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Trans Mountain Expansion Project – Westridge Marine Terminal Monitoring

In light of the current COVID-19 pandemic, Fisheries and Oceans Canada (DFO) and Musqueam Indian Band's (Musqueam's) Indigenous Advisory and Monitoring Committee Indigenous Monitor (IAMC IM) are not conducting joint in-person monthly site inspections at the Westridge Marine Terminal (WMT), in Burrard Inlet, BC, in June 2020. Instead, DFO and representatives from the IAMC are having two conference-call meetings per month with representatives from Trans Mountain Pipeline ULC (Trans Mountain), the Project Indigenous Monitor (Project IM) from Kwikwetlem First Nation (KFN), and Kiewit Ledcor Trans Mountain Partnership (KLTP). This monitoring report provides a summary of the meeting on June 25th including current in-water and nearshore works at the WMT, any issues Trans Mountain reported during the meeting regarding mitigation or monitoring measures implemented to reduce or avoid impacts on fish and fish habitat, and how these issues have been or will be resolved.

Date	June 25, 2020	**Time of Call (Start):**	1:00 pm	**Time of Call End:**	2:20 pm
Format	Web-based conference call with Trans Mountain presenting photographs, documents and/or videos relevant to the expansion of the Westridge Marine Terminal.				
DFO participants	DFO - TMX Review and Engagement Team, Fish and Fish Habitat Protection Program: R.L. (A/ Senior Biologist), W.B (A/ Team Lead) and K.J. (Biologist)				
IAMC participants	Musqueam Indian Band: R.K. (Environmental Stewardship Technician) IAMC – Monitoring Subcommittee: C.T. (IAMC representative – Burrard Inlet and Lower Fraser River, from Tsleil-Waututh Nation)				
Other participants	Trans Mountain: K.M. (Regulatory Lead), T.A (Construction Manager), S.D. (Lead Environmental Inspector) Kwikwetlem First Nation (KFN): M.J. (Project IM)				

Contractor/equipment on site at the time of the call	**Role**
DB Bremerton	Moored to the east beside Junction Platforms 1 and 2. On Junction Platform 1 crews have cut piles to design elevation and have started to build a platform on top of the piles.
Nearshore Barge	Moored along the shoreline and working to construct the sheet-pile walls of foreshore Cells 1 and 2. Sheet-piles will be driven by a vibratory or impact hammer, and underwater noise levels will be monitored during pile driving. All works in this area are conducted in the dry (e.g., above high tide or when the tide is low).
Offshore barges (e.g. DB General)	Jackets set and are being welded on top of offshore Mooring Dolphins 4, 5 and 6.

IAMC Indigenous Monitor Observations and Comments

CT asked when and how site visits were planned to capture all of the works and activities occurring at the WMT prior to the COVID-19 pandemic. WB explained DFO and the IAMC IM conducted monthly inspections at regular scheduled times. This regular schedule allows DFO and the IAMC IM to witness various works, undertakings and activities at the WMT. Compliance is verified by witnessing works in person and asking questions. DFO and the IAMC IM are not on site for all works, so we rely on Trans Mountain's inspection teams and Project Indigenous Monitor to provide more detailed information on potential issues that arise and how they have been dealt with.

CT asked for clarification on the process of deep soil mixing (DSM), the type of obstructions encountered during it, and the purpose of the DSM columns. TA explained that obstructions capable of preventing DSM are rocks over 10 inches in diameter. TA explained that the columns support large concrete structures that in turn support heavy equipment.

CT raised concerns regarding archaeological “chance finds” during monitoring within the WMT project area. KM will flag this for Brenda Walton (Senior Indigenous Relations Advisor) to address. See notes below in the “Construction Update” for greater detail.

CT asked to confirm dates for the least risk biological window (LRBW). SD provided the dates.

CT asked where the jet fuel line is located. SD described its position in the foreshore.

CT asked how TM tests if the formwork is airtight prior to concrete pours? SD explained that the formwork is inspected prior to and during the concrete pour to visually inspect for gaps, checking that there are no leakages.

CT asked where concrete waste water is disposed of currently. SD explained waste water is being hauled off-site for treatment and disposal at Tervita. SD explained that a third waste water treatment facility, for use on the foreshore, will be constructed at the WMT in the coming months. CT asked if waste water will then be released directly back into Burrard Inlet. SD confirmed TM has obtained a waste discharge permit from the province of B.C., requiring that waste water be treated before it is released into the inlet. Anticipating heavy winter rain, SD explained it will be more cost effective to build a treatment facility on-site rather than hauling waste water offsite.

Musqueam Indian Band has flagged an additional question for follow-up during the next meeting: “In addition to water treatment, will TM undergo water quality testing post-treatment to ensure the water quality (pH, turbidity etc.) is in line with BC’s Water Quality Guidelines for the Protection of Aquatic Life before release into Burrard Inlet?” It is essential that water quality standards for concrete waste water are upheld for this work.

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Summary of inspection discussions (use initials of participants)

Introductions

Agenda Review

In addition to the agenda review KM addressed that DFO requested a series of photos depicting the ramp up sequence prior to impact pile driving. This is not provided during the call as TM has not conducted impact pile driving in the past two weeks. Photos will be taken of the ramp-up sequence once impact pile driving is conducted offshore, which is currently scheduled to recommence on the week of July 20.

Construction Update

SD provided an overview of the site layout at the WMT and described the construction works that have occurred since the June 10th compliance verification conference call.

SD showed a labelled aerial photo of the WMT construction site, which displayed the numbered foreshore cells and arcs. SD provided an overview of the construction works in the foreshore:

- Cell 2: vibratory pile driving.
- Cell 1: vibratory pile driving and impact pile driving.
- JASCO will monitor underwater noise during impact pile driving with a hydrophone placed in the water for the first three sheet piles driven to ensure sound pressure levels are below the authorized threshold of 207 dB (outside of the least risk biological window) – back calculation computed for equivalent sound pressure level (SPL) at R = 10 m. All pile driving for the cells is currently being conducted during low tide, in dry conditions.

- Ongoing activities: trench on eastern foreshore for the derailment wall, pilot DSM columns in the eastern foreshore between cells 6 and 10 and DSM columns inside cells 7 and 8.
    - CT: What are DSM columns and what are the obstructions you are encountering?
    - TA: Explained DSM stands for deep soil mixing and obstructions that can prevent DSM are rocks over 10 inches in diameter.

    - CT: In areas of DSM was M.J. or an archaeological monitor present?
    - SD: There was an assessment prior to construction and most of the project area was determined to have a low potential for archeological findings. There is an area on the other side of the rail tracks that is considered to have a moderate potential for archeological resources. M.J. as well as an archeological monitor will be present during construction in that area.
    - CT: During the pilot program, IM's found an artifact previously. CT realizes this may not be in DFO's purview, but would like to flag it as a concern.
    - SD/KM: The Environmental Protection Plan has a "chance find" procedure and the crew onsite have relevant training. The procedure involves halting work, bringing in a professional and engaging with local Indigenous groups. The rock found earlier was determined not to be an artifact after review from specialists.
    - CT: Indigenous caucus of the IAMC disagreed and two other specialists disagreed with the decision of that assessment; the rock is considered an artifact.
    - KM will flag these notes for Brenda Walton for follow-up in a different meeting with the IAMC.

- New activity: building retaining wall using large sandbags (supersacks) between Cell 6 and along the shoreline to Dock 59. The wall is set in the intertidal zone and backfilling will occur behind it. This will build an access route along the jet fuel line and protect the shoreline that has been slumping.

- WB: At what tidal height is the supersack wall to be located?
- SD: About 1.5 m above the average mean tide (geodetic). It is in the intertidal zone, but relatively high up. The superstack wall is being built slowly, end to end, so that there will be no pooling behind the wall where fish would have the potential to be stranded.

SD showed a schematic overview of the WMT site and a photo showing offshore works. SD provided an overview of the construction works:

- welding jackets to Breasting and Mooring Dolphins
- welding, concrete pours and installation of decking on Loading Platform 1/2 and Junction Platform 1

<u>SD described specific works and mitigation measures in the foreshore:</u>

- Cell 1: sheet piles driven with vibratory and impact hammer.
- Cell 2: sheet piles threaded around template and driven with a vibratory hammer.
  - CT: asked to confirm dates for the least risk biological window (LRBW).
  - SD responded that the extended LRBW is from August 16th to March 15th. Photos show that piles in Cell 1 and 2 are only being threaded on the south or landward side as piles on the seaward side of the cell cannot be threaded until the LRBW.

- CT: where is the jet fuel line is located?
  - SD showed an aerial photo of the foreshore and described its position.

- The remaining portion of Dock 59, a former utility dock, was demolished. Part of the dock that extended into the ocean was previously removed. A bird sweep was conducted prior to the vegetation surrounding the dock being cleared. Creosote piles were disposed of as contaminated material. Scaffolding was erected in the dock's place for access to the fire hydrant.
  - SD confirmed all works to demolish the dock were conducted above the high-water mark.

- SD showed a photo of supersacks being used to replace part of the retaining wall in cell 6. Supersacks will be extended along the shoreline to Dock 59. The area behind the supersacks will be backfilled with gravel.
  - WB: What is the plan following the infilling behind the supersack retaining wall once we are back into the LRBW (after August 16th)?
  - SD: Once in the LRBW the plan is to finish the remaining cells to the west. This includes fish and invertebrate salvages prior to backfilling the cells. Once cells are backfilled and the shoreline is extended then supersacks will be removed.
  - TA: TM will reuse material inside supersacks as fill material.
  - WB: In future calls DFO will be interested in plans for fish salvages given the different slope created by the supersack wall.
  - SD confirmed the retaining wall is temporary and supersacks will be remove prior to fish salvage.

- Drill rig used for DSM columns in Cell 8 - injects grout into the soil, creating a concrete column in ground, which is more structurally sound. It takes the grout a few days to harden.
  - CT: Can you explain the purpose of the columns underground?
  - TA: Columns support a large concrete structure that in turn supports heavy equipment.
  - Deep soil mixing and jet grouting columns are ongoing throughout the foreshore cells (takes 14 months to complete)

- WB: asked question for J.H. - Would it be beneficial, as a precaution, to have a CO2 bubbler onsite in case there is any risk of stored concrete wash entering the marine environment?

- SD: TM has a waste discharge permit from the province of B.C., which allows releases from the site with restrictions (neutral range of pH required). TM is having a water treatment plant installed on the foreshore, which will enable them to lower the pH and turbidity before the water is released back into the inlet. This will be in addition to two water treatment plants that are located elsewhere at the WMT. Currently waste water generated on the foreshore is taken up by hydro vacuum excavation ("hydrovac"), stored in tanks and hauled offsite.
- CT: Water will be released back into the inlet once there is a treatment plant on-site?
- SD: Yes.
- CT: Where does the water go when it is taken offsite?
- SD: Tervita handles waste materials and has treatment facilities. Moving forward it will be more cost effective to have a waste water treatment facility onsite.

<u>SD described specific works and mitigation measures located offshore:</u>

- Breasting Dolphins 7 and 8: welding sheer lugs to secure jackets to piles.
- Mooring Dolphins 4, 5 and 6: setting and welding jackets to mooring dolphins.
- Junction Platform 1: piles cut, welding and falsework underway to support concrete decking that will be installed on top of the piles. Concrete pours in piles to follow.
- Loading platform 1/2: tying girders to concrete pile caps and installing formwork for concrete pours.
- Concrete barge with concrete and pump trucks - all concrete spill mitigation measures in place (e.g. plant nappies under trucks to hold any potential leaks)

- WB: Have there been any changes to mitigation measures to the formwork and concrete pours?
  - SD: No, mitigation measures are working well. Spill trays and containment bins are monitored regularly and forms are checked for leaks prior to concrete pours.
  - TA: Every vehicle gets a pre-environmental inspection before permitted on-site.

  - CT asked how do you test if the formwork is airtight before concrete pours?
  - SD: The formwork is inspected prior to and during the concrete pour to visually inspect for gaps, checking that there are no leakages.

- WB: How is the turbidity curtain (i.e., the new turbidity curtain tailor made to bathymetric contours) working?
  - SD: Showed photos of the curtain working well by containing turbidity within the authorized footprint. The curtain performed well during a heavy 1 in 200 year rain event last week, as shown in a photo taken the day after the event.
  - There is an orange and black turbidity curtain that surrounds the entire nearshore. Additionally, a yellow turbidity curtain surrounds part of the main orange and black turbidity curtain and functions as an additional safety measure.

- Temporary marine access dock: relocated to north side of marine construction office trestle

<u>Further Questions:</u>

WB: Is the marine construction office functional?
KM/SD: No, the structure is subject to a building permit and TM is waiting for the permit to be issued by VFPA to complete internal work.

WB: Were there sightings of marine mammals or fish around the WMT?
SD: The odd harbour seal has been spotted. No other marine mammals or juvenile salmon have been spotted in the past two weeks.

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RL: Where and why are JASCO monitoring impact pile driving in the dry?
SD: Impact pile driving is required for a few sheet piles in foreshore cell 1, where harder substrate was encountered. As per a previous conversation with DFO, TM committed to verifying, through the first three sheet piles of a cell, that in-water noise was well below noise thresholds for injury or death of fish. TM submitted a memo with the monitoring plan.

CT: When talking about water treatment on foreshore facility earlier, CT was wondering why the water treatment facility was not in place prior to works?
SD: The waste discharge permit from the province of BC is only required if TM are discharging water in the inlet; however, TM is not currently doing this. Right now waste water is being hauled off-site for treatment and disposal at Tervita.

RK will provide JH with his summary notes from this meeting.

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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: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
TM acknowledged that all work completed within the past two weeks, since the last compliance monitoring call, is outside the timing window and that in-water works are only being conducted offshore (i.e., beyond 50 m of the higher high water large tide). Works on the foreshore cells are being completed at low tide in the dry.			
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: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
The Lead Environmental Inspector spoke throughout the meeting about their experiences over the past two weeks at the WMT during construction. Qualified environmental professionals are conducting monitoring of construction activities at the WMT.			
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: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
Marine mammal monitoring is being conducted at WMT. Harbour seals were observed; however, pile driving only occurred in the dry during low tide. No work stoppages were reported.			
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: ☐ Yes ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
Comments			
The utility dock has been removed and 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: ☐ 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: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
In the future, DFO noted that it will be interested in discussing Trans Mountain's plans for fish salvage and whether this will change based on the presence of the supersack wall. No fish salvage has taken place at WMT over the past two weeks.			
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: ☐ 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.			

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: ☒ 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: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
Trans Mountain confirmed that vibratory pile driving is currently only occurring during low tide in dry conditions; therefore, no monitoring was conducted via hydrophone. TM confirmed that underwater noise levels are being monitored via hydrophone during impact pile driving activities occurring in the dry during low tide and that underwater noise thresholds are not being exceeded. Previously, DFO requested and has since received a memo from TM outlining monitoring undertaken for impact pile driving conducted in the dry during low tide.			
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: ☐ 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: ☒ 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: ☐ 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 ☒ No	Issue(s) identified: ☐ Yes ☐ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☒
Comments			

No vibratory or impact pile driving occurred in-water over the past two weeks.TM demonstrated that they are monitoring underwater noise during impact pile driving occurring in the dry at low tide and that levels have remained below the threshold specified in the authorization.
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: ☒ 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: ☒ 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: ☒ 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: ☒ 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: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐

Comments
TM are carrying out marine mammal monitoring. Harbour seals were observed by TM, but not prior or during pile driving as no work stoppages were noted on the conference call.
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:	☒ Yes ☐ No	Issue(s) identified:	☐ Yes ☒ No	Issue(s) unresolved:	☐ Yes ☐ No	Not applicable ☒	

Comments
No fish salvage has taken place at WMT over the past two weeks.
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:	☐ Yes ☒ No	Issue(s) identified:	☐ Yes ☐ No	Issue(s) unresolved:	☐ Yes ☐ No	Not applicable ☒	

Comments
No in-water pile installation occurred over the past two weeks.
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:	☒ 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:	☐ Yes ☒ No	Issue(s) identified:	☐ Yes ☐ No	Issue(s) unresolved:	☐ Yes ☐ No	Not applicable ☒	

Comments
Himalayan blackberry in the riparian area was removed around the site of the Dock 59 removal. This location will be not be subject to replanting as it will form part of the expanded foreshore.
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:	☒ Yes	Issue(s)	☐ Yes	Issue(s)	☐ Yes	Not applicable ☐	

☐ No	identified: ☒ No	unresolved: ☐ No	
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: ☐ 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: ☐ 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: ☒ Yes ☐ No	Issue(s) identified: ☐ Yes ☒ No	Issue(s) unresolved: ☐ Yes ☐ No	Not applicable ☐
Comments			
Turbidity curtains were visible in photos shown during the slideshow and Trans Mountain noted that they were working well to contain turbidity, even with heavy rainfall.			
Action Items			
None.			

Additional comments or action items
Musqueam's questions regarding testing of water quality after treatment will be asked at a future CVA with Trans Mountain.