

CANADA ENERGY REGULATOR

IN THE MATTER OF the *Canadian Energy Regulator Act* (“**CER Act**”) and the regulations thereunder;

AND IN THE MATTER OF an application by Trans Mountain Pipeline ULC (“**Trans Mountain**”), pursuant to section 190 of the CER Act, to vary Schedule A of Certificate of Public Convenience and Necessity OC-065 (the “**Certificate**”) with respect to the diameter and wall thickness of pipe in an approximately 2300 m segment of the Trans Mountain Expansion Project (the “**Project**” or “**TMEP**”);

AND IN THE MATTER OF an application by Trans Mountain, pursuant to Condition 1 of the Certificate, for relief from the requirement to adhere to the Quality Management Plan filed on March 29, 2018 (“**QMP**”), under Condition 9 of the Certificate.

**TRANS MOUNTAIN PIPELINE ULC
APPLICATION FOR VARIANCE AND CONDITION RELIEF
UNDER THE CERTIFICATE**

December 14, 2023

To: Secretary of the Commission
Canada Energy Regulator
Suite 210, 517 – 10th Avenue S.W.
Calgary, AB T2R 0A8

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I. INTRODUCTION AND OVERVIEW

1. Trans Mountain hereby applies to the Commission of the Canada Energy Regulator (“**Commission**”) under section 190 of the CER Act to vary Schedule A of the Certificate (“**CPCN Schedule A**”) with respect to the diameter and wall thickness for the Mountain 3 horizontal directional drill (“**HDD**”) crossing for the TMEP (“**Variance**”), and associated facilities. The Mountain 3 HDD crossing is approximately 2300 metres long (between kilometre posts 1064.4 and 1066.7) and is located within the Black Pines to Burnaby Tank Terminal segment of the TMEP.
2. Trans Mountain also applies to the Commission pursuant to Condition 1 of the Certificate for relief from the requirement to adhere to the QMP filed under Condition 9 of the Certificate with respect to the materials to be used for the Mountain 3 HDD crossing, if the Variance is approved and the Commission determines such materials do not comply with the QMP.
3. Currently, CPCN Schedule A approves the use of 36-inch (“**NPS 36**”) pipe in the Black Pines to Burnaby Tank Terminal segment of the TMEP, which includes the Mountain 3 HDD crossing. Within that segment, CPCN Schedule A also reflects the use of pipe that has a wall thickness of 11.8 millimetres.
4. During construction of the Mountain 3 HDD crossing, Trans Mountain has encountered several complex challenges, including hard rock conditions (which have caused premature tooling wear) and the presence of multiple fractured areas within the bedrock (which have allowed high rates of water ingress). These features have already caused complications for the HDD. These complications are expected to get materially worse if Trans Mountain continues with the 48-inch ream pass that is required to install NPS 36 pipe.
5. If Trans Mountain proceeds with the current plan to install NPS 36 pipe, there is a significant risk that the borehole will become compromised, or the HDD will fail altogether. If the HDD fails and Trans Mountain is required to implement an alternative installation plan, the TMEP schedule will likely be delayed by approximately two years, and Trans Mountain will suffer billions of dollars in losses. These outcomes would not be in the public interest.
6. To avoid these catastrophic impacts to Project execution and schedule, Trans Mountain seeks to modify the current HDD execution plan for the Mountain 3 HDD crossing. The Variance would permit Trans Mountain to install NPS 30 pipe within the already-completed 42-inch ream pass for the Mountain 3 HDD crossing, avoiding the need to continue with the 48-inch ream pass and the associated risks. The NPS 30 pipe that will be installed has been confirmed to comply with CSA Z662 and Project specifications, and thus to be safe and fit for purpose (meeting the intention of the QMP). Trans Mountain will install permanent trap facilities on the north and south ends of the Mountain 3 HDD prior to the TMEP in-service date, which will provide the capability to conduct all of the inspections required under Condition 143 of the Certificate.

7. Accordingly, and for the reasons set out below, Trans Mountain requests that the Commission vary CPCN Schedule A in the manner shown in **Appendix A**, and grant relief from Condition 9 of the Certificate if the Commission determines that Trans Mountain has not complied with the QMP with respect to the materials to be used for the Mountain 3 HDD crossing.
8. Trans Mountain acknowledges that the Commission recently denied a similar request in respect of the Mountain 3 HDD crossing, under section 69(1) of the CER Act. However, Trans Mountain respectfully submits that the new and more comprehensive information in this Application – including safety and integrity details that Trans Mountain was unable to provide previously – demonstrates that this Application is in the public interest. Trans Mountain submits that this Application should be approved by the Commission as soon as possible, to avoid delays to the TMEP and to allow its prudent and orderly completion.

II. STATEMENT OF FACTS

A. The Certificate and Relevant Conditions

9. The Certificate was issued by the National Energy Board (“NEB”) and came into force on June 21, 2019, authorizing the construction and operation of Line 2 (as defined in the Certificate) as part of the TMEP.
10. Condition 1 of the Certificate requires Trans Mountain to comply with all of the Certificate’s conditions, unless the NEB (now, the Commission) directs otherwise.
11. Condition 9 of the Certificate required Trans Mountain to file a Quality Management Plan at least 4 months prior to procuring any pipe and major components of the TMEP, which was to include:
 - a) material/vendor qualification requirements;
 - b) quality control and assurance of pipe, fittings, and components that ensure all materials meet Trans Mountain’s specifications (i.e., processes, procedures, specifications, random testing, inspection, and test reports);
 - c) mandatory documentation of process conditions during manufacture and verification of the conformance of manufacturer material test reports with Trans Mountain’s requirements;
 - d) mandatory inspection requirements, inspector competency training, and qualifications;
 - e) non-conformance reporting and correction procedures;
 - f) change management process;
 - g) commissioning requirements; and
 - h) material handling requirements during transportation.

12. Condition 143 of the Certificate also requires Trans Mountain to conduct (and report on¹) the following pipeline inspections on Line 2, at the times indicated (emphases in original):
- i) a high-resolution in-line caliper inspection (i.e., a GEOPIG™ inspection) **within 6 months after commencing operations** to establish accurate pipeline position and to detect pipe deformations;
 - ii) an in-line ultrasonic crack detection inspection **within 2 years after commencing operations**;
 - iii) an in-line corrosion magnetic flux leakage inspection in both the circumferential and longitudinal directions **within 2 years after commencing operations**;
 - iv) an in-line ultrasonic wall measurement inspection **within 2 years after commencing operations**; and
 - v) a close interval survey **within 2 years after commencing operations**.

B. Mountain 3 HDD Crossing

(i) General Overview

13. On March 15, 2022, the Commission approved a route deviation within the portion of the TMEP route that is the subject of this Application. The approved revised route involved a change in construction methodology to HDD, due to the route traversing a mountainous area ([C18157](#)).
14. Prior to commencing construction for the Mountain 3 HDD crossing, Trans Mountain filed Updated Engineering Alignment Sheets and Drawings under Condition 104 of the Certificate ([C23420](#)) and a noise management plan ([C13545](#)) under Condition 74. Trans Mountain completed thorough engineering, design, and constructability assessments with the Engineer of Record, construction contractor, and Trans Mountain subject matter experts.
15. Trans Mountain also completed a geotechnical investigation program at the HDD entry and exit locations, prior to starting a geotechnical assessment pilot hole with the HDD rig. The findings of the investigation and assessment confirmed that the Mountain 3 HDD crossing would be completed primarily in bedrock conditions.
16. Trans Mountain utilized the pilot hole from the geological assessment to continue the construction of the Mountain 3 HDD crossing. Due to the length of the crossing, a second drilling rig was utilized from the exit side, to intersect the pilot hole drilled from the entry side. Due to the hard rock conditions of the crossing, which limit the ability to take larger steps between each ream pass, Trans Mountain has completed 24-inch, 30-inch, 36-inch and 42-inch ream passes, and a partial 48-inch ream pass. The hole is currently large enough to accommodate the pullback of NPS 30 pipe.

¹ Specifically, Condition 143(b) requires Trans Mountain to file, within 6 months after completing each inspection listed above, “a report that includes a summary of the inspection results, the proposed re-inspection interval, and mitigation measures for the anomalies detected through any of the inspections, if required.”

(ii) *Hard Rock Conditions, Water Ingress and Current Status*

17. Hard rock is a difficult medium in which to complete the Mountain 3 HDD crossing because hard rock wears out tooling at a faster rate than weaker formations. Changes or fractures in the formation can also cause the reamer tooling to “chew through” the zone erratically, causing increased torsion or eccentric loading on the downhole tooling. Crossings underneath mountains, such as the Mountain 3 HDD crossing, also have a high probability of encountering water inflow zones underground. While Trans Mountain has experienced water inflow on other hard rock mountain crossings, in those cases the water inflow was not as severe as that experienced at the Mountain 3 HDD crossing.
18. During the geotechnical HDD pilot hole, three fractured zones within the bedrock were noted that produced water inflow into the HDD borehole. The water inflow was variable and measured above 30 cubic metres per hour (“m³/hr”) at its peak. Trans Mountain completed a series of grouting applications to mitigate the inflow to facilitate the HDD installation. At the time the geotechnical HDD pilot hole and grouting program were executed, there was no indication that the rate of inflow on successive reaming passes would not be feasibly mitigated through the initial grouting program.
19. However, Trans Mountain’s experience has been that the rate of water ingress has increased with each ream pass, indicating that the grouting is becoming less effective. With each ream pass, the rate of water ingress has gotten closer to the previous, unmitigated, measured rate above 30 m³/hr.
20. At the date of this Application, construction at the Mountain 3 HDD crossing has been ongoing for almost 20 months – much longer than the 12-month duration that was planned initially. The duration has increased because of the need for multiple grouting programs, difficulty completing the pilot hole intersect within the hard geological conditions, significantly lower than anticipated reaming rates of production, and multiple tooling failures.
21. Trans Mountain has completed a 42-inch ream pass and progressed the 48-inch ream pass to a total of 500 metres from the entry and 570 metres from the exit (i.e., a total of 1,070 metres of the 2,295-metre length has been reamed to a 48-inch diameter). The 48-inch ream pass has not yet crossed the three fractured zones where water ingress has occurred. Trans Mountain halted the 48-inch ream before crossing the fracture zones, as Trans Mountain determined that continuing with the drill would be imprudent in consideration of the known risks and the availability of a more prudent option to complete the pipeline installation in the HDD with a section of NPS 30 pipe.
22. As explained further below, an additional grouting program is not a prudent means to mitigate water ingress in a 42- or 48-inch borehole, and the prevailing conditions create significant risk that a 48-inch ream pass cannot be completed.
23. Trans Mountain is seeking to modify the current HDD execution plan for the Mountain 3 crossing to avoid the risks associated with proceeding with the 48-inch ream pass. Those risks are discussed further below.

C. The October Variance Application

24. As noted above, with each reaming pass, the volume of water influx has increased, presenting serious risks that the 48-inch diameter borehole will not be successfully completed and that the HDD will fail. To avoid these risks and complete the Mountain 3 HDD crossing, Trans Mountain has determined that installing NPS 30 pipe within the existing 42-inch borehole is the most prudent approach to completing the Mountain 3 installation.
25. Trans Mountain has done extensive analysis of this proposed approach, and other potentially viable alternatives, and determined that the approach proposed in this Application is the best option available in the circumstances.
26. Accordingly, on October 31, 2023, Trans Mountain filed a variance application under section 69(1) of the CER Act ([C27032-1](#)), requesting a variance to CPCN Schedule A to proceed with the use of NPS 30 pipe for the Mountain 3 HDD crossing (“**October Variance Application**”).
27. The October Variance Application proceeded on an expedited timeline, as follows:
 - (a) On November 16, 2023, the Commission issued Information Request (“**IR**”) No. 1 to Trans Mountain in respect of the October Variance Application ([C26934-1](#)), requesting further information about (i) construction schedule; (ii) technical challenges; (iii) impact on design and operations; (iv) materials; (v) in-line inspection and trap sites; (vi) notification of Indigenous communities; and (vii) land rights.
 - (b) On November 22, 2023, Trans Mountain filed its responses to IR No. 1 ([C27372-1](#)).
 - (c) On November 23, 2023, the Commission communicated its decision to hold a one-day oral hearing for the October Variance Application ([C27399-1](#)), which was held on November 27, 2023. Trans Mountain provided its responses to undertakings on November 30, 2023 ([C27483-1](#)), included as **Appendix B** to this Application.
 - (d) On December 5, 2023, the Commission issued its decision denying the October Variance Application, with reasons to follow ([C27543-1](#)).
28. Since the October Variance Application, two key developments have occurred which represent new facts that support granting the relief sought in this Application: (i) the risks of continuing with a 48-inch ream are now known to be more serious and acute than previously understood; and (ii) Trans Mountain has developed a definitive plan for in-line inspection (“**ILI**”) of the NPS 30 pipe length, ensuring that the NPS 30 pipe will meet all regulatory requirements (CSA Z662) as well as Project safety and integrity requirements. As noted above, Trans Mountain is also requesting relief through this more comprehensive application under section 190 of the CER Act, which, in Trans Mountain’s respectful submission, demonstrates that the requested Variance is in the public interest.

D. The Proposed Variance

29. For the reasons set out above, Trans Mountain has determined that it would be imprudent to continue with the 48-inch ream and that, instead, the Mountain 3 HDD crossing should be completed by installing NPS 30 pipe within the already-completed 42-inch ream. **Appendix A** contains the changes to CPCN Schedule A that Trans Mountain is seeking through this Application.
30. As explained further below, Trans Mountain's approach of installing NPS 30 pipe has been extensively vetted by Trans Mountain to determine the most prudent, safe, and appropriate means to complete the Mountain 3 HDD considering the previously unanticipated technical challenges. Trans Mountain's assessment has determined that this plan will allow the Project to operate as designed and in a safe, efficient, and orderly manner.

E. Materials

(i) QMP and Manufacturers of Proposed Materials

31. As noted above, Condition 9 of the Certificate required Trans Mountain to file a Quality Management Plan that included the items listed in Condition 9 (excerpted above). Trans Mountain filed the QMP on March 29, 2018 ([A90921-2](#)), and that filing was accepted by the NEB on June 22, 2018 ([A92676-1](#)).

32. Section 6.1 of the QMP states (emphasis added):

All critical service purchase materials and equipment, and contracted services will be obtained from vendors and contractors on the Approved Manufacturers List or those qualified on the basis of technical, quality, safety, and commercial factors, in accordance with the requirements of the TMEP Vendor Pre-Qualification procedure (01-13283-GG-0000-SC-PRO-0002).

33. The manufacturers for the NPS 30 pipe and transition pieces required if the Variance is approved are indicated below:

Mountain 3 – NPS 30 Line Pipe			
Manufacturer	WT	Grade	Metres
Berg (US)	0.625"	X70	1,300
SeAH (South Korea)	15.9mm	Gr.483	336
JFE (Japan)	15.9mm	Gr.483	1,343
SeAH (South Korea)	19.0mm	Gr.483	61
Total	0.625"/15.9mm/19.0mm	X70/Gr.483	3,040

34. As explained below, each of these manufacturers has been carefully vetted by Trans Mountain based on technical, quality, safety, and commercial factors, in accordance with the requirements of the TMEP Vendor Pre-Qualification procedure.
35. On this basis, Trans Mountain respectfully submits that it has complied with its QMP in respect of the materials required for the Variance. In the alternative, if the Commission finds that Trans Mountain has not complied with the QMP in respect of the materials

required for the Variance, Trans Mountain requests that the Commission grant relief from Condition 9 pursuant to Condition 1 of the Certificate, considering the extensive measures that Trans Mountain has undertaken to ensure that all materials meet the Project's requirements and thus fulfill the QMP's purpose.

(ii) *Berg and SeAH*

36. Berg and SeAH are not on the Approved Manufacturers List ("AML") referenced in section 6.1 of the QMP because Trans Mountain did not contemplate the need for NPS 30 pipe at the time it filed the QMP. Trans Mountain has therefore complied with the alternative option in section 6.1 of the QMP with respect to materials procured from Berg and SeAH by ensuring the materials are procured from "those qualified on the basis of technical, quality, safety, and commercial factors, in accordance with the requirements of the TMEP Vendor Pre-Qualification procedure (01-13283-GG-0000-SC-PRO-0002)".
37. Trans Mountain required the Engineer of Record to conduct an assessment to ensure that the pipe to be acquired from Berg and SeAH is of a quality equivalent to materials produced under Trans Mountain's QMP, as reflected in the Design Change Notice that was Attachment 1 to Trans Mountain's November 30, 2022 responses to undertakings and is included as **Appendix B** to this Application. Trans Mountain also took additional measures to ensure the pipe to be acquired would be equivalent in quality to pipe procured from vendors on the AML, including:
 - (a) Berg and SeAH were evaluated for equivalent acceptance based on the following criteria:
 - (i) use of Berg and SeAH's materials by other pipeline companies within the industry;
 - (ii) Trans Mountain's past experience with Berg and SeAH;
 - (iii) Berg and SeAH's ISO certification; and
 - (iv) Berg and SeAH's quality assurance and quality control documentation.
 - (b) the Engineer of Record confirmed Berg and SeAH's conformance to CSA Z662 and Project specifications and reviewed the inspection reports of a qualified third-party inspector (RINA) to assess the suitability of their pipe product. The Engineer of Record assessed the pipe as safe and fit for purpose (suitable for use), meeting the intention of the QMP, and determined that it meets the Project's technical quality requirements and specifications in compliance with CSA Z662.
 - (c) SeAH 19.1 mm pipe was provided to TMEP's approved induction bend vendor for production of induction bends in accordance with the vendor's approved quality management plan.

38. Trans Mountain took steps to ensure the equivalency of Berg and SeAH's inspection requirements, inspector competency training, and qualifications by engaging a third-party inspector, RINA, to review information from Berg and SeAH against criteria provided by Trans Mountain's Supply Chain group on October 6, 2023,² including ensuring that:
- (i) additional Charpy impact testing to -6 °C was conducted to ensure the pipe met Project specifications;
 - (ii) pipe and heat numbers are fully legible from the mill stencils;
 - (iii) all material test reports are available for the stated pipe and heat numbers; and
 - (iv) visual inspection indicates the pipe is free of dents, gouges, excessive corrosion, ovalities and other defects.
39. Trans Mountain's third-party inspector, RINA, also conducted visual inspections of the pipe that will be used if the Variance is approved, in accordance with Trans Mountain's Design Change Notice regarding NPS 30 for the Mountain 3 HDD crossing.³
40. All of these additional measures supported the Engineer of Record's conclusion that the selected pipe and fittings are suitable for use on the Project, and of a quality equivalent to material procured from vendors on the AML.

(iii) JFE

41. Section 6.1 of Trans Mountain's QMP also contains additional quality assurance requirements for sub-vendors, stating:
- Sub-vendor quality shall be subject to the requirements of the Contractor's or Vendor's QMPs. For Trans Mountain, "sub-vendors" means any supplier or contractor that does not have a contractual agreement directly with Trans Mountain.
42. While JFE is listed on the AML, Trans Mountain purchased JFE pipe from a distributor, rather than directly from JFE. The Engineer of Record determined that this pipe was suitable for use, meeting both CSA Z662 and Project specifications. To do so, the Engineer of Record assessed:
- (a) material/vendor qualification requirements by reviewing the manufacturer's ISO certification and quality assurance and control documents;⁴

² See Appendix B, Design Change Notice at PDF 18-21.

³ See Appendix B, Design Change Notice.

⁴ See Appendix B, Design Change Notice at 3.

- (b) vendor quality control and assurance of pipe, fittings, and components to ensure all materials meet Trans Mountain's specifications;⁵ and
- (c) documentation of manufacture process conditions and conformance of material test reports with Trans Mountain's requirements, ensuring the manufacturer provided adequate verification of material test reports and related documentation pertaining to the manufacture of the pipe.

43. Additionally, Trans Mountain:

- (a) applied the inspection requirements in the QMP to pipe received on a forward-looking basis;⁶
- (b) applied the non-conformance reporting and correction procedures in the QMP to pipe received on a forward-looking basis;⁷ and
- (c) ensured that the material handling requirements of the QMP have been applied since Trans Mountain's purchase of the JFE NPS 30 pipe.

(iv) *EZEFLOW*

44. The fittings for the NPS 30 pipe were acquired from EZEFLOW, who manufactured the fittings to TMEP specifications. As EZEFLOW was not on the approved AML, the Vendor List Deviation Request form was completed in accordance with TMEP procedures. All other aspects of procurement were under Trans Mountain oversight and followed the QMP's procedures.

F. In-Line Inspection

45. As discussed in Section III.F below, Trans Mountain has developed a definitive plan for conducting ILI of the NPS 30 pipe, to allow Trans Mountain to inspect it in accordance with the Certificate's requirements. Trans Mountain commits to conducting ILI for the NPS 30 pipe in accordance with the schedule in Table 1 below. All of the dates in that schedule are well within the ILI timing requirements in Condition 143 of the Certificate.

III. GROUNDS FOR VARIANCE

A. Overview

46. Prevailing conditions expose the Project to significant risk should Trans Mountain proceed with 48-inch reaming for the Mountain 3 HDD crossing (the diameter required for the NPS 36 pipe specified in CPCN Schedule A). Information currently available indicates that the complications already experienced will worsen if 48-inch reaming continues, with slow progress at best and increased and unmitigable water ingress at worst. These worsening

⁵ See Appendix B, Design Change Notice.

⁶ See Appendix B, Design Change Notice at 3-4.

⁷ See Appendix B, Design Change Notice at 3-4.

conditions will likely cause tool loss and damage, each of which could cause significant Project delays.

47. In a credible worst-case scenario, these challenges could result in the HDD failing altogether if the borehole is compromised through increased water inflows, requiring Trans Mountain to implement an alternative installation plan. Such a scenario would result in incremental environmental disturbance and delay the TMEP schedule by approximately two years, causing billions of dollars in losses to Trans Mountain, in addition to substantial third-party losses. Specifically, delay to the TMEP in-service date results in roughly \$200 million per month in delayed revenues and roughly \$190 million in carrying charges for Trans Mountain. Trans Mountain's shippers and other parties relying on the TMEP will also incur losses with each month that the Project is delayed.
48. Delays to the TMEP in-service date and increased construction costs – to the extent they can be avoided through prudent mitigations – are not in the public interest. Rather, the public interest is served through completing the Project in a safe, efficient, and orderly manner that reasonably minimizes technical risks.
49. Trans Mountain has determined that installing NPS 30 pipe in the already completed 42-inch ream at the Mountain 3 HDD crossing is the most prudent approach to achieving orderly completion of the TMEP. This would avoid the risks associated with completing a 48-inch ream pass. The NPS 30 pipe that will be installed has been extensively vetted and verified to be safe and fit for the intended purpose (the intention of the QMP), including because it meets the Project's technical quality requirements and specifications in compliance with CSA Z662. After the NPS 30 pipe is installed, it will be inspected well within the ILI timing requirements in Condition 143 of the Certificate.
50. In these circumstances, Trans Mountain respectfully submits that approval of the Application is in the public interest.

B. Construction schedule

51. At the date of this Application, construction at the Mountain 3 HDD crossing has been ongoing for almost 20 months. Trans Mountain has completed the 42-inch ream pass and has progressed the 48-inch ream pass to a total of 500 metres from entry and 570 metres from the exit (i.e., a total of 1,070 metres of the 2,295-metre length has been reamed to 48-inch).
52. As described below, if Trans Mountain continues with reaming the borehole to a 48-inch diameter, a significant but unquantifiable increase in the rate of water ingress is expected. Water ingress slows drilling progress and causes risks that have already materialized in the form of tooling failures. Increased water ingress is expected to result in accelerated tool failure, loss of conditions suitable to reaming to a 48-inch diameter and maintaining proper hole cleaning ability, and possible damage to product pipe if cuttings are present during pullback – all of which would result in significant delay to completing the current HDD execution plan. For example, the schedule would be delayed by at least two weeks for each additional tooling change or failure that occurs.

53. In a credible worst-case scenario, this problem could result in the failure of the HDD in its entirety. In the event of an HDD failure, Trans Mountain would be required to implement an alternative installation plan for the Mountain 3 crossing, the TMEP schedule would likely be delayed by approximately two years and Trans Mountain and third parties would suffer substantial losses, as described above.
54. Apart from the Mountain 3 HDD crossing, all pipe in Spread 5B of the TMEP will be installed, tied in, and hydrostatically tested by December 31, 2023.⁸ Approval of the Variance is critical to advancing the Project schedule because it will allow pullback of the NPS 30 pipe to be performed on January 9 and 10, 2024; for String, Weld and Tie-Ins (Mechanical Completion) to be scheduled on January 26, 2024; for hydrotesting to be completed on January 23, 2024; and for the Project to meet its planned in-service date in late Q1 2024.
55. As of the date of this Application, Trans Mountain has expedited all other Project work fronts, and the Mountain 3 HDD crossing is on the critical path for the TMEP. That will remain the case even if the Variance is approved. However, if the Variance is approved, the Project should be able meet its planned in-service date in late Q1 2024.

C. Technical Challenges

(i) Overview

56. Since the time of the October Variance Application, the Mountain 3 HDD crossing has encountered further technical challenges which risk significant delay from damage to tools and product pipe and the potential failure of the HDD crossing. The paragraphs below summarize the prevailing circumstances and provide the Commission with further and more recent information regarding the technical challenges associated with the 48-inch reaming operation that is required to install NPS 36 pipe for the Mountain 3 HDD crossing.

(ii) Water Ingress

57. Water ingress through fractured seams was first observed during completion of the pilot borehole for the Mountain 3 HDD crossing. Ingress levels exceeded 30 m³/hr at their peak and made forward progress of boring unachievable. Trans Mountain was initially successful in reducing the level of ingress to between 3 and 4 m³/hr with the application of pressure grouting on the pilot borehole; however, increased levels of water flow have been observed on each ream pass. On the 42-inch ream pass, water ingress was initially measured at 10 to 15 m³/hr. Currently, the variable ingress has increased to 15 to 20 m³/hr, increasing during high precipitation events and subsiding under drier conditions. Further enlargement of the borehole diameter risks further compromising the pressure grouting, resulting in increased ingress rates.
58. Increased water ingress is predicted to result in an inability to maintain any forward progress for reaming. Water influx dilutes the bentonite in the drilling fluid system, which

⁸ Trans Mountain's Condition 62: Construction Schedule filing on December 1, 2023 ([C27491-1](#)) illustrates the unmitigated schedule for Spread 5B if Trans Mountain does not implement the NPS 30 contingency option.

eliminates the properties required for cuttings suspension. If the cuttings are not suspended, they accumulate down hole, which creates various issues, including:

- (a) increased wear on the drill stem;
 - (b) increased probability for drill string and down hole tool failures;
 - (c) schedule delays due to increased trip (removing tooling from downhole back to the HDD rig) frequency for tooling inspections and to mechanically clean the hole; and
 - (d) damage to product pipe if cuttings are present during pullback.
59. While Trans Mountain was able to mitigate inflow through pressure grouting of the 12 ¼-inch borehole, it is not feasible to attempt any further grouting programs at the current 42-inch diameter. Once grouting has been completed, the pilot drill bit must be perfectly centered in the hole, so that the same alignment can be achieved during the reaming phases. It is not reasonably feasible to center a pilot bit in the borehole at distance from the HDD rig. This is why boring or reaming of a large diameter grouted hole is not a prudent means to continue drilling the crossing. Re-grouting the bore path at the 42- or 48-inch reaming stage could cause Trans Mountain to lose the HDD borepath alignment thereby requiring abandonment of the HDD bore.
60. Any further increase in water flow is expected to result in extremely difficult conditions to maintain forward progress or could prevent Trans Mountain from being able to continue with reaming to the 48-inch borehole size. Specifically, any water influx at a rate greater than 30 m³/hr (as witnessed during completion of the pilot borehole) would cause severe consequences, including possible failure of the HDD.
61. As noted above, if the HDD fails, Trans Mountain would be required to implement an alternative installation plan for the Mountain 3 crossing, which would result in incremental adverse environmental effects, as discussed in Part V below, and likely delay the TMEP schedule significantly.
62. The likelihood of inflowing water at greater volumes has increased as the rainy season begins, adding further risk of these consequences occurring.

(iii) *Hard Rock and Tooling Wear*

63. In addition to the technical challenges caused by increasing rates of water inflow to the borehole, Trans Mountain has also experienced excessive levels of tooling wear while reaming for the Mountain 3 HDD crossing.
64. While reaming for the Mountain 3 HDD crossing, Trans Mountain has experienced accelerated wear in the reamer tools and has observed reduced tool life on each ream pass, which has gotten worse as the reamer size has increased. The 24-, 30-, 36-, 42-, and 48-inch reamers' lives have been 81 percent, 93 percent, 81 percent, 65 percent, and 50 percent of the typical manufacturer specifications, respectively. Tooling failure resulting from wear leads to remediation work to "fish" for broken pieces of the reamer, which must be removed

before forward progress can continue. Trans Mountain has experienced tooling breaks during each of the 36-, 42- and 48-inch ream passes.

65. To date, there have been two reamer failures and two drill pipe break events. Each tooling failure can result in a delay of more than two weeks. In addition to the accelerated tooling wear, the rate of penetration of reaming has been lower than anticipated, which, when compounded over a crossing of this length and all of the reaming passes, adds significant schedule delay. The rate of penetration of each pass decreases as the size of the reamer is increased.
66. Tooling wear occurs at a much more frequent rate as the size of the reamers increases in the hard rock and abrasive formations found at the Mountain 3 HDD crossing. Increase in the contact area between the reamer and the formation at larger diameters also results in a need for increased torque to rotate the reamer, increasing torsional stresses in the drill rod and, consequently, the likelihood of rod twist-off or failure. For these reasons, reamer tool life is greatly reduced for the 48-inch ream, requiring additional time to remove the worn tooling from downhole and replace the worn-out reamer and drill pipe.
67. Furthermore, the significant length of the Mountain 3 HDD crossing compounds these risks of tool failure. The further the reamer is located from the rig, the greater the torsional force in the drill rod and the greater the likelihood of tool failure. For example, turning a 48-inch reamer from 1500 metres away offers significantly higher likelihood of failure compared with turning the same reamer when located 500 metres from the rig. The maximum shearing stress in a hollow shaft and the angle of twist of the shaft are directly proportional to the shaft's length.
68. Taken together, the challenges summarized above create significant risks of Project delay from tool failure, product pipe damage and, in a worst-case scenario, failure of the HDD, if Trans Mountain proceeds with the 48-inch ream.

D. Impact on Design and Operation

69. Trans Mountain confirms that the Variance will not result in a flow rate reduction on the Expanded Trans Mountain System in either winter or summer conditions. The maximum operating pressure of 9,930 kilopascals will be maintained. Trans Mountain also confirms that the operating head will remain below the Maximum Allowable Operating Head, both in winter and in summer conditions, and that the change to NPS 30 pipe will not affect slack flow conditions on the TMEP under any flow conditions.⁹
70. Nor will the Variance result in any impact to capacity on the Expanded Trans Mountain System, for two reasons: (i) the location of the Mountain 3 HDD crossing along the TMEP route; and (ii) the relatively short length of the crossing (approximately 2300 metres). The crossing is located downstream of Hope, British Columbia ("BC"), where there is a pressure-reduction station. If the Variance is approved and NPS 30 pipe is installed as part of the Mountain 3 HDD crossing, Trans Mountain will increase the output pressure at Hope (keeping within the maximum allowed operating pressure for the pipe), which will

⁹ These topics were discussed in the October Variance Application ([C27483-1](#)) and Trans Mountain's responses to IR No. 1.3 for that application ([C27372-1](#)).

compensate for the change in pressure that would occur due to the NPS 30 pipe. The pressure change from the NPS 30 pipe would also be relatively small due to the relatively short 2300 metre length of the Mountain 3 HDD crossing.

71. Additionally, as discussed in further detail below, the Variance will in no way impact Trans Mountain's ability to conduct ILI of the Mountain 3 HDD crossing. At the in-service date, Trans Mountain will have capability to inspect the entire length of the NPS 30 pipe for all threats, in compliance with Condition 143 of the Certificate.

E. In-Line Inspection and Trap Sites

72. Trans Mountain will build permanent trap facilities prior to the Project's in-service date on the north and south ends of the Mountain 3 HDD crossing (as shown in **Appendix C**), to enable Trans Mountain to run all the tools described in Condition 143 of the Certificate and conduct ILI for the entire length of the NPS 30 pipe for all threats, including cracking and long seam anomalies.¹⁰ The trap facilities will be constructed in accordance with CSA Z662 and operational requirements.
73. Trans Mountain evaluated two alternatives for trap configuration: (i) a conventional offset design, including conventional pig barrels and quick opening closures; and (ii) an inline design as presented in **Appendix D**. Trans Mountain has determined that an inline design is the most appropriate solution for the Mountain 3 HDD. This determination was based on Trans Mountain's prior experience, having successfully used the inline design for many years at a trap site location near Hargreaves, BC. It was also based on the benefits of inline design, which include:
 - (a) full ability to accommodate all conventional 30-inch ILI tools, without the need for dual diameter configurations;
 - (b) reduced above-grade facilities, including valves, piping, barrels, platforms and structure and other support infrastructure;
 - (c) improved operations for conventional line fill batch and operational cleaning pigs;
 - (d) reduction in space required for the trap facilities, which is well suited for the narrow right-of-way and space constraints at the sites resulting from side slope and parallel BC Ministry of Transportation and Infrastructure ("MoTI") corridor; and
 - (e) reduced capital cost and installation time.
74. All ILIs required to meet Condition 143 of the Certificate have been scheduled with two ILI tool vendors, Rosen and NDT Global, as detailed in Table 1 below. Rosen and NDT Global have verified that any variations to this schedule will be only minor in nature.

¹⁰ In the October Variance Application, Trans Mountain indicated that it may use dual-diameter ILI tools capable of inspecting NPS 30 and NPS 36 pipe sizes for ILI of the Mountain 3 HDD crossing. Trans Mountain confirms that it now proposes to install permanent trap facilities to run conventional ILI tools, rather than pursuing dual-diameter ILI tools.

Table 1: Condition 143 ILI Schedule for the Mountain 3 Crossing

Condition 143: In-Line Inspection Type	Condition 143: Deadline of in-Line Inspections*	Planned 2024 Tool Run Schedule*
Geometry	within 6 months	within 2 months
Metal Flux Leakage-A (axial)	within 2 years	within 6 months
Metal Flux Leakage-C (circumferential)	within 2 years	within 6 months
UTWM (Ultrasonic Wall Measurement)	within 2 years	within 8 months
UTCD (Ultrasonic Crack Detection)	within 2 years	within 8 months

*From TMEP in-service date

75. As reflected in the schedule in Table 1, the NPS 30 ILI tool runs will be completed well before the deadlines established in Condition 143. As per standard construction practices, a post-construction caliper ILI tool run will also be completed for the installed NPS 30 pipe prior to commencing operations.

F. Materials

76. As described in Section II.E above, Trans Mountain will ensure appropriate testing and analysis is conducted to confirm that all materials that will be used for the Variance, including pipe and trap facilities, meet the quality requirements of CSA Z662 and the Project. Trans Mountain will confirm the materials are of equivalent quality to materials procured from vendors on the AML.
77. For the trap facilities, all pipe, fittings and flanges required will be new and manufactured to TMEP specifications and QMP requirements, or surplus materials sourced from vendors included in the AML and manufactured in accordance with the QMP. All materials will be verified by the Engineer of Record (i.e., meeting both CSA Z662 and Project specifications). This verification process will ensure that the trap facilities meet Project requirements.
78. Similarly, the valves to be used for the Variance will be (i) 36-inch TMEP valves which have been fully inspected, tested, and reconditioned according to the Project valve program,¹¹ or (ii) 30-inch valves that have been sourced as unused surplus, fully reconditioned and re-tested according to the Project valve program.
79. As a further measure to ensure quality for all materials that will be used if the Variance is approved, the Engineer of Record will provide an attestation confirming that proxy verification has been completed to ensure quality equivalent to materials procured from vendors on the AML. This approach to deviation from the AML is consistent with section 6.1 (Vendor Pre-Qualification) of the QMP, as described above and in Trans Mountain's response to undertaking 1 for the October Variance Application (**Appendix B**).

¹¹ Chemical Cleaning and VPCI Treatment Procedure, 201000719-01-13283-GG-0000-ME-PRO-0002.

IV. ASSESSMENT OF ALTERNATIVES

80. Following the completion of the third ream (36 inch) pass for the Mountain 3 HDD crossing, water influx and resulting challenges to reaming progress became a significant concern for the feasibility of completing a 48-inch diameter borehole. Trans Mountain assessed numerous solutions to mitigate these challenges, including a further pressure grouting treatment, alternative reamers, tunnels, and reroute options. Trans Mountain's assessment concluded that the most prudent contingency option if Trans Mountain does not proceed with the 48-inch ream pass (to install NPS 36 pipe) is to install NPS 30 pipe through the 42-inch ream pass.
81. Trans Mountain then continued to assess the reaming operation, as well as the schedule, cost, and technical risks of each option, to determine whether to (i) continue with the 48-inch ream pass to install NPS 36 pipe, or (ii) seek to install NPS 30 pipe through the 42-inch ream. Based on the risks involved with continuing the 48-inch ream pass, Trans Mountain determined that installing NPS 30 pipe in the 42-inch ream is the most prudent approach to completing the Project in a safe, efficient, and orderly manner.
82. Because the 42-inch ream is already complete, work to install the NPS 30 pipe will begin immediately if the Variance is approved.

V. ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT

83. The Variance will not result in any adverse effects on the environment or socio-economic conditions beyond those presented in the TMEP Environmental and Socio-economic Assessment and related filings, as found in Volumes 5A and 5B of the TMEP application ([A56004](#)), the ESA Update ([A4F4Z3](#)), and responses to NEB IR Nos. 2.041 ([A3Z4T9](#)) and 3.025 ([A4H1V2](#)). The Variance will not change the effects assessment criteria or significance conclusions of those prior assessments.
84. On the other hand, the Variance will avoid adverse environmental effects that could result if Trans Mountain is required to continue the 48-inch ream pass and the HDD fails altogether. If the HDD fails and Trans Mountain is required to implement an alternative installation plan, there will be incremental surface disturbance and adverse environmental effects associated with any new construction plan.

VI. LANDS INFORMATION

85. As noted above, if the Variance is approved, Trans Mountain will build permanent trap facilities on the north and south ends of the Mountain 3 HDD crossing, so that Trans Mountain can run ILI tools. Trans Mountain anticipates that the permanent trap facilities will be located mostly within Trans Mountain's existing right-of-way.
86. No additional land rights will be required to execute pipe installation and pull back.
87. Trans Mountain will require new tenure from MoTI for an area 15 metres wide by 100 metres long to construct the upstream trap facility. It has engaged with MoTI regarding an amendment to the Master Pipeline Permit for this new tenure and, on November 15, 2023, MoTI accepted the proposed amended area for the upstream trap facility. The downstream

trap facility does not require additional land rights. Construction of the upstream trap facility will begin following MoTI's confirmation of the necessary amendment to the Master Pipeline Permit.

88. Drawings for the new trap facilities are provided in **Appendix E**.

VII. NOTIFICATION AND ENGAGEMENT

A. Indigenous Communities

89. Trans Mountain has an extensive engagement history with Indigenous groups on pipeline routing for the TMEP. Trans Mountain continues to engage with Indigenous groups that are potentially affected by the TMEP, including in relation to the Mountain 3 HDD crossing.

90. On November 1, 2023, Trans Mountain notified the following Indigenous groups of the October Variance Application:

British Columbia Métis Federation	Penelakut Tribe
Chawathil First Nation	Peters First Nation
Cheam First Nation	Popkum First Nation
Cowichan Tribes	Seabird Island Band
Halalt First Nation	Shxw'ow'hamel First Nation
Kwaw-kwaw-Apilt First Nation	Skawahlook First Nation
Ts'uubaa-asatx First Nation (formerly Lake Cowichan First Nation)	Skwah First Nation
Lyackson First Nation	Stz'uminus First Nation (Chemainus)
Métis Nation British Columbia	Union Bar First Nation
	S'olh Temexw Stewardship Alliance

91. Trans Mountain has not received any comments from Indigenous groups since its notification regarding the October Variance Application.
92. Trans Mountain will notify the above-listed Indigenous groups of this Application, concurrent with its filing with the Commission.
93. Given the minor scope of changes proposed in this Application (change in the diameter and wall thickness of the pipe to be installed), and the proposed location of trap facilities being within a cleared road allowance controlled by MoTI, Trans Mountain does not expect that the approval of the Variance will result in any adverse effects on Indigenous groups. By contrast, Trans Mountain notes that other alternatives that have been considered (e.g., rerouting) and contingencies required in the case of HDD failure could potentially result in adverse effects on Indigenous groups.
94. Any interests or concerns that may be raised by Indigenous groups regarding this Application will be addressed through Trans Mountain's ongoing engagement.

B. Shippers

95. Trans Mountain has assessed the potential for the Variance to directly or indirectly impact shippers. Due to its minor and local scope, Trans Mountain determined that the proposed Variance will not adversely impact any shippers and, therefore, Trans Mountain determined that notification of shippers is unnecessary for this Application.
96. Petro-China Canada Ltd. (“PCC”) filed a letter of comment on November 20, 2023 seeking further clarification regarding the October Variance Application. However, PCC did not oppose the October Variance Application.
97. On November 30, 2023, Canadian Natural Resources Limited (“CNRL”), filed a letter with the Commission on behalf of itself and four other shippers, including PCC ([C27485](#)). That letter urged the Commission to ensure that any actions taken do not contribute to delays in the TMEP’s in-service date. The letter also stated that, should the variance lead to any adverse effects or unforeseen impacts affecting shippers, Trans Mountain should bear all responsibility for rectifying those issues in a timely and reasonable manner and at its sole cost, risk, and expense.
98. In response to CNRL’s letter, Trans Mountain notes that the Variance represents a cost and schedule mitigation plan to avoid adverse impacts to both Trans Mountain and its shippers. There will not be any incremental future costs specific to the Variance that will be passed on to shippers. Trans Mountain appreciates the desire of CNRL and other shippers to avoid delays in the TMEP’s in-service date, which supports granting this Application as soon as reasonably possible.

VIII. CONSTRUCTION SCHEDULE

99. Pending Commission approval, pullback of the NPS 30 pipe is scheduled to start on or around January 9, 2024. This timing will permit mechanical completion of the Mountain 3 installation in late Q1 2024, consistent with the overall TMEP schedule.

IX. RELIEF SOUGHT

100. For the reasons set out above, Trans Mountain respectfully requests that the Commission vary CPCN Schedule A, in the manner shown in **Appendix A**, and, if deemed necessary by the Commission, grant relief from the requirement for Trans Mountain to adhere to the QMP with respect to the materials to be used for the Mountain 3 HDD crossing. Trans Mountain further requests such other relief that the Commission considers appropriate.

101. Trans Mountain respectfully requests that the Commission grant the relief sought in this Application by no later than January 9, 2024, to maintain Trans Mountain's construction schedule and avoid delays to the TMEP.

All of which is respectfully submitted this 14th day of December, 2023.



Sander Duncanson
Counsel for Trans Mountain
Osler, Hoskin & Harcourt LLP
Suite 2700, 225 – 6th Avenue S.W.
Calgary, AB T2P 1N2
Tel: (403) 260-7078
Email: SDuncanson@osler.com

Appendix A

Certificate OC-065 - Schedule A (Amended)

SCHEDULE A
National Energy Board Certificate OC-065

Line 2 pipeline specifications

Location	Edmonton, AB to Hinton, AB	Hinton, AB to Hargreaves, B.C.	Hargreaves, B.C. to Blue River, B.C.	Blue River, B.C. to Darfield, B.C.	Darfield, B.C. to Black Pines, B.C.	Black Pines, B.C. to Burnaby Tank Terminal, B.C.
Project Type	New construction	Transfer existing segment	New construction	New construction	Transfer existing segment	New construction
Approximate Length (km)	339	150	121	158	43	368
Wall Thickness (mm)	11.8	11.8	13.8	11.8	11.13	11.8
						<u>Mountain 3 HDD</u> <u>KP~1064.4 to</u> <u>~1066.7</u> <u>15.8 mm</u> <u>and 19.0 mm</u>
Outside Diameter	914 mm (NPS 36)	914 mm (NPS 36)	1067 mm (NPS 42)	914 mm (NPS 36)	762 mm (NPS 30)	914 mm (NPS 36)
						<u>Mountain 3 HDD</u> <u>KP~1064.4 to</u> <u>~1066.7</u> <u>762 mm</u> <u>(NPS 30)</u>
Pipe Grade	483 MPa	483 MPa (X70)	483 MPa	483 MPa	359 MPa (X52)	483 MPa
Pipe Material Standard	CSA Z245.1 Category II	API 5L	CSA Z245.1 Category II	CSA Z245.1 Category II	API 5L	CSA Z245.1 Category II
External Coating	Fusion bond epoxy (FBE)	FBE	FBE	FBE	Coal tar enamel	FBE
Product	Low vapour pressure crude oil					
Maximum Operating Pressure (kPa)	6 000 to 10 000 ⁽ⁱ⁾	9 930 and 10 875	6 000 to 10 000 ⁽ⁱ⁾	6 000 to 10 000 ⁽ⁱ⁾	3 660 to 8 233 ⁽ⁱ⁾	6 000 to 10 000 ⁽ⁱ⁾

Appendix B

Trans Mountain November 30, 2023

Response to Undertakings

OF-Fac-Oil-T260-2013-03 61

VIA ELECTRONIC SUBMISSION

November 30, 2023

Canada Energy Regulator
Suite 210, 517 Tenth Avenue S.W.
Calgary, Alberta T2R 0A8

To: Ms. Ramona Sladic, Secretary of the Commission

Dear Ms. Sladic:

**Re: Trans Mountain Pipeline ULC (Trans Mountain)
Trans Mountain Expansion Project (Project, TMEP)
Certificate OC-065
Mountain 3 HDD – Request for Variance
Response to Undertakings
CER File: OF-Fac-Oil-T260-2013-03 61**

Please find attached Trans Mountain's response to Undertakings U1 to U4 with respect to the above noted proceeding.

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

Dorothy Golosinski
Vice President, Regulatory
Trans Mountain Canada Inc.

Enclosure: Trans Mountain Response to Undertakings U1 to U4.

**Trans Mountain Pipeline ULC (Trans Mountain)
Trans Mountain Expansion Project
Certificate OC-065
Mountain 3 HDD: Request for Variance – Pipe Diameter, Coating and Wall Thickness
CER File: OF-Fac-Oil-T260-2013-03 61
Response to Undertakings U-1 to U-4
Filed: November 30, 2023**

Undertaking 1 given by Mr. Goulet to Ms. Yuzda at Transcripts page 59.

To describe the process that Trans Mountain followed for any deviation from the Approved Manufacturers List (AML) in relation to the AML Deviation Procedure.

Trans Mountain Response to U-1:

Trans Mountain's process for any deviation is described in the Trans Mountain Quality Management Plan. Section 6.1 (Vendor Pre-Qualification) of the Quality Management Plan¹ states the following:

All critical service purchase materials and equipment and contracted services will be obtained from vendors and contractors on the Approved Manufacturers' List *or those qualified on the basis of technical, quality, safety, and commercial factors, in accordance with the requirements of the TMEP Vendor Pre-Qualification procedure.* (01-13283-GG-0000-SC-PRO-0002). (italics added)

Section 3.1, Deviations to the AML, of the Vendor Pre-Qualification Procedure states:

The executing Contractor or TMEP Project Team may at any time request a deviation to the AML. It is the responsibility of TMEP SCM to ensure that any deviations from the AML are approved by the appropriate parties, and that such action is properly substantiated. TMEP Procedure "*Approved Manufacturers List Deviation 01-13283-GG-0000-RPT-PR-0003*" details the procedure for deviating from the AML. (italics in original)

The Approved Manufacturers List Deviation Procedure describes the information that is required to be obtained to make an addition to the AML. This information includes the following:

- A summary of the vendor's² list of equipment sold or operating on projects in Alberta or elsewhere in Canada.
- Copies of Quality Assurance Certificates.
- References from other projects and/or previous clients.

In addition, as shown in the Vendor List Deviation Request forms at PDF pages 12, 14 and 16 of Attachment 1, each of Berg, SeAH, and EZEFLOW achieved the Project pre-qualification requirements. Also, please see page 3 of 4 of the DCN, regarding the "Pipe Manufacturers Acceptance Criteria".

¹ TMEP Document # 01-13283-GG-0000-RPT-CM-0002.

² Note that the document uses the term "vendor" which would include manufacturers of Project components.

This information, together with any other required support data, is issued to the TMEP Procurement Team. TMEP then makes a decision on whether or not the vendor should be added to the AML. This decision is then documented via the Vendor List Deviation Request Form.

In this instance, the Engineer of Record gathered the information and provided it to TMEP as the basis for TMEP's decision. The Vendor List Deviation Request Forms for the two pipe manufacturers³ and the fitting manufacturer who were not on the AML are provided in Attachment 1 (Design Change Notice) at PDF pages 12 to 17, with the requisite approvals from TMEP personnel.

³ Note that one of the pipe manufacturers (JFE) was already on the AML and therefore did not require a Vendor List Deviation Request Form.

Undertaking 2 given to Ms. Yuzda at Transcripts pages 59-60.

Undertaking No. 2(A): To demonstrate what additional measures Trans Mountain took to ensure quality equivalent to the material produced under Trans Mountain's Quality Management Plan that adheres to or that is equivalent to that procedure under Trans Mountain's Quality Management Plan.

Undertaking No. 2(B): To include any reference to any approved inspection and test plans, ITPs, and demonstrating material acceptance required under Condition 9 of Certificate OC-065.

Trans Mountain Response to U-2(A) and U-2(B)

Trans Mountain relied on the Engineer of Record to conduct an assessment to ensure that the pipe and fittings to be acquired were of a quality equivalent to the material produced under Trans Mountain's Quality Management Plan (QMP). The fittings acquired from EZEFLOW were manufactured to TMEP specifications. As EZEFLOW was not on the approved AML, the Vendor List Deviation Request form was completed in accordance with TMEP procedures. All other aspects of procurement were under TMEP oversight and followed the procedures in the Quality Management Plan.

The following describes the additional measures Trans Mountain took to ensure quality equivalent to TMEP's QMP for the pipe manufacturers.

1. The three NPS 30 pipe manufacturers were evaluated for equivalent acceptance based on the following criteria:
 - Manufacturer's product used by other pipeline companies within the industry.
 - Trans Mountain's past experience with the manufacturer.
 - Manufacturer's ISO certification.
 - Manufacturer's Quality Assurance/Quality Control documentation.
2. The Engineer of Record considered conformance to CSA Z662 and to Project specifications and employed a qualified third-party inspector (RINA) to assess the suitability of the pipe product from the three pipe manufacturers. The Engineer of Record assessed the pipe as "suitable for use". TMEP relied on the Engineer of Record to ensure adherence to the Project's Quality Management Plan.
3. The SeAH 19.1 mm pipe was acquired and provided to TMEP's induction bend vendor to produce induction bends. This pipe is classified as an induction bend rather than line pipe and falls under the TMEP-approved induction bend vendor's quality management plan. The induction bends were completed in conformance with TMEP's specifications.

Condition 9(d) of Certificate OC-065 requires that Trans Mountain have mandatory inspection requirements, inspector competency training and qualifications. In addition to the equivalent acceptance criteria provided above, Trans Mountain's third-party inspector consolidated the relevant information of each of the manufacturers according to criteria provided by Trans Mountain's Supply Chain organization on October 6, 2023. These criteria are provided as a reference document in Attachment 1 at PDF pages 18 to 21. The most relevant criteria that relate to Condition 9(d) included:

- Confirmation that the Charpy test value should be demonstrated at -6 °C in accordance with TMEP specifications.

- Pipe and heat numbers should be fully legible from the mill stencils.
- Confirm that all Material Test Reports are available for the stated pipe and heat numbers.
- Visual inspection for dents, gouges, excessive corrosion, ovality and so forth.

The third-party inspector also conducted visual inspections of the pipe in conformance with direction to the Inspector (as described in Attachment 1 (Design Change Notice)). These activities were critical in supporting the conclusion by the Engineer of Record that the selected pipe and fittings were suitable for use on the Project.

Please refer to the response to Undertaking 4 for additional information relating to Condition 9. In the Condition 9 table provided in Undertaking 4, all references to JFE pipe should be read to apply to all NPS 30 pipe.

Undertaking 3 given by Mr. Huber to Ms. Yuzda at Transcript pages 50-51.

To demonstrate that all 30-inch diameter pipe and components comply with all project-specific relevant TMEP technical pipe specifications.

Trans Mountain Response to U-3

As outlined in CSA Z662-19, “demonstrate” is defined to mean “verify, or describe and explain, by the use of records, measurement tests, comparison of specimens, experiments or analysis by a competent person, supported by documentation”⁴.

In the discussion that follows, please refer to Attachment 1, entitled “Design Change Notice – NPS 30 Pipe Suitability for Mountain Crossing #3”, which is provided as an attachment to these responses to the Undertakings. The Design Change Notice (DCN) provides a detailed summary of the steps taken by TMEP’s Engineer of Record (EOR) to ensure adherence to TMEP’s documented procedures. TMEP’s Engineer of Record (Universal Pegasus International) has consolidated its review of the acquired materials into a single Design Change Notice (DCN). The document has been signed and stamped by a qualified Professional Engineer in the Province of British Columbia.

TMEP engaged the Engineer of Record (EOR) throughout the procurement process to ensure that the NPS 30 pipe and components were from reputable mills and would achieve a quality equal to that of the balance of TMEP pipe.

TMEP obtained and reviewed the Quality Management Plans (QMPs) of the manufacturers. Each of the manufacturers is certified under the International Standards Organization’s (ISO’s) Quality Management System standard, which is ISO 9001:2015 for the Manufacture of Carbon Steel Pipes.

Additional details related to each pipe manufacturer are provided below:

Berg

- Technical evaluation was conducted on the basis of the manufacturing records produced by the manufacturer and inspections conducted by a qualified third-party inspection organization (RINA).
- Berg Pipe conforms with the requirements of ISO 9001:2015. The Engineer of Record has reviewed Berg Pipe’s QMP and found it equivalent to the approved AML manufacturers (Attachment 1, page 3).
- The Berg pipe is manufactured to the American Petroleum Institute’s 5L standard. This standard is deemed acceptable under CSA Z662 Table 5.3 with the caveat that impact test results must meet the requirements of CSA Z662. To comply with these requirements, supplemental impact testing was conducted in accordance with CSA Z245.1. The results of the testing confirmed that the pipe conformed to Project specifications and was suitable for use.

SeAH

- Technical evaluation was conducted on the basis of the manufacturing records produced by the manufacturer and inspections conducted by a qualified third-party inspection organization (RINA).

⁴ CSA Z662-2019, Section 2.2 (Definitions), PDF p. 80.

- SeAH Steel Corporation conforms with the requirements of ISO 9001:2015. The Engineer of Record has reviewed SeAH's QMP and found it equivalent to the approved AML manufacturers (Attachment 1, page 3).
- The Engineer of Record determined that this pipe was "suitable for use as found", only requiring Project-specific FBE/ARO⁵ coating to be applied by the Project-approved coating vendor (Shawcor). The term "suitable for use" implies that in the professional judgment of the Engineer of Record, after review, the pipe meets both CSA Z662 and Project specifications.

JFE

- JFE is on the Project's AML.
- Technical evaluation was conducted on the basis of the manufacturing records produced by the manufacturer and inspections conducted by a qualified third-party inspection organization (RINA).
- JFE Steel Corporation West Japan Works (Fukuyama) conforms with the requirements of ISO 9001:2015. The Engineer of Record has reviewed JFE's QMP and found it suitable.
- The Engineer of Record determined that this pipe was "suitable for use as found", only requiring Project-specific FBE/ARO coating to be applied by the Project-approved coating vendor (Shawcor). The term "suitable for use" implies that in the professional judgment of the Engineer of Record, after review, the pipe meets both CSA Z662 and Project specifications.

EZEFLOW

The fittings were manufactured to TMEP specifications. All aspects were under TMEP oversight and followed the procedures in the Quality Management Plan.

Summary

The Engineer of Record completed its technical review of the NPS 30 pipe and fittings on November 8, 2023 (page 3 of 4 of the DCN). The preparation of the Design Change Notice with the requisite approvals by Project personnel was completed on November 27, 2023, demonstrating the necessary steps were taken to ensure that the NPS 30 pipe and components meet the Project's technical quality requirements and specifications in compliance with CSA Z662.

Undertaking 4 given by Mr. Huber to Ms. Yuzda at Transcripts pages 79-81.

With respect to the JFE pipe that was purchased from the distributor and not directly from the manufacturer, demonstrate that Trans Mountain complied with Condition 9 of CPCN OC-065.

Trans Mountain Response to U-4:

As outlined in CSA Z662-19, “demonstrate” is defined to mean “verify, or describe and explain, by the use of records, measurement tests, comparison of specimens, experiments or analysis by a competent person, supported by documentation”⁶.

In the case of pipe manufactured by JFE, the Engineer of Record determined that this pipe was suitable for use, only requiring project-specific FBE/ARO coating to be applied by the Project-approved coating vendor (Shawcor). The term “suitable for use” implies that in the professional judgment of the Engineer of Record, after review, the pipe meets both CSA Z662 and Project specifications.


Condition 9 of CPCN OC-65 states the following: “Trans Mountain must file with the NEB, **at least 4 months prior to manufacturing any pipe and major components for the Project**, a Project-specific Quality Management Plan that includes ...”.

In the table below, Trans Mountain identifies each requirement of Condition 9(a)-(h) and demonstrates that it complied with Condition 9(a)-(h) of CPCN OC-065.

CPCN Condition 9(a)-(h)	Trans Mountain Compliance with Condition 9(a)-(h)
a) material/vendor qualification requirements	Compliance was provided by the Engineer of Record, in its review of the manufacturer’s ISO certification and Quality Assurance/Quality Control documents. Refer to Attachment 1, page 3.
b) quality control and assurance of pipe, fittings, and components that ensure all materials meet Trans Mountain’s specifications (i.e., processes, procedures, specifications, random testing, inspection, and test reports)	Compliance was provided by the Engineer of Record, based on Project specifications and requirements. Attachment 1 (Design Change Notice – NPS 30 Pipe Suitability for Mountain Crossing #3) summarizes the steps taken to ensure that the JFE NPS 30 pipe comply with the Project-specific technical pipe specifications. TMEP confirmed the manufacturer’s ISO 9001:2015 certification and reviewed the manufacturer’s QMP.
c) mandatory documentation of process conditions during manufacture and verification of the conformance of manufacturer material test reports with Trans Mountain’s requirements	Compliance was provided by the Engineer of Record (and provided in Attachment 1), in ensuring that the manufacturer had adequate verification of material test reports and related documentation pertaining to the manufacture of the pipe. JFE has a valid ISO 9001:2015 certification and was on TMEP’s AML. The Engineer of Record confirmed that the material test reports are available for traceability and confirmed that the pipe met TMEP specifications.

⁶ CSA Z662-2019, Section 2.2 (Definitions), PDF p. 80.

CPCN Condition 9(a)-(h)	Trans Mountain Compliance with Condition 9(a)-(h)
d) mandatory inspection requirements, inspector competency training, and qualifications	With respect to the JFE NPS 30 pipe which had already been manufactured, TMEP could not apply the mandatory inspection requirements, inspector competency training, and qualifications processes in the QMP with respect to the manufacture of the pipe. Upon receipt of the pipe, TMEP applied the same processes as those outlined in the QMP on a forward-looking basis. Demonstration of compliance is provided in Attachment 1 at pages 3 and 4.
e) non-conformance reporting and correction procedures	With respect to the JFE NPS 30 pipe which had already been manufactured, TMEP could not apply the non-conformance reporting and correction procedures in the QMP with regard to the manufacture of the pipe. Upon receipt of the pipe, TMEP applied the same processes as those outlined in the QMP on a forward-looking basis. Demonstration of compliance is provided in Attachment 1 at pages 3 and 4.
f) change management process	Once the decision was made to acquire the JFE NPS 30 pipe (see Attachment 1), no change management process was required with respect to the NPS 30 pipe.
g) commissioning requirements	Trans Mountain will ensure that the commissioning requirements of the QMP are applied during construction activities involving the JFE NPS 30 pipe.
h) material handling requirements during transportation	Pipe handling activities prior to TMEP's purchase of the pipe were not subject to the QMP material handling requirements. Following TMEP's purchase of the JFE NPS 30 pipe, the material handling requirements of the QMP have been applied, including for the transportation of the pipe from the distributor to the coating mill, and to the right-of-way.

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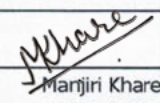
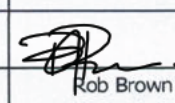
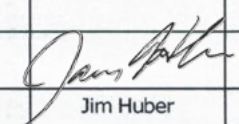
TRANSMOUNTAIN


Trans Mountain Expansion Project

Design Change Notice NPS 30 Pipe Suitability for Mountain Crossing # 3




TMEP Document # 01-13283-S5B-M002-PL-DCN-0015 R0

Rev No.	Prepared by/ Date	Reviewed by/ Date	Approved by/ Date	Reviewed by TMEP	Pages Revised	Issued Type
0	 Simon Kirkland 2023-11-27	 Martijiri Khare 2023-11-27	 Rob Brown 2023-11-27	 Jim Huber 2023-11-29	All	Issued for Use

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Responsible Engineer to complete form, issue, and update DCN log.					
NPS 30Pipe Suitability for MTC # 3	19731-501-DCN-01094				
Title of Document / Change	DCN Number				
01-13283-S5B-M002-PL-DCN-0015	5B				
RFI # / Client Reference #	Spread				
Reason for Change					
<p>Trans Mountain is considering using NPS 30 pipe for the Mountain 3 HDD on spread 5B to mitigate technical issues that have been encountered during the boring process. This change necessitated the procurement of additional pipe and fittings as well as the evaluation of existing project welding procedures for use on the material.</p> <p>PIPE</p> <p>Due to the limited quantities of NPS 30 pipe required and the short delivery window required, Trans Mountain has decided to procure stock pipe currently available from three manufacturers rather than placing an order for a mill run the requirements for this order were documented using Material requisition 01-13283-S5B-M002-PL-MRQ-0007. The pipe of suitable grade, diameter and quality currently available in North America was produced by three manufacturers:</p> <ul style="list-style-type: none"> • JFE • Berg • SEAH <p>Of these three manufacturers, only JFE has been prequalified on the Trans Mountain Expansion project.</p> <p>Based on the schedule constraints of this HDD Trans Mountain has elected to proceed in accordance with Clause 6.1 (Vendor Pre-Qualification) of the Trans Mountain Expansion Quality Management Plan and use vendors not listed on the project AML, as insufficient pipe was readily available in North America to fulfil this order with pipe produced by AML listed vendors.</p> <p>The manufacturers were evaluated in accordance with Clause 3.1 of the Trans Mountain Expansion Project Vendor Prequalification Procedure and documented using the Variance Request form.</p> <ol style="list-style-type: none"> Berg pipe is manufactured to the API 5L standard. This standard is accepted by CSA Z662 Table 5.3 with the caveat that impact test results must meet the requirements of CSA Z662. To comply with these requirements supplemental impact testing was conducted in accordance with CSA Z245.1. SeAH pipe was manufactured in accordance with CSA Z245.1. <p>FITTINGS</p> <p>Trans Mountain elected to procure forged reducers from EZEFLOW, a Canadian fitting manufacturer which holds quality management certification for the manufacture of fittings for the pressure equipment and nuclear industries in Canada and internationally. These reducers were manufactured in accordance with CSA Z245.11 with impact testing conducted at M45C. These fittings were manufactured in accordance with the requirements of 01-13283-TMEP-MP1200 Steel Fittings Specification and the manufacturing records were reviewed for compliance with the requirements of the project. The manufacturers were evaluated in accordance with Clause 3.1 of the Trans Mountain Expansion Project Vendor Prequalification Procedure and documented using the Variance Request form.</p> <p>WELDING PROCEDURES</p> <p>The General Construction Contractor elected to use welding procedure TMEP-WPS-04 for the production welding of the NPS 30 pipe and TMEP-WPS-15-RP and TMEP-WPS-18-BW for repair welding. These procedures were reviewed, and the pipe was found to be within the essential variable ranges specified in the welding procedures. The welding procedure datasheets were revised to include the NPS 30 x 15.9mm pipe size.</p> <tr> <td colspan="2">Resolution / Description of Change:</td> </tr> <tr> <td colspan="2">PIPE MANUFACTURER ACCEPTANCE CRITERIA</td> </tr>		Resolution / Description of Change:		PIPE MANUFACTURER ACCEPTANCE CRITERIA	
Resolution / Description of Change:					
PIPE MANUFACTURER ACCEPTANCE CRITERIA					

 Universal Pegasus INTERNATIONAL 19731-501-DCN-01094	Trans Mountain Expansion Project		Contractor Revision Date:	2023-11-27
	Design Change Notice NPS 30 Pipe Suitability for Mountain Crossing # 3		Contractor Revision No.:	0
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As the pipe was previously manufactured, a review of pre-construction risk mitigation documents such as the Quality Management Plans and Inspection and Test Plans do not provide risk mitigation value at this stage. Instead, in accordance with condition 9 and Clause 3.1 approved vendor list deviation procedure, the manufacturers were evaluated for equivalent acceptance based on vendor acceptance criteria i.e.,

- Manufacturer considered by other industry standard pipeline companies,
- Trans Mountain's past experience with the Manufacturer
- Manufacturer's ISO certification
- Manufacturer's QA / QC documents

Based on above criteria, following were the findings:

- Berg pipe – this pipe is surplus from a mill order for the Gary Oak pipeline, a joint venture between Enbridge and Phillips 66. This pipe was manufactured to the standards of these organizations. As these are top tier organizations with industry leading QMP programs, Trans Mountain considers their QA/ QC processes / standards to be **suitable for use** on the Trans Mountain Pipeline.
- SeAH – this pipe was purchased from pipe vendor stock. SeAH is a manufacturer which has been previously qualified by Trans Mountain Operations and was used on previous Trans Mountain projects, including the welding procedure qualifications for the Trans Mountain Expansion Project. As such Trans Mountain has a high degree of confidence in the QA/ QC processes / standards of the pipe supplier.

PIPE TECHNICAL ACCEPTANCE

A technical evaluation was conducted on the basis of the manufacturing records produced by the manufacturer and inspections conducted based on ITP criteria (attached) provided to the qualified third party inspection organization (RINA).

Based on above criteria, following were the findings:

- The JFE and SeAH piping were determined to be **suitable for use as found**, only requiring project specific FBE/ ARO coating to be applied by the project approved coating vendor (Shawcor).
- The Berg pipe was found to require additional mechanical testing to be suitable for use. The Berg pipe had impact testing conducted at OC, which did not meet the project requirements of M6C. To mitigate this finding, a sample was taken from each heat of pipe procured and Charpy V-Notch testing on the pipe body and the longitudinal seam weld and heat affected zone at M6C. The results of this testing were reviewed and were determined to meet the project requirements. The pipe was deemed to be **suitable for use as tested**. Project specific FBE/ ARO coating was applied by the project approved coating vendor (Shawcor).

Despite the manufactures not being listed on the Trans Mountain Approved Manufacturers List, use of NPS 30 pipe previously manufactured by Berg USA and SeAH is considered acceptable on the basis of the technical assessment. These products have been reviewed for compliance with the pipe product specifications of TMEP-SAW-01. On Nov 8th EOR released pipe to be used.

FITTINGS

The two NPS 36 x 30 were procured from EZEFLOW in accordance with material requisition 01-13283-S5B-M002-PL-MRQ-0008. This document included all project requirements, these fittings were manufactured to order and complied with all project requirements. On Nov 21 EOR released fittings to be used upon receipt of the MTRs for these fittings.

References Documents			
Description	Document Number	Rev	Comments
RINA Traceability verification	email dated Oct. 17 2023	-	Attached
Vendor Prequalification Variance Request form	01-13283-GC-0000-RPT-PR-0003	1	Attached
ITP Criteria for MTC #3 NPS 30 X70 pipe	email dated Oct 6 2023	-	Attached



UniversalPegasus
INTERNATIONAL

19731-501-DCN-01094

Trans Mountain Expansion Project

**Design Change Notice
NPS 30 Pipe Suitability for
Mountain Crossing # 3**

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0

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Additional NPS 30 pipe for Mountain crossing # 3.	01-13283-S5B-M002-PL-MRQ-0007	0	
Quality Management Plan	01-13283-GG-0000-RPT-CM-0002	2	
Vendor Prequalification Plan	01-13283-GG-0000-SC-PRO-0002	1	
Approved Vendor List Deviation Procedures	01-13283-GG-RPT-PR-0003	1	
Steel Fittings Specification	01-13283-TMEP-MP1200	4	
Welding Procedure Specification	TMEP-WPS-04	1	
Welding Procedure Specification	TMEP-WPS-15-RP	0	
Welding Procedure Specification	TMEP-WPS-18-BW	0	
Submerged Arc Welded Steel Pipe Specification	TMEP-SAW-01	4	
NPS 30 Fittings for Mountain Crossing 3	01-13283-S5B-M002-PL-MRQ-0008	0	

DCN Approval

Lessons Learned

N/A

Simon Kirkland
Originator (Print)

Signature

2023-Nov-27
Date (yyyy-mm-dd)

Simon Kirkland
Responsible Engineer

Signature

2023-Nov-27
Date (yyyy-mm-dd)

Manjiri Khare
Engineering Manager

Signature

2023 Nov 27
Date (yyyy-mm-dd)

Jim Huber

Signature

2023-Nov-29

TMC Approval

Date (yyyy-mm-dd)

Notes

TMEP TMCI, these documents and files are intended to be used by other project participants, please also issue to Construction, Procurement, Environment, Survey and Geotechnical

From:

Sent:

Tuesday, October 17, 2023 4:04 PM

To:

Cc:

Subject:

RINA - Traceability Verification Oct 17, 2023

Attachments:

RINA - Traceability Verification Oct 17, 2023.xlsx

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If you are unsure, press the "Report Message > Phishing" button from this email or forward this e-mail to the Report Phish mailbox.

Hi All,

Good Day, attached is the spreadsheet with all the data's for the 30 inch 15.9mm WT JFE/SEAH joints that were delivered in Shawcor yard. Its all complete now.

Thanks

This email and any attachments are for the sole use of the intended recipients and may be privileged or confidential. Any distribution, printing or other use by anyone else is prohibited. If you are not an intended recipient, please contact the sender immediately, and permanently delete this email and attachments. Le présent courriel et les fichiers joints s'adressent uniquement au destinataire visé et peuvent contenir des renseignements confidentiels ou privilégiés. La distribution du courriel, son impression ou toute autre utilisation par une autre personne sont interdites. Si vous n'êtes pas le destinataire visé, veuillez en aviser l'expéditeur immédiatement et supprimer le courriel et les fichiers joints de façon définitive.



Client: TMEP		ID Stencil Not Legible
RINA Job No.: TMP001-		Needs further evaluation
P.O. or REQ No. Joints Delivered in SHAW Camrose Yard		Stencil minimal legibility/Handwritten details missing
Shaw Camrose Yard		Accepted

Prepared By: Raj Ayyakannu																							
NO	Supplier	Pipe MFR	OD	OD UOM	WT	WT UOM	Spec	MFD MM-YY	CSA Spec	Grade	Category	Design Temp	Test PR MPA	Heat #	Pcs #	MF#	LENGTH	Of	WELD	API Grade	PIPE TYPE	Date Verified	Inspected by
1	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-1874	27007	21-00394	12.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
2	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27063	21-00447	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
3	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3398	27065	21-00422	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
4	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6256	36619	2Y-03129	12.48	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
5	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6256	36617	2Y-03139	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
6	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-5446	36628	2Y-03148	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
7	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6257	36633	2Y-03104	12.42	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
8	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36639	2Y-03149	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
9	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36629	2Y-03102	12.41	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
10	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3398	27005	21-00393	12.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
11	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-1911	27019	21-00367	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
12	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3879	27026	21-00414	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
13	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27010	21-00376	12.38	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
14	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3879	27003	21-00373	12.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
15	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27020	21-00399	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
16	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3398	27016	21-00398	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
17	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3398	27091	21-00432	12.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
18	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27044	21-00443	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
19	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-1909	27093	21-00369	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
20	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3398	27011	21-00421	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
21	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-1909	27100	21-00396	12.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
22	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27017	21-00397	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
23	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-1866	27084	21-00351	12.3	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
24	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3398	27062	21-00434	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
25	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27083	21-00427	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
26	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-1909	27021	21-00418	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
27	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3879	27058	21-00404	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
28	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	6-3879	27031	21-00380	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
29	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-5114	36643	2Y-03140	12.4	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
30	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36613	2Y-03119	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
31	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6256	36634	2Y-03103	12.42	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
32	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27039	21-00442	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
33	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6256	36606	2Y-03138	12.46	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
34	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36616	2Y-03117	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
35	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-5446	36610	2Y-03144	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
36	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36601	2Y-03115	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
37	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36638	2Y-03150	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
38	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6256	36611	2Y-03135	12.48	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
39	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6256	36642	2Y-03137	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
40	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA Z245.1-18	448/483	CAT II	M45C	18.1	7-3399	27045	21-00446	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
41	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36603	2Y-03122	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
42	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36607	2Y-03123	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
43	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6256	36618	2Y-03125	12.48	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
44	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-6257	36635	2Y-03105	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
45	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36609	2Y-03146	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
46	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36605	2Y-03124	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
47	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36636	2Y-03110	12.46	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
48	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-23	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36648	2Y-03113	12.41	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
49	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA Z245.1-18	448/483	CAT II	M45C	18.2	1-7148	36625	2Y-03121	12.48	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu
50	COMCO	JFE	30	inch	15.9	mm																	



Client: TMEP			ID Stencil Not Legible
RINA Job No.: TMP001-			Needs further evaluation
P.O. or REQ No. Joints Delivered in SHAW Camrose Yard			Stencil minimal legibility/Handwritten details missing
Shaw Camrose Yard			Accepted

Prepared By: Raj Ayyakannu																								
NO	Supplier	Pipe MFR	OD	OD UOM	WT	WT UOM	Spec	MFD MM-YY	CSA Spec	Grade	Category	Design Temp	Test PR MPA	Heat #	Pcs #	MF#	LENGTH	OH	WELD	API Grade	PIPE TYPE	Date Verified	Inspected by	
62	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-6256	36631	2Y-03132	12.48	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
63	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-6256	36626	2Y-03134	12.48	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
64	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27064	21-00439	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
65	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-1003	27041	21-00356	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
66	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-1874	27002	21-00403	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
67	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27032	21-00415	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
68	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-1911	27087	21-00353	11.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
69	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27004	21-00379	12.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
70	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-5446	36647	2Y-03112	12.34	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
71	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27074	21-00445	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
72	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-1874	27043	21-00386	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
73	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-6256	36624	2Y-03131	12.41	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
74	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-7148	36627	2Y-03147	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
75	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-3373	36630	2Y-03107	12.41	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
76	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-7148	36602	2Y-03120	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
77	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-7148	36614	2Y-03145	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
78	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3879	27014	21-00402	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
79	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3879	27061	21-00413	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
80	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27038	21-00420	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
81	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-0887	27069	21-00359	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
82	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27066	21-00426	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
83	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3879	27060	21-00419	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
84	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27053	21-00374	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
85	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27009	21-00400	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
86	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	7-3399	27023	21-00410	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
87	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27025	21-00423	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
88	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	7-3399	27040	21-00440	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
89	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3879	27037	21-00408	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
90	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-5446	36623	2Y-03127	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Thursday, October 12, 2023	Raj Ayyakannu	
91	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-1911	27059	21-00393	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
92	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-1909	27057	21-00387	12.46	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
93	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3879	27030	21-00370	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
94	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-1909	27008	21-00392	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
95	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	7-3399	27050	21-00360	12.42	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
96	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3879	27022	21-00384	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
97	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27027	21-00438	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
98	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27028	21-00448	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
99	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3879	27085	21-00409	12.48	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
100	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27024	21-00382	12.47	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
101	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	01-22	CSA 2245.1-18	448/483	CAT II	M45C	18.1	6-3398	27081	21-00358	12.43	1E14253-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
102	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2	12-22	CSA 2245.1-18	448/483	CAT II	M45C	18.2	1-7148	36608	2Y-03116	12.47	2E13299-001	SAWL	L450M (X65M)	PSL2	Friday, October 13, 2023	Raj Ayyakannu	
103	COMCO	JFE	30	inch	15.9	mm	API SPEC 5L-0052.2</																	



Client: TMEP			ID Stencil Not Legible
RINA Job No.: TMP001-			Needs further evaluation
P.O. or REQ No. Joints Delivered in SHAW Camrose Yard			Stencil minimal legibility/Handwritten details missing
Shaw Camrose Yard			Accepted
Prepared By: Raj Ayyakannu			

No	Supplier	Pipe Mfr	OD	OD UOM	WT	WT UOM	API Spec	MFD MM-YY	CSA SPEC	GRADE	CATEGORY	Design Temp	TEST PR	TEST PR UOM	PIPE #	HEAT #	LENGTH	LENGTH UOM	BATCH #	WELD	API GRADE	PIPE TYPE	DATE VERIFIED	INSPECTED BY
1	BHD	SEAH	30	inch	.625	inch	API SPEC 5L-0318	08-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1908J1461	P66422	38.5	FT	SPT8281120	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
2	BHD	SEAH	30	inch	.625	inch	API SPEC 5L-0318	08-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1908J1459	R21422	38.5	FT	SPT8281100	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
3	BHD	SEAH	30	inch	.625	inch	API SPEC 5L-0318	08-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1908J1460	A020180	38.5	FT	SPT8281110	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
4	BHD	SEAH	30	inch	.625	inch	API SPEC 5L-0318	08-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1908J1463	A020181	38.5	FT	SPT8281140	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
5	BHD	SEAH	30	inch	.625	inch	API SPEC 5L-0318	08-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1908J1464	P66422	40	FT	SPT8281150	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
6	BHD	SEAH	30	inch	.625	inch	API SPEC 5L-0318	08-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1908J1465	P66422	40	FT	SPT8281150	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu

Note: Test PR not mentioned on ID stencil it was derived from MTR
OD WELD ARE NOT FLUSHED OFF ON THE ENDS



Client: TMEP			ID Stencil Not Legible
RINA Job No.: TMP001-			Needs further evaluation
P.O. or REQ No. Joints Delivered in SHAW Camrose Yard			Stencil minimal legibility/Handwritten details missing
Shaw Camrose Yard			Accepted
Prepared By: Raj Ayyakannu			


No	Supplier	Pipe Mfr	OD	OD UOM	WT	WT UOM	API Spec	MFD MM-YY	CSA SPEC	GRADE	CATEGORY	DWTT	CVN	TEST PR	TEST PR UOM	PIPE #	HEAT #	LENGTH	LENGTH UOM	P/O No.	BATCH #	WELD	API GRADE	PIPE TYPE	DATE VERIFIED	INSPECTED BY
1	COMCO	SEAH	30	inch	.625	inch	API SPEC 5L-0318	05-22	CSA Z245.1-18	483	CAT II	M10C	M45C	18.3	Mpa	2205/1620	V221334	40	FT	E1-14293	SPW5211060	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
2	COMCO	SEAH	30	inch	.625	inch	API SPEC 5L-0318	05-22	CSA Z245.1-18	483	CAT II	M10C	M45C	18.3	Mpa	2205/1622	V221333	40	FT	E1-14293	SPW5211080	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
3	COMCO	SEAH	30	inch	.625	inch	API SPEC 5L-0318	05-22	CSA Z245.1-18	483	CAT II	M10C	M45C	18.3	Mpa	2205/1619	V221333	38.5	FT	E1-14293	SPW5211070	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
4	COMCO	SEAH	30	inch	.625	inch	API SPEC 5L-0318	05-22	CSA Z245.1-18	483	CAT II	M10C	M45C	18.3	Mpa	2205/1618	V221334	40	FT	E1-14293	SPW5211060	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
5	COMCO	SEAH	30	inch	.625	inch	API SPEC 5L-0318	05-22	CSA Z245.1-18	483	CAT II	M10C	M45C	18.3	Mpa	2205/1621	V221334	40	FT	E1-14293	SPW5211060	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu
6	COMCO	SEAH	30	inch	.625	inch	API SPEC 5L-0318	05-22	CSA Z245.1-18	483	CAT II	M10C	M45C	18.3	Mpa	2205/1617	V221334	38.5	FT	E1-14293	SPW5211050	SAWL	X70M	PSL2	Friday, October 13, 2023	Raj Ayyakannu

Note: Both CVN & DWTT temp are specified on the ID stencil
OD WELD ARE NOT FLUSHED OFF ON THE ENDS
Note: Test PR not mentioned on ID stencil it was derived from MTR




Client: TMEP	ID stencil & MTR info varies	ID Stencil Not Legible
RINA Job No.: TMP001-	Information not on ID stencil	MTR missing
P.O. or REQ. No. Joints Delivered in SHAW Camrose Yard		Stencil minimal legibility/Handwritten details missing
Shaw Camrose Yard		Accepted
Prepared By: Raj Ayyakannu		

No	Supplier	Pipe Mfr	OD	OD UOM	WT	WT UOM	API Spec	MFD MM-YY	CSA SPEC	GRADE	CATEGORY	Design Temp	TEST PR	TEST PR UOM	PIPE #	HEAT #	LENGTH	LENGTH UOM	BATCH #	WELD	API GRADE	PIPE TYPE	PO #	DATE VERIFIED	INSPECTED BY	Comments
1	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1153	P66417	40	FT	SPT4181110	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
2	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1150	P66417	40	FT	SPT4181110	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
3	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1147	P66422	40	FT	SPT4181080	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
4	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1152	P66426	40	FT	SPT4181050	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
5	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1145	R03164	38.5	FT	SPT4181070	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
6	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	01-18	CSA Z245.1-14	483	CAT II	M45C	18.3	Mpa	1801J0751	Q5807166	38.5	FT	SPS1131120	SAWL	X70M	PSL2	45001881	Saturday, October 14, 2023	Raj Ayyakannu	
7	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	02-18	CSA Z245.1-14	483	CAT II	M45C	18.3	Mpa	1802J0213	PK512554	40	FT	SPS2032050	SAWL	X70M	PSL2	45001881	Saturday, October 14, 2023	Raj Ayyakannu	
8	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1151	P66422	40	FT	SPT4181080	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
9	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1143	P66422	38.5	FT	SPT4181060	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
10	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1149	P66417	38.5	FT	SPT4181100	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
11	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	01-18	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1801J0749	A003831	40	FT	SPS1131110	SAWL	X70M	PSL2	45001881	Saturday, October 14, 2023	Raj Ayyakannu	
12	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	02-18	CSA Z245.1-14	483	CAT II	M45C	18.3	Mpa	1802J0214	PK512554	38.5	FT	SPS2032060	SAWL	X70M	PSL2	45001881	Saturday, October 14, 2023	Raj Ayyakannu	
13	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	04-19	CSA Z245.1-18	483	CAT II	M45C	18.3	Mpa	1904J1148	R03164	40	FT	SPT4181090	SAWL	X70M	PSL2	45002003	Saturday, October 14, 2023	Raj Ayyakannu	
14	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	01-18	CSA Z245.1-14	483	CAT II	M45C	18.3	Mpa	1801J0745	A003831	38.5	FT	SPS1131080	SAWL	X70M	PSL2	45001881	Saturday, October 14, 2023	Raj Ayyakannu	
15	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	01-18	CSA Z245.1-14	483	CAT II	M45C	18.3	Mpa	1801J0747	Q5807160	40	FT	SPS1131100	SAWL	X70M	PSL2	N/A	Saturday, October 14, 2023	Raj Ayyakannu	
16	VAN LEEUWEN	SEAH	30	inch	.625	inch	API SPEC SL-0318	01-18	CSA Z245.1-14	483	CAT II	M45C	18.3	Mpa	1801J0801	A003831	40	FT	SPS1131110	SAWL	X70M	PSL2	45001881	Saturday, October 14, 2023	Raj Ayyakannu	ID STENCIL MINIMAL LEGIBILITY

 TRANS MOUNTAIN 01-13283-GG-0000-RPT-PR-0003	Trans Mountain Expansion Project	Date:	2019-07-23
	Approved Vendor List Deviation Procedure	Revision No.:	1
		Page	6 of 7

**ATTACHMENT 1
VENDOR LIST DEVIATION REQUEST FORM**

VENDOR NAME AND CONTACT INFORMATION:		
Berg Pipe Panama City Corp		
WHAT RFQ PACKAGES WILL THIS VENDOR BID ON?		
19731-506-MRQ-00077 Rev0_Additional NPS 30 pipe Signed		
HAS THIS VENDOR ACHIEVED THE PROJECT PRE-QUALIFICATION REQUIREMENTS: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
COMMENTS / JUSTIFICATION / DETAILS:		
Detailed justification can be found in Design Change Notice		
01-13283-S5B-M002-PL-DCN-0015_R0		
CONTRACTOR PROCUREMENT MANAGER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR DISCIPLINE ENGINEER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR QUALITY LEAD: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
N/A - TMEP Procured Material	YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR PROJECT ENGINEER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR PROJECT MANAGEMENT: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
COMMENTS:		
TMEP PROCUREMENT: (Name / Signature)	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023 Nov 29
TMEP SCM MANAGER: (Name / Signature) Ryan McFadden	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-Nov-29
TMEP DISCIPLINE ENGINEER: (Name / Signature) SIMON KIRKLAND	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-Nov-27
TMEP QUALITY LEAD: (Name / Signature) Daniel Rideout	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-11-29
TMEP PROJECT ENGINEER: (Name / Signature) RAY DOERING	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 28 Nov, 2023
TMEP PROJECT MANAGEMENT: (Name / Signature) Jim Huber	APPROVED: YES <input checked="" type="checkbox"/>	DATE: 11/29/23

 TRANSMOUNTAIN 01-13283-GG-0000-RPT-PR-0003	Trans Mountain Expansion Project Approved Vendor List Deviation Procedure		Date:	2019-07-23
			Revision No.:	1
			Page	7 of 7

		NO <input type="checkbox"/>	
COMMENTS:			
ATTACHEMENT:			



TRANS MOUNTAIN
01-13283-GG-0000-RPT-PR-0003

Trans Mountain Expansion Project

Approved Vendor List Deviation Procedure

Date:	2019-07-23
Revision No.:	1
Page	6 of 7

ATTACHMENT 1 VENDOR LIST DEVIATION REQUEST FORM

VENDOR NAME AND CONTACT INFORMATION:

SeAH Steel Corp

WHAT RFQ PACKAGES WILL THIS VENDOR BID ON?

19731-506-MRQ-00077 Rev0_Additional NPS 30 pipe Signed

HAS THIS VENDOR ACHIEVED THE PROJECT PRE-QUALIFICATION REQUIREMENTS: YES ☒
NO ☐


COMMENTS / JUSTIFICATION / DETAILS:

Detailed justification can be found in Design Change Notice
01-13283-S5B-M002-PL-DCN-0015_R0


CONTRACTOR PROCUREMENT MANAGER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR DISCIPLINE ENGINEER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR QUALITY LEAD: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
N/A - TMEP Procured Material	YES <input type="checkbox"/> NO <input type="checkbox"/>	
CONTRACTOR PROJECT ENGINEER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR PROJECT MANAGEMENT: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:

COMMENTS:

TMEP PROCUREMENT: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
TMEP SCM MANAGER: (Name / Signature) Ryan McFadden	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-Nov-29
TMEP DISCIPLINE ENGINEER: (Name / Signature) Simon Kirkland	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-Nov-27
TMEP QUALITY LEAD: (Name / Signature) Daniel Rideout	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-11-29
TMEP PROJECT ENGINEER: (Name / Signature) RAY DOERING	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 28 Nov, 2023
TMEP PROJECT MANAGEMENT: (Name / Signature) Jim Huber	APPROVED: YES <input checked="" type="checkbox"/>	DATE: 11.29.23


 TRANSMOUNTAIN 01-13283-GG-0000-RPT-PR-0003	Trans Mountain Expansion Project Approved Vendor List Deviation Procedure	Date:	2019-07-23
		Revision No.:	1
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		NO <input type="checkbox"/>	
COMMENTS:			
ATTACHEMENT:			

 TRANS MOUNTAIN 01-13283-GG-0000-RPT-PR-0003	Trans Mountain Expansion Project	Date:	2019-07-23
	Approved Vendor List Deviation Procedure	Revision No.:	1
		Page	6 of 7

**ATTACHMENT 1
VENDOR LIST DEVIATION REQUEST FORM**

VENDOR NAME AND CONTACT INFORMATION:		
Ezefflow		
WHAT RFQ PACKAGES WILL THIS VENDOR BID ON?		
19731-506-MRQ-00077 Rev0_Additional NPS 30 pipe Signed		
HAS THIS VENDOR ACHIEVED THE PROJECT PRE-QUALIFICATION REQUIREMENTS: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
COMMENTS / JUSTIFICATION / DETAILS:		
Detailed justification can be found in Design Change Notice 01-13283-S5B-M002-PL-DCN-0015_R0		
CONTRACTOR PROCUREMENT MANAGER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR DISCIPLINE ENGINEER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR QUALITY LEAD: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
N/A - TMEP Procured Material	YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR PROJECT ENGINEER: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
CONTRACTOR PROJECT MANAGEMENT: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
COMMENTS:		
TMEP PROCUREMENT: (Name / Signature)	APPROVED: YES <input type="checkbox"/> NO <input type="checkbox"/>	DATE:
TMEP SCM MANAGER: (Name / Signature) Ryan McFadden	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-Nov-29
TMEP DISCIPLINE ENGINEER: (Name / Signature) SIMONA KIRKLAND	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-Nov-29
TMEP QUALITY LEAD: (Name / Signature) Daniel Rideout	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 2023-11-29
TMEP PROJECT ENGINEER: (Name / Signature) RAY DOERIN	APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DATE: 28 Nov 2023
TMEP PROJECT MANAGEMENT: (Name / Signature) Jim Huber	APPROVED: YES <input checked="" type="checkbox"/>	DATE: 11/29/23

 TRANSMOUNTAIN 01-13283-GG-0000-RPT-PR-0003	Trans Mountain Expansion Project Approved Vendor List Deviation Procedure	Date:	2019-07-23
		Revision No.:	1
		Page	7 of 7

	NO <input type="checkbox"/>	
COMMENTS:		
ATTACHEMENT:		

From: [REDACTED]
Sent: Friday, October 6, 2023 3:01 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: M3 - 30" x .625W X70 Pipe

Importance: High

Hi [REDACTED] and [REDACTED]

As per our discussion today , we will need to inspect the proposed pipe and confirm heat numbers to be able to estimate the time required for the Charpy testing which might be the time consuming issue in this process depending on the number of tests.

This is in addition to the other inspections requirements, i.e. dents , corrosion, etc as stated here below.

[REDACTED] to please let us know if you are in agreement to proceed .

[REDACTED] | **P.Eng. Independent Contractor**

UniversalPegasus International | w: [REDACTED]

www.universalpegasus.com

 My Email Has Changed: [REDACTED]@UPICorp.ca

From: [REDACTED]

Sent: Friday, October 6, 2023 1:27 PM

To: [REDACTED]

[REDACTED]

Cc: [REDACTED]

Subject: M3 - 30" x .625W X70 Pipe

Importance: High

[REDACTED] and [REDACTED] –

Per our discussion on the CVN value of 0deg.C on the offered pipe:

- The CVN should be retested to -6degC per TMEP Spec.
- The offered pipe is second-hand pipe, applied with ARO coating
- The pipe is from a cancelled project in the USA and some of it had been purchased by a USA stockist
- The status of the pipe should be inspected by a third party inspection company in order to ensure:
 - Pipe and Heat numbers are fully legible from the mill stencils (found in ID of pipe)
 - Ascertain all MTRs are available against the pipe/heat numbers
 - Ascertain how many heat numbers are entailed that make up the 1,261m/4,137ft requirement
 - Inspect for dents, gouges, excessive corrosion, ovality, etc
- If the pipe deemed to be acceptable, pipe will require cutting (at yard in Three Rivers, TX) and coupons sent to a Houston lab for CVN testing. Each heat number would require testing.
- The testing and results would likely take 2-3 weeks

- Once CVN is verified to -6deg.C, pipe would be trucked up from TX to Shaw Coaters
- Shaw would require to strip off the existing ARO prior to coating to TMEP Spec. ARO removal requires some time.

Based on the above, please advise direction. Note that TPI out of Houston can be arranged very quickly as well as source reputable labs in Houston.

FYI, estimated cost of the subject pipe + trucking to Shaw from TX = C\$1,300,000.

Thanks,

[REDACTED]

[REDACTED]

Sr. Procurement Specialist, Pipeline, SCM
Contractor/Consultant

[REDACTED]

E: [REDACTED]

Trans Mountain Corporation

Toll Free: 1.866.514.6700 | E:info@transmountain.com | W: transmountain.com

Follow: @TransMtn



From: [REDACTED]

Sent: Friday, October 6, 2023 9:30 AM

To: [REDACTED]

Cc: [REDACTED]

Subject: 30" x .625W X70 Pipe

Importance: High

[REDACTED] – As per our conversation – I knew you be asking for MTRs so had my vendor (CFP) supply it per attached.

Please note:

- To replace the 12.7mm, the quantity required of the 15.9mm out of Houston is 1,261m/4,137ft
- I have asked CFP to go to the Houston stockist to confirm whether or not the pipe is still available (TBA)
- The Houston pipe is:
 - API 5L-X70 PSL-2 LSAW Coated with ARO DRL (one end of each joint may be square cut)
 - CVN 32F/0deg.C
 - DWTT 14F/-10deg.C
 - Quantity available 2 weeks ago: 5800ft
 - Manufacturer: Berg USA
 - Plate Manufacturer: Arcelor-Mittal (AMA)
- May require CVN testing to have a lab in Houston verify/certify to -5deg.C for each heat found within the 4,137ft

- This could possibly take min. 2-3weeks (to cut coupons, take samples to lab, do testing, wait for results), unless engineering justification can be made to get this waived

Regards,

[REDACTED]

[REDACTED]

Sr. Procurement Specialist, Pipeline, SCM

Contractor/Consultant

[REDACTED]

E: [REDACTED]

Trans Mountain Corporation

Toll Free: 1.866.514.6700 | E: info@transmountain.com | W: transmountain.com

Follow: @TransMtn



TRANSMOUNTAIN

From: [REDACTED]

Sent: Friday, October 6, 2023 9:06 AM

To: [REDACTED]

Subject: 30" x .625W X70 Pipe

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If you are unsure, press the "Report Message > Phishing" button from this email or forward this e-mail to the Report Phish mailbox.

Approx 5845' 30" X.625 API 5LX70 ARO CTD BERG M&M NO MID WELDS-

Technical notes:

API 5L X70 PSL2 LSAW

CVN 32F (0C)

DWTT 14F (-10C)

[REDACTED]

Sr. Vice President

[REDACTED]

****PLEASE NOTE NEW OFFICE PHONE NUMBER BELOW****

Calgary Branch [REDACTED]

[REDACTED]

e-mail [REDACTED]

website www.cfpindustries.com

Creating Value Through Innovative Solutions

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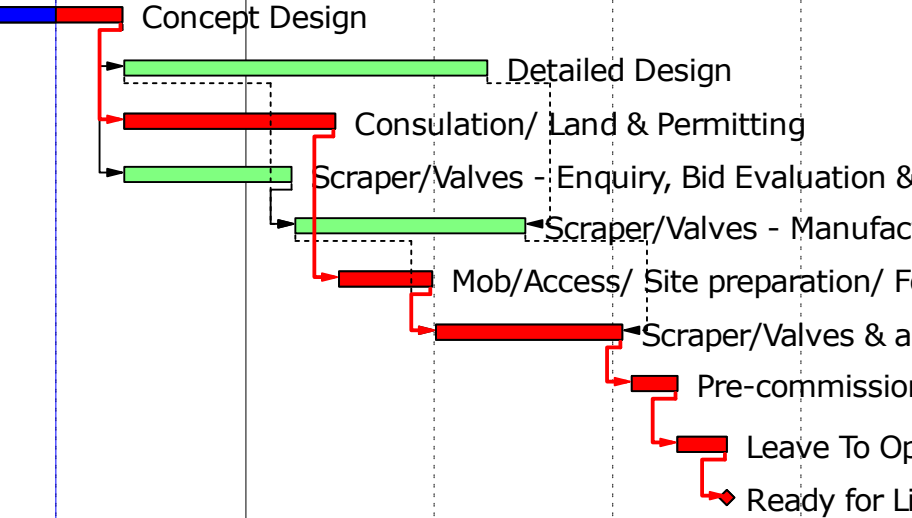
Appendix C

S5B Mountain 3

Preliminary Post In Service Plan (Level 2) Temp

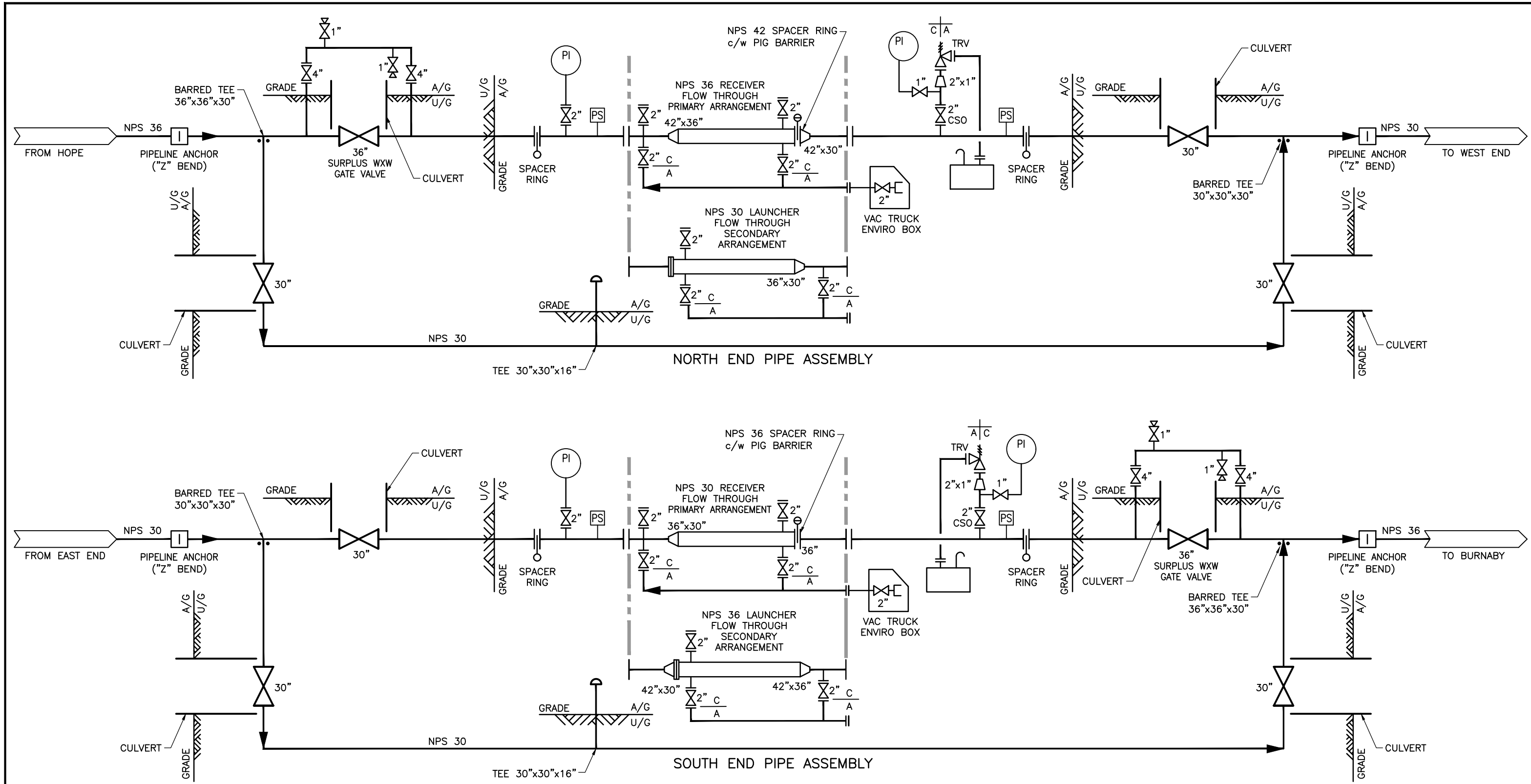
S5B Mountain 3 Preliminary Post In Service Plan (Level 2) Temp

Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	2023		2024			
							Dec	Jan	Feb	Mar	Apr
S5B Mountain 3 Preliminary Post In Service Plan (Level 2) Temp		99d	02-Oct-23 A	19-Mar-24	0d						
Scraper Trap Installation		99d	02-Oct-23 A	19-Mar-24	0d						
A1000	Concept Design	7d	02-Oct-23 A	11-Dec-23	0d	Concept Design					
A1010	Detailed Design	42d	12-Dec-23	09-Feb-24	10d	Detailed Design					
A1020	Consulation/ Land & Permitting	23d	12-Dec-23	15-Jan-24	0d	Consulation/ Land & Permitting					
A1030	Scraper/Valves - Enquiry, Bid Evaluation & Award	18d	12-Dec-23	08-Jan-24	6d	Scraper/Valves - Enquiry, Bid Evaluation & Award					
A1040	Scraper/Valves - Manufacturing/Inspection & Delivery at Site	28d	09-Jan-24	15-Feb-24	6d	Scraper/Valves - Manufacturing/Inspection & Delivery at Site					
A1050	Mob/Access/ Site preparation/ Foundation	14d	16-Jan-24	31-Jan-24	0d	Mob/Access/ Site preparation/ Foundation					
A1060	Scraper/Valves & associated Mechnaical work	26d	01-Feb-24	02-Mar-24	0d	Scraper/Valves & associated Mechnaical work					
A1080	Pre-commissioning/Commissioning	7d	04-Mar-24	11-Mar-24	0d	Pre-commissioning/Commissioning					
A1090	Leave To Open (LTO)	7d	11-Mar-24	19-Mar-24	0d	Leave To Open (LTO)					
A1100	Ready for Line fill	0d		19-Mar-24	0d	Ready for Line fill					





Appendix D

In Line Design

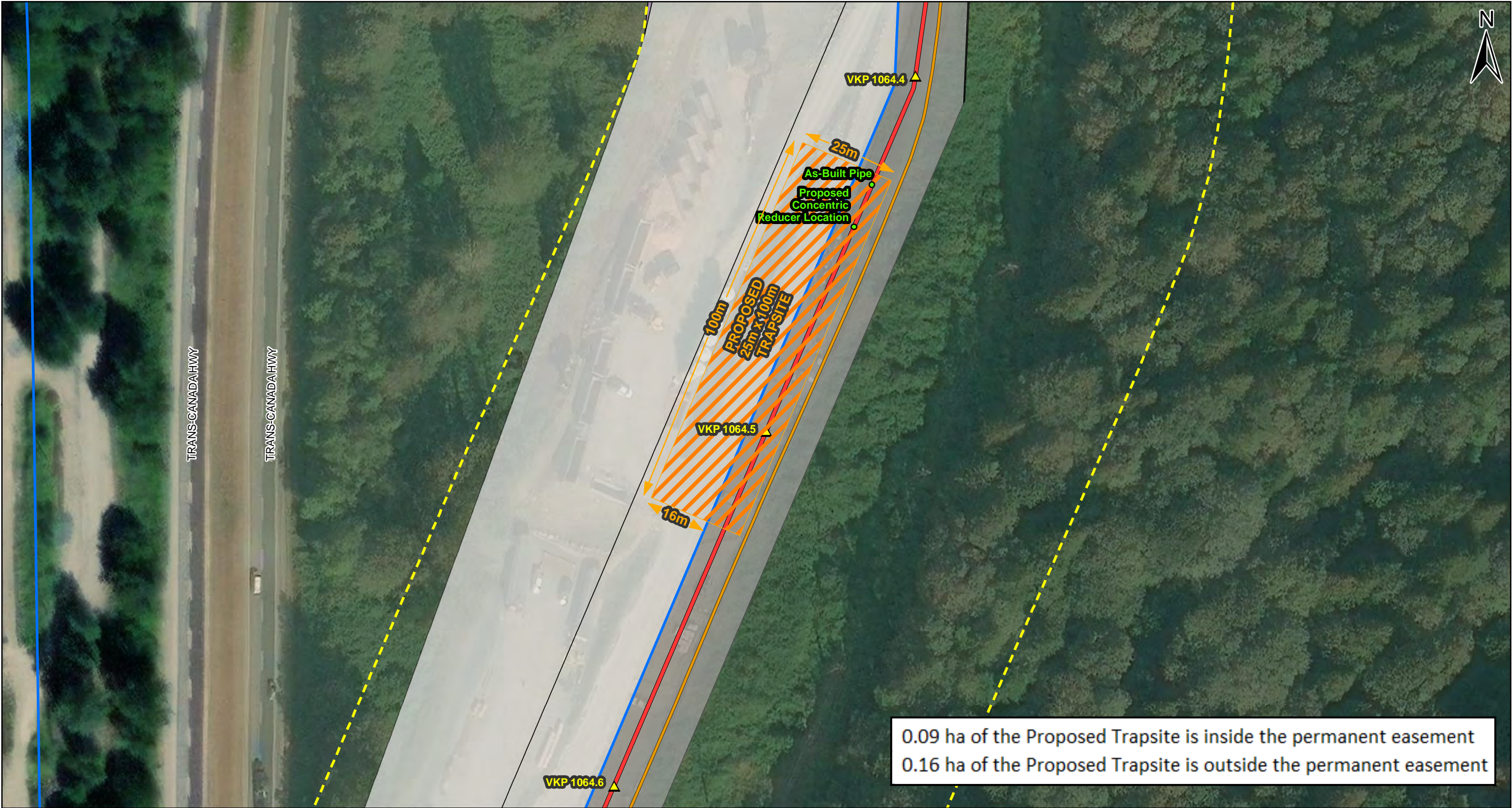


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UPI DWG. No.: 19731-505-SKT-00874						<div>DRAWN BY XW</div> <div>CHECKED BY RGR</div> <div>APPROVED BY GF</div>		<div>TRANS MOUNTAIN EXPANSION PROJECT SCHEMATIC MOUNTAIN CROSSING 3 CONTINGENCY BYPASS NPS 30 OPTION 5</div>				SHEET SIZE 11x17			
												SCALE NTS			
												DATE 23/12/08			
						PROJECT CODING		DRAWING NUMBER							
						AFE		FACILITY ID		DOCUMENT NO		SHT NO		REV	
23/12/13 ISSUED FOR REVIEW, AFE 01-13283						XW									
DATE		REVISION				DRN		CHK		ENG		APPR			

Appendix E

Trap Facility Drawings

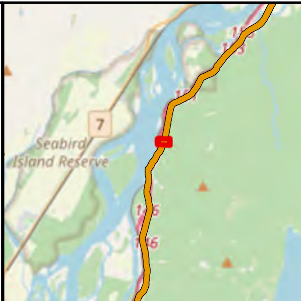


0.09 ha of the Proposed Trapsite is inside the permanent easement
0.16 ha of the Proposed Trapsite is outside the permanent easement

LEGEND

- PROPOSED TMEP KILOMETRE POST
- PROPOSED PIPELINE ROUTE
- EXISTING TMPL
- EASEMENT (EXCLUSIVE)
- EXTRA TEMPORARY WORKSPACE
- TEMPORARY WORKSPACE
- MOTI BOUNDARIES
- PROPOSED TRAP SITE FENCELINE
- CER ENVIRONMENTAL CORRIDOR

COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N
PROJECTION: TRANSVERSE MERCATOR



REV	DESCRIPTION	DATE	DRN	CKD	APP
3	ISSUED FOR INFORMATION, AFE 01-13283	2023/12/13	DM	GF	MK
2	ISSUED FOR INFORMATION, AFE 01-13283	2023/12/12	DM	GF	GF
1	ISSUED FOR INFORMATION, AFE 01-13283	2023/11/17	DM	GF	MK
0	ISSUED FOR INFORMATION, AFE 01-13283	2023/10/24	DM	GF	MK



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TRANS MOUNTAIN PIPELINE L.P.

TRANS MOUNTAIN EXPANSION PROJECT
DETAILED MAP
MOUNTAIN CROSSING 3 NORTH END

SCALE	ROUTE	DRAWING NUMBER	SHEET NO.	REV
1:1,000	5.24.19	M002-PM06605	1	3

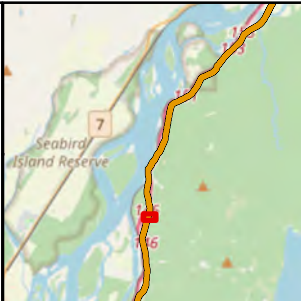


0.10 ha of the Proposed Trapsite is inside the permanent easement
0.15 ha of the Proposed Trapsite is outside the permanent easement

SIZE: 11 x 17 - VERSION: H

- LEGEND**
 - ▲ PROPOSED TMEP KILOMETRE POST
 - PROPOSED PIPELINE ROUTE
 - EXISTING TMPL
- EASEMENT (EXCLUSIVE)
 - EXTRA TEMPORARY WORKSPACE
 - TEMPORARY WORKSPACE
 - MOTI BOUNDARIES
 - PROPOSED TRAP SITE FENCELINE
 - CER ENVIRONMENTAL CORRIDOR

COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N
PROJECTION: TRANSVERSE MERCATOR



0 50 METRES					
REV	DESCRIPTION	DATE	DRN	CKD	APP
3	ISSUED FOR INFORMATION, AFE 01-13283	2032-12-13	DM	GF	MK
2	ISSUED FOR INFORMATION, AFE 01-13283	2023/12/12	DM	GF	GF
1	ISSUED FOR INFORMATION, AFE 01-13283	2023/11/17	DM	GF	MK
0	ISSUED FOR INFORMATION, AFE 01-13283	2023/10/24	DM	GF	MK

**TRANS MOUNTAIN**

**Universal Pegasus**
INTERNATIONAL

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TRANS MOUNTAIN PIPELINE L.P.

TRANS MOUNTAIN EXPANSION PROJECT
DETAILED MAP
MOUNTAIN CROSSING 3 SOUTH END

SCALE	ROUTE	DRAWING NUMBER	SHEET NO.	REV
1:1,000	5.24.19	M002-PM06606	1	3