 0.74 | 0.71 |
| Turbidity - Field | NTU | - | 4.63 | 3.69 |
| TSS | mg/L | - | <3 | 7.6 |
| Dissolved Oxygen - Field | mg/L | >=8 [2] | ***7.18*** | -[3] |
| **Anions and Nutrients** | | | | |
| Sulphate | mg/L | - | 66.6 | 62.8 |
| Chloride | mg/L | - | 106 | 98.6 |
| Fluoride | mg/L | - | 0.297 | 0.243 |
| Ammonia ($N\text{-}NH_3$) | mg/L | Variable | 0.0104 | 0.0158 |
| Nitrite ($N\text{-}NO_2$) | mg/L | - | 0.0083 | 0.0062 |
| Nitrate ($N\text{-}NO_3$) | mg/L | 3.7 | 3.00 | 2.86 |
| **Total Metals** | | | | |
| Aluminum, total (T-Al) | mg/L | - | 0.0695 | 0.0634 |
| Antimony, total (T-Sb) | mg/L | - | 0.00177 | 0.00173 |
| Arsenic, total (T-As) | mg/L | 0.0125 | 0.00159 | 0.00154 |
| Barium, total (T-Ba) | mg/L | - | 0.0104 | 0.00946 |
| Beryllium, total (T-Be) | mg/L | 0.1 | <0.0001 | <0.0001 |
| Boron, total (T-B) | mg/L | 1.2 | 0.383 | 0.461 |
| Cadmium, total (T-Cd) | mg/L | 0.00012 | <0.00004 | <0.00003 |
| Chromium, total (T-Cr) | mg/L | - | <0.0005 | <0.0005 |
| Cobalt, total (T-Co) | mg/L | - | <0.0001 | <0.0001 |
| Copper, total (T-Cu) | mg/L | 0.002 | ***0.0119*** | ***0.00242*** |
| Iron, total (T-Fe) | mg/L | - | 0.059 | 0.025 |
| Lead, total (T-Pb) | mg/L | 0.002 | 0.00112 | 0.000098 |
| Manganese, total (T-Mn) | mg/L | - | 0.0057 | 0.00457 |
| Mercury, total (T-Hg) | mg/L | 0.000016 | <0.000005 | <0.000005 |
| Molybdenum, total (T-Mo) | mg/L | - | 0.0814 | 0.0767 |
| Nickel, total (T-Ni) | mg/L | 0.0083 | 0.00199 | 0.0005 |
| Selenium, total (T-Se) | mg/L | 0.002 | 0.000146 | 0.000164 |
| Silver, total (T-Ag) | mg/L | 0.0015 | <0.00001 | <0.00001 |
| Thallium, total (T-Tl) | mg/L | - | 0.000025 | 0.000026 |
| Uranium, total (T-U) | mg/L | - | 0.0414 | 0.0188 |
| Vanadium, total (T-V) | mg/L | 0.005 | 0.00409 | 0.00364 |
| Zinc, total (T-Zn) | mg/L | 0.01 | ***0.0376*** | 0.0095 |
| Hexavalent Chromium, total | mg/L | 0.0015 | <0.0005 | <0.0005 |
| **Dissolved Metals** | | | | |
| Cadmium, dissolved (D-Cd) | mg/L | - | 0.0000321 | <0.00002 |
| Copper, dissolved (D-Cu) | mg/L | - | 0.00481 | 0.00156 |
| Iron, dissolved (D-Fe) | mg/L | - | 0.017 | 0.012 |
| Lead, dissolved (D-Pb) | mg/L | - | 0.000464 | 0.000057 |
| Manganese, dissolved (D-Mn) | mg/L | - | 0.00472 | 0.00389 |
| Nickel, dissolved (D-Ni) | mg/L | - | 0.00057 | <0.0005 |
| Strontium, dissolved (D-Sr) | mg/L | - | 0.182 | 0.213 |
| Vanadium, dissolved (D-V) | mg/L | - | 0.00099 | 0.00086 |
| Zinc, dissolved (D-Zn) | mg/L | - | 0.0268 | 0.0070 |
| **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 | <0.000005 |
| Chrysene | mg/L | 0.0001 | <0.00001 | <0.00001 |
| Fluoranthene | mg/L | - | <0.00001 | <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 | - | <0.00001 | <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] 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.
[3] Suspected erroneous DO value on Augst 17 from station WWTP-E-OUT (19.93 mg/L) has been removed from the table.
Results ***underlined in bold italics*** exceed the applicable minimum discharge objective.

**Table C-2: 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 |
| | | VA24C0972-003 | VA24C0972-004 |
| | | 8/17/2024 | 8/17/2024 |
| **Methylmercury** | **µg/L** | 0.000172 | 0.000234 |

## Table C-3: Summary of East Wastewater Treatment Plant Daily Field Parameters August 18 – 24.

| **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 | 2024-08-18 14:48 | 23.8 | ***7.05*** | 0.75 | 5.04 | ***6.9*** | 1452 | No | - |
| WWTP-E-OUT | 2024-08-18 15:13 | 23.6 | ***6.45*** | 0.71 | 2.02 | 7.4 | 1377 | No | 584 |
| WWTP-E-IN | 2024-08-19 14:41 | 24.0 | -[5] | 0.76 | 3.15 | ***3.9*** | 1473 | No | - |
| WWTP-E-OUT | 2024-08-19 14:59 | 23.5 | ***6.09*** | 0.71 | 2.39 | ***6.3*** | 1413 | No | 485 |
| WWTP-E-IN | 2024-08-20 16:25 | 23.7 | ***7.37*** | 0.74 | 4.56 | 7.2 | 1434 | No | - |
| WWTP-E-OUT | 2024-08-20 16:22 | 22.8 | -[5] | 0.69 | 7.90 | ***6.1*** | 1328 | No | 580 |
| WWTP-E-IN | 2024-08-21 18:00 | 21.4 | ***7.01*** | 0.73 | 5.71 | ***6.8*** | 1345 | No | - |
| WWTP-E-OUT | 2024-08-21 18:07 | 21.3 | ***2.15*** | 0.74 | 5.22 | 7.9 | 1364 | No | 745 |
| WWTP-E-IN | 2024-08-22 | -[4] | -[4] | -[4] | -[4] | -[4] | -[4] | -[4] | - |
| WWTP-E-OUT | 2024-08-22 | -[4] | -[4] | -[4] | -[4] | -[4] | -[4] | -[4] | 343 |
| WWTP-E-IN | 2024-08-23 16:37 | 20.4 | 9.68 | 0.75 | 7.78 | ***6.8*** | 1349 | No | - |
| WWTP-E-OUT | 2024-08-23 16:46 | 20.3 | ***4.66*** | 0.74 | 3.34 | ***5.9*** | 1342 | No | 423 |
| WWTP-E-IN | 2024-08-24 16:03 | 19.4 | 8.73 | 0.81 | 14.6 | ***6.9*** | 1422 | No | - |
| WWTP-E-OUT | 2024-08-24 16:13 | 19.7 | ***1.57*** | 0.85 | 2.97 | ***6.1*** | 1513 | No | 570 |

**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] The East WWTP was inactive at the time of monitoring, therefore field measurements were not collected from WWTP-E-IN and WWTP-E-OUT on August 22.
[5] Suspected erroneous dissolved oxygen value measured at WWTP-E-IN on August 19 (25.46 mg/L) and at WWTP-E-OUT on August 20 (25.87 mg/L) have been removed from the table.
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 Effluent Location | In-Pond at Influent Location |
| | | | | | SP-W-E | SP-W-W |
| | | | | | VA24C0168-004 | VA24C0168-003 |
| | | Long Term | Short Term | | 8/12/2024 15:12 | 8/12/2024 14:45 |
| **General Parameters** | | | | | | |
| pH - Field | pH units | - [2] | - | 5.5 - 9.0 | 8.2 | 6.1 |
| Conductivity - Field | µS/cm | - | - | - | 2996 | 2055 |
| Temperature - Field | °C | - | - | - | 22.8 | 22.1 |
| Salinity - Field | ppt | - | - | - | 1.63 | 1.12 |
| Turbidity - Field | NTU | - | - | - | 10.46 | 11.90 |
| TSS | mg/L | - | - | 25 | 10.7 | 4.3 |
| Dissolved Oxygen - Field | mg/L | >=8 | - | - | ***5.22*** | ***4.48*** |
| **Anions and Nutrients** | | | | | | |
| Sulphate | mg/L | - | - | - | 67.2 | 121 |
| Chloride | mg/L | - | - | - | 452 | 819 |
| Fluoride | mg/L | - | 1.5 | - | <0.2 | <0.4 |
| Ammonia (N-$NH_3$) | mg/L | Variable [3] | Variable [3] | - | <0.005 | 0.0093 |
| Nitrite (N-$NO_2$) | mg/L | - | - | - | <0.01 | <0.02 |
| Nitrate (N-$NO_3$) | mg/L | 3.7 | 339 | - | <0.05 | <0.1 |
| **Total Metals** | | | | | | |
| Aluminum, total (T-Al) | mg/L | - | - | - | 0.631 | 0.542 |
| Antimony, total (T-Sb) | mg/L | - | 0.27 [4] | - | 0.00172 | 0.00278 |
| Arsenic, total (T-As) | mg/L | 0.0125 | 0.0125 | - | 0.00259 | 0.00222 |
| Barium, total (T-Ba) | mg/L | - | - | - | 0.0572 | 0.0463 |
| Beryllium, total (T-Be) | mg/L | 0.1 | - | - | <0.0001 | <0.0001 |
| Boron, total (T-B) | mg/L | 1.2 | - | - | 0.053 | 0.207 |
| Cadmium, total (T-Cd) | mg/L | 0.00012 | - | - | <0.00003 | <0.000065 |
| Chromium, total (T-Cr) | mg/L | - | - | - | 0.00085 | 0.00155 |
| Cobalt, total (T-Co) | mg/L | - | - | - | 0.00017 | <0.0002 |
| Copper, total (T-Cu) | mg/L | - [2] | - [2] | 0.0043 | 0.00211 | 0.00354 |
| Iron, total (T-Fe) | mg/L | - | - | - | 0.368 | 0.214 |
| Lead, total (T-Pb) | mg/L | - [2] | - [2] | 0.0035 | 0.00114 | 0.000974 |
| Manganese, total (T-Mn) | mg/L | - | - | - | 0.0126 | 0.00639 |
| Mercury, total (T-Hg) | mg/L | 0.000016 [5] | - | - | <0.0000050 | 0.0000064 |
| Molybdenum, total (T-Mo) | mg/L | - | - | - | 0.0154 | 0.0257 |
| Nickel, total (T-Ni) | mg/L | 0.0083 | - | - | 0.00071 | <0.001 |
| Selenium, total (T-Se) | mg/L | 0.002 | - | - | 0.000182 | 0.000184 |
| Silver, total (T-Ag) | mg/L | 0.0015 | 0.003 | - | <0.00001 | <0.00002 |
| Thallium, total (T-Tl) | mg/L | - | - | - | <0.00001 | <0.00002 |
| Uranium, total (T-U) | mg/L | - | - | - | 0.00735 | 0.0135 |
| Vanadium, total (T-V) | mg/L | - [2] | - | 0.0081 | 0.00586 | 0.00758 |
| Zinc, total (T-Zn) | mg/L | - [2] | - [2] | 0.0133 | 0.0149 | <0.006 |
| Hexavalent Chromium, total | mg/L | 0.0015 | - | - | <0.0005 | 0.0014 |
| **Dissolved Metals** | | | | | | |
| Cadmium, dissolved (D-Cd) | mg/L | - | - | - | <0.00002 | <0.00005 |
| Copper, dissolved (D-Cu) | mg/L | - | - | - | 0.00102 | 0.00256 |
| Iron, dissolved (D-Fe) | mg/L | - | - | - | <0.01 | <0.02 |
| Lead, dissolved (D-Pb) | mg/L | - | - | - | <0.00005 | <0.0001 |
| Manganese, dissolved (D-Mn) | mg/L | - | - | - | 0.00342 | 0.00083 |
| Nickel, dissolved (D-Ni) | mg/L | - | - | - | <0.0005 | <0.001 |
| Strontium, dissolved (D-Sr) | mg/L | - | - | - | 0.256 | 0.473 |
| Vanadium, dissolved (D-V) | mg/L | - | - | - | 0.00482 | 0.00677 |
| Zinc, dissolved (D-Zn) | mg/L | - | - | - | 0.0093 | <0.002 |
| **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 | <0.000005 |
| Chrysene | mg/L | 0.0001 | - | - | <0.00001 | <0.00001 |
| Fluoranthene | mg/L | - | - | - | <0.00001 | <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 | - | - | - | <0.00001 | <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 | 0.44 | - | <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 PE-11578 West Sedimentation Pond Discharge Limit.
The West Sedimentation Pond did not discharge during the monitoring period (August 18 – 24).
[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 D-2: Summary of West Sedimentation Pond Water Quality Results for Methylmercury Received at the Time of Reporting.

| Parameter | Unit | West Sedimentation Pond | |
|---|---|---|---|
| | | In-Pond at Effluent Location | In-Pond at Influent Location |
| | | SP-W-E | SP-W-W |
| | | VA24C0168-004 | VA24C0168-003 |
| | | 8/12/2024 | 8/12/2024 |
| **Methylmercury** | **µg/L** | 0.000038 | 0.000026 |

## Table D-3: Summary of West Sedimentation Pond Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

| Parameter | Unit | West Sedimentation Pond | |
|---|---|---|---|
| | | In-Pond at Effluent Location | In-Pond at Influent Location |
| | | SP-W-E | SP-W-W |
| | | L2757015-4 | L2757015-3 |
| | | 8/12/2024 | 8/12/2024 |
| **Lower Bound PCDD/F TEQ** | **pg/L** | 0.157 | 0.116 |
| **Upper Bound PCDD/F TEQ** | **pg/L** | 1.03 | 1.32 |

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

# *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 |
| | | | VA24C0168-002 | VA24C0168-001 | VA24C0971-001 | VA24C0971-002 |
| | | | 8/12/2024 15:45 | 8/12/2024 16:06 | 8/16/2024 12:20 | 8/16/2024 11:45 |
| **General Parameters** | | | | | | |
| pH - Field | pH units | 7.0 - 8.7 | 7.8 | ***5.5*** | 7.4 | ***9.5*** |
| Conductivity - Field | µS/cm | - | 2964 | 2744 | 2679 | 2886 |
| Temperature - Field | ℃ | - | 22.4 | 22.7 | 23.0 | 23.2 |
| Salinity - Field | ppt | - | 1.63 | 1.42 | 1.45 | 1.56 |
| Turbidity - Field | NTU | - | 10.36 | 3.05 | 9.04 | 2.03 |
| TSS | mg/L | - | 5.5 | <3 | 6.3 | 5.1 |
| Dissolved Oxygen - Field | mg/L | >=8 [2] | ***4.85*** | ***2.45*** | ***6.12*** | ***4.54*** |
| **Anions and Nutrients** | | | | | | |
| Sulphate | mg/L | - | 119 | 90.8 | 101 | 114 |
| Chloride | mg/L | - | 812 | 641 | 664 | 746 |
| Fluoride | mg/L | - | <0.4 | <0.4 | <0.4 | <0.4 |
| Ammonia (N-$NH_3$) | mg/L | Variable | <0.005 | <0.005 | <0.005 | <0.005 |
| Nitrite (N-$NO_2$) | mg/L | - | <0.02 | <0.02 | <0.02 | <0.02 |
| Nitrate (N-$NO_3$) | mg/L | 3.7 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Total Metals** | | | | | | |
| Aluminum, total (T-Al) | mg/L | - | 0.545 | 0.148 | 0.429 | 0.107 |
| Antimony, total (T-Sb) | mg/L | - | 0.00279 | 0.00223 | 0.00239 | 0.0026 |
| Arsenic, total (T-As) | mg/L | 0.0125 | 0.0022 | 0.00209 | 0.00263 | 0.00216 |
| Barium, total (T-Ba) | mg/L | - | 0.0445 | 0.0493 | 0.0552 | 0.0479 |
| Beryllium, total (T-Be) | mg/L | 0.1 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron, total (T-B) | mg/L | 1.2 | 0.198 | 0.024 | 0.141 | 0.043 |
| Cadmium, total (T-Cd) | mg/L | 0.00012 | <0.00007 | <0.000015 | ***0.000215*** | <0.00001 |
| Chromium, total (T-Cr) | mg/L | - | 0.00154 | <0.001 | 0.00104 | 0.00051 |
| Cobalt, total (T-Co) | mg/L | - | 0.00012 | <0.0002 | 0.00012 | <0.0001 |
| Copper, total (T-Cu) | mg/L | 0.002 | ***0.00948*** | 0.00120 | ***0.00395*** | 0.00108 |
| Iron, total (T-Fe) | mg/L | - | 0.24 | 0.034 | 0.198 | 0.034 |
| Lead, total (T-Pb) | mg/L | 0.002 | 0.00146 | 0.000133 | 0.00126 | 0.000861 |
| Manganese, total (T-Mn) | mg/L | - | 0.00639 | 0.00355 | 0.00953 | 0.00249 |
| Mercury, total (T-Hg) | mg/L | 0.000016 | <0.000005 | <0.000005 | 0.0000054 | <0.000005 |
| Molybdenum, total (T-Mo) | mg/L | - | 0.0261 | 0.0204 | 0.0218 | 0.023 |
| Nickel, total (T-Ni) | mg/L | 0.0083 | 0.00066 | <0.001 | 0.00064 | <0.0005 |
| Selenium, total (T-Se) | mg/L | 0.002 | 0.000211 | 0.000142 | 0.000143 | 0.000149 |
| Silver, total (T-Ag) | mg/L | 0.0015 | <0.00001 | <0.00002 | <0.00001 | <0.00001 |
| Thallium, total (T-Tl) | mg/L | - | 0.00001 | <0.00002 | 0.000014 | <0.00001 |
| Uranium, total (T-U) | mg/L | - | 0.0138 | 0.00884 | 0.0114 | 0.00959 |
| Vanadium, total (T-V) | mg/L | 0.005 | ***0.00755*** | 0.00483 | ***0.00646*** | 0.00360 |
| Zinc, total (T-Zn) | mg/L | 0.01 | 0.0079 | 0.0088 | ***0.0124*** | 0.0092 |
| Hexavalent Chromium, total | mg/L | 0.0015 | 0.00124 | <0.0005 | 0.00066 | <0.0005 |
| **Dissolved Metals** | | | | | | |
| Cadmium, dissolved (D-Cd) | mg/L | - | <0.00004 | <0.00001 | 0.000186 | <0.00001 |
| Copper, dissolved (D-Cu) | mg/L | - | 0.00242 | 0.00072 | 0.00252 | 0.00042 |
| Iron, dissolved (D-Fe) | mg/L | - | <0.02 | <0.02 | <0.02 | <0.02 |
| Lead, dissolved (D-Pb) | mg/L | - | <0.0001 | <0.0001 | 0.000154 | 0.000376 |
| Manganese, dissolved (D-Mn) | mg/L | - | 0.00143 | 0.0027 | 0.00474 | 0.00086 |
| Nickel, dissolved (D-Ni) | mg/L | - | <0.001 | <0.001 | <0.001 | <0.001 |
| Strontium, dissolved (D-Sr) | mg/L | - | 0.43 | 0.358 | 0.434 | 0.461 |
| Vanadium, dissolved (D-V) | mg/L | - | 0.00665 | 0.00458 | 0.00570 | 0.00341 |
| Zinc, dissolved (D-Zn) | mg/L | - | <0.002 | 0.0086 | 0.0080 | 0.0178 |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | |
| Acenaphthene | mg/L | 0.006 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Acridine | mg/L | - | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Anthracene | mg/L | - | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Benz(a)anthracene | mg/L | - | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Benzo(a)pyrene | mg/L | 0.00001 | <0.000005 | <0.000005 | <0.000005 | <0.000005 |
| Chrysene | mg/L | 0.0001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Fluoranthene | mg/L | - | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Fluorene | mg/L | 0.012 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| 1-methylnaphthalene | mg/L | 0.001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| 2-methylnaphthalene | mg/L | 0.001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Naphthalene | mg/L | 0.001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Phenanthrene | mg/L | - | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Pyrene | mg/L | - | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Quinoline | mg/L | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| **Volatile Organic Compounds (VOCs)** | | | | | | |
| Benzene | mg/L | 0.11 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Ethylbenzene | mg/L | 0.25 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Methyl-tert-butyl-ether | mg/L | 5 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Styrene | mg/L | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Toluene | mg/L | 0.215 | <0.0004 | <0.0004 | <0.0004 | <0.0004 |
| Total Xylenes | mg/L | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Chlorobenzene | mg/L | 0.025 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| 1,2-Dichlorobenzene | mg/L | 0.042 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |

**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 |
| | | WWTP-W-IN | WWTP-W-OUT | WWTP-W-IN | WWTP-W-OUT |
| | | VA24C0168-002 | VA24C0168-001 | VA24C0971-001 | VA24C0971-002 |
| | | 8/12/2024 | 8/12/2024 | 8/16/2024 | 8/16/2024 |
| **Methylmercury** | **µg/L** | 0.000044 | <0.000020 | <0.000020 | <0.000020 |

## Table E-3: Summary of West Wastewater Treatment Plant Water Quality Results for Dioxins and Furans Received at the Time of Reporting.

| Parameter | Unit | West WWTP | |
|---|---|---|---|
| | | Influent | Effluent |
| | | WWTP-W-IN | WWTP-W-OUT |
| | | L2757015-2 | L2757015-1 |
| | | 8/12/2024 | 8/12/2024 |
| **Lower Bound PCDD/F TEQ** | **pg/L** | 0.0255 | 0.327 |
| **Upper Bound PCDD/F TEQ** | **pg/L** | 1.39 | 0.889 |

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

# *Appendix F: Marine Water Receiving Environment Results*

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

| Parameter | Unit | Lowest Applicable Guideline [1] | | Station IDZ-E1 | | | Station IDZ-E2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 0.5 m Below Surface | 2 m Below Surface | 2 m Above Seafloor | 0.5 m Below Surface | 2 m Below Surface | 2 m Above Seafloor |
| | | | | IDZ-E1-0.5 | IDZ-E1-2m | IDZ-E1-SF | IDZ-E2-0.5 | IDZ-E2-2m | IDZ-E2-SF |
| | | | | VA24C0973-001 | VA24C0973-002 | VA24C0973-003 | VA24C0973-004 | VA24C0973-005 | VA24C0973-006 |
| | | Long Term | Short Term | 8/17/2024 8:48 | 8/17/2024 8:49 | 8/17/2024 8:54 | 8/17/2024 8:58 | 8/17/2024 9:02 | 8/17/2024 9:05 |
| **General Parameters** | | | | | | | | | |
| pH - Field | pH units | 7.0 - 8.7 | - | 8.1 | 8.1 | 7.7 | 7.9 | 7.8 | 7.8 |
| Specific Conductivity - Field | µS/cm | - | - | -[3] | -[3] | -[3] | -[3] | -[3] | -[3] |
| Temperature - Field | °C | - | - | 17.0 | 17.0 | 13.7 | 15.9 | 16.6 | 13.7 |
| Salinity - Field | ppt | Narrative[2] | - | -[3] | -[3] | -[3] | -[3] | -[3] | -[3] |
| Turbidity - Field | NTU | Narrative[2] | Narrative[2] | 10.40 | 10.71 | 2.87 | 12.30 | 10.60 | 0.74 |
| TSS | mg/L | Narrative[2] | Narrative[2] | 14.1 | 10.5 | 8.9 | 10.7 | 10.5 | <3.0 |
| Dissolved Oxygen - Field | mg/L | >=8 | - | -[3] | -[3] | -[3] | -[3] | -[3] | -[3] |

**Notes:**
Results ***underlined in bold italics*** exceed the applicable long-term water quality guideline for the protection of marine water aquatic life.
Shaded results exceed the applicable short-term water quality guideline for the protection of marine water aquatic life.
[1] The lowest applicable guidelines from approved or working BC WQGs, Canadian (CCME) WQGs and Federal WQGs.
[2] Narrative guideline for the evaluation of change from background conditions arising from discharges to the aquatic environment. The water quality data presented in the table were collected when the site was discharging, therefore the guidelines were evaluated.
[3] Only field measurements for pH, turbidity, and temperature are available for the August 17 IDZ samples due to a field probe malfunction.