

Volume



Environmental Compliance



Trans Mountain is seeking approval for a Certificate of Public Convenience and Necessity (CPCN) from the National Energy Board (NEB) for a \$5.4 billion expansion of its oil pipeline system from Strathcona County near Edmonton, Alberta to Burnaby, British Columbia.

This brief provides examples from Volume 6, Environmental Compliance, of Trans Mountain's Application to the NEB. Volume 6 details Trans Mountain's commitment to environmental protection and monitoring during the construction and post-construction phases of the Project, and environmental

protection and monitoring plans for the pipeline, facilities and Westridge Marine Terminal. It also deals with mitigation measures — the actions that Trans Mountain Expansion Project will take to minimize environmental impacts along the route.

For example, wherever it's feasible, existing access roads and trails along the route will be used rather than develop new access for construction. New roads will avoid watercourse crossings, steep slopes and sidehill terrain and they will be aligned to avoid wetlands and peatlands to the extent feasible.

Trans Mountain will post signs, stakes or flagging in the vicinity of sensitive environmental features (such as areas prone to weed infestations), where warranted, to alert workers of their presence and ensure their protection adjacent to the access road.

Most of the environmental and land use issues on the Project right-of-way are routinely encountered during pipeline construction in the regions where the project will be located. Mitigation measures are also considered to be routine since they are commonly employed during pipeline construction projects in these regions.

Trans Mountain Expansion Project

Environmental Setting

The Trans Mountain Expansion Project will consist of approximately 987 km of new crude oil pipeline. Approximately 340 km of the total construction right-of-way is located within Alberta and approximately 651 km is located within BC. The pipeline route crosses provincial and federal Crown land, Aboriginal reserve land, municipal and private lands in AB and BC. It generally traverses flat to gently rolling terrain in AB, rolling, variable steep to very steep mountainous terrain in interior BC and level to nearly level terrain in the BC Lower Mainland.



Fish and fish habitat studies have been conducted at watercourse crossings along the route. Information gathered during these studies has been used to determine the appropriate water and vehicle crossing methods, as well as general bank and approach slope reclamation measures when construction is complete.

Surveys along the right-of-way, conducted for the Application, indicate the presence of features that may, or will, require mitigation during construction. The features include some rare plant species, wetlands, aquifers supporting community water supply, habitat suitable for wildlife species with special conservation status, traditional Aboriginal use and Aboriginal archaeological interests.

Compliance Program

The involvement of full-time, qualified and trained Environmental Inspectors is a key component of Trans Mountain's environmental compliance strategy. The Inspectors will have an understanding of pipeline construction techniques and will take a preventive approach, rather than a reactive approach, to environmental issues. They will be supported by appropriate resource specialists who will have expertise in a particular resource feature associated with the Project, such as fisheries biologist, botanist, wildlife biologist and reclamation specialist, and who will be available on-site or via consultation, when warranted.

The strategy will guide working relationships, training requirements and communication among environmental and construction personnel, contractors and regulators, beginning during the bidding process for contracts.

For example, prior to construction, contractors will be provided site tours where representatives of Trans Mountain's construction, engineering and environmental teams will discuss and view environmentally sensitive areas and areas where construction will be challenging.

Trans Mountain Expansion Project

An Environmental Compliance Plan will be prepared prior to the start of any construction. The plan will cover environmental compliance during pre-construction activities including land clearing, and during pipeline, facilities and Westridge Marine Terminal construction. The plan will have a sign-off sheet to acknowledge that the document has been read and understood by construction manager, contractor supervisors and the Trans Mountain Inspection team.

Environmental features will be marked and construction personnel will be trained to understand the various markings. In addition, Trans Mountain's environmental inspectors will hold field meetings with construction personnel to discuss the specific concerns related to those marked features. Pre-construction photographs will be taken of infrastructure or environmental sensitivities that will likely be impacted by construction, where comparison of pre-construction and post-construction conditions will be beneficial.



Environmental Inspectors will monitor construction activity and ensure the mitigation measures outlined in Environmental Protection Plans (EPPs), as well as measures detailed in Environmental Alignment Sheets for the Project, are implemented during construction.

Trans Mountain will develop and implement an environmental education program to ensure that all individuals involved in the construction of the Project understand the environmental requirements of the Project and their role and responsibilities with regard to meeting those requirements.

Post Construction

Once the project is complete, Trans Mountain will conduct a Post-Construction Environmental Monitoring program during a period up to the first five complete growing seasons, or as per conditions directed in the CPCN.

Changes in upland, riparian, instream and wetland habitats, as well as site-specific habitat features, will be evaluated by comparing pre-construction conditions and adjacent habitats to the post-construction conditions. This will assist development of remedial measures to address residual effects, where warranted.

Trans Mountain Expansion Project

Pipeline Plan

The proposed route of the new pipeline segments is identified along an approximately 150-metre wide corridor. Although the proposed pipeline will generally require a construction right-of-way of 45 metres, the corridor width varies along the route depending on land use and potential engineering and environmental constraints.

The proposed pipeline corridor will parallel the existing Trans Mountain Pipeline system right-of-way to the greatest extent feasible considering, among other factors, present land uses and terrain adjacent to the existing right-of-way. To further reduce the area of new disturbance, the proposed pipeline corridor will parallel other disturbances such as rail lines and roadways, where feasible.

Approximately 86 automated shutoff valves will be installed at locations along the pipeline for emergency shutdown and isolation of pipeline segments. Automated shutoffs will be constructed within the operating pipeline right-of-way and most will be sited adjacent to Trans Mountain pipeline valves.

Major spills of potentially hazardous materials during construction will be immediately reported to the appropriate federal/provincial authority by the environmental compliance manager.

Facilities Plan

Pump stations are positioned along the existing Trans Mountain Pipeline system at 23 locations to maintain pressure and move oil along the line and monitor flow. To accommodate the expansion, the Project will include the construction and operation of new pump stations serving the new pipeline at 10 of the existing pump station sites.

Those sites are at Edmonton, Gainford, Wolf, Edson and Hinton in AB, and at Rearguard, Blue River, Blackpool, Kamloops and Kingsvale in BC. The addition of one unit to the Sumas Pump Station will be made to support increased volumes to the Puget Sound system. Two new pump stations will also be constructed and operated at a new site at Black Pines, BC to serve both the existing pipeline and new pipeline.



Trans Mountain Expansion Project

To serve the expanded pipeline, a total of 20 new storage tanks will be constructed: five at the Edmonton Terminal, one at the Sumas Terminal and 14 at the Burnaby Terminal. The new welded steel tanks will be similar in structure to the existing tanks at the terminals and installed on stable, engineered foundations within a bermed containment area.

Leak-detection systems will be installed. An internal tank liner will be provided for corrosion prevention. Cathodic protection will be installed on all new tanks as an added measure to protect against corrosion.

All tanks will have secondary containment capable of containing 100 per cent of the working volume of the largest tank plus 10 per cent of the working volume of other tanks that share a common impoundment. The bermed area will be graded to direct all surface water to a runoff containment area where it can be inspected before release.

Surface runoff within these containment areas will be released through manually controlled valves following water quality monitoring.

Westridge Expansion

Design of additional facilities at the Westridge Marine Terminal in Burrard Inlet is underway. These plans include constructing the following dock facilities:

- One dock with three operational berths for Aframax tankers, with one of the three new berths equipped to accommodate oil and jet fuel barges
- One small utility dock with multiple berths for pilot launches, tugs, spill response vessels and equipment



Some near shore dredging might be necessary to accommodate construction of the new docks. The existing water lease will need to be expanded to accommodate the new docks. Foreshore lands will also be expanded to provide the necessary space for land based infrastructure.

The construction manager for Westridge Marine Terminal will be required to have experience in marine terminal planning and construction, a demonstrated commitment toward environmental protection and a track record of successful environmental issue resolution.

Trans Mountain Expansion Project

The Westridge Marine Terminal Environmental Protection Plan identifies the potential mitigation and reclamation measures that may be implemented during detailed design, pre-construction, construction and post-construction activities at the Marine Terminal.

The EPP also identifies and contingency and management plans to address potential effects, events or conditions that may arise during construction. In addition, it outlines environmental inspection and construction inspection roles and responsibilities during and following construction.



This brief is intended as a general review of content from the December 16, 2013, Trans Mountain Expansion Project submission to the National Energy Board, and not a substitute for the actual content of the submission. Please refer to the submission for a full description of the Project.