

VIA ELECTRONIC SUBMISSION

16 FEBRUARY 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 30(a)(iii)(iv), (b), (c) and (d): Power system protection for pump stations and terminals
NEB File: OF-Fac-Oil-T260-2013-03 02**

Please find enclosed Trans Mountain’s compliance filing in fulfillment of Project Condition 30(a)(iii)(iv), (b), (c) and (d) as it relates to the Westridge Marine Terminal, Burnaby Terminal, Edmonton Terminal and Sumas Terminal (collectively, the “Terminals”). This condition compliance filing relates to the following legal instruments:

- OC-064 (CPCN)
- XO-T260-010-2016 (Tanks)

Note that Trans Mountain will file additional material in fulfillment of Condition 30(a)(iii)(iv), (b), (c) and (d) insofar as it relates to the Line 1 and Line 2 Pump Stations (legal instruments XO-T260-008-2016 and XO-T260-009-2016, respectively) at a future date, in accordance with Trans Mountain’s phased filing approach. These elements of the Project are scheduled to commence construction at a later date relative to the Terminals.

Phased Filings

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

- 1: Westridge Marine Terminal
- 2: Edmonton Terminal
- 3: Sumas Terminal

- 4: Burnaby Terminal

As stated, a further compliance filing for Condition 30(a)(iii)(iv), (b), (c) and (d) will be made in relation to Phases 5 through 19, which relate to the pump stations, at a future date.

Condition 30(a)(iii)(iv), (b), (c) and (d): Power System Protection for Pump Stations and Terminals

The text of Condition 30(a)(iii)(iv), (b), (c) and (d), as established by the Board, is as follows:

Trans Mountain must file with the NEB the following details of its electrical power system design for each pump station and each of the following: Westridge Marine Terminal, Burnaby Terminal, Edmonton Terminal, and Sumas Terminal:

- a) Descriptions of the overcurrent and ground fault protection schemes including: ...
 - iii) the specification of neutral grounding resistors, **at least 6 months prior to commencing construction**; [and]
 - iv) specifications of contactors, fuses, and circuit breakers, **at least 6 months prior to commencing construction**; ...
- b) Consistent with the NEB's Safety Advisory SA-2015-03, dated 4 May 2015, **at least 6 months prior to commencing construction**, information confirming that Trans Mountain has performed the ground fault and arcing fault protection designs for each pump station and terminal, including:
 - i) a means to clear ground faults without intentional time delay if the fault currents exceed the design limit set by the neutral grounding resistance; and
 - ii) a means to block the stored energy from other running motors from feeding an electrical fault in another motor running from the same bus.

This filing must include a description of the ground fault and arcing fault protection designs including the above measures.

- c) **At least 6 months prior to commencing construction**, either:
 - i) a written confirmation that Trans Mountain determined during detailed design that electrical faults will not exceed their design limits and migrate to an arcing fault; or

- ii) for a station or a terminal for which Trans Mountain determined during detailed design that an electrical fault could exceed its design limit and migrate to an arcing fault, the electrical configuration of that station or terminal and the additional equipment and devices that will be used to mitigate the adverse effects of such arcing faults.
- d) Single-line diagrams of the electrical power systems, **at least 6 months prior to commencing construction.**

The Report (defined below) appended to this letter includes a concordance table that shows where each aspect of the Condition is addressed for the Terminals in the attached material.

Summary of Material Filed

This letter encloses the following documents:

- Trans Mountain Expansion Project Power System Protection for Pump Stations and Terminals: NEB Condition 30 (February 2017), hereinafter the “Report”
- Attachments to the Report, including:
 - o Appendix A: TMEP-ELEC-1075S Neutral Ground Resistor (NGR) Specification
 - o Appendix B: TMEP-ELEC-1070S Fuses 750 volts to 7.2kV Specification, TMEP-ELEC-1080S Circuit Breaker – 5kV to 25kV Specification, TMEP-ELEC-1085S Circuit Breaker – 5kV in Switchgear Specification and TMEP-ELEC-1090S Vacuum Contactor Specification
 - o Appendix 2A: Westridge Terminal - Power System Study with Short Circuit Analysis, Arc Flash, and Protection Coordination Study
 - o Appendix 2B: Westridge Marine Terminal Single Line Diagrams (SLD)
 - o Appendix 5A1: Edmonton Terminal - Power System Study with Short Circuit Analysis, Arc Flash, and Protection Coordination Study
 - o Appendix 5A2: Edmonton Terminal Single Line Diagrams (SLD)
 - o Appendix 5B: Sumas Terminal Single Line Diagrams (SLD)
 - o Appendix 5C1: Burnaby Terminal - Power System Study with Short Circuit Analysis, Arc Flash, and Protection Coordination Study
 - o Appendix 5C2: Burnaby Terminal Single Line Diagrams (SLD)

The Report is structured to address each element of Condition 30(a)(iii)(iv), (b), (c) and (d) in relation to the Terminals, as set out above. In particular, the Report identifies each element of the Condition and directs the reader to the attachment with the technical details necessary to satisfy the requirement of the Condition. There are no fundamental changes to the electrical system at the Sumas Terminal for Trans Mountain. All additions are minor and use currently installed spare capacity. Additional studies are not required.

On January 24, 2017, Trans Mountain requested timing relief in relation to Condition 30. In particular, Trans Mountain asked the Board to extend the deadline for Trans Mountain to file the information required under paragraphs 30(b)(i) and (ii), (c)(i) and (ii) and (d) in Condition 30 from 6 months prior to construction of each pump station and terminal to 12 months prior to

commencing dry commissioning of each pump station and terminal. Counsel for Trans Mountain explained that this change would ensure that the Project construction schedule is not delayed, while ensuring more than adequate time for the Board to review the required electrical design information.

However, Trans Mountain has not received a response to this request. Trans Mountain is therefore proceeding on the basis that the deadline imposed in the Condition as it appears in Certificate OC-064 and Orders XO-T260-008-2016, XO-T260-009-2016 and XO-T260-010-2016 remains in effect, unless and until the Board rules otherwise. The analysis described in the Report is based on the best available preliminary information Trans Mountain has at this time, with updates to follow after the Electrical Design Information is finalized.

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:

Condition 30(a)(iii)(iv), (b), (c) and (d) Compliance Filing (Terminals)

Trans Mountain Appendix A Condition 30
Trans Mountain Appendix B Condition 30
Trans Mountain Appendix 2A Condition 30
Trans Mountain Appendix 2B Condition 30
Trans Mountain Appendix 5A1 Condition 30
Trans Mountain Appendix 5A2 Condition 30
Trans Mountain Appendix 5B Condition 30
Trans Mountain Appendix 5C1 Condition 30
Trans Mountain Appendix 5C2 Condition 30