
Trans Mountain Expansion Project

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VIA ELECTRONIC SUBMISSION

1 MARCH 2017

National Energy Board
Suite 210, 517 Tenth Avenue S.W.
Calgary, Alberta T2R 0A8

To: Ms. Sheri Young, Secretary, National Energy Board

Dear Ms. Young:

Re: Trans Mountain Pipeline ULC ("Trans Mountain") – Trans Mountain Expansion Project ("Project")
Condition 15: Pipeline Risk Assessment
NEB File: OF-Fac-Oil-T260-2013-03 02

Please find enclosed Trans Mountain's compliance filing in relation to Project Condition 15 for approval by the Board. This condition compliance filing relates to the following legal instrument:

- OC-064 (CPCN)

Phased Filings

On January 16, 2017, Trans Mountain filed a Phased Condition Matrix ([A411J9](#)) with the Board wherein it established 39 Project phases. This filing relates to the following phases:

- 26: Spread 1
- 27: Spread 2
- 28: Spread 3
- 29: Spread 4
- 30: Spread 5
- 31: Spread 5, C39 Coldwater Hydrological
- 32: Spread 5, C7 Ohamil
- 33: Spread 6
- 34: Spread 6, C7 Tzeachten
- 35: Spread 6, C77 Lightning Rock
- 36: Spread 7
- 37: Spread 7, C7 Surrey Bend

- 38: Westridge Delivery Lines
- 39: Burnaby Tunnel

Condition 15: Pipeline risk assessment

The text of Condition 15, as established by the Board, is as follows:

Trans Mountain must file with the NEB, **at least 6 months prior to commencing construction**, the following information for Line 2 and the new delivery pipelines:

- (a) the results of the updated risk assessment in a tabular format similar to that provided in its Line 2 Consequence Report (Filing [A3Z8G5](#)). The risk assessment tables must also include:
 - (i) any updates to High Consequence Areas;
 - (ii) the risk mitigation method(s);
 - (iii) the mitigated Environmental Risk Scores;
 - (iv) pre-mitigation maximum outflow volumes; and
 - (v) the outflow volumes after mitigation;
- (b) Environmental Risk Score acceptance criteria, with supporting rationale; and
- (c) a detailed description of the adequacy of the following from its Line 2 Consequence Report (Filing [A3Z8G5](#)):
 - (i) the coefficients used in the scoring system equations; and
 - (ii) the values from the scoring tables.

Attachment 1 to this letter includes a concordance table that shows where each aspect of the Condition is addressed in the attached material.

Summary of Material Filed

Attachment 1 to this letter includes the following document:

- Trans Mountain Expansion Project Pipeline Risk Assessment: NEB Condition 15 (March 1, 2017), hereinafter the “Report”

The Report includes the results of Trans Mountain's updated risk assessment, Environmental Risk Score Acceptance Criteria with supporting rationale and the detailed description of the adequacy of parameters provided in Line 2 Consequence Report ([A3Z8G5](#)) ("2014 Report"), as required by Condition 15.

The updated results in the Report consider the following:

- Trans Mountain will proceed with the relocation of the existing Westridge Delivery Line to the Burnaby Mountain Tunnel, as communicated to the Board pursuant to Condition 20.
- Trans Mountain is currently in the process of establishing the detailed routing of Line 2. The Report assumes a preferred final route as anticipated by Trans Mountain.
- The Report is being filed in conjunction with the compliance filings for Conditions 16 and 17.

Trans Mountain implemented a risk-based design (RBD) process for the new segments of Line 2 pipeline and the two new delivery pipelines between Burnaby and Westridge Terminals.

(a) Results of the Pipeline Risk Assessment

The updated risk assessment shows a general decrease in overall failure frequencies, consequence index and risk index, which is largely attributable to a reduction of natural hazards and third party damage. Risks posed by natural hazards have been mitigated through routing changes and design changes (such as the additional heavier walled pipe and extra burial depth). Risks posed by third party damage have been mitigated through additional heavier walled pipe, increased depth of cover and buried marker tape. Through two rounds of valve optimization, the first to establish outflow volumes to low as reasonably practicable (ALARP), and the second to confirm that ALARP has been met, Trans Mountain has substantially reduced the maximum modelled outflow volumes from those presented in the 2014 Report.

(b) Environmental Risk Score Acceptance Criteria

In the absence of established quantifiable environmental risk evaluation criteria for pipelines, Trans Mountain has utilized a consequence-weighted approach, amplifying areas of environmental sensitivity, which has yield distributed Environmental Risk Score values. A comparison of the 2014 report to this update has resulted in a 91% reduction of integrated environmental risk scores.

(c) Description of Adequacy

The index-based qualitative evaluation of environmental consequence described in the Line 2 Consequence Report (Filing [A3Z8G5](#)) was configured on the premise that although not possible to quantify in absolute terms, the severity of impact to the environment arising from an oil spill is directionally a function of both the magnitude of a release, as well as whether or not the release impacts a surface waterbody or aquifer. Variables that influence the effectiveness of response measures and factors that determine the magnitude of the potential impact include the location of

the spill, surrounding terrain and ground conditions, season, weather conditions and depth of water table at the location of the leak. The post-mitigation design of Line 2 has effectively reduced the pre-mitigated integrated environmental risk scores by 91%.

Should you have any questions or wish to discuss this matter further, please contact the undersigned at regulatory@transmountain.com or (403) 514-6400.

Yours truly,

Original signed by

Scott Stoness
Vice President, Regulatory and Finance
Kinder Morgan Canada Inc.

Enclosure:

Attachment 1: Trans Mountain Expansion Project Pipeline Risk Assessment NEB Condition 15
(March 1, 2017)