

INDIGENOUS MONITOR OVERVIEW REPORT

Month: May 2020

Indigenous Monitor days on-site: 20

Project Region: Lower Mainland

Kilometre Posts (KPs) monitored: n/a

Indigenous Monitors on the Trans Mountain Expansion Project – Overview

The Trans Mountain Expansion Project (the Project) has retained Indigenous Monitors as integrated members of its construction Environmental Inspection team. Indigenous Monitors work with Environmental Inspectors to monitor compliance with mitigation measures to minimize impacts to traditional resource use and cultural/heritage impacts during construction. Indigenous Monitors have a strategic role in providing traditional knowledge directly and pragmatically to construction oversight practices and bring an Indigenous lens to daily environmental inspection activities.

This Overview Report provides highlights of the Indigenous Monitors' day-to-day work and key mitigation measures observed by the Monitors related to Project construction in the Lower Mainland. The purpose of this report is to provide an update on Indigenous Monitor activity to Indigenous groups.

During this reporting period, key Project activities in the Lower Mainland region involving Indigenous Monitors included construction at Westridge Marine Terminal and Burnaby Terminal. Activities included inspection and monitoring of foreshore works including turbidity curtain replacement, underwater noise monitoring and fish acoustic deterrent deployment, overwater construction cement and grout management, erosion and sediment control, wildlife observation and participating in Regulator meetings.

For more information: email info@transmountain.com or call 1.866.514.6700.

Trans Mountain COVID-19 – Our Response

Trans Mountain is actively monitoring the COVID-19 situation with the help of federal, provincial and local agencies. Trans Mountain's top priority remains the health and safety of its workforce, their families and our communities. Trans Mountain and its construction contractors are working diligently together to adhere to all advice and direction from government and health officials, while ensuring the safe uninterrupted operation of the Trans Mountain Pipeline and the continued, safe construction of the Expansion Project. Measures being undertaken at construction sites include: temperature screening; following physical distancing guidelines; staggering work shifts and breaks; eliminating or minimizing in person meetings; enhancing cleaning and sanitizing; and ensuring workers orientation includes COVID 19 expectations, awareness and prevention.

For more information: transmountain.com/covid19

Foreshore Expansion – Turbidity Curtain

A new turbidity curtain has been installed surrounding the Westridge Marine Terminal (WMT) foreshore expansion area to protect the marine environment during construction. Turbid water (i.e., water containing suspended sediment) may be generated by wavy conditions, rainfall or construction activities on the foreshore. The turbidity curtain is designed to contain this turbid water within the immediate construction work area. It is an important environmental protection mitigation which is implemented year-round and is monitored and inspected regularly for its integrity and effectiveness.

In May, a new custom-built turbidity curtain was installed around the WMT foreshore. This curtain is robust and durable and is designed to contour the depth of the water surrounding WMT’s foreshore construction area.

The Indigenous Monitor is performing ongoing inspection and monitoring of the new turbidity curtain at the WMT foreshore.



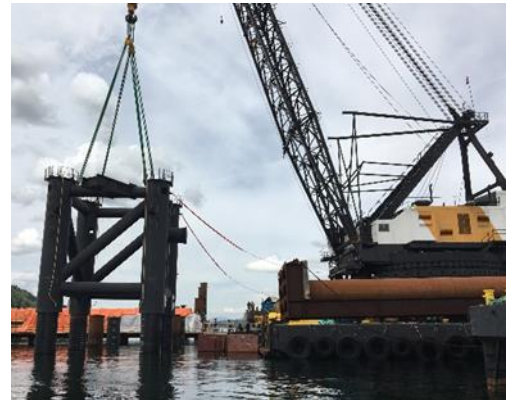
New turbidity curtain at the Westridge Marine Terminal foreshore.

Overwater Construction of Dock Infrastructure – Concrete Management

Overwater construction at WMT includes building of new dock and mooring infrastructure. To form the new shipping berths, dolphin jacket super structures are placed over steel piles and sealed with concrete.

During the pouring of concrete into the dolphin jackets, environmental protection mitigations are used to isolate the concrete work from the marine environment and help prevent spillage of concrete or grout into the ocean. These mitigations include ensuring all concrete work is completed during dry conditions and properly contained within sealed forms, using containments for any concrete waste storage, and having spill kits available for the concrete trucks. Divers also inspect underwater for any potential spillage from the concrete pour. More information on the dolphin jackets can be found [here](#).

The Indigenous Monitor is performing ongoing inspection and monitoring of the overwater construction and concrete management mitigations.



Dolphin jacket being placed over steel piles.



Cement truck pouring into dolphin jacket leg.

Underwater Noise Monitoring and Fish Acoustic Deterrents

Offshore pile driving activities are ongoing at WMT. The marine derrick barges continue installing steel piles using vibratory drivers and impact hammers. Standard mitigation measures during all in-water pile driving activities include monitoring underwater noise levels using hydrophones to verify noise levels are below the applicable thresholds for the protection of fish and marine mammals. This is a requirement of the Fisheries and Oceans Canada *Fisheries Act* Authorization for the Project.

During impact pile driving, an underwater bubble curtain must be installed around the pile to reduce underwater noise levels. To further mitigate potential impacts to fish, fish deterrent systems that combine high-intensity light with a low-frequency acoustic signal are deployed prior to impact pile driving. The purpose of the deterrent systems is to temporarily deter fish from the immediate area around the pile where elevated noise levels generated by impact pile driving could result in harm to fish.

The sound signal used by the deterrent systems covers the most sensitive hearing band of the fish and is also within the audible range of humans. However, the signal is significantly below the high-frequency hearing of marine mammals so will not adversely affect marine mammals in the vicinity of the site.

Two acoustic deterrent systems are deployed and operated for approximately 30 minutes immediately prior to the start of impact pile driving. These units are lowered into the water from a barge and positioned at 1/3 and 2/3 water depth. The deterrent systems are used for all offshore impact pile driving. The Indigenous Monitor at WMT has been trained in the operation of the fish deterrent systems.

At WMT, the Indigenous Monitor performs ongoing inspection of the in-water pile driving activities to verify all relevant environmental protection measures and mitigations are being implemented and that these measures are functioning effectively.



Fish Acoustic Deterrent System before underwater deployment.

Regulator Meetings & Inspections

Fisheries and Oceans Canada (DFO) and the Indigenous Advisory Monitoring Committee (IAMC) conduct bi-weekly meetings with the WMT team by teleconference. Foreshore and marine construction progress is discussed as well as environmental mitigation measures such as erosion and sediment control measures (e.g., turbidity curtains, shoreline slope protection), waste containment and management, bubble curtains and underwater noise monitoring for impact pile driving, and the fish acoustic deterrents.

An independent monitor working on behalf of the Vancouver Fraser Port Authority (VFPA) also conducts bi-weekly inspections at WMT.

The Indigenous Monitor at WMT participated in the DFO and IAMC meetings, as well as the VFPA inspections and is an active participant in discussions about the effectiveness of ongoing environmental mitigation and monitoring measures.



Offshore marine work area and foreshore construction.

Erosion and Sediment Control and Water Management

Erosion and sediment control (ESC) measures are monitored and inspected at WMT and Burnaby Terminal to ensure they are functioning as intended to mitigate erosion and sediment transport from construction sites to downstream areas, watercourses or the marine environment. On-site ESC mitigations include sediment fences, swales, wattles, straw, poly sheeting, coco matting and hydroseeding, as well as water drainage control measures.

At the Burnaby Terminal intricate surface and underground drainage is installed across the facility site to reduce the potential for soil erosion by water during construction activities. On a daily basis, the Indigenous Monitor inspects the ESC water conveyance system which includes drainage ditches, canals and culverts, as well as runoff ponds and firewater storage areas. Additional inspections occur before and after significant rainfall to monitor flow and downstream water quality.



Drainage canal at Burnaby Terminal.

Wildlife Observation and Discovery

A requirement of the Project is to create an inventory of wildlife observations and to follow contingency measures for the discovery of wildlife species of concern. Species of concern refers to wildlife that have increased potential to be affected by Project activities due to spatial or temporal overlap with the Project during sensitive life stages like breeding.

For the wildlife discovery of birds' nests on the Project site, mitigation measures include reducing the area of disturbance or construction activity intensity and protecting the nest(s) using fencing and/or flagging as well as visible signage.

The Indigenous Monitors record wildlife observations and discoveries at WMT and Burnaby Terminal and inspect mitigation measures implemented to protect wildlife. For example, at Burnaby Terminal nesting Killdeer birds were discovered near an access road. Warning signs were installed to notify personnel and equipment about their activity in the area.



Killdeer advisory at Burnaby Terminal.

Indigenous Monitor Request Dashboard

Indigenous Monitors are provided daily on-site field support from Environmental Inspectors and office support from Indigenous Monitor Coordinators. Indigenous Monitors can also make specific support requests or submit questions through their daily report. Examples include but are not limited to: request for Project reports, input from an environmental resource specialist or on-site support from an Elder or other cultural knowledge holder. Monthly requests and their completion status are noted below.

Status	Number and Type of Requests				
	Project Reports/ Documents	Environmental Resource Specialists	Elder/Cultural Knowledge Holder	Other	Total
Total	0	0	0	0	0
Fulfilled	-	-	-	-	-
Outstanding	-	-	-	-	-

This report has been reviewed by the active Indigenous Monitor(s)

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