Monitoring Report: SV-2020-09-28

Trans Mountain Expansion Project – Westridge Marine Terminal Compliance Verification Activity Report

This monitoring report provides a summary of the in-person site inspection on September 28, 2020, including current in-water and nearshore works observed at the WMT, related mitigation or monitoring measures, issues reported or observed during the inspection, and how these issues have been or will be resolved. In response to the COVID-19 pandemic, in-person site inspections had been previously suspended since March 2020 and were replaced with two conference-call meetings per month with representatives from Fisheries and Oceans Canada (DFO), representatives from the Indigenous Advisory Monitoring Committee (IAMC) (including the Musqueam IAMC Indigenous Monitor), Trans Mountain Pipeline ULC (TM), the Project Indigenous Monitor (Project IM) from Kwikwetlem First Nation (KFN), and Kiewit Ledcor Trans Mountain Partnership (KLTP).

Date	September 28, 2020	**Site visit start time:**	11:00 AM	**Site visit end time:**	3:20 PM
Format	In-person site inspection.				
DFO attendees	K.J. (Biologist)				
IAMC attendees	J.L. (IAMC Indigenous Monitor, Seabird Island Band)				
Other attendees	TM: S.D. (Lead Environmental Inspector), B.J. (Chief Environmental Inspector), T.A. (Construction Manager), and K.M. (Senior Regulatory Advisor) Kwikwetlem First Nation (KFN): M.J. (Project IM) Note: K.M. attended pre and post site inspection meetings via phone				

On-site contractor/equipment	**Role**
Trans Mountain	Site Management
KLTP	Prime construction contractor
JASCO	Underwater noise monitoring during vibratory and impact pile driving.
Nearshore barges (e.g. DB Columbia and DB Bremerton)	Derrick barges (DB) Columbia and Bremerton are moored along the shoreline for works on Cells 4, 5 and Arc 3A. Sheet-piles are driven by a vibratory hammer or impact hammer as needed. Prior to impacting, fish salvages have been performed within Cells 4 and 5.
DB General	DB General is moored along the shoreline in preparation for impact pile driving of Trestle Span 0 (TS0) this week. TM plans to use four seal acoustic deterrent devices during impact pile driving. TS1 and TS2 will subsequently be impacted in the coming weeks.
DB Patrick	DB Patrick is currently located offshore and is used to primarily drive smaller diameter piles.

IAMC Indigenous Monitor Observations and Comments

- JL asked about archaeological monitoring at WMT.
  - SD confirmed the Canadian Pacific Railway tracks were built along the natural shoreline. SD explained that eventually TM will drill under the railway tracks where there is a higher potential to find artifacts. SD referred to the “chance find” procedure outlined in Trans Mountain’s Environmental Protection Plan. SD stated an archaeological monitor will be onsite at the time of those works (occurring approximately 1.5 years from now).

- JL asked about the ability of TM to notify Indigenous Monitors prior to fish salvages (as that was discussed in the previous CVA call).

- KM to get back to JL on this with further details as KM was trying to recall what was previously discussed.
- KJ added that she recalled that the timeline of salvage after the cells are closed is what TM noted made it difficult to notify Indigenous Monitors in advance.
- TM does notify DFO prior to conducting a fish salvage.
- There are only three sheet-pile arcs left to salvage.

IM Notes and Observations:

- Observed concrete pouring for construction of train derailment wall
- Observed temporary marine construction office – fully operational as of a few weeks ago
- Observed deep soil mixing and jet grouting activity on foreshore
  - Pre drilling in process for grout filling
  - Arc 8A and Arc 9A are containment for spoils
  - Grout spoils are trucked off site
- Observed current work on Cell 5 - sheet piles installed
  - Currently setting template for Arc 3A
  - Cells along foreshore to be fully completed by the end of November
- Crab and minnow traps currently set for fish salvage
  - Minimum of 3 sets during day salvage - plus over-night soaks
  - Salvaged marine life are relocated to Barnet Marine Park
  - Fish salvage to wrap in November when cells are complete
- Five marine mammal observers are present during times of in water works
  - Several seal sightings per day (up to 120)
  - Testing seal deterrent on 10/02/2020
  - JASCO to provide analysis on acoustic deterrents
- Observed rebar installation in process at JP Platform 1
- Trestle 6 build in process
  - No concrete pours or pile driving off shore happening the day of inspection
- Observed turbidity curtain around length of cells on foreshore
  - Water is tested inside and outside foreshore curtain to ensure MOE requirements are met
  - Curtain made of nylex mesh and suspected to last until the end of the pre-construction project
  - Cleaned and inspected monthly during warmer months to prevent weigh down from marine growth
- No work happening around area of potential archeological sensitivity until 2021
  - Archeological monitor will be present during work at that time
  - Heritage resource discovery contingency plan in place

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Time	Inspection Activity

11:00 AM	Upon arrival at the KASK site, a KLTP representative gave JL and KJ a Health and Safety Orientation.
	
	Prior to going out on site SD, TA, BJ, JL and KJ had a pre-site inspection call with KM. SD provided an overview of the site layout at the WMT and described the construction works that have occurred since the August 31 compliance verification conference call:
	• Foreshore (deep soil mixing, jet grouting and work on the derailment wall);
	• Nearshore/in-water (completed Cell 4, working on Cell 5 and starting works on Arc 3A);
	• Offshore (welding and installing formwork on Junction Platform 1 and preparing for impacting of TS0, TS1 and TS2).
	
	Other items discussed:
	• Discussed the SealFence seal acoustic deterrent system:
	  ○ JASCO performed a sound source characterization study on September 25, 2020, including sound transmission losses at various distances while using one seal deterrent.
	  ○ TM will use four seal acoustic deterrents within the 150 m harbour seal specific exclusion zone later this week while impacting Trestle Span 0.
	  ○ Five marine mammal monitors will be present prior to and during operation of the devices to perform continuous visual monitoring of a 1,400 m exclusion zone for cetaceans and marine mammal species at risk.
	• TM Confirmed that the new wastewater facility on the foreshore is operational.
	• TM Confirmed fish salvages have occurred in Cell 4 (completed) and a fish salvage in Cell 5 is ongoing
	  ○ SD confirmed minnow and crab traps are used during the salvages.
	  ○ A sculpin, a gunnel fish and crabs have been salvaged from Cell 5 most recently.
	  ○ SD reviewed Triton's fish salvage process (multiple sets are completed until fewer fish and fewer fish are captured).
	• Confirmed that an Indigenous Monitor from Semiahmoo First Nation is located at the Burnaby Terminal (not at Westridge Marine Terminal).

12:45	Arrive at the Westridge Marine Terminal.
12:45 – 13:00	View of works from above (prior to walking along the foreshore) • SD provided the names of the barges and discussed associated works. • Observed the grout spoil pits in Arcs 8A and 9A and current works on the foreshore. • SD stated that the foreshore cells should be completed by November 2020.
13:00 – 13:30	Walk along foreshore to the west • Observed sumps, pumps and hoses that are used to move water towards the new wastewater treatment plant located on the western foreshore (note the site is moveable). This treatment plant is being used to treat surface water run-off at WMT prior to it entering the marine environment. ○ Sampling is conducted inside and outside of the foreshore turbidity curtain to ensure pH and turbidity levels meet the requirements of Trans Mountain's BC Ministry of Environment (MOE) discharge permit.

	• Observed various ESC mitigation measures (e.g. silt fencing, straw wattles and berms). KJ asked if there have been any changes to the erosion and sediment control (ESC) measures on the foreshore and if they are still working well.
	  ○ SD confirmed ESC mitigation measures are working well and are regularly maintained.
	• Viewed wastewater containment pit for grout works and appropriate ESC surrounding the pit (silt fencing and a small trench with built up sides). This wastewater is currently taken offsite for treatment and disposal. Trans Mountain is working to obtain a permit from the BC MOE to treat this wastewater onsite at the new wastewater treatment plant on the foreshore as this will help limit transport and treatment offsite.
	• Observed a few remaining creosote piles from Dock 59 (the piles will eventually be removed and disposed offsite).
	• In general, the marine water along the foreshore (inside and outside of the turbidity curtain) was cloudy. SD indicated this may be due to an algae bloom as the water is at times much clearer.
	• Observed the turbidity curtain that encompasses the foreshore cells to be working well (the curtain was keeping the more turbid water from entering the adjacent marine environment).
	  ○ KJ asked how the turbidity curtain is maintained.
	  ○ SD explained it is cleaned monthly during the spring and summer to reduce build-up from marine growth (e.g. mussels and algae), which weigh the curtain down. The curtain will be maintained throughout the fall and winter as necessary.
	• Observed that foreshore Cells 1 and 2 and Arcs 1A and 2A are backfilled with gravel.
	• Observed plant nappies present on some of the nearshore barges beneath equipment with the potential for hydrocarbon leakage.
	• Observed the fish acoustic deterrent suspended by winches on an offshore barge.
	• Observed the temporary marine construction office (operational 2-3 week ago).
	• Observed a second turbidity curtain around a water outfall located on the westernmost foreshore area that drains water from residential storm grates and water from a treated wastewater containment tank at WMT.

13:30 – 14:30	Walk along foreshore to the east
	• Observed ongoing deep soil mixing and jet grouting works and the grout spoil pits.
	  ○ KJ asked if there are any concerns for the spoil pits to overflow with heavy rain or for wastewater from the pits to leach into the marine environment through the sheet pile walls.
	  ○ SD explained TM is not concerned about the pits overflowing. TM tests the water quality outside of the foreshore cells and arcs to ensure water higher in pH is not leaching out of the sheet pile cells as they are not ‘water tight’.
	• Observed the conveyor previously used to transport hardened grout spoils onto a barge for offsite disposal. The conveyor is not currently operating as there were concerns about the effectiveness of the plastic sheet previously used for additional containment below the conveyor (e.g. excess water and moisture during rainfall potentially entering the marine environment). KLTP is still working on getting a rigid plastic containment fitted for the conveyor.
	• KJ asked if there were any additional issues with concrete or grout pours.

	○ SD and TA confirmed no pours were occurring today and since previous additional mitigation measures (discussed during the previous CVA) have been implemented there have been no problems. • KJ asked if marine mammals other than harbour seals have been observed recently. ○ SD confirmed a Stellar sea lion and a California sea lion have been observed.
15:00 – 15:20	Post site inspection call • KJ asked about TM's plans to test the secondary bubble curtain. ○ SD explained JASCO has recommended to test the secondary bubble curtain by running it for the full duration of impacting a pile and to then compare those results with piles of same size impacted without the secondary curtain (TM already has that data). The testing is likely a month away. • KM stated that the preliminary seal deterrent plan will be provided to DFO in the coming days.

GENERAL AND MISCELLANEOUS MITIGATION MEASURES

Measures specified within the Westridge Marine Terminal Fisheries Act Authorization Conditions:

Schedule			
2.2.6 All nearshore in-water Project construction activities (within a 50-m horizontal distance seaward of the higher high water large tide level) at the Westridge Marine Terminal shall only be carried out during a work timing window from August 16 to March 15 each year.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
Nearshore works are taking place within the work timing window.			
Action Items			
None.			
Monitoring			
3.1 A qualified environmental professional must be on-site during the carrying on of in-water works, undertakings and activities, and shall monitor the works, undertakings or activities on a systematic and on-going basis to ensure that standards and avoidance measures to avoid impacts to fish and fish habitat are effective, and that unauthorized impacts to fish and fish habitat are avoided.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
Trans Mountain EI and the Trans Mountain Indigenous Monitor (TM IM) were on site at the time of the inspection.			
Action Items			
None.			
Marine Mammal Observations			
2.2.7 In-water construction activities must cease if any marine mammal is observed adjacent to or within the project area such that there is risk of direct physical harm to the marine mammal. Construction activities may only resume once the marine mammal has been confirmed to have left the immediate area or has not been sighted for 30 minutes.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
Trans Mountain noted that there had been multiple delays to pile driving recently due to the presence of one or more harbour seals in the seal-specific 150 m exclusion zone prior to the commencement of pile driving.			
Action Items			
None.			
Temporary Structures and Decommissioning of Existing Structures			
The application for a *Fisheries Act* authorization states that a floating debris boom will be secured around the work area to collect drifting debris during demolition of the existing utility dock (page 3.1).			
Discussed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒

2.2.5 Temporary structures installed below the high-water mark shall be decommissioned and removed when they are no longer being used for construction purposes.			
Discussed/ observed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
Comments			
No structures are currently being decommissioned.			
Action Items			
None.			
Pump Intake Screening			
2.2.2 Water intakes of any pumps shall be designed and screened in accordance with specifications outlined in the Addendum, Fisheries and Oceans Canada's *Freshwater Intake End-of-Pipe Fish Screen Guidelines* (Fisheries and Oceans Canada 1995), and Fisheries and Oceans Canada's *Guidelines for Minimizing Entrainment and Impingement of Aquatic Organisms at Marine Intakes in British Columbia* (Fisheries and Oceans Canada 1991).			
Discussed/ observed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
Comments			
Screens for known water intakes have been discussed during previous site inspections. No issues were reported.			
Action Items			
None.			
Fish Salvage			
2.2.3 Fish salvage and relocation shall be conducted, as appropriate, prior to the start of construction activities so as to avoid and minimize adverse impacts to fish.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
A fish salvage was conducted in foreshore Cell 4 recently and a fish salvage is currently ongoing in foreshore Cell 5. Fish salvages are conducted prior to impacting any sheet-piles. Minnow and crab traps were used. Captured fish and invertebrates are released at Barnet Marine Park. No issues were reported.			
Action Items			
None.			
Integrity of Habitat Offsets			
4.7 The Proponent shall not carry on any works, undertakings or activities that will adversely disturb or impact the offsetting measures.			
Discussed/ observed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
Comments			
Offsetting measures have yet to be installed.			
Action Items			
None.			

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MITIGATION MEASURES SPECIFIC TO PILE DRIVING

Measures specified within the Westridge Marine Terminal Fisheries Act Authorization Conditions:

Underwater Sound Pressure Level Reduction			
2.2.8 A vibratory hammer will be used for pile driving where practical and feasible, and all in-water pile driving activities will be monitored via hydrophone to ensure underwater peak pressures do not result in adverse impacts to fish.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
2.2.9.1 To avoid death of fish, mitigation measures (e.g., bubble curtain around the full wetted length of the pile, fish exclusion, etc.) must be implemented.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
No vibratory or impact pile driving was occurring at the time of the site inspection. Some mitigation measures for pile driving were discussed: using the new Tandem APE-600 vibratory hammer to reduce time spent impact pile driving and when the testing of the secondary bubble curtain is to occur (in approximately one month). Unusual max peak noise levels (207.7 dB recorded in July and 209.2 dB in August) during vibratory pile driving of two pin piles (914 mm in diameter) while using the APE 300-6 hammer were also discussed. TM stated the cause is still unknown, but it likely associated with the hammer itself.			
Action Items			
None.			
Underwater Sound Pressure Level Monitoring			
2.2.9.2 Monitoring via underwater noise recordings must be conducted continuously and within 10 meters of the pile being driven to verify that underwater sounds do not exceed the 30 kPa (209.5 dB re: 1 µPa) threshold for injury to finfish.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
2.2.9.3. Outside of the least risk window for Burrard Inlet (August 16 – February 28), a more conservative underwater sound threshold of 22.5 kPa (207 dB re: 1 µPa) will be adhered to, and monitored, to prevent injury to finfish. If sound levels exceed this threshold, or a fish kill is observed despite mitigation measures being in place, pile driving activities are to cease immediately and mitigation methods are to be reviewed and modified in consultation with DFO.			
Discussed/ observed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
2.2.9.4 If underwater noise recordings indicate that sound levels are likely to exceed the applicable threshold defined in conditions 2.2.9.2 or 2.2.9.3, the Proponent will take appropriate action with the goal of preventing the exceedance from occurring. These actions may include adjusting the force of the hammer, adjusting the mitigation measures already in place to increase their effectiveness, or implementing additional mitigation measures.			
Discussed/ observed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
2.2.9.5 Upon commencement of pile driving, or recommencement after a delay of 30 minutes or more, pile installation shall ramp-up by starting with less frequent impact strikes of lower force. This ramp-up period is designed to enable any fish that may be in the area time to leave the area prior to the generation of peak pressure and noise levels for pile installation.			
Discussed/ ☐ Yes	Issue(s) ☐ Yes	Issue(s) ☐ Yes	Not applicable ☒

observed: ☒ No	identified: ☐ No	unresolved: ☐ No	
Comments			
No vibratory or impact pile driving was occurring at the time of the site inspection. TM noted that as we are within the least risk biological timing window the underwater noise threshold for impact pile driving is 209.5 dB re: 1 µPa.			
Action Items			
None.			
Marine Mammal Monitoring			
2.2.9.6 Prior to commencement of pile driving, or recommencement after a delay of 30 minutes or more, visual monitoring must be conducted to determine if marine mammals are present within an exclusion zone of 1 km (except for harbor seals, which will have an exclusion zone of 150 m).			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
2.2.9.7 Work may only commence if marine mammals and harbor seals are not observed in their respective exclusion zones for 30 minutes.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
2.2.9.8 Exclusion zones must be monitored continuously during impact pile driving. If a marine mammal or marine mammals are observed within their respective exclusion zone, pile driving activities must cease until all marine mammals leave their respective exclusion zone or they have not been sighted for 30 minutes within their respective exclusion zone.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
2.2.9.9 If underwater noise recordings reveal that the threshold of 160 dB is exceeded at the 1 km exclusion zone boundary, the exclusion zone radius must be widened to a new outer limit, where sound recordings demonstrate that the 160 dB threshold is not exceeded. Conditions 2.2.9.6 to 2.2.9.8 will need to be complied with within this new exclusion zone.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
2.2.9.10 Pile driving may only be carried out during daylight hours to enable effective visual monitoring of marine mammal exclusion zones.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
Recently, the consistent presence of harbour seals observed within the seal-specific 150 m exclusion zone prior to the commencement of pile driving has resulted in multiple work stoppages. TM is scheduled to recommence impact pile driving at Trestle Span 0 later this week. TM will be using four seal acoustic deterrents within the 150 m seal specific exclusion zone as a mitigation measure to avoid adverse impacts (e.g., auditory injury) to 'fish' (which includes marine mammals) during impact pile driving (Condition 2.2.8 of the *Fisheries Act* Authorization). Prior to and during operation of the four seal deterrents, five marine mammal monitors will perform continuous visual monitoring of a 1,400 m exclusion zone for cetaceans and marine mammal species at risk. This zone, identified by JASCO, corresponds to the conservative area within which underwater noise from the operation of four deterrents may exceed 120 dB RMS (National Oceanic and Atmospheric Administration's marine mammal behaviour underwater noise threshold). The radius of his exclusion area may be adjusted following the results of the sound characterization study conducted for the seal acoustic deterrent devices.			
Action Items			

None.

Measures specified within the Westridge Marine Terminal Environmental Protection Plan:

Fish Salvage							
35. Immediately following the installation of each sheet pile cell, and prior to excavation and infilling of that cell, conduct a salvage of commercial, recreational and Aboriginal (CRA) fishery species via crab and fish trapping/netting and seines (where appropriate). Release captured CRA fishery species in a suitable habitat at least 500 m away from marine construction activities.							
Discussed/ observed:	☒ Yes ☐ No	Issue(s) identified:	☐ Yes ☒ No	Issue(s) unresolved:	☐ Yes ☐ No	Not applicable ☐	
Comments							
A fish salvage recently occurred within foreshore Cell 4 and is currently ongoing within Cell 5. The salvages occur prior to impacting sheet piles (if necessary) and excavation and infilling of the cell. The fish salvages used minnow and crab traps. All fish and invertebrates captured are released at Barnet Marine Park. No issues were reported.							
Action Items							
None.							

Turbidity Monitoring							
43. Should visual monitoring during in-water pile installation indicate concern regarding turbidity levels, the Environmental Inspector will arrange for in situ sampling of turbidity (nephelometric turbidity units). Should turbidity levels exceed specified thresholds, pile driving will temporarily be halted.							
Discussed/ observed:	☒ Yes ☐ No	Issue(s) identified:	☐ Yes ☒ No	Issue(s) unresolved:	☐ Yes ☐ No	Not applicable ☐	
Comments							
No vibratory or impact pile driving was occurring at the time of the site inspection. TM noted that water is sampled on an ad hoc basis (i.e., when turbidity is observed).							
Action Items							
None.							

MITIGATION MEASURES SPECIFIC TO FORESHORE CONSTRUCTION

Riparian Planting and Material Handling							
Westridge Marine Terminal Fisheries Act Authorization Conditions							
2.2.4 Disturbed riparian areas shall be replanted as appropriate, with native non-invasive species of vegetation.							
Discussed/ observed:	☐ Yes ☒ No	Issue(s) identified:	☐ Yes ☐ No	Issue(s) unresolved:	☐ Yes ☐ No	Not applicable ☒	
Westridge Marine Terminal Environmental Protection Plan Commitments							
30. Unless otherwise approved by DFO, retain all excavated [marine] material and dispose at a land-based facility in accordance with applicable regulations.							
Discussed/ observed:	☐ Yes ☒ No	Issue(s) identified:	☐ Yes ☐ No	Issue(s) unresolved:	☐ Yes ☐ No	Not applicable ☒	
Comments							

Not applicable.
Action Items
None.

Water Quality Maintenance and Monitoring			
Westridge Marine Terminal Fisheries Act Authorization Conditions			
2.2.1 Effective sediment and erosion control measures (e.g., a turbidity curtain, etc.) shall be implemented before starting construction and shall be maintained during construction activities, as appropriate, to avoid the deposit and dispersion of sediment into the marine environment.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
2.2.10 A turbidity curtain must be used to isolate the work area during the excavation of riprap in order to contain marine sediment suspended in the water column and limit the extent of sediment dispersion. During severe weather conditions that may reduce the effectiveness of, or impede the visual monitoring of, the turbidity curtain (e.g., > 70 km/h winds, or dense fog), works, undertakings or activities that may increase suspended sediment concentrations within the turbidity curtain or adversely affect the integrity of the turbidity curtain, must be suspended.			
Discussed/ observed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
Westridge Marine Terminal Environmental Protection Plan Commitments			
29. During in-water excavation or rip rap, conduct water quality monitoring (WQM) as per the Water Quality Management Plan during Rip Rap Removal (Appendix H of this EPP). Conduct WQM to assess the effectiveness of the turbidity curtain and modify turbidity curtain deployment, if required.			
Discussed/ observed: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
Westridge Marine Terminal Sediment and Erosion Control Plan Commitments			
The in-water sediment curtain will remain intact during Foreshore construction activities to ensure sediment laden water is not discharged into Burrard inlet.			
Discussed/ observed: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
A turbidity curtain remains in place around the sheet pile cells and attaches to the foreshore. The curtain is cleaned monthly during the spring and summer to reduce build-up from marine growth (e.g. mussels and algae), which weigh the curtain down. The curtain will be maintained throughout the fall and winter as necessary. Another turbidity curtain is in place around a water outfall located on the westernmost foreshore area that drains water from residential storm grates and water from a treated wastewater containment tank at WMT. Silt fencing surrounding the grout wastewater containment pit on the foreshore was upright, intact and was installed as a precautionary measure to ensure turbid water would be contained if the water level within the pit rose over the berm. Berms built up around the grout curing pits on the foreshore appeared to easily contain the liquid grout spoils as they harden.			
Action Items			
None.			

Additional comments or action items
None.