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April 5, 2019

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC
V6Z 2N3

Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

Project No. 1598988

Application for a Certificate of Public Convenience and Necessity for the Inland Gas Upgrade Project (the Application)

Evidentiary Update and Errata dated April 5, 2019

This Evidentiary Update and Errata addresses updates or corrections to the Application that FEI identified in the process of responding to the first round of information requests (IRs). The only change to the IGU Project as a result of the updates and corrections is that the estimated capital cost of the IGU Project has been reduced to $360.193 million from $362.904 million[1]. The revised total Project Cost, including the capital costs and application and preliminary stage development costs, is $361.184 million.

This Evidentiary Update and Errata includes the following items:

1. Update to the alternative evaluation for the Salmon Arm 3 Lateral to reflect the feasibility of the PRS alternative;
2. Errata to the financial analyses to reflect the correct allocation of "land rights" costs;
3. Errata to the financial analyses for laterals with the PLR alternative to include the debit of retirement costs in the opening balance of accumulated depreciation;
4. Errata to reflect the correct number of restrictive elbows/bends that were included in Stantec's Base Estimate;

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[1] Cost estimate in as-spent dollars, including Allowance for Funds Used During construction (AFUDC) and cost of removal.

5. Errata to reflect the correct the number of industrial customers for Cariboo Pulp Lateral 168, BC Forest Products Lateral 168, and Elkview Lateral 168 in Appendix A;

6. Errata to Appendix I to correct errors in tables; and

7. Errata to correct typographical errors and make clarifying edits to Appendices J-1 Stantec FEED Report and J-3 PRS Basis of Estimate (Errata).

Each of these seven items listed above are discussed in more detail below.

1. Update to the alternative evaluations for the Salmon Arm 3 Lateral to reflect the feasibility of the PRS alternative

In response to BCUC IR 1.14.3, FEI identified that the PRS alternative was inadvertently overlooked as a feasible alternative for the Salmon Arm 3 Lateral 168 and thus was not considered during the alternative selection process. In this Evidentiary Update, FEI updated its alternatives evaluation of the Salmon Arm 3 Lateral to include PRS as a feasible alternative. Table 1 below shows the updated alternatives evaluation.

PLR continues to have the highest overall score as well as the lowest PV of incremental revenue requirements over a 66-year analysis period. The inclusion of the PRS alternative did not change the selection of PLR as the preferred alternative for the Salmon Arm 3 Lateral.

The updated comparison of overall financial analysis and scoring of the ILI, PLR, and PRS alternatives for each of the three criteria, originally provided on page 24 of Appendix A of the Application, is shown in the tables below.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	7,136	4,290	5,007
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,893	-	1,463
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	705	-	20
PV of Incremental Revenue Requirement - 66 years ($000s)	10,493	4,191	6,589
Levelized Rate Impact - 66 years (%)	0.08%	0.03%	0.05%

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	2.8	3.3	4.3
Financial	1.0	5.0	2.0
Overall Score	**3.1**	**4.5**	**2.8**

FEI has updated the following parts of the Application to reflect the inclusion of the PRS alternative as a feasible alternative for the Salmon Arm 3 Lateral:

- Section 4;
- Appendix A;
- Appendix I;
- Confidential Appendix J-1 Stantec FEED Report and Confidential Appendix J-3 PRS Basis of Estimate; and
- Confidential Appendix N-2 Individual Financial Schedules for Salmon Arm 3 Lateral to include PRS alternative.

Additionally, FEI noted that Confidential Appendix J-3 and J-4 of the Application were inadvertently interchanged. FEI has corrected the order of Confidential Appendices J-3 and J-4 in this Evidentiary Update and Errata. No changes have been made to the content of Confidential Appendix J-4.

2. Errata to the financial analyses to reflect the correct allocation of "land rights" costs

In response to BCUC Confidential IR 1.2.5, FEI identified that some components of the land rights costs for a number of laterals were incorrectly allocated. The land agent fees, project management consultant fees, and administrator consultant fees for acquiring the new Right of Ways (ROWs) for laterals with PLR or ILI were estimated on a per region basis and should have been allocated among the laterals within the same region. Inadvertently, these fees were not divided amongst the laterals within the same region in the financial analyses provided in Confidential Appendix N-1 and N-2 of the Application. Instead, some laterals were allocated the full cost of the aforementioned fees for the entire region, while some laterals were allocated none of the associated cost. FEI also clarifies that part of the allocation errors in the original land rights costs were due to accounting for the aforementioned fees separately between ILI and PLR in the financial analyses, which resulted in some of the fees being double counted. As mentioned above, these fees should have been allocated based on the region where each lateral is located, and regardless of whether the alternative is ILI or PLR (e.g., there will be one land agent for multiple laterals within the same region regardless of alternatives).

FEI has corrected the allocation of land rights costs in this Errata consistent with its response to BCUC Confidential IR 1.2.5. The correction resulted in a reduction to the estimated capital cost of the Project from $362.904 million to $360.193 million. The reduction in the estimated capital cost is primarily due to correcting the double counting of land agent fees to all laterals within the same region. These revisions did not change the alternative evaluation for each lateral nor did they change the selection of the preferred alternative. Please refer to FEI's response to BCUC Confidential IR 1.2.5 for the correct land rights costs for all laterals with ILI or PLR as the preferred alternative.

As part of this Errata, FEI has updated the following parts of the Application:

- Sections 1, 4, 5, and 6;
- Appendix A, to include the updated financial analyses;
- Appendix I, to include the updated financial scores;
- Confidential Appendix N-1 Aggregated Financial Schedules and N-2 Individual Financial Schedules; and
- Confidential Appendix J-1 Stantec FEED Report.

3. Errata to the financial analyses for laterals with the PLR alternative to include the debit of retirement costs in the opening balance of accumulated depreciation

In the response to BCUC IR 1.21.2, FEI identified that the Financial Analyses submitted for PLR in Confidential Appendices N-1 and N-2 of the Application included the retirement cost as a credit to the opening balance of the Plant; however, the debit of the same amount in the retirement to the opening balance of accumulated depreciation was inadvertently omitted. FEI has corrected the opening balance of accumulated depreciation for the financial analyses of all PLR alternatives in Confidential Appendix N-1 and N-2 to include the debit of the retirement costs with this Errata. FEI notes this update does not change the estimated capital cost of the IGU Project and did not change the selection of the preferred alternatives for any of the laterals.

In addition to updating Confidential Appendix N-1 and N-2, FEI updated the following parts of the Application for this errata:

- Section 1, 4, 5, and 6;
- Appendix A, to include the updated financial analyses of laterals with a PLR alternative; and
- Appendix I, to include the updated financial scores.

4. Errata to reflect the correct number of restrictive elbows/bends that were included in Stantec's Base Estimate

In response to CEC Confidential IR 1.9.1.1, FEI identified a typographical error in the number of restrictive elbows/bends noted in Section 5.3.4.3, page 69, of the Application. The Stantec cost estimate for the ILI component of the IGU Project was developed with the correct assumption of 180 restrictive elbows/bends. FEI has corrected Section 5.3.4.3 of the Application with this Errata.

5. Errata to reflect the correct number of industrial customers for Cariboo Pulp Lateral 168, BC Forest Products Lateral 168, and Elkview Lateral 168 in Appendix A

In response to CEC IR 1.31.1, FEI identified a typographical error in in the number of industrial customers identified for the Cariboo Pulp Lateral 168 in Section 1.1.11 of

Appendix A. FEI has since identified two similar typographical errors for the BC Forest Products Lateral 168 described in Section 1.1.3 and the Elkview Lateral 168 described in Section 1.1.23 of Appendix A where the number of industrial customers was incorrectly shown as being "n/a". With this Errata, the number of industrial customers has been updated to "1" in the tables included in Sections 1.1.3, 1.1.11 and 1.1.23 of Appendix A.

6. Errata to Appendix I to correct errors in tables

In response to CEC IR 1.32.2, FEI identified an error in the table under tab "2. Definitions" of Appendix I. The PV of incremental revenue requirement analysis for the IGU Project was determined based on a 66-year analysis period, not a 50-year analysis period. All financial analyses included in Confidential Appendix N-1 and N-2 were based on a 66-year analysis period. FEI has corrected the table under tab "2. Definitions" of Appendix I with this Errata.

While preparing this errata FEI also noted three errors in the table under tab "6. Summary (Financial)" in Appendix I. The errors are:

- The financial score for Mackenzie Loop 168 PLR alternative should have been 1 instead of 2;
- The financial score for Coldstream lateral 219 PLR alternative should have been 2 instead of 3; and
- The financial score for Kelowna 1 Loop 219 PLR alternative should have been 2 instead of 3.

FEI updated Appendix I and Confidential Appendix J-1 Stantec FEED Report, Appendix C.1 Alternative Evaluation Summaries for these errata. These errata were accounted for in, did not change, the alternative evaluation for the laterals and did not change the selection of the preferred alternative.

Lastly, FEI noted that Project Execution and Lifecycle pages were inadvertently cut off during the compilation of the PDF for Appendix I. As such, FEI has re-filed the entire Appendix I as part of this errata.

7. Errata to correct typographical errors and make clarifying edits to Appendices J-1 Stantec FEED Report and J-3 PRS Basis of Estimate for clarity

When making changes to Appendices J-1 Stantec FEED Reports and J-3 PRS Basis of Estimate to address items 1, 2 and 6 above, Stantec took the opportunity to make editorial changes to address typographical errors and improve clarity. For ease of review, the revisions Stantec made to their FEED Report and the PRS Basis of Estimate have been identified in red and by triangle margin markers.

Attached are black-lined and clean versions (where appropriate) of the following parts of the Application.

Description	Revised Pages
Application	Pages 1, 2, 8, 9, 27, 28, 39, 43, 44, 45, 47, 66, 67, 69, 83, 84, 85, 86, 87, 88.
Appendix A – Detailed Description of 29 Laterals	All pages. (Blacklined and Clean versions provided)
Appendix I – Detailed Evaluation of Alternatives	All pages.
Appendix J-1 – Stantec FEED Report Documents CONFIDENTIAL	All pages.
Appendix J-3 – Stantec PRS Basis of Estimate CONFIDENTIAL	All pages.
Appendix N-1 – Aggregated Financial Schedules CONFIDENTIAL	All pages.
Appendix N-2 – Individual Financial Schedules CONFIDENTIAL	All pages.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Doug Slater

Attachments

cc (email only): Registered Parties

1. APPLICATION

1.1 APPROVALS SOUGHT

FortisBC Energy Inc. (the Company or FEI), applies to the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) for its Inland Gas Upgrades Project (IGU Project or Project) (the Application) pursuant to sections 45 and 46 of the *Utilities Commission Act* (the Act). The IGU Project will implement the most cost-effective integrity management solutions to mitigate the potential for rupture failure on 29 laterals in the interior region of BC as described in the Application, at an estimated capital cost of $360.193 million[1] and over a six-year Project period between 2019 and 2024.

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FEI is also seeking approval of a deferral account, entitled the "IGU Application and Preliminary Stage Development Costs Deferral Account", pursuant to section 59 to 61 of the Act. This new deferral account is required to capture the costs of preparing the Application and the costs of preliminary stage development of the IGU Project. The net-of-tax balance of the total application and preliminary stage development cost is $0.991 million. The total Project Cost, including the capital costs as well as the application and preliminary stage development costs, is $361.184 million.

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A draft Procedural Order and draft Final Order are included in Appendix T-1 and T-2 respectively.

1.1.1 CPCN for IGU Project

The IGU Project is needed to mitigate the potential for rupture failure due to corrosion on 29 transmission pipeline laterals on FEI's system that were constructed between 1957 and 1998, have a nominal pipe size (NPS) 6 or greater, operate as transmission[2] pipelines and are not capable of being in-line inspected (referred to in this Application as the 29 Transmission Laterals). FEI owns and operates approximately 3 thousand kilometres of transmission pressure (TP) pipelines in the province of British Columbia. The 29 Transmission Laterals collectively make up approximately 410 kilometres of pipe length. Because the 29 Transmission Laterals operate at transmission operating stress levels, there is a potential that corrosion in these pipelines, if left undetected, could result in rupture. FEI's current method of integrity verification for these laterals, Modified External Corrosion Direct Assessment (ECDA), will not detect active corrosion under circumstances found on FEI's system and therefore it is not an acceptable solution over the long term. As such, FEI is proposing alternate integrity management solutions that will mitigate the potential for rupture due to corrosion on the 29 Transmission Laterals.

[1] Cost estimate in as-spent dollars, including Allowance for Funds Used During Construction (AFUDC) and cost of removal.
[2] Transmission pipelines operate as transmission operating stress levels of 30% or more of of the specified minimum yield strength (SMYS) of the pipe.

The IGU Project will construct assets or retrofit existing assets to implement cost-effective integrity management solutions for each lateral. Specifically, the IGU Project will:

1. Retrofit 11 laterals to provide in-line-inspection[3] (ILI) capability (which mitigates approximately 310 kilometres of pipe length);
2. Construct pressure regulating stations on 14 laterals to reduce the maximum operating pressure and resulting operating stress to below 30 percent of the specified minimum yield strength (SMYS) of the pipe (which mitigates approximately 90 kilometres of pipe length); and
3. Replace 4 laterals with new pipe designed to operate at a stress below 30 percent of the SMYS of the pipe (which mitigates approximately 9 kilometres of pipe length).

A detailed description of the 29 Transmission Laterals is provided in Appendix A of the Application.

Based on the Project construction schedule and an estimated total Project cost of $361.184 million[4], the total delivery rate impact of the Project is estimated to be 4.3 percent over six years from 2020 to 2025. Since the Project will be completed in phases over six years, there will be a delivery rate impact annually for the portion of the Project that is completed each year. The average rate impact is approximately 0.7 percent per year or $0.029 per GJ annually from 2020 to 2025. For a typical FEI residential customer consuming an average of 90 GJ per year, this equates an approximate average increase of $2.61 annually over the six years from 2020 to 2025.

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FEI submits that the IGU Project is in the public interest and requests that the BCUC grant a CPCN for its construction and operation.

1.1.2 IGU Application and Preliminary Stage Development Costs Deferral Account

FEI is also seeking approval of a deferral account, entitled the "IGU Application and Preliminary Stage Development Costs Deferral Account", to capture the regulatory costs of this Application and the costs expended for the purpose of evaluating the feasibility of and preliminary development of the Project. The Application costs include expenses for legal review, BCUC costs and BCUC approved intervener costs, and forecast costs to support the hearing process. The preliminary stage development costs include expenses incurred by FEI internally as well as third-party consultants for assessing the feasibility of the Project, developing and evaluating preliminary design and alternatives. The IGU Application and Preliminary Stage Development costs will be recorded in a non-rate base deferral account on a net-of-tax basis attracting a

[3] In-line inspection involves the insertion of a data collection device (commonly referred to as an ILI tool or pig) inside an operating pipeline to obtain indirect measurement of imperfections (e.g. metal loss, dents, and mechanical damage) that may adversely affect its integrity.
[4] Cost estimate in as-spent dollars, including Allowance for Funds Used During Construction (AFUDC) and cost of removal.

1.2.4 Project Costs and Rate Impact

The Total Cost of the Project (as-spent dollars) is $361.184 million, which includes $360.193 million of Project capital budget (as-spent dollars) and $0.991 million of Project Deferral related to the Application and Preliminary Stage Development Costs. The total delivery rate impact of the Project is 4.3 percent or $0.174 per GJ over 6 years from 2020 to 2025.

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The following table summarizes the total forecast capital and deferred costs for the Project.

Table 1-2: Summary of Forecast Capital Budget and Deferred Costs ($millions)

	2018 $	As-Spent $	AFUDC	Tax Offset	TOTAL
Type of Preferred Option					
In-line Inspection (ILI) - 11 Laterals	240.227	257.065	10.864	-	267.929
Pipeline Replacement (PLR) - 4 Laterals	26.948	28.855	1.252	-	30.107
Pressure Regulating Station (PRS) - 14 Laterals	53.388	58.635	3.197	-	61.831
Total Addition to Plant - Total 29 Laterals	320.563	344.555	15.313	-	359.868
Abandonment/Demolition Cost	0.290	0.311	0.014	-	0.325
Subtotal - Project Capital Budget	*320.853*	*344.866*	*15.327*	*-*	*360.193*
IGU Project Application Cost	0.390	0.390	0.008	(0.105)	0.293
IGU Project Preliminary Stage Development Cost	0.931	0.931	0.019	(0.251)	0.698
Subtotal - Project Deferral Cost	*1.321*	*1.321*	*0.027*	*(0.357)*	*0.991*
TOTAL Project Cost	***322.174***	***346.187***	***15.354***	***(0.357)***	***361.184***

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Type of Preferred Option
In-line Inspection (ILI) - 11 Laterals
Pipeline Replacement (PLR) - 4 Lateral
Pressure Regulating Station (PRS) - 14
Total Addition to Plant - Total 29 Laterals
Abandonment/Demolition Cost
Subtotal - Project Capital Budget
IGU Project Application Cost
IGU Project Preliminary Stage Developme
Subtotal - Project Deferral Cost
TOTAL Project Cost

The Project is planned to be completed in phases over six years from 2019 to 2024. The table below summarizes the associated amount of the total Project capital costs that will be completed in each year over the duration of the Project. Refer to the Section 5.4 of the Application for more detail related to the Project's construction and operating schedule.

Table 1-3: Amount of Project Capital Complete and in-service from 2019-2024 ($ millions)

	Project complete and in-service each year, 2019-2024 ($ millions) (To be transfer to Rate Base January 1 of each following year)						
	2019	2020	2021	2022	2023	2024	TOTAL
In-line Inspection (ILI) - 11 Laterals	-	49.626	76.884	66.351	52.003	23.123	**267.987**
Pipeline Replacement (PLR) - 4 Laterals	-	-	10.957	17.750	1.668	-	**30.375**
Pressure Regulating Station (PRS) - 14 Laterals	-	-	-	14.979	20.859	25.993	**61.831**
Overall Project Capital Budget In-Service	***-***	***49.626***	***87.841***	***99.079***	***74.530***	***49.117***	***360.193***
Overall Project % In-Service	0%	14%	24%	28%	21%	14%	**100%**

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In-line Inspection (ILI) - 11 Laterals
Pipeline Replacement (PLR) - 4 Laterals
Pressure Regulating Station (PRS) - 14 Laterals
Overall Project Capital Budget In-Service
Overall Project % In-Service

As the Project is planned to be completed and placed into in-service in phases, there will be an annual delivery rate impact. The estimated annual revenue requirement of the Project and the resulting annual delivery rate impacts from 2020 to 2025, when compared to the currently approved 2018 delivery rates, are shown in the table below. The amount of the Project capital cost to be placed in-service each year as shown in Table 1-4 above will be transferred to rate base on January 1 of each following year; therefore, the delivery rate impact will occur in the following year of each in-service year.

Table 1-4: Percent Rate Impact annually from 2020 to 2025

	2020	2021	2022	2023	2024	202
Annual Revenue Requirement, Incremental to 2018 Approved, Non-Bypass ($ millions)	(0.156)	2.823	9.828	19.189	28.298	34.1
% Increase to 2018 Approved Revenue Requirement, Non-Bypass (G-196-17)	*(0.02%)*	*0.36%*	*1.24%*	*2.41%*	*3.56%*	*4.3*
Incremental % Rate Impact (Year-over-Year)	*(0.02%)*	*0.37%*	*0.88%*	*1.16%*	*1.12%*	*0.7*

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The Project will result in a delivery rate impact of 4.3 percent, when compared to currently approved 2018 delivery rates, over six years from 2020 to 2025. Since the Project will be completed in phases, the average delivery rate impact per year for the duration of the Project is approximately 0.7 percent or $0.029 per GJ annually. For a typical FEI residential customer consuming 90 GJ per year, this would equate to approximately an average increase of $2.61 per year over the six years.

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1.2.5 Environmental and Archaeological Evaluation

An Environmental overview assessment (EOA) and an archaeological overview assessment (AOA) were completed to identify areas of environmental and archaeological sensitivities, potential Project interactions, the need for further investigations prior to construction, and associated permitting requirements.

Based on the EOA, the environmental risk of the Project is low and any potential environmental impacts from the Project can be mitigated through the application of standard environmental protection and mitigation measures.

The AOA concluded that the majority of the expected Project footprint is considered to have low archaeological potential due to the amount of previous disturbance. An Archaeological Impact Assessments (AIA) has been recommended for ground disturbance activities in areas identified as moderate or high potential through the AOA process.

FEI will complete AIAs where soil-disturbing activities are expected to take place in areas identified as moderate or high archaeological potential in the AOA. The environmental and archaeological requirements for the Project will continue to be refined and lateral-specific plans will be developed during the detailed design phase. Project works will adhere to best practices and environmental permits will be obtained where appropriate.

1.2.6 Consultation and Engagement

Consultation, engagement and communication with the public, local government, Indigenous communities and other stakeholders was a critical component in the development of FEI's IGU Project.

FEI has sent out notifications to potentially directly affected customers and stakeholders through letters, bill inserts and advertisements. FEI has also held numerous one-on-one meetings with government authorities and responded to requests for further information. To date, no significant concerns have been raised with regard to the Project.

4. DESCRIPTION AND EVALUATION OF ALTERNATIVES

4.1 *INTRODUCTION*

FEI analysed 7 alternative integrity management solutions that could meet the Project's objective to mitigate the potential for rupture failure due to corrosion on the 29 Transmission Laterals.

These are:

1. Status Quo: Modified External Corrosion Direct Assessment (Modified ECDA);
2. Pipeline exposure and re-coat (PLE);
3. Hydrostatic testing program (HSTP);
4. Pressure regulating station (PRS);
5. In-line inspection (ILI);
6. Pipeline replacement (PLR); and
7. Robotic Inspection (ROB).

FEI evaluated the alternatives using a weighted scoring system based on three criteria: (1) Integrity and Asset Management Capability; (2) Project Execution and Lifecycle Operation; and (3) Financial. The alternative with the highest evaluated score was selected, except in cases where the scoring system produced similar results or where the highest scoring alternative was not the lowest cost, in which case FEI used subject matter experts to validate the scores and select a preferred alternative.

The status quo alternative was rejected because it does not meet the Project's objective of mitigating the potential for rupture failure due to corrosion. FEI rejected ROB as it is not considered proven and commercialized at this time. FEI also rejected the PLE and HSTP alternatives as not feasible due to a combination of lack of integrity management benefits, higher cost, and the disruption of service to customers. For some laterals, PRS was rejected in favour of other alternatives due to capacity limitations of some systems. In some cases, PLR was rejected in favor of other alternatives when the laterals were longer than 4.0 kilometres due to higher cost.

The results of the analysis of the remaining three feasible alternatives are summarized as follows:

- **PRS Chosen Where Viable:** Where PRS was viable, it was chosen as the preferred alternative for all laterals except for two because it met the objective of the Project at the lowest cost and rate impact, and with limited ground disturbance and public impacts. The installation of a PRS was not viable for some laterals due to capacity limitations, which would cause the PRS to impact existing firm customers or interruptible customer

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operations or prevent new additions of new customers to the lateral. In the two cases where PRS was viable but not selected as the preferred alternative, PLR was chosen because it had a higher overall score, was financially comparable or more cost effective and offered better integrity and asset management capability benefits.

- **ILI More Cost Effective for Longer Laterals:** Where PRS was not viable, ILI was selected for longer laterals due to a lower cost and rate impact, and better proactive asset management capability. For the longer laterals, PLR had a much higher capital Project cost and resulted in a higher rate impact when compared to ILI for the same lateral.
- **PLR for Shorter Laterals:** For the shorter laterals, PLR was selected as the preferred alternative for all cases except for one because it met the objective of the Project at the lowest cost and rate impact. For the case where PLR was not selected, PRS was selected because it has a lower capital cost and resulted in minimal ground disturbance.

The remainder of this section describes FEI's alternatives analysis in more detail including a description of each of the alternatives, the evaluation criteria and methodology, the screening process, and the alternatives analysis for each of the 29 Transmission Laterals.

4.2 *ALTERNATIVES DESCRIPTION*

FEI considered seven alternatives for evaluation that are available to pipeline operators to mitigate the potential for rupture due to corrosion and that have been applied with varying frequency by Canadian pipeline operators. These are:

1. Status Quo: Modified External Corrosion Direct Assessment (Modified ECDA);
2. Pipeline exposure and re-coat (PLE);
3. Hydrostatic testing program (HSTP);
4. Pressure regulating station (PRS);
5. In-line inspection (ILI);
6. Pipeline replacement (PLR); and
7. Robotic Inspection (ROB).

4.2.1 Status Quo: Modified ECDA Alternative

This alternative involves continued use of Modified ECDA to mitigate the potential for failure due to corrosion. ECDA is a process for managing external corrosion, published as standard ANSI/NACE SP0502-2010 "Standard Practice Pipeline External Corrosion Direct Assessment Methodology" (Appendix G).[18]

[18] Available online at: https://www.nace.org/uploadedFiles/Corrosion_Central/Industries/SP050208PHMSA.pdf.

Status Quo was screened out on a technical basis and was not considered further in the evaluation process.

4.4.2 Robotic Inspection (ROB) Screened Out Based on Readiness

At this time, FEI does not consider robotic ILI tools to be proven and commercialized. The technology is not available for pipe sizes of NPS 6 (168mm) and FEI is only aware of a single vendor providing this service for larger pipe sizes. As described in Section 4.2.7, the batteries require recharging approximately every 450 metres. The required excavations at each recharge point each and every time the robotic tool is run is not desirable from a lifecycle operation perspective in terms of impact to the environment, Indigenous communities, and stakeholders.

As a result, the ROB alternative was screened out as not feasible and was not considered further in the evaluation process.

4.4.3 Pressure Regulating Station (PRS) Screened Out for Some Laterals Based on Capacity Limitations

PRS was not viable for some laterals due to capacity limitations of some systems. By reducing the operating pressure of the pipeline, the capacity available to customers will change. Laterals where a PRS would impact existing firm customers or interruptible customer operations or prevent new additions of new customers to the lateral were not considered candidates for the PRS alternative. Below in Table 4-5 are the 29 Transmission Laterals and their PRS feasibility.

Table 4-5: Feasibility of PRS for the 29 Transmission Laterals

Line/Loop Full Name	PRS Feasibility
Mackenzie Lateral 168	Not Feasible
Mackenzie Loop 168	Not Feasible
BC Forest Products Lateral 168	Feasible
Prince George 3 Lateral 219	Feasible
Northwood Pulp Lateral 168	Feasible
Northwood Pulp Loop 219	Feasible
Prince George 1 Lateral 168	Not Feasible
Prince George Pulp Lateral 168	Feasible
Husky Oil Lateral 168	Feasible
Prince George 2 Lateral 219	Feasible
Cariboo Pulp Lateral 168	Feasible
Williams Lake Loop 1 and 2 168	Feasible
Kamloops 1 Lateral/Loop 168	Not Feasible
Salmon Arm Loop 168	Not Feasible
Salmon Arm 3 Lateral 168	Feasible

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Initially, high level cost estimates were used to screen out technically feasible alternatives that were cost prohibitive and therefore considered to be not financially feasible[25]. Based on the high level cost estimates for the PLE alternative as shown below in Table 4-7, it is clear that the cost of the PLE alternative is either higher or comparable to other alternatives that were able to provide better integrity and asset management capabilities. FEI therefore did not pursue the PLE alternative further in the evaluation process.

Table 4-7: High Level Cost Comparison of PLE to Other Alternatives (2018$)

Lateral	ILI ($ millions)	PLR ($ millions)	PRS ($ millions)	PLE ($ millions)
BC Forest Products Lateral 168	6.7	2.6	3.7	4.2
Cariboo Pulp Lateral 168	5.1	4.0	3.4	6.1
Kamloops Lateral/Loop 168	11.2	11.6	N/A*	26.5
Salmon Arm 3 Lateral 168	5.1	3.0	3.5	4.6

**PRS was not feasible for this lateral and as a result, no cost estimate was developed.*

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High level cost estimates were completed for HSTP for the five laterals for which it was a technically feasible alternative, as shown below in Table 4-8. The hydrostatic tests would be repeated every five to ten years, and in this case, the HSTP costs assumed a test frequency of every seven years over a 66-year period. As shown below, the HSTP alternative was cost prohibitive when compared to other alternatives that were either equal or superior in their technical performance. The cost of LNG supplementation for the industrial customers is cost prohibitive even for the BC Forest Products and Elkview Laterals which are two shorter single feed, un-looped laterals. As a result, FEI did not pursue the HSTP alternative further in the evaluation process.

Table 4-8: High Level Cost Comparison of HSTP to Other Alternatives (2018$)

Lateral	ILI ($ millions)	PLR ($ millions)	PRS ($ millions)	HSTP ($ millions)
BC Forest Products Lateral 168	6.7	2.6	3.7	36.0
Elkview Lateral 168	5.5	4.5	3.5	27.3
Cranbrook Lateral 168	9.8	79.8	N/A*	20.0
Cranbrook Loop 219	9.2	79.8	N/A*	51.5
Cranbrook Kimberley Loop 219	4.9	15.7	N/A*	10.1

**PRS was not feasible for these laterals and as a result, no cost estimate was developed.*

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The PLR alternative for some of the longer laterals was also considered to be cost prohibitive when compared to the other technically feasible alternatives and was therefore not considered to be financially feasible and was not considered further in the evaluation process for these longer laterals. The high level cost estimates are shown below in Table 4-9.

[25] For the alternatives that are not technically feasible, no cost estimate is provided.

Table 4-9: High Level Cost Comparisons of PLR to Other Alternatives for Longer Laterals (2018$)

Lateral	ILI ($ millions)	PRS ($ millions)	PLR ($ millions)
Mackenzie Lateral 168	26.8	N/A*	71.7
Mackenzie Loop 168	15.6	N/A*	35.6
Prince George 3 Lateral 219	8.2	1.2	20.9
Northwood Pulp Lateral 168	8.5	1.2	23.4
Northwood Pulp Loop 219	8.0	1.2	22.8
Prince George 1 Lateral 168	8.3	N/A*	18.4
Prince George 2 Lateral 219	8.6	3.5	27.1
Williams Lake Loop 1 168	3.8	1.7	13.2
Williams Lake Loop 2 168	5.4	1.7	9.8
Salmon Arm Loop 168	18.9	N/A*	105.4
Coldstream Loop 168	8.3	3.4	14.7
Kelowna 1 Loop 219	8.3	4.0	8.2
Celgar Lateral 168	6.7	3.5	22.6
Castlegar Nelson 168	36.0	5.3	109.6
Trail Lateral 168	12.3	3.6	20.7
Fording Lateral 219/168	64.4	N/A*	186.8
Cranbrook Lateral 168	9.8	N/A*	79.8
Cranbrook Loop 219	9.2	N/A*	79.8
Cranbrook Kimberley Loop 219	4.9	N/A*	15.7
Cranbrook Kimberley Loop 273	5.5	N/A*	27.6
Kimberley Lateral 168	13.4	N/A*	48.3
Skookumchuck Lateral 219	4.9	N/A*	84.3

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**PRS was not technically feasible for these laterals and as a result, no cost estimate was developed.*

For the ILI, PLR and PRS alternatives that were both financially and technically feasible, AACE Class 3 estimates were developed to compare alternatives for each lateral.[26]

4.4.6 Summary of Technical and High Level Financial Screening

The Status Quo - Modified ECDA alternative were screened out on a technical basis because it did not achieve the Project objective to mitigate the potential for rupture due to corrosion. The Robotics alternative was also screened out on a technical basis because it is not proven technology nor commercialized. The PRS alternative was also screened out on a technical basis for the laterals where there are capacity limitations. Modified ECDA, Robotics and PRS

[26] FEI developed the cost estimates for alternatives to a Class 3 level to allow for a more accurate comparison of costs.

for some laterals were not considered to be technically feasible and therefore, were not considered further in the evaluation process.

Both the PLE and some of the HSTP alternatives were considered to be technically acceptable but were screened out on a financial basis because they were considered to be cost prohibitive when compared to the other technically superior alternatives. The PLR alternative for some of the longer laterals was also screened out on a financial basis because it was cost prohibitive when compared to the other technically feasible alternatives. PLE, HSTP, and PLR for some of the longer laterals were not considered to be financially feasible and therefore, were not considered further in the evaluation process.

The ILI, PLR and PRS were evaluated to be technically superior to the other alternatives with ILI providing the highest technical rating for each alternative[27]. These alternatives also presented the most cost effective solutions. AACE Class 3 estimates were developed to compare the remaining alternatives for each lateral.

4.5 *ANALYSIS OF THREE REMAINING FEASIBLE ALTERNATIVES*

FEI evaluated each of the remaining three feasible alternatives (PRS, ILI and PLR) for each lateral using the evaluation methodology described above. The following sections outline the findings of the alternative evaluation process.

4.5.1 Selection of PRS Where Viable

For the laterals for which PRS was viable, PRS was chosen as the preferred alternative in all cases except for two because of the ability of this alternative to meet the objectives of the Project at the lowest cost, with the added benefit of limited ground disturbance and community impacts. PRS was generally the lowest cost alternative. For Project Execution and Lifecycle Operation, PRS scored from 4.3 to 4.6, compared to 2.8 to 3.7 for ILI and PLR. As a result, PRS was selected as the preferred alternative for all of the laterals where PRS was viable except for one.

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In the two cases where PRS was viable but not selected as the preferred alternative, PLR was chosen as PLR had a higher overall score, was financially comparable or more cost effective to PRS, with better integrity and asset management capability benefits. FEI's internal subject matter experts also recommended PLR over PRS in this case, in alignment with the overall scoring.

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4.5.2 ILI More Cost Effective for Longer Pipelines

Where PRS was not feasible, ILI and PLR were compared to determine the best solution. For most laterals, ILI and PLR both scored comparably under the technical criteria of preventing rupture and leaks; however, ILI has an advantage of providing better proactive asset management capability. The ILI and PLR alternatives also had comparable Project execution

[27] Detailed technical scores for ILI, PRS and PLR are provided in Appendix I.

Table 4-10: Preferred Alternative for Each Lateral and Present Value of Incremental Revenue Requirement over 66-years of Analysis Period

Lateral	Length (kilometres)	ILI Present Value ($ millions)	PLR Present Value ($ millions)	PRS Present Value ($ millions)	Preferred Alternatives
Mackenzie Lateral 168	28.7	44.7	-	-	ILI
Mackenzie Loop 168	14.2	25.2	-	-	ILI
BC Forest Products Lateral 168	0.5	12.6	3.5	7.0	PLR
Prince George 3 Lateral 219	5.3	14.3	-	2.2	PRS
Northwood Pulp Lateral 168	6.0	15.4	-	2.2	PRS
Northwood Pulp Loop 219	5.8	14.1	-	2.2	PRS
Prince George #1 Ltl 168	4.7	14.4	-	-	ILI
Prince George Pulp Lateral 168	1.0	14.3	7.7	3.6	PRS
Husky Oil Lateral 168	1.1	16.4	5.6	3.6	PRS
Prince George #2 Lateral 219	8.7	15.8	-	6.3	PRS
Cariboo Pulp Lateral 168	1.3	10.5	5.5	6.5	PLR
Williams Lake Loop 168	5.9	15.7	-	6.0	PRS
Kamloops 1 Lateral & Loop 168	6.6	32.1	15.8	-	PLR
Salmon Arm Loop 168	44.9	32.6	-	-	ILI
Salmon Arm 3 Lateral	0.9	10.5	4.2	6.6	PLR
Coldstream Lat 219	1.8	13.2	9.3	5.9	PRS
Coldstream Loop 168	3.8	14.2	-	6.0	PRS
Kelowna 1 Loop 219	2.1	14.0	-	6.9	PRS
Celgar Lateral 168	5.8	11.7	-	5.9	PRS
Castlegar Nelson 168	37.4	54.2	-	9.0	PRS
Trail Lateral 168	4.2	19.0	-	5.9	PRS
Fording Lateral 219/168	79.7	102.8	-	-	ILI
Elkview Lateral 168	1.6	10.1	5.9	5.9	PRS
Cranbrook Lateral 168	34.0	21.2	-	-	ILI
Cranbrook Loop 219	34.0	20.8	-	-	ILI
Cranbrook Kimberley Loop 219	4.0	9.4	-	-	ILI
Cranbrook Kimberley Loop 273	9.4	10.9	-	-	ILI
Kimberly Lateral 168	20.6	23.5	-	-	ILI
Skookumchuck Lateral 219	35.9	14.0	-	-	ILI

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Lateral	Length (kilometre
Mackenzie Lateral 168	2
Mackenzie Loop 168	1
BC Forest Products Lateral 168	
Prince George 3 Lateral 219	
Northwood Pulp Lateral 168	
Northwood Pulp Loop 219	
Prince George #1 Ltl 168	
Prince George Pulp Lateral 168	
Husky Oil Lateral 168	
Prince George #2 Lateral 219	
Cariboo Pulp Lateral 168	
Williams Lake Loop 168	
Kamloops 1 Lateral & Loop 168	
Salmon Arm Loop 168	4
Salmon Arm 3 Lateral	
Coldstream Lat 219	
Coldstream Loop 168	
Kelowna 1 Loop 219	
Celgar Lateral 168	
Castlegar Nelson 168	3
Trail Lateral 168	
Fording Lateral 219/168	7
Elkview Lateral 168	
Cranbrook Lateral 168	3
Cranbrook Loop 219	3
Cranbrook Kimberley Loop 219	
Cranbrook Kimberley Loop 273	
Kimberly Lateral 168	2
Skookumchuck Lateral 219	3

The Elkview Lateral has comparable net present values for the PLR and PRS alternatives. However, due to higher capital costs and the larger construction impact associated with a PLR installation in an industrial environment as compared to the PRS, the PRS alternative was selected.

The detailed evaluation of the 29 Transmission Laterals can be found in Appendix I.

4.6 *CONCLUSION*

In summary, the preferred alternatives for each lateral will allow FEI to achieve its main objective of mitigating the potential for failure by rupture due to corrosion. In each case, FEI has analyzed and compared the feasible alternatives and recommended the most cost effective alternative taking into account relevant factors.

- Roads;
- Utilities and foreign pipelines;
- Watercourse;
- Trenchless crossings;
- Induction bends;
- Launcher and receiver barrels; and
- Valves.

5.3.2 Project Cost Estimate Details

The Project capital cost estimate is forecasted to be $320.853 million in 2018 dollars or $360.193 million in as-spent dollars (including AFUDC of $15.327 million)[28]. It includes contingency of 17 percent as well as a management reserve of 11 percent that FEI plans to hold based on the current understanding of the Project's risk profile and to account for possible scope changes or unknown future events which cannot be anticipated and which were not quantified in the risk register. The capital cost estimate with the management reserve approximates a P70 confidence level and will form the Project capital budget[29]. Table 5-11 presents a summary of the Project capital budget.

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[28] Of the total $360.193 million including contingency and management reserve, $344.866 million of capital and $15.313 million of AFUDC is charged to Gas Plant in Service; $0.311 million abandonment/demolition costs plus $0.014 million of AFUDC is charged to Net Salvage Deferral Account. The total AFUDC charged to Gas Plant in Service and to Net Salvage Deferral Account is $15.327 million.

[29] The contingency of 17 percent of the total base capital plus the management reserve of 11 percent of the total base capital equals to the 28 percent to achieve the P70 confidence level as discussed in Section 5.3.4.3.

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Table 5-11: Summary Project Capital Budget ($ millions)[30]

	2018 $	As-Spent $
Construction		
Materal & Unit Price Items	49.140	52.853
Construction - Direct and Indirect	136.768	146.999
Removal/Abandonment	0.226	0.243
Property and Right of Way	12.067	12.962
Contingency - Construction	33.694	36.220
Subtotal - Construction	231.895	249.277
Engineering and Development	14.845	15.715
FEI Project Management	38.368	41.403
Contingency	8.465	9.129
Management Reserve	27.279	29.343
Subtotal (incl. Construction)	320.853	344.866
AFUDC	-	15.327
TOTAL Project Capital Budget	***320.853***	***360.193***

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Construction
Materal & Unit Price Items
Construction - Direct and Indirect
Removal/Abandonment
Property and Right of Way
Contingency - Construction
Subtotal - Construction
Engineering and Development
FEI Project Management
Contingency
Management Reserve
Subtotal (incl. Construction)
AFUDC
TOTAL Project Capital Budget

5.3.2.1 Escalation

All cost estimates, including material supply and construction contracts, were developed based on 2018 market prices. An inflation escalation rate of 2.0 percent per annum is used based on the current forecast of BC CPI (July 2018) for both the as-spent capital cost estimates and the 60-year financial analysis.

5.3.2.2 GST and PST

The cost estimate excludes GST but includes 7 percent PST on materials. FEI, as a GST registrant, is entitled to recover the GST it pays on its taxable purchases. As such, the tax does not represent a net cost to FEI.

5.3.3 Cost Estimate Validation

Cost estimate quality assurance and validation were completed as follows:

- Internal Stantec reviews that included peer reviews, document quality checks, and independent review;
- Validation reviews involving both Stantec and FEI team members throughout the estimate development process to confirm that the estimate assumptions were valid;
- External independent review to verify that the estimate criteria and requirements were met and a documented, reasonable estimate was developed; and

[30] Excludes Project deferral costs discussed in Section 6.3.3. Including the Project deferral cost, the total Project Cost is estimated to $361.184 million in as-spent dollars.

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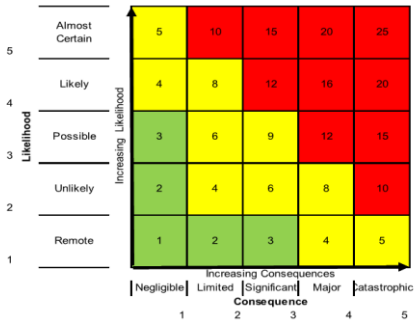
The risk likelihood and consequence scales used for the Project are based on the 5 by 5 risk assessment matrix recommended in AACE 62R-11 which is illustrated in Figure 5-2.

Figure 5-2: Risk Assessment Matrix



5.3.4.2 Risk Register, Qualitative Assessment and Action Plan

The risk identification process identified a number of risks which were tabulated in the risk register included in Appendix A to Stantec's Risk Report (Confidential Appendix L-1). The risk response actions to deal with the identified risks were also recorded in the risk register. Once the risks were identified, a qualitative analysis was completed to prioritize or rank the risks so that the Project team could focus on risk response actions and recommendations. Through this qualitative process, a likelihood and consequence rating was assigned to each identified risk using the risk assessment matrix noted above.

5.3.4.3 Quantitative Risk Analysis and Contingency

Following the completion of the risk register a quantitative analysis using Monte Carlo Simulation was completed by Stantec to determine a distribution of possible cost outcomes associated with the existing scope of the Project at different levels of confidence. The Stantec analysis derived a risk adjusted P50 cost of $279 million representing a contingency of approximately 14.4%. Please refer to Confidential Appendix N-1 for further details on Stantec's methodology and results.

The Stantec cost estimate for the ILI component of the Project was developed assuming approximately 180 restrictive bends. The number of restrictive bends was determined by selecting a representative sample for some laterals and conducting above ground surveys (using line locating tools) and some sub-surface surveys. The surveys identified locations that were either an obstruction or not. Due to the limited capability of the investigations to quantify the most likely quantity of restrictive bends, FEI engaged Bramcon, an engineering and project management company, to undertake a simulation to assist in establishing the most likely number of bends.

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6. PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACT

6.1 INTRODUCTION

The total cost estimate of the IGU Project is $361.184 million (as-spent) which includes $360.193 million (as-spent) of capital costs that forms the Project capital budget and $0.991 million (as-spent) of Project deferral costs. This section provides a breakdown of the Project cost by lateral, summarizes financial analysis and details the accounting treatment and rate impact. Also sets out below, FEI is requesting approval of deferral treatment of the Application and Preliminary Stage Development Costs for the Project.

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6.2 SUMMARY OF PROJECT COSTS AND INCREMENTAL COST OF SERVICE

Table 6-1 summarizes the estimated total Project cost including the Project capital budget and the Project deferral cost in 2018 and as-spent dollars. The Project capital budget in 2018 dollars includes PST on the materials, contingency and management reserve. The Project capital budget in as-spent dollars is based on an annual inflation forecast of two percent as discussed in Section 5.3.2.1 of the Application and the construction schedule in Section 5.4 of the Application. As discussed in Section 5.3.2 of the Application, the total Project capital budget estimate includes a contingency of 17 percent and a management reserve of 11 percent which together will provide a total Project capital budget that approximates a P70 confidence level.

Table 6-1: Total Project Cost: Summary of Forecast Capital and Deferred Costs ($millions)

	2018 $	As-Spent $	AFUDC	Tax Offset	TOTAL
Type of Preferred Option					
In-line Inspection (ILI) - 11 Laterals	240.227	257.065	10.864	-	267.929
Pipeline Replacement (PLR) - 4 Laterals	26.948	28.855	1.252	-	30.107
Pressure Regulating Station (PRS) - 14 Laterals	53.388	58.635	3.197	-	61.831
Total Addition to Plant - Total 29 Laterals	320.563	344.555	15.313	-	359.868
Abandonment/Demolition Cost	0.290	0.311	0.014	-	0.325
Subtotal - Project Capital Budget	*320.853*	*344.866*	*15.327*	-	*360.193*
IGU Project Application Cost	0.390	0.390	0.008	(0.105)	0.293
IGU Project Preliminary Stage Development Cost	0.931	0.931	0.019	(0.251)	0.698
Subtotal - Project Deferral Cost	*1.321*	*1.321*	*0.027*	*(0.357)*	*0.991*
TOTAL Project Cost	***322.174***	***346.187***	***15.354***	***(0.357)***	***361.184***

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Type of Preferred Option
In-line Inspection (ILI) - 11 Laterals
Pipeline Replacement (PLR) - 4 Lateral
Pressure Regulating Station (PRS) - 14
Total Addition to Plant - Total 29 Laterals
Abandonment/Demolition Cost
Subtotal - Project Capital Budget
IGU Project Application Cost
IGU Project Preliminary Stage Developme
Subtotal - Project Deferral Cost
TOTAL Project Cost

The Project consists of construction to enable ILI for 11 laterals, PLR for four laterals, and PRS for 14 laterals. Table 6-2 below provides the breakdown of the Project capital costs (excluding Project deferral costs) by the 29 Transmission Laterals.

Table 6-2: Breakdown of Project Capital Budget by Laterals

Ref	Lateral	2018 $	As-Spent $
In-line Inspection (ILI) - 11 Laterals			
1	Mackenzie Lateral 168	35.048	38.024
2	Mackenzie Loop 168	20.291	22.700
7	Prince George #1 Lateral 168	10.793	12.241
14	Salmon Arm Loop 168	25.332	29.241
22.1	Fording Lateral 219	49.544	55.207
22.2	Fording Lateral 168	34.847	39.010
24	Cranbrook Lateral 168	13.373	14.554
25	Cranbrook Loop 219	12.661	13.806
26	Cranbrook Kimberley Loop 219	6.391	7.032
27	Cranbrook Kimberley Loop 273	7.250	8.156
28	Kimberly Lateral 168	17.616	19.839
29	Skookumchuck Lateral 219	7.133	8.177
	Subtotal - ILI	***240.278***	***267.987***
Pipeline Replacement (PLR) - 4 Laterals			
3	BC Forest Products Lateral 168	3.277	3.612
11	Cariboo Pulp Lateral 168	5.076	5.595
13	Kamloops 1 Lateral & Loop 168	14.941	16.877
15	Salmon Arm 3 Lateral	3.892	4.290
	Subtotal - PLR	***27.187***	***30.375***
Pressure Regulating Station (PRS) - 14 Laterals			
4	Prince George 3 Lateral 219	1.547	1.753
5	Northwood Pulp Lateral 168	1.553	1.760
6	Northwood Pulp Loop 219	1.551	1.758
8	Prince George Pulp Lateral 168	2.596	2.938
9	Husky Oil Lateral 168	2.597	2.939
10	Prince George #2 Lateral 219	4.555	5.157
12	Williams Lake Loop 168	4.387	5.066
16	Coldstream Lat 219	4.358	5.029
17	Coldstream Loop 168	4.420	5.102
18	Kelowna 1 Loop 219	5.105	5.891
19	Celgar Lateral 168	4.564	5.376
20	Castlegar Nelson 168	7.051	8.343
21	Trail Lateral 168	4.585	5.399
23	Elkview Lateral 168	4.520	5.319
	Subtotal - PRS	***53.388***	***61.831***
	TOTAL Project Capital Budget	***320.853***	***360.193***

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Ref	Lateral
In-line Inspection (ILI) - 11 Laterals	
1	Mackenzie Lateral 168
2	Mackenzie Loop 168
7	Prince George #1 Lateral 168
14	Salmon Arm Loop 168
22.1	Fording Lateral 219
22.2	Fording Lateral 168
24	Cranbrook Lateral 168
25	Cranbrook Loop 219
26	Cranbrook Kimberley Loop 219
27	Cranbrook Kimberley Loop 273
28	Kimberly Lateral 168
29	Skookumchuck Lateral 219
	Subtotal - ILI
Pipeline Replacement (PLR) - 4 Laterals	
3	BC Forest Products Lateral 168
11	Cariboo Pulp Lateral 168
13	Kamloops 1 Lateral & Loop 168
15	Salmon Arm 3 Lateral
	Subtotal - PLR
Pressure Regulating Station (PRS) - 14 La	
4	Prince George 3 Lateral 219
5	Northwood Pulp Lateral 168
6	Northwood Pulp Loop 219
8	Prince George Pulp Lateral 168
9	Husky Oil Lateral 168
10	Prince George #2 Lateral 219
12	Williams Lake Loop 168
16	Coldstream Lat 219
17	Coldstream Loop 168
18	Kelowna 1 Loop 219
19	Celgar Lateral 168
20	Castlegar Nelson 168
21	Trail Lateral 168
23	Elkview Lateral 168
	Subtotal - PRS
	TOTAL Project Capital Budget

As discussed in Section 5 of the Application, the cost estimate for each lateral was developed in accordance to AACE 18R-97 Class 3 specifications as required by the CPCN Guidelines.

Table 6-3 presents the financial evaluation of the Project over a 66-year period (60 years post-Project and 6 prior years during the Project)[38]. The present value of the net cash flow of the Project represent (0.85%) of the present value of the incremental revenue requirement over 66 years[39]. Details of the financial evaluation of the Project as well as of each individual lateral can be found in the Financial Schedules as included in Confidential Appendices N-1 and N-2.

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Table 6-3: Financial Analysis of the Project

	ILI	PLR	PRS	TOTAL
Number of Laterals per Type of Preferred Option	11	4	14	***29***
Total Charged to Gas Plant in Service ($ millions)	267.929	30.107	61.831	***359.868***
Abandonment / Demolition Costs ($ millions)	0.058	0.268	-	***0.325***
Total Project Deferral Cost	0.376	0.137	0.478	***0.991***
Total Project Cost ($ millions)	***268.363***	***30.511***	***62.310***	***361.184***
Rate Impact in 2025, when all assets enter Rate Base (%)	3.30%	0.29%	0.71%	***4.30%***
Levelized Delivery Rate Impact 66 years (%)	2.32%	0.21%	0.52%	***3.05%***
Levelized Delivery Rate Impact 66 years ($/GJ)	0.094	0.009	0.021	***0.123***
PV of Incremental Revenue Requirement 66 years ($ million)	319.497	29.042	71.615	***420.154***
Net Cash Flow NPV 66 years ($ million)	(1.63)	(0.46)	(1.48)	***(3.58)***

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Number of Laterals per Type of Preferred Op
Total Charged to Gas Plant in Service ($ mill
Abandonment / Demolition Costs ($ millior
Total Project Deferral Cost
Total Project Cost ($ millions)
Rate Impact in 2025, when all assets enter Ra
Levelized Delivery Rate Impact 66 years (%)
Levelized Delivery Rate Impact 66 years ($/G
PV of Incremental Revenue Requirement 66
Net Cash Flow NPV 66 years ($ million)

6.3 *ACCOUNTING TREATMENT*

6.3.1 Treatment of Capital Costs

Consistent with FEI's treatment of CPCNs, the capital costs of the Project (i.e. the costs included in the subtotal "Project Capital Budget" in Table 6-1 above) will be held in Work in Progress, attracting AFUDC[40]. Construction of the Project is scheduled to be completed in multiple phases and the specific assets with construction work completed in each phase will be placed in service when they are commissioned and ready to be used. FEI will transfer the associated capital costs of the specific assets that have been placed in service to the appropriate plant asset accounts and include in FEI's rate base on January 1 of the following year. Depreciation of the assets included in FEI's rate base will begin at the start of the year.

Table 6-4 below summarizes the estimated amount of Project capital costs associated with the specific assets that will be completed and placed in service in each phase of the Project from

[38] The 60-year post-project analysis period was chosen based on the currently approved depreciation rate of Transmission Main pipeline at 1.47% (or 68 years) since the majority of the capital expenditure, especially for ILI and PLR, are tracked under the Transmission Main pipeline asset. For simplicity, the analysis period for post-project is rounded down to 60 years considering it still covers approximately 90 percent of the depreciation life of a Transmission Main pipeline. The 6 prior years is based on the construction schedule of the Project from 2019 to 2024.

[39] The minor variance from zero is expected and is primarily due to small difference between the assets' lives and the 66-year analysis period used, and some timing differences in earnings, taxes, and depreciation. The near zero variance indicates the financial analysis used to evaluate the Project was completed appropriately as FEI is only recovering the allowable earnings and the cost of service over the life of the assets.

[40] FEI's 2018 AFUDC rate is 5.61%, which is equal to the after-tax weighted average cost of capital.

2019 to 2024[41]. The same amount of Project capital costs that are placed in service in each year will be transferred to the opening balance of FEI's plant-in-service on January 1 of the following year. The amount and timing of the transfer to the plant asset account for each year is also identified in Confidential Appendix N-1, Financial Schedule 7 for the overall Project as well as Confidential Appendix N-2, Financial Schedule 7 (Preferred Option) of each individual lateral. The subsequent sections will discuss the regulatory accounting treatment of the abandonment/demolition costs and the Project deferral costs.

Table 6-4: Percentage of Project Complete and In-Service during Project Years (2019 to 2024)[42]

	Project complete and in-service each year, 2019-2024 ($ millions) (To be transfer to Rate Base January 1 of each following year)						
	2019	2020	2021	2022	2023	2024	TOTAL
In-line Inspection (ILI) - 11 Laterals	-	49.626	76.884	66.351	52.003	23.123	**267.987**
Pipeline Replacement (PLR) - 4 Laterals	-	-	10.957	17.750	1.668	-	**30.375**
Pressure Regulating Station (PRS) - 14 Laterals	-	-	-	14.979	20.859	25.993	**61.831**
Overall Project Capital Budget In-Service	***-***	***49.626***	***87.841***	***99.079***	***74.530***	***49.117***	***360.193***
Overall Project % In-Service	0%	14%	24%	28%	21%	14%	**100%**

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In-line Inspection (ILI) - 11 Laterals
Pipeline Replacement (PLR) - 4 Laterals
Pressure Regulating Station (PRS) - 14 Laterals
Overall Project Capital Budget In-Service
Overall Project % In-Service

6.3.2 Net Salvage

Abandonment/demolition costs related to the existing laterals will be charged to FEI's existing Net Salvage Deferral Account in accordance with the approved treatment of these costs as approved in Order G-44-12. The abandonment/demolition costs for the Project overall are forecast to be $0.290 million (2018 dollars) or, in as-spent dollars, $0.325 million (including AFUDC of $0.014 million). These costs are identified in Confidential Appendix N-1, Financial Schedule 9 for the overall Project. For abandonment/demolition costs associated with the construction work of each individual lateral, please refer to Financial Schedule 9 of each individual lateral in Confidential Appendix N-2.

6.3.3 Application and Preliminary Stage Development Costs

FEI is seeking BCUC approval under Sections 59-61 of the Act for deferral treatment of the Application and Preliminary Stage Development costs. The Application costs include expenses for legal review, consultant costs, BCUC costs and BCUC-approved intervener costs and are based on a written hearing process. The Preliminary Stage Development costs are related to expenses incurred by FEI internally and also for engaging third-party consultants for feasibility evaluation, preliminary development and assessment of the potential design and alternatives as required to complete this CPCN Application. FEI is seeking approval to record these costs in a new non-rate base deferral account, the IGU Application and Preliminary Stage Development

[41] The amount of Project capital cost as well as the percentage in each year estimated to complete and in service is not the same as the construction schedule as discussed in Section 5.4 of the Application. The percentage of work estimated to complete is based on the nature of the specific work in each year that is complete and can be placed in-service.

[42] The percentages are not additive in rows. The percentage for each type of construction as well as the overall project are calculated based on the total capital costs of each construction type. E.g. 9 percent of ILI work to be in service in 2020 is not equivalent to the 9 percent of all construction work in 2020 that includes PLR and PRS.

Costs Deferral Account, attracting FEI's weighted average cost of capital until it enters rate base. FEI proposes to transfer the balance in the deferral account to rate base on January 1, 2020 and commence amortization over a three-year period.

Table 6-5 below shows the December 31, 2019 net-of-tax balance for the Application cost and the Preliminary Stage Development cost are forecast to be $0.293 million and $0.698 million, respectively.

Table 6-5: Forecast Deferred Regulatory Application Costs and Preliminary Stage Project Development Costs ($ millions)

Particulars	Application	As-Spent ($ millions) Preliminary Stage Development	TOTAL
Costs	0.390	0.931	1.321
WACC Return	0.008	0.019	0.027
Total Before Tax Offset	***0.398***	***0.950***	***1.348***
Tax Offset	(0.105)	(0.251)	(0.357)
Total	***0.293***	***0.698***	***0.991***
Annual Amortization for 3 years	(0.098)	(0.233)	(0.330)

6.4 *RATE IMPACT*

As discussed in Section 6.3.1, FEI will complete the Project in multiple phases between 2019 and 2024. Combined with the amortization of the deferral costs beginning in 2020 as discussed in Section 6.3.3, the impact to customer delivery rates will occur incrementally in each year from 2020 to 2025[43]. Table 6-6 shows the annual delivery rate impact in percentage compared to the 2018 approved non-bypass revenue requirement (Commission Order G-196-17) and the incremental annual delivery rate impact in percentage (year-over-year) from 2020 to 2025.

Table 6-6: Summary of Rate Impact for the Inland Gas Upgrades Project

	2020	2021	2022	2023	2024	2025
Annual Revenue Requirement, Incremental to 2018 Approved, Non-Bypass ($ millions)	(0.156)	2.823	9.828	19.189	28.298	34.172
% Increase to 2018 Approved Revenue Requirement, Non-Bypass (G-196-17)	***(0.02%)***	***0.36%***	***1.24%***	***2.41%***	***3.56%***	***4.30%***
Incremental % Rate Impact (Year-over-Year)	***(0.02%)***	***0.37%***	***0.88%***	***1.16%***	***1.12%***	***0.71%***
Average Annual % Delivery Rate Impact (6 years, 2020-2025)	0.70%					
Average Annual Delivery Rate Impact (6 years, 2020-2025), $/GJ	0.029					
Cumulative % Delivery Rate Impact (6 years, 2020-2025)	4.30%					
Cumulative Delivery Rate Impact (6 years, 2020-2025), $/GJ	0.174					

The Project will result an estimated delivery rate impact of 4.3 percent in 2025 when all construction is completed and all assets are placed in service in 2024. The average annual delivery rate impact over the six Project years is estimated to be 0.7 percent annually or

[43] There is no rate impact in 2019, as discussed in Section 6.3.1, the specific assets complete and in-service will be transferred to rate base on January 1 of the following year. Therefore, the first year of delivery rate impact due to the Project is 2020 as a result of the amortization of the deferral costs, which is entirely offset by the Capital Cost Allowance in the Income Tax expense in 2020.

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Deleted: *Incremental % Rate Impact (Year-over-Year)*
Deleted: Average Annual % Delivery Rate Impact (6 years, 2020-2025)
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$0.029 per GJ annually. For a typical FEI residential customer consuming 90 GJ per year, this would equate to an approximate average increase of $2.61 per year over the six years, or cumulatively $15.66 over the six years.

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Appendix A-1

DETAILED DESCRIPTION OF TWENTY NINE LATERALS

EVIDENTIARY UPDATE APRIL 5, 2019

BLACKLINED

1.1 *DETAILED DESCRIPTION OF TWENTY-NINE LATERALS*

This appendix FEI provides a detailed overview of all 29 laterals as well as the alternatives evaluation of each lateral.

1.1.1 Mackenzie Lateral 168 (MAC LTL 168)

The Mackenzie Lateral 168 starts off of the Enbridge mainline near John Hart Highway and heads north to the town of Mackenzie, home to approximately 3500 residents. It operates together as a single system with the Mackenzie Loop 168 (described below in Section 1.1.2). This lateral has two water crossings – the Mischinsinlika Creek and Williston Lake. There are two large industrial customers being supplied from this lateral including Mackenzie Pulp Mill and Conifex Sawmill.

Length of Pipeline (kilometres)		28.6
Outside Diameter(s) (millimetres)		168, 88
Year of Construction		1966
Right of way width (metres)		10
Number of Customers	**Residential**	1,672
	Commercial	139
	Industrial	6
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Overhead BC Hydro power lines at ILI Receiver assembly site Property: • Acquisition of ROW Indigenous Community Consultation: • Blueberry River First Nation • West Moberly First Nation • Halfway River First Nation • Doig River First Nation • MacLeod Lake Indian Band Environmental: • Wetlands • Mischinsinlika Creek crossing • Registered contaminated sites • Raptor nests nearby • Amphibian breeding habitat Archaeological: • Moderate to high archaeological potential

FEI recommends ILI as the preferred alternative for the Mackenzie Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.

The financial analysis of ILI for the Mackenzie Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	38,024
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,266
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	2,754
PV of Incremental Revenue Requirement - 66 years ($000s)	44,750
Levelized Delivery Rate Impact - 66 years (%)	0.32%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Delivery Rate Impact - 66 year

With ILI at this lateral, there will be a Launcher assembly and a Control Valve assembly at the start of the lateral and a Receiver assembly just east of Old Airport Road. In order to have a continuous in-line inspection from the start of the lateral to the end, another 168 millimetre crossing is planned to be installed at the Mischinsinlika Creek. Without this additional crossing, FEI would require another launcher and receiver assembly since the current crossing is 219 millimetres and would not be compatible with the 168 millimetre ILI tool.

1.1.2 Mackenzie Loop 168 (MAC LOP 168)

Similar to the Mackenzie Lateral 168, the Mackenzie Loop 168 starts off at the Enbridge Tap near John Hart Highway and completely loops the Mackenzie Lateral 168 to the start of the Mischinsinlika Creek crossing. The Mackenzie Loop then continues to loop the Mackenzie Lateral after the Mischinsinlika Creek crossing for another 2 kilometres where it terminates. The Mackenzie Lateral 168 and the Mackenzie Loop 168 operate together as a single system.

Length of Pipeline (kilometres)		14.2
Outside Diameter(s) (millimetres)		168, 219
Year of Construction		1972
ROW Width (metres)		10
Number of Customers	**Residential**	1,672
	Commercial	139

Industrial	6
Important Factors in Execution and Lifecycle Operation	Property: • Acquisition of ROW Indigenous Community Consultation: • Blueberry River First Nation • West Moberly First Nation • Halfway River First Nation • Doig River First Nation • MacLeod Lake Indian Band Environmental: • Wetlands and creek crossings • Registered contaminated sites • Raptor nests nearby • Amphibian breeding habitat Archaeological: • Moderate to high archaeological potential

FEI recommends ILI as the preferred alternative for the Mackenzie Loop 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for Mackenzie Loop 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	22,700
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,418
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,168
PV of Incremental Revenue Requirement - 66 years ($000s)	25,188
Levelized Rate Impact - 66 years (%)	0.18%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI at this lateral, there will be a 168 millimetre launcher assembly at the start of the loop and a 168 millimetre receiver assembly where the Mischinsinlika Creek crossing begins. There will also be a 219 millimetre launcher assembly at the start of the Creek crossing, and a 219 millimetre receiver assembly 2 kilometres downstream of the creek. In addition, approximately

160 metres of the Mackenzie Loop immediately downstream of the crossing will have to be upgraded from a pipe size of 168 millimetres to 219 millimetres.

1.1.3 BC Forest Products Lateral 168 (BCF LTL 168)

The BC Forest Products lateral is a short lateral that branches off of the Mackenzie Lateral just West of Coquiwaldy Road feeding Mackenzie Pulp Mill Corporation. The Mackenzie Lateral 168, the Mackenzie Loop 168 and the BC Forest Products Lateral 168 operate together as a single system.

Length of Pipeline (kilometres)		0.5
Outside Diameter(s) (millimetres)		168
Year of Construction		1970
ROW Width (metres)		N/A
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	~~1~~
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Canadian National Railway crossing • Cannot take line out of service Property: • Currently no ROW, and will be requiring 18m ROW for the pipeline replacement Indigenous Community Consultation: • West Moberly First Nations • Halfway River First Nations • Doig River First Nations • MacLeod Lake Indian Band Environmental: • Registered contaminated sites

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The financial comparison between the remaining alternatives of ILI, PLR and PRS for the BC Forest Products Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. Due to the fact that this is a relatively short lateral at approximately 0.5 kilometres, PLR is less expensive than ILI and PRS. Additionally, PLR has a smaller rate impact than ILI and PRS, with a lower total PV of incremental revenue requirement and levelized rate impact.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	9,242	3,612	5,317
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,903	-	1,527
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	675	-	20
PV of Incremental Revenue Requirement - 66 years ($000s)	12,598	3,536	6,955
Levelized Rate Impact - 66 years (%)	0.09%	0.03%	0.05%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

The table below shows the scoring of each alternative for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.8	4.2	4.0
Financial	1.0	5.0	2.0
Overal Score	**3.3**	**4.7**	**2.8**

FEI recommends PLR as the preferred alternative for BC Forest Products Lateral. With the PLR alternative, the entire pipeline will be replaced.

1.1.4 Northwood Pulp Lateral 168

The Northwood Pulp Lateral begins at the Enbridge tap just north of the Fraser River near the Fraser-Fort George and Prince George boundary. This lateral is looped by Northwood Pulp Loop 168 (described in Section 1.1.5) for most of the lateral, and the two lines join to feed Prince George 3 Lateral (described in Section 1.1.6). Because of this configuration, the three pipelines were treated as a single system when evaluating alternatives. The Northwood Pulp Lateral continues south past the start of the Prince George 3 Lateral and supplies the Northwood Pulp Mill.

Length of Pipeline (kilometres)		6.0
Outside Diameter(s) (millimetres)		168
Year of Construction		1965
ROW Width (metres)		15
Number of Customers	**Residential**	17,716
	Commercial	1,834
	Industrial	52
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Assets will need to be installed on elevated

	platforms due to sites having flooded in the past • Existing tap has no odourization for about 600 meters • Cannot be taken out of service • Road crossings • Rail ROW Property: • Obtaining ROW on Enbridge property • One property owned by Canfor on last 400m Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Water crossings • Fraser River critical habitat for fish species at risk • Registered contaminated sites Archaeological: • High risk archaeology, no known site but proximity to water and reserve increases risk

The financial comparison between the remaining alternatives of ILI and PRS for the Northwood Pulp Lateral 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, and the lowest total PV of incremental revenue requirement and levelized rate impact when compared to ILI.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,174	1,760
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,902	481
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,088	6
PV of Incremental Revenue Requirement - 66 years ($000s)	15,379	2,201
Levelized Rate Impact - 66 years (%)	0.11%	0.02%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.3	4.3
Financial	1.0	5.0
Overal Score	**3.2**	**3.9**

FEI recommends PRS as the preferred alternative for the Northwood Pulp Lateral 168. Because Northwood Pulp Lateral feeds the Northwood Pulp Loop and Prince George 3, all three lines can be served by one PRS.

1.1.5 Northwood Pulp Loop 219

The Northwood Pulp Loop starts at the same point as the Northwood Pulp Lateral, and continues to the Prince George 3 Lateral, effectively bypassing the Northwood Pulp mill to boost the capacity of the supply feeding Prince George.

Length of Pipeline (kilometres)		5.8
Outside Diameter(s) (millimetres)		219
Year of Construction		1995
ROW Width (metres)		15
Number of Customers	**Residential**	17,716
	Commercial	1,834
	Industrial	52
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Swampy areas due and sites have flooded in the past • Assets will need to be installed on elevated platforms • Existing tap has no odourization for about 600 meters • Cannot be taken out of service • Road crossings • Rail ROW Property: • Obtaining ROW on Enbridge property • One property owned by Canfor on last 400m Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Water crossings • Fraser River critical habitat for fish species at risk

	• Registered contaminated sites Archaeological: • High risk archaeology, no known site but proximity to water and reserve increases risk

The financial comparison between the remaining alternatives of ILI and PRS for the Northwood Pulp Loop 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS is also the alternative with the lowest project capital cost. Additionally, PRS has the lowest impact to FEI's ratepayers in terms of the total PV of incremental revenue requirement and levelized rate impact over a 66-year analysis period when compared to ILI.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,470	1,758
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,311	481
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,061	6
PV of Incremental Revenue Requirement - 66 years ($000s)	14,056	2,198
Levelized Rate Impact - 66 years (%)	0.10%	0.02%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.4	4.3
Financial	1.0	5.0
Overal Score	**3.2**	**3.9**

As described in the Northwood Pulp Lateral description, PRS was chosen as the preferred alternative, and given that the Northwood Pulp Lateral 168, the Northwood Pulp Loop 168 and the Prince George 3 Lateral 219 are all treated as one system, PRS was selected as the preferred alternative for the Northwood Pulp Loop.

1.1.6 Prince George 3 Lateral 219

The Prince George 3 Lateral branches off of the Northwood Pulp Lateral, and begins just west of the intersection of Beaver Forest Road and Industrial Access Road to the North of Northwood

Pulp Mill. This lateral heads southwest and ends on Noranda Road near McMillian Creek. At Noranda Road is the start of an intermediate pressure pipeline which spans from the North end of Prince George to the South end where it connects to the Prince George 2 Lateral. Together, these two laterals support the entire City of Prince George, home to approximately 74,000 residents, and 31,000 FEI customers.

Length of Pipeline (kilometres)		5.3
Outside Diameter(s) (millimetres)		219
Year of Construction		1970
ROW Width (metres)		6
Number of Customers	**Residential**	17,716
	Commercial	1,834
	Industrial	52
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Swampy areas due and sites have flooded in the past • Assets will need to be installed on elevated platforms • Cannot take line out of service Property: • Narrow ROW • ROW in road along Old Summit Lake Road for 450m • Parallels BC Hydro ROW • Private and Crown land Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • McMillan Creek and other small creek crossings • Registered contaminated sites Archaeological: • Moderate to high archaeological potential with three areas confirmed high archaeological potential

The financial comparison between ILI and PRS for the Prince George 3 Lateral 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the

pipeline to meet customer demands. PRS has the lowest project capital cost, and the lowest total PV of incremental revenue requirement and levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,785	1,753
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,305	479
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,031	6
PV of Incremental Revenue Requirement - 66 years ($000s)	14,315	2,191
Levelized Rate Impact - 66 years (%)	0.10%	0.02%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.5	4.6
Financial	1.0	5.0
Overal Score	**3.2**	**4.0**

As described in the Northwood Pulp Lateral and Loop descriptions, PRS was recommended as the preferred alternative for the system. Since the Prince George 3 Lateral is supplied by Northwood Pulp Lateral and Loop, FEI recommends PRS as the preferred alternative for this lateral. In addition, PRS has an added benefit of lower potential impacts to surrounding Indigenous communities compared to ILI.

1.1.7 Prince George 1 Lateral 168

The Prince George 1 Lateral taps off of Enbridge south of the Graves Road and Shelley Road intersection. The lateral continues west and ends near Pickering Road where it connects to the Prince George Pulp Lateral (described in Section 1.1.8) and subsequently Husky Oil Lateral (described in Section 1.1.9). Together, the laterals supply gas to 1229 customers, with several significant industrial customers.

Length of Pipeline (kilometres)		4.7
Outside Diameter(s) (millimetres)		168
Year of Construction		1957
ROW Width (metres)		18
Number of	**Residential**	1,171

Customers	**Commercial**	50
	Industrial	8
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Stopping off and welding fittings at a higher pressure to maintain customer gas requirements Property: • Obtaining ROW on Enbridge property Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Creek crossings • Potential for occurrence of a plant species at risk • Registered contaminated sites Archaeological: • Moderate to high archaeological potential

FEI recommends ILI as the preferred alternative for the Prince George 1 Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Prince George 1 Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,241
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,873
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	601
PV of Incremental Revenue Requirement - 66 years ($000s)	14,401
Levelized Rate Impact - 66 years (%)	0.10%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI for this lateral, a launcher assembly and a control valve assembly will be installed at the start of the Prince George 1 Lateral, and a receiver assembly where the Prince George 1 Lateral terminates and the Prince George Pulp Lateral starts.

1.1.8 Prince George Pulp Lateral 168

The Prince George Pulp Lateral continues where the Prince George 1 Lateral (described in Section 1.1.7) terminates. This lateral crosses the Fraser River and feeds Canfor Pulp mill. This lateral also connects directly to the Husky Oil Lateral (described in Section 1.1.9). Consideration was given to treating Prince George 1 Lateral, Prince George Pulp Lateral and Husky Oil Lateral. However, since PRS was not feasible on Prince George 1 Lateral, it was not evaluated as a system. Prince George Pulp Lateral and Husky Oil Lateral however, were evaluated as a system.

Length of Pipeline (kilometres)		1.0
Outside Diameter(s) (millimetres)		168
Year of Construction		1964
ROW Width (metres)		0*
Number of Customers	**Residential**	1,171
	Commercial	50
	Industrial	8
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Fraser River crossing • Steep slope at the start of the lateral to the river crossing • Stopping off and welding fittings at a higher pressure to maintain customer gas requirements • CN Bridge crossing Property: • No existing R/W in place • Works within rail corridor Limited space on the Canfor Pulp mill where the lateral ends Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Fraser River crossing • Mature forested riparian area associated with the Fraser River. • Potential for occurrence of a plant species at risk • Registered contaminated sites

	Archaeological: • Moderate to high archaeological potential

** No existing ROW, lateral is located within railway corridor and FEI has a License to Operate*

The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the Prince George Pulp Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. Because Prince George Pulp Lateral and Husky Oil Lateral are treated as a system, the PRS is shared between the two, resulting in a lower project capital cost, lower PV of incremental revenue requirement, and lower rate impact than the other alternatives.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,664	8,384	2,938
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,836	-	769
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	680	-	9
PV of Incremental Revenue Requirement - 66 years ($000s)	14,331	7,727	3,600
Levelized Rate Impact - 66 years (%)	0.10%	0.06%	0.03%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

The table below shows the scoring of each alternative for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.5	3.3	3.8
Financial	1.0	1.0	5.0
Overal Score	**3.2**	**3.1**	**3.8**

FEI recommends PRS as the preferred alternative for Prince George Pulp lateral, and subsequently Husky Oil Lateral. One PRS will be installed at the start of the Prince George Pulp Lateral and will be able to serve Husky Oil Lateral as well.

1.1.9 Husky Oil Lateral 168

The Husky Oil Lateral continues from Canfor Pulp where the Prince George Pulp Lateral ends, and continues north where it runs parallel to Prince George Pulpmill Road. This lateral supplies gas for significant industrial customers including Husky Oil and FMC.

Length of Pipeline (kilometres)		1.1
Outside Diameter(s) (millimetres)		168
Year of Construction		1967
ROW Width (metres)		0*
Number of Customers	**Residential**	1,171
	Commercial	50
	Industrial	8
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • BC Railway crossing • Stopping off and welding fittings at a higher pressure to maintain customer gas requirements • Pipeline in road allowance runs between buried NPS 42 water pipeline on south side and Husky facility on north side Property: • ROW required at the end of the lateral • Limited land at end of NPS 6 lateral • Existing pipe within road allowance Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Registered contaminated site • 1 osprey nest nearby • Potential for occurrence of a plant species at risk Archaeological: • Moderate to high archaeological potential

** Pipe located in road allowance so no ROW exists for this lateral*

The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the Husky Oil Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. Because the PRS is shared between Prince George Pulp Lateral and Husky Oil Lateral, it has the lowest project capital cost, and the lowest total PV of incremental revenue requirement and levelized rate impact when compared to other alternatives.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	14,440	5,956	2,939
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,252	-	770
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	682	-	9
PV of Incremental Revenue Requirement - 66 years ($000s)	16,392	5,601	3,601
Levelized Rate Impact - 66 years (%)	0.12%	0.04%	0.03%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

The table below shows the scoring of each alternative for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.5	3.3	3.8
Financial	1.0	2.0	5.0
Overal Score	**3.2**	**3.5**	**3.8**

FEI recommends PRS as the preferred alternative based on financial scoring and the evaluation of Prince George Pulp lateral and Husky Oil lateral as a single system. The PRS option is achievable with one PRS at the start of Prince George Pulp lateral to serve Husky Oil Lateral as well since the two laterals are connected sequentially.

1.1.10 Prince George 2 Lateral 219

The Prince George 2 Lateral begins near the intersection of Evasko Road and Johnson Road and heads west until it ends at Highway 97 and Terminal Boulevard. A Gate Station at Highway 97 and Terminal Boulevard feeds the intermediate pressure pipeline that connects with the supply from Noranda Gate Station supplied from the Prince George 3 Lateral. As described previously, these two laterals are critical for supplying gas to the city of Prince George.

Length of Pipeline (kilometres)		8.6
Outside Diameter(s) (millimetres)		219
Year of Construction		1965
ROW Width (metres)		6
Number of Customers	**Residential**	17,217
	Commercial	1,596
	Industrial	44
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Cannot take offline

	• Road crossing • ROW in road allowance with high traffic near PG Airport Property: • All private land Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Stream crossings Archaeological: • Moderate to high archaeological potential with three areas confirmed high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Prince George 2 Lateral 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, the lowest total PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,384	5,157
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,922	1,365
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,283	18
PV of Incremental Revenue Requirement - 66 years ($000s)	15,839	6,342
Levelized Rate Impact - 66 years (%)	0.11%	0.05%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.7	4.3
Financial	1.0	5.0
Overal Score	**3.3**	**3.9**

FEI recommends PRS as the preferred alternative for the Prince George 2 Lateral 168. With this alternative, the PRS would be installed at the start of the lateral near the Enbridge tap.

1.1.11 Cariboo Pulp Lateral 168

The Cariboo Pulp Lateral begins near the North end of North Star Road in Quesnel and continues west to feed Cariboo Pulp & Paper, the sole customer served by the lateral.

Length of Pipeline (kilometres)		1.3
Outside Diameter(s) (millimetres)		168
Year of Construction		1972
ROW Width (metres)		10
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	1
Important Factors in Execution and Lifecycle Operation		Property: • Additional ROW required Indigenous Community Consultation: • Tsihlqot'in National Government • Carrier Chilcotin Tribal Council • Lhtako Dene Nation • Lhoosk'uz Dene Nation • Ulkatcho First Nation Environmental: • Registered contaminated site • Occurrence of a plant species at risk Archaeological: • Moderate to high archaeological potential

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The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the Cariboo Pulp Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. Although PLR has a higher capital cost compared to PRS, PLR has similar rate impacts as PRS primarily due to the additional sustainment capital and O&M costs required for the PRS in the future.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	7,119	5,595	4,888
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,915	-	1,443
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	711	-	20
PV of Incremental Revenue Requirement - 66 years ($000s)	10,507	5,521	6,487
Levelized Rate Impact - 66 years (%)	0.08%	0.04%	0.05%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

The table below shows the scoring of ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.3	3.3	4.3
Financial	2.0	5.0	4.0
Overal Score	**3.5**	**4.5**	**3.5**

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Integrity and Asset Management Capabi
Project Execution & Lifecycle Operation
Financial
Overal Score

FEI recommends PLR as the preferred alternative for the Cariboo Pulp lateral as this alternative has the highest overall score. PLR is lower in terms of total PV of incremental revenue requirements over the 66-year analysis period.

PRS scored lower than PLR since the technical performance is not as high due to the fact that PRS would still be managing a vintage pipe. Since PLR is not the least expensive alternative, subject matter experts were called upon to provide input on alternatives for this lateral and concluded PLR will offer better technical superiority over PRS since it will be a new pipeline with modern coating while the PRS alternative will still be maintain a vintage pipeline, therefore, PLR was selected as the preferred alternative.

1.1.12 Williams Lake Loop 1/Loop 2 168

The Williams Lake Loop begins south of Lund Road approximately 1 kilometre east of Minton Lake, where it ties into the Williams Lake Lateral 114. The loop heads towards the Williams Lake Airport and continues along Jacobson Road and ends just north of Kemp Road where the 114 lateral continues toward the City of Williams Lake, home to approximately 11,000 residents.

Length of Pipeline (kilometres)	Williams Lake Loop 1	Williams Lake Loop 2
Length of Pipeline (kilometres)	3.4	2.5
Outside Diameter(s) (millimetres)	168	168
Year of Construction	1993	1998
ROW Width (metres)	6	6

Number of Customers	**Residential**	5,998
	Commercial	813
	Industrial	15
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Several road crossings • Crosses airport runway Property: • All land in Agricultural Land Reserve Indigenous Community Consultation: • Xats'ull First Nation • Northern Secwepemc Tribal Council • Canim Lake Band • Neskonlith Indian Band • Tsihlqot'in National Government • Williams Lake Indian Band Environmental: • Stream and wetland crossings • Registered contaminated site • Old Growth Management Areas Archaeological: • Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Williams Lake Loop 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest total PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	13,391	5,066
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,833	1,343
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,025	18
PV of Incremental Revenue Requirement - 66 years ($000s)	15,692	5,951
Levelized Rate Impact - 66 years (%)	0.11%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.5	4.3
Financial	1.0	5.0
Overal Score	**3.2**	**3.9**

FEI recommends PRS as the preferred alternative for the Williams Lake Loop 168. With this alternative, the PRS would be installed on the Williams Lake 114 Lateral to simultaneously reduce the operating pressure of both the Williams Lake lateral and loop.

ILI was not selected due to the significantly higher rate impact as a result of higher incremental cost for the required assemblies. There are also potential difficulties in land acquisition in the Agricultural Land Reserve for ILI.

1.1.13 Kamloops Lateral/Loop 168

The Kamloops Lateral and Loop begin near Hillside Drive and copperhead Drive in the Dufferin neighbourhood, where it heads north to feed the Kamloops Gate Station which supplies the City of Kamloops, home to approximately 90,000 residents. A significant industrial customer on this lateral is the Domtar Pulp Mill.

Length of Pipeline (kilometres)		Kamloops 1 Lateral 168	Kamloops 1 Loop 168
Length of Pipeline (kilometres)		3.6	3.1
Outside Diameter(s) (millimetres)		168	168
Year of Construction		1965	1979
ROW Width (metres)		6-12	6-12
Number of Customers	**Residential**	15,391	
	Commercial	1,588	
	Industrial	36	
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Difficult terrain with steep slopes Property: • Park Use Permit required Indigenous Community Consultation: • Adams Lake Indian Band • Ashcroft Indian Band • Little Shuswap Lake Indian Band • Bonaparte Indian Band • Whispering Pines/ Clinton Band • Neskonlith Indian Band • Nooaitch Indian Band	

	• Esh-kn-am Cultural Resources • Boothroyd Indian Band • Spuzzum First Nation • Skuppah Indian Band • Nlaka'pamux Nation Tribal Council • Nicola Tribal Association • Lower Nicola Indian Band • Lytton First Nation • Siska Indian Band • Cook's Ferry Indian Band • Coldwater Indian Band • Oregon Jack Creek Indian Band • Skeetchestn Indian Band • Tk'emlups Band • Stk'emlupsemc te Secwepemc Nation (SSN) Environmental: • Critical habitat for woodpecker, toad and snake • Occurrences of species at risk • Pipeline runs through municipal Kenna Cartwright Park Archaeological: • Assessment required within park boundary • Heritage site nearby • Three areas of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI and PLR for the Kamloops 1 Lateral & Loop 168 is shown in the table below. PLE, HSTP and PRS were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. Between ILI and PLR, PLR has a lower project capital cost and lower total PV of incremental revenue requirement and levelized rate impact.

	ILI	PLR
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	29,222	16,877
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,921	-
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,120	-
PV of Incremental Revenue Requirement - 66 years ($000s)	32,104	15,795
Levelized Rate Impact - 66 years (%)	0.23%	0.11%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

The table below shows the scoring of ILI and PLR for each of the three criteria, and the overall weighted score:

	ILI	PLR
Integrity and Asset Management Capabilities	4.8	4.7
Project Execution & Lifecycle Operation	3.5	3.6
Financial	1.0	5.0
Overal Score	**3.2**	**4.6**

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Integrity and Asset Management Capabi
Project Execution & Lifecycle Operation
Financial
Overal Score

FEI recommends PLR as the preferred alternative for the Kamloops 1 Lateral and Loop 168.

1.1.14 Salmon Arm Loop 168

The Salmon Arm Loop 168 begins on the Savona-Nelson Mainline of the FEI Interior Transmission System just east of St Annes Road in the township of Spallumcheen, where it heads north towards Armstrong along Otter Lake Road. From Armstrong, the loop continues along Vernon Sicamous Highway to Enderby and from Enderby towards Salmon Arm where the loop ends. The loop is also critical to serving the communities north of Salmon Arm, as far as Sorrento. The populations of Spallumcheen, Armstrong, Enderby, and Salmon Arm total more than 31,000 combined.

Length of Pipeline (kilometres)		44.9
Outside Diameter(s) (millimetres)		168
Year of Construction		1976-1987
ROW Width (metres)		3-9
Number of Customers	**Residential**	11,830
	Commercial	1,136
	Industrial	24
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Crosses Vernon Sicamous Highway Property: • Potential trespass issue in Splats'in First Nation reserve • Private property • Log barn property (ROW encroachment) • First Nations land tenure (28.2 permit) Indigenous Community Consultation: • Neskonlith Indian Band • Okanagan Nation Alliance • Penticton Indian Band • Upper Nicola Indian Band • Lower Similkameen Indian Band • Okanagan Indian Band • Adams Lake Indian Band • Little Shuswap Lake Indian Band • Splats'in First Nation

	Environmental: • Critical habitat for great basin spadefoot • Osprey and hawk nests nearby • Great blue heron rookery • Species at risk occurrences • Amphibian breeding habitats • Registered contaminated site Archaeological: • Moderate to high archaeological potential with two areas of high archaeological potential confirmed

FEI recommends ILI as the preferred alternative for the Salmon Arm Loop 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Salmon Arm Loop 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	29,241
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,247
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,592
PV of Incremental Revenue Requirement - 66 years ($000s)	32,564
Levelized Rate Impact - 66 years (%)	0.24%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI for this lateral, there will be a launcher and a control valve assembly at the start of the loop, and a receiver assembly at the Salmon Arm Gate Station where the loop terminates.

1.1.15 Salmon Arm 3 Lateral 168

The Salmon Arm 3 Lateral starts off of the Salmon Arm 114 Lateral just East of Shaw Road in Salmon Arm at the Canoe Creek golf course. From there it heads north and ends near the Auto Road SE and 6 Street SE intersection.

Length of Pipeline (kilometres)	0.8
Outside Diameter(s) (millimetres)	168
Year of Construction	1981
ROW Width (metres)	9

Number of Customers	**Residential**	3,426
	Commercial	261
	Industrial	9
Important Factors in Execution and Lifecycle Operation		Property: • Crosses Canoe Creek golf course Indigenous Community Consultation: • Neskonlith Indian Band • Okanagan Nation Alliance • Penticton Indian Band • Upper Nicola Indian Band • Lower Similkameen Indian Band • Okanagan Indian Band • Adams Lake Indian Band • Little Shuswap Lake Indian Band • Splats'in First Nation Archaeological: • One area of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI, PLR and PRS for the Salmon Arm 3 Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. As this is a relatively short pipeline, PLR has a lower project capital cost, lower PV of incremental revenue requirement and levelized rate impact when compared to ILI and PRS.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	7,136	4,290	5,007
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,893	-	1,463
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	705	-	20
PV of Incremental Revenue Requirement - 66 years ($000s)	10,493	4,191	6,589
Levelized Rate Impact - 66 years (%)	0.08%	0.03%	0.05%

The table below shows the scoring of each ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

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	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	2.8	3.3	4.3
Financial	1.0	5.0	2.0
Overal Score	**3.1**	**4.5**	**2.8**

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Integrity and Asset Management Capabi
Project Execution & Lifecycle Operation
Financial
Overal Score

FEI recommends PLR as the preferred alternative for the Salmon Arm 3 Lateral because it is the alternative with the highest overall score. PLR has the lowest project capital cost, lowest total PV of incremental revenue requirement, and lowest levelized rate impact. Because of where the lateral is located relative to the Canoe Creek golf course, PLR will have less impact both during and post-construction than ILI and PRS.

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PRS involves the construction of a permanent above ground facility adjacent to the Canoe Creek Golf Course club house.

1.1.16 Coldstream Loop 168

The Coldstream Loop 168 starts about 400 metres east of Apollo Road in Vernon on the Savona-Penticton Mainline of the FEI Interior Transmission System, and heads directly east to where it joins the start of the Coldstream Lateral 219 (described in Section 1.1.17). Because the loop and lateral are connected, the two are treated as a single system in the evaluation of alternatives.

Length of Pipeline (kilometres)		3.8
Outside Diameter(s) (millimetres)		168
Year of Construction		1989
ROW Width (metres)		9
Number of Customers	**Residential**	13,357
	Commercial	1,017
	Industrial	48
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Unexploded ordnances along ROW • Crosses highway 97 and Okanagan college campus Property: • Crosses Vernon Golf and Country Club course Indigenous Community Consultation: • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Okanagan Indian Band • Lower Similkameen Indian Band Splats'in First Nation

	Environmental: • Critical habitat for great basin spadefoot and two species of snake • Stream crossings • Species at risk occurrences • Registered contaminated site Archaeological: • Moderate to high archaeological potential with six areas of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI and PRS for the Coldstream Loop 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,077	5,102
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,791	1,348
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	847	18
PV of Incremental Revenue Requirement - 66 years ($000s)	14,241	6,019
Levelized Rate Impact - 66 years (%)	0.10%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.2	4.3
Financial	1.0	5.0
Overal Score	**3.1**	**3.9**

FEI recommends PRS as the preferred alternative for the Coldstream Loop 168. PRS is the alternative with the highest overall score for the Coldstream Loop 168 and the Coldstream Lateral 219 thus PRS is the preferred alternative for both lines. With this alternative, the PRS would be installed at the start of the Coldstream Loop 168.

ILI was screened out due to higher rate impact as a result of the length of the loop and greater complexity due to the road crossing and unexploded ordinances which lead to lower project execution scores.

1.1.17 Coldstream Lateral 219

The Coldstream Lateral 219 starts off on Reservoir Road in Vernon and heads north on the West side of the Vernon Golf and Country Club. The lateral ends off just south of Polson Drive and 14 Avenue. From here, an intermediate pressure pipeline travels along Highway 6 eastbound where it supplies Coldstream. The District of Coldstream is home to approximately 10,000 residents.

Length of Pipeline (kilometres)		1.8
Outside Diameter(s) (millimetres)		219, 114
Year of Construction		1998
ROW Width (metres)		15
Number of Customers	**Residential**	13,357
	Commercial	1,017
	Industrial	48
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Creek crossing Property: • Crosses Vernon Golf and Country Club course • Access required for FLNRO tree farm Indigenous Community Consultation: • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Okanagan Indian Band • Lower Similkameen Indian Band • Splats'in First Nation Environmental: • Critical habitat for great basin spadefoot and two species of snake • Stream crossings including a creek which leads to Kalamalka Lake • Species at risk occurrences • Registered contaminated site Archaeological: • Moderate to high archaeological potential with six areas of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the Coldstream Lateral 219 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a viable alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. AACE Class 3 estimates were developed for all three alternatives as the project capital costs were relatively close to each other. At a lateral length of approximately 1.8 kilometres, all three alternatives are relatively comparable financially with PRS having the lowest PV of incremental revenue requirement and levelized rate impact. PLR has the highest project capital cost, but has lower rate impact than ILI due to the fact that ILI requires future capital and O&M expenditures for ILI re-inspection.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,123	10,514	5,029
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,765	-	1,333
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	688	-	18
PV of Incremental Revenue Requirement - 66 years ($000s)	13,159	9,334	5,933
Levelized Rate Impact - 66 years (%)	0.10%	0.07%	0.04%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

The table below shows the scoring of ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.3	3.2	4.3
Financial	1.0	2.0	5.0
Overal Score	**3.2**	**3.4**	**3.9**

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Integrity and Asset Management Capabi
Project Execution & Lifecycle Operation
Financial
Overal Score

Based on the scoring and the treatment of Coldstream Lateral and Loop as one system, FEI recommends PRS as the preferred alternative for the Coldstream Lateral 219. The PRS will be installed at the start of Coldstream Lateral 114 since this lateral supplies the Coldstream Lateral 219. Even though Coldstream Lateral 114 is not part of the 29 laterals in this project, it would be prudent to install the PRS at the start of the 114 Lateral because there will be little or no additional costs to apply pressure reduction to Coldstream Lateral 114. This would also be beneficial because it would reduce the Coldstream 114 lateral below 30 percent SMYS as well, preventing rupture potential of that section of pipe. The smaller footprint of the PRS compared to ILI and PLR is desirable due to environmental concerns.

ILI and PLR were both screened out by the financial analysis due to the length of the lateral and complexity including stream crossing and environmental risks.

1.1.18 Kelowna 1 Loop 219

The Kelowna 1 Loop begins on the corner of the Wal-Mart parking lot at the intersection of Enterprise Way and Banks Road. From there, the loop heads west until it ends at Alphonse Road. The City of Kelowna is home to approximately 128,000 residents.

Length of Pipeline (kilometres)		2.1
Outside Diameter(s) (millimetres)		219
Year of Construction		1976
ROW Width (metres)		15
Number of Customers	**Residential**	29,999
	Commercial	3,235
	Industrial	48
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Road crossing Property: • High land value • Walmart parking lot Indigenous Community Consultation: • Esh-kn-am Cultural Resources Management Services • Nooaitch Indian Band • Okanagan Nation Alliance • Penticton Indian Band • Upper Nicola Indian Band • Lower Similkameen Indian Band Okanagan Indian Band Environmental: • Riparian areas • Species at risk occurrences • At risk plant communities • Mill Creek fish bearing stream • Meadowbrook community garden • Registered contaminated site Archaeological: • Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Kelowna 1 Loop 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,008	5,891
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,769	1,348
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	692	18
PV of Incremental Revenue Requirement - 66 years ($000s)	13,969	6,902
Levelized Rate Impact - 66 years (%)	0.10%	0.05%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	2.8	4.3
Financial	1.0	5.0
Overal Score	**3.1**	**3.9**

FEI recommends PRS as the preferred alternative for the Kelowna 1 Loop 219. Since Kelowna 1 Loop 219 is connected to Kelowna 1 Lateral 114, the PRS will affect both lines and as a result, will need to regulate the pressure in both of the lines.

ILI was not suitable for this location due to the high profile location. It would be difficult to install and operate a launcher and control valve assembly in the Walmart parking lot, resulting in the low score for Project Execution and Lifecycle Operation.

1.1.19 Celgar Lateral 168

The Celgar Lateral 168 begins west of Columbia Ave and 11st in the City of Castlegar, home to approximately 8000 residents. From here the lateral heads West right up to serve the Zellstoff Celgar Pulp Mill.

Length of Pipeline (kilometres)		5.8
Outside Diameter(s) (millimetres)		168
Year of Construction		1960
ROW Width (metres)		12-18
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	2
Important Factors in Execution and		Operational Complexity:

Lifecycle Operation	• Very steep terrain • Adjacent to BC Hydro ROW Property: • Private and crown land Indigenous Community Consultation: • Adam Lake • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Lower Similkameen Indian Band • Okanagan Indian Band • Splats'in First Nation • Osoyoos Indian Band Shuswap Indian Band Environmental: • Stream crossings • An area of old forest • Species at risk occurrences • Wildlife habitat area 8-373 for Grizzly bear • Ungulate winter range 4-001 Archaeological: Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Celgar Lateral 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	10,176	5,376
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,220	1,278
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	988	18
PV of Incremental Revenue Requirement - 66 years ($000s)	11,731	5,898
Levelized Rate Impact - 66 years (%)	0.09%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.5	4.0
Financial	2.0	5.0
Overal Score	**3.6**	**3.8**

FEI recommends PRS as the preferred alternative for Celgar lateral 168. The PRS would be located downstream of the Celgar take off so the pressure regulation does not affect the Castlegar Nelson lateral.

1.1.20 Castlegar Nelson 168

The Castlegar Nelson 168 begins just north of Columbia Ave and 11st in the City of Castlegar, home to approximately 8,000 residents. This lateral continues north all the way to the City of Nelson, home to 11,000 residents.

Length of Pipeline (kilometres)		37.4
Outside Diameter(s) (millimetres)		168
Year of Construction		1957
ROW Width (metres)		12-18
Number of Customers	**Residential**	9,657
	Commercial	10
	Industrial	61
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Highway crossing Property: • Private and crown land • Need to verify municipal land • New HDD for river crossing • Very sloped terrain Indigenous Community Consultation: • Adam Lake • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Lower Similkameen Indian Band • Okanagan Indian Band • Splats'in First Nation • Osoyoos Indian Band Shuswap Indian Band Environmental: • Brilliant river crossing • Shoreacres river crossing • Stream and wetland crossings

	• Fish species at risk • Critical habitat for caribou and woodpecker • Areas of old forest • Species at risk occurrences • Wildlife habitat area 8-373 for Grizzly bear • Ungulate winter range 4-001 • Registered contaminated sites Archaeological: • Large archaeological sites near Brilliant Dam • Archaeological sites near Kootenay River and Slocan River intersect • Registered arch sites on Zuckerberg Island • Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Castlegar Nelson 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	53,656	8,343
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,162	1,805
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,799	18
PV of Incremental Revenue Requirement - 66 years ($000s)	54,183	8,986
Levelized Rate Impact - 66 years (%)	0.39%	0.07%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.2	4.0
Financial	1.0	5.0
Overal Score	**3.2**	**3.8**

FEI recommends PRS as the preferred alternative for the Castlegar Nelson 168. With this alternative, there will be a PRS downstream of the Celgar lateral so that the pressure regulation of Castlegar Nelson 168 does not affect the Celgar lateral. In addition, a span of 400 m of 219

millimetre pipe will be replaced with 168 millimetre pipe so that the entire Castlegar Nelson lateral will be operating below 30 percent SMYS.

ILI was not recommended for this lateral due to the challenging terrain as well as the significantly higher incremental cost, which resulted in an overall lower score for these alternatives.

1.1.21 Trail Lateral 168

The Trail Lateral 168 starts about 1.6 kilometres west of Rivervale. This lateral travels south along Aldridge Ave and heads west, ending just north of Bingay Road. This lateral serves Teck Trail Operations, Teck Cominco, the City of Trail and the village of Warfield. Trail is home to approximately 7800 residents and Warfield home to 1800 residents.

Length of Pipeline (kilometres)		4.2
Outside Diameter(s) (millimetres)		168
Year of Construction		1957
ROW Width (metres)		9-12
Number of Customers	**Residential**	3,205
	Commercial	310
	Industrial	7
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Highway ROW road allowance Property: • Teck/Cominco property, have had challenges with permission to work on property in the past Indigenous Community Consultation: • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Lower Similkameen Indian Band • Okanagan Indian Band • Splats'in First Nation • Osoyoos Indian Band • Shuswap Indian Band • Akisqnuk First Nation • Lower Kootenay Band • Aq'am Community Government • Tobacco Plains Indian Band • Ktunaxa Nation Council Environmental: • Stream and wetland crossings • Wildlife habitat areas 8-373 for Grizzly bear • Ungulate winter range 4-001 • Registered contaminated site

	Archaeological: • One archaeological site identified • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

The financial comparison between the remaining alternatives of ILI and PRS for the Trail Lateral 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	18,212	5,399
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,740	1,281
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	845	18
PV of Incremental Revenue Requirement - 66 years ($000s)	19,043	5,915
Levelized Rate Impact - 66 years (%)	0.14%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.1	3.8
Financial	1.0	5.0
Overal Score	**3.1**	**3.8**

FEI recommends PRS as the preferred alternative for the Trail Lateral 168 and will be installed at the Trail lateral tap.

ILI was not recommended for this lateral due to the incremental cost and challenging construction terrain, which resulted in the lower overall scores for these alternatives.

1.1.22 Fording Lateral 219/168

The Fording Lateral begins east of Corbin Road and south of the Crowsnest Highway in Sparwood, home to approximately 3,500 residents. The lateral traverses north and heads through Elkford and ends at the Fording River Coal mine. The municipality of Elkford is home to approximately 2,500 residents. This lateral is significant because of downstream laterals and several large mining customers throughout including Elkview Coal, Line Creek Mine, Fording Greenhills Mine and Fording River Coal.

Length of Pipeline (kilometres)		79.6
Outside Diameter(s) (millimetres)		219/168
Year of Construction		1971
ROW Width (metres)		10-15
Number of Customers	**Residential**	3,932
	Commercial	379
	Industrial	15
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Steep terrain, pipe in valley bottom • Area known for washouts • Access issues between Sparwood and Line Creek Lateral • Lateral goes through edge of tailings pond • Highway and railway crossings Property: • Teck property, historically challenging to work on Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Conservation area between Sparwood and Line Creek lateral • Ungulate winter range 4-006 • Proximity to rivers and river crossings • Stream and wetland crossings • Species at risk occurrences, including 4 plant species at risk • Osprey nest nearby • Registered contaminated sites Archaeological: • Archaeological sites nearby • Area heavily disturbed by mining, may be hard to determine archaeology

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Fording Lateral 168/219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Fording Lateral 168/219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	94,217
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	4,485
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	6,178
PV of Incremental Revenue Requirement - 66 years ($000s)	102,818
Levelized Rate Impact - 66 years (%)	0.75%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

ILI at this lateral will require a 219 millimetre control valve assembly and a 219 millimetre launcher assembly at the start of the Fording 219 Lateral. At the site where the Fording lateral reduces down to 168 millimetres in outer diameter at the 49 kilometre post (KP), there will be a 219 millimetre receiver assembly and a 168 millimetre launcher assembly. Lastly, there will be a 168 millimetre receiver assembly at the Fording River Coal Mine Station where the lateral terminates.

1.1.23 Elkview Lateral 168

The Elkview Lateral branches off of the Fording Lateral right at the intersection of Michel Creek Road and Industrial 2 Road. From there, the lateral heads north and ends at 1.6 kilometres where it serves Elkview Coal Mine.

Length of Pipeline (kilometres)		1.6
Outside Diameter(s) (millimetres)		168
Year of Construction		1970
ROW Width (metres)		9-12
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	1
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Next to active coal mine plant

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	Property: • Teck property Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • American badger occurrences • Ungulate winter range 4-006 • One stream crossing • Osprey nest Archaeological: • Pipeline crosses archaeological site • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

The financial comparison between the remaining alternatives of ILI, PLR and PRS for the Elkview Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost but is slightly more expensive than PLR in terms of PV of incremental revenue requirement and levelized rate impact due to the requirement of future sustainment capital and O&M for PRS.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	8,213	6,588	5,319
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,722	-	1,314
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	659	-	18
PV of Incremental Revenue Requirement - 66 years ($000s)	10,072	5,850	5,877
Levelized Rate Impact - 66 years (%)	0.07%	0.04%	0.04%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

The table below shows the scoring of ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.5	3.3	3.8
Financial	2.0	5.0	5.0
Overal Score	**3.6**	**4.5**	**3.8**

FEI recommends PRS as the preferred alternative for the Elkview Lateral 168 and will be installed at the Elkview lateral tap.

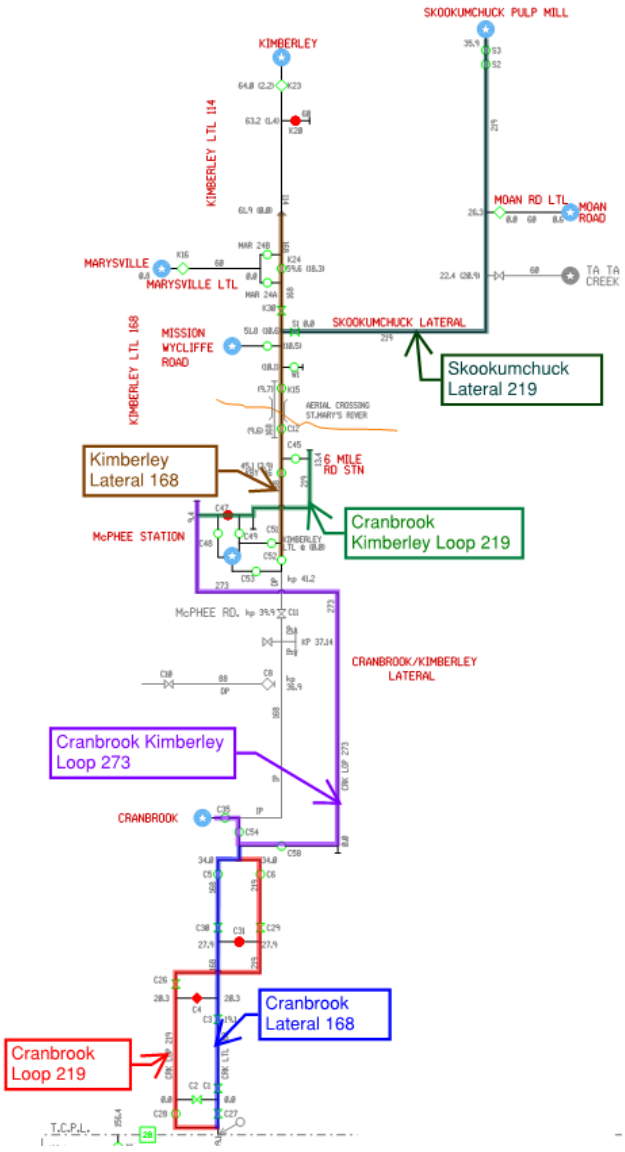
Despite PLR having a higher overall score, the incremental capital cost is significant and because PRS is feasible for this lateral, PLR is not recommended.

ILI is also not recommended for this lateral due to the incremental cost and challenging construction terrain, which resulted in the lower overall scores for these alternatives.

1.1.24 Cranbrook Lateral 168

The Cranbrook Lateral 168 begins near Gold Creek Road and Cavern Creek Road. The lateral follows Gold Creek Road to Cranbrook where it ends at 13 Street S and 26 Avenue S. Cranbrook is home to approximately 20,000 residents and makes up the largest urban centre in the Regional District of East Kootenay. The Cranbrook Kimberley system involves 6 different laterals (Cranbrook Loop 219 described in Section 1.1.25, Cranbrook Kimberley Loop 273 described in Section 1.1.26, Cranbrook Kimberley Loop 219 described in Section 1.1.27, Kimberley Lateral described in Section 1.1.28, and Skookumchuck Lateral described in Section 1.1.29) and, because they are all interconnected, they have been treated as one system and the evaluation of alternatives for all these laterals was done together. For clarity, the system diagram can be seen in the figure below.

Overview of Cranbrook Kimberley System



Length of Pipeline (kilometres)		34.0
Outside Diameter(s) (millimetres)		168
Year of Construction		1990
ROW Width (metres)		10
Number of Customers	**Residential**	12,986
	Commercial	1,187
	Industrial	21
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Many bends to replace if ILI is chosen Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Proximity to sensitive riparian areas • Species at risk occurrences • Wildlife habitat areas 4-180 for Grizzly bear • Ungulate winter range 4-006 Archaeological: • Archaeological sites near the end of the lateral • Valley bottom has high potential archaeology

* *Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.

The financial analysis of ILI for the Cranbrook Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	14,554
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,408
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	2,696
PV of Incremental Revenue Requirement - 66 years ($000s)	21,151
Levelized Rate Impact - 66 years (%)	0.15%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI at this lateral, there will be a launcher and a control valve assembly at the start of the Cranbrook lateral, and a receiver assembly at the Cranbrook Gate Station where the lateral terminates.

1.1.25 Cranbrook Loop 219

The Cranbrook Loop 219 parallels the Cranbrook Lateral 168 from start to finish. It also begins near Gold Creek Road and Cavern Creek Road. The loop follows Gold Creek Road all the way to Cranbrook where it ends at 13 Street S and 26 Avenue S.

Length of Pipeline (kilometres)		34.0
Outside Diameter(s) (millimetres)		219
Year of Construction		1968
ROW Width (metres)		10
Number of Customers	**Residential**	12,986
	Commercial	1,187
	Industrial	21
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Many bends to replace if ILI is chosen Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Proximity to sensitive riparian areas • Species at risk occurrences • Wildlife habitat areas 4-180 for Grizzly bear • Ungulate winter range 4-006 Archaeological: • Archaeological sites near the end of the lateral • Valley bottom has high potential archaeology

** Akisqnuk First Na`tion, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Loop 219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Cranbrook Loop 219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	13,806
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,715
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,861
PV of Incremental Revenue Requirement - 66 years ($000s)	20,752
Levelized Rate Impact - 66 years (%)	0.15%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI at this lateral, there will be a launcher and a shared control valve assembly with the lateral at the start of the Cranbrook loop, and a receiver assembly at the Cranbrook Gate Station where the loop terminates.

1.1.26 Cranbrook Kimberley Loop 273

The Cranbrook Kimberley Loop 273 begins where the Cranbrook Lateral 168 and Cranbrook Loop 219 end. This segment continues north to where the Cranbrook Kimberley Loop 219 begins.

Length of Pipeline (kilometres)		9.4
Outside Diameter(s) (millimetres)		273
Year of Construction		1992
ROW Width (metres)		9-18
Number of Customers	**Residential**	4,291
	Commercial	280
	Industrial	4
Important Factors in Execution and Lifecycle Operation		Property: • Private properties

	• ROW width at tie in is 8m • Crosses through Mission Hill golf course Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Proximity to sensitive riparian areas • Species at risk occurrences • Critical Habitat polygon for caribou • Ungulate winter range 4-006 • Registered contaminated site Archaeological: • Many archaeological sites • Three known archaeological sites on Mission Hills golf course

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Kimberley 273 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Cranbrook Kimberley Loop 273 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	8,156
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,357
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,031
PV of Incremental Revenue Requirement - 66 years ($000s)	10,942
Levelized Rate Impact - 66 years (%)	0.08%

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AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI at this lateral, there will be a launcher assembly at the start of the loop at Cranbrook Gate Station and a receiver assembly at McPhee Station where the loop terminates.

1.1.27 Cranbrook Kimberley Loop 219

The Cranbrook Kimberley Loop 219 begins where the Cranbrook Lateral 168 and Cranbrook Loop 219 end. This segment starts where the Cranbrook Loop 273 ends in McPhee Station and loops the initial 4 kilometres section of the Kimberley Lateral 168 where it ends at 6 Mile Road Station.

Length of Pipeline (kilometres)		4.0
Outside Diameter(s) (millimetres)		219
Year of Construction		1992
ROW Width (metres)		12
Number of Customers	**Residential**	4,291
	Commercial	280
	Industrial	4
Important Factors in Execution and Lifecycle Operation		Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream crossings • Heron Rookery • Species at risk occurrences • Critical habitat polygon for caribou • Ungulate winter range 4-006 Archaeological: • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Kimberley Loop 219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis for the Cranbrook Kimberley Loop 219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	7,032
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,334
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	491
PV of Incremental Revenue Requirement - 66 years ($000s)	9,387
Levelized Rate Impact - 66 years (%)	0.07%

Deleted:

AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI at this lateral, there will be a launcher assembly at the start of the loop at the McPhee Station and a receiver assembly at Six Mile Road Station where the loop terminates.

1.1.28 Kimberley Lateral 168

The Kimberley Lateral 168 begins at the same site where the Cranbrook Kimberley Loop 273 ends and the Cranbrook Kimberley Loop 219 begins. The Kimberley Lateral 168 follows the Northstar Rails to Trails road through Wycliffe and continues north where the 168 millimetre section ends in Ta Ta Creek. The lateral reduces to 114 millimetre and continues into the City of Kimberley, home to approximately 4500 residents.

Length of Pipeline (kilometres)		20.6
Outside Diameter(s) (millimetres)		168
Year of Construction		1962
ROW Width (metres)		10
Number of Customers	**Residential**	4,291
	Commercial	280
	Industrial	4
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Crosses St Mary River • Road and highway crossings Property: • Private properties • ROW width down to 10m in one section Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Steam crossings • Critical habitat polygons for caribou and

	woodpecker • St Mary River crossing • Species at risk occurrences • Registered contaminated sites Archaeological: • Moderate to high archaeological potential

* *Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Kimberley Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis for the Kimberly Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	19,839
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,452
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	2,558
PV of Incremental Revenue Requirement - 66 years ($000s)	23,542
Levelized Rate Impact - 66 years (%)	0.17%

Deleted:

AACE Estimate Class
Total Project Capital Costs, As-Spent, inc AFUDC & Removal ($000s)
PV of Post-Project Incremental Sustainn Capital - 66 years ($000s)
PV of Post-Project Incremental Sustainn O&M - 66 years ($000s)
PV of Incremental Revenue Requiremer 66 years ($000s)
Levelized Rate Impact - 66 years (%)

With ILI at this lateral, there will be a launcher assembly at the McPhee Station and a receiver assembly at Ta Ta Creek where the 168 millimetre section of Kimberley Lateral terminates and reduces to 114 millimetres in outer diameter.

1.1.29 Skookumchuck Lateral 219

The Skookumchuck Lateral begins just north of Mission Wycliffe Road and Mellor Road in Cranbrook. The Skookumchuck lateral heads north along Highway 95A and Highway 95 until it reaches Skookumchuck Pulp mill.

Length of Pipeline (kilometres)	35.9
Outside Diameter(s) (millimetres)	219
Year of Construction	1968

ROW Width (metres)		12
Number of Customers	**Residential**	75
	Commercial	1
	Industrial	1
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Railway crossing • Creek crossings Property: • Crown and private properties • ROW width down to 10m in one section Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Critical habitat polygons for caribou and woodpecker • Species at risk occurrences • Wildlife Habitat Area 4-117 for antelope brush/ bluebunch wheatgrass plant community • Wildlife Habitat Areas 4-089 and 4-091 for American Badger • Wildlife Habitat Area 4-068 for Long-billed Curlew • Ungulate Winter Ranges 4-008 and 4-006 • Important Bird Area Skookumchuck Prairie • Registered contaminated site Archaeological: • Archaeological site near TaTa Creek • Moderate to high archaeological potential

* *Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Skookumchuck Lateral 219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Skookumchuck Lateral 219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	8,177
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,646
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,825
PV of Incremental Revenue Requirement - 66 years ($000s)	14,001
Levelized Rate Impact - 66 years (%)	0.10%

With ILI at this lateral, there will be a launcher assembly at the start of the Skookumchuck lateral where it ties into the Kimberley lateral, and a receiver assembly at the Skookumchuck Pulp Mill station at the end of the lateral.

Appendix A-2

DETAILED DESCRIPTION OF TWENTY NINE LATERALS

EVIDENTIARY UPDATE APRIL 5, 2019

CLEAN

1.1 *DETAILED DESCRIPTION OF TWENTY-NINE LATERALS*

This appendix FEI provides a detailed overview of all 29 laterals as well as the alternatives evaluation of each lateral.

1.1.1 Mackenzie Lateral 168 (MAC LTL 168)

The Mackenzie Lateral 168 starts off of the Enbridge mainline near John Hart Highway and heads north to the town of Mackenzie, home to approximately 3500 residents. It operates together as a single system with the Mackenzie Loop 168 (described below in Section 1.1.2). This lateral has two water crossings – the Mischinsinlika Creek and Williston Lake. There are two large industrial customers being supplied from this lateral including Mackenzie Pulp Mill and Conifex Sawmill.

Length of Pipeline (kilometres)		28.6
Outside Diameter(s) (millimetres)		168, 88
Year of Construction		1966
Right of way width (metres)		10
Number of Customers	**Residential**	1,672
	Commercial	139
	Industrial	6
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Overhead BC Hydro power lines at ILI Receiver assembly site Property: • Acquisition of ROW Indigenous Community Consultation: • Blueberry River First Nation • West Moberly First Nation • Halfway River First Nation • Doig River First Nation • MacLeod Lake Indian Band Environmental: • Wetlands • Mischinsinlika Creek crossing • Registered contaminated sites • Raptor nests nearby • Amphibian breeding habitat Archaeological: • Moderate to high archaeological potential

FEI recommends ILI as the preferred alternative for the Mackenzie Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.

The financial analysis of ILI for the Mackenzie Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	38,024
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,266
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	2,754
PV of Incremental Revenue Requirement - 66 years ($000s)	44,750
Levelized Delivery Rate Impact - 66 years (%)	0.32%

With ILI at this lateral, there will be a Launcher assembly and a Control Valve assembly at the start of the lateral and a Receiver assembly just east of Old Airport Road. In order to have a continuous in-line inspection from the start of the lateral to the end, another 168 millimetre crossing is planned to be installed at the Mischinsinlika Creek. Without this additional crossing, FEI would require another launcher and receiver assembly since the current crossing is 219 millimetres and would not be compatible with the 168 millimetre ILI tool.

1.1.2 Mackenzie Loop 168 (MAC LOP 168)

Similar to the Mackenzie Lateral 168, the Mackenzie Loop 168 starts off at the Enbridge Tap near John Hart Highway and completely loops the Mackenzie Lateral 168 to the start of the Mischinsinlika Creek crossing. The Mackenzie Loop then continues to loop the Mackenzie Lateral after the Mischinsinlika Creek crossing for another 2 kilometres where it terminates. The Mackenzie Lateral 168 and the Mackenzie Loop 168 operate together as a single system.

Length of Pipeline (kilometres)		14.2
Outside Diameter(s) (millimetres)		168, 219
Year of Construction		1972
ROW Width (metres)		10
Number of Customers	**Residential**	1,672
	Commercial	139

	Industrial	6
Important Factors in Execution and Lifecycle Operation		Property: • Acquisition of ROW Indigenous Community Consultation: • Blueberry River First Nation • West Moberly First Nation • Halfway River First Nation • Doig River First Nation • MacLeod Lake Indian Band Environmental: • Wetlands and creek crossings • Registered contaminated sites • Raptor nests nearby • Amphibian breeding habitat Archaeological: • Moderate to high archaeological potential

FEI recommends ILI as the preferred alternative for the Mackenzie Loop 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for Mackenzie Loop 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	22,700
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,418
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,168
PV of Incremental Revenue Requirement - 66 years ($000s)	25,188
Levelized Rate Impact - 66 years (%)	0.18%

With ILI at this lateral, there will be a 168 millimetre launcher assembly at the start of the loop and a 168 millimetre receiver assembly where the Mischinsinlika Creek crossing begins. There will also be a 219 millimetre launcher assembly at the start of the Creek crossing, and a 219 millimetre receiver assembly 2 kilometres downstream of the creek. In addition, approximately

160 metres of the Mackenzie Loop immediately downstream of the crossing will have to be upgraded from a pipe size of 168 millimetres to 219 millimetres.

1.1.3 BC Forest Products Lateral 168 (BCF LTL 168)

The BC Forest Products lateral is a short lateral that branches off of the Mackenzie Lateral just West of Coquiwaldy Road feeding Mackenzie Pulp Mill Corporation. The Mackenzie Lateral 168, the Mackenzie Loop 168 and the BC Forest Products Lateral 168 operate together as a single system.

Length of Pipeline (kilometres)		0.5
Outside Diameter(s) (millimetres)		168
Year of Construction		1970
ROW Width (metres)		N/A
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	1
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Canadian National Railway crossing • Cannot take line out of service Property: • Currently no ROW, and will be requiring 18m ROW for the pipeline replacement Indigenous Community Consultation: • West Moberly First Nations • Halfway River First Nations • Doig River First Nations • MacLeod Lake Indian Band Environmental: • Registered contaminated sites

The financial comparison between the remaining alternatives of ILI, PLR and PRS for the BC Forest Products Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. Due to the fact that this is a relatively short lateral at approximately 0.5 kilometres, PLR is less expensive than ILI and PRS. Additionally, PLR has a smaller rate impact than ILI and PRS, with a lower total PV of incremental revenue requirement and levelized rate impact.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	9,242	3,612	5,317
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,903	-	1,527
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	675	-	20
PV of Incremental Revenue Requirement - 66 years ($000s)	12,598	3,536	6,955
Levelized Rate Impact - 66 years (%)	0.09%	0.03%	0.05%

The table below shows the scoring of each alternative for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.8	4.2	4.0
Financial	1.0	5.0	2.0
Overal Score	**3.3**	**4.7**	**2.8**

FEI recommends PLR as the preferred alternative for BC Forest Products Lateral. With the PLR alternative, the entire pipeline will be replaced.

1.1.4 Northwood Pulp Lateral 168

The Northwood Pulp Lateral begins at the Enbridge tap just north of the Fraser River near the Fraser-Fort George and Prince George boundary. This lateral is looped by Northwood Pulp Loop 168 (described in Section 1.1.5) for most of the lateral, and the two lines join to feed Prince George 3 Lateral (described in Section 1.1.6). Because of this configuration, the three pipelines were treated as a single system when evaluating alternatives. The Northwood Pulp Lateral continues south past the start of the Prince George 3 Lateral and supplies the Northwood Pulp Mill.

Length of Pipeline (kilometres)		6.0
Outside Diameter(s) (millimetres)		168
Year of Construction		1965
ROW Width (metres)		15
Number of Customers	**Residential**	17,716
	Commercial	1,834
	Industrial	52
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Assets will need to be installed on elevated

	platforms due to sites having flooded in the past • Existing tap has no odourization for about 600 meters • Cannot be taken out of service • Road crossings • Rail ROW Property: • Obtaining ROW on Enbridge property • One property owned by Canfor on last 400m Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Water crossings • Fraser River critical habitat for fish species at risk • Registered contaminated sites Archaeological: • High risk archaeology, no known site but proximity to water and reserve increases risk

The financial comparison between the remaining alternatives of ILI and PRS for the Northwood Pulp Lateral 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, and the lowest total PV of incremental revenue requirement and levelized rate impact when compared to ILI.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,174	1,760
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,902	481
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,088	6
PV of Incremental Revenue Requirement - 66 years ($000s)	15,379	2,201
Levelized Rate Impact - 66 years (%)	0.11%	0.02%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.3	4.3
Financial	1.0	5.0
Overal Score	**3.2**	**3.9**

FEI recommends PRS as the preferred alternative for the Northwood Pulp Lateral 168. Because Northwood Pulp Lateral feeds the Northwood Pulp Loop and Prince George 3, all three lines can be served by one PRS.

1.1.5 Northwood Pulp Loop 219

The Northwood Pulp Loop starts at the same point as the Northwood Pulp Lateral, and continues to the Prince George 3 Lateral, effectively bypassing the Northwood Pulp mill to boost the capacity of the supply feeding Prince George.

Length of Pipeline (kilometres)		5.8
Outside Diameter(s) (millimetres)		219
Year of Construction		1995
ROW Width (metres)		15
Number of Customers	**Residential**	17,716
	Commercial	1,834
	Industrial	52
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Swampy areas due and sites have flooded in the past • Assets will need to be installed on elevated platforms • Existing tap has no odourization for about 600 meters • Cannot be taken out of service • Road crossings • Rail ROW Property: • Obtaining ROW on Enbridge property • One property owned by Canfor on last 400m Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Water crossings • Fraser River critical habitat for fish species at risk

	• Registered contaminated sites Archaeological: • High risk archaeology, no known site but proximity to water and reserve increases risk

The financial comparison between the remaining alternatives of ILI and PRS for the Northwood Pulp Loop 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS is also the alternative with the lowest project capital cost. Additionally, PRS has the lowest impact to FEI's ratepayers in terms of the total PV of incremental revenue requirement and levelized rate impact over a 66-year analysis period when compared to ILI.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,470	1,758
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,311	481
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,061	6
PV of Incremental Revenue Requirement - 66 years ($000s)	14,056	2,198
Levelized Rate Impact - 66 years (%)	0.10%	0.02%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.4	4.3
Financial	1.0	5.0
Overal Score	**3.2**	**3.9**

As described in the Northwood Pulp Lateral description, PRS was chosen as the preferred alternative, and given that the Northwood Pulp Lateral 168, the Northwood Pulp Loop 168 and the Prince George 3 Lateral 219 are all treated as one system, PRS was selected as the preferred alternative for the Northwood Pulp Loop.

1.1.6 Prince George 3 Lateral 219

The Prince George 3 Lateral branches off of the Northwood Pulp Lateral, and begins just west of the intersection of Beaver Forest Road and Industrial Access Road to the North of Northwood

Pulp Mill. This lateral heads southwest and ends on Noranda Road near McMillian Creek. At Noranda Road is the start of an intermediate pressure pipeline which spans from the North end of Prince George to the South end where it connects to the Prince George 2 Lateral. Together, these two laterals support the entire City of Prince George, home to approximately 74,000 residents, and 31,000 FEI customers.

Length of Pipeline (kilometres)		5.3
Outside Diameter(s) (millimetres)		219
Year of Construction		1970
ROW Width (metres)		6
Number of Customers	**Residential**	17,716
	Commercial	1,834
	Industrial	52
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Swampy areas due and sites have flooded in the past • Assets will need to be installed on elevated platforms • Cannot take line out of service Property: • Narrow ROW • ROW in road along Old Summit Lake Road for 450m • Parallels BC Hydro ROW • Private and Crown land Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • McMillan Creek and other small creek crossings • Registered contaminated sites Archaeological: • Moderate to high archaeological potential with three areas confirmed high archaeological potential

The financial comparison between ILI and PRS for the Prince George 3 Lateral 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the

pipeline to meet customer demands. PRS has the lowest project capital cost, and the lowest total PV of incremental revenue requirement and levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,785	1,753
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,305	479
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,031	6
PV of Incremental Revenue Requirement - 66 years ($000s)	14,315	2,191
Levelized Rate Impact - 66 years (%)	0.10%	0.02%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.5	4.6
Financial	1.0	5.0
Overal Score	**3.2**	**4.0**

As described in the Northwood Pulp Lateral and Loop descriptions, PRS was recommended as the preferred alternative for the system. Since the Prince George 3 Lateral is supplied by Northwood Pulp Lateral and Loop, FEI recommends PRS as the preferred alternative for this lateral. In addition, PRS has an added benefit of lower potential impacts to surrounding Indigenous communities compared to ILI.

1.1.7 Prince George 1 Lateral 168

The Prince George 1 Lateral taps off of Enbridge south of the Graves Road and Shelley Road intersection. The lateral continues west and ends near Pickering Road where it connects to the Prince George Pulp Lateral (described in Section 1.1.8) and subsequently Husky Oil Lateral (described in Section 1.1.9). Together, the laterals supply gas to 1229 customers, with several significant industrial customers.

Length of Pipeline (kilometres)		4.7
Outside Diameter(s) (millimetres)		168
Year of Construction		1957
ROW Width (metres)		18
Number of	**Residential**	1,171

Customers	**Commercial**	50
	Industrial	8
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Stopping off and welding fittings at a higher pressure to maintain customer gas requirements Property: • Obtaining ROW on Enbridge property Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Creek crossings • Potential for occurrence of a plant species at risk • Registered contaminated sites Archaeological: • Moderate to high archaeological potential

FEI recommends ILI as the preferred alternative for the Prince George 1 Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Prince George 1 Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,241
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,873
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	601
PV of Incremental Revenue Requirement - 66 years ($000s)	14,401
Levelized Rate Impact - 66 years (%)	0.10%

With ILI for this lateral, a launcher assembly and a control valve assembly will be installed at the start of the Prince George 1 Lateral, and a receiver assembly where the Prince George 1 Lateral terminates and the Prince George Pulp Lateral starts.

1.1.8 Prince George Pulp Lateral 168

The Prince George Pulp Lateral continues where the Prince George 1 Lateral (described in Section 1.1.7) terminates. This lateral crosses the Fraser River and feeds Canfor Pulp mill. This lateral also connects directly to the Husky Oil Lateral (described in Section 1.1.9). Consideration was given to treating Prince George 1 Lateral, Prince George Pulp Lateral and Husky Oil Lateral. However, since PRS was not feasible on Prince George 1 Lateral, it was not evaluated as a system. Prince George Pulp Lateral and Husky Oil Lateral however, were evaluated as a system.

Length of Pipeline (kilometres)		1.0
Outside Diameter(s) (millimetres)		168
Year of Construction		1964
ROW Width (metres)		0*
Number of Customers	**Residential**	1,171
	Commercial	50
	Industrial	8
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Fraser River crossing • Steep slope at the start of the lateral to the river crossing • Stopping off and welding fittings at a higher pressure to maintain customer gas requirements • CN Bridge crossing Property: • No existing R/W in place • Works within rail corridor Limited space on the Canfor Pulp mill where the lateral ends Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Fraser River crossing • Mature forested riparian area associated with the Fraser River. • Potential for occurrence of a plant species at risk • Registered contaminated sites

	Archaeological: • Moderate to high archaeological potential

** No existing ROW, lateral is located within railway corridor and FEI has a License to Operate*

The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the Prince George Pulp Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. Because Prince George Pulp Lateral and Husky Oil Lateral are treated as a system, the PRS is shared between the two, resulting in a lower project capital cost, lower PV of incremental revenue requirement, and lower rate impact than the other alternatives.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,664	8,384	2,938
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,836	-	769
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	680	-	9
PV of Incremental Revenue Requirement - 66 years ($000s)	14,331	7,727	3,600
Levelized Rate Impact - 66 years (%)	0.10%	0.06%	0.03%

The table below shows the scoring of each alternative for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.5	3.3	3.8
Financial	1.0	1.0	5.0
Overal Score	**3.2**	**3.1**	**3.8**

FEI recommends PRS as the preferred alternative for Prince George Pulp lateral, and subsequently Husky Oil Lateral. One PRS will be installed at the start of the Prince George Pulp Lateral and will be able to serve Husky Oil Lateral as well.

1.1.9 Husky Oil Lateral 168

The Husky Oil Lateral continues from Canfor Pulp where the Prince George Pulp Lateral ends, and continues north where it runs parallel to Prince George Pulpmill Road. This lateral supplies gas for significant industrial customers including Husky Oil and FMC.

Length of Pipeline (kilometres)		1.1
Outside Diameter(s) (millimetres)		168
Year of Construction		1967
ROW Width (metres)		0*
Number of Customers	**Residential**	1,171
	Commercial	50
	Industrial	8
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • BC Railway crossing • Stopping off and welding fittings at a higher pressure to maintain customer gas requirements • Pipeline in road allowance runs between buried NPS 42 water pipeline on south side and Husky facility on north side Property: • ROW required at the end of the lateral • Limited land at end of NPS 6 lateral • Existing pipe within road allowance Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Registered contaminated site • 1 osprey nest nearby • Potential for occurrence of a plant species at risk Archaeological: • Moderate to high archaeological potential

1 * *Pipe located in road allowance so no ROW exists for this lateral*

2 The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the
3 Husky Oil Lateral 168 is shown in the table below. PLE and HSTP were screened out as
4 discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this
5 lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still
6 substantial capacity in the pipeline to meet customer demands. Because the PRS is shared
7 between Prince George Pulp Lateral and Husky Oil Lateral, it has the lowest project capital cost,
8 and the lowest total PV of incremental revenue requirement and levelized rate impact when
9 compared to other alternatives.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	14,440	5,956	2,939
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,252	-	770
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	682	-	9
PV of Incremental Revenue Requirement - 66 years ($000s)	16,392	5,601	3,601
Levelized Rate Impact - 66 years (%)	0.12%	0.04%	0.03%

The table below shows the scoring of each alternative for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.5	3.3	3.8
Financial	1.0	2.0	5.0
Overal Score	**3.2**	**3.5**	**3.8**

FEI recommends PRS as the preferred alternative based on financial scoring and the evaluation of Prince George Pulp lateral and Husky Oil lateral as a single system. The PRS option is achievable with one PRS at the start of Prince George Pulp lateral to serve Husky Oil Lateral as well since the two laterals are connected sequentially.

1.1.10 Prince George 2 Lateral 219

The Prince George 2 Lateral begins near the intersection of Evasko Road and Johnson Road and heads west until it ends at Highway 97 and Terminal Boulevard. A Gate Station at Highway 97 and Terminal Boulevard feeds the intermediate pressure pipeline that connects with the supply from Noranda Gate Station supplied from the Prince George 3 Lateral. As described previously, these two laterals are critical for supplying gas to the city of Prince George.

Length of Pipeline (kilometres)		8.6
Outside Diameter(s) (millimetres)		219
Year of Construction		1965
ROW Width (metres)		6
Number of Customers	**Residential**	17,217
	Commercial	1,596
	Industrial	44
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Cannot take offline

	• Road crossing • ROW in road allowance with high traffic near PG Airport Property: • All private land Indigenous Community Consultation: • Nak'azdli Whut'en' • Nazko First Nation • Carrier Chilcotin Tribal council • Lheidli – T'enneh Band Environmental: • Stream crossings Archaeological: • Moderate to high archaeological potential with three areas confirmed high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Prince George 2 Lateral 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, the lowest total PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,384	5,157
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,922	1,365
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,283	18
PV of Incremental Revenue Requirement - 66 years ($000s)	15,839	6,342
Levelized Rate Impact - 66 years (%)	0.11%	0.05%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.7	4.3
Financial	1.0	5.0
Overal Score	**3.3**	**3.9**

FEI recommends PRS as the preferred alternative for the Prince George 2 Lateral 168. With this alternative, the PRS would be installed at the start of the lateral near the Enbridge tap.

1.1.11 Cariboo Pulp Lateral 168

The Cariboo Pulp Lateral begins near the North end of North Star Road in Quesnel and continues west to feed Cariboo Pulp & Paper, the sole customer served by the lateral.

Length of Pipeline (kilometres)		1.3
Outside Diameter(s) (millimetres)		168
Year of Construction		1972
ROW Width (metres)		10
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	1
Important Factors in Execution and Lifecycle Operation		Property: • Additional ROW required Indigenous Community Consultation: • Tsihlqot'in National Government • Carrier Chilcotin Tribal Council • Lhtako Dene Nation • Lhoosk'uz Dene Nation • Ulkatcho First Nation Environmental: • Registered contaminated site • Occurrence of a plant species at risk Archaeological: • Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the Cariboo Pulp Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. Although PLR has a higher capital cost compared to PRS, PLR has similar rate impacts as PRS primarily due to the additional sustainment capital and O&M costs required for the PRS in the future.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	7,119	5,595	4,888
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,915	-	1,443
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	711	-	20
PV of Incremental Revenue Requirement - 66 years ($000s)	10,507	5,521	6,487
Levelized Rate Impact - 66 years (%)	0.08%	0.04%	0.05%

The table below shows the scoring of ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.3	3.3	4.3
Financial	2.0	5.0	4.0
Overal Score	**3.5**	**4.5**	**3.5**

FEI recommends PLR as the preferred alternative for the Cariboo Pulp lateral as this alternative has the highest overall score. PLR is lower in terms of total PV of incremental revenue requirements over the 66-year analysis period.

PRS scored lower than PLR since the technical performance is not as high due to the fact that PRS would still be managing a vintage pipe. Since PLR is not the least expensive alternative, subject matter experts were called upon to provide input on alternatives for this lateral and concluded PLR will offer better technical superiority over PRS since it will be a new pipeline with modern coating while the PRS alternative will still be maintain a vintage pipeline, therefore, PLR was selected as the preferred alternative.

1.1.12 Williams Lake Loop 1/Loop 2 168

The Williams Lake Loop begins south of Lund Road approximately 1 kilometre east of Minton Lake, where it ties into the Williams Lake Lateral 114. The loop heads towards the Williams Lake Airport and continues along Jacobson Road and ends just north of Kemp Road where the 114 lateral continues toward the City of Williams Lake, home to approximately 11,000 residents.

Length of Pipeline (kilometres)	Williams Lake Loop 1	Williams Lake Loop 2
Length of Pipeline (kilometres)	3.4	2.5
Outside Diameter(s) (millimetres)	168	168
Year of Construction	1993	1998
ROW Width (metres)	6	6

Number of Customers	**Residential**	5,998
	Commercial	813
	Industrial	15
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Several road crossings • Crosses airport runway Property: • All land in Agricultural Land Reserve Indigenous Community Consultation: • Xats'ull First Nation • Northern Secwepemc Tribal Council • Canim Lake Band • Neskonlith Indian Band • Tsihlqot'in National Government • Williams Lake Indian Band Environmental: • Stream and wetland crossings • Registered contaminated site • Old Growth Management Areas Archaeological: • Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Williams Lake Loop 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest total PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	13,391	5,066
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,833	1,343
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,025	18
PV of Incremental Revenue Requirement - 66 years ($000s)	15,692	5,951
Levelized Rate Impact - 66 years (%)	0.11%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.5	4.3
Financial	1.0	5.0
Overal Score	**3.2**	**3.9**

FEI recommends PRS as the preferred alternative for the Williams Lake Loop 168. With this alternative, the PRS would be installed on the Williams Lake 114 Lateral to simultaneously reduce the operating pressure of both the Williams Lake lateral and loop.

ILI was not selected due to the significantly higher rate impact as a result of higher incremental cost for the required assemblies. There are also potential difficulties in land acquisition in the Agricultural Land Reserve for ILI.

1.1.13 Kamloops Lateral/Loop 168

The Kamloops Lateral and Loop begin near Hillside Drive and copperhead Drive in the Dufferin neighbourhood, where it heads north to feed the Kamloops Gate Station which supplies the City of Kamloops, home to approximately 90,000 residents. A significant industrial customer on this lateral is the Domtar Pulp Mill.

Length of Pipeline (kilometres)		Kamloops 1 Lateral 168	Kamloops 1 Loop 168
Length of Pipeline (kilometres)		3.6	3.1
Outside Diameter(s) (millimetres)		168	168
Year of Construction		1965	1979
ROW Width (metres)		6-12	6-12
Number of Customers	**Residential**	15,391	
	Commercial	1,588	
	Industrial	36	
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Difficult terrain with steep slopes Property: • Park Use Permit required Indigenous Community Consultation: • Adams Lake Indian Band • Ashcroft Indian Band • Little Shuswap Lake Indian Band • Bonaparte Indian Band • Whispering Pines/ Clinton Band • Neskonlith Indian Band • Nooaitch Indian Band	

	• Esh-kn-am Cultural Resources • Boothroyd Indian Band • Spuzzum First Nation • Skuppah Indian Band • Nlaka'pamux Nation Tribal Council • Nicola Tribal Association • Lower Nicola Indian Band • Lytton First Nation • Siska Indian Band • Cook's Ferry Indian Band • Coldwater Indian Band • Oregon Jack Creek Indian Band • Skeetchestn Indian Band • Tk'emlups Band • Stk'emlupsemc te Secwepemc Nation (SSN) Environmental: • Critical habitat for woodpecker, toad and snake • Occurrences of species at risk • Pipeline runs through municipal Kenna Cartwright Park Archaeological: • Assessment required within park boundary • Heritage site nearby • Three areas of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI and PLR for the Kamloops 1 Lateral & Loop 168 is shown in the table below. PLE, HSTP and PRS were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. Between ILI and PLR, PLR has a lower project capital cost and lower total PV of incremental revenue requirement and levelized rate impact.

	ILI	PLR
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	29,222	16,877
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,921	-
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,120	-
PV of Incremental Revenue Requirement - 66 years ($000s)	32,104	15,795
Levelized Rate Impact - 66 years (%)	0.23%	0.11%

The table below shows the scoring of ILI and PLR for each of the three criteria, and the overall weighted score:

	ILI	PLR
Integrity and Asset Management Capabilities	4.8	4.7
Project Execution & Lifecycle Operation	3.5	3.6
Financial	1.0	5.0
Overal Score	**3.2**	**4.6**

FEI recommends PLR as the preferred alternative for the Kamloops 1 Lateral and Loop 168.

1.1.14 Salmon Arm Loop 168

The Salmon Arm Loop 168 begins on the Savona-Nelson Mainline of the FEI Interior Transmission System just east of St Annes Road in the township of Spallumcheen, where it heads north towards Armstrong along Otter Lake Road. From Armstrong, the loop continues along Vernon Sicamous Highway to Enderby and from Enderby towards Salmon Arm where the loop ends. The loop is also critical to serving the communities north of Salmon Arm, as far as Sorrento. The populations of Spallumcheen, Armstrong, Enderby, and Salmon Arm total more than 31,000 combined.

Length of Pipeline (kilometres)		44.9
Outside Diameter(s) (millimetres)		168
Year of Construction		1976-1987
ROW Width (metres)		3-9
Number of Customers	**Residential**	11,830
	Commercial	1,136
	Industrial	24
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Crosses Vernon Sicamous Highway Property: • Potential trespass issue in Splats'in First Nation reserve • Private property • Log barn property (ROW encroachment) • First Nations land tenure (28.2 permit) Indigenous Community Consultation: • Neskonlith Indian Band • Okanagan Nation Alliance • Penticton Indian Band • Upper Nicola Indian Band • Lower Similkameen Indian Band • Okanagan Indian Band • Adams Lake Indian Band • Little Shuswap Lake Indian Band • Splats'in First Nation Environmental:

	• Critical habitat for great basin spadefoot • Osprey and hawk nests nearby • Great blue heron rookery • Species at risk occurrences • Amphibian breeding habitats • Registered contaminated site Archaeological: • Moderate to high archaeological potential with two areas of high archaeological potential confirmed

FEI recommends ILI as the preferred alternative for the Salmon Arm Loop 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Salmon Arm Loop 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	29,241
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,247
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,592
PV of Incremental Revenue Requirement - 66 years ($000s)	32,564
Levelized Rate Impact - 66 years (%)	0.24%

With ILI for this lateral, there will be a launcher and a control valve assembly at the start of the loop, and a receiver assembly at the Salmon Arm Gate Station where the loop terminates.

1.1.15 Salmon Arm 3 Lateral 168

The Salmon Arm 3 Lateral starts off of the Salmon Arm 114 Lateral just East of Shaw Road in Salmon Arm at the Canoe Creek golf course. From there it heads north and ends near the Auto Road SE and 6 Street SE intersection.

Length of Pipeline (kilometres)		0.8
Outside Diameter(s) (millimetres)		168
Year of Construction		1981
ROW Width (metres)		9
Number of	**Residential**	3,426

Customers	**Commercial**	261
	Industrial	9
Important Factors in Execution and Lifecycle Operation		Property: • Crosses Canoe Creek golf course Indigenous Community Consultation: • Neskonlith Indian Band • Okanagan Nation Alliance • Penticton Indian Band • Upper Nicola Indian Band • Lower Similkameen Indian Band • Okanagan Indian Band • Adams Lake Indian Band • Little Shuswap Lake Indian Band • Splats'in First Nation Archaeological: • One area of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI, PLR and PRS for the Salmon Arm 3 Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. As this is a relatively short pipeline, PLR has a lower project capital cost, lower PV of incremental revenue requirement and levelized rate impact when compared to ILI and PRS.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	7,136	4,290	5,007
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,893	-	1,463
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	705	-	20
PV of Incremental Revenue Requirement - 66 years ($000s)	10,493	4,191	6,589
Levelized Rate Impact - 66 years (%)	0.08%	0.03%	0.05%

The table below shows the scoring of each ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	2.8	3.3	4.3
Financial	1.0	5.0	2.0
Overal Score	**3.1**	**4.5**	**2.8**

FEI recommends PLR as the preferred alternative for the Salmon Arm 3 Lateral because it is the alternative with the highest overall score. PLR has the lowest project capital cost, lowest total PV of incremental revenue requirement, and lowest levelized rate impact. Because of where the lateral is located relative to the Canoe Creek golf course, PLR will have less impact both during and post-construction than ILI and PRS.

PRS involves the construction of a permanent above ground facility adjacent to the Canoe Creek Golf Course club house.

1.1.16 Coldstream Loop 168

The Coldstream Loop 168 starts about 400 metres east of Apollo Road in Vernon on the Savona-Penticton Mainline of the FEI Interior Transmission System, and heads directly east to where it joins the start of the Coldstream Lateral 219 (described in Section 1.1.17). Because the loop and lateral are connected, the two are treated as a single system in the evaluation of alternatives.

Length of Pipeline (kilometres)		3.8
Outside Diameter(s) (millimetres)		168
Year of Construction		1989
ROW Width (metres)		9
Number of Customers	**Residential**	13,357
	Commercial	1,017
	Industrial	48
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Unexploded ordnances along ROW • Crosses highway 97 and Okanagan college campus Property: • Crosses Vernon Golf and Country Club course Indigenous Community Consultation: • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Okanagan Indian Band • Lower Similkameen Indian Band Splats'in First Nation Environmental: • Critical habitat for great basin spadefoot and two species of snake • Stream crossings • Species at risk occurrences • Registered contaminated site

	Archaeological: • Moderate to high archaeological potential with six areas of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI and PRS for the Coldstream Loop 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,077	5,102
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,791	1,348
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	847	18
PV of Incremental Revenue Requirement - 66 years ($000s)	14,241	6,019
Levelized Rate Impact - 66 years (%)	0.10%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.2	4.3
Financial	1.0	5.0
Overal Score	**3.1**	**3.9**

FEI recommends PRS as the preferred alternative for the Coldstream Loop 168. PRS is the alternative with the highest overall score for the Coldstream Loop 168 and the Coldstream Lateral 219 thus PRS is the preferred alternative for both lines. With this alternative, the PRS would be installed at the start of the Coldstream Loop 168.

ILI was screened out due to higher rate impact as a result of the length of the loop and greater complexity due to the road crossing and unexploded ordinances which lead to lower project execution scores.

1.1.17 Coldstream Lateral 219

The Coldstream Lateral 219 starts off on Reservoir Road in Vernon and heads north on the West side of the Vernon Golf and Country Club. The lateral ends off just south of Polson Drive and 14 Avenue. From here, an intermediate pressure pipeline travels along Highway 6 eastbound where it supplies Coldstream. The District of Coldstream is home to approximately 10,000 residents.

Length of Pipeline (kilometres)		1.8
Outside Diameter(s) (millimetres)		219, 114
Year of Construction		1998
ROW Width (metres)		15
Number of Customers	**Residential**	13,357
	Commercial	1,017
	Industrial	48
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Creek crossing Property: • Crosses Vernon Golf and Country Club course • Access required for FLNRO tree farm Indigenous Community Consultation: • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Okanagan Indian Band • Lower Similkameen Indian Band • Splats'in First Nation Environmental: • Critical habitat for great basin spadefoot and two species of snake • Stream crossings including a creek which leads to Kalamalka Lake • Species at risk occurrences • Registered contaminated site Archaeological: • Moderate to high archaeological potential with six areas of high archaeological potential confirmed

The financial comparison between the remaining alternatives of ILI, PLR, and PRS for the Coldstream Lateral 219 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a viable alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. AACE Class 3 estimates were

developed for all three alternatives as the project capital costs were relatively close to each other. At a lateral length of approximately 1.8 kilometres, all three alternatives are relatively comparable financially with PRS having the lowest PV of incremental revenue requirement and levelized rate impact. PLR has the highest project capital cost, but has lower rate impact than ILI due to the fact that ILI requires future capital and O&M expenditures for ILI re-inspection.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	11,123	10,514	5,029
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,765	-	1,333
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	688	-	18
PV of Incremental Revenue Requirement - 66 years ($000s)	13,159	9,334	5,933
Levelized Rate Impact - 66 years (%)	0.10%	0.07%	0.04%

The table below shows the scoring of ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.3	3.2	4.3
Financial	1.0	2.0	5.0
Overal Score	**3.2**	**3.4**	**3.9**

Based on the scoring and the treatment of Coldstream Lateral and Loop as one system, FEI recommends PRS as the preferred alternative for the Coldstream Lateral 219. The PRS will be installed at the start of Coldstream Lateral 114 since this lateral supplies the Coldstream Lateral 219. Even though Coldstream Lateral 114 is not part of the 29 laterals in this project, it would be prudent to install the PRS at the start of the 114 Lateral because there will be little or no additional costs to apply pressure reduction to Coldstream Lateral 114. This would also be beneficial because it would reduce the Coldstream 114 lateral below 30 percent SMYS as well, preventing rupture potential of that section of pipe. The smaller footprint of the PRS compared to ILI and PLR is desirable due to environmental concerns.

ILI and PLR were both screened out by the financial analysis due to the length of the lateral and complexity including stream crossing and environmental risks.

1.1.18 Kelowna 1 Loop 219

The Kelowna 1 Loop begins on the corner of the Wal-Mart parking lot at the intersection of Enterprise Way and Banks Road. From there, the loop heads west until it ends at Alphonse Road. The City of Kelowna is home to approximately 128,000 residents.

Length of Pipeline (kilometres)		2.1
Outside Diameter(s) (millimetres)		219
Year of Construction		1976
ROW Width (metres)		15
Number of Customers	**Residential**	29,999
	Commercial	3,235
	Industrial	48
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Road crossing Property: • High land value • Walmart parking lot Indigenous Community Consultation: • Esh-kn-am Cultural Resources Management Services • Nooaitch Indian Band • Okanagan Nation Alliance • Penticton Indian Band • Upper Nicola Indian Band • Lower Similkameen Indian Band Okanagan Indian Band Environmental: • Riparian areas • Species at risk occurrences • At risk plant communities • Mill Creek fish bearing stream • Meadowbrook community garden • Registered contaminated site Archaeological: • Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Kelowna 1 Loop 219 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement, and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	12,008	5,891
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,769	1,348
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	692	18
PV of Incremental Revenue Requirement - 66 years ($000s)	13,969	6,902
Levelized Rate Impact - 66 years (%)	0.10%	0.05%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	2.8	4.3
Financial	1.0	5.0
Overal Score	**3.1**	**3.9**

FEI recommends PRS as the preferred alternative for the Kelowna 1 Loop 219. Since Kelowna 1 Loop 219 is connected to Kelowna 1 Lateral 114, the PRS will affect both lines and as a result, will need to regulate the pressure in both of the lines.

ILI was not suitable for this location due to the high profile location. It would be difficult to install and operate a launcher and control valve assembly in the Walmart parking lot, resulting in the low score for Project Execution and Lifecycle Operation.

1.1.19 Celgar Lateral 168

The Celgar Lateral 168 begins west of Columbia Ave and 11st in the City of Castlegar, home to approximately 8000 residents. From here the lateral heads West right up to serve the Zellstoff Celgar Pulp Mill.

Length of Pipeline (kilometres)		5.8
Outside Diameter(s) (millimetres)		168
Year of Construction		1960
ROW Width (metres)		12-18
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	2
Important Factors in Execution and		Operational Complexity:

Lifecycle Operation	• Very steep terrain • Adjacent to BC Hydro ROW Property: • Private and crown land Indigenous Community Consultation: • Adam Lake • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Lower Similkameen Indian Band • Okanagan Indian Band • Splats'in First Nation • Osoyoos Indian Band Shuswap Indian Band Environmental: • Stream crossings • An area of old forest • Species at risk occurrences • Wildlife habitat area 8-373 for Grizzly bear • Ungulate winter range 4-001 Archaeological: Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Celgar Lateral 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	10,176	5,376
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,220	1,278
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	988	18
PV of Incremental Revenue Requirement - 66 years ($000s)	11,731	5,898
Levelized Rate Impact - 66 years (%)	0.09%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.5	4.0
Financial	2.0	5.0
Overal Score	**3.6**	**3.8**

FEI recommends PRS as the preferred alternative for Celgar lateral 168. The PRS would be located downstream of the Celgar take off so the pressure regulation does not affect the Castlegar Nelson lateral.

1.1.20 Castlegar Nelson 168

The Castlegar Nelson 168 begins just north of Columbia Ave and 11st in the City of Castlegar, home to approximately 8,000 residents. This lateral continues north all the way to the City of Nelson, home to 11,000 residents.

Length of Pipeline (kilometres)		37.4
Outside Diameter(s) (millimetres)		168
Year of Construction		1957
ROW Width (metres)		12-18
Number of Customers	**Residential**	9,657
	Commercial	10
	Industrial	61
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Highway crossing Property: • Private and crown land • Need to verify municipal land • New HDD for river crossing • Very sloped terrain Indigenous Community Consultation: • Adam Lake • Neskonlith Indian Band • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Lower Similkameen Indian Band • Okanagan Indian Band • Splats'in First Nation • Osoyoos Indian Band Shuswap Indian Band Environmental: • Brilliant river crossing • Shoreacres river crossing • Stream and wetland crossings

	• Fish species at risk • Critical habitat for caribou and woodpecker • Areas of old forest • Species at risk occurrences • Wildlife habitat area 8-373 for Grizzly bear • Ungulate winter range 4-001 • Registered contaminated sites Archaeological: • Large archaeological sites near Brilliant Dam • Archaeological sites near Kootenay River and Slocan River intersect • Registered arch sites on Zuckerberg Island • Moderate to high archaeological potential

The financial comparison between the remaining alternatives of ILI and PRS for the Castlegar Nelson 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	53,656	8,343
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,162	1,805
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,799	18
PV of Incremental Revenue Requirement - 66 years ($000s)	54,183	8,986
Levelized Rate Impact - 66 years (%)	0.39%	0.07%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.2	4.0
Financial	1.0	5.0
Overal Score	**3.2**	**3.8**

FEI recommends PRS as the preferred alternative for the Castlegar Nelson 168. With this alternative, there will be a PRS downstream of the Celgar lateral so that the pressure regulation of Castlegar Nelson 168 does not affect the Celgar lateral. In addition, a span of 400 m of 219

millimetre pipe will be replaced with 168 millimetre pipe so that the entire Castlegar Nelson lateral will be operating below 30 percent SMYS.

ILI was not recommended for this lateral due to the challenging terrain as well as the significantly higher incremental cost, which resulted in an overall lower score for these alternatives.

1.1.21 Trail Lateral 168

The Trail Lateral 168 starts about 1.6 kilometres west of Rivervale. This lateral travels south along Aldridge Ave and heads west, ending just north of Bingay Road. This lateral serves Teck Trail Operations, Teck Cominco, the City of Trail and the village of Warfield. Trail is home to approximately 7800 residents and Warfield home to 1800 residents.

Length of Pipeline (kilometres)		4.2
Outside Diameter(s) (millimetres)		168
Year of Construction		1957
ROW Width (metres)		9-12
Number of Customers	**Residential**	3,205
	Commercial	310
	Industrial	7
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Highway ROW road allowance Property: • Teck/Cominco property, have had challenges with permission to work on property in the past Indigenous Community Consultation: • Penticton Indian Band • Upper Nicola Indian Band • Okanagan Nation Alliance • Lower Similkameen Indian Band • Okanagan Indian Band • Splats'in First Nation • Osoyoos Indian Band • Shuswap Indian Band • Akisqnuk First Nation • Lower Kootenay Band • Aq'am Community Government • Tobacco Plains Indian Band • Ktunaxa Nation Council Environmental: • Stream and wetland crossings • Wildlife habitat areas 8-373 for Grizzly bear • Ungulate winter range 4-001 • Registered contaminated site

	Archaeological: • One archaeological site identified • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

The financial comparison between the remaining alternatives of ILI and PRS for the Trail Lateral 168 is shown in the table below. PLE, HSTP and PLR were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost, lowest PV of incremental revenue requirement and lowest levelized rate impact.

	ILI	PRS
AACE Estimate Class	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	18,212	5,399
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,740	1,281
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	845	18
PV of Incremental Revenue Requirement - 66 years ($000s)	19,043	5,915
Levelized Rate Impact - 66 years (%)	0.14%	0.04%

The table below shows the scoring of ILI and PRS for each of the three criteria, and the overall weighted score:

	ILI	PRS
Integrity and Asset Management Capabilities	4.8	2.9
Project Execution & Lifecycle Operation	3.1	3.8
Financial	1.0	5.0
Overal Score	**3.1**	**3.8**

FEI recommends PRS as the preferred alternative for the Trail Lateral 168 and will be installed at the Trail lateral tap.

ILI was not recommended for this lateral due to the incremental cost and challenging construction terrain, which resulted in the lower overall scores for these alternatives.

1.1.22 Fording Lateral 219/168

The Fording Lateral begins east of Corbin Road and south of the Crowsnest Highway in Sparwood, home to approximately 3,500 residents. The lateral traverses north and heads through Elkford and ends at the Fording River Coal mine. The municipality of Elkford is home to approximately 2,500 residents. This lateral is significant because of downstream laterals and several large mining customers throughout including Elkview Coal, Line Creek Mine, Fording Greenhills Mine and Fording River Coal.

Length of Pipeline (kilometres)		79.6
Outside Diameter(s) (millimetres)		219/168
Year of Construction		1971
ROW Width (metres)		10-15
Number of Customers	**Residential**	3,932
	Commercial	379
	Industrial	15
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Steep terrain, pipe in valley bottom • Area known for washouts • Access issues between Sparwood and Line Creek Lateral • Lateral goes through edge of tailings pond • Highway and railway crossings Property: • Teck property, historically challenging to work on Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Conservation area between Sparwood and Line Creek lateral • Ungulate winter range 4-006 • Proximity to rivers and river crossings • Stream and wetland crossings • Species at risk occurrences, including 4 plant species at risk • Osprey nest nearby • Registered contaminated sites Archaeological: • Archaeological sites nearby • Area heavily disturbed by mining, may be hard to determine archaeology

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Fording Lateral 168/219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Fording Lateral 168/219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	94,217
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	4,485
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	6,178
PV of Incremental Revenue Requirement - 66 years ($000s)	102,818
Levelized Rate Impact - 66 years (%)	0.75%

ILI at this lateral will require a 219 millimetre control valve assembly and a 219 millimetre launcher assembly at the start of the Fording 219 Lateral. At the site where the Fording lateral reduces down to 168 millimetres in outer diameter at the 49 kilometre post (KP), there will be a 219 millimetre receiver assembly and a 168 millimetre launcher assembly. Lastly, there will be a 168 millimetre receiver assembly at the Fording River Coal Mine Station where the lateral terminates.

1.1.23 Elkview Lateral 168

The Elkview Lateral branches off of the Fording Lateral right at the intersection of Michel Creek Road and Industrial 2 Road. From there, the lateral heads north and ends at 1.6 kilometres where it serves Elkview Coal Mine.

Length of Pipeline (kilometres)		1.6
Outside Diameter(s) (millimetres)		168
Year of Construction		1970
ROW Width (metres)		9-12
Number of Customers	**Residential**	N/A
	Commercial	N/A
	Industrial	1
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Next to active coal mine plant

	Property: • Teck property Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • American badger occurrences • Ungulate winter range 4-006 • One stream crossing • Osprey nest Archaeological: • Pipeline crosses archaeological site • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

The financial comparison between the remaining alternatives of ILI, PLR and PRS for the Elkview Lateral 168 is shown in the table below. PLE and HSTP were screened out as discussed in Section 4.4.4 and 4.4.5 of the Application. PRS is a feasible alternative for this lateral; after regulating the operating pressure of the lateral to 29.9 percent SMYS, there is still substantial capacity in the pipeline to meet customer demands. PRS has the lowest project capital cost but is slightly more expensive than PLR in terms of PV of incremental revenue requirement and levelized rate impact due to the requirement of future sustainment capital and O&M for PRS.

	ILI	PLR	PRS
AACE Estimate Class	Class 3	Class 3	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	8,213	6,588	5,319
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,722	-	1,314
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	659	-	18
PV of Incremental Revenue Requirement - 66 years ($000s)	10,072	5,850	5,877
Levelized Rate Impact - 66 years (%)	0.07%	0.04%	0.04%

The table below shows the scoring of ILI, PLR, and PRS for each of the three criteria, and the overall weighted score:

	ILI	PLR	PRS
Integrity and Asset Management Capabilities	4.8	4.7	2.9
Project Execution & Lifecycle Operation	3.5	3.3	3.8
Financial	2.0	5.0	5.0
Overal Score	**3.6**	**4.5**	**3.8**

FEI recommends PRS as the preferred alternative for the Elkview Lateral 168 and will be installed at the Elkview lateral tap.

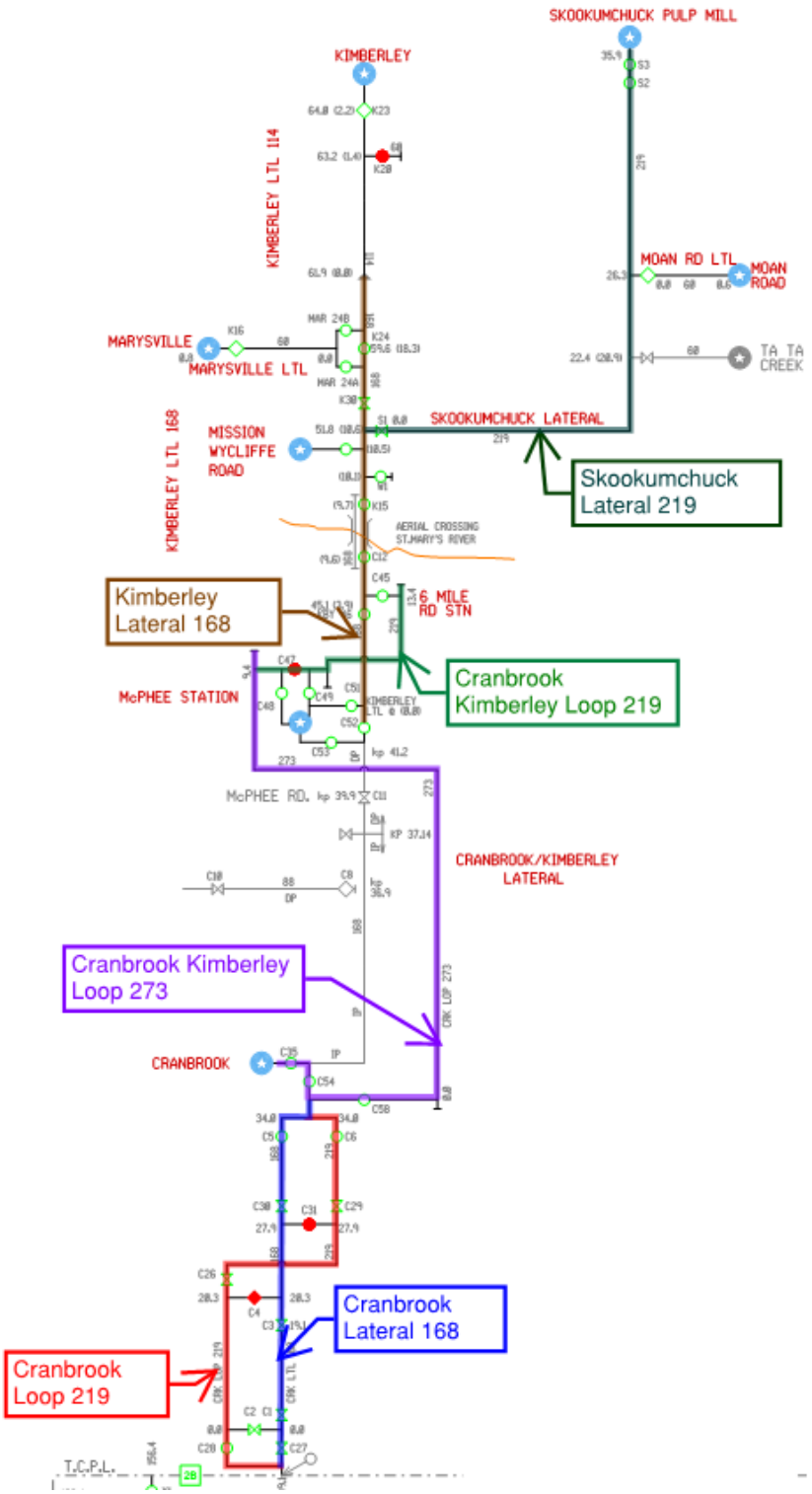
Despite PLR having a higher overall score, the incremental capital cost is significant and because PRS is feasible for this lateral, PLR is not recommended.

ILI is also not recommended for this lateral due to the incremental cost and challenging construction terrain, which resulted in the lower overall scores for these alternatives.

1.1.24 Cranbrook Lateral 168

The Cranbrook Lateral 168 begins near Gold Creek Road and Cavern Creek Road. The lateral follows Gold Creek Road to Cranbrook where it ends at 13 Street S and 26 Avenue S. Cranbrook is home to approximately 20,000 residents and makes up the largest urban centre in the Regional District of East Kootenay. The Cranbrook Kimberley system involves 6 different laterals (Cranbrook Loop 219 described in Section 1.1.25, Cranbrook Kimberley Loop 273 described in Section 1.1.26, Cranbrook Kimberley Loop 219 described in Section 1.1.27, Kimberley Lateral described in Section 1.1.28, and Skookumchuck Lateral described in Section 1.1.29) and, because they are all interconnected, they have been treated as one system and the evaluation of alternatives for all these laterals was done together. For clarity, the system diagram can be seen in the figure below.

Overview of Cranbrook Kimberley System



Length of Pipeline (kilometres)		34.0
Outside Diameter(s) (millimetres)		168
Year of Construction		1990
ROW Width (metres)		10
Number of Customers	**Residential**	12,986
	Commercial	1,187
	Industrial	21
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Many bends to replace if ILI is chosen Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Proximity to sensitive riparian areas • Species at risk occurrences • Wildlife habitat areas 4-180 for Grizzly bear • Ungulate winter range 4-006 Archaeological: • Archaeological sites near the end of the lateral • Valley bottom has high potential archaeology

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.

The financial analysis of ILI for the Cranbrook Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	14,554
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	2,408
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	2,696
PV of Incremental Revenue Requirement - 66 years ($000s)	21,151
Levelized Rate Impact - 66 years (%)	0.15%

With ILI at this lateral, there will be a launcher and a control valve assembly at the start of the Cranbrook lateral, and a receiver assembly at the Cranbrook Gate Station where the lateral terminates.

1.1.25 Cranbrook Loop 219

The Cranbrook Loop 219 parallels the Cranbrook Lateral 168 from start to finish. It also begins near Gold Creek Road and Cavern Creek Road. The loop follows Gold Creek Road all the way to Cranbrook where it ends at 13 Street S and 26 Avenue S.

Length of Pipeline (kilometres)		34.0
Outside Diameter(s) (millimetres)		219
Year of Construction		1968
ROW Width (metres)		10
Number of Customers	**Residential**	12,986
	Commercial	1,187
	Industrial	21
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Many bends to replace if ILI is chosen Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Proximity to sensitive riparian areas • Species at risk occurrences • Wildlife habitat areas 4-180 for Grizzly bear • Ungulate winter range 4-006 Archaeological: • Archaeological sites near the end of the lateral • Valley bottom has high potential archaeology

** Akisqnuk First Na`tion, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Loop 219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Cranbrook Loop 219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	13,806
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,715
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,861
PV of Incremental Revenue Requirement - 66 years ($000s)	20,752
Levelized Rate Impact - 66 years (%)	0.15%

With ILI at this lateral, there will be a launcher and a shared control valve assembly with the lateral at the start of the Cranbrook loop, and a receiver assembly at the Cranbrook Gate Station where the loop terminates.

1.1.26 Cranbrook Kimberley Loop 273

The Cranbrook Kimberley Loop 273 begins where the Cranbrook Lateral 168 and Cranbrook Loop 219 end. This segment continues north to where the Cranbrook Kimberley Loop 219 begins.

Length of Pipeline (kilometres)		9.4
Outside Diameter(s) (millimetres)		273
Year of Construction		1992
ROW Width (metres)		9-18
Number of Customers	**Residential**	4,291
	Commercial	280
	Industrial	4
Important Factors in Execution and Lifecycle Operation		Property: • Private properties • ROW width at tie in is 8m

	• Crosses through Mission Hill golf course Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Proximity to sensitive riparian areas • Species at risk occurrences • Critical Habitat polygon for caribou • Ungulate winter range 4-006 • Registered contaminated site Archaeological: • Many archaeological sites • Three known archaeological sites on Mission Hills golf course

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Kimberley 273 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Cranbrook Kimberley Loop 273 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	8,156
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,357
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	1,031
PV of Incremental Revenue Requirement - 66 years ($000s)	10,942
Levelized Rate Impact - 66 years (%)	0.08%

With ILI at this lateral, there will be a launcher assembly at the start of the loop at Cranbrook Gate Station and a receiver assembly at McPhee Station where the loop terminates.

1.1.27 Cranbrook Kimberley Loop 219

The Cranbrook Kimberley Loop 219 begins where the Cranbrook Lateral 168 and Cranbrook Loop 219 end. This segment starts where the Cranbrook Loop 273 ends in McPhee Station and loops the initial 4 kilometres section of the Kimberley Lateral 168 where it ends at 6 Mile Road Station.

Length of Pipeline (kilometres)		4.0
Outside Diameter(s) (millimetres)		219
Year of Construction		1992
ROW Width (metres)		12
Number of Customers	**Residential**	4,291
	Commercial	280
	Industrial	4
Important Factors in Execution and Lifecycle Operation		Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream crossings • Heron Rookery • Species at risk occurrences • Critical habitat polygon for caribou • Ungulate winter range 4-006 Archaeological: • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Cranbrook Kimberley Loop 219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis for the Cranbrook Kimberley Loop 219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	7,032
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,334
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	491
PV of Incremental Revenue Requirement - 66 years ($000s)	9,387
Levelized Rate Impact - 66 years (%)	0.07%

With ILI at this lateral, there will be a launcher assembly at the start of the loop at the McPhee Station and a receiver assembly at Six Mile Road Station where the loop terminates.

1.1.28 Kimberley Lateral 168

The Kimberley Lateral 168 begins at the same site where the Cranbrook Kimberley Loop 273 ends and the Cranbrook Kimberley Loop 219 begins. The Kimberley Lateral 168 follows the Northstar Rails to Trails road through Wycliffe and continues north where the 168 millimetre section ends in Ta Ta Creek. The lateral reduces to 114 millimetre and continues into the City of Kimberley, home to approximately 4500 residents.

Length of Pipeline (kilometres)		20.6
Outside Diameter(s) (millimetres)		168
Year of Construction		1962
ROW Width (metres)		10
Number of Customers	**Residential**	4,291
	Commercial	280
	Industrial	4
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Crosses St Mary River • Road and highway crossings Property: • Private properties • ROW width down to 10m in one section Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Steam crossings • Critical habitat polygons for caribou and

	woodpecker • St Mary River crossing • Species at risk occurrences • Registered contaminated sites Archaeological: • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Kimberley Lateral 168 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis for the Kimberly Lateral 168 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	19,839
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,452
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	2,558
PV of Incremental Revenue Requirement - 66 years ($000s)	23,542
Levelized Rate Impact - 66 years (%)	0.17%

With ILI at this lateral, there will be a launcher assembly at the McPhee Station and a receiver assembly at Ta Ta Creek where the 168 millimetre section of Kimberley Lateral terminates and reduces to 114 millimetres in outer diameter.

1.1.29 Skookumchuck Lateral 219

The Skookumchuck Lateral begins just north of Mission Wycliffe Road and Mellor Road in Cranbrook. The Skookumchuck lateral heads north along Highway 95A and Highway 95 until it reaches Skookumchuck Pulp mill.

Length of Pipeline (kilometres)	35.9
Outside Diameter(s) (millimetres)	219
Year of Construction	1968

ROW Width (metres)		12
Number of Customers	**Residential**	75
	Commercial	1
	Industrial	1
Important Factors in Execution and Lifecycle Operation		Operational Complexity: • Railway crossing • Creek crossings Property: • Crown and private properties • ROW width down to 10m in one section Indigenous Community Consultation: • Shuswap Indian Band • Ktunaxa Nation Council* Environmental: • Stream and wetland crossings • Critical habitat polygons for caribou and woodpecker • Species at risk occurrences • Wildlife Habitat Area 4-117 for antelope brush/ bluebunch wheatgrass plant community • Wildlife Habitat Areas 4-089 and 4-091 for American Badger • Wildlife Habitat Area 4-068 for Long-billed Curlew • Ungulate Winter Ranges 4-008 and 4-006 • Important Bird Area Skookumchuck Prairie • Registered contaminated site Archaeological: • Archaeological site near TaTa Creek • Moderate to high archaeological potential

** Akisqnuk First Nation, Lower Kootenay Band, St. Mary's Indian Band, Tobacco Plains Indian Band are collectively notified through Ktunaxa Nation Council.*

FEI recommends ILI as the preferred alternative for the Skookumchuck Lateral 219 since all other alternatives were previously screened out as discussed in Section 4.4.4 and 4.4.5 of the Application: PLE was not feasible due to complex project execution as a result of the need to excavate the entire length of the lateral; HSTP was not feasible as there is no practical means to support downstream customers when the lateral is shut down for the work; PRS was screened out as it is not feasible due to capacity limitations; and PLR was screened out as it is cost prohibitive at a high level estimate compared to other feasible alternatives.The financial analysis of ILI for the Skookumchuck Lateral 219 is shown in the table below.

	ILI
AACE Estimate Class	Class 3
Total Project Capital Costs, As-Spent, incl. AFUDC & Removal ($000s)	8,177
PV of Post-Project Incremental Sustainment Capital - 66 years ($000s)	1,646
PV of Post-Project Incremental Sustainment O&M - 66 years ($000s)	3,825
PV of Incremental Revenue Requirement - 66 years ($000s)	14,001
Levelized Rate Impact - 66 years (%)	0.10%

With ILI at this lateral, there will be a launcher assembly at the start of the Skookumchuck lateral where it ties into the Kimberley lateral, and a receiver assembly at the Skookumchuck Pulp Mill station at the end of the lateral.

Appendix I

DETAILED EVALUTATION OF ALTERNATIVES

EVIDENTIARY UPDATE AND ERRATA, APRIL 5, 2019

Overal Weightings	Weight
Project Execution & Lifecycle Operation	20%
Technical	45%
Financial	35%

Project Execution & Lifecycle Operation	Weight
Environmental	15%
Lands & ROW	15%
Consultation and Engagement Complexity	15%
Operational Complexity	25%
System Capacity & Customer Impacts	20%
Project Execution Certainty	10%

Technical	Weight
Prevention of Ruptures	45%
Prevention of Leaks	10%
Proactive Asset Management	25%
Technical Certainty	20%

Financial	Weight
Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100%
Rate Impact	0%
Retirement of Under-Depreciated Asset	0%

Alternative Evaluation Criteria – Definitions	
Technical	
Prevention of ruptures	• Prevent ruptures due to corrosion and existing mechanical damage, with a high degree of confidence
Prevention of leaks	• Prevent small leaks due to corrosion and existing mechanical damage, with a high degree of confidence
Proactive asset management	• Ability to make proactive repair/replace decisions based on asset condition over the lifecycle of the asset (allows for the identification and scheduling of corrective work with reasonable planning horizons) • Alignment with industry practice • Future opportunities (e.g. crack detection) • Other benefits: ground movement, centreline mapping, validation of records (e.g. W.T.), ability to project corrosion growth
Technical uncertainty	• Risk of not achieving technical Project Evaluation Criteria long-term, and reverting to another alternative
Project Execution & Lifecycle Operation	
Environmental	• Regulatory and permitting (e.g. MOE, DFO, Environment and Climate Change Canada, OGC, MFLNRO, etc.) • Existence of management areas (e.g. species at risk, protected areas) • Potential for contaminated sites • Waste development and disposal • Archaeological considerations • Soils and geology • Vegetation impacts • Timing restrictions • Potential for changes in regulation changes, increases in regulatory restrictions over the 50-year planning horizon • Watercourse impacts
Lands & ROW	• Land rights acquisition and lifecycle management complexity (e.g. absent property owners, potential for expropriation, existence of ALR, potential for changes to expectations/requirements) • Encroachment removal issues • Property activity impact (e.g. access, business impacts, agricultural impact, etc.) • Existing ROW suitability and restrictions/allowances • Bridge/rail crossing existence and annual rent payments • First Nations land tenures
Consultation and Engagement Complexity	• Communities (municipalities, regional districts) • First Nations • Stakeholders (MoTI, BC Hydro, other utilities, business associations, major industrial customers, etc.) • Risk of increased expectations for consultation and engagement • Increased expectation for community benefit/investment and First Nations capacity funding
Operational Complexity	• Operating phase of lifecycle only • Internal/external resources • Equipment & tools needs • Safety hazard exposure • Gas control / pressure control • Operational windows to execute work
System Capacity & Customer Impacts	• Sufficient capacity to execute alternative • Potential of the alternative to limit future capacity growth, including interruptible customers • Ability to provide unimpeded gas supply to customers (or… to enable unimpeded gas usage by customers) • Impacts to major industrial customers
Project Execution Certainty	• Constructability • Regulatory permitting • Timeline / schedule • Budget certainty • Scope certainty • Construction/internal resources
Financial	
Net Present Value (66 year) of Capital, O&M, and Retirement Cost	• Note: if values listed below are subject to change, all forumulas in Column Q of Sheet No. 10 must be modified (with all filters cleared prior to copying and pasting) • Score 5 = Alternative with the Lowest Net Present Value (66 year) and Alternatives within 5% of the Lowest NPV Alternative • Score 4 = Alternative is 5% to 20% more expensive than the Lowest NPV Alternative • Score 3 = Alternative is 20% to 50% more expensive than the Lowest NPV Alternative • Score 2 = Alternative is 50% to 100% more expensive than the Lowest NPV Alternative • Score 1 = Alternative is over 100% more expensive than the Lowest NPV Alternative • Score 0 = No cost estimate was prepared for this Alternative

5 = Good
4 = Above Average
3 = Average
2 = Below Average
1 = Poor
0 = Not Acceptable / Not Feasible

Total (100%)										
Laterals	**Line Length (m)**	**ILI Program:** Pressure/Flow	**ILI Program - Robotic:**	**Pipeline Replacement:**	**100% Inspection, Repair & Re-coat + Direct**	**Pressure Regulating**	**Hydrostatic Testing Program:**	**Status Quo:** Modified Direct	**1st Alternative**	**2nd Alternative**
1. MAC LTL 168	28678	4.6	2.7	3.1	2.3	1.8	1.4	1.3	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
2. MAC LOP 168	14248	4.6	2.7	3.1	2.3	1.8	1.4	1.3	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
3. BCF LTL 168	455	3.3	2.7	4.7	2.4	2.8	1.6	1.4	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
4. PG3 LTL 219	5345	3.2	2.7	3.1	2.2	4.0	1.4	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
5. NWP LTL 168	5989.0	3.2	2.6	3.0	2.2	3.9	1.4	1.4	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
6. NWP LOP 219	5823	3.2	2.6	3.0	2.2	3.9	1.6	1.4	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
7. PG1 LTL 168*	4713	4.6	2.7	3.5	2.3	1.8	1.4	1.3	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
8. PGP LTL 168*	1010	3.2	2.7	3.1	2.3	3.8	1.4	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
9. HUS LTL 168*	1114	3.2	2.7	3.5	2.3	3.8	1.4	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
10. PG2 219 168	8650	3.3	2.7	3.1	2.3	3.9	1.4	1.4	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
11. CAR LTL 168	1331	3.5	2.6	4.5	2.3	3.5	1.4	1.3	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS
12. WIL LP1/LP2 168	3384/2515	3.2	2.7	3.1	2.3	3.9	1.6	1.4	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
13.1. KA1 LTL 168	3570	3.2	2.7	4.6	2.3	1.8	1.4	1.3	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
13.2. KA1 LOP 168	3051	3.2	2.7	4.6	2.3	1.8	1.4	1.3	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
14. SAL LOP 168	44939	4.6	2.6	3.1	2.2	1.9	1.4	1.4	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
15. SA3 LTL 168	853	3.1	2.6	4.5	2.2	2.8	1.4	1.4	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
16. COL LTL 219	1822	3.2	2.6	3.4	2.2	3.9	1.4	1.4	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
17. COL LOP 168	3772	3.1	2.6	3.0	2.2	3.9	1.6	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
18. KE1 LOP 219	2109	3.1	2.5	3.4	2.1	3.9	1.4	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
19. CEL LTL 168	5783	3.6	2.7	3.1	2.3	3.8	1.4	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
20. CAS NEL 168	37366	3.2	2.6	3.1	2.2	3.8	1.4	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs
21. TRA LTL 168	4239	3.1	2.6	3.1	2.2	3.8	1.4	1.3	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
22. FRD LTL 219	34547/45112	4.6	2.6	3.0	2.2	1.8	1.4	1.3	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
23. ELK LTL 168	1565	3.6	2.7	4.5	2.3	3.8	1.4	1.3	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment	Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS
24. CRK LTL 168	34028	4.6	2.6	3.1	2.2	1.9	1.6	1.4	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
25. CRK LOP 219	34030	4.6	2.6	3.1	2.2	1.9	1.6	1.4	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
26. CRK LP2 219	4007	4.6	2.6	3.1	2.2	1.9	1.6	1.4	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
27. CRK LOP 273	9409	4.6	2.6	3.0	2.2	1.9	1.4	1.3	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
28. KBY LTL 168	20573	4.6	2.6	3.1	2.2	1.9	1.4	1.4	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment
29. SSK LTL 219	35931	4.6	2.6	3.0	2.2	1.9	1.4	1.3	ILI Program: Pressure/Flow Control + In-Line Inspection + Digs	Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment

Project Execution & Lifecycle Operation							
Laterals	**ILI Program: Pressure/Flow Control + In-Line Inspection + Digs**	**ILI Program - Robotic: Pressure/Flow Control + In-Line Inspection + Digs**	**Replacement: Replacement (<30% SMYS) + Modified Direct Assessment**	**100% Inspection, Repair & Re-coat + Direct Assessment Program: Pressure Control + Direct Examination + Recoating + Direct Assessment (ECDA only)**	**Hydrostatic Testing Program: Pressure Control + Hydrostatic Testing**	**Status Quo: Modified Direct Assessment with no Pressure Control**	**Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS2**
1. MAC LTL 168	3.45	3.5	3.3	2.5	0.8	2.7	2.8
2. MAC LOP 168	3.45	3.5	3.3	2.5	0.8	2.7	2.8
3. BCF LTL 168	3.75	3.65	4.2	3.1	1.8	3.15	3.95
4. PG3 LTL 219	3.45	3.5	3.3	2.35	0.8	2.7	4.6
5. NWP LTL 168	3.3	3.35	3	2.35	0.8	2.95	4.3
6. NWP LOP 219	3.4	3.35	3	2.35	1.8	2.95	4.3
7. PG1 LTL 168*	3.45	3.5	3.3	2.5	0.8	2.7	2.8
8. PGP LTL 168*	3.45	3.5	3.3	2.5	0.8	2.7	3.8
9. HUS LTL 168*	3.45	3.5	3.3	2.5	0.8	2.7	3.8
10. PG2 219 168	3.7	3.5	3.3	2.5	0.8	2.95	4.3
11. CAR LTL 168	3.3	3.35	3.3	2.65	0.8	2.8	4.3
12. WIL LP1/LP2 168	3.45	3.5	3.3	2.5	1.8	3.2	4.3
13.1. KA1 LTL 168	3.45	3.5	3.6	2.5	0.8	2.55	2.8
13.2. KA1 LOP 168	3.45	3.5	3.6	2.5	0.8	2.55	2.8
14. SAL LOP 168	3.4	3.35	3.15	2.35	0.8	2.95	3.3
15. SA3 LTL 168	2.75	3.35	3.3	2.35	0.8	2.95	4.3
16. COL LTL 219	3.3	3.35	3.15	2.35	0.8	2.95	4.3
17. COL LOP 168	3.15	3.05	3	2.35	1.8	2.8	4.3
18. KE1 LOP 219	2.75	2.65	3.15	1.85	0.8	2.55	4.3
19. CEL LTL 168	3.45	3.5	3.3	2.5	0.8	2.7	3.95
20. CAS NEL 168	3.2	3.25	3.3	2.25	0.8	2.7	3.95
21. TRA LTL 168	3.05	3.1	3.45	2.35	0.8	2.4	3.8
22. FRD LTL 219	3.3	3.35	3	2.35	0.8	2.55	2.8
23. ELK LTL 168	3.45	3.5	3.3	2.5	0.8	2.7	3.8
24. CRK LTL 168	3.4	3.35	3.15	2.35	1.8	2.95	3.3
25. CRK LOP 219	3.4	3.35	3.15	2.35	1.8	2.95	3.3
26. CRK LP2 219	3.4	3.35	3.15	2.35	1.8	3.2	3.3
27. CRK LOP 273	3.4	3.2	3	2.35	0.8	2.8	3.3
28. KBY LTL 168	3.4	3.35	3.15	2.35	0.8	2.95	3.3
29. SSK LTL 219	3.25	3.2	3	2.35	0.8	2.8	3.3

Technical							
Laterals	**ILI Program: Pressure/Flow Control + In-Line Inspection + Digs**	**ILI Program - Robotic: Pressure/Flow Control + In-Line Inspection + Digs**	**Replacement: Replacement (<30% SMYS) + Modified Direct Assessment**	**100% Inspection, Repair & Re-coat + Direct Assessment Program: Pressure Control + Direct Examination + Recoating + Direct Assessment (ECDA only)**	**Hydrostatic Testing Program: Pressure Control + Hydrostatic Testing**	**Status Quo: Modified Direct Assessment with no Pressure Control**	**Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS**
1. MAC LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
2. MAC LOP 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
3. BCF LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
4. PG3 LTL 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9
5. NWP LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
6. NWP LOP 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9
7. PG1 LTL 168*	4.8	4.4	4.7	4.0	2.9	1.8	2.9
8. PGP LTL 168*	4.8	4.4	4.7	4.0	2.9	1.8	2.9
9. HUS LTL 168*	4.8	4.4	4.7	4.0	2.9	1.8	2.9
10. PG2 219 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
11. CAR LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
12. WIL LP1/LP2 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
13.1. KA1 LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
13.2. KA1 LOP 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
14. SAL LOP 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
15. SA3 LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
16. COL LTL 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9
17. COL LOP 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
18. KE1 LOP 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9
19. CEL LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
20. CAS NEL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
21. TRA LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
22. FRD LTL 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9
23. ELK LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
24. CRK LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
25. CRK LOP 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9
26. CRK LP2 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9
27. CRK LOP 273	4.8	4.4	4.7	4.0	2.9	1.8	2.9
28. KBY LTL 168	4.8	4.4	4.7	4.0	2.9	1.8	2.9
29. SSK LTL 219	4.8	4.4	4.7	4.0	2.9	1.8	2.9

Financial							
Laterals	**ILI Program: Pressure/Flow Control + In-Line Inspection + Digs**	**ILI Program - Robotic: Pressure/Flow Control + In-Line Inspection + Digs**	**Pipeline Replacement: Replacement (<30% SMYS) + Modified Direct Assessment**	**100% Inspection, Repair & Re-coat + Direct Assessment Program: Pressure Control + Direct Examination + Recoating + Direct Assessment (ECDA only)**	**Hydrostatic Testing Program: Pressure Control + Hydrostatic Testing**	**Status Quo: Modified Direct Assessment with no Pressure Control**	**Pressure Regulating Station: Regulating the Maximum Operating Pressure Below 30% SMYS**
1. MAC LTL 168	5	0	1	0	0		0
2. MAC LOP 168	5	0	1	0	0		0
3. BCF LTL 168	1	0	5	0	0		2
4. PG3 LTL 219	1	0	1	0	0		5
5. NWP LTL 168	1	0	1	0	0		5
6. NWP LOP 219	1	0	1	0	0		5
7. PG1 LTL 168*	5	0	2	0	0		0
8. PGP LTL 168*	1	0	1	0	0		5
9. HUS LTL 168*	1	0	2	0	0		5
10. PG2 219 168	1	0	1	0	0		5
11. CAR LTL 168	2	0	5	0	0		4
12. WIL LP1/LP2 168	1	0	1	0	0		5
13.1. KA1 LTL 168	1	0	5	0	0		0
13.2. KA1 LOP 168	1	0	5	0	0		0
14. SAL LOP 168	5	0	1	0	0		0
15. SA3 LTL 168	1	0	5	0	0		2
16. COL LTL 219	1	0	2	0	0		5
17. COL LOP 168	1	0	1	0	0		5
18. KE1 LOP 219	1	0	2	0	0		5
19. CEL LTL 168	2	0	1	0	0		5
20. CAS NEL 168	1	0	1	0	0		5
21. TRA LTL 168	1	0	1	0	0		5
22. FRD LTL 219	5	0	1	0	0		0
23. ELK LTL 168	2	0	5	0	0		5
24. CRK LTL 168	5	0	1	0	0		0
25. CRK LOP 219	5	0	1	0	0		0
26. CRK LP2 219	5	0	1	0	0		0
27. CRK LOP 273	5	0	1	0	0		0
28. KBY LTL 168	5	0	1	0	0		0
29. SSK LTL 219	5	0	1	0	0		0

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
1. MAC LTL 168	Environmental	ILI Program:	3
1. MAC LTL 168	Environmental	ILI Program - Robotic:	3
1. MAC LTL 168	Environmental	Replacement: Replacement	2
1. MAC LTL 168	Environmental	100% Inspection, Repair &	2
1. MAC LTL 168	Environmental	Pressure Regulating	4
1. MAC LTL 168	Environmental	Hydrostatic Testing	1
1. MAC LTL 168	Environmental	Status Quo: Modified	3
1. MAC LTL 168	Lands & ROW	ILI Program:	3
1. MAC LTL 168	Lands & ROW	ILI Program - Robotic:	3
1. MAC LTL 168	Lands & ROW	Replacement: Replacement	1
1. MAC LTL 168	Lands & ROW	100% Inspection, Repair &	2
1. MAC LTL 168	Lands & ROW	Pressure Regulating	4
1. MAC LTL 168	Lands & ROW	Hydrostatic Testing	1
1. MAC LTL 168	Lands & ROW	Status Quo: Modified	4
1. MAC LTL 168	Consultation and Engagement Complexity	ILI Program:	3
1. MAC LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
1. MAC LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
1. MAC LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
1. MAC LTL 168	Consultation and Engagement Complexity	Pressure Regulating	3
1. MAC LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
1. MAC LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
1. MAC LTL 168	Operational Complexity	ILI Program:	4
1. MAC LTL 168	Operational Complexity	ILI Program - Robotic:	4
1. MAC LTL 168	Operational Complexity	Replacement: Replacement	5
1. MAC LTL 168	Operational Complexity	100% Inspection, Repair &	3
1. MAC LTL 168	Operational Complexity	Pressure Regulating	3
1. MAC LTL 168	Operational Complexity	Hydrostatic Testing	1
1. MAC LTL 168	Operational Complexity	Status Quo: Modified	1
1. MAC LTL 168	System Capacity & Customer Impacts	ILI Program:	4
1. MAC LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
1. MAC LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
1. MAC LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
1. MAC LTL 168	System Capacity & Customer Impacts	Pressure Regulating	0
1. MAC LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
1. MAC LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
1. MAC LTL 168	Project Execution Certainty	ILI Program:	3
1. MAC LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
1. MAC LTL 168	Project Execution Certainty	Replacement: Replacement	3
1. MAC LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
1. MAC LTL 168	Project Execution Certainty	Pressure Regulating	4
1. MAC LTL 168	Project Execution Certainty	Hydrostatic Testing	1
1. MAC LTL 168	Project Execution Certainty	Status Quo: Modified	5
2. MAC LOP 168	Environmental	ILI Program:	3
2. MAC LOP 168	Environmental	ILI Program - Robotic:	3
2. MAC LOP 168	Environmental	Replacement: Replacement	2
2. MAC LOP 168	Environmental	100% Inspection, Repair &	2
2. MAC LOP 168	Environmental	Pressure Regulating	4
2. MAC LOP 168	Environmental	Hydrostatic Testing	1
2. MAC LOP 168	Environmental	Status Quo: Modified	3
2. MAC LOP 168	Lands & ROW	ILI Program:	3
2. MAC LOP 168	Lands & ROW	ILI Program - Robotic:	3
2. MAC LOP 168	Lands & ROW	Replacement: Replacement	1
2. MAC LOP 168	Lands & ROW	100% Inspection, Repair &	2
2. MAC LOP 168	Lands & ROW	Pressure Regulating	4
2. MAC LOP 168	Lands & ROW	Hydrostatic Testing	1
2. MAC LOP 168	Lands & ROW	Status Quo: Modified	4
2. MAC LOP 168	Consultation and Engagement Complexity	ILI Program:	3
2. MAC LOP 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
2. MAC LOP 168	Consultation and Engagement Complexity	Replacement: Replacement	2
2. MAC LOP 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
2. MAC LOP 168	Consultation and Engagement Complexity	Pressure Regulating	3
2. MAC LOP 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
2. MAC LOP 168	Consultation and Engagement Complexity	Status Quo: Modified	2
2. MAC LOP 168	Operational Complexity	ILI Program:	4
2. MAC LOP 168	Operational Complexity	ILI Program - Robotic:	4
2. MAC LOP 168	Operational Complexity	Replacement: Replacement	5
2. MAC LOP 168	Operational Complexity	100% Inspection, Repair &	3
2. MAC LOP 168	Operational Complexity	Pressure Regulating	3
2. MAC LOP 168	Operational Complexity	Hydrostatic Testing	1
2. MAC LOP 168	Operational Complexity	Status Quo: Modified	1
2. MAC LOP 168	System Capacity & Customer Impacts	ILI Program:	4
2. MAC LOP 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
2. MAC LOP 168	System Capacity & Customer Impacts	Replacement: Replacement	5
2. MAC LOP 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
2. MAC LOP 168	System Capacity & Customer Impacts	Pressure Regulating	0
2. MAC LOP 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
2. MAC LOP 168	System Capacity & Customer Impacts	Status Quo: Modified	3

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
1. MAC LTL 168	Prevention of ruptures	ILI Program:	5
1. MAC LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
1. MAC LTL 168	Prevention of ruptures	Replacement:	5
1. MAC LTL 168	Prevention of ruptures	100% Inspection, Repair	5
1. MAC LTL 168	Prevention of ruptures	Pressure Regulating	5
1. MAC LTL 168	Prevention of ruptures	Hydrostatic Testing	5
1. MAC LTL 168	Prevention of ruptures	Status Quo: Modified	2
1. MAC LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
1. MAC LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
1. MAC LTL 168	Prevention of leaks with significant consequences	Replacement:	4
1. MAC LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
1. MAC LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
1. MAC LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
1. MAC LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
1. MAC LTL 168	Proactive asset management	ILI Program:	5
1. MAC LTL 168	Proactive asset management	ILI Program - Robotic:	4
1. MAC LTL 168	Proactive asset management	Replacement:	4
1. MAC LTL 168	Proactive asset management	100% Inspection, Repair	2
1. MAC LTL 168	Proactive asset management	Pressure Regulating	0
1. MAC LTL 168	Proactive asset management	Hydrostatic Testing	0
1. MAC LTL 168	Proactive asset management	Status Quo: Modified	1
1. MAC LTL 168	Technical certainty	ILI Program:	4
1. MAC LTL 168	Technical certainty	ILI Program - Robotic:	3
1. MAC LTL 168	Technical certainty	Replacement:	5
1. MAC LTL 168	Technical certainty	100% Inspection, Repair	4
1. MAC LTL 168	Technical certainty	Pressure Regulating	3
1. MAC LTL 168	Technical certainty	Hydrostatic Testing	3
1. MAC LTL 168	Technical certainty	Status Quo: Modified	2
2. MAC LOP 168	Prevention of ruptures	ILI Program:	5
2. MAC LOP 168	Prevention of ruptures	ILI Program - Robotic:	5
2. MAC LOP 168	Prevention of ruptures	Replacement:	5
2. MAC LOP 168	Prevention of ruptures	100% Inspection, Repair	5
2. MAC LOP 168	Prevention of ruptures	Pressure Regulating	5
2. MAC LOP 168	Prevention of ruptures	Hydrostatic Testing	5
2. MAC LOP 168	Prevention of ruptures	Status Quo: Modified	2
2. MAC LOP 168	Prevention of leaks with significant consequences	ILI Program:	5
2. MAC LOP 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
2. MAC LOP 168	Prevention of leaks with significant consequences	Replacement:	4
2. MAC LOP 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
2. MAC LOP 168	Prevention of leaks with significant consequences	Pressure Regulating	0
2. MAC LOP 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
2. MAC LOP 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
2. MAC LOP 168	Proactive asset management	ILI Program:	5
2. MAC LOP 168	Proactive asset management	ILI Program - Robotic:	4
2. MAC LOP 168	Proactive asset management	Replacement:	4
2. MAC LOP 168	Proactive asset management	100% Inspection, Repair	2
2. MAC LOP 168	Proactive asset management	Pressure Regulating	0
2. MAC LOP 168	Proactive asset management	Hydrostatic Testing	0
2. MAC LOP 168	Proactive asset management	Status Quo: Modified	1
2. MAC LOP 168	Technical certainty	ILI Program:	4
2. MAC LOP 168	Technical certainty	ILI Program - Robotic:	3
2. MAC LOP 168	Technical certainty	Replacement:	5
2. MAC LOP 168	Technical certainty	100% Inspection, Repair	4
2. MAC LOP 168	Technical certainty	Pressure Regulating	3
2. MAC LOP 168	Technical certainty	Hydrostatic Testing	3
2. MAC LOP 168	Technical certainty	Status Quo: Modified	2
3. BCF LTL 168	Prevention of ruptures	ILI Program:	5
3. BCF LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
3. BCF LTL 168	Prevention of ruptures	Replacement:	5
3. BCF LTL 168	Prevention of ruptures	100% Inspection, Repair	5
3. BCF LTL 168	Prevention of ruptures	Pressure Regulating	5
3. BCF LTL 168	Prevention of ruptures	Hydrostatic Testing	5
3. BCF LTL 168	Prevention of ruptures	Status Quo: Modified	2
3. BCF LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
3. BCF LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
3. BCF LTL 168	Prevention of leaks with significant consequences	Replacement:	4
3. BCF LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
3. BCF LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
3. BCF LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
3. BCF LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
3. BCF LTL 168	Proactive asset management	ILI Program:	5
3. BCF LTL 168	Proactive asset management	ILI Program - Robotic:	4
3. BCF LTL 168	Proactive asset management	Replacement:	4
3. BCF LTL 168	Proactive asset management	100% Inspection, Repair	2
3. BCF LTL 168	Proactive asset management	Pressure Regulating	0
3. BCF LTL 168	Proactive asset management	Hydrostatic Testing	0
3. BCF LTL 168	Proactive asset management	Status Quo: Modified	1

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
1. MAC LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
1. MAC LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
1. MAC LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
1. MAC LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
1. MAC LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
1. MAC LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
1. MAC LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
1. MAC LTL 168	Rate impact	ILI Program:	0
1. MAC LTL 168	Rate impact	ILI Program - Robotic:	0
1. MAC LTL 168	Rate impact	Replacement:	0
1. MAC LTL 168	Rate impact	100% Inspection, Repair	0
1. MAC LTL 168	Rate impact	Pressure Regulating	0
1. MAC LTL 168	Rate impact	Hydrostatic Testing	0
1. MAC LTL 168	Rate impact	Status Quo: Modified	0
1. MAC LTL 168	Retirement of under-depreciated asset	ILI Program:	0
1. MAC LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
1. MAC LTL 168	Retirement of under-depreciated asset	Replacement:	0
1. MAC LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
1. MAC LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
1. MAC LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
1. MAC LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
2. MAC LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
2. MAC LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
2. MAC LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
2. MAC LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
2. MAC LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
2. MAC LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
2. MAC LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
2. MAC LOP 168	Rate impact	ILI Program:	0
2. MAC LOP 168	Rate impact	ILI Program - Robotic:	0
2. MAC LOP 168	Rate impact	Replacement:	0
2. MAC LOP 168	Rate impact	100% Inspection, Repair	0
2. MAC LOP 168	Rate impact	Pressure Regulating	0
2. MAC LOP 168	Rate impact	Hydrostatic Testing	0
2. MAC LOP 168	Rate impact	Status Quo: Modified	0
2. MAC LOP 168	Retirement of under-depreciated asset	ILI Program:	0
2. MAC LOP 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
2. MAC LOP 168	Retirement of under-depreciated asset	Replacement:	0
2. MAC LOP 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
2. MAC LOP 168	Retirement of under-depreciated asset	Pressure Regulating	0
2. MAC LOP 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
2. MAC LOP 168	Retirement of under-depreciated asset	Status Quo: Modified	0
3. BCF LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
3. BCF LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
3. BCF LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	5
3. BCF LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
3. BCF LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	2
3. BCF LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
3. BCF LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
3. BCF LTL 168	Rate impact	ILI Program:	0
3. BCF LTL 168	Rate impact	ILI Program - Robotic:	0
3. BCF LTL 168	Rate impact	Replacement:	0
3. BCF LTL 168	Rate impact	100% Inspection, Repair	0
3. BCF LTL 168	Rate impact	Pressure Regulating	0
3. BCF LTL 168	Rate impact	Hydrostatic Testing	0
3. BCF LTL 168	Rate impact	Status Quo: Modified	0
3. BCF LTL 168	Retirement of under-depreciated asset	ILI Program:	0
3. BCF LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
3. BCF LTL 168	Retirement of under-depreciated asset	Replacement:	0
3. BCF LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
3. BCF LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
3. BCF LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
3. BCF LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
4. PG3 LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
4. PG3 LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
4. PG3 LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
4. PG3 LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
4. PG3 LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
4. PG3 LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
4. PG3 LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
4. PG3 LTL 219	Rate impact	ILI Program:	0
4. PG3 LTL 219	Rate impact	ILI Program - Robotic:	0
4. PG3 LTL 219	Rate impact	Replacement:	0
4. PG3 LTL 219	Rate impact	100% Inspection, Repair	0
4. PG3 LTL 219	Rate impact	Pressure Regulating	0
4. PG3 LTL 219	Rate impact	Hydrostatic Testing	0
4. PG3 LTL 219	Rate impact	Status Quo: Modified	0

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
2. MAC LOP 168	Project Execution Certainty	ILI Program:	3
2. MAC LOP 168	Project Execution Certainty	ILI Program - Robotic:	2
2. MAC LOP 168	Project Execution Certainty	Replacement: Replacement	3
2. MAC LOP 168	Project Execution Certainty	100% Inspection, Repair &	2
2. MAC LOP 168	Project Execution Certainty	Pressure Regulating	4
2. MAC LOP 168	Project Execution Certainty	Hydrostatic Testing	1
2. MAC LOP 168	Project Execution Certainty	Status Quo: Modified	5
3. BCF LTL 168	Environmental	ILI Program:	4
3. BCF LTL 168	Environmental	ILI Program - Robotic:	4
3. BCF LTL 168	Environmental	Replacement: Replacement	4
3. BCF LTL 168	Environmental	100% Inspection, Repair &	4
3. BCF LTL 168	Environmental	Pressure Regulating	4
3. BCF LTL 168	Environmental	Hydrostatic Testing	1
3. BCF LTL 168	Environmental	Status Quo: Modified	4
3. BCF LTL 168	Lands & ROW	ILI Program:	3
3. BCF LTL 168	Lands & ROW	ILI Program - Robotic:	3
3. BCF LTL 168	Lands & ROW	Replacement: Replacement	3
3. BCF LTL 168	Lands & ROW	100% Inspection, Repair &	2
3. BCF LTL 168	Lands & ROW	Pressure Regulating	4
3. BCF LTL 168	Lands & ROW	Hydrostatic Testing	1
3. BCF LTL 168	Lands & ROW	Status Quo: Modified	4
3. BCF LTL 168	Consultation and Engagement Complexity	ILI Program:	4
3. BCF LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
3. BCF LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	4
3. BCF LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	3
3. BCF LTL 168	Consultation and Engagement Complexity	Pressure Regulating	4
3. BCF LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
3. BCF LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	4
3. BCF LTL 168	Operational Complexity	ILI Program:	4
3. BCF LTL 168	Operational Complexity	ILI Program - Robotic:	4
3. BCF LTL 168	Operational Complexity	Replacement: Replacement	5
3. BCF LTL 168	Operational Complexity	100% Inspection, Repair &	3
3. BCF LTL 168	Operational Complexity	Pressure Regulating	3
3. BCF LTL 168	Operational Complexity	Hydrostatic Testing	1
3. BCF LTL 168	Operational Complexity	Status Quo: Modified	1
3. BCF LTL 168	System Capacity & Customer Impacts	ILI Program:	4
3. BCF LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
3. BCF LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
3. BCF LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
3. BCF LTL 168	System Capacity & Customer Impacts	Pressure Regulating	5
3. BCF LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	5
3. BCF LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
3. BCF LTL 168	Project Execution Certainty	ILI Program:	3
3. BCF LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
3. BCF LTL 168	Project Execution Certainty	Replacement: Replacement	3
3. BCF LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
3. BCF LTL 168	Project Execution Certainty	Pressure Regulating	4
3. BCF LTL 168	Project Execution Certainty	Hydrostatic Testing	1
3. BCF LTL 168	Project Execution Certainty	Status Quo: Modified	5
4. PG3 LTL 219	Environmental	ILI Program:	4
4. PG3 LTL 219	Environmental	ILI Program - Robotic:	4
4. PG3 LTL 219	Environmental	Replacement: Replacement	3
4. PG3 LTL 219	Environmental	100% Inspection, Repair &	2
4. PG3 LTL 219	Environmental	Pressure Regulating	5
4. PG3 LTL 219	Environmental	Hydrostatic Testing	1
4. PG3 LTL 219	Environmental	Status Quo: Modified	3
4. PG3 LTL 219	Lands & ROW	ILI Program:	3
4. PG3 LTL 219	Lands & ROW	ILI Program - Robotic:	3
4. PG3 LTL 219	Lands & ROW	Replacement: Replacement	1
4. PG3 LTL 219	Lands & ROW	100% Inspection, Repair &	1
4. PG3 LTL 219	Lands & ROW	Pressure Regulating	5
4. PG3 LTL 219	Lands & ROW	Hydrostatic Testing	1
4. PG3 LTL 219	Lands & ROW	Status Quo: Modified	4
4. PG3 LTL 219	Consultation and Engagement Complexity	ILI Program:	2
4. PG3 LTL 219	Consultation and Engagement Complexity	ILI Program - Robotic:	3
4. PG3 LTL 219	Consultation and Engagement Complexity	Replacement: Replacement	1
4. PG3 LTL 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
4. PG3 LTL 219	Consultation and Engagement Complexity	Pressure Regulating	4
4. PG3 LTL 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
4. PG3 LTL 219	Consultation and Engagement Complexity	Status Quo: Modified	2
4. PG3 LTL 219	Operational Complexity	ILI Program:	4
4. PG3 LTL 219	Operational Complexity	ILI Program - Robotic:	4
4. PG3 LTL 219	Operational Complexity	Replacement: Replacement	5
4. PG3 LTL 219	Operational Complexity	100% Inspection, Repair &	3
4. PG3 LTL 219	Operational Complexity	Pressure Regulating	4
4. PG3 LTL 219	Operational Complexity	Hydrostatic Testing	1
4. PG3 LTL 219	Operational Complexity	Status Quo: Modified	1

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
3. BCF LTL 168	Technical certainty	ILI Program:	4
3. BCF LTL 168	Technical certainty	ILI Program - Robotic:	3
3. BCF LTL 168	Technical certainty	Replacement:	5
3. BCF LTL 168	Technical certainty	100% Inspection, Repair	4
3. BCF LTL 168	Technical certainty	Pressure Regulating	3
3. BCF LTL 168	Technical certainty	Hydrostatic Testing	3
3. BCF LTL 168	Technical certainty	Status Quo: Modified	2
4. PG3 LTL 219	Prevention of ruptures	ILI Program:	5
4. PG3 LTL 219	Prevention of ruptures	ILI Program - Robotic:	5
4. PG3 LTL 219	Prevention of ruptures	Replacement:	5
4. PG3 LTL 219	Prevention of ruptures	100% Inspection, Repair	5
4. PG3 LTL 219	Prevention of ruptures	Pressure Regulating	5
4. PG3 LTL 219	Prevention of ruptures	Hydrostatic Testing	5
4. PG3 LTL 219	Prevention of ruptures	Status Quo: Modified	2
4. PG3 LTL 219	Prevention of leaks with significant consequences	ILI Program:	5
4. PG3 LTL 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
4. PG3 LTL 219	Prevention of leaks with significant consequences	Replacement:	4
4. PG3 LTL 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
4. PG3 LTL 219	Prevention of leaks with significant consequences	Pressure Regulating	0
4. PG3 LTL 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
4. PG3 LTL 219	Prevention of leaks with significant consequences	Status Quo: Modified	2
4. PG3 LTL 219	Proactive asset management	ILI Program:	5
4. PG3 LTL 219	Proactive asset management	ILI Program - Robotic:	4
4. PG3 LTL 219	Proactive asset management	Replacement:	4
4. PG3 LTL 219	Proactive asset management	100% Inspection, Repair	2
4. PG3 LTL 219	Proactive asset management	Pressure Regulating	0
4. PG3 LTL 219	Proactive asset management	Hydrostatic Testing	0
4. PG3 LTL 219	Proactive asset management	Status Quo: Modified	1
4. PG3 LTL 219	Technical certainty	ILI Program:	4
4. PG3 LTL 219	Technical certainty	ILI Program - Robotic:	3
4. PG3 LTL 219	Technical certainty	Replacement:	5
4. PG3 LTL 219	Technical certainty	100% Inspection, Repair	4
4. PG3 LTL 219	Technical certainty	Pressure Regulating	3
4. PG3 LTL 219	Technical certainty	Hydrostatic Testing	3
4. PG3 LTL 219	Technical certainty	Status Quo: Modified	2
5. NWP LTL 168	Prevention of ruptures	ILI Program:	5
5. NWP LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
5. NWP LTL 168	Prevention of ruptures	Replacement:	5
5. NWP LTL 168	Prevention of ruptures	100% Inspection, Repair	5
5. NWP LTL 168	Prevention of ruptures	Pressure Regulating	5
5. NWP LTL 168	Prevention of ruptures	Hydrostatic Testing	5
5. NWP LTL 168	Prevention of ruptures	Status Quo: Modified	2
5. NWP LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
5. NWP LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
5. NWP LTL 168	Prevention of leaks with significant consequences	Replacement:	4
5. NWP LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
5. NWP LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
5. NWP LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
5. NWP LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
5. NWP LTL 168	Proactive asset management	ILI Program:	5
5. NWP LTL 168	Proactive asset management	ILI Program - Robotic:	4
5. NWP LTL 168	Proactive asset management	Replacement:	4
5. NWP LTL 168	Proactive asset management	100% Inspection, Repair	2
5. NWP LTL 168	Proactive asset management	Pressure Regulating	0
5. NWP LTL 168	Proactive asset management	Hydrostatic Testing	0
5. NWP LTL 168	Proactive asset management	Status Quo: Modified	1
5. NWP LTL 168	Technical certainty	ILI Program:	4
5. NWP LTL 168	Technical certainty	ILI Program - Robotic:	3
5. NWP LTL 168	Technical certainty	Replacement:	5
5. NWP LTL 168	Technical certainty	100% Inspection, Repair	4
5. NWP LTL 168	Technical certainty	Pressure Regulating	3
5. NWP LTL 168	Technical certainty	Hydrostatic Testing	3
5. NWP LTL 168	Technical certainty	Status Quo: Modified	2
6. NWP LOP 219	Prevention of ruptures	ILI Program:	5
6. NWP LOP 219	Prevention of ruptures	ILI Program - Robotic:	5
6. NWP LOP 219	Prevention of ruptures	Replacement:	5
6. NWP LOP 219	Prevention of ruptures	100% Inspection, Repair	5
6. NWP LOP 219	Prevention of ruptures	Pressure Regulating	5
6. NWP LOP 219	Prevention of ruptures	Hydrostatic Testing	5
6. NWP LOP 219	Prevention of ruptures	Status Quo: Modified	2
6. NWP LOP 219	Prevention of leaks with significant consequences	ILI Program:	5
6. NWP LOP 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
6. NWP LOP 219	Prevention of leaks with significant consequences	Replacement:	4
6. NWP LOP 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
6. NWP LOP 219	Prevention of leaks with significant consequences	Pressure Regulating	0
6. NWP LOP 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
6. NWP LOP 219	Prevention of leaks with significant consequences	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
4. PG3 LTL 219	Retirement of under-depreciated asset	ILI Program:	0
4. PG3 LTL 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
4. PG3 LTL 219	Retirement of under-depreciated asset	Replacement:	0
4. PG3 LTL 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
4. PG3 LTL 219	Retirement of under-depreciated asset	Pressure Regulating	0
4. PG3 LTL 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
4. PG3 LTL 219	Retirement of under-depreciated asset	Status Quo: Modified	0
5. NWP LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
5. NWP LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
5. NWP LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
5. NWP LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
5. NWP LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
5. NWP LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
5. NWP LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
5. NWP LTL 168	Rate impact	ILI Program:	0
5. NWP LTL 168	Rate impact	ILI Program - Robotic:	0
5. NWP LTL 168	Rate impact	Replacement:	0
5. NWP LTL 168	Rate impact	100% Inspection, Repair	0
5. NWP LTL 168	Rate impact	Pressure Regulating	0
5. NWP LTL 168	Rate impact	Hydrostatic Testing	0
5. NWP LTL 168	Rate impact	Status Quo: Modified	0
5. NWP LTL 168	Retirement of under-depreciated asset	ILI Program:	0
5. NWP LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
5. NWP LTL 168	Retirement of under-depreciated asset	Replacement:	0
5. NWP LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
5. NWP LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
5. NWP LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
5. NWP LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
6. NWP LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
6. NWP LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
6. NWP LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
6. NWP LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
6. NWP LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
6. NWP LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
6. NWP LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
6. NWP LOP 219	Rate impact	ILI Program:	0
6. NWP LOP 219	Rate impact	ILI Program - Robotic:	0
6. NWP LOP 219	Rate impact	Replacement:	0
6. NWP LOP 219	Rate impact	100% Inspection, Repair	0
6. NWP LOP 219	Rate impact	Pressure Regulating	0
6. NWP LOP 219	Rate impact	Hydrostatic Testing	0
6. NWP LOP 219	Rate impact	Status Quo: Modified	0
6. NWP LOP 219	Retirement of under-depreciated asset	ILI Program:	0
6. NWP LOP 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
6. NWP LOP 219	Retirement of under-depreciated asset	Replacement:	0
6. NWP LOP 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
6. NWP LOP 219	Retirement of under-depreciated asset	Pressure Regulating	0
6. NWP LOP 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
6. NWP LOP 219	Retirement of under-depreciated asset	Status Quo: Modified	0
7. PG1 LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
7. PG1 LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
7. PG1 LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	2
7. PG1 LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
7. PG1 LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
7. PG1 LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
7. PG1 LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
7. PG1 LTL 168*	Rate impact	ILI Program:	0
7. PG1 LTL 168*	Rate impact	ILI Program - Robotic:	0
7. PG1 LTL 168*	Rate impact	Replacement:	0
7. PG1 LTL 168*	Rate impact	100% Inspection, Repair	0
7. PG1 LTL 168*	Rate impact	Pressure Regulating	0
7. PG1 LTL 168*	Rate impact	Hydrostatic Testing	0
7. PG1 LTL 168*	Rate impact	Status Quo: Modified	0
7. PG1 LTL 168*	Retirement of under-depreciated asset	ILI Program:	0
7. PG1 LTL 168*	Retirement of under-depreciated asset	ILI Program - Robotic:	0
7. PG1 LTL 168*	Retirement of under-depreciated asset	Replacement:	0
7. PG1 LTL 168*	Retirement of under-depreciated asset	100% Inspection, Repair	0
7. PG1 LTL 168*	Retirement of under-depreciated asset	Pressure Regulating	0
7. PG1 LTL 168*	Retirement of under-depreciated asset	Hydrostatic Testing	0
7. PG1 LTL 168*	Retirement of under-depreciated asset	Status Quo: Modified	0
8. PGP LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
8. PGP LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
8. PGP LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
8. PGP LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
8. PGP LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
8. PGP LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
8. PGP LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
4. PG3 LTL 219	System Capacity & Customer Impacts	ILI Program:	4
4. PG3 LTL 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
4. PG3 LTL 219	System Capacity & Customer Impacts	Replacement: Replacement	5
4. PG3 LTL 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
4. PG3 LTL 219	System Capacity & Customer Impacts	Pressure Regulating	5
4. PG3 LTL 219	System Capacity & Customer Impacts	Hydrostatic Testing	0
4. PG3 LTL 219	System Capacity & Customer Impacts	Status Quo: Modified	3
4. PG3 LTL 219	Project Execution Certainty	ILI Program:	3
4. PG3 LTL 219	Project Execution Certainty	ILI Program - Robotic:	2
4. PG3 LTL 219	Project Execution Certainty	Replacement: Replacement	3
4. PG3 LTL 219	Project Execution Certainty	100% Inspection, Repair &	2
4. PG3 LTL 219	Project Execution Certainty	Pressure Regulating	5
4. PG3 LTL 219	Project Execution Certainty	Hydrostatic Testing	1
4. PG3 LTL 219	Project Execution Certainty	Status Quo: Modified	5
5. NWP LTL 168	Environmental	ILI Program:	3
5. NWP LTL 168	Environmental	ILI Program - Robotic:	3
5. NWP LTL 168	Environmental	Replacement: Replacement	1
5. NWP LTL 168	Environmental	100% Inspection, Repair &	1
5. NWP LTL 168	Environmental	Pressure Regulating	4
5. NWP LTL 168	Environmental	Hydrostatic Testing	1
5. NWP LTL 168	Environmental	Status Quo: Modified	3
5. NWP LTL 168	Lands & ROW	ILI Program:	3
5. NWP LTL 168	Lands & ROW	ILI Program - Robotic:	3
5. NWP LTL 168	Lands & ROW	Replacement: Replacement	1
5. NWP LTL 168	Lands & ROW	100% Inspection, Repair &	2
5. NWP LTL 168	Lands & ROW	Pressure Regulating	4
5. NWP LTL 168	Lands & ROW	Hydrostatic Testing	1
5. NWP LTL 168	Lands & ROW	Status Quo: Modified	4
5. NWP LTL 168	Consultation and Engagement Complexity	ILI Program:	2
5. NWP LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
5. NWP LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	1
5. NWP LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
5. NWP LTL 168	Consultation and Engagement Complexity	Pressure Regulating	4
5. NWP LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
5. NWP LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
5. NWP LTL 168	Operational Complexity	ILI Program:	4
5. NWP LTL 168	Operational Complexity	ILI Program - Robotic:	4
5. NWP LTL 168	Operational Complexity	Replacement: Replacement	5
5. NWP LTL 168	Operational Complexity	100% Inspection, Repair &	3
5. NWP LTL 168	Operational Complexity	Pressure Regulating	4
5. NWP LTL 168	Operational Complexity	Hydrostatic Testing	1
5. NWP LTL 168	Operational Complexity	Status Quo: Modified	2
5. NWP LTL 168	System Capacity & Customer Impacts	ILI Program:	4
5. NWP LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
5. NWP LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
5. NWP LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
5. NWP LTL 168	System Capacity & Customer Impacts	Pressure Regulating	5
5. NWP LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
5. NWP LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
5. NWP LTL 168	Project Execution Certainty	ILI Program:	3
5. NWP LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
5. NWP LTL 168	Project Execution Certainty	Replacement: Replacement	3
5. NWP LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
5. NWP LTL 168	Project Execution Certainty	Pressure Regulating	5
5. NWP LTL 168	Project Execution Certainty	Hydrostatic Testing	1
5. NWP LTL 168	Project Execution Certainty	Status Quo: Modified	5
6. NWP LOP 219	Environmental	ILI Program:	3
6. NWP LOP 219	Environmental	ILI Program - Robotic:	3
6. NWP LOP 219	Environmental	Replacement: Replacement	1
6. NWP LOP 219	Environmental	100% Inspection, Repair &	1
6. NWP LOP 219	Environmental	Pressure Regulating	4
6. NWP LOP 219	Environmental	Hydrostatic Testing	1
6. NWP LOP 219	Environmental	Status Quo: Modified	3
6. NWP LOP 219	Lands & ROW	ILI Program:	3
6. NWP LOP 219	Lands & ROW	ILI Program - Robotic:	3
6. NWP LOP 219	Lands & ROW	Replacement: Replacement	1
6. NWP LOP 219	Lands & ROW	100% Inspection, Repair &	2
6. NWP LOP 219	Lands & ROW	Pressure Regulating	4
6. NWP LOP 219	Lands & ROW	Hydrostatic Testing	1
6. NWP LOP 219	Lands & ROW	Status Quo: Modified	4
6. NWP LOP 219	Consultation and Engagement Complexity	ILI Program:	2
6. NWP LOP 219	Consultation and Engagement Complexity	ILI Program - Robotic:	3
6. NWP LOP 219	Consultation and Engagement Complexity	Replacement: Replacement	1
6. NWP LOP 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
6. NWP LOP 219	Consultation and Engagement Complexity	Pressure Regulating	4
6. NWP LOP 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
6. NWP LOP 219	Consultation and Engagement Complexity	Status Quo: Modified	2

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
6. NWP LOP 219	Proactive asset management	ILI Program:	5
6. NWP LOP 219	Proactive asset management	ILI Program - Robotic:	4
6. NWP LOP 219	Proactive asset management	Replacement:	4
6. NWP LOP 219	Proactive asset management	100% Inspection, Repair	2
6. NWP LOP 219	Proactive asset management	Pressure Regulating	0
6. NWP LOP 219	Proactive asset management	Hydrostatic Testing	0
6. NWP LOP 219	Proactive asset management	Status Quo: Modified	1
6. NWP LOP 219	Technical certainty	ILI Program:	4
6. NWP LOP 219	Technical certainty	ILI Program - Robotic:	3
6. NWP LOP 219	Technical certainty	Replacement:	5
6. NWP LOP 219	Technical certainty	100% Inspection, Repair	4
6. NWP LOP 219	Technical certainty	Pressure Regulating	3
6. NWP LOP 219	Technical certainty	Hydrostatic Testing	3
6. NWP LOP 219	Technical certainty	Status Quo: Modified	2
7. PG1 LTL 168*	Prevention of ruptures	ILI Program:	5
7. PG1 LTL 168*	Prevention of ruptures	ILI Program - Robotic:	5
7. PG1 LTL 168*	Prevention of ruptures	Replacement:	5
7. PG1 LTL 168*	Prevention of ruptures	100% Inspection, Repair	5
7. PG1 LTL 168*	Prevention of ruptures	Pressure Regulating	5
7. PG1 LTL 168*	Prevention of ruptures	Hydrostatic Testing	5
7. PG1 LTL 168*	Prevention of ruptures	Status Quo: Modified	2
7. PG1 LTL 168*	Prevention of leaks with significant consequences	ILI Program:	5
7. PG1 LTL 168*	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
7. PG1 LTL 168*	Prevention of leaks with significant consequences	Replacement:	4
7. PG1 LTL 168*	Prevention of leaks with significant consequences	100% Inspection, Repair	4
7. PG1 LTL 168*	Prevention of leaks with significant consequences	Pressure Regulating	0
7. PG1 LTL 168*	Prevention of leaks with significant consequences	Hydrostatic Testing	0
7. PG1 LTL 168*	Prevention of leaks with significant consequences	Status Quo: Modified	2
7. PG1 LTL 168*	Proactive asset management	ILI Program:	5
7. PG1 LTL 168*	Proactive asset management	ILI Program - Robotic:	4
7. PG1 LTL 168*	Proactive asset management	Replacement:	4
7. PG1 LTL 168*	Proactive asset management	100% Inspection, Repair	2
7. PG1 LTL 168*	Proactive asset management	Pressure Regulating	0
7. PG1 LTL 168*	Proactive asset management	Hydrostatic Testing	0
7. PG1 LTL 168*	Proactive asset management	Status Quo: Modified	1
7. PG1 LTL 168*	Technical certainty	ILI Program:	4
7. PG1 LTL 168*	Technical certainty	ILI Program - Robotic:	3
7. PG1 LTL 168*	Technical certainty	Replacement:	5
7. PG1 LTL 168*	Technical certainty	100% Inspection, Repair	4
7. PG1 LTL 168*	Technical certainty	Pressure Regulating	3
7. PG1 LTL 168*	Technical certainty	Hydrostatic Testing	3
7. PG1 LTL 168*	Technical certainty	Status Quo: Modified	2
8. PGP LTL 168*	Prevention of ruptures	ILI Program:	5
8. PGP LTL 168*	Prevention of ruptures	ILI Program - Robotic:	5
8. PGP LTL 168*	Prevention of ruptures	Replacement:	5
8. PGP LTL 168*	Prevention of ruptures	100% Inspection, Repair	5
8. PGP LTL 168*	Prevention of ruptures	Pressure Regulating	5
8. PGP LTL 168*	Prevention of ruptures	Hydrostatic Testing	5
8. PGP LTL 168*	Prevention of ruptures	Status Quo: Modified	2
8. PGP LTL 168*	Prevention of leaks with significant consequences	ILI Program:	5
8. PGP LTL 168*	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
8. PGP LTL 168*	Prevention of leaks with significant consequences	Replacement:	4
8. PGP LTL 168*	Prevention of leaks with significant consequences	100% Inspection, Repair	4
8. PGP LTL 168*	Prevention of leaks with significant consequences	Pressure Regulating	0
8. PGP LTL 168*	Prevention of leaks with significant consequences	Hydrostatic Testing	0
8. PGP LTL 168*	Prevention of leaks with significant consequences	Status Quo: Modified	2
8. PGP LTL 168*	Proactive asset management	ILI Program:	5
8. PGP LTL 168*	Proactive asset management	ILI Program - Robotic:	4
8. PGP LTL 168*	Proactive asset management	Replacement:	4
8. PGP LTL 168*	Proactive asset management	100% Inspection, Repair	2
8. PGP LTL 168*	Proactive asset management	Pressure Regulating	0
8. PGP LTL 168*	Proactive asset management	Hydrostatic Testing	0
8. PGP LTL 168*	Proactive asset management	Status Quo: Modified	1
8. PGP LTL 168*	Technical certainty	ILI Program:	4
8. PGP LTL 168*	Technical certainty	ILI Program - Robotic:	3
8. PGP LTL 168*	Technical certainty	Replacement:	5
8. PGP LTL 168*	Technical certainty	100% Inspection, Repair	4
8. PGP LTL 168*	Technical certainty	Pressure Regulating	3
8. PGP LTL 168*	Technical certainty	Hydrostatic Testing	3
8. PGP LTL 168*	Technical certainty	Status Quo: Modified	2
9. HUS LTL 168*	Prevention of ruptures	ILI Program:	5
9. HUS LTL 168*	Prevention of ruptures	ILI Program - Robotic:	5
9. HUS LTL 168*	Prevention of ruptures	Replacement:	5
9. HUS LTL 168*	Prevention of ruptures	100% Inspection, Repair	5
9. HUS LTL 168*	Prevention of ruptures	Pressure Regulating	5
9. HUS LTL 168*	Prevention of ruptures	Hydrostatic Testing	5
9. HUS LTL 168*	Prevention of ruptures	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
8. PGP LTL 168*	Rate impact	ILI Program:	0
8. PGP LTL 168*	Rate impact	ILI Program - Robotic:	0
8. PGP LTL 168*	Rate impact	Replacement:	0
8. PGP LTL 168*	Rate impact	100% Inspection, Repair	0
8. PGP LTL 168*	Rate impact	Pressure Regulating	0
8. PGP LTL 168*	Rate impact	Hydrostatic Testing	0
8. PGP LTL 168*	Rate impact	Status Quo: Modified	0
8. PGP LTL 168*	Retirement of under-depreciated asset	ILI Program:	0
8. PGP LTL 168*	Retirement of under-depreciated asset	ILI Program - Robotic:	0
8. PGP LTL 168*	Retirement of under-depreciated asset	Replacement:	0
8. PGP LTL 168*	Retirement of under-depreciated asset	100% Inspection, Repair	0
8. PGP LTL 168*	Retirement of under-depreciated asset	Pressure Regulating	0
8. PGP LTL 168*	Retirement of under-depreciated asset	Hydrostatic Testing	0
8. PGP LTL 168*	Retirement of under-depreciated asset	Status Quo: Modified	0
9. HUS LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
9. HUS LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
9. HUS LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	2
9. HUS LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
9. HUS LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
9. HUS LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
9. HUS LTL 168*	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
9. HUS LTL 168*	Rate impact	ILI Program:	0
9. HUS LTL 168*	Rate impact	ILI Program - Robotic:	0
9. HUS LTL 168*	Rate impact	Replacement:	0
9. HUS LTL 168*	Rate impact	100% Inspection, Repair	0
9. HUS LTL 168*	Rate impact	Pressure Regulating	0
9. HUS LTL 168*	Rate impact	Hydrostatic Testing	0
9. HUS LTL 168*	Rate impact	Status Quo: Modified	0
9. HUS LTL 168*	Retirement of under-depreciated asset	ILI Program:	0
9. HUS LTL 168*	Retirement of under-depreciated asset	ILI Program - Robotic:	0
9. HUS LTL 168*	Retirement of under-depreciated asset	Replacement:	0
9. HUS LTL 168*	Retirement of under-depreciated asset	100% Inspection, Repair	0
9. HUS LTL 168*	Retirement of under-depreciated asset	Pressure Regulating	0
9. HUS LTL 168*	Retirement of under-depreciated asset	Hydrostatic Testing	0
9. HUS LTL 168*	Retirement of under-depreciated asset	Status Quo: Modified	0
10. PG2 219 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
10. PG2 219 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
10. PG2 219 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
10. PG2 219 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
10. PG2 219 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
10. PG2 219 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
10. PG2 219 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
10. PG2 219 168	Rate impact	ILI Program:	0
10. PG2 219 168	Rate impact	ILI Program - Robotic:	0
10. PG2 219 168	Rate impact	Replacement:	0
10. PG2 219 168	Rate impact	100% Inspection, Repair	0
10. PG2 219 168	Rate impact	Pressure Regulating	0
10. PG2 219 168	Rate impact	Hydrostatic Testing	0
10. PG2 219 168	Rate impact	Status Quo: Modified	0
10. PG2 219 168	Retirement of under-depreciated asset	ILI Program:	0
10. PG2 219 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
10. PG2 219 168	Retirement of under-depreciated asset	Replacement:	0
10. PG2 219 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
10. PG2 219 168	Retirement of under-depreciated asset	Pressure Regulating	0
10. PG2 219 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
10. PG2 219 168	Retirement of under-depreciated asset	Status Quo: Modified	0
11. CAR LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	2
11. CAR LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
11. CAR LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	5
11. CAR LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
11. CAR LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	4
11. CAR LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
11. CAR LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
11. CAR LTL 168	Rate impact	ILI Program:	0
11. CAR LTL 168	Rate impact	ILI Program - Robotic:	0
11. CAR LTL 168	Rate impact	Replacement:	0
11. CAR LTL 168	Rate impact	100% Inspection, Repair	0
11. CAR LTL 168	Rate impact	Pressure Regulating	0
11. CAR LTL 168	Rate impact	Hydrostatic Testing	0
11. CAR LTL 168	Rate impact	Status Quo: Modified	0
11. CAR LTL 168	Retirement of under-depreciated asset	ILI Program:	0
11. CAR LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
11. CAR LTL 168	Retirement of under-depreciated asset	Replacement:	0
11. CAR LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
11. CAR LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
11. CAR LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
11. CAR LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
6. NWP LOP 219	Operational Complexity	ILI Program:	4
6. NWP LOP 219	Operational Complexity	ILI Program - Robotic:	4
6. NWP LOP 219	Operational Complexity	Replacement: Replacement	5
6. NWP LOP 219	Operational Complexity	100% Inspection, Repair &	3
6. NWP LOP 219	Operational Complexity	Pressure Regulating	4
6. NWP LOP 219	Operational Complexity	Hydrostatic Testing	1
6. NWP LOP 219	Operational Complexity	Status Quo: Modified	2
6. NWP LOP 219	System Capacity & Customer Impacts	ILI Program:	4
6. NWP LOP 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
6. NWP LOP 219	System Capacity & Customer Impacts	Replacement: Replacement	5
6. NWP LOP 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
6. NWP LOP 219	System Capacity & Customer Impacts	Pressure Regulating	5
6. NWP LOP 219	System Capacity & Customer Impacts	Hydrostatic Testing	5
6. NWP LOP 219	System Capacity & Customer Impacts	Status Quo: Modified	3
6. NWP LOP 219	Project Execution Certainty	ILI Program:	4
6. NWP LOP 219	Project Execution Certainty	ILI Program - Robotic:	2
6. NWP LOP 219	Project Execution Certainty	Replacement: Replacement	3
6. NWP LOP 219	Project Execution Certainty	100% Inspection, Repair &	2
6. NWP LOP 219	Project Execution Certainty	Pressure Regulating	5
6. NWP LOP 219	Project Execution Certainty	Hydrostatic Testing	1
6. NWP LOP 219	Project Execution Certainty	Status Quo: Modified	5
7. PG1 LTL 168*	Environmental	ILI Program:	3
7. PG1 LTL 168*	Environmental	ILI Program - Robotic:	3
7. PG1 LTL 168*	Environmental	Replacement: Replacement	2
7. PG1 LTL 168*	Environmental	100% Inspection, Repair &	2
7. PG1 LTL 168*	Environmental	Pressure Regulating	4
7. PG1 LTL 168*	Environmental	Hydrostatic Testing	1
7. PG1 LTL 168*	Environmental	Status Quo: Modified	3
7. PG1 LTL 168*	Lands & ROW	ILI Program:	3
7. PG1 LTL 168*	Lands & ROW	ILI Program - Robotic:	3
7. PG1 LTL 168*	Lands & ROW	Replacement: Replacement	1
7. PG1 LTL 168*	Lands & ROW	100% Inspection, Repair &	2
7. PG1 LTL 168*	Lands & ROW	Pressure Regulating	4
7. PG1 LTL 168*	Lands & ROW	Hydrostatic Testing	1
7. PG1 LTL 168*	Lands & ROW	Status Quo: Modified	4
7. PG1 LTL 168*	Consultation and Engagement Complexity	ILI Program:	3
7. PG1 LTL 168*	Consultation and Engagement Complexity	ILI Program - Robotic:	4
7. PG1 LTL 168*	Consultation and Engagement Complexity	Replacement: Replacement	2
7. PG1 LTL 168*	Consultation and Engagement Complexity	100% Inspection, Repair &	1
7. PG1 LTL 168*	Consultation and Engagement Complexity	Pressure Regulating	3
7. PG1 LTL 168*	Consultation and Engagement Complexity	Hydrostatic Testing	1
7. PG1 LTL 168*	Consultation and Engagement Complexity	Status Quo: Modified	2
7. PG1 LTL 168*	Operational Complexity	ILI Program:	4
7. PG1 LTL 168*	Operational Complexity	ILI Program - Robotic:	4
7. PG1 LTL 168*	Operational Complexity	Replacement: Replacement	5
7. PG1 LTL 168*	Operational Complexity	100% Inspection, Repair &	3
7. PG1 LTL 168*	Operational Complexity	Pressure Regulating	3
7. PG1 LTL 168*	Operational Complexity	Hydrostatic Testing	1
7. PG1 LTL 168*	Operational Complexity	Status Quo: Modified	1
7. PG1 LTL 168*	System Capacity & Customer Impacts	ILI Program:	4
7. PG1 LTL 168*	System Capacity & Customer Impacts	ILI Program - Robotic:	4
7. PG1 LTL 168*	System Capacity & Customer Impacts	Replacement: Replacement	5
7. PG1 LTL 168*	System Capacity & Customer Impacts	100% Inspection, Repair &	4
7. PG1 LTL 168*	System Capacity & Customer Impacts	Pressure Regulating	0
7. PG1 LTL 168*	System Capacity & Customer Impacts	Hydrostatic Testing	0
7. PG1 LTL 168*	System Capacity & Customer Impacts	Status Quo: Modified	3
7. PG1 LTL 168*	Project Execution Certainty	ILI Program:	3
7. PG1 LTL 168*	Project Execution Certainty	ILI Program - Robotic:	2
7. PG1 LTL 168*	Project Execution Certainty	Replacement: Replacement	3
7. PG1 LTL 168*	Project Execution Certainty	100% Inspection, Repair &	2
7. PG1 LTL 168*	Project Execution Certainty	Pressure Regulating	4
7. PG1 LTL 168*	Project Execution Certainty	Hydrostatic Testing	1
7. PG1 LTL 168*	Project Execution Certainty	Status Quo: Modified	5
8. PGP LTL 168*	Environmental	ILI Program:	3
8. PGP LTL 168*	Environmental	ILI Program - Robotic:	3
8. PGP LTL 168*	Environmental	Replacement: Replacement	2
8. PGP LTL 168*	Environmental	100% Inspection, Repair &	2
8. PGP LTL 168*	Environmental	Pressure Regulating	4
8. PGP LTL 168*	Environmental	Hydrostatic Testing	1
8. PGP LTL 168*	Environmental	Status Quo: Modified	3
8. PGP LTL 168*	Lands & ROW	ILI Program:	3
8. PGP LTL 168*	Lands & ROW	ILI Program - Robotic:	3
8. PGP LTL 168*	Lands & ROW	Replacement: Replacement	1
8. PGP LTL 168*	Lands & ROW	100% Inspection, Repair &	2
8. PGP LTL 168*	Lands & ROW	Pressure Regulating	4
8. PGP LTL 168*	Lands & ROW	Hydrostatic Testing	1
8. PGP LTL 168*	Lands & ROW	Status Quo: Modified	4

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
9. HUS LTL 168*	Prevention of leaks with significant consequences	ILI Program:	5
9. HUS LTL 168*	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
9. HUS LTL 168*	Prevention of leaks with significant consequences	Replacement:	4
9. HUS LTL 168*	Prevention of leaks with significant consequences	100% Inspection, Repair	4
9. HUS LTL 168*	Prevention of leaks with significant consequences	Pressure Regulating	0
9. HUS LTL 168*	Prevention of leaks with significant consequences	Hydrostatic Testing	0
9. HUS LTL 168*	Prevention of leaks with significant consequences	Status Quo: Modified	2
9. HUS LTL 168*	Proactive asset management	ILI Program:	5
9. HUS LTL 168*	Proactive asset management	ILI Program - Robotic:	4
9. HUS LTL 168*	Proactive asset management	Replacement:	4
9. HUS LTL 168*	Proactive asset management	100% Inspection, Repair	2
9. HUS LTL 168*	Proactive asset management	Pressure Regulating	0
9. HUS LTL 168*	Proactive asset management	Hydrostatic Testing	0
9. HUS LTL 168*	Proactive asset management	Status Quo: Modified	1
9. HUS LTL 168*	Technical certainty	ILI Program:	4
9. HUS LTL 168*	Technical certainty	ILI Program - Robotic:	3
9. HUS LTL 168*	Technical certainty	Replacement:	5
9. HUS LTL 168*	Technical certainty	100% Inspection, Repair	4
9. HUS LTL 168*	Technical certainty	Pressure Regulating	3
9. HUS LTL 168*	Technical certainty	Hydrostatic Testing	3
9. HUS LTL 168*	Technical certainty	Status Quo: Modified	2
10. PG2 219 168	Prevention of ruptures	ILI Program:	5
10. PG2 219 168	Prevention of ruptures	ILI Program - Robotic:	5
10. PG2 219 168	Prevention of ruptures	Replacement:	5
10. PG2 219 168	Prevention of ruptures	100% Inspection, Repair	5
10. PG2 219 168	Prevention of ruptures	Pressure Regulating	5
10. PG2 219 168	Prevention of ruptures	Hydrostatic Testing	5
10. PG2 219 168	Prevention of ruptures	Status Quo: Modified	2
10. PG2 219 168	Prevention of leaks with significant consequences	ILI Program:	5
10. PG2 219 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
10. PG2 219 168	Prevention of leaks with significant consequences	Replacement:	4
10. PG2 219 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
10. PG2 219 168	Prevention of leaks with significant consequences	Pressure Regulating	0
10. PG2 219 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
10. PG2 219 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
10. PG2 219 168	Proactive asset management	ILI Program:	5
10. PG2 219 168	Proactive asset management	ILI Program - Robotic:	4
10. PG2 219 168	Proactive asset management	Replacement:	4
10. PG2 219 168	Proactive asset management	100% Inspection, Repair	2
10. PG2 219 168	Proactive asset management	Pressure Regulating	0
10. PG2 219 168	Proactive asset management	Hydrostatic Testing	0
10. PG2 219 168	Proactive asset management	Status Quo: Modified	1
10. PG2 219 168	Technical certainty	ILI Program:	4
10. PG2 219 168	Technical certainty	ILI Program - Robotic:	3
10. PG2 219 168	Technical certainty	Replacement:	5
10. PG2 219 168	Technical certainty	100% Inspection, Repair	4
10. PG2 219 168	Technical certainty	Pressure Regulating	3
10. PG2 219 168	Technical certainty	Hydrostatic Testing	3
10. PG2 219 168	Technical certainty	Status Quo: Modified	2
11. CAR LTL 168	Prevention of ruptures	ILI Program:	5
11. CAR LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
11. CAR LTL 168	Prevention of ruptures	Replacement:	5
11. CAR LTL 168	Prevention of ruptures	100% Inspection, Repair	5
11. CAR LTL 168	Prevention of ruptures	Pressure Regulating	5
11. CAR LTL 168	Prevention of ruptures	Hydrostatic Testing	5
11. CAR LTL 168	Prevention of ruptures	Status Quo: Modified	2
11. CAR LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
11. CAR LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
11. CAR LTL 168	Prevention of leaks with significant consequences	Replacement:	4
11. CAR LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
11. CAR LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
11. CAR LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
11. CAR LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
11. CAR LTL 168	Proactive asset management	ILI Program:	5
11. CAR LTL 168	Proactive asset management	ILI Program - Robotic:	4
11. CAR LTL 168	Proactive asset management	Replacement:	4
11. CAR LTL 168	Proactive asset management	100% Inspection, Repair	2
11. CAR LTL 168	Proactive asset management	Pressure Regulating	0
11. CAR LTL 168	Proactive asset management	Hydrostatic Testing	0
11. CAR LTL 168	Proactive asset management	Status Quo: Modified	1
11. CAR LTL 168	Technical certainty	ILI Program:	4
11. CAR LTL 168	Technical certainty	ILI Program - Robotic:	3
11. CAR LTL 168	Technical certainty	Replacement:	5
11. CAR LTL 168	Technical certainty	100% Inspection, Repair	4
11. CAR LTL 168	Technical certainty	Pressure Regulating	3
11. CAR LTL 168	Technical certainty	Hydrostatic Testing	3
11. CAR LTL 168	Technical certainty	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
12. WIL LP1/LP2 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
12. WIL LP1/LP2 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
12. WIL LP1/LP2 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
12. WIL LP1/LP2 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
12. WIL LP1/LP2 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
12. WIL LP1/LP2 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
12. WIL LP1/LP2 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
12. WIL LP1/LP2 168	Rate impact	ILI Program:	0
12. WIL LP1/LP2 168	Rate impact	ILI Program - Robotic:	0
12. WIL LP1/LP2 168	Rate impact	Replacement:	0
12. WIL LP1/LP2 168	Rate impact	100% Inspection, Repair	0
12. WIL LP1/LP2 168	Rate impact	Pressure Regulating	0
12. WIL LP1/LP2 168	Rate impact	Hydrostatic Testing	0
12. WIL LP1/LP2 168	Rate impact	Status Quo: Modified	0
12. WIL LP1/LP2 168	Retirement of under-depreciated asset	ILI Program:	0
12. WIL LP1/LP2 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
12. WIL LP1/LP2 168	Retirement of under-depreciated asset	Replacement:	0
12. WIL LP1/LP2 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
12. WIL LP1/LP2 168	Retirement of under-depreciated asset	Pressure Regulating	0
12. WIL LP1/LP2 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
12. WIL LP1/LP2 168	Retirement of under-depreciated asset	Status Quo: Modified	0
13.1. KA1 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
13.1. KA1 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
13.1. KA1 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	5
13.1. KA1 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
13.1. KA1 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
13.1. KA1 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
13.1. KA1 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
13.1. KA1 LTL 168	Rate impact	ILI Program:	0
13.1. KA1 LTL 168	Rate impact	ILI Program - Robotic:	0
13.1. KA1 LTL 168	Rate impact	Replacement:	0
13.1. KA1 LTL 168	Rate impact	100% Inspection, Repair	0
13.1. KA1 LTL 168	Rate impact	Pressure Regulating	0
13.1. KA1 LTL 168	Rate impact	Hydrostatic Testing	0
13.1. KA1 LTL 168	Rate impact	Status Quo: Modified	0
13.1. KA1 LTL 168	Retirement of under-depreciated asset	ILI Program:	0
13.1. KA1 LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
13.1. KA1 LTL 168	Retirement of under-depreciated asset	Replacement:	0
13.1. KA1 LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
13.1. KA1 LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
13.1. KA1 LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
13.1. KA1 LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
13.2. KA1 LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
13.2. KA1 LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
13.2. KA1 LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	5
13.2. KA1 LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
13.2. KA1 LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
13.2. KA1 LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
13.2. KA1 LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
13.2. KA1 LOP 168	Rate impact	ILI Program:	0
13.2. KA1 LOP 168	Rate impact	ILI Program - Robotic:	0
13.2. KA1 LOP 168	Rate impact	Replacement:	0
13.2. KA1 LOP 168	Rate impact	100% Inspection, Repair	0
13.2. KA1 LOP 168	Rate impact	Pressure Regulating	0
13.2. KA1 LOP 168	Rate impact	Hydrostatic Testing	0
13.2. KA1 LOP 168	Rate impact	Status Quo: Modified	0
13.2. KA1 LOP 168	Retirement of under-depreciated asset	ILI Program:	0
13.2. KA1 LOP 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
13.2. KA1 LOP 168	Retirement of under-depreciated asset	Replacement:	0
13.2. KA1 LOP 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
13.2. KA1 LOP 168	Retirement of under-depreciated asset	Pressure Regulating	0
13.2. KA1 LOP 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
13.2. KA1 LOP 168	Retirement of under-depreciated asset	Status Quo: Modified	0
14. SAL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
14. SAL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
14. SAL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
14. SAL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
14. SAL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
14. SAL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
14. SAL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
14. SAL LOP 168	Rate impact	ILI Program:	0
14. SAL LOP 168	Rate impact	ILI Program - Robotic:	0
14. SAL LOP 168	Rate impact	Replacement:	0
14. SAL LOP 168	Rate impact	100% Inspection, Repair	0
14. SAL LOP 168	Rate impact	Pressure Regulating	0
14. SAL LOP 168	Rate impact	Hydrostatic Testing	0
14. SAL LOP 168	Rate impact	Status Quo: Modified	0

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
8. PGP LTL 168*	Consultation and Engagement Complexity	ILI Program:	3
8. PGP LTL 168*	Consultation and Engagement Complexity	ILI Program - Robotic:	4
8. PGP LTL 168*	Consultation and Engagement Complexity	Replacement: Replacement	2
8. PGP LTL 168*	Consultation and Engagement Complexity	100% Inspection, Repair &	1
8. PGP LTL 168*	Consultation and Engagement Complexity	Pressure Regulating	3
8. PGP LTL 168*	Consultation and Engagement Complexity	Hydrostatic Testing	1
8. PGP LTL 168*	Consultation and Engagement Complexity	Status Quo: Modified	2
8. PGP LTL 168*	Operational Complexity	ILI Program:	4
8. PGP LTL 168*	Operational Complexity	ILI Program - Robotic:	4
8. PGP LTL 168*	Operational Complexity	Replacement: Replacement	5
8. PGP LTL 168*	Operational Complexity	100% Inspection, Repair &	3
8. PGP LTL 168*	Operational Complexity	Pressure Regulating	3
8. PGP LTL 168*	Operational Complexity	Hydrostatic Testing	1
8. PGP LTL 168*	Operational Complexity	Status Quo: Modified	1
8. PGP LTL 168*	System Capacity & Customer Impacts	ILI Program:	4
8. PGP LTL 168*	System Capacity & Customer Impacts	ILI Program - Robotic:	4
8. PGP LTL 168*	System Capacity & Customer Impacts	Replacement: Replacement	5
8. PGP LTL 168*	System Capacity & Customer Impacts	100% Inspection, Repair &	4
8. PGP LTL 168*	System Capacity & Customer Impacts	Pressure Regulating	5
8. PGP LTL 168*	System Capacity & Customer Impacts	Hydrostatic Testing	0
8. PGP LTL 168*	System Capacity & Customer Impacts	Status Quo: Modified	3
8. PGP LTL 168*	Project Execution Certainty	ILI Program:	3
8. PGP LTL 168*	Project Execution Certainty	ILI Program - Robotic:	2
8. PGP LTL 168*	Project Execution Certainty	Replacement: Replacement	3
8. PGP LTL 168*	Project Execution Certainty	100% Inspection, Repair &	2
8. PGP LTL 168*	Project Execution Certainty	Pressure Regulating	4
8. PGP LTL 168*	Project Execution Certainty	Hydrostatic Testing	1
8. PGP LTL 168*	Project Execution Certainty	Status Quo: Modified	5
9. HUS LTL 168*	Environmental	ILI Program:	3
9. HUS LTL 168*	Environmental	ILI Program - Robotic:	3
9. HUS LTL 168*	Environmental	Replacement: Replacement	2
9. HUS LTL 168*	Environmental	100% Inspection, Repair &	2
9. HUS LTL 168*	Environmental	Pressure Regulating	4
9. HUS LTL 168*	Environmental	Hydrostatic Testing	1
9. HUS LTL 168*	Environmental	Status Quo: Modified	3
9. HUS LTL 168*	Lands & ROW	ILI Program:	3
9. HUS LTL 168*	Lands & ROW	ILI Program - Robotic:	3
9. HUS LTL 168*	Lands & ROW	Replacement: Replacement	1
9. HUS LTL 168*	Lands & ROW	100% Inspection, Repair &	2
9. HUS LTL 168*	Lands & ROW	Pressure Regulating	4
9. HUS LTL 168*	Lands & ROW	Hydrostatic Testing	1
9. HUS LTL 168*	Lands & ROW	Status Quo: Modified	4
9. HUS LTL 168*	Consultation and Engagement Complexity	ILI Program:	3
9. HUS LTL 168*	Consultation and Engagement Complexity	ILI Program - Robotic:	4
9. HUS LTL 168*	Consultation and Engagement Complexity	Replacement: Replacement	2
9. HUS LTL 168*	Consultation and Engagement Complexity	100% Inspection, Repair &	1
9. HUS LTL 168*	Consultation and Engagement Complexity	Pressure Regulating	3
9. HUS LTL 168*	Consultation and Engagement Complexity	Hydrostatic Testing	1
9. HUS LTL 168*	Consultation and Engagement Complexity	Status Quo: Modified	2
9. HUS LTL 168*	Operational Complexity	ILI Program:	4
9. HUS LTL 168*	Operational Complexity	ILI Program - Robotic:	4
9. HUS LTL 168*	Operational Complexity	Replacement: Replacement	5
9. HUS LTL 168*	Operational Complexity	100% Inspection, Repair &	3
9. HUS LTL 168*	Operational Complexity	Pressure Regulating	3
9. HUS LTL 168*	Operational Complexity	Hydrostatic Testing	1
9. HUS LTL 168*	Operational Complexity	Status Quo: Modified	1
9. HUS LTL 168*	System Capacity & Customer Impacts	ILI Program:	4
9. HUS LTL 168*	System Capacity & Customer Impacts	ILI Program - Robotic:	4
9. HUS LTL 168*	System Capacity & Customer Impacts	Replacement: Replacement	5
9. HUS LTL 168*	System Capacity & Customer Impacts	100% Inspection, Repair &	4
9. HUS LTL 168*	System Capacity & Customer Impacts	Pressure Regulating	5
9. HUS LTL 168*	System Capacity & Customer Impacts	Hydrostatic Testing	0
9. HUS LTL 168*	System Capacity & Customer Impacts	Status Quo: Modified	3
9. HUS LTL 168*	Project Execution Certainty	ILI Program:	3
9. HUS LTL 168*	Project Execution Certainty	ILI Program - Robotic:	2
9. HUS LTL 168*	Project Execution Certainty	Replacement: Replacement	3
9. HUS LTL 168*	Project Execution Certainty	100% Inspection, Repair &	2
9. HUS LTL 168*	Project Execution Certainty	Pressure Regulating	4
9. HUS LTL 168*	Project Execution Certainty	Hydrostatic Testing	1
9. HUS LTL 168*	Project Execution Certainty	Status Quo: Modified	5
10. PG2 219 168	Environmental	ILI Program:	4
10. PG2 219 168	Environmental	ILI Program - Robotic:	4
10. PG2 219 168	Environmental	Replacement: Replacement	3
10. PG2 219 168	Environmental	100% Inspection, Repair &	2
10. PG2 219 168	Environmental	Pressure Regulating	4
10. PG2 219 168	Environmental	Hydrostatic Testing	1
10. PG2 219 168	Environmental	Status Quo: Modified	3

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
12. WIL LP1/LP2 168	Prevention of ruptures	ILI Program:	5
12. WIL LP1/LP2 168	Prevention of ruptures	ILI Program - Robotic:	5
12. WIL LP1/LP2 168	Prevention of ruptures	Replacement:	5
12. WIL LP1/LP2 168	Prevention of ruptures	100% Inspection, Repair	5
12. WIL LP1/LP2 168	Prevention of ruptures	Pressure Regulating	5
12. WIL LP1/LP2 168	Prevention of ruptures	Hydrostatic Testing	5
12. WIL LP1/LP2 168	Prevention of ruptures	Status Quo: Modified	2
12. WIL LP1/LP2 168	Prevention of leaks with significant consequences	ILI Program:	5
12. WIL LP1/LP2 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
12. WIL LP1/LP2 168	Prevention of leaks with significant consequences	Replacement:	4
12. WIL LP1/LP2 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
12. WIL LP1/LP2 168	Prevention of leaks with significant consequences	Pressure Regulating	0
12. WIL LP1/LP2 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
12. WIL LP1/LP2 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
12. WIL LP1/LP2 168	Proactive asset management	ILI Program:	5
12. WIL LP1/LP2 168	Proactive asset management	ILI Program - Robotic:	4
12. WIL LP1/LP2 168	Proactive asset management	Replacement:	4
12. WIL LP1/LP2 168	Proactive asset management	100% Inspection, Repair	2
12. WIL LP1/LP2 168	Proactive asset management	Pressure Regulating	0
12. WIL LP1/LP2 168	Proactive asset management	Hydrostatic Testing	0
12. WIL LP1/LP2 168	Proactive asset management	Status Quo: Modified	1
12. WIL LP1/LP2 168	Technical certainty	ILI Program:	4
12. WIL LP1/LP2 168	Technical certainty	ILI Program - Robotic:	3
12. WIL LP1/LP2 168	Technical certainty	Replacement:	5
12. WIL LP1/LP2 168	Technical certainty	100% Inspection, Repair	4
12. WIL LP1/LP2 168	Technical certainty	Pressure Regulating	3
12. WIL LP1/LP2 168	Technical certainty	Hydrostatic Testing	3
12. WIL LP1/LP2 168	Technical certainty	Status Quo: Modified	2
13.1. KA1 LTL 168	Prevention of ruptures	ILI Program:	5
13.1. KA1 LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
13.1. KA1 LTL 168	Prevention of ruptures	Replacement:	5
13.1. KA1 LTL 168	Prevention of ruptures	100% Inspection, Repair	5
13.1. KA1 LTL 168	Prevention of ruptures	Pressure Regulating	5
13.1. KA1 LTL 168	Prevention of ruptures	Hydrostatic Testing	5
13.1. KA1 LTL 168	Prevention of ruptures	Status Quo: Modified	2
13.1. KA1 LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
13.1. KA1 LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
13.1. KA1 LTL 168	Prevention of leaks with significant consequences	Replacement:	4
13.1. KA1 LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
13.1. KA1 LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
13.1. KA1 LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
13.1. KA1 LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
13.1. KA1 LTL 168	Proactive asset management	ILI Program:	5
13.1. KA1 LTL 168	Proactive asset management	ILI Program - Robotic:	4
13.1. KA1 LTL 168	Proactive asset management	Replacement:	4
13.1. KA1 LTL 168	Proactive asset management	100% Inspection, Repair	2
13.1. KA1 LTL 168	Proactive asset management	Pressure Regulating	0
13.1. KA1 LTL 168	Proactive asset management	Hydrostatic Testing	0
13.1. KA1 LTL 168	Proactive asset management	Status Quo: Modified	1
13.1. KA1 LTL 168	Technical certainty	ILI Program:	4
13.1. KA1 LTL 168	Technical certainty	ILI Program - Robotic:	3
13.1. KA1 LTL 168	Technical certainty	Replacement:	5
13.1. KA1 LTL 168	Technical certainty	100% Inspection, Repair	4
13.1. KA1 LTL 168	Technical certainty	Pressure Regulating	3
13.1. KA1 LTL 168	Technical certainty	Hydrostatic Testing	3
13.1. KA1 LTL 168	Technical certainty	Status Quo: Modified	2
13.2. KA1 LOP 168	Prevention of ruptures	ILI Program:	5
13.2. KA1 LOP 168	Prevention of ruptures	ILI Program - Robotic:	5
13.2. KA1 LOP 168	Prevention of ruptures	Replacement:	5
13.2. KA1 LOP 168	Prevention of ruptures	100% Inspection, Repair	5
13.2. KA1 LOP 168	Prevention of ruptures	Pressure Regulating	5
13.2. KA1 LOP 168	Prevention of ruptures	Hydrostatic Testing	5
13.2. KA1 LOP 168	Prevention of ruptures	Status Quo: Modified	2
13.2. KA1 LOP 168	Prevention of leaks with significant consequences	ILI Program:	5
13.2. KA1 LOP 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
13.2. KA1 LOP 168	Prevention of leaks with significant consequences	Replacement:	4
13.2. KA1 LOP 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
13.2. KA1 LOP 168	Prevention of leaks with significant consequences	Pressure Regulating	0
13.2. KA1 LOP 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
13.2. KA1 LOP 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
13.2. KA1 LOP 168	Proactive asset management	ILI Program:	5
13.2. KA1 LOP 168	Proactive asset management	ILI Program - Robotic:	4
13.2. KA1 LOP 168	Proactive asset management	Replacement:	4
13.2. KA1 LOP 168	Proactive asset management	100% Inspection, Repair	2
13.2. KA1 LOP 168	Proactive asset management	Pressure Regulating	0
13.2. KA1 LOP 168	Proactive asset management	Hydrostatic Testing	0
13.2. KA1 LOP 168	Proactive asset management	Status Quo: Modified	1

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
14. SAL LOP 168	Retirement of under-depreciated asset	ILI Program:	0
14. SAL LOP 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
14. SAL LOP 168	Retirement of under-depreciated asset	Replacement:	0
14. SAL LOP 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
14. SAL LOP 168	Retirement of under-depreciated asset	Pressure Regulating	0
14. SAL LOP 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
14. SAL LOP 168	Retirement of under-depreciated asset	Status Quo: Modified	0
15. SA3 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
15. SA3 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
15. SA3 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	5
15. SA3 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
15. SA3 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	2
15. SA3 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
15. SA3 LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
15. SA3 LTL 168	Rate impact	ILI Program:	0
15. SA3 LTL 168	Rate impact	ILI Program - Robotic:	0
15. SA3 LTL 168	Rate impact	Replacement:	0
15. SA3 LTL 168	Rate impact	100% Inspection, Repair	0
15. SA3 LTL 168	Rate impact	Pressure Regulating	0
15. SA3 LTL 168	Rate impact	Hydrostatic Testing	0
15. SA3 LTL 168	Rate impact	Status Quo: Modified	0
15. SA3 LTL 168	Retirement of under-depreciated asset	ILI Program:	0
15. SA3 LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
15. SA3 LTL 168	Retirement of under-depreciated asset	Replacement:	0
15. SA3 LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
15. SA3 LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
15. SA3 LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
15. SA3 LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
16. COL LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
16. COL LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
16. COL LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	2
16. COL LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
16. COL LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
16. COL LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
16. COL LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
16. COL LTL 219	Rate impact	ILI Program:	0
16. COL LTL 219	Rate impact	ILI Program - Robotic:	0
16. COL LTL 219	Rate impact	Replacement:	0
16. COL LTL 219	Rate impact	100% Inspection, Repair	0
16. COL LTL 219	Rate impact	Pressure Regulating	0
16. COL LTL 219	Rate impact	Hydrostatic Testing	0
16. COL LTL 219	Rate impact	Status Quo: Modified	0
16. COL LTL 219	Retirement of under-depreciated asset	ILI Program:	0
16. COL LTL 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
16. COL LTL 219	Retirement of under-depreciated asset	Replacement:	0
16. COL LTL 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
16. COL LTL 219	Retirement of under-depreciated asset	Pressure Regulating	0
16. COL LTL 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
16. COL LTL 219	Retirement of under-depreciated asset	Status Quo: Modified	0
17. COL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
17. COL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
17. COL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
17. COL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
17. COL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
17. COL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
17. COL LOP 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
17. COL LOP 168	Rate impact	ILI Program:	0
17. COL LOP 168	Rate impact	ILI Program - Robotic:	0
17. COL LOP 168	Rate impact	Replacement:	0
17. COL LOP 168	Rate impact	100% Inspection, Repair	0
17. COL LOP 168	Rate impact	Pressure Regulating	0
17. COL LOP 168	Rate impact	Hydrostatic Testing	0
17. COL LOP 168	Rate impact	Status Quo: Modified	0
17. COL LOP 168	Retirement of under-depreciated asset	ILI Program:	0
17. COL LOP 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
17. COL LOP 168	Retirement of under-depreciated asset	Replacement:	0
17. COL LOP 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
17. COL LOP 168	Retirement of under-depreciated asset	Pressure Regulating	0
17. COL LOP 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
17. COL LOP 168	Retirement of under-depreciated asset	Status Quo: Modified	0
18. KE1 LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
18. KE1 LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
18. KE1 LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	2
18. KE1 LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
18. KE1 LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
18. KE1 LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
18. KE1 LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
10. PG2 219 168	Lands & ROW	ILI Program:	3
10. PG2 219 168	Lands & ROW	ILI Program - Robotic:	3
10. PG2 219 168	Lands & ROW	Replacement: Replacement	1
10. PG2 219 168	Lands & ROW	100% Inspection, Repair &	2
10. PG2 219 168	Lands & ROW	Pressure Regulating	4
10. PG2 219 168	Lands & ROW	Hydrostatic Testing	1
10. PG2 219 168	Lands & ROW	Status Quo: Modified	4
10. PG2 219 168	Consultation and Engagement Complexity	ILI Program:	3
10. PG2 219 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
10. PG2 219 168	Consultation and Engagement Complexity	Replacement: Replacement	1
10. PG2 219 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
10. PG2 219 168	Consultation and Engagement Complexity	Pressure Regulating	4
10. PG2 219 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
10. PG2 219 168	Consultation and Engagement Complexity	Status Quo: Modified	2
10. PG2 219 168	Operational Complexity	ILI Program:	4
10. PG2 219 168	Operational Complexity	ILI Program - Robotic:	4
10. PG2 219 168	Operational Complexity	Replacement: Replacement	5
10. PG2 219 168	Operational Complexity	100% Inspection, Repair &	3
10. PG2 219 168	Operational Complexity	Pressure Regulating	4
10. PG2 219 168	Operational Complexity	Hydrostatic Testing	1
10. PG2 219 168	Operational Complexity	Status Quo: Modified	2
10. PG2 219 168	System Capacity & Customer Impacts	ILI Program:	4
10. PG2 219 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
10. PG2 219 168	System Capacity & Customer Impacts	Replacement: Replacement	5
10. PG2 219 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
10. PG2 219 168	System Capacity & Customer Impacts	Pressure Regulating	5
10. PG2 219 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
10. PG2 219 168	System Capacity & Customer Impacts	Status Quo: Modified	3
10. PG2 219 168	Project Execution Certainty	ILI Program:	4
10. PG2 219 168	Project Execution Certainty	ILI Program - Robotic:	2
10. PG2 219 168	Project Execution Certainty	Replacement: Replacement	3
10. PG2 219 168	Project Execution Certainty	100% Inspection, Repair &	2
10. PG2 219 168	Project Execution Certainty	Pressure Regulating	5
10. PG2 219 168	Project Execution Certainty	Hydrostatic Testing	1
10. PG2 219 168	Project Execution Certainty	Status Quo: Modified	5
11. CAR LTL 168	Environmental	ILI Program:	3
11. CAR LTL 168	Environmental	ILI Program - Robotic:	3
11. CAR LTL 168	Environmental	Replacement: Replacement	2
11. CAR LTL 168	Environmental	100% Inspection, Repair &	2
11. CAR LTL 168	Environmental	Pressure Regulating	4
11. CAR LTL 168	Environmental	Hydrostatic Testing	1
11. CAR LTL 168	Environmental	Status Quo: Modified	2
11. CAR LTL 168	Lands & ROW	ILI Program:	3
11. CAR LTL 168	Lands & ROW	ILI Program - Robotic:	3
11. CAR LTL 168	Lands & ROW	Replacement: Replacement	1
11. CAR LTL 168	Lands & ROW	100% Inspection, Repair &	2
11. CAR LTL 168	Lands & ROW	Pressure Regulating	4
11. CAR LTL 168	Lands & ROW	Hydrostatic Testing	1
11. CAR LTL 168	Lands & ROW	Status Quo: Modified	4
11. CAR LTL 168	Consultation and Engagement Complexity	ILI Program:	2
11. CAR LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
11. CAR LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
11. CAR LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	2
11. CAR LTL 168	Consultation and Engagement Complexity	Pressure Regulating	4
11. CAR LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
11. CAR LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
11. CAR LTL 168	Operational Complexity	ILI Program:	4
11. CAR LTL 168	Operational Complexity	ILI Program - Robotic:	4
11. CAR LTL 168	Operational Complexity	Replacement: Replacement	5
11. CAR LTL 168	Operational Complexity	100% Inspection, Repair &	3
11. CAR LTL 168	Operational Complexity	Pressure Regulating	4
11. CAR LTL 168	Operational Complexity	Hydrostatic Testing	1
11. CAR LTL 168	Operational Complexity	Status Quo: Modified	2
11. CAR LTL 168	System Capacity & Customer Impacts	ILI Program:	4
11. CAR LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
11. CAR LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
11. CAR LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
11. CAR LTL 168	System Capacity & Customer Impacts	Pressure Regulating	5
11. CAR LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
11. CAR LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
11. CAR LTL 168	Project Execution Certainty	ILI Program:	3
11. CAR LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
11. CAR LTL 168	Project Execution Certainty	Replacement: Replacement	3
11. CAR LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
11. CAR LTL 168	Project Execution Certainty	Pressure Regulating	5
11. CAR LTL 168	Project Execution Certainty	Hydrostatic Testing	1
11. CAR LTL 168	Project Execution Certainty	Status Quo: Modified	5

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
13.2. KA1 LOP 168	Technical certainty	ILI Program:	4
13.2. KA1 LOP 168	Technical certainty	ILI Program - Robotic:	3
13.2. KA1 LOP 168	Technical certainty	Replacement:	5
13.2. KA1 LOP 168	Technical certainty	100% Inspection, Repair	4
13.2. KA1 LOP 168	Technical certainty	Pressure Regulating	3
13.2. KA1 LOP 168	Technical certainty	Hydrostatic Testing	3
13.2. KA1 LOP 168	Technical certainty	Status Quo: Modified	2
14. SAL LOP 168	Prevention of ruptures	ILI Program:	5
14. SAL LOP 168	Prevention of ruptures	ILI Program - Robotic:	5
14. SAL LOP 168	Prevention of ruptures	Replacement:	5
14. SAL LOP 168	Prevention of ruptures	100% Inspection, Repair	5
14. SAL LOP 168	Prevention of ruptures	Pressure Regulating	5
14. SAL LOP 168	Prevention of ruptures	Hydrostatic Testing	5
14. SAL LOP 168	Prevention of ruptures	Status Quo: Modified	2
14. SAL LOP 168	Prevention of leaks with significant consequences	ILI Program:	5
14. SAL LOP 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
14. SAL LOP 168	Prevention of leaks with significant consequences	Replacement:	4
14. SAL LOP 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
14. SAL LOP 168	Prevention of leaks with significant consequences	Pressure Regulating	0
14. SAL LOP 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
14. SAL LOP 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
14. SAL LOP 168	Proactive asset management	ILI Program:	5
14. SAL LOP 168	Proactive asset management	ILI Program - Robotic:	4
14. SAL LOP 168	Proactive asset management	Replacement:	4
14. SAL LOP 168	Proactive asset management	100% Inspection, Repair	2
14. SAL LOP 168	Proactive asset management	Pressure Regulating	0
14. SAL LOP 168	Proactive asset management	Hydrostatic Testing	0
14. SAL LOP 168	Proactive asset management	Status Quo: Modified	1
14. SAL LOP 168	Technical certainty	ILI Program:	4
14. SAL LOP 168	Technical certainty	ILI Program - Robotic:	3
14. SAL LOP 168	Technical certainty	Replacement:	5
14. SAL LOP 168	Technical certainty	100% Inspection, Repair	4
14. SAL LOP 168	Technical certainty	Pressure Regulating	3
14. SAL LOP 168	Technical certainty	Hydrostatic Testing	3
14. SAL LOP 168	Technical certainty	Status Quo: Modified	2
15. SA3 LTL 168	Prevention of ruptures	ILI Program:	5
15. SA3 LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
15. SA3 LTL 168	Prevention of ruptures	Replacement:	5
15. SA3 LTL 168	Prevention of ruptures	100% Inspection, Repair	5
15. SA3 LTL 168	Prevention of ruptures	Pressure Regulating	5
15. SA3 LTL 168	Prevention of ruptures	Hydrostatic Testing	5
15. SA3 LTL 168	Prevention of ruptures	Status Quo: Modified	2
15. SA3 LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
15. SA3 LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
15. SA3 LTL 168	Prevention of leaks with significant consequences	Replacement:	4
15. SA3 LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
15. SA3 LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
15. SA3 LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
15. SA3 LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
15. SA3 LTL 168	Proactive asset management	ILI Program:	5
15. SA3 LTL 168	Proactive asset management	ILI Program - Robotic:	4
15. SA3 LTL 168	Proactive asset management	Replacement:	4
15. SA3 LTL 168	Proactive asset management	100% Inspection, Repair	2
15. SA3 LTL 168	Proactive asset management	Pressure Regulating	0
15. SA3 LTL 168	Proactive asset management	Hydrostatic Testing	0
15. SA3 LTL 168	Proactive asset management	Status Quo: Modified	1
15. SA3 LTL 168	Technical certainty	ILI Program:	4
15. SA3 LTL 168	Technical certainty	ILI Program - Robotic:	3
15. SA3 LTL 168	Technical certainty	Replacement:	5
15. SA3 LTL 168	Technical certainty	100% Inspection, Repair	4
15. SA3 LTL 168	Technical certainty	Pressure Regulating	3
15. SA3 LTL 168	Technical certainty	Hydrostatic Testing	3
15. SA3 LTL 168	Technical certainty	Status Quo: Modified	2
16. COL LTL 219	Prevention of ruptures	ILI Program:	5
16. COL LTL 219	Prevention of ruptures	ILI Program - Robotic:	5
16. COL LTL 219	Prevention of ruptures	Replacement:	5
16. COL LTL 219	Prevention of ruptures	100% Inspection, Repair	5
16. COL LTL 219	Prevention of ruptures	Pressure Regulating	5
16. COL LTL 219	Prevention of ruptures	Hydrostatic Testing	5
16. COL LTL 219	Prevention of ruptures	Status Quo: Modified	2
16. COL LTL 219	Prevention of leaks with significant consequences	ILI Program:	5
16. COL LTL 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
16. COL LTL 219	Prevention of leaks with significant consequences	Replacement:	4
16. COL LTL 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
16. COL LTL 219	Prevention of leaks with significant consequences	Pressure Regulating	0
16. COL LTL 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
16. COL LTL 219	Prevention of leaks with significant consequences	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
18. KE1 LOP 219	Rate impact	ILI Program:	0
18. KE1 LOP 219	Rate impact	ILI Program - Robotic:	0
18. KE1 LOP 219	Rate impact	Replacement:	0
18. KE1 LOP 219	Rate impact	100% Inspection, Repair	0
18. KE1 LOP 219	Rate impact	Pressure Regulating	0
18. KE1 LOP 219	Rate impact	Hydrostatic Testing	0
18. KE1 LOP 219	Rate impact	Status Quo: Modified	0
18. KE1 LOP 219	Retirement of under-depreciated asset	ILI Program:	0
18. KE1 LOP 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
18. KE1 LOP 219	Retirement of under-depreciated asset	Replacement:	0
18. KE1 LOP 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
18. KE1 LOP 219	Retirement of under-depreciated asset	Pressure Regulating	0
18. KE1 LOP 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
18. KE1 LOP 219	Retirement of under-depreciated asset	Status Quo: Modified	0
19. CEL LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	2
19. CEL LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
19. CEL LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
19. CEL LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
19. CEL LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
19. CEL LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
19. CEL LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
19. CEL LTL 168	Rate impact	ILI Program:	0
19. CEL LTL 168	Rate impact	ILI Program - Robotic:	0
19. CEL LTL 168	Rate impact	Replacement:	0
19. CEL LTL 168	Rate impact	100% Inspection, Repair	0
19. CEL LTL 168	Rate impact	Pressure Regulating	0
19. CEL LTL 168	Rate impact	Hydrostatic Testing	0
19. CEL LTL 168	Rate impact	Status Quo: Modified	0
19. CEL LTL 168	Retirement of under-depreciated asset	ILI Program:	0
19. CEL LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
19. CEL LTL 168	Retirement of under-depreciated asset	Replacement:	0
19. CEL LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
19. CEL LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
19. CEL LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
19. CEL LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
20. CAS NEL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
20. CAS NEL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
20. CAS NEL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
20. CAS NEL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
20. CAS NEL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
20. CAS NEL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
20. CAS NEL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
20. CAS NEL 168	Rate impact	ILI Program:	0
20. CAS NEL 168	Rate impact	ILI Program - Robotic:	0
20. CAS NEL 168	Rate impact	Replacement:	0
20. CAS NEL 168	Rate impact	100% Inspection, Repair	0
20. CAS NEL 168	Rate impact	Pressure Regulating	0
20. CAS NEL 168	Rate impact	Hydrostatic Testing	0
20. CAS NEL 168	Rate impact	Status Quo: Modified	0
20. CAS NEL 168	Retirement of under-depreciated asset	ILI Program:	0
20. CAS NEL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
20. CAS NEL 168	Retirement of under-depreciated asset	Replacement:	0
20. CAS NEL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
20. CAS NEL 168	Retirement of under-depreciated asset	Pressure Regulating	0
20. CAS NEL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
20. CAS NEL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
21. TRA LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	1
21. TRA LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
21. TRA LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
21. TRA LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
21. TRA LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
21. TRA LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
21. TRA LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
21. TRA LTL 168	Rate impact	ILI Program:	0
21. TRA LTL 168	Rate impact	ILI Program - Robotic:	0
21. TRA LTL 168	Rate impact	Replacement:	0
21. TRA LTL 168	Rate impact	100% Inspection, Repair	0
21. TRA LTL 168	Rate impact	Pressure Regulating	0
21. TRA LTL 168	Rate impact	Hydrostatic Testing	0
21. TRA LTL 168	Rate impact	Status Quo: Modified	0
21. TRA LTL 168	Retirement of under-depreciated asset	ILI Program:	0
21. TRA LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
21. TRA LTL 168	Retirement of under-depreciated asset	Replacement:	0
21. TRA LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
21. TRA LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
21. TRA LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
21. TRA LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
12. WIL LP1/LP2 168	Environmental	ILI Program:	4
12. WIL LP1/LP2 168	Environmental	ILI Program - Robotic:	4
12. WIL LP1/LP2 168	Environmental	Replacement: Replacement	3
12. WIL LP1/LP2 168	Environmental	100% Inspection, Repair &	2
12. WIL LP1/LP2 168	Environmental	Pressure Regulating	4
12. WIL LP1/LP2 168	Environmental	Hydrostatic Testing	1
12. WIL LP1/LP2 168	Environmental	Status Quo: Modified	3
12. WIL LP1/LP2 168	Lands & ROW	ILI Program:	3
12. WIL LP1/LP2 168	Lands & ROW	ILI Program - Robotic:	3
12. WIL LP1/LP2 168	Lands & ROW	Replacement: Replacement	1
12. WIL LP1/LP2 168	Lands & ROW	100% Inspection, Repair &	2
12. WIL LP1/LP2 168	Lands & ROW	Pressure Regulating	4
12. WIL LP1/LP2 168	Lands & ROW	Hydrostatic Testing	1
12. WIL LP1/LP2 168	Lands & ROW	Status Quo: Modified	4
12. WIL LP1/LP2 168	Consultation and Engagement Complexity	ILI Program:	2
12. WIL LP1/LP2 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
12. WIL LP1/LP2 168	Consultation and Engagement Complexity	Replacement: Replacement	1
12. WIL LP1/LP2 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
12. WIL LP1/LP2 168	Consultation and Engagement Complexity	Pressure Regulating	4
12. WIL LP1/LP2 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
12. WIL LP1/LP2 168	Consultation and Engagement Complexity	Status Quo: Modified	2
12. WIL LP1/LP2 168	Operational Complexity	ILI Program:	4
12. WIL LP1/LP2 168	Operational Complexity	ILI Program - Robotic:	4
12. WIL LP1/LP2 168	Operational Complexity	Replacement: Replacement	5
12. WIL LP1/LP2 168	Operational Complexity	100% Inspection, Repair &	3
12. WIL LP1/LP2 168	Operational Complexity	Pressure Regulating	4
12. WIL LP1/LP2 168	Operational Complexity	Hydrostatic Testing	1
12. WIL LP1/LP2 168	Operational Complexity	Status Quo: Modified	3
12. WIL LP1/LP2 168	System Capacity & Customer Impacts	ILI Program:	4
12. WIL LP1/LP2 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
12. WIL LP1/LP2 168	System Capacity & Customer Impacts	Replacement: Replacement	5
12. WIL LP1/LP2 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
12. WIL LP1/LP2 168	System Capacity & Customer Impacts	Pressure Regulating	5
12. WIL LP1/LP2 168	System Capacity & Customer Impacts	Hydrostatic Testing	5
12. WIL LP1/LP2 168	System Capacity & Customer Impacts	Status Quo: Modified	3
12. WIL LP1/LP2 168	Project Execution Certainty	ILI Program:	3
12. WIL LP1/LP2 168	Project Execution Certainty	ILI Program - Robotic:	2
12. WIL LP1/LP2 168	Project Execution Certainty	Replacement: Replacement	3
12. WIL LP1/LP2 168	Project Execution Certainty	100% Inspection, Repair &	2
12. WIL LP1/LP2 168	Project Execution Certainty	Pressure Regulating	5
12. WIL LP1/LP2 168	Project Execution Certainty	Hydrostatic Testing	1
12. WIL LP1/LP2 168	Project Execution Certainty	Status Quo: Modified	5
13.1. KA1 LTL 168	Environmental	ILI Program:	3
13.1. KA1 LTL 168	Environmental	ILI Program - Robotic:	3
13.1. KA1 LTL 168	Environmental	Replacement: Replacement	2
13.1. KA1 LTL 168	Environmental	100% Inspection, Repair &	2
13.1. KA1 LTL 168	Environmental	Pressure Regulating	4
13.1. KA1 LTL 168	Environmental	Hydrostatic Testing	1
13.1. KA1 LTL 168	Environmental	Status Quo: Modified	2
13.1. KA1 LTL 168	Lands & ROW	ILI Program:	3
13.1. KA1 LTL 168	Lands & ROW	ILI Program - Robotic:	3
13.1. KA1 LTL 168	Lands & ROW	Replacement: Replacement	3
13.1. KA1 LTL 168	Lands & ROW	100% Inspection, Repair &	2
13.1. KA1 LTL 168	Lands & ROW	Pressure Regulating	4
13.1. KA1 LTL 168	Lands & ROW	Hydrostatic Testing	1
13.1. KA1 LTL 168	Lands & ROW	Status Quo: Modified	4
13.1. KA1 LTL 168	Consultation and Engagement Complexity	ILI Program:	3
13.1. KA1 LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
13.1. KA1 LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
13.1. KA1 LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
13.1. KA1 LTL 168	Consultation and Engagement Complexity	Pressure Regulating	3
13.1. KA1 LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
13.1. KA1 LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
13.1. KA1 LTL 168	Operational Complexity	ILI Program:	4
13.1. KA1 LTL 168	Operational Complexity	ILI Program - Robotic:	4
13.1. KA1 LTL 168	Operational Complexity	Replacement: Replacement	5
13.1. KA1 LTL 168	Operational Complexity	100% Inspection, Repair &	3
13.1. KA1 LTL 168	Operational Complexity	Pressure Regulating	3
13.1. KA1 LTL 168	Operational Complexity	Hydrostatic Testing	1
13.1. KA1 LTL 168	Operational Complexity	Status Quo: Modified	1
13.1. KA1 LTL 168	System Capacity & Customer Impacts	ILI Program:	4
13.1. KA1 LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
13.1. KA1 LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
13.1. KA1 LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
13.1. KA1 LTL 168	System Capacity & Customer Impacts	Pressure Regulating	0
13.1. KA1 LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
13.1. KA1 LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
16. COL LTL 219	Proactive asset management	ILI Program:	5
16. COL LTL 219	Proactive asset management	ILI Program - Robotic:	4
16. COL LTL 219	Proactive asset management	Replacement:	4
16. COL LTL 219	Proactive asset management	100% Inspection, Repair	2
16. COL LTL 219	Proactive asset management	Pressure Regulating	0
16. COL LTL 219	Proactive asset management	Hydrostatic Testing	0
16. COL LTL 219	Proactive asset management	Status Quo: Modified	1
16. COL LTL 219	Technical certainty	ILI Program:	4
16. COL LTL 219	Technical certainty	ILI Program - Robotic:	3
16. COL LTL 219	Technical certainty	Replacement:	5
16. COL LTL 219	Technical certainty	100% Inspection, Repair	4
16. COL LTL 219	Technical certainty	Pressure Regulating	3
16. COL LTL 219	Technical certainty	Hydrostatic Testing	3
16. COL LTL 219	Technical certainty	Status Quo: Modified	2
17. COL LOP 168	Prevention of ruptures	ILI Program:	5
17. COL LOP 168	Prevention of ruptures	ILI Program - Robotic:	5
17. COL LOP 168	Prevention of ruptures	Replacement:	5
17. COL LOP 168	Prevention of ruptures	100% Inspection, Repair	5
17. COL LOP 168	Prevention of ruptures	Pressure Regulating	5
17. COL LOP 168	Prevention of ruptures	Hydrostatic Testing	5
17. COL LOP 168	Prevention of ruptures	Status Quo: Modified	2
17. COL LOP 168	Prevention of leaks with significant consequences	ILI Program:	5
17. COL LOP 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
17. COL LOP 168	Prevention of leaks with significant consequences	Replacement:	4
17. COL LOP 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
17. COL LOP 168	Prevention of leaks with significant consequences	Pressure Regulating	0
17. COL LOP 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
17. COL LOP 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
17. COL LOP 168	Proactive asset management	ILI Program:	5
17. COL LOP 168	Proactive asset management	ILI Program - Robotic:	4
17. COL LOP 168	Proactive asset management	Replacement:	4
17. COL LOP 168	Proactive asset management	100% Inspection, Repair	2
17. COL LOP 168	Proactive asset management	Pressure Regulating	0
17. COL LOP 168	Proactive asset management	Hydrostatic Testing	0
17. COL LOP 168	Proactive asset management	Status Quo: Modified	1
17. COL LOP 168	Technical certainty	ILI Program:	4
17. COL LOP 168	Technical certainty	ILI Program - Robotic:	3
17. COL LOP 168	Technical certainty	Replacement:	5
17. COL LOP 168	Technical certainty	100% Inspection, Repair	4
17. COL LOP 168	Technical certainty	Pressure Regulating	3
17. COL LOP 168	Technical certainty	Hydrostatic Testing	3
17. COL LOP 168	Technical certainty	Status Quo: Modified	2
18. KE1 LOP 219	Prevention of ruptures	ILI Program:	5
18. KE1 LOP 219	Prevention of ruptures	ILI Program - Robotic:	5
18. KE1 LOP 219	Prevention of ruptures	Replacement:	5
18. KE1 LOP 219	Prevention of ruptures	100% Inspection, Repair	5
18. KE1 LOP 219	Prevention of ruptures	Pressure Regulating	5
18. KE1 LOP 219	Prevention of ruptures	Hydrostatic Testing	5
18. KE1 LOP 219	Prevention of ruptures	Status Quo: Modified	2
18. KE1 LOP 219	Prevention of leaks with significant consequences	ILI Program:	5
18. KE1 LOP 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
18. KE1 LOP 219	Prevention of leaks with significant consequences	Replacement:	4
18. KE1 LOP 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
18. KE1 LOP 219	Prevention of leaks with significant consequences	Pressure Regulating	0
18. KE1 LOP 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
18. KE1 LOP 219	Prevention of leaks with significant consequences	Status Quo: Modified	2
18. KE1 LOP 219	Proactive asset management	ILI Program:	5
18. KE1 LOP 219	Proactive asset management	ILI Program - Robotic:	4
18. KE1 LOP 219	Proactive asset management	Replacement:	4
18. KE1 LOP 219	Proactive asset management	100% Inspection, Repair	2
18. KE1 LOP 219	Proactive asset management	Pressure Regulating	0
18. KE1 LOP 219	Proactive asset management	Hydrostatic Testing	0
18. KE1 LOP 219	Proactive asset management	Status Quo: Modified	1
18. KE1 LOP 219	Technical certainty	ILI Program:	4
18. KE1 LOP 219	Technical certainty	ILI Program - Robotic:	3
18. KE1 LOP 219	Technical certainty	Replacement:	5
18. KE1 LOP 219	Technical certainty	100% Inspection, Repair	4
18. KE1 LOP 219	Technical certainty	Pressure Regulating	3
18. KE1 LOP 219	Technical certainty	Hydrostatic Testing	3
18. KE1 LOP 219	Technical certainty	Status Quo: Modified	2
19. CEL LTL 168	Prevention of ruptures	ILI Program:	5
19. CEL LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
19. CEL LTL 168	Prevention of ruptures	Replacement:	5
19. CEL LTL 168	Prevention of ruptures	100% Inspection, Repair	5
19. CEL LTL 168	Prevention of ruptures	Pressure Regulating	5
19. CEL LTL 168	Prevention of ruptures	Hydrostatic Testing	5
19. CEL LTL 168	Prevention of ruptures	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
22. FRD LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
22. FRD LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
22. FRD LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
22. FRD LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
22. FRD LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
22. FRD LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
22. FRD LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
22. FRD LTL 219	Rate impact	ILI Program:	0
22. FRD LTL 219	Rate impact	ILI Program - Robotic:	0
22. FRD LTL 219	Rate impact	Replacement:	0
22. FRD LTL 219	Rate impact	100% Inspection, Repair	0
22. FRD LTL 219	Rate impact	Pressure Regulating	0
22. FRD LTL 219	Rate impact	Hydrostatic Testing	0
22. FRD LTL 219	Rate impact	Status Quo: Modified	0
22. FRD LTL 219	Retirement of under-depreciated asset	ILI Program:	0
22. FRD LTL 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
22. FRD LTL 219	Retirement of under-depreciated asset	Replacement:	0
22. FRD LTL 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
22. FRD LTL 219	Retirement of under-depreciated asset	Pressure Regulating	0
22. FRD LTL 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
22. FRD LTL 219	Retirement of under-depreciated asset	Status Quo: Modified	0
23. ELK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	2
23. ELK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
23. ELK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	5
23. ELK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
23. ELK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	5
23. ELK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
23. ELK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
23. ELK LTL 168	Rate impact	ILI Program:	0
23. ELK LTL 168	Rate impact	ILI Program - Robotic:	0
23. ELK LTL 168	Rate impact	Replacement:	0
23. ELK LTL 168	Rate impact	100% Inspection, Repair	0
23. ELK LTL 168	Rate impact	Pressure Regulating	0
23. ELK LTL 168	Rate impact	Hydrostatic Testing	0
23. ELK LTL 168	Rate impact	Status Quo: Modified	0
23. ELK LTL 168	Retirement of under-depreciated asset	ILI Program:	0
23. ELK LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
23. ELK LTL 168	Retirement of under-depreciated asset	Replacement:	0
23. ELK LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
23. ELK LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
23. ELK LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
23. ELK LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
24. CRK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
24. CRK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
24. CRK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
24. CRK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
24. CRK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
24. CRK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
24. CRK LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
24. CRK LTL 168	Rate impact	ILI Program:	0
24. CRK LTL 168	Rate impact	ILI Program - Robotic:	0
24. CRK LTL 168	Rate impact	Replacement:	0
24. CRK LTL 168	Rate impact	100% Inspection, Repair	0
24. CRK LTL 168	Rate impact	Pressure Regulating	0
24. CRK LTL 168	Rate impact	Hydrostatic Testing	0
24. CRK LTL 168	Rate impact	Status Quo: Modified	0
24. CRK LTL 168	Retirement of under-depreciated asset	ILI Program:	0
24. CRK LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
24. CRK LTL 168	Retirement of under-depreciated asset	Replacement:	0
24. CRK LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
24. CRK LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
24. CRK LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
24. CRK LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
25. CRK LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
25. CRK LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
25. CRK LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
25. CRK LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
25. CRK LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
25. CRK LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
25. CRK LOP 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
25. CRK LOP 219	Rate impact	ILI Program:	0
25. CRK LOP 219	Rate impact	ILI Program - Robotic:	0
25. CRK LOP 219	Rate impact	Replacement:	0
25. CRK LOP 219	Rate impact	100% Inspection, Repair	0
25. CRK LOP 219	Rate impact	Pressure Regulating	0
25. CRK LOP 219	Rate impact	Hydrostatic Testing	0
25. CRK LOP 219	Rate impact	Status Quo: Modified	0

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
13.1. KA1 LTL 168	Project Execution Certainty	ILI Program:	3
13.1. KA1 LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
13.1. KA1 LTL 168	Project Execution Certainty	Replacement: Replacement	3
13.1. KA1 LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
13.1. KA1 LTL 168	Project Execution Certainty	Pressure Regulating	4
13.1. KA1 LTL 168	Project Execution Certainty	Hydrostatic Testing	1
13.1. KA1 LTL 168	Project Execution Certainty	Status Quo: Modified	5
13.2. KA1 LOP 168	Environmental	ILI Program:	3
13.2. KA1 LOP 168	Environmental	ILI Program - Robotic:	3
13.2. KA1 LOP 168	Environmental	Replacement: Replacement	2
13.2. KA1 LOP 168	Environmental	100% Inspection, Repair &	2
13.2. KA1 LOP 168	Environmental	Pressure Regulating	4
13.2. KA1 LOP 168	Environmental	Hydrostatic Testing	1
13.2. KA1 LOP 168	Environmental	Status Quo: Modified	2
13.2. KA1 LOP 168	Lands & ROW	ILI Program:	3
13.2. KA1 LOP 168	Lands & ROW	ILI Program - Robotic:	3
13.2. KA1 LOP 168	Lands & ROW	Replacement: Replacement	3
13.2. KA1 LOP 168	Lands & ROW	100% Inspection, Repair &	2
13.2. KA1 LOP 168	Lands & ROW	Pressure Regulating	4
13.2. KA1 LOP 168	Lands & ROW	Hydrostatic Testing	1
13.2. KA1 LOP 168	Lands & ROW	Status Quo: Modified	4
13.2. KA1 LOP 168	Consultation and Engagement Complexity	ILI Program:	3
13.2. KA1 LOP 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
13.2. KA1 LOP 168	Consultation and Engagement Complexity	Replacement: Replacement	2
13.2. KA1 LOP 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
13.2. KA1 LOP 168	Consultation and Engagement Complexity	Pressure Regulating	3
13.2. KA1 LOP 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
13.2. KA1 LOP 168	Consultation and Engagement Complexity	Status Quo: Modified	2
13.2. KA1 LOP 168	Operational Complexity	ILI Program:	4
13.2. KA1 LOP 168	Operational Complexity	ILI Program - Robotic:	4
13.2. KA1 LOP 168	Operational Complexity	Replacement: Replacement	5
13.2. KA1 LOP 168	Operational Complexity	100% Inspection, Repair &	3
13.2. KA1 LOP 168	Operational Complexity	Pressure Regulating	3
13.2. KA1 LOP 168	Operational Complexity	Hydrostatic Testing	1
13.2. KA1 LOP 168	Operational Complexity	Status Quo: Modified	1
13.2. KA1 LOP 168	System Capacity & Customer Impacts	ILI Program:	4
13.2. KA1 LOP 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
13.2. KA1 LOP 168	System Capacity & Customer Impacts	Replacement: Replacement	5
13.2. KA1 LOP 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
13.2. KA1 LOP 168	System Capacity & Customer Impacts	Pressure Regulating	0
13.2. KA1 LOP 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
13.2. KA1 LOP 168	System Capacity & Customer Impacts	Status Quo: Modified	3
13.2. KA1 LOP 168	Project Execution Certainty	ILI Program:	3
13.2. KA1 LOP 168	Project Execution Certainty	ILI Program - Robotic:	2
13.2. KA1 LOP 168	Project Execution Certainty	Replacement: Replacement	3
13.2. KA1 LOP 168	Project Execution Certainty	100% Inspection, Repair &	2
13.2. KA1 LOP 168	Project Execution Certainty	Pressure Regulating	4
13.2. KA1 LOP 168	Project Execution Certainty	Hydrostatic Testing	1
13.2. KA1 LOP 168	Project Execution Certainty	Status Quo: Modified	5
14. SAL LOP 168	Environmental	ILI Program:	3
14. SAL LOP 168	Environmental	ILI Program - Robotic:	3
14. SAL LOP 168	Environmental	Replacement: Replacement	2
14. SAL LOP 168	Environmental	100% Inspection, Repair &	1
14. SAL LOP 168	Environmental	Pressure Regulating	4
14. SAL LOP 168	Environmental	Hydrostatic Testing	1
14. SAL LOP 168	Environmental	Status Quo: Modified	3
14. SAL LOP 168	Lands & ROW	ILI Program:	3
14. SAL LOP 168	Lands & ROW	ILI Program - Robotic:	3
14. SAL LOP 168	Lands & ROW	Replacement: Replacement	1
14. SAL LOP 168	Lands & ROW	100% Inspection, Repair &	2
14. SAL LOP 168	Lands & ROW	Pressure Regulating	4
14. SAL LOP 168	Lands & ROW	Hydrostatic Testing	1
14. SAL LOP 168	Lands & ROW	Status Quo: Modified	4
14. SAL LOP 168	Consultation and Engagement Complexity	ILI Program:	2
14. SAL LOP 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
14. SAL LOP 168	Consultation and Engagement Complexity	Replacement: Replacement	1
14. SAL LOP 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
14. SAL LOP 168	Consultation and Engagement Complexity	Pressure Regulating	4
14. SAL LOP 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
14. SAL LOP 168	Consultation and Engagement Complexity	Status Quo: Modified	2
14. SAL LOP 168	Operational Complexity	ILI Program:	4
14. SAL LOP 168	Operational Complexity	ILI Program - Robotic:	4
14. SAL LOP 168	Operational Complexity	Replacement: Replacement	5
14. SAL LOP 168	Operational Complexity	100% Inspection, Repair &	3
14. SAL LOP 168	Operational Complexity	Pressure Regulating	4
14. SAL LOP 168	Operational Complexity	Hydrostatic Testing	1
14. SAL LOP 168	Operational Complexity	Status Quo: Modified	2

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
19. CEL LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
19. CEL LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
19. CEL LTL 168	Prevention of leaks with significant consequences	Replacement:	4
19. CEL LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
19. CEL LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
19. CEL LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
19. CEL LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
19. CEL LTL 168	Proactive asset management	ILI Program:	5
19. CEL LTL 168	Proactive asset management	ILI Program - Robotic:	4
19. CEL LTL 168	Proactive asset management	Replacement:	4
19. CEL LTL 168	Proactive asset management	100% Inspection, Repair	2
19. CEL LTL 168	Proactive asset management	Pressure Regulating	0
19. CEL LTL 168	Proactive asset management	Hydrostatic Testing	0
19. CEL LTL 168	Proactive asset management	Status Quo: Modified	1
19. CEL LTL 168	Technical certainty	ILI Program:	4
19. CEL LTL 168	Technical certainty	ILI Program - Robotic:	3
19. CEL LTL 168	Technical certainty	Replacement:	5
19. CEL LTL 168	Technical certainty	100% Inspection, Repair	4
19. CEL LTL 168	Technical certainty	Pressure Regulating	3
19. CEL LTL 168	Technical certainty	Hydrostatic Testing	3
19. CEL LTL 168	Technical certainty	Status Quo: Modified	2
20. CAS NEL 168	Prevention of ruptures	ILI Program:	5
20. CAS NEL 168	Prevention of ruptures	ILI Program - Robotic:	5
20. CAS NEL 168	Prevention of ruptures	Replacement:	5
20. CAS NEL 168	Prevention of ruptures	100% Inspection, Repair	5
20. CAS NEL 168	Prevention of ruptures	Pressure Regulating	5
20. CAS NEL 168	Prevention of ruptures	Hydrostatic Testing	5
20. CAS NEL 168	Prevention of ruptures	Status Quo: Modified	2
20. CAS NEL 168	Prevention of leaks with significant consequences	ILI Program:	5
20. CAS NEL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
20. CAS NEL 168	Prevention of leaks with significant consequences	Replacement:	4
20. CAS NEL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
20. CAS NEL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
20. CAS NEL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
20. CAS NEL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
20. CAS NEL 168	Proactive asset management	ILI Program:	5
20. CAS NEL 168	Proactive asset management	ILI Program - Robotic:	4
20. CAS NEL 168	Proactive asset management	Replacement:	4
20. CAS NEL 168	Proactive asset management	100% Inspection, Repair	2
20. CAS NEL 168	Proactive asset management	Pressure Regulating	0
20. CAS NEL 168	Proactive asset management	Hydrostatic Testing	0
20. CAS NEL 168	Proactive asset management	Status Quo: Modified	1
20. CAS NEL 168	Technical certainty	ILI Program:	4
20. CAS NEL 168	Technical certainty	ILI Program - Robotic:	3
20. CAS NEL 168	Technical certainty	Replacement:	5
20. CAS NEL 168	Technical certainty	100% Inspection, Repair	4
20. CAS NEL 168	Technical certainty	Pressure Regulating	3
20. CAS NEL 168	Technical certainty	Hydrostatic Testing	3
20. CAS NEL 168	Technical certainty	Status Quo: Modified	2
21. TRA LTL 168	Prevention of ruptures	ILI Program:	5
21. TRA LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
21. TRA LTL 168	Prevention of ruptures	Replacement:	5
21. TRA LTL 168	Prevention of ruptures	100% Inspection, Repair	5
21. TRA LTL 168	Prevention of ruptures	Pressure Regulating	5
21. TRA LTL 168	Prevention of ruptures	Hydrostatic Testing	5
21. TRA LTL 168	Prevention of ruptures	Status Quo: Modified	2
21. TRA LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
21. TRA LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
21. TRA LTL 168	Prevention of leaks with significant consequences	Replacement:	4
21. TRA LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
21. TRA LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
21. TRA LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
21. TRA LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
21. TRA LTL 168	Proactive asset management	ILI Program:	5
21. TRA LTL 168	Proactive asset management	ILI Program - Robotic:	4
21. TRA LTL 168	Proactive asset management	Replacement:	4
21. TRA LTL 168	Proactive asset management	100% Inspection, Repair	2
21. TRA LTL 168	Proactive asset management	Pressure Regulating	0
21. TRA LTL 168	Proactive asset management	Hydrostatic Testing	0
21. TRA LTL 168	Proactive asset management	Status Quo: Modified	1
21. TRA LTL 168	Technical certainty	ILI Program:	4
21. TRA LTL 168	Technical certainty	ILI Program - Robotic:	3
21. TRA LTL 168	Technical certainty	Replacement:	5
21. TRA LTL 168	Technical certainty	100% Inspection, Repair	4
21. TRA LTL 168	Technical certainty	Pressure Regulating	3
21. TRA LTL 168	Technical certainty	Hydrostatic Testing	3
21. TRA LTL 168	Technical certainty	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
25. CRK LOP 219	Retirement of under-depreciated asset	ILI Program:	0
25. CRK LOP 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
25. CRK LOP 219	Retirement of under-depreciated asset	Replacement:	0
25. CRK LOP 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
25. CRK LOP 219	Retirement of under-depreciated asset	Pressure Regulating	0
25. CRK LOP 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
25. CRK LOP 219	Retirement of under-depreciated asset	Status Quo: Modified	0
26. CRK LP2 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
26. CRK LP2 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
26. CRK LP2 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
26. CRK LP2 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
26. CRK LP2 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
26. CRK LP2 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
26. CRK LP2 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
26. CRK LP2 219	Rate impact	ILI Program:	0
26. CRK LP2 219	Rate impact	ILI Program - Robotic:	0
26. CRK LP2 219	Rate impact	Replacement:	0
26. CRK LP2 219	Rate impact	100% Inspection, Repair	0
26. CRK LP2 219	Rate impact	Pressure Regulating	0
26. CRK LP2 219	Rate impact	Hydrostatic Testing	0
26. CRK LP2 219	Rate impact	Status Quo: Modified	0
26. CRK LP2 219	Retirement of under-depreciated asset	ILI Program:	0
26. CRK LP2 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
26. CRK LP2 219	Retirement of under-depreciated asset	Replacement:	0
26. CRK LP2 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
26. CRK LP2 219	Retirement of under-depreciated asset	Pressure Regulating	0
26. CRK LP2 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
26. CRK LP2 219	Retirement of under-depreciated asset	Status Quo: Modified	0
27. CRK LOP 273	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
27. CRK LOP 273	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
27. CRK LOP 273	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
27. CRK LOP 273	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
27. CRK LOP 273	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
27. CRK LOP 273	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
27. CRK LOP 273	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
27. CRK LOP 273	Rate impact	ILI Program:	0
27. CRK LOP 273	Rate impact	ILI Program - Robotic:	0
27. CRK LOP 273	Rate impact	Replacement:	0
27. CRK LOP 273	Rate impact	100% Inspection, Repair	0
27. CRK LOP 273	Rate impact	Pressure Regulating	0
27. CRK LOP 273	Rate impact	Hydrostatic Testing	0
27. CRK LOP 273	Rate impact	Status Quo: Modified	0
27. CRK LOP 273	Retirement of under-depreciated asset	ILI Program:	0
27. CRK LOP 273	Retirement of under-depreciated asset	ILI Program - Robotic:	0
27. CRK LOP 273	Retirement of under-depreciated asset	Replacement:	0
27. CRK LOP 273	Retirement of under-depreciated asset	100% Inspection, Repair	0
27. CRK LOP 273	Retirement of under-depreciated asset	Pressure Regulating	0
27. CRK LOP 273	Retirement of under-depreciated asset	Hydrostatic Testing	0
27. CRK LOP 273	Retirement of under-depreciated asset	Status Quo: Modified	0
28. KBY LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
28. KBY LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
28. KBY LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
28. KBY LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
28. KBY LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
28. KBY LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
28. KBY LTL 168	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	
28. KBY LTL 168	Rate impact	ILI Program:	0
28. KBY LTL 168	Rate impact	ILI Program - Robotic:	0
28. KBY LTL 168	Rate impact	Replacement:	0
28. KBY LTL 168	Rate impact	100% Inspection, Repair	0
28. KBY LTL 168	Rate impact	Pressure Regulating	0
28. KBY LTL 168	Rate impact	Hydrostatic Testing	0
28. KBY LTL 168	Rate impact	Status Quo: Modified	0
28. KBY LTL 168	Retirement of under-depreciated asset	ILI Program:	0
28. KBY LTL 168	Retirement of under-depreciated asset	ILI Program - Robotic:	0
28. KBY LTL 168	Retirement of under-depreciated asset	Replacement:	0
28. KBY LTL 168	Retirement of under-depreciated asset	100% Inspection, Repair	0
28. KBY LTL 168	Retirement of under-depreciated asset	Pressure Regulating	0
28. KBY LTL 168	Retirement of under-depreciated asset	Hydrostatic Testing	0
28. KBY LTL 168	Retirement of under-depreciated asset	Status Quo: Modified	0
29. SSK LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program:	5
29. SSK LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	ILI Program - Robotic:	0
29. SSK LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Replacement:	1
29. SSK LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	100% Inspection, Repair	0
29. SSK LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Pressure Regulating	0
29. SSK LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Hydrostatic Testing	0
29. SSK LTL 219	Net Present Value (50 year) of Capital, O&M, and Retirement Cost	Status Quo: Modified	

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
14. SAL LOP 168	System Capacity & Customer Impacts	ILI Program:	4
14. SAL LOP 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
14. SAL LOP 168	System Capacity & Customer Impacts	Replacement: Replacement	5
14. SAL LOP 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
14. SAL LOP 168	System Capacity & Customer Impacts	Pressure Regulating	0
14. SAL LOP 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
14. SAL LOP 168	System Capacity & Customer Impacts	Status Quo: Modified	3
14. SAL LOP 168	Project Execution Certainty	ILI Program:	4
14. SAL LOP 168	Project Execution Certainty	ILI Program - Robotic:	2
14. SAL LOP 168	Project Execution Certainty	Replacement: Replacement	3
14. SAL LOP 168	Project Execution Certainty	100% Inspection, Repair &	2
14. SAL LOP 168	Project Execution Certainty	Pressure Regulating	5
14. SAL LOP 168	Project Execution Certainty	Hydrostatic Testing	1
14. SAL LOP 168	Project Execution Certainty	Status Quo: Modified	5
15. SA3 LTL 168	Environmental	ILI Program:	3
15. SA3 LTL 168	Environmental	ILI Program - Robotic:	3
15. SA3 LTL 168	Environmental	Replacement: Replacement	2
15. SA3 LTL 168	Environmental	100% Inspection, Repair &	1
15. SA3 LTL 168	Environmental	Pressure Regulating	4
15. SA3 LTL 168	Environmental	Hydrostatic Testing	1
15. SA3 LTL 168	Environmental	Status Quo: Modified	3
15. SA3 LTL 168	Lands & ROW	ILI Program:	1
15. SA3 LTL 168	Lands & ROW	ILI Program - Robotic:	3
15. SA3 LTL 168	Lands & ROW	Replacement: Replacement	1
15. SA3 LTL 168	Lands & ROW	100% Inspection, Repair &	2
15. SA3 LTL 168	Lands & ROW	Pressure Regulating	4
15. SA3 LTL 168	Lands & ROW	Hydrostatic Testing	1
15. SA3 LTL 168	Lands & ROW	Status Quo: Modified	4
15. SA3 LTL 168	Consultation and Engagement Complexity	ILI Program:	2
15. SA3 LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
15. SA3 LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
15. SA3 LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
15. SA3 LTL 168	Consultation and Engagement Complexity	Pressure Regulating	4
15. SA3 LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
15. SA3 LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
15. SA3 LTL 168	Operational Complexity	ILI Program:	3
15. SA3 LTL 168	Operational Complexity	ILI Program - Robotic:	4
15. SA3 LTL 168	Operational Complexity	Replacement: Replacement	5
15. SA3 LTL 168	Operational Complexity	100% Inspection, Repair &	3
15. SA3 LTL 168	Operational Complexity	Pressure Regulating	4
15. SA3 LTL 168	Operational Complexity	Hydrostatic Testing	1
15. SA3 LTL 168	Operational Complexity	Status Quo: Modified	2
15. SA3 LTL 168	System Capacity & Customer Impacts	ILI Program:	4
15. SA3 LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
15. SA3 LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
15. SA3 LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
15. SA3 LTL 168	System Capacity & Customer Impacts	Pressure Regulating	5
15. SA3 LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
15. SA3 LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
15. SA3 LTL 168	Project Execution Certainty	ILI Program:	3
15. SA3 LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
15. SA3 LTL 168	Project Execution Certainty	Replacement: Replacement	3
15. SA3 LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
15. SA3 LTL 168	Project Execution Certainty	Pressure Regulating	5
15. SA3 LTL 168	Project Execution Certainty	Hydrostatic Testing	1
15. SA3 LTL 168	Project Execution Certainty	Status Quo: Modified	5
16. COL LTL 219	Environmental	ILI Program:	3
16. COL LTL 219	Environmental	ILI Program - Robotic:	3
16. COL LTL 219	Environmental	Replacement: Replacement	2
16. COL LTL 219	Environmental	100% Inspection, Repair &	1
16. COL LTL 219	Environmental	Pressure Regulating	4
16. COL LTL 219	Environmental	Hydrostatic Testing	1
16. COL LTL 219	Environmental	Status Quo: Modified	3
16. COL LTL 219	Lands & ROW	ILI Program:	3
16. COL LTL 219	Lands & ROW	ILI Program - Robotic:	3
16. COL LTL 219	Lands & ROW	Replacement: Replacement	1
16. COL LTL 219	Lands & ROW	100% Inspection, Repair &	2
16. COL LTL 219	Lands & ROW	Pressure Regulating	4
16. COL LTL 219	Lands & ROW	Hydrostatic Testing	1
16. COL LTL 219	Lands & ROW	Status Quo: Modified	4
16. COL LTL 219	Consultation and Engagement Complexity	ILI Program:	2
16. COL LTL 219	Consultation and Engagement Complexity	ILI Program - Robotic:	3
16. COL LTL 219	Consultation and Engagement Complexity	Replacement: Replacement	1
16. COL LTL 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
16. COL LTL 219	Consultation and Engagement Complexity	Pressure Regulating	4
16. COL LTL 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
16. COL LTL 219	Consultation and Engagement Complexity	Status Quo: Modified	2

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
22. FRD LTL 219	Prevention of ruptures	ILI Program:	5
22. FRD LTL 219	Prevention of ruptures	ILI Program - Robotic:	5
22. FRD LTL 219	Prevention of ruptures	Replacement:	5
22. FRD LTL 219	Prevention of ruptures	100% Inspection, Repair	5
22. FRD LTL 219	Prevention of ruptures	Pressure Regulating	5
22. FRD LTL 219	Prevention of ruptures	Hydrostatic Testing	5
22. FRD LTL 219	Prevention of ruptures	Status Quo: Modified	2
22. FRD LTL 219	Prevention of leaks with significant consequences	ILI Program:	5
22. FRD LTL 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
22. FRD LTL 219	Prevention of leaks with significant consequences	Replacement:	4
22. FRD LTL 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
22. FRD LTL 219	Prevention of leaks with significant consequences	Pressure Regulating	0
22. FRD LTL 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
22. FRD LTL 219	Prevention of leaks with significant consequences	Status Quo: Modified	2
22. FRD LTL 219	Proactive asset management	ILI Program:	5
22. FRD LTL 219	Proactive asset management	ILI Program - Robotic:	4
22. FRD LTL 219	Proactive asset management	Replacement:	4
22. FRD LTL 219	Proactive asset management	100% Inspection, Repair	2
22. FRD LTL 219	Proactive asset management	Pressure Regulating	0
22. FRD LTL 219	Proactive asset management	Hydrostatic Testing	0
22. FRD LTL 219	Proactive asset management	Status Quo: Modified	1
22. FRD LTL 219	Technical certainty	ILI Program:	4
22. FRD LTL 219	Technical certainty	ILI Program - Robotic:	3
22. FRD LTL 219	Technical certainty	Replacement:	5
22. FRD LTL 219	Technical certainty	100% Inspection, Repair	4
22. FRD LTL 219	Technical certainty	Pressure Regulating	3
22. FRD LTL 219	Technical certainty	Hydrostatic Testing	3
22. FRD LTL 219	Technical certainty	Status Quo: Modified	2
23. ELK LTL 168	Prevention of ruptures	ILI Program:	5
23. ELK LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
23. ELK LTL 168	Prevention of ruptures	Replacement:	5
23. ELK LTL 168	Prevention of ruptures	100% Inspection, Repair	5
23. ELK LTL 168	Prevention of ruptures	Pressure Regulating	5
23. ELK LTL 168	Prevention of ruptures	Hydrostatic Testing	5
23. ELK LTL 168	Prevention of ruptures	Status Quo: Modified	2
23. ELK LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
23. ELK LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
23. ELK LTL 168	Prevention of leaks with significant consequences	Replacement:	4
23. ELK LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
23. ELK LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
23. ELK LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
23. ELK LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
23. ELK LTL 168	Proactive asset management	ILI Program:	5
23. ELK LTL 168	Proactive asset management	ILI Program - Robotic:	4
23. ELK LTL 168	Proactive asset management	Replacement:	4
23. ELK LTL 168	Proactive asset management	100% Inspection, Repair	2
23. ELK LTL 168	Proactive asset management	Pressure Regulating	0
23. ELK LTL 168	Proactive asset management	Hydrostatic Testing	0
23. ELK LTL 168	Proactive asset management	Status Quo: Modified	1
23. ELK LTL 168	Technical certainty	ILI Program:	4
23. ELK LTL 168	Technical certainty	ILI Program - Robotic:	3
23. ELK LTL 168	Technical certainty	Replacement:	5
23. ELK LTL 168	Technical certainty	100% Inspection, Repair	4
23. ELK LTL 168	Technical certainty	Pressure Regulating	3
23. ELK LTL 168	Technical certainty	Hydrostatic Testing	3
23. ELK LTL 168	Technical certainty	Status Quo: Modified	2
24. CRK LTL 168	Prevention of ruptures	ILI Program:	5
24. CRK LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
24. CRK LTL 168	Prevention of ruptures	Replacement:	5
24. CRK LTL 168	Prevention of ruptures	100% Inspection, Repair	5
24. CRK LTL 168	Prevention of ruptures	Pressure Regulating	5
24. CRK LTL 168	Prevention of ruptures	Hydrostatic Testing	5
24. CRK LTL 168	Prevention of ruptures	Status Quo: Modified	2
24. CRK LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
24. CRK LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
24. CRK LTL 168	Prevention of leaks with significant consequences	Replacement:	4
24. CRK LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
24. CRK LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
24. CRK LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
24. CRK LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
24. CRK LTL 168	Proactive asset management	ILI Program:	5
24. CRK LTL 168	Proactive asset management	ILI Program - Robotic:	4
24. CRK LTL 168	Proactive asset management	Replacement:	4
24. CRK LTL 168	Proactive asset management	100% Inspection, Repair	2
24. CRK LTL 168	Proactive asset management	Pressure Regulating	0
24. CRK LTL 168	Proactive asset management	Hydrostatic Testing	0
24. CRK LTL 168	Proactive asset management	Status Quo: Modified	1

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores
29. SSK LTL 219	Rate impact	ILI Program:	0
29. SSK LTL 219	Rate impact	ILI Program - Robotic:	0
29. SSK LTL 219	Rate impact	Replacement:	0
29. SSK LTL 219	Rate impact	100% Inspection, Repair	0
29. SSK LTL 219	Rate impact	Pressure Regulating	0
29. SSK LTL 219	Rate impact	Hydrostatic Testing	0
29. SSK LTL 219	Rate impact	Status Quo: Modified	0
29. SSK LTL 219	Retirement of under-depreciated asset	ILI Program:	0
29. SSK LTL 219	Retirement of under-depreciated asset	ILI Program - Robotic:	0
29. SSK LTL 219	Retirement of under-depreciated asset	Replacement:	0
29. SSK LTL 219	Retirement of under-depreciated asset	100% Inspection, Repair	0
29. SSK LTL 219	Retirement of under-depreciated asset	Pressure Regulating	0
29. SSK LTL 219	Retirement of under-depreciated asset	Hydrostatic Testing	0
29. SSK LTL 219	Retirement of under-depreciated asset	Status Quo: Modified	0

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
16. COL LTL 219	Operational Complexity	ILI Program:	4
16. COL LTL 219	Operational Complexity	ILI Program - Robotic:	4
16. COL LTL 219	Operational Complexity	Replacement: Replacement	5
16. COL LTL 219	Operational Complexity	100% Inspection, Repair &	3
16. COL LTL 219	Operational Complexity	Pressure Regulating	4
16. COL LTL 219	Operational Complexity	Hydrostatic Testing	1
16. COL LTL 219	Operational Complexity	Status Quo: Modified	2
16. COL LTL 219	System Capacity & Customer Impacts	ILI Program:	4
16. COL LTL 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
16. COL LTL 219	System Capacity & Customer Impacts	Replacement: Replacement	5
16. COL LTL 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
16. COL LTL 219	System Capacity & Customer Impacts	Pressure Regulating	5
16. COL LTL 219	System Capacity & Customer Impacts	Hydrostatic Testing	0
16. COL LTL 219	System Capacity & Customer Impacts	Status Quo: Modified	3
16. COL LTL 219	Project Execution Certainty	ILI Program:	3
16. COL LTL 219	Project Execution Certainty	ILI Program - Robotic:	2
16. COL LTL 219	Project Execution Certainty	Replacement: Replacement	3
16. COL LTL 219	Project Execution Certainty	100% Inspection, Repair &	2
16. COL LTL 219	Project Execution Certainty	Pressure Regulating	5
16. COL LTL 219	Project Execution Certainty	Hydrostatic Testing	1
16. COL LTL 219	Project Execution Certainty	Status Quo: Modified	5
17. COL LOP 168	Environmental	ILI Program:	3
17. COL LOP 168	Environmental	ILI Program - Robotic:	3
17. COL LOP 168	Environmental	Replacement: Replacement	1
17. COL LOP 168	Environmental	100% Inspection, Repair &	1
17. COL LOP 168	Environmental	Pressure Regulating	4
17. COL LOP 168	Environmental	Hydrostatic Testing	1
17. COL LOP 168	Environmental	Status Quo: Modified	3
17. COL LOP 168	Lands & ROW	ILI Program:	3
17. COL LOP 168	Lands & ROW	ILI Program - Robotic:	3
17. COL LOP 168	Lands & ROW	Replacement: Replacement	1
17. COL LOP 168	Lands & ROW	100% Inspection, Repair &	2
17. COL LOP 168	Lands & ROW	Pressure Regulating	4
17. COL LOP 168	Lands & ROW	Hydrostatic Testing	1
17. COL LOP 168	Lands & ROW	Status Quo: Modified	4
17. COL LOP 168	Consultation and Engagement Complexity	ILI Program:	1
17. COL LOP 168	Consultation and Engagement Complexity	ILI Program - Robotic:	1
17. COL LOP 168	Consultation and Engagement Complexity	Replacement: Replacement	1
17. COL LOP 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
17. COL LOP 168	Consultation and Engagement Complexity	Pressure Regulating	4
17. COL LOP 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
17. COL LOP 168	Consultation and Engagement Complexity	Status Quo: Modified	1
17. COL LOP 168	Operational Complexity	ILI Program:	4
17. COL LOP 168	Operational Complexity	ILI Program - Robotic:	4
17. COL LOP 168	Operational Complexity	Replacement: Replacement	5
17. COL LOP 168	Operational Complexity	100% Inspection, Repair &	3
17. COL LOP 168	Operational Complexity	Pressure Regulating	4
17. COL LOP 168	Operational Complexity	Hydrostatic Testing	1
17. COL LOP 168	Operational Complexity	Status Quo: Modified	2
17. COL LOP 168	System Capacity & Customer Impacts	ILI Program:	4
17. COL LOP 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
17. COL LOP 168	System Capacity & Customer Impacts	Replacement: Replacement	5
17. COL LOP 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
17. COL LOP 168	System Capacity & Customer Impacts	Pressure Regulating	5
17. COL LOP 168	System Capacity & Customer Impacts	Hydrostatic Testing	5
17. COL LOP 168	System Capacity & Customer Impacts	Status Quo: Modified	3
17. COL LOP 168	Project Execution Certainty	ILI Program:	3
17. COL LOP 168	Project Execution Certainty	ILI Program - Robotic:	2
17. COL LOP 168	Project Execution Certainty	Replacement: Replacement	3
17. COL LOP 168	Project Execution Certainty	100% Inspection, Repair &	2
17. COL LOP 168	Project Execution Certainty	Pressure Regulating	5
17. COL LOP 168	Project Execution Certainty	Hydrostatic Testing	1
17. COL LOP 168	Project Execution Certainty	Status Quo: Modified	5
18. KE1 LOP 219	Environmental	ILI Program:	3
18. KE1 LOP 219	Environmental	ILI Program - Robotic:	3
18. KE1 LOP 219	Environmental	Replacement: Replacement	2
18. KE1 LOP 219	Environmental	100% Inspection, Repair &	1
18. KE1 LOP 219	Environmental	Pressure Regulating	4
18. KE1 LOP 219	Environmental	Hydrostatic Testing	1
18. KE1 LOP 219	Environmental	Status Quo: Modified	3
18. KE1 LOP 219	Lands & ROW	ILI Program:	2
18. KE1 LOP 219	Lands & ROW	ILI Program - Robotic:	2
18. KE1 LOP 219	Lands & ROW	Replacement: Replacement	1
18. KE1 LOP 219	Lands & ROW	100% Inspection, Repair &	2
18. KE1 LOP 219	Lands & ROW	Pressure Regulating	4
18. KE1 LOP 219	Lands & ROW	Hydrostatic Testing	1
18. KE1 LOP 219	Lands & ROW	Status Quo: Modified	3

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
24. CRK LTL 168	Technical certainty	ILI Program:	4
24. CRK LTL 168	Technical certainty	ILI Program - Robotic:	3
24. CRK LTL 168	Technical certainty	Replacement:	5
24. CRK LTL 168	Technical certainty	100% Inspection, Repair	4
24. CRK LTL 168	Technical certainty	Pressure Regulating	3
24. CRK LTL 168	Technical certainty	Hydrostatic Testing	3
24. CRK LTL 168	Technical certainty	Status Quo: Modified	2
25. CRK LOP 219	Prevention of ruptures	ILI Program:	5
25. CRK LOP 219	Prevention of ruptures	ILI Program - Robotic:	5
25. CRK LOP 219	Prevention of ruptures	Replacement:	5
25. CRK LOP 219	Prevention of ruptures	100% Inspection, Repair	5
25. CRK LOP 219	Prevention of ruptures	Pressure Regulating	5
25. CRK LOP 219	Prevention of ruptures	Hydrostatic Testing	5
25. CRK LOP 219	Prevention of ruptures	Status Quo: Modified	2
25. CRK LOP 219	Prevention of leaks with significant consequences	ILI Program:	5
25. CRK LOP 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
25. CRK LOP 219	Prevention of leaks with significant consequences	Replacement:	4
25. CRK LOP 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
25. CRK LOP 219	Prevention of leaks with significant consequences	Pressure Regulating	0
25. CRK LOP 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
25. CRK LOP 219	Prevention of leaks with significant consequences	Status Quo: Modified	2
25. CRK LOP 219	Proactive asset management	ILI Program:	5
25. CRK LOP 219	Proactive asset management	ILI Program - Robotic:	4
25. CRK LOP 219	Proactive asset management	Replacement:	4
25. CRK LOP 219	Proactive asset management	100% Inspection, Repair	2
25. CRK LOP 219	Proactive asset management	Pressure Regulating	0
25. CRK LOP 219	Proactive asset management	Hydrostatic Testing	0
25. CRK LOP 219	Proactive asset management	Status Quo: Modified	1
25. CRK LOP 219	Technical certainty	ILI Program:	4
25. CRK LOP 219	Technical certainty	ILI Program - Robotic:	3
25. CRK LOP 219	Technical certainty	Replacement:	5
25. CRK LOP 219	Technical certainty	100% Inspection, Repair	4
25. CRK LOP 219	Technical certainty	Pressure Regulating	3
25. CRK LOP 219	Technical certainty	Hydrostatic Testing	3
25. CRK LOP 219	Technical certainty	Status Quo: Modified	2
26. CRK LP2 219	Prevention of ruptures	ILI Program:	5
26. CRK LP2 219	Prevention of ruptures	ILI Program - Robotic:	5
26. CRK LP2 219	Prevention of ruptures	Replacement:	5
26. CRK LP2 219	Prevention of ruptures	100% Inspection, Repair	5
26. CRK LP2 219	Prevention of ruptures	Pressure Regulating	5
26. CRK LP2 219	Prevention of ruptures	Hydrostatic Testing	5
26. CRK LP2 219	Prevention of ruptures	Status Quo: Modified	2
26. CRK LP2 219	Prevention of leaks with significant consequences	ILI Program:	5
26. CRK LP2 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
26. CRK LP2 219	Prevention of leaks with significant consequences	Replacement:	4
26. CRK LP2 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
26. CRK LP2 219	Prevention of leaks with significant consequences	Pressure Regulating	0
26. CRK LP2 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
26. CRK LP2 219	Prevention of leaks with significant consequences	Status Quo: Modified	2
26. CRK LP2 219	Proactive asset management	ILI Program:	5
26. CRK LP2 219	Proactive asset management	ILI Program - Robotic:	4
26. CRK LP2 219	Proactive asset management	Replacement:	4
26. CRK LP2 219	Proactive asset management	100% Inspection, Repair	2
26. CRK LP2 219	Proactive asset management	Pressure Regulating	0
26. CRK LP2 219	Proactive asset management	Hydrostatic Testing	0
26. CRK LP2 219	Proactive asset management	Status Quo: Modified	1
26. CRK LP2 219	Technical certainty	ILI Program:	4
26. CRK LP2 219	Technical certainty	ILI Program - Robotic:	3
26. CRK LP2 219	Technical certainty	Replacement:	5
26. CRK LP2 219	Technical certainty	100% Inspection, Repair	4
26. CRK LP2 219	Technical certainty	Pressure Regulating	3
26. CRK LP2 219	Technical certainty	Hydrostatic Testing	3
26. CRK LP2 219	Technical certainty	Status Quo: Modified	2
27. CRK LOP 273	Prevention of ruptures	ILI Program:	5
27. CRK LOP 273	Prevention of ruptures	ILI Program - Robotic:	5
27. CRK LOP 273	Prevention of ruptures	Replacement:	5
27. CRK LOP 273	Prevention of ruptures	100% Inspection, Repair	5
27. CRK LOP 273	Prevention of ruptures	Pressure Regulating	5
27. CRK LOP 273	Prevention of ruptures	Hydrostatic Testing	5
27. CRK LOP 273	Prevention of ruptures	Status Quo: Modified	2
27. CRK LOP 273	Prevention of leaks with significant consequences	ILI Program:	5
27. CRK LOP 273	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
27. CRK LOP 273	Prevention of leaks with significant consequences	Replacement:	4
27. CRK LOP 273	Prevention of leaks with significant consequences	100% Inspection, Repair	4
27. CRK LOP 273	Prevention of leaks with significant consequences	Pressure Regulating	0
27. CRK LOP 273	Prevention of leaks with significant consequences	Hydrostatic Testing	0
27. CRK LOP 273	Prevention of leaks with significant consequences	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
18. KE1 LOP 219	Consultation and Engagement Complexity	ILI Program:	1
18. KE1 LOP 219	Consultation and Engagement Complexity	ILI Program - Robotic:	1
18. KE1 LOP 219	Consultation and Engagement Complexity	Replacement: Replacement	1
18. KE1 LOP 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
18. KE1 LOP 219	Consultation and Engagement Complexity	Pressure Regulating	4
18. KE1 LOP 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
18. KE1 LOP 219	Consultation and Engagement Complexity	Status Quo: Modified	1
18. KE1 LOP 219	Operational Complexity	ILI Program:	3
18. KE1 LOP 219	Operational Complexity	ILI Program - Robotic:	3
18. KE1 LOP 219	Operational Complexity	Replacement: Replacement	5
18. KE1 LOP 219	Operational Complexity	100% Inspection, Repair &	1
18. KE1 LOP 219	Operational Complexity	Pressure Regulating	4
18. KE1 LOP 219	Operational Complexity	Hydrostatic Testing	1
18. KE1 LOP 219	Operational Complexity	Status Quo: Modified	2
18. KE1 LOP 219	System Capacity & Customer Impacts	ILI Program:	4
18. KE1 LOP 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
18. KE1 LOP 219	System Capacity & Customer Impacts	Replacement: Replacement	5
18. KE1 LOP 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
18. KE1 LOP 219	System Capacity & Customer Impacts	Pressure Regulating	5
18. KE1 LOP 219	System Capacity & Customer Impacts	Hydrostatic Testing	0
18. KE1 LOP 219	System Capacity & Customer Impacts	Status Quo: Modified	3
18. KE1 LOP 219	Project Execution Certainty	ILI Program:	3
18. KE1 LOP 219	Project Execution Certainty	ILI Program - Robotic:	2
18. KE1 LOP 219	Project Execution Certainty	Replacement: Replacement	3
18. KE1 LOP 219	Project Execution Certainty	100% Inspection, Repair &	2
18. KE1 LOP 219	Project Execution Certainty	Pressure Regulating	5
18. KE1 LOP 219	Project Execution Certainty	Hydrostatic Testing	1
18. KE1 LOP 219	Project Execution Certainty	Status Quo: Modified	4
19. CEL LTL 168	Environmental	ILI Program:	3
19. CEL LTL 168	Environmental	ILI Program - Robotic:	3
19. CEL LTL 168	Environmental	Replacement: Replacement	2
19. CEL LTL 168	Environmental	100% Inspection, Repair &	2
19. CEL LTL 168	Environmental	Pressure Regulating	4
19. CEL LTL 168	Environmental	Hydrostatic Testing	1
19. CEL LTL 168	Environmental	Status Quo: Modified	3
19. CEL LTL 168	Lands & ROW	ILI Program:	3
19. CEL LTL 168	Lands & ROW	ILI Program - Robotic:	3
19. CEL LTL 168	Lands & ROW	Replacement: Replacement	1
19. CEL LTL 168	Lands & ROW	100% Inspection, Repair &	2
19. CEL LTL 168	Lands & ROW	Pressure Regulating	4
19. CEL LTL 168	Lands & ROW	Hydrostatic Testing	1
19. CEL LTL 168	Lands & ROW	Status Quo: Modified	4
19. CEL LTL 168	Consultation and Engagement Complexity	ILI Program:	3
19. CEL LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
19. CEL LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
19. CEL LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
19. CEL LTL 168	Consultation and Engagement Complexity	Pressure Regulating	4
19. CEL LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
19. CEL LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
19. CEL LTL 168	Operational Complexity	ILI Program:	4
19. CEL LTL 168	Operational Complexity	ILI Program - Robotic:	4
19. CEL LTL 168	Operational Complexity	Replacement: Replacement	5
19. CEL LTL 168	Operational Complexity	100% Inspection, Repair &	3
19. CEL LTL 168	Operational Complexity	Pressure Regulating	3
19. CEL LTL 168	Operational Complexity	Hydrostatic Testing	1
19. CEL LTL 168	Operational Complexity	Status Quo: Modified	1
19. CEL LTL 168	System Capacity & Customer Impacts	ILI Program:	4
19. CEL LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
19. CEL LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
19. CEL LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
19. CEL LTL 168	System Capacity & Customer Impacts	Pressure Regulating	5
19. CEL LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
19. CEL LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
19. CEL LTL 168	Project Execution Certainty	ILI Program:	3
19. CEL LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
19. CEL LTL 168	Project Execution Certainty	Replacement: Replacement	3
19. CEL LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
19. CEL LTL 168	Project Execution Certainty	Pressure Regulating	4
19. CEL LTL 168	Project Execution Certainty	Hydrostatic Testing	1
19. CEL LTL 168	Project Execution Certainty	Status Quo: Modified	5
20. CAS NEL 168	Environmental	ILI Program:	3
20. CAS NEL 168	Environmental	ILI Program - Robotic:	3
20. CAS NEL 168	Environmental	Replacement: Replacement	2
20. CAS NEL 168	Environmental	100% Inspection, Repair &	2
20. CAS NEL 168	Environmental	Pressure Regulating	4
20. CAS NEL 168	Environmental	Hydrostatic Testing	1
20. CAS NEL 168	Environmental	Status Quo: Modified	3

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores
27. CRK LOP 273	Proactive asset management	ILI Program:	5
27. CRK LOP 273	Proactive asset management	ILI Program - Robotic:	4
27. CRK LOP 273	Proactive asset management	Replacement:	4
27. CRK LOP 273	Proactive asset management	100% Inspection, Repair	2
27. CRK LOP 273	Proactive asset management	Pressure Regulating	0
27. CRK LOP 273	Proactive asset management	Hydrostatic Testing	0
27. CRK LOP 273	Proactive asset management	Status Quo: Modified	1
27. CRK LOP 273	Technical certainty	ILI Program:	4
27. CRK LOP 273	Technical certainty	ILI Program - Robotic:	3
27. CRK LOP 273	Technical certainty	Replacement:	5
27. CRK LOP 273	Technical certainty	100% Inspection, Repair	4
27. CRK LOP 273	Technical certainty	Pressure Regulating	3
27. CRK LOP 273	Technical certainty	Hydrostatic Testing	3
27. CRK LOP 273	Technical certainty	Status Quo: Modified	2
28. KBY LTL 168	Prevention of ruptures	ILI Program:	5
28. KBY LTL 168	Prevention of ruptures	ILI Program - Robotic:	5
28. KBY LTL 168	Prevention of ruptures	Replacement:	5
28. KBY LTL 168	Prevention of ruptures	100% Inspection, Repair	5
28. KBY LTL 168	Prevention of ruptures	Pressure Regulating	5
28. KBY LTL 168	Prevention of ruptures	Hydrostatic Testing	5
28. KBY LTL 168	Prevention of ruptures	Status Quo: Modified	2
28. KBY LTL 168	Prevention of leaks with significant consequences	ILI Program:	5
28. KBY LTL 168	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
28. KBY LTL 168	Prevention of leaks with significant consequences	Replacement:	4
28. KBY LTL 168	Prevention of leaks with significant consequences	100% Inspection, Repair	4
28. KBY LTL 168	Prevention of leaks with significant consequences	Pressure Regulating	0
28. KBY LTL 168	Prevention of leaks with significant consequences	Hydrostatic Testing	0
28. KBY LTL 168	Prevention of leaks with significant consequences	Status Quo: Modified	2
28. KBY LTL 168	Proactive asset management	ILI Program:	5
28. KBY LTL 168	Proactive asset management	ILI Program - Robotic:	4
28. KBY LTL 168	Proactive asset management	Replacement:	4
28. KBY LTL 168	Proactive asset management	100% Inspection, Repair	2
28. KBY LTL 168	Proactive asset management	Pressure Regulating	0
28. KBY LTL 168	Proactive asset management	Hydrostatic Testing	0
28. KBY LTL 168	Proactive asset management	Status Quo: Modified	1
28. KBY LTL 168	Technical certainty	ILI Program:	4
28. KBY LTL 168	Technical certainty	ILI Program - Robotic:	3
28. KBY LTL 168	Technical certainty	Replacement:	5
28. KBY LTL 168	Technical certainty	100% Inspection, Repair	4
28. KBY LTL 168	Technical certainty	Pressure Regulating	3
28. KBY LTL 168	Technical certainty	Hydrostatic Testing	3
28. KBY LTL 168	Technical certainty	Status Quo: Modified	2
29. SSK LTL 219	Prevention of ruptures	ILI Program:	5
29. SSK LTL 219	Prevention of ruptures	ILI Program - Robotic:	5
29. SSK LTL 219	Prevention of ruptures	Replacement:	5
29. SSK LTL 219	Prevention of ruptures	100% Inspection, Repair	5
29. SSK LTL 219	Prevention of ruptures	Pressure Regulating	5
29. SSK LTL 219	Prevention of ruptures	Hydrostatic Testing	5
29. SSK LTL 219	Prevention of ruptures	Status Quo: Modified	2
29. SSK LTL 219	Prevention of leaks with significant consequences	ILI Program:	5
29. SSK LTL 219	Prevention of leaks with significant consequences	ILI Program - Robotic:	5
29. SSK LTL 219	Prevention of leaks with significant consequences	Replacement:	4
29. SSK LTL 219	Prevention of leaks with significant consequences	100% Inspection, Repair	4
29. SSK LTL 219	Prevention of leaks with significant consequences	Pressure Regulating	0
29. SSK LTL 219	Prevention of leaks with significant consequences	Hydrostatic Testing	0
29. SSK LTL 219	Prevention of leaks with significant consequences	Status Quo: Modified	2
29. SSK LTL 219	Proactive asset management	ILI Program:	5
29. SSK LTL 219	Proactive asset management	ILI Program - Robotic:	4
29. SSK LTL 219	Proactive asset management	Replacement:	4
29. SSK LTL 219	Proactive asset management	100% Inspection, Repair	2
29. SSK LTL 219	Proactive asset management	Pressure Regulating	0
29. SSK LTL 219	Proactive asset management	Hydrostatic Testing	0
29. SSK LTL 219	Proactive asset management	Status Quo: Modified	1
29. SSK LTL 219	Technical certainty	ILI Program:	4
29. SSK LTL 219	Technical certainty	ILI Program - Robotic:	3
29. SSK LTL 219	Technical certainty	Replacement:	5
29. SSK LTL 219	Technical certainty	100% Inspection, Repair	4
29. SSK LTL 219	Technical certainty	Pressure Regulating	3
29. SSK LTL 219	Technical certainty	Hydrostatic Testing	3
29. SSK LTL 219	Technical certainty	Status Quo: Modified	2

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
20. CAS NEL 168	Lands & ROW	ILI Program:	3
20. CAS NEL 168	Lands & ROW	ILI Program - Robotic:	3
20. CAS NEL 168	Lands & ROW	Replacement: Replacement	1
20. CAS NEL 168	Lands & ROW	100% Inspection, Repair &	2
20. CAS NEL 168	Lands & ROW	Pressure Regulating	4
20. CAS NEL 168	Lands & ROW	Hydrostatic Testing	1
20. CAS NEL 168	Lands & ROW	Status Quo: Modified	4
20. CAS NEL 168	Consultation and Engagement Complexity	ILI Program:	3
20. CAS NEL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
20. CAS NEL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
20. CAS NEL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
20. CAS NEL 168	Consultation and Engagement Complexity	Pressure Regulating	4
20. CAS NEL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
20. CAS NEL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
20. CAS NEL 168	Operational Complexity	ILI Program:	3
20. CAS NEL 168	Operational Complexity	ILI Program - Robotic:	3
20. CAS NEL 168	Operational Complexity	Replacement: Replacement	5
20. CAS NEL 168	Operational Complexity	100% Inspection, Repair &	2
20. CAS NEL 168	Operational Complexity	Pressure Regulating	3
20. CAS NEL 168	Operational Complexity	Hydrostatic Testing	1
20. CAS NEL 168	Operational Complexity	Status Quo: Modified	1
20. CAS NEL 168	System Capacity & Customer Impacts	ILI Program:	4
20. CAS NEL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
20. CAS NEL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
20. CAS NEL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
20. CAS NEL 168	System Capacity & Customer Impacts	Pressure Regulating	5
20. CAS NEL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
20. CAS NEL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
20. CAS NEL 168	Project Execution Certainty	ILI Program:	3
20. CAS NEL 168	Project Execution Certainty	ILI Program - Robotic:	2
20. CAS NEL 168	Project Execution Certainty	Replacement: Replacement	3
20. CAS NEL 168	Project Execution Certainty	100% Inspection, Repair &	2
20. CAS NEL 168	Project Execution Certainty	Pressure Regulating	4
20. CAS NEL 168	Project Execution Certainty	Hydrostatic Testing	1
20. CAS NEL 168	Project Execution Certainty	Status Quo: Modified	5
21. TRA LTL 168	Environmental	ILI Program:	4
21. TRA LTL 168	Environmental	ILI Program - Robotic:	4
21. TRA LTL 168	Environmental	Replacement: Replacement	3
21. TRA LTL 168	Environmental	100% Inspection, Repair &	2
21. TRA LTL 168	Environmental	Pressure Regulating	4
21. TRA LTL 168	Environmental	Hydrostatic Testing	1
21. TRA LTL 168	Environmental	Status Quo: Modified	3
21. TRA LTL 168	Lands & ROW	ILI Program:	2
21. TRA LTL 168	Lands & ROW	ILI Program - Robotic:	2
21. TRA LTL 168	Lands & ROW	Replacement: Replacement	1
21. TRA LTL 168	Lands & ROW	100% Inspection, Repair &	1
21. TRA LTL 168	Lands & ROW	Pressure Regulating	4
21. TRA LTL 168	Lands & ROW	Hydrostatic Testing	1
21. TRA LTL 168	Lands & ROW	Status Quo: Modified	2
21. TRA LTL 168	Consultation and Engagement Complexity	ILI Program:	2
21. TRA LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
21. TRA LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
21. TRA LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
21. TRA LTL 168	Consultation and Engagement Complexity	Pressure Regulating	3
21. TRA LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
21. TRA LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
21. TRA LTL 168	Operational Complexity	ILI Program:	3
21. TRA LTL 168	Operational Complexity	ILI Program - Robotic:	3
21. TRA LTL 168	Operational Complexity	Replacement: Replacement	5
21. TRA LTL 168	Operational Complexity	100% Inspection, Repair &	3
21. TRA LTL 168	Operational Complexity	Pressure Regulating	3
21. TRA LTL 168	Operational Complexity	Hydrostatic Testing	1
21. TRA LTL 168	Operational Complexity	Status Quo: Modified	1
21. TRA LTL 168	System Capacity & Customer Impacts	ILI Program:	4
21. TRA LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
21. TRA LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
21. TRA LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
21. TRA LTL 168	System Capacity & Customer Impacts	Pressure Regulating	5
21. TRA LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
21. TRA LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
21. TRA LTL 168	Project Execution Certainty	ILI Program:	3
21. TRA LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
21. TRA LTL 168	Project Execution Certainty	Replacement: Replacement	3
21. TRA LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
21. TRA LTL 168	Project Execution Certainty	Pressure Regulating	4
21. TRA LTL 168	Project Execution Certainty	Hydrostatic Testing	1
21. TRA LTL 168	Project Execution Certainty	Status Quo: Modified	5

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22. FRD LTL 219	Environmental	ILI Program:	3
22. FRD LTL 219	Environmental	ILI Program - Robotic:	3
22. FRD LTL 219	Environmental	Replacement: Replacement	1
22. FRD LTL 219	Environmental	100% Inspection, Repair &	1
22. FRD LTL 219	Environmental	Pressure Regulating	4
22. FRD LTL 219	Environmental	Hydrostatic Testing	1
22. FRD LTL 219	Environmental	Status Quo: Modified	3
22. FRD LTL 219	Lands & ROW	ILI Program:	3
22. FRD LTL 219	Lands & ROW	ILI Program - Robotic:	3
22. FRD LTL 219	Lands & ROW	Replacement: Replacement	1
22. FRD LTL 219	Lands & ROW	100% Inspection, Repair &	2
22. FRD LTL 219	Lands & ROW	Pressure Regulating	4
22. FRD LTL 219	Lands & ROW	Hydrostatic Testing	1
22. FRD LTL 219	Lands & ROW	Status Quo: Modified	4
22. FRD LTL 219	Consultation and Engagement Complexity	ILI Program:	2
22. FRD LTL 219	Consultation and Engagement Complexity	ILI Program - Robotic:	3
22. FRD LTL 219	Consultation and Engagement Complexity	Replacement: Replacement	1
22. FRD LTL 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
22. FRD LTL 219	Consultation and Engagement Complexity	Pressure Regulating	3
22. FRD LTL 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
22. FRD LTL 219	Consultation and Engagement Complexity	Status Quo: Modified	1
22. FRD LTL 219	Operational Complexity	ILI Program:	4
22. FRD LTL 219	Operational Complexity	ILI Program - Robotic:	4
22. FRD LTL 219	Operational Complexity	Replacement: Replacement	5
22. FRD LTL 219	Operational Complexity	100% Inspection, Repair &	3
22. FRD LTL 219	Operational Complexity	Pressure Regulating	3
22. FRD LTL 219	Operational Complexity	Hydrostatic Testing	1
22. FRD LTL 219	Operational Complexity	Status Quo: Modified	1
22. FRD LTL 219	System Capacity & Customer Impacts	ILI Program:	4
22. FRD LTL 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
22. FRD LTL 219	System Capacity & Customer Impacts	Replacement: Replacement	5
22. FRD LTL 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
22. FRD LTL 219	System Capacity & Customer Impacts	Pressure Regulating	0
22. FRD LTL 219	System Capacity & Customer Impacts	Hydrostatic Testing	0
22. FRD LTL 219	System Capacity & Customer Impacts	Status Quo: Modified	3
22. FRD LTL 219	Project Execution Certainty	ILI Program:	3
22. FRD LTL 219	Project Execution Certainty	ILI Program - Robotic:	2
22. FRD LTL 219	Project Execution Certainty	Replacement: Replacement	3
22. FRD LTL 219	Project Execution Certainty	100% Inspection, Repair &	2
22. FRD LTL 219	Project Execution Certainty	Pressure Regulating	4
22. FRD LTL 219	Project Execution Certainty	Hydrostatic Testing	1
22. FRD LTL 219	Project Execution Certainty	Status Quo: Modified	5
23. ELK LTL 168	Environmental	ILI Program:	3
23. ELK LTL 168	Environmental	ILI Program - Robotic:	3
23. ELK LTL 168	Environmental	Replacement: Replacement	2
23. ELK LTL 168	Environmental	100% Inspection, Repair &	2
23. ELK LTL 168	Environmental	Pressure Regulating	4
23. ELK LTL 168	Environmental	Hydrostatic Testing	1
23. ELK LTL 168	Environmental	Status Quo: Modified	3
23. ELK LTL 168	Lands & ROW	ILI Program:	3
23. ELK LTL 168	Lands & ROW	ILI Program - Robotic:	3
23. ELK LTL 168	Lands & ROW	Replacement: Replacement	1
23. ELK LTL 168	Lands & ROW	100% Inspection, Repair &	2
23. ELK LTL 168	Lands & ROW	Pressure Regulating	4
23. ELK LTL 168	Lands & ROW	Hydrostatic Testing	1
23. ELK LTL 168	Lands & ROW	Status Quo: Modified	4
23. ELK LTL 168	Consultation and Engagement Complexity	ILI Program:	3
23. ELK LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	4
23. ELK LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	2
23. ELK LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
23. ELK LTL 168	Consultation and Engagement Complexity	Pressure Regulating	3
23. ELK LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
23. ELK LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
23. ELK LTL 168	Operational Complexity	ILI Program:	4
23. ELK LTL 168	Operational Complexity	ILI Program - Robotic:	4
23. ELK LTL 168	Operational Complexity	Replacement: Replacement	5
23. ELK LTL 168	Operational Complexity	100% Inspection, Repair &	3
23. ELK LTL 168	Operational Complexity	Pressure Regulating	3
23. ELK LTL 168	Operational Complexity	Hydrostatic Testing	1
23. ELK LTL 168	Operational Complexity	Status Quo: Modified	1
23. ELK LTL 168	System Capacity & Customer Impacts	ILI Program:	4
23. ELK LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
23. ELK LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
23. ELK LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
23. ELK LTL 168	System Capacity & Customer Impacts	Pressure Regulating	5
23. ELK LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
23. ELK LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3

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23. ELK LTL 168	Project Execution Certainty	ILI Program:	3
23. ELK LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
23. ELK LTL 168	Project Execution Certainty	Replacement: Replacement	3
23. ELK LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
23. ELK LTL 168	Project Execution Certainty	Pressure Regulating	4
23. ELK LTL 168	Project Execution Certainty	Hydrostatic Testing	1
23. ELK LTL 168	Project Execution Certainty	Status Quo: Modified	5
24. CRK LTL 168	Environmental	ILI Program:	3
24. CRK LTL 168	Environmental	ILI Program - Robotic:	3
24. CRK LTL 168	Environmental	Replacement: Replacement	2
24. CRK LTL 168	Environmental	100% Inspection, Repair &	1
24. CRK LTL 168	Environmental	Pressure Regulating	4
24. CRK LTL 168	Environmental	Hydrostatic Testing	1
24. CRK LTL 168	Environmental	Status Quo: Modified	3
24. CRK LTL 168	Lands & ROW	ILI Program:	3
24. CRK LTL 168	Lands & ROW	ILI Program - Robotic:	3
24. CRK LTL 168	Lands & ROW	Replacement: Replacement	1
24. CRK LTL 168	Lands & ROW	100% Inspection, Repair &	2
24. CRK LTL 168	Lands & ROW	Pressure Regulating	4
24. CRK LTL 168	Lands & ROW	Hydrostatic Testing	1
24. CRK LTL 168	Lands & ROW	Status Quo: Modified	4
24. CRK LTL 168	Consultation and Engagement Complexity	ILI Program:	2
24. CRK LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
24. CRK LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	1
24. CRK LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
24. CRK LTL 168	Consultation and Engagement Complexity	Pressure Regulating	4
24. CRK LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
24. CRK LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
24. CRK LTL 168	Operational Complexity	ILI Program:	4
24. CRK LTL 168	Operational Complexity	ILI Program - Robotic:	4
24. CRK LTL 168	Operational Complexity	Replacement: Replacement	5
24. CRK LTL 168	Operational Complexity	100% Inspection, Repair &	3
24. CRK LTL 168	Operational Complexity	Pressure Regulating	4
24. CRK LTL 168	Operational Complexity	Hydrostatic Testing	1
24. CRK LTL 168	Operational Complexity	Status Quo: Modified	2
24. CRK LTL 168	System Capacity & Customer Impacts	ILI Program:	4
24. CRK LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
24. CRK LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
24. CRK LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
24. CRK LTL 168	System Capacity & Customer Impacts	Pressure Regulating	0
24. CRK LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	5
24. CRK LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
24. CRK LTL 168	Project Execution Certainty	ILI Program:	4
24. CRK LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
24. CRK LTL 168	Project Execution Certainty	Replacement: Replacement	3
24. CRK LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
24. CRK LTL 168	Project Execution Certainty	Pressure Regulating	5
24. CRK LTL 168	Project Execution Certainty	Hydrostatic Testing	1
24. CRK LTL 168	Project Execution Certainty	Status Quo: Modified	5
25. CRK LOP 219	Environmental	ILI Program:	3
25. CRK LOP 219	Environmental	ILI Program - Robotic:	3
25. CRK LOP 219	Environmental	Replacement: Replacement	2
25. CRK LOP 219	Environmental	100% Inspection, Repair &	1
25. CRK LOP 219	Environmental	Pressure Regulating	4
25. CRK LOP 219	Environmental	Hydrostatic Testing	1
25. CRK LOP 219	Environmental	Status Quo: Modified	3
25. CRK LOP 219	Lands & ROW	ILI Program:	3
25. CRK LOP 219	Lands & ROW	ILI Program - Robotic:	3
25. CRK LOP 219	Lands & ROW	Replacement: Replacement	1
25. CRK LOP 219	Lands & ROW	100% Inspection, Repair &	2
25. CRK LOP 219	Lands & ROW	Pressure Regulating	4
25. CRK LOP 219	Lands & ROW	Hydrostatic Testing	1
25. CRK LOP 219	Lands & ROW	Status Quo: Modified	4
25. CRK LOP 219	Consultation and Engagement Complexity	ILI Program:	2
25. CRK LOP 219	Consultation and Engagement Complexity	ILI Program - Robotic:	3
25. CRK LOP 219	Consultation and Engagement Complexity	Replacement: Replacement	1
25. CRK LOP 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
25. CRK LOP 219	Consultation and Engagement Complexity	Pressure Regulating	4
25. CRK LOP 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
25. CRK LOP 219	Consultation and Engagement Complexity	Status Quo: Modified	2
25. CRK LOP 219	Operational Complexity	ILI Program:	4
25. CRK LOP 219	Operational Complexity	ILI Program - Robotic:	4
25. CRK LOP 219	Operational Complexity	Replacement: Replacement	5
25. CRK LOP 219	Operational Complexity	100% Inspection, Repair &	3
25. CRK LOP 219	Operational Complexity	Pressure Regulating	4
25. CRK LOP 219	Operational Complexity	Hydrostatic Testing	1
25. CRK LOP 219	Operational Complexity	Status Quo: Modified	2

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25. CRK LOP 219	System Capacity & Customer Impacts	ILI Program:	4
25. CRK LOP 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
25. CRK LOP 219	System Capacity & Customer Impacts	Replacement: Replacement	5
25. CRK LOP 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
25. CRK LOP 219	System Capacity & Customer Impacts	Pressure Regulating	0
25. CRK LOP 219	System Capacity & Customer Impacts	Hydrostatic Testing	5
25. CRK LOP 219	System Capacity & Customer Impacts	Status Quo: Modified	3
25. CRK LOP 219	Project Execution Certainty	ILI Program:	4
25. CRK LOP 219	Project Execution Certainty	ILI Program - Robotic:	2
25. CRK LOP 219	Project Execution Certainty	Replacement: Replacement	3
25. CRK LOP 219	Project Execution Certainty	100% Inspection, Repair &	2
25. CRK LOP 219	Project Execution Certainty	Pressure Regulating	5
25. CRK LOP 219	Project Execution Certainty	Hydrostatic Testing	1
25. CRK LOP 219	Project Execution Certainty	Status Quo: Modified	5
26. CRK LP2 219	Environmental	ILI Program:	3
26. CRK LP2 219	Environmental	ILI Program - Robotic:	3
26. CRK LP2 219	Environmental	Replacement: Replacement	2
26. CRK LP2 219	Environmental	100% Inspection, Repair &	1
26. CRK LP2 219	Environmental	Pressure Regulating	4
26. CRK LP2 219	Environmental	Hydrostatic Testing	1
26. CRK LP2 219	Environmental	Status Quo: Modified	3
26. CRK LP2 219	Lands & ROW	ILI Program:	3
26. CRK LP2 219	Lands & ROW	ILI Program - Robotic:	3
26. CRK LP2 219	Lands & ROW	Replacement: Replacement	1
26. CRK LP2 219	Lands & ROW	100% Inspection, Repair &	2
26. CRK LP2 219	Lands & ROW	Pressure Regulating	4
26. CRK LP2 219	Lands & ROW	Hydrostatic Testing	1
26. CRK LP2 219	Lands & ROW	Status Quo: Modified	4
26. CRK LP2 219	Consultation and Engagement Complexity	ILI Program:	2
26. CRK LP2 219	Consultation and Engagement Complexity	ILI Program - Robotic:	3
26. CRK LP2 219	Consultation and Engagement Complexity	Replacement: Replacement	1
26. CRK LP2 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
26. CRK LP2 219	Consultation and Engagement Complexity	Pressure Regulating	4
26. CRK LP2 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
26. CRK LP2 219	Consultation and Engagement Complexity	Status Quo: Modified	2
26. CRK LP2 219	Operational Complexity	ILI Program:	4
26. CRK LP2 219	Operational Complexity	ILI Program - Robotic:	4
26. CRK LP2 219	Operational Complexity	Replacement: Replacement	5
26. CRK LP2 219	Operational Complexity	100% Inspection, Repair &	3
26. CRK LP2 219	Operational Complexity	Pressure Regulating	4
26. CRK LP2 219	Operational Complexity	Hydrostatic Testing	1
26. CRK LP2 219	Operational Complexity	Status Quo: Modified	3
26. CRK LP2 219	System Capacity & Customer Impacts	ILI Program:	4
26. CRK LP2 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
26. CRK LP2 219	System Capacity & Customer Impacts	Replacement: Replacement	5
26. CRK LP2 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
26. CRK LP2 219	System Capacity & Customer Impacts	Pressure Regulating	0
26. CRK LP2 219	System Capacity & Customer Impacts	Hydrostatic Testing	5
26. CRK LP2 219	System Capacity & Customer Impacts	Status Quo: Modified	3
26. CRK LP2 219	Project Execution Certainty	ILI Program:	4
26. CRK LP2 219	Project Execution Certainty	ILI Program - Robotic:	2
26. CRK LP2 219	Project Execution Certainty	Replacement: Replacement	3
26. CRK LP2 219	Project Execution Certainty	100% Inspection, Repair &	2
26. CRK LP2 219	Project Execution Certainty	Pressure Regulating	5
26. CRK LP2 219	Project Execution Certainty	Hydrostatic Testing	1
26. CRK LP2 219	Project Execution Certainty	Status Quo: Modified	5
27. CRK LOP 273	Environmental	ILI Program:	3
27. CRK LOP 273	Environmental	ILI Program - Robotic:	3
27. CRK LOP 273	Environmental	Replacement: Replacement	1
27. CRK LOP 273	Environmental	100% Inspection, Repair &	1
27. CRK LOP 273	Environmental	Pressure Regulating	4
27. CRK LOP 273	Environmental	Hydrostatic Testing	1
27. CRK LOP 273	Environmental	Status Quo: Modified	2
27. CRK LOP 273	Lands & ROW	ILI Program:	3
27. CRK LOP 273	Lands & ROW	ILI Program - Robotic:	3
27. CRK LOP 273	Lands & ROW	Replacement: Replacement	1
27. CRK LOP 273	Lands & ROW	100% Inspection, Repair &	2
27. CRK LOP 273	Lands & ROW	Pressure Regulating	4
27. CRK LOP 273	Lands & ROW	Hydrostatic Testing	1
27. CRK LOP 273	Lands & ROW	Status Quo: Modified	4
27. CRK LOP 273	Consultation and Engagement Complexity	ILI Program:	2
27. CRK LOP 273	Consultation and Engagement Complexity	ILI Program - Robotic:	2
27. CRK LOP 273	Consultation and Engagement Complexity	Replacement: Replacement	1
27. CRK LOP 273	Consultation and Engagement Complexity	100% Inspection, Repair &	1
27. CRK LOP 273	Consultation and Engagement Complexity	Pressure Regulating	4
27. CRK LOP 273	Consultation and Engagement Complexity	Hydrostatic Testing	1
27. CRK LOP 273	Consultation and Engagement Complexity	Status Quo: Modified	2

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27. CRK LOP 273	Operational Complexity	ILI Program:	4
27. CRK LOP 273	Operational Complexity	ILI Program - Robotic:	4
27. CRK LOP 273	Operational Complexity	Replacement: Replacement	5
27. CRK LOP 273	Operational Complexity	100% Inspection, Repair &	3
27. CRK LOP 273	Operational Complexity	Pressure Regulating	4
27. CRK LOP 273	Operational Complexity	Hydrostatic Testing	1
27. CRK LOP 273	Operational Complexity	Status Quo: Modified	2
27. CRK LOP 273	System Capacity & Customer Impacts	ILI Program:	4
27. CRK LOP 273	System Capacity & Customer Impacts	ILI Program - Robotic:	4
27. CRK LOP 273	System Capacity & Customer Impacts	Replacement: Replacement	5
27. CRK LOP 273	System Capacity & Customer Impacts	100% Inspection, Repair &	4
27. CRK LOP 273	System Capacity & Customer Impacts	Pressure Regulating	0
27. CRK LOP 273	System Capacity & Customer Impacts	Hydrostatic Testing	0
27. CRK LOP 273	System Capacity & Customer Impacts	Status Quo: Modified	3
27. CRK LOP 273	Project Execution Certainty	ILI Program:	4
27. CRK LOP 273	Project Execution Certainty	ILI Program - Robotic:	2
27. CRK LOP 273	Project Execution Certainty	Replacement: Replacement	3
27. CRK LOP 273	Project Execution Certainty	100% Inspection, Repair &	2
27. CRK LOP 273	Project Execution Certainty	Pressure Regulating	5
27. CRK LOP 273	Project Execution Certainty	Hydrostatic Testing	1
27. CRK LOP 273	Project Execution Certainty	Status Quo: Modified	5
28. KBY LTL 168	Environmental	ILI Program:	3
28. KBY LTL 168	Environmental	ILI Program - Robotic:	3
28. KBY LTL 168	Environmental	Replacement: Replacement	2
28. KBY LTL 168	Environmental	100% Inspection, Repair &	1
28. KBY LTL 168	Environmental	Pressure Regulating	4
28. KBY LTL 168	Environmental	Hydrostatic Testing	1
28. KBY LTL 168	Environmental	Status Quo: Modified	3
28. KBY LTL 168	Lands & ROW	ILI Program:	3
28. KBY LTL 168	Lands & ROW	ILI Program - Robotic:	3
28. KBY LTL 168	Lands & ROW	Replacement: Replacement	1
28. KBY LTL 168	Lands & ROW	100% Inspection, Repair &	2
28. KBY LTL 168	Lands & ROW	Pressure Regulating	4
28. KBY LTL 168	Lands & ROW	Hydrostatic Testing	1
28. KBY LTL 168	Lands & ROW	Status Quo: Modified	4
28. KBY LTL 168	Consultation and Engagement Complexity	ILI Program:	2
28. KBY LTL 168	Consultation and Engagement Complexity	ILI Program - Robotic:	3
28. KBY LTL 168	Consultation and Engagement Complexity	Replacement: Replacement	1
28. KBY LTL 168	Consultation and Engagement Complexity	100% Inspection, Repair &	1
28. KBY LTL 168	Consultation and Engagement Complexity	Pressure Regulating	4
28. KBY LTL 168	Consultation and Engagement Complexity	Hydrostatic Testing	1
28. KBY LTL 168	Consultation and Engagement Complexity	Status Quo: Modified	2
28. KBY LTL 168	Operational Complexity	ILI Program:	4
28. KBY LTL 168	Operational Complexity	ILI Program - Robotic:	4
28. KBY LTL 168	Operational Complexity	Replacement: Replacement	5
28. KBY LTL 168	Operational Complexity	100% Inspection, Repair &	3
28. KBY LTL 168	Operational Complexity	Pressure Regulating	4
28. KBY LTL 168	Operational Complexity	Hydrostatic Testing	1
28. KBY LTL 168	Operational Complexity	Status Quo: Modified	2
28. KBY LTL 168	System Capacity & Customer Impacts	ILI Program:	4
28. KBY LTL 168	System Capacity & Customer Impacts	ILI Program - Robotic:	4
28. KBY LTL 168	System Capacity & Customer Impacts	Replacement: Replacement	5
28. KBY LTL 168	System Capacity & Customer Impacts	100% Inspection, Repair &	4
28. KBY LTL 168	System Capacity & Customer Impacts	Pressure Regulating	0
28. KBY LTL 168	System Capacity & Customer Impacts	Hydrostatic Testing	0
28. KBY LTL 168	System Capacity & Customer Impacts	Status Quo: Modified	3
28. KBY LTL 168	Project Execution Certainty	ILI Program:	4
28. KBY LTL 168	Project Execution Certainty	ILI Program - Robotic:	2
28. KBY LTL 168	Project Execution Certainty	Replacement: Replacement	3
28. KBY LTL 168	Project Execution Certainty	100% Inspection, Repair &	2
28. KBY LTL 168	Project Execution Certainty	Pressure Regulating	5
28. KBY LTL 168	Project Execution Certainty	Hydrostatic Testing	1
28. KBY LTL 168	Project Execution Certainty	Status Quo: Modified	5
29. SSK LTL 219	Environmental	ILI Program:	2
29. SSK LTL 219	Environmental	ILI Program - Robotic:	2
29. SSK LTL 219	Environmental	Replacement: Replacement	1
29. SSK LTL 219	Environmental	100% Inspection, Repair &	1
29. SSK LTL 219	Environmental	Pressure Regulating	4
29. SSK LTL 219	Environmental	Hydrostatic Testing	1
29. SSK LTL 219	Environmental	Status Quo: Modified	2
29. SSK LTL 219	Lands & ROW	ILI Program:	3
29. SSK LTL 219	Lands & ROW	ILI Program - Robotic:	3
29. SSK LTL 219	Lands & ROW	Replacement: Replacement	1
29. SSK LTL 219	Lands & ROW	100% Inspection, Repair &	2
29. SSK LTL 219	Lands & ROW	Pressure Regulating	4
29. SSK LTL 219	Lands & ROW	Hydrostatic Testing	1
29. SSK LTL 219	Lands & ROW	Status Quo: Modified	4

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores

Project Execution & Lifecycle Operation			
Lateral	Category	Alternative Evaluation Criteria	Scores
29. SSK LTL 219	Consultation and Engagement Complexity	ILI Program:	2
29. SSK LTL 219	Consultation and Engagement Complexity	ILI Program - Robotic:	3
29. SSK LTL 219	Consultation and Engagement Complexity	Replacement: Replacement	1
29. SSK LTL 219	Consultation and Engagement Complexity	100% Inspection, Repair &	1
29. SSK LTL 219	Consultation and Engagement Complexity	Pressure Regulating	4
29. SSK LTL 219	Consultation and Engagement Complexity	Hydrostatic Testing	1
29. SSK LTL 219	Consultation and Engagement Complexity	Status Quo: Modified	2
29. SSK LTL 219	Operational Complexity	ILI Program:	4
29. SSK LTL 219	Operational Complexity	ILI Program - Robotic:	4
29. SSK LTL 219	Operational Complexity	Replacement: Replacement	5
29. SSK LTL 219	Operational Complexity	100% Inspection, Repair &	3
29. SSK LTL 219	Operational Complexity	Pressure Regulating	4
29. SSK LTL 219	Operational Complexity	Hydrostatic Testing	1
29. SSK LTL 219	Operational Complexity	Status Quo: Modified	2
29. SSK LTL 219	System Capacity & Customer Impacts	ILI Program:	4
29. SSK LTL 219	System Capacity & Customer Impacts	ILI Program - Robotic:	4
29. SSK LTL 219	System Capacity & Customer Impacts	Replacement: Replacement	5
29. SSK LTL 219	System Capacity & Customer Impacts	100% Inspection, Repair &	4
29. SSK LTL 219	System Capacity & Customer Impacts	Pressure Regulating	0
29. SSK LTL 219	System Capacity & Customer Impacts	Hydrostatic Testing	0
29. SSK LTL 219	System Capacity & Customer Impacts	Status Quo: Modified	3
29. SSK LTL 219	Project Execution Certainty	ILI Program:	4
29. SSK LTL 219	Project Execution Certainty	ILI Program - Robotic:	2
29. SSK LTL 219	Project Execution Certainty	Replacement: Replacement	3
29. SSK LTL 219	Project Execution Certainty	100% Inspection, Repair &	2
29. SSK LTL 219	Project Execution Certainty	Pressure Regulating	5
29. SSK LTL 219	Project Execution Certainty	Hydrostatic Testing	1
29. SSK LTL 219	Project Execution Certainty	Status Quo: Modified	5

Technical			
Lateral	Category	Alternative Evaluation Criteria	Scores

Financial			
Lateral	Category	Alternative Evaluation Criteria	Scores

Appendix J-1

STANTEC FEED REPORT

EVIDENTIARY UPDATE AND ERRATA, APRIL 5, 2019

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Appendix J-3

PRS BASIS OF ESTIMATE

EVIDENTIARY UPDATE AND ERRATA, APRIL 5, 2019

FILED CONFIDENTIALLY

Appendix J-4

PLR BASIS OF ESTIMATE

EVIDENTIARY UPDATE APRIL 5, 2019

FILED CONFIDENTIALLY

Appendix N-1

AGGREGATED FINANCIAL SCHEDULES

EVIDENTIARY UPDATE AND ERRATA APRIL 5, 2019

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Appendix N-2

INDIVIDUAL FINANCIAL SCHEDULES

EVIDENTIARY UPDATE AND ERRATA, APRIL 5, 2019

REFER TO LIVE SPREADSHEET MODELS

Provided in electronic format only as separate exhibits

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