COURT FILE NO.	QB No. 733 of 2021
COURT	COURT OF QUEEN'S BENCH FOR SASKATCHEWAN IN BANKRUPTCY AND INSOLVENCY
JUDICIAL CENTRE	SASKATOON

Clerk's Stamp

RESPONDENTS	ABBEY RESOURCES CORP.
DOCUMENT	**FIFTH REPORT OF THE MONITOR, MNP LTD.**
FILED	**FEBRUARY 25, 2022**

ADDRESS FOR SERVICE AND CONTACT INFORMATION OF PARTY FILING THIS DOCUMENT

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APPENDICES

Appendix A	Sproule Asset Management Ltd report dated February 10, 2022, redacted
Appendix B	Letter from Ministry of Energy and Resources dated September 3, 2021

INTRODUCTION

1 On August 13, 2021, an Initial Order (the "**Initial Order**") was granted by the Court of Queen's Bench of Saskatchewan in Bankruptcy and Insolvency (the "**Court**") under the *Companies' Creditors Arrangement Act*, R.S.C. 1985 c. C-36, as amended (the "**CCAA**") in respect of Abbey Resources Corp. ("**Abbey**" or the "**Company**") that granted a stay of proceedings (the "**Stay**") until August 23, 2021. MNP Ltd. ("**MNP**") was appointed as Monitor (the "**Monitor**") in the CCAA proceedings.

2 Since that time, Abbey has obtained a number of extension orders, the most recent Order was granted on January 27, 2022 (the "**Fourth Extension and Regulatory Stay Order**") and included the following relief:

a) extended the Stay until February 28, 2022 (the "**Fourth Extension**"); and

b) stayed the Minister's Order dated January 24, 2022 until March 1, 2022.

3 One of the reasons for the Fourth Extension and Regulatory Stay Order was to allow the Monitor time to assess and consider the impact of the Minister's Order on the Company's operations and submit a further report to the Court and stakeholders.

4 That work is now complete and this fifth report to the Court (the "**Fifth Report**") is being submitted to provide a copy of the report (the "**SAML Report**") of the Monitor's consultant, Sproule Asset Management Ltd. ("**SAML**"), along with the Monitor's commentary on the SAML Report and a status update on the Company's ongoing negotiations with surface lease holders (the "**Surface Lease Holders**") and Carry the Kettle First Nation CTKFN.

5 This Fifth Report does not contain any information or commentary on Abbey's financial performance during the Fourth Extension or its go-forward cash flow projections, as the Monitor has not been provided with the necessary information to do so. Time permitting, the Monitor will endeavour to provide further reporting to the Court and stakeholders as the underlying information becomes available.

6 Capitalized terms not otherwise defined herein will have the meanings given to them in the Pre-Filing Report of the Monitor dated July 15, 2021, the First Report of the Monitor dated August 20, 2021, the Amended First Report of the Monitor dated August 23, 2021, the Second Report of the Monitor dated October 4, 2021, the Third Report of the Monitor dated November 19, 2021 and the Fourth Report of the Monitor dated January 26, 2022.

7 Information on the CCAA proceedings can be accessed on MNP's website at https://mnpdebt.ca/en/corporate/corporate-engagements/abbey-resources-corporation (the "**Monitor's Website**").

8 All amounts included herein are in Canadian dollars unless otherwise stated.

NOTICE TO READER

9 In preparing the Fifth Report and making comments herein, the Monitor has relied upon certain unaudited, draft or internal financial information, including Abbey's books and records, and information from other third-party sources (collectively, the "**Information**"). The Monitor has not audited, reviewed or otherwise attempted to verify the accuracy or completeness of the Information in a manner that would wholly or partially comply with generally accepted assurance standards or other standards established by the Chartered Professional Accountants of Canada (the "**Standards**"). Additionally, none of the Monitor's procedures were intended to disclose defalcations or other irregularities. If the Monitor were to perform additional procedures or to undertake an audit examination of the Information in accordance with the Standards, additional matters may come to the Monitor's attention. Accordingly, the Monitor does not express an opinion, nor does it provide any other form of assurance on the financial or other information presented herein. The Monitor may refine or alter its observations as further information is obtained or brought to its attention after the date of the Fourth Report.

10 The Monitor assumes no responsibility or liability for any loss or damage occasioned by any party as a result of the use of the Fifth Report. Any use which any party makes of the Fifth Report or any reliance or decision to be made based on the Fifth Report is the sole responsibility of such party.

PURPOSE OF REPORT

11 The purpose of the Fifth Report is to provide this Honourable Court with the information gathered since the Fourth Extension and Regulatory Stay Order regarding:

a) SAML's review of:

i) Abbey's Pipeline Risk Assessment;

ii) the impact of the Minister's Order on Abbey's production; and

iii) Abbey's cost projections for abandonment, reclamation, and pipeline remediation;

b) Abbey's progress in relation to the ongoing negotiations with surface lease holders and CTKFN; and

c) The Monitor's application for an Order sealing the unredacted SAML Report as it contains commercially sensitive information that may compromise the integrity of any future sales process.

MONITORS ACTIVITIES TO DATE

12 The Monitor's activities since the date of the Fourth Report have included the following:

a) Attending various meetings and weekly calls with Abbey's management and legal counsel to discuss:

(i) Abbey's ongoing restructuring efforts;

(ii) various operational matters; and

(iii) Abbey's renewed efforts to negotiate amended surface lease agreements with its landowners;

b) Reviewing weekly reporting and variance analysis;

c) Reviewing the supporting documentation of all disbursements greater than $2,500 that management has made during the Fourth Extension Period;

d) Corresponding with creditors, Surface Lease Holders and other stakeholders;

e) Reviewing contracts and agreements that management has entered during the proceedings;

f) Attending meetings with the Government of Saskatchewan, Ministry of Energy and Resources;

g) Engaging SAML to prepare the SAML Report;

h) Engaging Sayer Energy Advisors ("**Sayer"**) to provide the Monitor with a valuation of the Abbey Resources properties, given the issuance of the MRO, should the Court decide to reinstate the MRO. The Sayer valuation is not complete at this time.

SAML REPORT

Introduction and Confidential Nature of Redacted Information

13 While the reason for engaging SAML was to better understand the impact of the Minister's Order in relation to Abbey's production and financial condition, the Monitor thought it prudent to have SAML also conduct an independent review of the Company's:

a) Pipeline Risk Assessment, that was the impetus for the Minister's Order; and

b) Cost projections for the reclamation, abandonment, and pipeline remediation.

14 A redacted copy of the SAML Report is attached hereto as Appendix "**A**". The redactions have been made to keep SAML's cost estimates for the reclamation, abandonment, and pipeline remediation work confidential, as that information has the potential to prejudice a future sales process for the Company's assets. Unredacted copies of the SAML Report were provided to the Company and MER by the Monitor on February 11 and 14, respectively, with conditions as to confidentiality. A copy is also being provided to this Honourable Court and is attached as "Appendix A" to the Monitor's Confidential Supplement to this Fifth Report.

The Pipeline Risk Analysis

15 Abbey completed the Pipeline Risk Assessment pursuant to a request from the MER in a letter dated September 3, 2021, a copy of which is attached for ease of reference as Appendix "**B**." The MER's letter "*recommends that Abbey follow Annex B of CSA Z662:19 and ASME B31.82-2020 when preparing their* (sic) *risk assessment*." In response to the specific question posed by the Monitor, Sproule confirmed that, in its opinion, Abbey's Pipeline Risk Assessment conformed to and complied with CSZ-Z662:19 and ASME B31.8S-2020. Sproule's opinion needs to be viewed in that limited context.

16 The Monitor now understands that the Pipeline Risk Assessment is essentially a desktop analysis containing no actual root cause analysis with respect to Abbey's historical pipeline failures. Sproule's opinion is that the Pipeline Risk Assessment complies with and conformed to Annex B of CSA Z662:19 and ASME B31.82-2020 in so far as they contain requirements for those types of desktop risk analyses. Sproule was not asked to (and did not express any opinion) on whether the Company was obligated to conduct an engineering assessment (including root cause analysis) as contemplated by Section 10.3.2 of CSA Z662, which reads:

> "10.3.2.1
>
> Where the operating company becomes aware of conditions that can lead to failures in its pipeline systems, it shall conduct an engineering assessment to determine which portions can be susceptible to failures and whether such portions are suitable for continued service."

17 The Company advised during the course of its review of the SAML Report with the Monitor that it disagreed with certain of these requirements, specifically, the need for an engineering assessment as part of the Pipeline Risk Assessment.

The Impact of the Minister's Order

18 SAML concluded that, if the Minister's Order is not stayed, Abbey will experience a 46% to 50% reduction in its raw gas production and a non-producing wellbore inventory increase of 37%. A

reduction of this magnitude would mean that the Company would not be able to complete its restructuring plan or remain viable in the long-term. The Company and the MER are in substantial agreement as to the amount of the production decrease.

19 In the SAML Report, there is the additional comment that, in SAML's view, "*suspending the operation of all the pipeline segments the* [Pipeline Risk Assessment] *identified as High and Very High* [Risk] *is not prudent at this time*." This comment needs to be considered in the broader context in which it was made.

20 The Monitor understands that SAML's view is that, because the Pipeline Risk Assessment is a desktop risk analysis, suspending all of the high and very high risk pipelines identified therein may have the effect of suspending pipelines that do not actually pose an increased risk of failure. This results in lost production and revenue that could otherwise be utilized to remediate, reclaim, and abandon other portions of the pipeline, as required. An overly broad suspension order may also risk damaging the pipeline and other equipment and reducing overall value accordingly. It is in that sense that the suspension is, in SAML's view, "*not prudent at this time*."

21 Put another way, the Monitor understands SAML to be suggesting that it would be prudent to obtain more information before issuing such an order and tailoring the order accordingly. For this reason, SAML is recommending that supplementary data as to the root cause of the pipeline failure (and other associated work) be completed to create a more robust failure prediction model. The Monitor understands that the more robust failure prediction model would allow for a more targeted suspension of the pipeline segments that cannot be remediated, thereby avoiding any unnecessary loss of revenue or value of the pipeline asset.

The Cost Projections

22 Without getting into SAML's specific estimates for the reclamation, abandonment, and pipeline remediation, which the Monitor is seeking to have sealed, the Monitor can say that SAML's estimates exceed those of the Company. There remains an ongoing difference of opinion between the Company, on the one hand, and MER and SAML, on the other, as to the savings Abbey is capable of achieving by performing the work itself (as opposed to retaining third party service providers).

23 SAML's estimates for the wellbore abandonment and reclamation estimates are higher than the Company's due to certain assumptions SAML made with respect to contingencies not accounted for by Abbey (e.g., the potential need for additional downhole plugs or to potentially incur the costs of a Phase II Environmental Assessment).

24 On the remediation costs, SAML's estimates are again higher. The Monitor understands the primary reason for SAML suggesting the cost will be higher is due to the potential need to install the loose liners in pipelines with diameters larger than the 2-inch diameter Abbey utilized for its budgeting purposes.

25 It is the general understanding of the Monitor that the Company does not take exception to most of the costs stated in the SAML Report that were provided by experienced third party service providers. The Company is of the belief that this work can be completed substantially cheaper by doing it "in-house", however, a large percentage of these cost savings are necessarily unproven as the Company has not yet had an opportunity to fully implement them and so cannot confirm that they will ultimately prove to be reasonable or accurate until such time as they have actually been completed.

MINISTRY OF ENERGY AND RESOURCES

26 To better understand the MER's concerns regarding the Company and its operations, the Monitor engaged in two meetings with the MER, one of these meetings included SAML, who addressed MER inquiries and questions regarding the SAML Report.

27 The Monitor was advised by the MER that it has no faith in Abbey's management and that, if the present management stays in place, the MER cannot support any plan made in the CCAA proceedings, or any pipeline remediation plan put forward by the Company. Other stakeholders, including the RMs in this matter and several unamended surface lease holders have relayed a similar message to the Monitor.

SURFACE LEASE HOLDERS AND CTKFN

28 Following the January 27 Application, and as outlined in the Fourth Report, Abbey issued letters to all Surface Lease Holders who have not entered into amended lease agreements advising those lease holders that Abbey required the Surface Lease Holder's agreement to an amended lease arrangement, or if the Surface Lease Holder was not prepared to accept the amended lease arrangement, the letter served as advance notice that the surface lease agreement was going to be disclaimed.

29 As of February 18, 2022, Millennium Land Services ("**Millennium**") advised that an additional 21 Surface Lease Holders holding 51 leases have agreed to the amended surface lease arrangement proposed by the Company as a result of the latest correspondence to the Surface Lease Holders. Therefore, as at that date, a total of 88 Surface Lease Holders holding 1,052 leases have agreed to the amended surface leases provided by the Company.

30 CTKFN has maintained its previous position that all surface leases are terminated due to non-payment; however, gas production continues to be generated from these wellbores until such time as they are shut in and Abbey is continuing to collect and process the gas in the normal course.

CONCLUSION

31 This Fifth Report is being filed to provide the Court with the SAML Report, the Monitor's commentary with respect to the same, and an update on the lease holder negotiations in advance of the February 28, 2022 hearing.

32 The Monitor respectfully requests the Court grant its application for a sealing Order in respect of the unredacted SAML Report to preserve the integrity of any future sales process in respect of the Abbey assets.

33 The Monitor hopes to provide further financial reporting in respect of the Company and relief being sought at the upcoming hearing as it becomes available.

All of which is respectfully submitted this 25th day of February 2022.

MNP Ltd., in its capacity as Monitor of Abbey Resources Corp and not in its personal capacity

Per: _____
Victor P. Kroeger, CIRP, LIT, CPA, CA, CFE
Senior Vice President

APPENDIX A

MNP – Abbey Resources Corporation CCAA
Pipeline Risk Assessment Review
MRO 14/22 Review
Future Capital Cost Review

February 10, 2022

Think Energy. Discover Value

Sproule

Digital Report Notification

This report has been prepared in a fully digital, auditable, and legally compliant format using a PDF/A standard (ISO 19005-1, 2 or 3).

The report has also been signed by Sproule professionals using independently verifiable digital signatures for authentication purposes.

For more information regarding digital reports and digital signatures and their verification please visit: **Sproule Digital Signatures.**

Prepared for:	**MNP Ltd.**
Project No.:	4828.110941
Distribution:	MNP Ltd. (Digital copy) Sproule (Full digital copy retained)
Editor:	KMM
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Table of Contents

Executive Summary

Sproule Asset Management Limited ("SAML") was engaged by MNP Ltd. ("MNP" or the "Monitor"), in its capacity as Court Appointed Monitor of Abbey Resources Corporation ("Abbey") pursuant to a Professional Services Agreement dated September 20, 2021 to conduct an independent review of:

- Pipeline Risk Assessment report dated December 3, 2021("PRA");
- Ministers Order MRO 14/22 ("MRO 14/22") and the impacts the order will have on the production of the Abbey assets ("Assets"); and
- Cost projections for:
  - Wellbore abandonment;
  - Wellhead cut and cap operations;
  - Site reclamation; and
  - Pipeline remediation.

The scope of the project included a review of historical production data, current pipeline license data ("Area Review"), a review of the PRA report ("Pipeline Risk Assessment Review"), a review of the MRO 14/22 ("Impact of MRO 14/22 Order"), cost comparison between Abbey costs and costs solicited from third-party vendors ("Future Capital Cost Review") and SAML recommendations ("Recommendations"). It should be noted no site visit was conducted to review the condition of the assets.

This Report is being provided pursuant to the qualifiers identified in the Cautionary Statement section.

The Assets include 2,555 pipeline licenses, 2,385 licensed wellbores, and 28 licensed facilities in the Abbey area of Saskatchewan. As of the last production date available in Accumap, 1,041 wellbores are on production at 11,418 Mcf/d gross raw gas (last 3-month average).

The PRA was submitted to the Ministry of Energy and Resources ("MER") to satisfy a request made September 3, 2021. While the study conformed and complied with CSZ Z662:19 and ASME B31.8S-2020, the results need to be reviewed in the context the report was written. The risk assessment analysis presented a modified risk matrix classification of Low, Medium, High and Very High for each steel pipeline in the gathering system as a relative measure of risk by combining subjective numerical estimates of both likelihood and potential consequence. The author was also clear in the report that "This risk evaluation therefore should not be considered a failure prediction ranking, but rather a source for ranking and prioritizing pipelines for applying risk management strategies as discussed in the following section of this assessment." Several key data sources were absent from the report which would allow more accurate failure prediction modeling to be conducted. SAML recommends that supplemental information that should have been considered is as follows:

1. Wellbore production values;
2. Pipeline segment specific flow rates and pressures;
3. Area specific fluid analysis from:
    a. Compressor inlets;
    b. Historical failure sites;
4. Area specific gas analysis;
5. Installation dates (age) of pipelines;
6. Historical failure analysis reports;
7. Current and past operating practices (mitigation measures employed);
8. Identification of corrosion/erosion mitigation measures:
    a. Cathodic protection;
    b. Pigging records;
    c. Biocide treatments; and
    d. Corrosion inhibitor.

SAML believes that suspending the operation of all the pipeline segments the PRA identified as High and Very High is not prudent at this time. It is recommended that the supplementary data that was not considered in the original report be sourced and incorporated into a more robust failure prediction model. This new model should consider both unmitigated and mitigated risk profiles and serve as the basis of prevention of future failures. Appropriate failure prevention measures should be employed throughout the field on segments that possess significant risk of failure that can be mitigated. Remediation measures, such as installing free standing high-density polyethylene (“HDPE”) liners inside existing pipelines, should be focused on segments which have had high historical failure rates in conjunction with the new model results. It is estimated a new failure prediction model incorporating the missing data would cost approximately [redacted] and require 30 days to complete, subject to an initial review of the gathering system and currently available material.

MRO 14/22 issued January 24, 2022, ordered Abbey to suspend operation of all flowline segments listed in the submitted PRA with a modified risk matrix classification identified as High or Very High. Based on the current geometry of the gathering system, and the wells that will be effectively stranded from operating facilities by the MRO 14/22, the production impacts are conservatively estimated at 5,344 Mcf/d based on the last three-month average publicly reported production of individual wells. This equates to a 46% to 50% reduction in raw gas production and a non-producing wellbore inventory increase of 37%. This value can be viewed as conservative as the gathering system will be altered in such a way that the flow dynamics of wells still capable of producing will be negatively impacted. Additional back pressure will be noted at certain wellheads due to a reduced number of gathering lines entering existing compression facilities and reduction of line looping segments that help alleviate excessive back pressure. Unfortunately, the flow dynamics are so complex in a system of this magnitude it is impractical to calculate the additional lost production effect. It is noted that SAML requested to speak with current field operations staff to confirm gathering system flow dynamics, and this request went unfulfilled.

Based on the Abbey Business Plan dated January 19, 2022 ("Business Plan") there will be near term future expenditures required, with a plan of 238 wellbore abandonments being executed in 2022. SAML solicited quotes from third-party vendors in the vicinity of the operations to provide a comparable total wellbore abandonment and reclamation estimate.

	Abbey Resources Corporation	SAML estimate
Downhole Abandonment	$3,600	[redacted]
Cut and Cap	$1,800	
Surface Reclamation	$3,200	
Total	**$8,600**	

Table 1:
Wellbore Abandonment and Reclamation Cost Estimates

The most significant differences between the Abbey costs versus SAML costs is as follows:

- SAML has assumed there will be costs to pull the coil tubing from the existing wellbores and the requirement for third party supervision, safety, pressure testing and water hauling;
- SAML has assumed there will be contingency costs to set additional downhole plugs in situations where the primary plug does not pressure test;
- SAML has incorporated costs for dirt work, vegetation management, and contingency for Phase II Environmental Site Assessments ("ESA") on 10 % of the well count;
- It is estimated the wellbore abandonments would take between 60-80 days to complete with cut and cap operations taking 50-70 days;
- It is anticipated that surface reclamation costs could be incurred over a number of years after cut and cap operations; and
- Downhole abandonment costs specifically exclude any costs relating to wells which possess a surface casing vent flow ("SCVF").

Based on the Business Plan there will also be near term future expenditures required to purchase and install various sizes of free standing HDPE liners internally in the existing steel lines, with the intent to install 68,000 meters of liner at $10.00/m for material and installation. Abbey has successfully installed a 2-inch free standing HDPE pipe in an existing steel pipeline as a method of pipeline remediation in 2021 under PA-0001224 for Pipeline PL-00000644 segment 35. Actual project costs were not provided for this installation.

SAML solicited quotes from third-party vendors for the purchase of various sizes of HDPE based on the maximum diameter that would be able to be run in the pipelines identified in MRO 14/22. By using a weighted-average of the line size based on length, the cost of material for the project would average $[redacted]/m. As it has not been communicated which lines would be potentially replaced it should be noted that if larger diameter lines were preferentially selected this cost would escalate to $[redacted]/m

SAML solicited quotes from third-party vendors for the installation of HDPE inside the existing steel lines of various sizes. The install cost estimates range from $[redacted]/m to $[redacted]/m depending on the line size and more importantly length of each segment. This highlights the importance to run the jobs as projects, and in a consistent area, as the difference in costs is dominated by inter-field mobilization, demobilization and fixed costs (shorter line segments have a higher per meter installed cost). Based on the estimates for the sampling of sizes provided, installation costs were calculated using a weighted-average of the line lengths for the specific line sizes referenced in MRO 14/22 and determined to be $[redacted]/m. Combining the installation with the HDPE pipe costs results in an estimated replacement cost of $[redacted]/m. If the lines selected to be replaced were disproportionally larger than the weighted-average, or shorter in length than the weighted-average, these costs could increase to over $[redacted]/m.

Based on the required size and pressure rating of HDPE and current prices, it is anticipated that the weighted-average cost of the liner material will exceed the Business Plan budget for material and installation provided by Abbey.

	Abbey Resources Corporation Abbey Installed	SAML Estimate Third party installed
Material ($ / m)	$1.27	$[redacted]
Installation ($ / m)	$8.75	$[redacted]
Total	**$10.02**	**$[redacted]**

Table 2:
Free Standing HDPE Liner Cost Estimates

SAML has compiled a list of recommendations based on the information reviewed for the property.

1. Obtain and incorporate the following specific data into a failure prediction model based on gathering system conditions:
    a. Wellbore production rates;
    b. Pipeline segment specific flow rates and pressures;
    c. Area specific fluid analysis:
        i. Compressor inlets; and
        ii. Historical failure sites;
    d. Area specific gas analysis;
    e. Installation dates (age) of pipelines;
    f. Historical failure analysis reports;
    g. Current and past operating practices (mitigation measures employed);
    h. Identification of corrosion / erosion mitigation measures:
        i. Cathodic Protection;
        ii. Pigging Records;
        iii. Biocide treatments; and
        iv. Corrosion inhibitor.

2. Based on the new failure prediction model, identify segments of pipeline that are determined to have unacceptably high risks of failure;
    a. Obtain segment specific quotes for pipe and installation of free standing liners and perform an economic analysis on the cost benefit of remediating the system on a line-by-line basis;
    b. Organize and remediate pipelines that have favorable economics minimizing inter-field moves throughout; and
    c. Suspend pipeline segments that are determined to have unacceptable risks of failure and insufficient economic benefit to remediate.
3. Identify the 200+ wells to be abandoned in 2022 and secure downhole abandonment services to perform operations in summer 2022 as a continuous project;
    a. Secure gas migration testing equipment services and wellhead cut and cap services to begin operations a few weeks post downhole abandonment;
    b. Pig and purge pipelines associated with wells that are to be abandoned; and
    c. Secure wellhead cut and cap services to cut, cap and remove any existing surface equipment including the old wellheads. Cut and plug the pipeline risers at the same time as the wellheads to avoid re-mobilizing cutting unit for proper abandonment of the gathering system.
4. Complete Phase I ESA for all abandoned wells;
    a. Develop a tracking system to track reclamation and, if required, remediation on a site-by-site basis to move each site toward a reclamation certificate as soon as practical.
5. Develop, maintain and execute an asset retirement management program to systematically reduce the number of inactive wellbores, and associated liability of the Asset.

Introduction

Sproule Asset Management Limited ("SAML") was engaged by MNP Ltd. ("MNP" or the "Monitor"), in its capacity as Court Appointed Monitor of Abbey Resources Corporation ("Abbey") pursuant to a Professional Services Agreement dated September 20, 2021 to conduct an independent review of:

- Pipeline Risk Assessment report dated 2021-12-03 ("PRA");
- Ministers Order MRO 14/22 ("MRO 14/22") and the impacts the order will have on the production of the Abbey assets ("Assets"); and
- Cost projections for:
  - Wellbore abandonment;
  - Wellhead cut and cap operations;
  - Site reclamation; and
  - Pipeline remediation.

The scope of the project included a review of historical production data, current pipeline license data ("Area Review"), a review of the PRA report ("Pipeline Risk Assessment Review"), a review of the MRO 14/22 ("Impact of MRO 14/22 Order"), a cost comparison between Abbey costs and costs solicited from third-party vendors ("Future Capital Cost Review"), and SAML recommendations ("Recommendations"). It should be noted no site visit was conducted to review the condition of the assets.

This report, dated February 10, 2022 ("Report") is a summary of our findings and recommendations and is being provided pursuant to the qualifiers identified in the Cautionary Statement section.

Data Sources

The Monitor has provided copies of the following information for SAML review:

- December 3, 2021 Abbey Resources Pipeline Risk Assessment;
- January 24, 2022 MRO 14/22 to Suspend Operations of Identified Segments;
- January 21, 2022 Ninth Affidavit of James Gettis; and
- January 26, 2022 Tenth Affidavit of James Gettis.

SAML reviewed publicly available data from fee-based data providers including Accumap with regards to individual well production, licensed Infrastructure details, solicited current service pricing estimates from local third-party vendors, and initiated 2 discussions with James Gettis to complete the review.

Cautionary Statements

Data Quality

As minimal data is available for the Assets, SAML has been challenged to determine the status of the Assets, fully understand the extensive regulatory issues related to the Assets, and confirm the gathering system flow dynamics related to the Assets.

The information presented in this Report is the information we have been able to compile and to the best of our knowledge is assumed to be accurate as of the Report date. Third-party information sourced from public records and through inquiry, including but not limited to Asset history, current Asset status and costing information has been accepted as accurate. SAML has not confirmed the validity of such information. Recommendations have been made assuming the information is accurate and should such information be proven inaccurate in the future, recommendations may change.

Forward-Looking Statements

This Report contains forward-looking statements including cost estimates, scheduling, and operational recommendations. These statements are based on current expectations that involve a number of risks and uncertainties, which could cause actual results and recommendations to differ from those anticipated. These risks include but are not limited to: the underlying risks of the oil and gas industry (i.e., corporate commitment, regulatory approval, operational risks in development, exploration and production); potential delays or changes in plans with respect to projects or capital expenditures; availability of third-party services, costs and expenses; health, safety and environmental factors; commodity prices; regulatory actions and exchange rate fluctuation.

Area Review

The primary objective of the area review was to identify the current production status, and areas of historical pipeline failures to complete the review of the PRA report and the impact of MRO 14/22.

The Assets include 2,555 pipeline licenses, 2,385 licensed wellbores, and 28 licensed facilities in the Abbey area of Saskatchewan. The Abbey asset includes Abbey, Abbey East, Abbey North, Abbey West, Lacadena, Lacadena South and miscellaneous fields. As of the last production date available in Accumap 1,041 wellbores are on production at 11,418 Mcf/d gross raw gas (last three-month average).

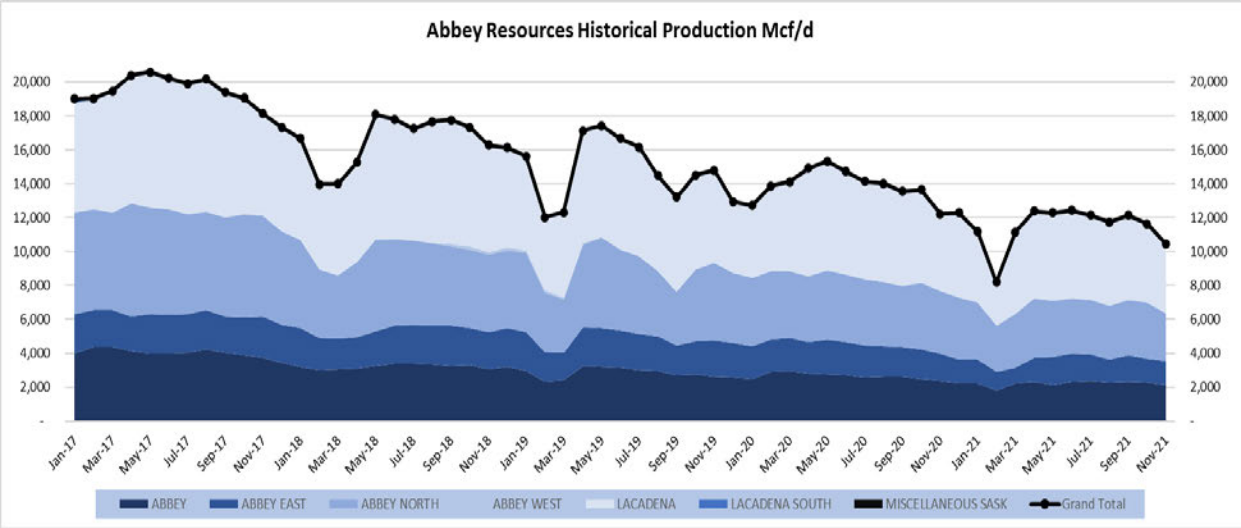


Figure 1: Abbey Resources Corporation
Historical Production Profile

Over the past five years, this property has had an increasing rate of recordable incidences relative to the total in the Province of Saskatchewan*, prompting increased scrutiny on the failure mitigation measures in place. As a result, a PRA was completed by Abbey on December 3, 2021 (Appendix “A”)

	2017	2018	2019	2020	2021	Total
ABBEY RESOURCES CORP.	12	28	46	39	66	191
Provincial Total	**588**	**672**	**684**	**428**	**497**	**2869**
Percent of total	**2.0%**	**4.2%**	**6.7%**	**9.1%**	**13.3%**	**6.7%**

Table 3: Abbey Resources Corporation
Recorded Incident Frequency

**** Ministry of Energy and Resources Saskatchewan Upstream Oil and Gas IRIS Incident Report – download Feb 6, 2022***

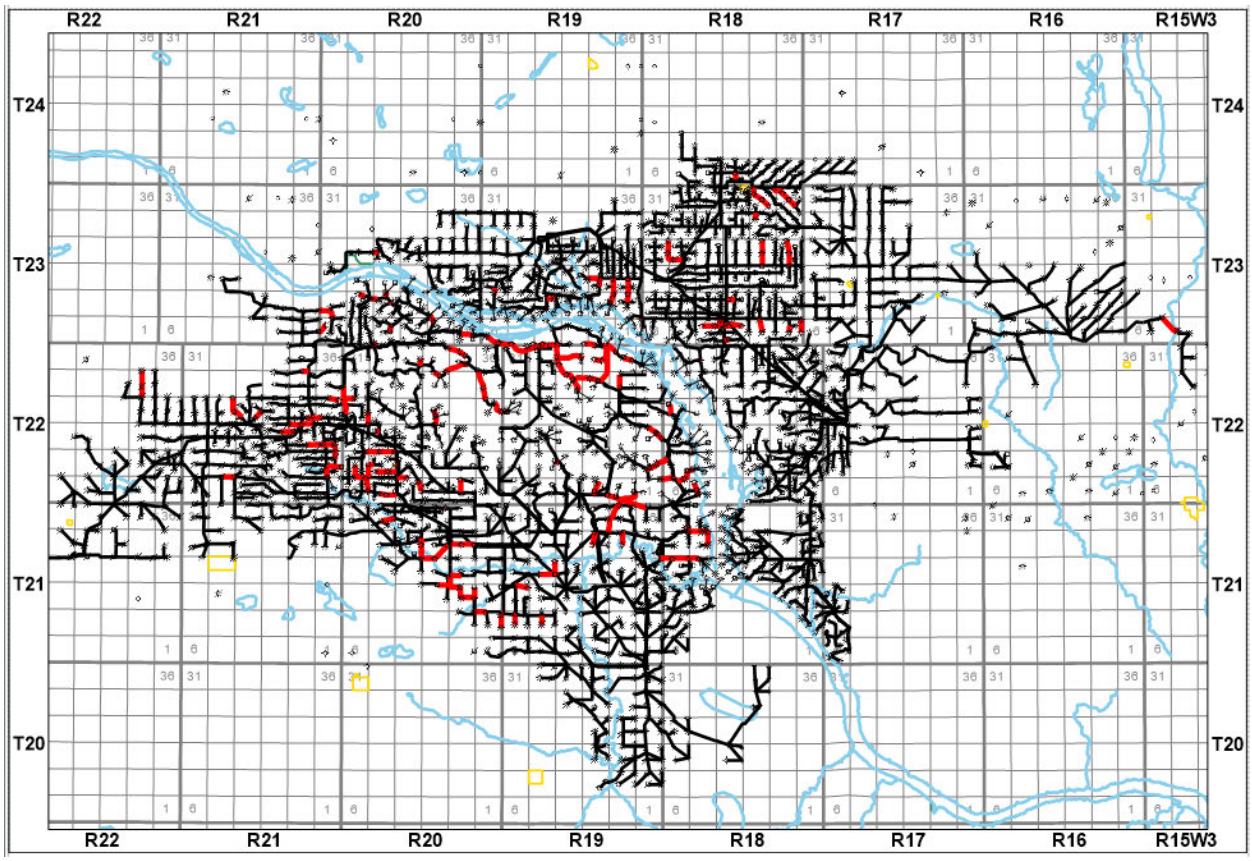


Figure 2: Abbey Resources Corporation
Licensed Pipelines, Wells / Historical Failure Sites

Figure 2 illustrates the historical pipeline failure locations over the past 5 years (red) relative to the existing gathering system (black).

With an inactive wellbore inventory of approximately 1,200 wells, SAML recommends an asset retirement management program be developed and executed. This will systemat-ically reduce the number of inactive wellbores, and associated liability. The proposed management program should be focused on liability management and developed in con-sideration of a corporate cash flow model, environmentally sensitive areas, and regulatory obligations.

Pipeline Risk Assessment Review

The PRA identified that while roughly 37% of the pipelines in the Asset were high-density polyethylene (“HDPE”) or composite pipe, only 5% of failures in the last five years were on pipelines of this material; as such, the focus of the PRA was limited to the steel pipelines.

While the PRA conformed and complied with CSZ Z662:19 and ASME B31.8S-2020, the results need to be reviewed in the context that the report was written. The risk analysis presented a modified risk matrix classification of Low / Medium / High and Very High for each steel pipeline in the gathering system as a relative measure of risk by combining subjective numerical estimates of both likelihood and potential consequence.

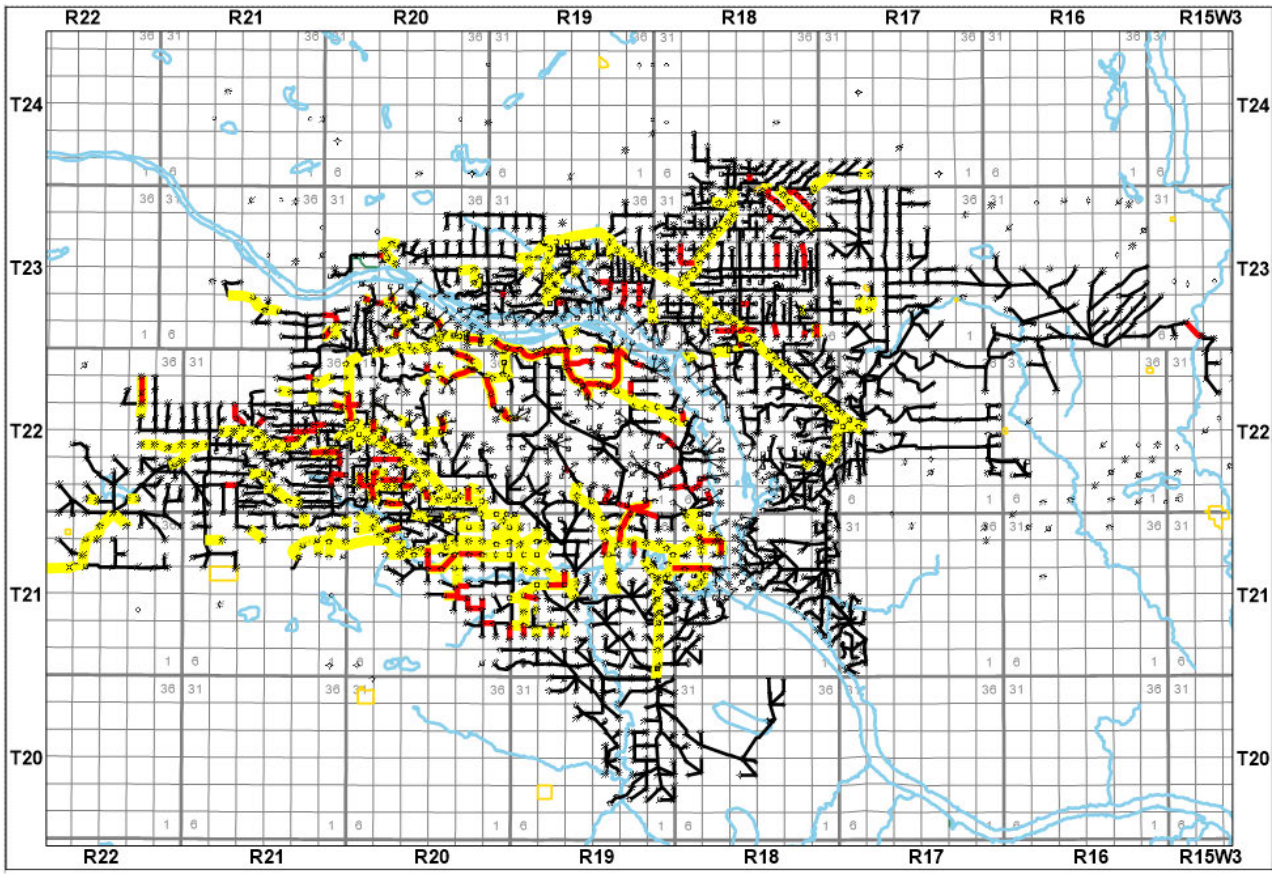


Figure 3: Abbey Resources Corporation
Pipeline Risk Report High & Very High Category / Historical Failure Sites

As can be noted by Figure 3 in some areas of the field, the Very High and High risk results from the PRA are coincident with historical failures, largely due to historical failure occurrences being one of the criteria for the assessment. North of the river there is a disconnect in the PRA results versus historical failures. This disconnect warrants an additional review, as several of the lines identified as “High or Very High” risk are key infrastructure members that affect a significant

amount of production. Additionally, the author of the PRA was clear that “This risk evaluation therefore should not be considered a failure prediction ranking, but rather a source for ranking and prioritizing pipelines for applying risk management strategies as discussed in the following section of this assessment.” Several key data sources were absent from the PRA report which would allow more accurate failure prediction modeling to be conducted. Supplemental information that should be considered is as follows:

1. Wellbore production rates;
2. Pipeline segment specific flow rates and pressures;
3. Area specific fluid analysis:
    a. Compressor inlets;
    b. Historical failure sites;
4. Area specific gas analysis;
5. Installation dates (age) of pipelines;
6. Historical failure analysis reports;
7. Current and past operating practices (mitigation measures employed);
8. Identification of corrosion / erosion mitigation measures:
    a. Cathodic Protection;
    b. Pigging Records;
    c. Biocide treatments; and
    d. Corrosion inhibitor.

SAML recommends the supplementary data that was not considered in the PRA be sourced, and incorporated into a more robust failure prediction model. This new model should consider both unmitigated and mitigated risk profiles and serve as the basis of prevention of future failures. Appropriate failure prevention measures should be employed throughout the field on segments that possess significant risk of failure that can be mitigated. Segments that are identified as possessing an unacceptable risk profile should be considered for inspection, line remediation or decommissioning. SAML estimates the cost will be [redacted] and require approximately 30 days to complete upon receipt of the information, to build a more robust failure prediction model.

Impact of MRO 14/22

On Friday, December 3, 2021 a copy of the PRA report was sent to Mr. Chad Lang, P.Eng. of the Ministry of Energy and Resources. Subsequent to receipt of the PRA, the Ministry issued MRO 14/22. MRO 14/22 stated “Abbey Resources Corporation is hereby ordered to suspend operation of all flowline segments listed in Table 1: Abbey Resources Corporation High and Very High Risk Segments effective Monday, January 24, 2022.”

Given the results of the PRA are a relative measure of risk by combining subjective numerical estimates of both likelihood and potential consequence, SAML believes that suspending the operation of all the pipeline segments the PRA identified as High and Very High is not prudent at this time. It is recommended to expeditiously obtain and incorporate the supplementary information that was not considered in the original report to produce a failure prediction model to more fully understand which specific segments possess an unacceptable risk of failure, and initiate inspection, remedial action, or properly suspend the lines.

By examining the gathering system in detail, wellbores that would be affected by MRO 14/22 were identified and their historical production rates calculated to quantify the amount of production anticipated to be immediately reduced as a result of the order. It is estimated that a production loss of 5,344 Mcf/d (46% decrease) would occur due to wells not being able to access the compression nodes. Additional production will also be lost due to the hydraulics of the overall gathering systems being altered, applying additional back pressure on wells still capable of producing. It is noted that SAML requested to speak with current field operations staff to confirm gathering system flow dynamics, and this request went unfulfilled. Non-producing wellbore inventory is estimated to rise by 37%, due to MRO 14/22.

	Abbey Resources Corporation						
	Total Pipeline Segments	Well Bores	Abandoned	Shut In	Producing	Gross Raw Mcf/d*	Production % of total
Base Production	2,555	2,385	86	1,258	1,041	11,418	100%
MRO 14-22	**257**	**1,216**	**38**	**707**	**471**	**5,344**	**46%**
Remaining post MRO 14-22	2,555	2,385	86	1,729	570	6,074	54%

* Sept, Oct, Nov 2021 average production rate

Table 4:
Production Impact of MRO 14/22

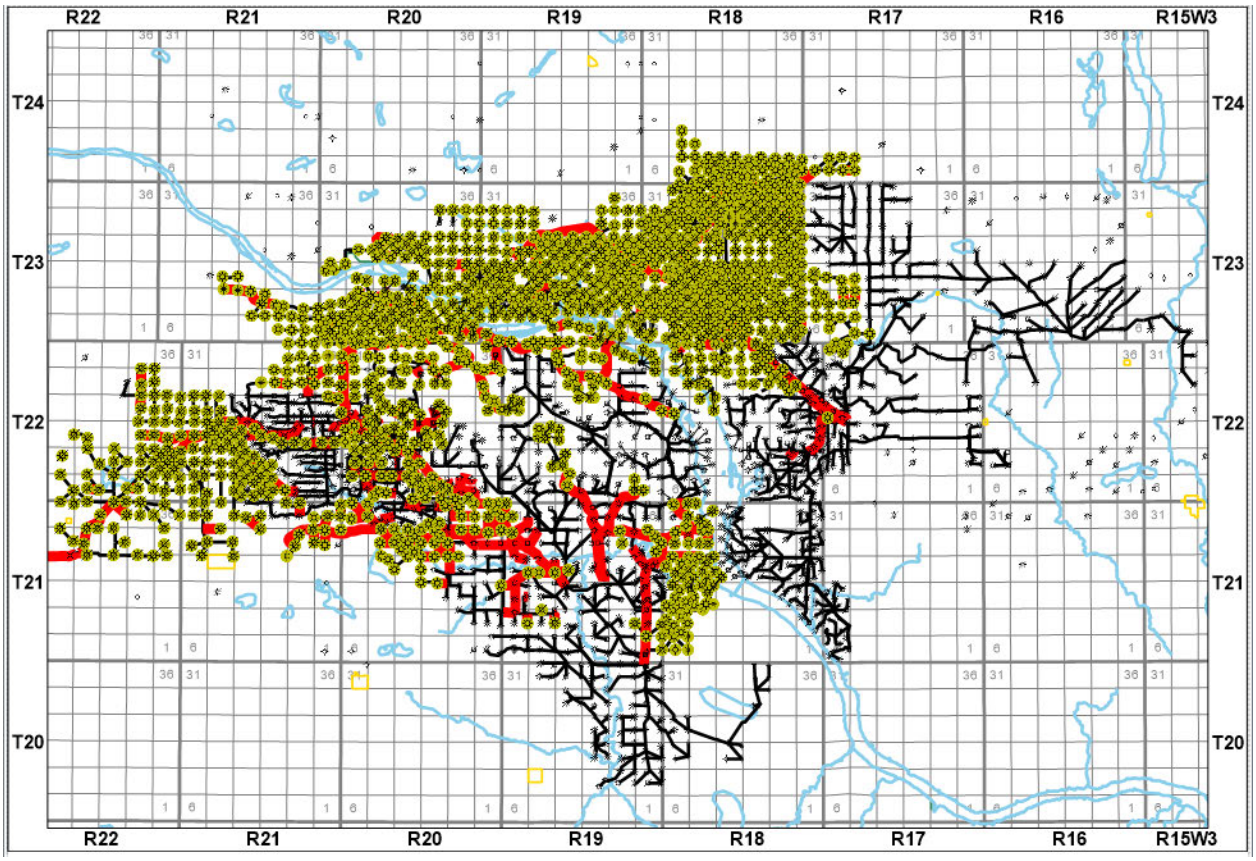


Figure 4:
Wells Directly Impacted by MRO 14/22

Future Capital Cost Review

SAML reviewed the Abbey Business Plan dated January 19, 2022 ("Business Plan"), focusing on costs for pipeline remediation and wellbore abandonment and reclamation. The Business Plan costs are summarized below:

1. Total wellbore abandonment and reclamation - $8,600/well;
    a. Wellbore downhole abandonments - $3,600/well;
    b. Cut and cap operations - $1,800/well;
    c. Surface reclamation and obtaining of reclamation certificate $3,200/well; and
2. Installation of pipeline liners - $10/meter installed.

For confirmation of Abbey costs, SAML solicited quotes from third-party vendors in the vicinity of the operations (to reduce travel component of services) for the array of services and material required to 1) abandon and reclaim the Abbey wellsites and 2) install pipeline liners. These cost estimates are summarized below.

1. Total wellbore abandonment and reclamation – $[redacted]/well - assuming no surface casing vent flows ("SCVF").
    a. Wellbore downhole abandonment average $[redacted]/well:
        i. $[redacted]/well
            1. Setting isolation bridge plug, pressure test and cement cap;
        ii. $[redacted]/well
            1. Pull coil tubing string from wellbore prior to abandonment;
        iii. $[redacted]/well
            1. Safety services, well site supervision, record management, regulatory compliance, pressure test, trucking; and
        iv. $[redacted]/well
            1. Contingency for an additional for failed pressure test, hole location, second plug, pressure test and cement cap due to casing failure (if required).

    b. Cut and Cap $[redacted]/well.

    c. Reclamation average $[redacted]/well.

    SAML solicited the experience of surface reclamation and remediation vendors who have completed over 11,000 shallow gas wellbore abandonments. They have provided cost estimates based on their experience at the rates of:
        i. $[redacted]/well – Phase I Environmental Site Assessment ("ESA") (assumes 90% pass rate for shallow gas so long as drilling waste disposal records can be supplied);

ii. $[redacted]/well – average dirt work across the project including reseeding compaction / restoration / new soil / trucking / safety;
iii. $[redacted]/well – vegetation management to time of Acknowledgment of Reclamation ("AOR");
iv. $[redacted]/well – Detailed Site Assessment ("DSA") / AOR application / landowner sign off / project management; and
v. $[redacted]/well – contingency per well to account for wells requiring additional ESA inspections (Phase II / Phase III) and some potential contamination/soil sterilization.

Table 4 below provides a summary of the Abbey costs compared with the SAML cost estimates.

	Abbey Resources Corporation	SAML estimate
Downhole Abandonment	$3,600	[redacted]
Cut and Cap	$1,800	
Surface Reclamation	$3,200	
Total	**$8,600**	

Table 5:
Wellbore Abandonment and Reclamation Cost Estimates

The most significant difference between the Abbey costs vs SAML is as follows:

- SAML has assumed there will be costs to pull the coil tubing from the existing wellbores, and the requirement for third party supervision, safety, pressure testing and water hauling;
- SAML has assumed there will be contingency costs to set additional downhole plugs in situations where the primary plug does not pressure test;
- SAML has incorporated costs for dirt work, vegetation management, and contingency for Phase II Environmental Site Assessments ("ESA") on 10 % of the well count;
- It is estimated the wellbore abandonments would take between 60-80 days to complete with cut and cap operations taking 50-70 days;
- It is anticipated that surface reclamation costs could be incurred over a number of years after cut and cap operations; and
- Downhole abandonment costs specifically exclude any costs relating to wells which possess a surface casing vent flow ("SCVF").

While the Abbey Business Plan is in the correct range of costs for the downhole well abandonment for an ideal case, it assumes no dual zones will need to be abandoned and/or all casing will pressure test and no additional plugs will need to be set. It also assumes that Abbey will be able to pull the coil tubing from all the wells with their coil tubing unit at a net zero cost and insufficient costs have been included for water hauling, wellsite supervision, pressure testing, safety services and regulatory reporting. A more realistic value to use for these abandonments would be $[redacted]/well, assuming pulling coil tubing for each well and incorporating a 25% rate of requiring additional plugs due to some type of casing failure or failure to pressure test. **This value does not include downhole abandonment of any of**

the 275+ wells which have been identified as active SCFVs. Third-party vendors have confirmed current pricing for cut and cap work in this area. Project level pricing confirms the ability to cut and set a wellhead vented cap with well name welded on cap at the identified rate. This cost assumes no conductor pipe external to the surface casing and the ability to cut and cap up to five wells/day. The largest difference in proposed costs between the Abbey Business Plan and the SAML third-party estimates is in the site reclamation costs. Abbey assumes 100% of the well sites will only require a Phase I ESA and that all reclamation, and remediation (if necessary) will be performed at zero cost by Abbey personnel. There is no contingency in the Abbey costs for Phase II or Phase III ESA (If required). While it is reasonable to assume that with the correct equipment certification and training a portion of the dirt work reclamation costs may be reduced, it does not address a major concern environmental companies are dealing with on similar wells with the historical over-application of herbicide resulting in sterilization of soils adjacent to the wellhead site. If identified this can add up to $[redacted] to $[redacted]/site. Native prairie grasslands are also extremely difficult to re-establish particularly if there are extended periods of drought, dramatically increasing the time frame to obtain an AOR.

2. Third-party vendors have confirmed current pricing for HDPE pipe which would be used for lining steel lines deemed unacceptable to return to service. Using current pricing and a weighted-average based on the MRO 14/22 order of shut-in line size, the cost of materials of the free standing liner in the affected pipelines would average $[redacted]/m. As can be observed from the table below, if it is determined that the larger diameter lines are higher priority, the cost of materials will increase disproportionally to $[redacted]/m.

High / Very High Distribution Line diameter (mm)	Sum of Length (Km)	% distribution	Liner Size	$/m for Liner
114.3	182.37	59%	3 " DR 11	$ [redacted]
168.3	60.46	19%	4" DR 11	$ [redacted]
219.1	38.88	13%	6 " DR 11	$ [redacted]
267	2.4	1%	6 " DR 11	$ [redacted]
88.9	26.68	9%	2" DR 11	$ [redacted]
Grand Total	**310.79**	100%	Weighted Average	$ [redacted]

Table 6:
High / Very High Pipeline Size and Length Distribution

Typically, free standing HDPE pipe can be installed through existing steel pipelines up to lengths of 800 to 1,000 meters depending on diameter clearances and bends in the line. The pipelines need to be prepared by pigging and purging to remove any solids or debris and render the lines safe for the procedure. At each 800 to 1000 meter interval the pipeline needs to be excavated, the steel line cut, and a wireline tool inserted and pressurized to send it to the opposite end of the segment where the HDPE can be attached and back pulled through the section. At each excavation the two ends of the HDPE lines need to be fusion welded together with specific machinery and the lines reburied to depth. A

satisfactory pressure test and quality control package are required for regulatory compliance.

Third-party vendors have provided a cost estimate for installation of the free standing liners. The costs provided were for a cross section of various line sizes and varying lengths. As the installation costs are very specific based on the program and the specific line to be installed it would be prudent to solicit a firm quote for service once those details are known. In addition, new lines require licensing, supervision to install, pressure testing, fittings, safety services and final quality control documents. The estimated install costs range from $[redacted]/m to $[redacted]/m depending on the line length and liner size. The diversity in the price range is largely due to equipment moves inter-field to access bell holes required for pulling the pipe and the lower ability to distribute certain fixed costs over the length of the shorter lines. Using current pricing and a weighted-average based on the MRO 14/22 order of shut-in line size, the cost of installing the free standing liners is estimated to average $[redacted]/m.

Combining both the material and installation of free standing liners yields an estimated cost of $[redacted]/m assuming the work is undertaken as a project to minimize site mobilization and demobilization. This assumes a weighted-average number of pipelines would be remediated using this technique. Ultimately if the lines selected to be replaced were disproportionally larger than the weighted-average, the cost to procure and install could be in excess of $[redacted]/m.

Just prior to the finalization of this Report, Abbey has indicated they have acquired most of the tools required to install their own free standing liners in pipelines. They propose to purchase a fusing machine, educate and maintain their own employees in the use of the tools, and utilize an employee who has a B pressure welding certificate to do all future welding as required. This plan of action is the basis of the Business Plan costs of $10.00/m installed for future restoration of certain gathering segments. Based on the required size and pressure rating of HDPE and current prices, it is anticipated that the weighted-average cost of the liner material will exceed the budget for material and installation provided by Abbey.

SAML is unable to evaluate this proposal at this time as it would require a more fulsome understanding of Abbey's actual equipment, capabilities, safety, quality control, and ability to properly and safely install, connect, pressure test and ensure competency of the systems.

	Abbey Resources Corporation Abbey Installed	SAML Estimate Third party installed
Material ($ / m)	$1.27	[redacted]
Installation ($ / m)	$8.75	[redacted]
Total	**$10.02**	[redacted]

Table 7:
Free standing HDPE Liner Cost Estimates

Recommendations

SAML has compiled a list of recommendations based on the information reviewed for the property.

1. Obtain and incorporate the following specific data into a failure prediction model based on gathering system conditions, estimated to cost [redacted] based on review:
    a. Wellbore production rates;
    b. Pipeline segment specific flow rates and pressures;
    c. Area specific fluid analysis:
        i. Compressor inlets; and
        ii. Historical failure sites;
    d. Area specific gas analysis;
    e. Installation dates (age) of pipelines;
    f. Historical failure analysis reports;
    g. Current and past operating practices (mitigation measures employed);
    h. Identification of corrosion / erosion mitigation measures:
        i. Cathodic Protection;
        ii. Pigging Records;
        iii. Biocide treatments; and
        iv. Corrosion inhibitor.
2. Based on the new failure prediction model, identify segments of pipeline that are determined to have unacceptably high risks of failure;
    a. Obtain segment specific quotes for pipe and installation of free standing liners and perform an economic analysis on the cost benefit of remediating the system on a line-by-line basis;
    b. Organize and remediate pipelines that have favorable economics minimizing inter-field moves throughout; and
    c. Suspend pipeline segments that are determined to have unacceptable risks of failure and insufficient economic benefit to remediate.
3. Identify the 200+ wells to be abandoned in 2022 and secure downhole abandonment services to perform operations in summer 2022 as a continuous project;
    a. Secure gas migration testing equipment services and wellhead cut and cap services to begin operations a few weeks post downhole abandonment;
    b. Pig and purge pipelines associated with wells that are to be abandoned; and
    c. Secure wellhead cut and cap services to cut, cap and remove any existing surface equipment including the old wellheads. Cut and plug the pipeline risers at the same time as the wellheads to avoid re-mobilizing cutting unit for proper abandonment of the gathering system.

4. Complete Phase I ESA for all abandoned wells;
    a. Develop a tracking system to track reclamation and, if required, remediation on a site-by-site basis to move each site toward a reclamation certificate as soon as practical.
5. Develop, maintain, and execute an asset retirement management program to systematically reduce the number of inactive wellbores, and associated liability of the Asset.

Conclusions

The Assets reviewed include 2,555 pipeline licenses, 2,385 licensed wellbores, and 28 licensed facilities in the Abbey area of Saskatchewan.

The Pipeline Risk Assessment dated 2021-12-03 conformed and complied with CSZ Z662:19 and ASME B31.8S-2020; however, the results need to be reviewed in the context the report was written. The risk analysis presented a modified risk matrix classification of Low, Medium, High and Very High as a relative measure of risk by combining subjective numerical estimates of both likelihood and potential consequence. The risk evaluation should not be considered a failure prediction ranking, which is required to make the proper decisions regarding the ongoing operation of the field.

Given the results of the PRA are a relative measure of risk by combining subjective numerical estimates of both likelihood and potential consequence, SAML believes that suspending the operation of all the pipeline segments the PRA identified as High and Very High is not prudent at this time. It is recommended that the supplementary data that was not considered in the original report be provided, and a more accurate failure prediction model be developed and reviewed to prevent future failures. It is estimated a new failure prediction model incorporating the missing data would cost approximately [redacted] and require approximately 30 days to complete, subject to an initial review of the gathering system and currently available material.

The impact of MRO 14/22 on current production is anticipated to reduce field wide production by 46% of current production rates or 5,344 Mcf/d as a base number. Additional back pressure and gathering system bottle necks will cause additional production loss that would require a dynamic hydraulic model to calculate the effects. Non-producing wellbore inventory is estimated to rise by 37%, due to MRO 14/22.

Abbey has budgeted future costs based on the following:

1. Total wellbore abandonment and reclamation - $8,600/well;
    a. Wellbore downhole abandonments - $3,600/well;
    b. Cut and cap operations - $1,800/well;
    c. Surface reclamation and obtaining of reclamation certificate $3,200/well; and
2. Installation of Pipeline Liners - $10/meter installed.

SAML has solicited third-party vendors to provide cost estimates for the work based on offset and ongoing projects of a similar nature. The results of the undertaking are as follows:

1. Total wellbore abandonment and reclamation – $[redacted]/well excluding wells with SCFV;
    a. Wellbore downhole abandonments - $[redacted]/well;
    b. Cut and cap operations - $[redacted]/well;
    c. Surface reclamation and obtaining of reclamation certificate $[redacted]/well; and

2. Installation of pipeline liners - $[redacted]/meter installed.

SAML has compiled a list of recommendations based on the information reviewed for the property.

1. Obtain and incorporate the following specific data into a failure prediction model based on gathering system conditions:
    a. Wellbore production rates;
    b. Pipeline segment specific flow rates and pressures;
    c. Area specific fluid analysis:
        i. Compressor inlets; and
        ii. Historical failure sites;
    d. Area specific gas analysis;
    e. Installation dates (age) of pipelines;
    f. Historical failure analysis reports;
    g. Current and past operating practices (mitigation measures employed);
    h. Identification of corrosion / erosion mitigation measures:
        i. Cathodic Protection;
        ii. Pigging Records;
        iii. Biocide treatments; and
        iv. Corrosion inhibitor.
2. Based on the new failure prediction model, identify segments of pipeline that are determined to have unacceptably high risks of failure;
    a. Obtain segment specific quotes for pipe and installation of free standing liners and perform an economic analysis on the cost benefit of remediating the system on a line-by-line basis;
    b. Organize and remediate pipelines that have favorable economics minimizing inter-field moves throughout; and
    c. Suspend pipeline segments that are determined to have unacceptable risks of failure and insufficient economic benefit to remediate.
3. Identify the 200+ wells to be abandoned in 2022 and secure downhole abandonment services to perform operations in summer 2022 as a continuous project;
    a. Secure gas migration testing equipment services and wellhead cut and cap services to begin operations a few weeks post downhole abandonment;
    b. Pig and purge pipelines associated with wells that are to be abandoned; and
    c. Secure wellhead cut and cap services to cut, cap and remove any existing surface equipment including the old wellheads. Cut and plug the pipeline risers at the same time as the wellheads to avoid re-mobilizing cutting unit for proper abandonment of the gathering system.
4. Complete Phase I ESA for all abandoned wells;
    a. Develop a tracking system to track reclamation and, if required, remediation on a site-by-site basis to move each site toward a reclamation certificate as soon as practical.

5. Develop, maintain and execute an asset retirement management program to systematically reduce the number of inactive wellbores, and associated liability of the Asset.

As SAML continues to source information and gains a better understanding of the Assets, the recommended work may change, and cost estimates will be refined.

Certification

Report Preparation

This report titled “MNP – Abbey Resources Corporation CCAA” report dated February 10, 2022 was prepared by the following Sproule personnel:

Project Manager

Richard Wade P.Eng
Managing Director, Asset Management

Validation

This report has been reviewed in accordance with Sproule corporate practice.

Sproule Asset Management Limited

Feb. 10, 2022

Randall J. Green, P.Geoph.
SVP, Asset Management

Appendix A - Pipeline Risk Assessment December 3, 2021

PIPELINE RISK ASSESSMENT

PREPARED BY

Name	Title	Date
Bob Prieston	Pipeline Integrity Engineer	2021-12-03

Explore Surveys Inc.
APEGS Certificate of Authorization 42696

Table of Contents

1 Scope

Abbey Resources has experienced a number of pipeline failures within their gas gathering systems which have typically been on steel pipelines and attributed to a combination of internal corrosion and erosion due to the presence of fluids and fine sands in the production from the associated shallow wet gas wells. The resulting impact from these failures is typically small volume fluid releases.

Abbey Resources has initiated this pipeline risk assessment inclusive of both a risk analysis and risk evaluation, in order to identify and prioritize the risk of all of their pipeline assets. This assessment has been completed as a prescriptive based assessment and is intended to be utilized by Abbey Resources to develop a mitigation and/or rehabilitation plan to effectively reduce the number of pipeline failures occurring within their pipeline systems.

The measures of risk utilized in this assessment have been selected on the basis of consideration of the following factors:

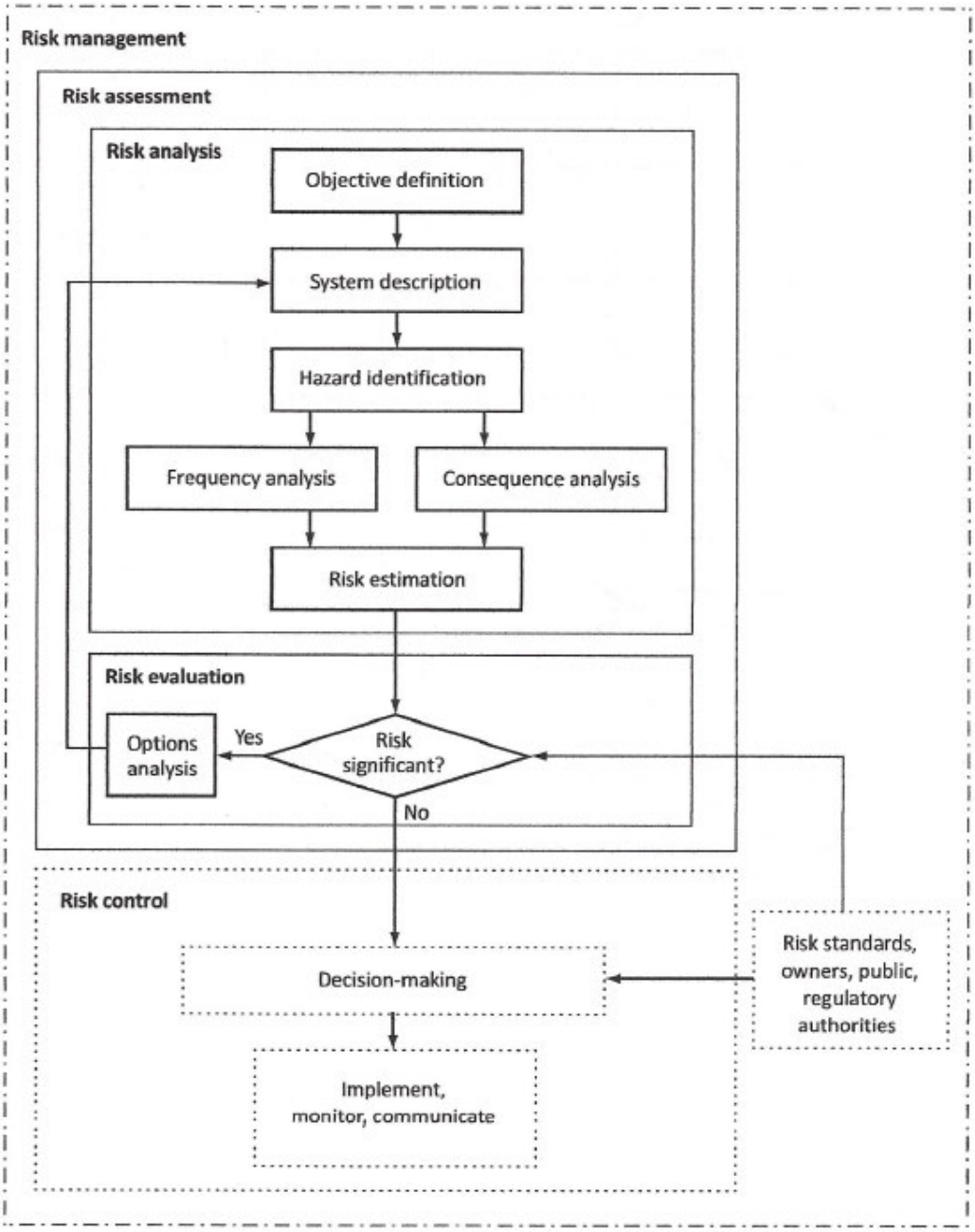
1. Potential probability and scale of release incidents,
2. Potential extent of environmental damage per release incident, and
3. Potential economic cost per release incident.

1.1 Assessment References

Base risk assessment results have been configured and compiled from the Converge Risk Assessment analysis owned and licensed by GDM, and then further revised to be reflective of the system specific likelihood and consequence drivers specific to the Abbey Resources pipeline systems.

This assessment has been completed within accordance of CSA Z662-19, Annex B – *Guidelines for risk assessment of pipeline systems*, as well as with consideration of applicable components of ASME B31.8S-2020 – *Managing System Integrity of Gas Pipelines*. Additional reference for the detailed risk analysis results, as per CSA Figure B.1 requirements for risk analysis shown on the following page, should be made to the analysis completed by Explore, file titled *Abbey Resources Pipeline Risk Analysis.xlsx*.

Figure B.1
The process of risk management
(See Clause B.2.2.1.)



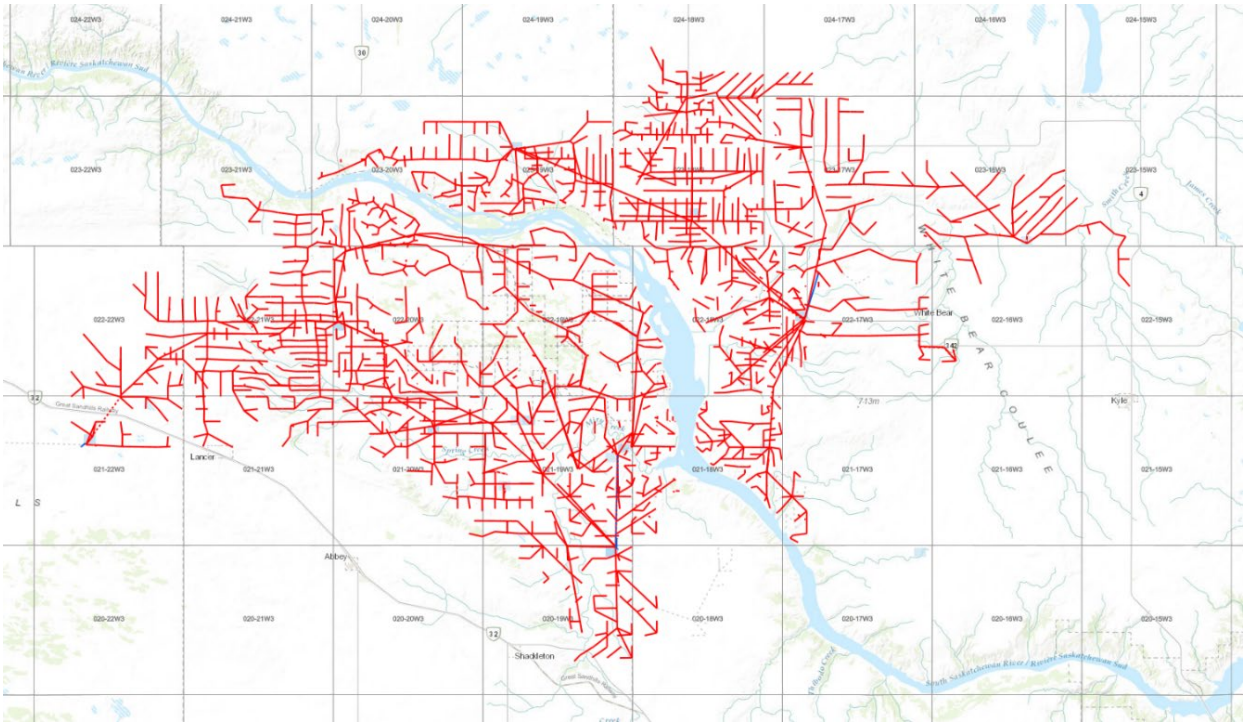
1.2 **Assessment SME Qualifications**

This assessment has been completed by the following qualified Subject Matter Expert (SME):

Bob Prieston, P. Eng. – Bob is a registered Professional Engineer in both Alberta and Saskatchewan, and is also a NACE certified Senior Internal Corrosion Technologist. Bob worked for 11 years for an upstream oil and gas producer in Saskatchewan in a field based position. In his role as a Pipeline Integrity Coordinator, Bob initially aided in developing a pipeline integrity program and then managing it day to day to support Operations personnel. In his later years, he moved into a senior role to provide guidance to all of the company's field based pipeline integrity coordinators in the four Western Canadian provinces, working with requirements of integrity management programs under four provincial regulatory bodies, as well as a small number of pipelines regulated by the Canadian Energy Regulator (CER). After joining Explore 5 years ago, Bob has continued to provide numerous clients across the Western Canadian provinces with similar scopes of Pipeline Integrity Engineering support and manage Explore's team of asset integrity professionals.

2 System Description

The Abbey Resources gas gathering system is located in west central Saskatchewan between Swift Current and Rosetown, SK, and is comprised of numerous gas gathering systems on either side of the North Saskatchewan River, as shown below.



The combined tally of pipelines between the seven different gathering systems is 2557 pipelines, the majority of which are either Steel or HDPE low pressure wet gas gathering pipelines from wells into central Compressor locations. The gas gathering systems have all been purchased by Abbey Resources in recent years from different historical producers in the area, with some of the systems being constructed predominantly from non-metallics materials (i.e. HDPE) and other constructed predominantly using steel pipelines, as shown in the breakdown in the table below.

System	Non-metallics		Steel	Unknown	Total
	Composite	HDPE			
Abbey	--	106	--	--	**106**
Cramersburg	72	--	693	1	**766**
Lacadena North	11	1	394	4	**410**
Lacadena South	83	364	6	--	**453**
Miry Bay	--	1	107	--	**108**
Shackleton	52	199	224	--	**475**
Snipe Lake	55	1	182	1	**239**

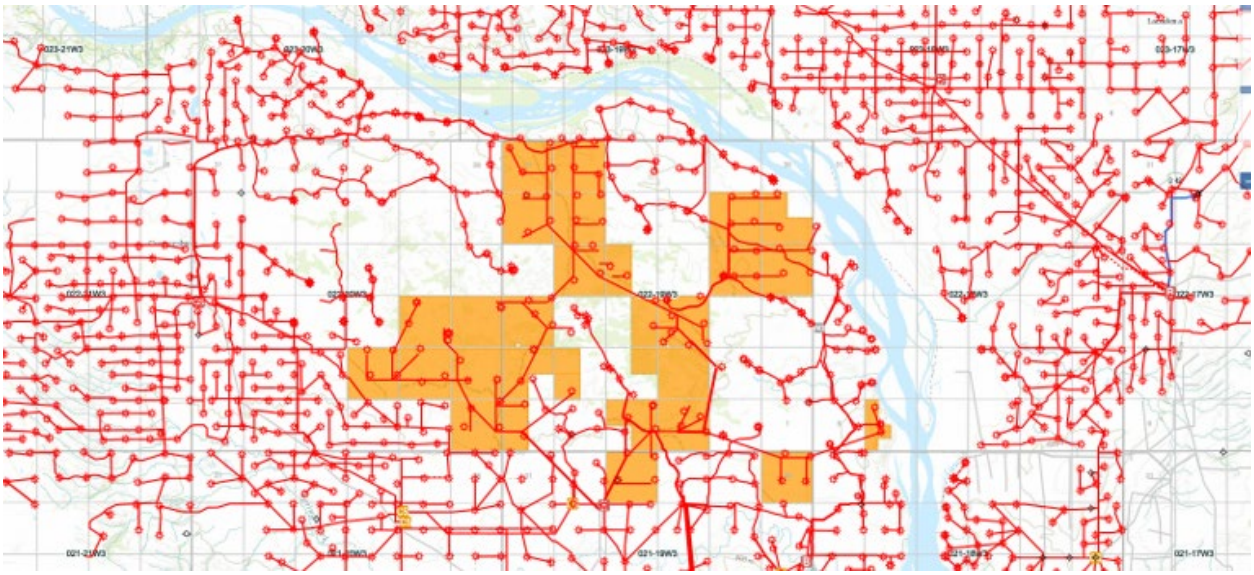
The pipeline diameters in the gathering systems are generally relatively small with low volume capacity and actual production associated with them.

System	NPS 2 (60.3mm)	NPS 3 (80.0-99.0mm)	NPS 4 (104.9-127.0mm)	NPS 6 (168.3mm)	NPS 8 (219.1mm)	NPS 10 (267 – 273.3mm)
Abbey	--	--	35	15	2	54
Cramersburg	6	268	426	52	12	2
Lacadena North	58	148	174	30	--	--
Lacadena South	--	47	362	17	27	--
Miry Bay	--	13	95	--	--	--
Shackleton	35	42	361	23	8	6
Snipe Lake	2	138	94	5	--	--

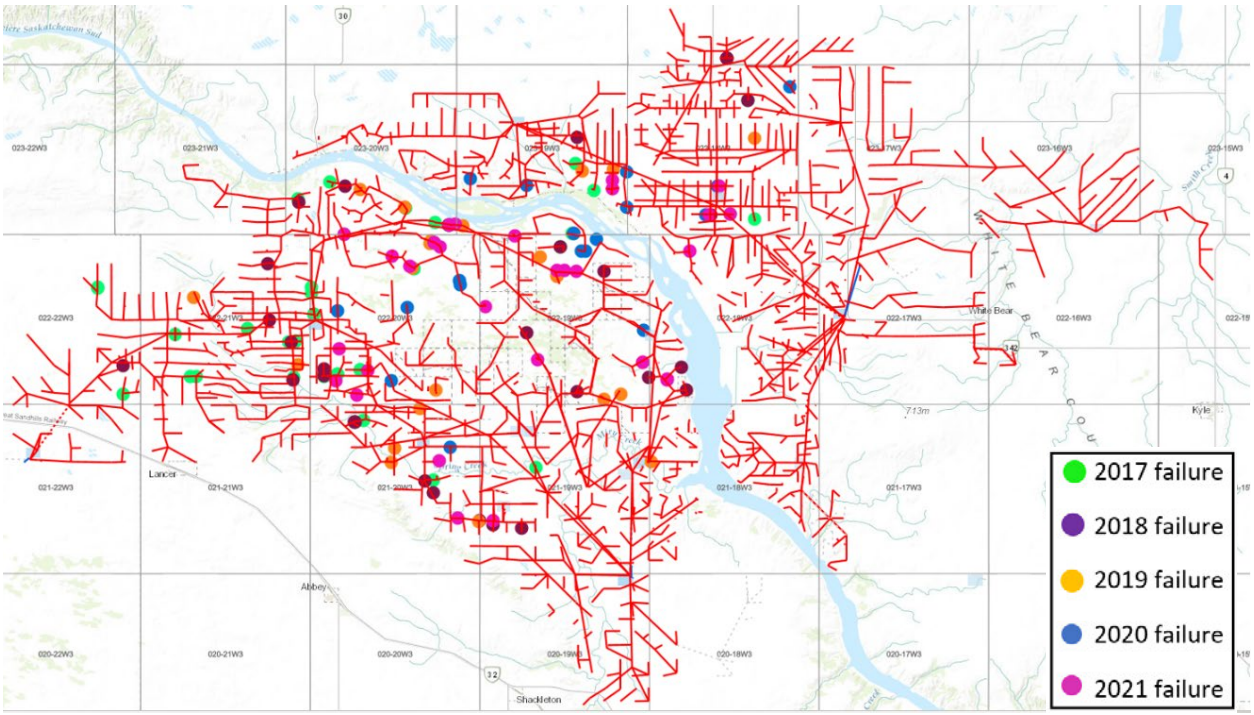
For this assessment, the following operating conditions were unknown and could not be verified:

- Specific age of individual pipelines (i.e. year of construction)
- Specific production volumes associated with each pipeline
- Specific operating pressures and gas contents associated with each pipeline

All of the Abbey Resources gathering systems are located within a region of agricultural cropland or grassland. A portion of some of the gathering systems are additionally noted to be located with areas of Indigenous lands, as displayed in the map below by the orange shaded regions.



With the failure history Abbey Resources has experienced on its pipeline systems in recent years, the predominant failure mechanism is understood to have been a combination of internal corrosion and erosion due to solids in the production stream. The map on the following page displays the locations of historical pipeline failures Abbey resources has tracked to date since 2017. The majority of the failures have occurred in the Cramersburg system, with Lacadena North, Miry Bay and Shackleton also seeing some failures.



3 Risk Analysis

3.1 Methodology

Base risk assessment results have been configured and compiled from the Converge Risk Assessment analysis, with the methodology of the analysis summarized in the tables below. The summary provided is based off of Risk Factor definitions provided by GDM (the software owner) within the limitations of proprietary protection of their algorithm definitions. The methodology and resultant analysis was completed in consideration of the recommended risk assessment approach as outlined in Section 5.5 of ASME B31.8S-2020 and accordance with the requirements in Section B.5.2 of CSA Z662-19, Annex B using mathematical modelling.

Likelihood Categories:

Category	Driver	Target	Data Used	Weighting
Geotechnical	Potential stress caused along a pipeline due to geotechnical considerations such as saturated soils, slopes, earth movement and removal of vegetation which would normally slow erosion or soil movement.	Identify external factors which could present additional risks to a pipeline	Soil Survey, Elevation Profile	40%
Internal Corrosivity	Potential for corrosion within a pipeline based on commodity	Identify pipelines which have high potential for internal corrosion	Pipeline Commodity, Pipeline Category, Pipeline Material, Pipeline Age, Internal Protection	20%
Flow Characteristics	Potential for corrosion between similar substances using elevation profile to identify areas where liquid may pool or where emulsion and solids may deposit	Identify where there is highest potential for corrosion to occur based on the flow through the line	Flow Characteristic Events	40%

Consequence Categories:

Category	Driver	Target	Data Used	Weighting
Accessibility	Ease of access and time required to detect a failure event and mobilize remediation workers on site	The more difficult a line is to access, the higher the potential consequences of a spill will be	Accessibility	10%
Indigenous Land	Land in which First Nations communities have an interest	The presence of trapping, historic sites and other factors significantly increase the potential impact of any spill on first nations lands	Aboriginal Lands Data	20%
Land Use	Indication of primary land use. This can include agricultural, urban, grassland, forested and barren lands.	Activity or a spill in any of these areas will generally represent a significant impact.	Land Use Data	20%
Protected Area	Environmentally important or sensitive areas, identified by the International Union for Conservation of Nature (IUCN), with respect to plant species, endangered animal conservations or natural park preservation areas.	Activity or a spill in any of these areas will generally represent a significant impact.	Protected Areas Data	10%
Pipeline Volume	Maximum volume of product carried in the pipeline	A larger pipeline typically denotes a larger volume of product transported per day; this can be used as a rough indicator for potential impact, not only to the environment in the case of a rupture of the line, but of the economic risk to the company in the event of a failure	Pipeline Volume (length x inner diameter)	15%
Transportation Crossing	Pipeline crosses a road or rail location	If a failure occurs at or near a road way, there is potential for the public to be impacted, both due to health risks and disruption caused by the spill and resulting time to clean-up	Transportation Events	5%

Category	Driver	Target	Data Used	Weighting
Water Crossing	Pipeline crosses a water course, body of water or area of saturated soil	If a failure occurs at or near a crossing it will likely carry product downstream and pose a threat to the public and the environment. Pipelines crossing larger water bodies represent a critical environmental hazard, with significant costs associated with remediating spills.	National Hydrology Network	20%

Based on further review to customize the Converge risk analysis results to better reflect specific system likelihood or consequence drivers for the Abbey Resources pipeline systems, the base risk analysis from Converge was further modified as follows:

Likelihood Categories:

- Historical failure data from 2017 to date was utilized to identify pipelines with 1 or more failures historically (refer to Appendix A for a detailed list of the data), with the following failures noted by system from a total data set of 194 historical pipeline failures.

System	Year of failure					
	2017	2018	2019	2020	2021	Total
Abbey	--	2	1	--	--	**3**
Cramersburg	19	15	13	16	22	**85**
Lacadena North	4	4	6	7	5	**26**
Lacadena South	--	--	--	--	1	**1**
Miry Bay	3	9	8	7	6	**33**
Shackleton	6	8	11	4	5	**34**
Snipe Lake	2	--	5	2	3	**12**

Based on failure trends, any pipelines with one or more historical pipeline failures were assigned the following additional likelihood score supplemental to the base score calculated by the Converge program.

Likelihood Modifier	Supplemental Scoring
Historical Failure Susceptibility – 1 failure	0.25
Historical Failure Susceptibility – 2 failures	0.5
Historical Failure Susceptibility – 3 failures	0.75
Historical Failure Susceptibility – 4 failures	1.25
Historical Failure Susceptibility – 5 failures	2
Historical Failure Susceptibility – 6 failures	3

- Since pipeline specific flow volumes or fluids/solids analysis were not able to be determined for the analysis, a system fluids susceptibility for a modified likelihood supplemental score was assigned based on systems that had trended historically to have more failures, compared to other systems. All steel pipelines within systems deemed to have a high fluids susceptibility that could lead to the likelihood of a failure were assigned the following additional likelihood score supplemental to the base score calculated by the Converge program.

Likelihood Modifier	Supplemental Scoring
System Fluids Susceptibility – Shackleton, Miry Bay & Lacadena North	0.5
System Fluids Susceptibility – Cramersburg	1

- Due to the identified historical failure mechanism to be resultant from a combination of corrosion and erosion, it was determined that significant topographical deviations along a pipeline ROW could be a likelihood driver in future failures. Based on public topographical data, any pipelines with a significant elevation profile change along the pipeline route were assigned the following additional likelihood score supplemental to the base score calculated by the Converge program.

Likelihood Modifier	Supplemental Scoring
Topographical Deviation - Yes	0.5

Consequence Categories:

- Due to the sensitive nature of Indigenous lands, a review was completed to determine and identify any pipelines with any portion that intersected Indigenous land (refer to Appendix B for a detailed list of the data). The following systems were noted to have pipelines that intersected Indigenous lands with a total of 125 pipelines.

System	Pipeline Material		
	HDPE	Steel	Total
Abbey	105	--	**105**
Cramersburg	--	4	**4**
Miry Bay	1	7	**8**
Shackleton	7	1	**8**

Based on Indigenous lands locations, pipelines that intersected Indigenous land were assigned the following additional consequence score supplemental to the base score calculated by the Converge program.

Consequence Modifier	Supplemental Scoring
Indigenous Lands Consequence – Yes	1

- When further considering any other surrounding land use consequence factors specific to the Abbey Resources pipeline system, pipelines crossing a waterbody or seasonally wet area were determined to be the other significant consequence factor to utilize for the modified risk analysis. Utilizing waterbody mapping scales from the National Hydrological Network, an identified water crossings were identified at three different scales (refer to Appendix C for a detailed list of the data):
    1. 1:1,000,000 – typically characterized as year round water bodies with a defined bed and bank.
    2. 1:250,000 – typically characterized as seasonal water bodies with a defined bed and bank.
    3. 1:50,000 – typically characterized as seasonal water bodies that may not have a defined bed and bank.

The following systems were noted with pipelines that intersected year round or seasonal water body crossings on a total of 378 pipelines.

System	Waterbody Map Scale			
	1:1,000,000	1:250,000	1:50,000	Total
Cramersburg	--	12	43	**55**
Lacadena North	--	3	19	**22**
Lacadena South	19	17	42	**78**
Miry Bay	5	--	4	**9**
Shackleton	27	43	102	**172**
Snipe Lake	--	9	33	**42**

Based on hydrological data, pipelines that intersected water crossings were assigned the following additional consequence score supplemental to the base score calculated by the Converge program.

Consequence Modifier	Supplemental Scoring
Water Crossing Consequence – 1:50:000	0.33
Water Crossing Consequence – 1:250:000	0.66
Water Crossing Consequence – 1:1,000,000	1

3.2 Limitations & Assumptions

The application of data to derive a risk assessment in mathematical modeling will be affected by the limitations in accuracy of input data and assumptions made in interpretation of the data. Limitations within the results of the assessment are dependant on the following assumptions:

- The pipeline data provided was accurate as received with regards to pipeline materials and specifications.
- The characteristics of the produced fluids with regards to gas analysis, water content and solids presence was treated to be relatively similar across all of the pipelines within each gathering system due to the inability for Abbey Resources to provide specific well production info to accurately flow apportion production down individual pipelines. Exceptions between systems with regards to the effects on likelihood are discussed above in Section 3.2 for the effects of system fluids susceptibility.
- External corrosion has not been identified by Abbey Resources as a cause of the historical pipeline failures with the pipeline network and has been excluded as a likelihood driver in the weightings utilized in the Base Converge risk analysis, and corresponding modified risk analyse adjustments completed.
- Failure history data from 2017 to date, utilized within the modified risk analysis, was accepted and utilized as provided by Abbey Resources where it could be specifically applied to a specific pipeline. All other historical failure data points were disregarded for application to the analysis.
- Historical pipeline failure trends had typically had relatively small release volume with a very low consequence associated to spill release volume.
- Non-metallic pipelines did not have sufficient data available to differentiate between which non-metallic pipelines may also then have non-metallic risers, and which ones may have steel risers at the start of the pipeline. It is acknowledged that vertical steel risers may have a discernable susceptibility to corrosion/erosion failure at the bottom of the riser where it transitions for vertical to horizontal, before the material spec change to non-metallic line pipe. However for the purposes of this analysis and limitations of data available, it was been assumed all non-metallic pipelines would be treated the same with no scoring assigned for likelihood.
- The ability to pig pipelines has previously been determined by Abbey Resources as a non-effective mitigation tactic to mitigate against the erosional failure concerns historically occurring in their pipeline systems, and has not been considered in this analysis.

3.3 Hazard Identification Results

The main hazards within the defined scope of work for this assessment have been determened to be:

1. Potential small release of fluids/solds from a failure and resulting environmental impact
2. Elevated consequence of failure associated with:
    a. Pipeline failure and relase on Indigenous lands
    b. Pipeline failure and release in or near a water body

3.3.1 Likelihood Analysis

Likelihood scores in the risk analysis were assigned a risk matrix value between one and five based on the total modified likelihood scores shown in the table below:

Likelihood Score	Risk Matrix Likelihood Level
0 – 3.0	1
>3.0 to 5.0	2
>5.0 to 5.5	3
>5.5 to 6.0	4
>6.0	5

The following table summarizes per system the risk matrix likelihood levels calculated, with the percentage to the total system pipeline inventory shown in italics. The Cramersburg system is calculated to have the likelihood within the analysis.

System	Risk Matrix Likelihood Level					
	1	2	3	4	5	Total
Abbey	--	--	--	--	--	**0** ***(0%)***
Cramersburg	4 *(0.5%)*	134 *(17.5%)*	77 *(10.0%)*	356 *(46.5%)*	123 *(16.1%)*	**694** ***(90.6%)***
Lacadena North	3 *(0.1%)*	355 *(86.5%)*	17 *(4.1%)*	8 *(2.0%)*	15 *(3.7%)*	**398** ***(97.0%)***
Lacadena South	--	2 *(0.4%)*	2 *(0.4%)*	1 *(0.2%)*	1 *(0.2%)*	**6** ***(1.2%)***
Miry Bay	2 *(1.9%)*	62 *(57.4%)*	16 *(14.8%)*	8 *(7.4%)*	19 *(17.6%)*	**107** **(99.1%)**
Shackleton	2 *(0.4%)*	217 *(45.6%)*	110 *(23.2%)*	3 *(0.6%)*	73 *(15.4%)*	**405** ***(85.2%)***
Snipe Lake	2 *(0.8%)*	111 *(46.4%)*	52 *(21.8%)*	10 (4.2%)	6 *(2.5%)*	**183** ***(76.6%)***

3.3.2 Consequence Analysis

Consequence scores in the risk analysis were assigned a risk matrix value between one and five based on the total modified consequence scores shown in the table below:

Consequence Score	Risk Matrix Likelihood Level
0 – 1.5	1
>1.5 to 2.0	2
>2.0 to 2.5	3
>2.5 to 3.0	4
>3.0	5

The following table summarizes per system the risk matrix consequence levels calculated, with the percentage to the total system pipeline inventory shown in italics. The Lacadena South system is calculated to have the consequence within the analysis.

System	Risk Matrix Consequence Level					
	1	**2**	**3**	**4**	**5**	**Total**
Abbey	1 *(0.9%)*	--	--	--	105 *(99.1%)*	**106 *(100%)***
Cramersburg	344 *(45.0%)*	250 *(32.7%)*	115 *(14.9%)*	47 *(6.1%)*	10 *(1.3%)*	**766 *(100%)***
Lacadena North	237 *(57.0%)*	102 *(24.9%)*	37 *(9.0%)*	26 *(7.1%)*	8 *(2.0%)*	**410 *(100%)***
Lacadena South	176 *(38.9%)*	126 *(27.8%)*	86 *(19.0%)*	46 *(10.1%)*	19 *(4.2%)*	**453 *(100.0%)***
Miry Bay	71 *(65.7%)*	20 *(18.5%)*	5 *(4.6%)*	2 *(1.9%)*	10 *(9.3%)*	**108 (100%)**
Shackleton	203 *(42.8%)*	135 *(28.4%)*	54 *(11.4%)*	42 *(8.8%)*	41 *(8.6%)*	**475 *(100%)***
Snipe Lake	111 *(46.4%)*	86 *(36.1%)*	15 *(6.3%)*	19 (7.9%)	8 *(3.3%)*	**239 *(100%)***

3.3.3 Risk Estimation

The resulting risk matrix from the risk analysis process for the entire Abbey Reosources pipeline inventory is shown below. Due to the scope of the analysis, any pipelines that are non-metallic are not assigned a risk matrix analysis level of risk due to the lack of a likelihood calculation in the analysis. Seperately, these pipelines are presented below with a Consequence score only.

Modified Matrix Summary

Likelihood	Low				High
High	66	82	40	30	19
	215	166	2	2	1
	122	55	9	10	5
	396	169	122	65	21
Low	15	0	0	0	0
	Low		Consequence		High

Total Risk Count	
Low	702
Medium	653
High	207
Very High	50
Total	1612

Non-Metallic

329	247	139	75	155
Low		Consequence		High

When the risk analysis and matrix levels of the steel pipelines are summarized per gathering system within the Abbey Resources inventory, the following estimation of risk for the steel pipelines within each system is derived.

Steel pipelines - Risk Analysis Summary per field

Field	Low	Medium	High	Very High
Abbey				
Cramersburg	90	480	105	19
Lacadena North	308	72	17	1
Lacadena South		2	3	1
Miry Bay	62	23	18	4
Shackleton	122	28	55	19
Snipe Lake	120	48	9	6
Grand Total	**702**	**653**	**207**	**50**

It should be noted that the output from the risk analysis and resulting risk matrix to cateogorize the pipelines into the categories of Low, Medium, High and Very High Risk provides a relative measure of risk by combining the numerical estimates of likelihood and consequence. This risk evaluation therefore should not be considered a failure prediction ranking, but rather a source for ranking and prioritizing pipelines for applying risk management strageies as discussed in the following section of this assessment.

4 Risk Evaluation

4.1 Options

With the nature of the Abbey Resources pipeline systems associated to the production of low pressure, sweet gas production, the challenge and largest overall limitation for Abbey Resources is to identify economically feasible solutions to mitigate the risk identified in this assessment. Additionally, due to the nature of erosion driven pipeline failures occurring in the system, options are further limited due to the inability of implementing an industry common risk mitigation measure of applying corrosion inhibitors to mitigate the most common industry failure mechanism of internal corrosion.

Through separate analysis Abby Resources has completed on pipeline rehabilitation options prior to the completion of this risk assessment, it has been determined and is understood that:

1. Proactive in-line inspection to assess for any internal wall loss issues is generally not an economically cost effective option for most smaller diameter pipelines due to the inability to launch and retrieve inspection tools, as well as the associated production to the lines.
2. The ability to pig pipelines is a non-effective mitigation tactic to mitigate against the erosional failure concerns historically occurring in the Abbey Resources pipeline systems.
3. Pipeline replacement costs may often be more costly than rehabilitation of the pipelines through the installation of loose fit HDPE liners that are suitable for low pressure gas gathering systems. This option however may not be entirely suitable to larger diameter (i.e. >NPS 4) pipelines that require a larger bore maintained for the prevention of pressure drop and facilitating low pressure gas production.

4.2 Conclusions

Through the completion of a risk analysis by initially starting with the Converge Risk Analysis, and then modifying to better reflect specific system likelihood or consequence drivers for the Abbey Resources pipeline systems, the following conclusions on overall risk can be made. The evaluation and application of risk mitigation activities could likely be most effectively applied system by system, however some outlier pipelines in some of the overall lower risk systems should be additionally reviewed based on the singular risk analysis results. Through the process to complete a modified analysis of the pipelines, consequence of failure (i.e. due to indigenous lands, potential to impact water bodies, etc., still remained low. In general:

- The Cramersburg system does pose the highest risk for continued operation, and should be the first system for further decisions to be made for implementing risk mitigation strategies.
- The Lacadena North, Miry Bay and Shackleton systems exhibit some relatively high risk concerns that should additionally be reviewed.
- The Snipe Lake system, although has experienced some failures historically, is a relatively lower risk pipeline system.
- No apparent overall risk is prevalent in the Abbey and Lacadena South systems due to their primarily non-metallic nature of the pipeline materials.

Based on the options reviewed above, and the overall nature of the Abbey Resources pipelines systems to have an overall low consequence within the risk analysis, the most effective risk mitigation measures Abbey Resources should be considering within developing an overall risk mitigation strategy are further evaluation of the following categories of risk management options:

1. Determining the highest risk pipelines with low economics that would justify to remove these pipelines and associated wells from service due to the inability to justify the “risk versus reward on continued operation”.
2. Determining the highest risk pipelines with cost-effective economics to install loose fit HDPE liners in to mitigate against the further likelihood of a failure.
3. Determining the highest risk larger diameter steel pipelines with cost-effective economics to further evaluate for the completion of In-Line Inspection work to proactively assess for the extent of erosion/corrosion concerns.
4. Determining the highest risk pipelines with marginal economics to consider for further options around the implementation of monitoring for erosion/corrosion concerns through removable pipeline/surface piping spools or removable coupons.

4.3 Recommendations

As discussed in the conclusions of this assessment, four categories of follow-up have been identified in order to implement risk management strategies for the Abbey Resources pipeline systems.

The 50 Very High risk pipelines identified in the risk assessment should initially be reviewed and determined if they fall into the risk management options to implement for Categories 1, 2 or 3 identified in the Conclusions section. Category 4 should not be considered an option for pipelines that have been deemed Very High Risk.

The 207 High Risk pipelines should initially be reviewed and determined if they fall into the risk management options to implement for Categories 1, 2, 3 or 4 identified in the Conclusions section. The 20 Medium risk pipelines in the risk matrix that still however had a Consequence score of 5 should additionally be included in this follow-up.

The 653 Medium risk pipelines should become part of a further risk assessment revaluation process annually to determine if any of the likelihood or consequence factors considers in this risk assessment have changed to alter or increase their level of risk to prompt the review and implementation of further risk management strategies.

Further review and assessment should be completed to ensure a better understanding of the failure root cause trends that have occurred. Detailed pipeline failure analysis information was not available to review as part of this assessment, and as a result a number of assumptions have been made on the limitations of mitigation steps that could be taken against preventing further failures through pigging programs or chemical applications.

Overall, the pipeline data used in this assessment should be further reviewed to determine if corrections are required to the flowline licensing where errors may exist in the data used for evaluation due to pipeline licensed status and/or errors in pipeline materials or internal coatings where loose fit liners have been installed.

Lastly, Abbey Resources currently does not have a defined risk assessment and risk management process defined within an overall Pipeline Integrity Management Program (IMP) to apply these results to. It is however understood steps are being taken to develop this through implementation of a Pipeline Operations and Maintenance Manual, and associated supporting documentation. The results of this assessment should be taken into consideration with implementation of an overall Pipeline IMP.

5 Appendices of data for Modified Risk Analysis

5.1 Appendix A – Pipeline Failure History

Year	Failure Location	Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
2017	01-07-22-20w3	174021-1	Cramersburg	O - OPER	1.09	88.9	S - STEEL
2017	02-08-22-20w3	135519-1	Cramersburg	O - OPER	1.32	88.9	S - STEEL
2017	03-13-22-21w3	122615-1	Cramersburg	O - OPER	0.77	114.3	S - STEEL
2017	03-26-22-22-w3	181082-1	Cramersburg	O - OPER	1.63	88.9	S - STEEL
2017	03-26-22-22w3	181082-1	Cramersburg	O - OPER	1.63	88.9	S - STEEL
2017	04-02-23-19w3	177013-1	Miry Bay	O - OPER	0.7	114.3	S - STEEL
2017	04-04-23-20w3	174911-1	Cramersburg	O - OPER	0.2	114.3	G - COMPOSITE
2017	04-13-22-21w3	122614-1	Cramersburg	O - OPER	0.77	114.3	S - STEEL
2017	05-01-23-20w3	129194-1	Cramersburg	O - OPER	0.02	114.3	S - STEEL
2017	11-02-23-18w3	181296-1	Lacadena North	O - OPER	0.87	88.9	S - STEEL
2017	06-07-23-20w3	181090-1	Cramersburg	O - OPER	0.75	114.3	S - STEEL
2017	06-23-21-20w3	128093-1	Shackleton	O - OPER	0.7	114.3	S - STEEL
2017	07-32-21-20w3	128044-1	Shackleton	O - OPER	0.84	88.9	S - STEEL
2017	08-01-23-20w3	177620-4	Cramersburg	O - OPER	0.85	114.3	S - STEEL
2017	08-32-21-20w3	128044-1	Shackleton	O - OPER	0.84	88.9	S - STEEL
2017	09-11-23-19w3	128156-1	Snipe Lake	O - OPER	0.04	88.9	S - STEEL
2017	08-33-21-20w3	128044-1	Shackleton	O - OPER	0.84	88.9	S - STEEL
2017	10-33-22-19w3	177006-1	Miry Bay	O - OPER	1.55	88.9	S - STEEL
2017	09-33-22-19w3	177006-1	Miry Bay	O - OPER	1.55	88.9	S - STEEL
2017	10-03-23-18w3	128586-1	Lacadena North	O - OPER	1.14	88.9	S - STEEL
2017	09-15-22-21w3	122616-1	Cramersburg	O - OPER	0.89	114.3	S - STEEL
2017	11-07-21-19w3	187494-1	Shackleton	O - OPER	0.63	88.9	S - STEEL
2017	12-10-23-18w3	128640-1	Lacadena North	O - OPER	0.52	114.3	S - STEEL
2017	12-14-23-19w3	181490-1	Snipe Lake	O - OPER	0.83	88.9	S - STEEL
2017	12-26-23-18w3	128405-1	Lacadena North	O - OPER	0.4	88.9	S - STEEL
2017	13-19-22-20w3	134088-1	Cramersburg	O - OPER	0.71	114.3	S - STEEL
2017	14-01-22-21w3	187609-1	Cramersburg	O - OPER	0.72	114.3	S - STEEL
2017	14-02-23-20w3	181124-1	Cramersburg	O - OPER	0.5	114.3	S - STEEL
2017	16-05-22-21w3	135992-1	Cramersburg	O - OPER	0.02	88.9	S - STEEL
2017	14-06-22-20w3	128013-1	Cramersburg	O - OPER	0.68	88.9	S - STEEL
2017	14-08-23-20w3	129117-1	Cramersburg	O - OPER	0.37	114.3	S - STEEL
2017	15-05-22-21w3	187600-1	Cramersburg	O - OPER	0.8	114.3	S - STEEL
2017	15-27-22-20w3	129173-1	Cramersburg	O - OPER	0.03	114.3	S - STEEL
2017	16-20-21-19w3	127819-51	Shackleton	O - OPER	0.8	114.3	S - STEEL

Year	Failure Location	Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
2018	01-31-21-18w3	174018-1	Miry Bay	O - OPER	0.2		S - STEEL
2018	02-14-22-21w3	122614-1	Cramersburg	O - OPER	0.98	114.3	S - STEEL
2018	03-03-24-18w3	128381-1	Lacadena North	O - OPER	0.4	114.3	S - STEEL
2018	03-07-22-20w3	187621-1	Cramersburg	O - OPER	0.75	88.9	S - STEEL
2018	03-07-23-20w3	181091-1	Cramersburg	O - OPER	0.47	114.3	S - STEEL
2018	04-13-22-21w3	122615-1	Cramersburg	O - OPER	0.77	114.3	S - STEEL
2018	05-08-22-18w3	114418-1	Miry Bay	O - OPER	0.33		S - STEEL
2018	05-23-21-20w3	128094-1	Shackleton	O - OPER	0.09	114.3	S - STEEL
2018	05-30-22-20w3	177620-4	Cramersburg	O - OPER	0.85	114.3	S - STEEL
2018	06-01-23-18w3	181292-1	Lacadena North	O - OPER	0.39	88.9	S - STEEL
2018	03-02-22-19w3	150593-1	Abbey	O - OPER	0.6	114.3	P - POLYETH
2018	11-07-21-19w3	187494-1	Shackleton	O - OPER	0.63	88.9	S - STEEL
2018	06-07-23-20w3	187621-1	Cramersburg	O - OPER	0.75	88.9	S - STEEL
2018	11-08-21-19w3	187496-1	Shackleton	O - OPER	0.57	88.9	S - STEEL
2018	06-32-21-20w3	128044-1	Shackleton	O - OPER	0.84	88.9	S - STEEL
2018	06-32-21-20w3	128044-1	Shackleton	O - OPER	0.84	88.9	S - STEEL
2018	07-05-22-18w3	150584-1	Miry Bay	O - OPER	847	114.3	P - POLYETH
2018	10-29-21-18w3	174014-1	Miry Bay	O - OPER	2.07		S - STEEL
2018	08-01-23-20w3	177620-4	Cramersburg	O - OPER	0.85	114.3	S - STEEL
2018	08-01-23-20w3	174014-1	Miry Bay	O - OPER	2.07		S - STEEL
2018	08-05-22-20w3	174023-2	Cramersburg	O - OPER	1.08	60.3	S - STEEL
2018	08-06-22-20w3	118998-1	Cramersburg	O - OPER	0.87	88.9	S - STEEL
2018	09-08-22-19w3	118960-1	Miry Bay	O - OPER	0.23	114.3	S - STEEL
2018	09-08-23-20w3	129126-1	Cramersburg	O - OPER	0.4	114.3	S - STEEL
2018	09-33-22-19w3	177006-1	Miry Bay	O - OPER	1.55	88.9	S - STEEL
2018	09-04-23-18w3	128678-1	Lacadena North	O - OPER	0.4	114.3	S - STEEL
2018	12-19-22-20w3	129107-1	Cramersburg	O - OPER	1.68	114.3	S - STEEL
2018	12-26-23-18w3	128405-1	Lacadena North	O - OPER	0.4	88.9	S - STEEL
2018	13-19-22-18w3	177714-1	Miry Bay	O - OPER	0.64	114.3	S - STEEL
2018	13-19-22-20w3	129107-1	Cramersburg	O - OPER	1.68	114.3	S - STEEL
2018	14-14-21-20w3	116731-1	Shackleton	O - OPER	1.95	114.3	S - STEEL
2018	14-14-22-21w3	187586-1	Cramersburg	O - OPER	0.7	168.3	S - STEEL
2018	14-26-22-21w3	187665-1	Cramersburg	O - OPER	0.44	88.9	S - STEEL
2018	15-24-22-21w3	187598-1	Cramersburg	O - OPER	0.63	88.9	S - STEEL
2018	15-27-22-19w3	150551-1	Abbey	O - OPER	0.9	168.3	P - POLYETH
2018	16-01-22-19w3	177703-1	Miry Bay	O - OPER	0.85		S - STEEL
2018	16-12-21-20w3	128062-1	Shackleton	O - OPER	0.13	114.3	S - STEEL
2018	16-18-21-19w3	118995-1	Shackleton	A - ABND	0.83	60.3	S - STEEL

Year	Failure Location	Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
2019	04-03-23-18w3	128617-1	Lacadena North	O - OPER	0.28	88.9	S - STEEL
2019	03-11-23-20w3	181124-1	Cramersburg	O - OPER	0.5	114.3	S - STEEL
2019	04-02-23-19w3	177013-1	Miry Bay	O - OPER	0.7	114.3	S - STEEL
2019	04-11-23-20w3	181124-1	Cramersburg	O - OPER	0.5	114.3	S - STEEL
2019	04-20-23-18w3	128660-1	Lacadena North	O - OPER	1.97	88.9	S - STEEL
2019	05-06-23-19w3	177620-6	Cramersburg	O - OPER	0.88	114.3	S - STEEL
2019	05-33-22-19w3	129203-1	Miry Bay	O - OPER	6.53	114.3	S - STEEL
2019	06-02-22-19w3	150589-1	Abbey	O - OPER	3.1	219.1	P - POLYETH
2019	06-02-23-18w3	181296-1	Lacadena North	O - OPER	0.87	88.9	S - STEEL
2019	06-08-21-19w3	187496-1	Shackleton	O - OPER	0.57	88.9	S - STEEL
2019	06-13-23-19w3	128147-1	Snipe Lake	O - OPER	0.52	88.9	S - STEEL
2019	06-14-23-19w3	181490-1	Snipe Lake	O - OPER	0.83	88.9	S - STEEL
2019	06-23-23-18w3	185385-1	Lacadena North	O - OPER	1.54	88.9	S - STEEL
2019	06-23-23-18w3	185385-1	Lacadena North	O - OPER	1.54	88.9	S - STEEL
2019	06-26-21-19w3	183827-1	Miry Bay	O - OPER	0.82	88.9	S - STEEL
2019	07-12-22-21w3	187610-1	Cramersburg	O - OPER	0.93	88.9	S - STEEL
2019	08-01-23-18w3	174906-1	Lacadena North	O - OPER	0.8	88.9	S - STEEL
2019	08-02-22-19w3	178920-1	Miry Bay	O - OPER	3.41	114.3	S - STEEL
2019	08-14-21-20w3	187520-1	Shackleton	O - OPER	0.59	88.9	S - STEEL
2019	08-14-21-20w3	128068-1	Shackleton	O - OPER	0.8	114.3	S - STEEL
2019	08-28-21-20w3	187511-1	Shackleton	O - OPER	1.23	88.9	S - STEEL
2019	08-35-22-19w3	181099-1	Miry Bay	O - OPER	0.61	114.3	S - STEEL
2019	09-12-22-19w3	177706-2	Miry Bay	O - OPER	1.53		S - STEEL
2019	09-20-22-21w3	187670-1	Cramersburg	O - OPER	1.56	88.9	S - STEEL
2019	10-09-23-20w3	129125-1	Cramersburg	O - OPER	0.1	114.3	S - STEEL
2019	10-12-22-21w3	122417-1	Cramersburg	O - OPER	0.9	168.3	S - STEEL
2019	10-28-22-19w3	181156-1	Miry Bay	O - OPER	0.81	114.3	S - STEEL
2019	10-28-22-19w3	181156-1	Miry Bay	O - OPER	0.81	114.3	S - STEEL
2019	10-29-21-18w3	127819-56	Shackleton	O - OPER	2.4	114.3	S - STEEL
2019	11-02-22-20w3	127824-9	Shackleton	O - OPER	0.78	114.3	S - STEEL
2019	11-14-23-19w3	128163-1	Snipe Lake	O - OPER	0.51	88.9	S - STEEL
2019	12-35-22-20w3	177621-6	Cramersburg	O - OPER	0.79	114.3	S - STEEL
2019	14-14-21-20w3	116731-1	Shackleton	O - OPER	1.95	114.3	S - STEEL
2019	15-24-22-21w3	187598-1	Cramersburg	O - OPER	0.63	88.9	S - STEEL
2019	15-27-22-20w3	187653-1	Cramersburg	O - OPER	0.48	114.3	S - STEEL
2019	15-27-22-20w3	129173-1	Cramersburg	O - OPER	0.03	114.3	S - STEEL
2019	15-06-22-20w3	128013-1	Cramersburg	O - OPER	0.68	88.9	S - STEEL

2019	16-11-23-19w3	128158-1	Snipe Lake	O - OPER	1.03	88.9	S - STEEL
2019	08-14-23-19w3	128160-1	Snipe Lake	O - OPER	0.54	88.9	S - STEEL
2019	16-12-21-20w3	178882-1	Shackleton	O - OPER	0.77	60.3	S - STEEL
2019	08-12-21-20w3	178882-1	Shackleton	O - OPER	0.77	60.3	S - STEEL
2019	16-21-21-20w3	186872-1	Shackleton	O - OPER	1.97	114.3	S - STEEL
2019	16-34-21-20w3	187514-1	Shackleton	O - OPER	0.04	88.9	S - STEEL

Year	Failure Location	Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
2020	01-23-22-21w3	122644-1	Cramersburg	O - OPER	0.93	114.3	S - STEEL
2020	06-24-23-18w3	185377-1	Lacadena North	O - OPER	1.55	88.9	S - STEEL
2020	07-35-22-20w3	187651-1	Cramersburg	O - OPER	1.43	114.3	S - STEEL
2020	11-35-22-20w3	177621-6	Cramersburg	O - OPER	0.79	114.3	S - STEEL
2020	02-36-23-18w3	128421-1	Lacadena North	O - OPER	1.88	88.9	S - STEEL
2020	03-33-22-19w3	129203-1	Miry Bay	O - OPER	6.53	114.3	S - STEEL
2020	04-02-23-19w3	177013-1	Miry Bay	O - OPER	0.7	114.3	S - STEEL
2020	04-13-22-21w3	122614-1	Cramersburg	O - OPER	0.98	114.3	S - STEEL
2020	06-20-21-19w3	127819-136	Shackleton	O - OPER	1	114.3	S - STEEL
2020	06-25-22-20w3	181150-1	Cramersburg	O - OPER	1.1	114.3	S - STEEL
2020	06-25-22-20w3	181148-1	Cramersburg	O - OPER	0.75	114.3	S - STEEL
2020	07-04-23-20w3	183908-1	Cramersburg	O - OPER	0.44	114.3	S - STEEL
2020	07-34-22-19w3	129206-1	Miry Bay	O - OPER	1.2	114.3	S - STEEL
2020	07-34-22-19w3	187615-1	Miry Bay	O - OPER	0.48	114.3	S - STEEL
2020	08-01-23-20w3	177620-4	Cramersburg	O - OPER	0.85	114.3	S - STEEL
2020	08-08-22-20w3	174024-1	Cramersburg	O - OPER	0.1	60.3	S - STEEL
2020	08-19-22-20w3	174027-7	Cramersburg	O - OPER	0.73	114.3	S - STEEL
2020	08-21-22-21w3	187668-1	Cramersburg	O - OPER	0.58	88.9	S - STEEL
2020	08-26-21-20w3	128086-1	Shackleton	O - OPER	0.8	114.3	S - STEEL
2020	08-32-21-20w3	128044-1	Shackleton	O - OPER	0.84	88.9	S - STEEL
2020	09-13-22-19w3	177712-1	Miry Bay	O - OPER	1.17		S - STEEL
2020	10-04-23-18w3	128676-1	Lacadena North	O - OPER	1.1	88.9	S - STEEL
2020	11-09-23-19w3	128198-1	Snipe Lake	O - OPER	0.49	88.9	S - STEEL
2020	11-09-23-20w3	183902-1	Cramersburg	O - OPER	0.29	114.3	S - STEEL
2020	11-22-22-20w3	181137-1	Cramersburg	O - OPER	0.97	114.3	S - STEEL
2020	11-35-22-20w3	177621-6	Cramersburg	O - OPER	0.79	114.3	S - STEEL
2020	12-10-23-18w3	128640-1	Lacadena North	O - OPER	0.52	114.3	S - STEEL
2020	12-35-23-18w3	128428-1	Lacadena North	O - OPER	1.62	88.9	S - STEEL
2020	13-14-22-21w3	129030-1	Cramersburg	O - OPER	0.8	114.3	S - STEEL
2020	13-19-22-18w3	177714-1	Miry Bay	O - OPER	0.64	114.3	S - STEEL
2020	13-35-22-19w3	181097-1	Miry Bay	O - OPER	3.24	114.3	S - STEEL
2020	14-04-22-20w3	174022-3	Cramersburg	O - OPER	0.65	88.9	S - STEEL
2020	14-07-23-19w3	128309-1	Snipe Lake	O - OPER	0.31	88.9	S - STEEL
2020	16-01-23-19w3	182143-1	Lacadena North	O - OPER	0.04	88.9	S - STEEL
2020	16-01-23-19w3	182143-1	Lacadena North	O - OPER	0.04	88.9	S - STEEL
2020	16-04-22-20w3	127824-37	Shackleton	O - OPER	0.66	114.3	S - STEEL

Year	Failure Location	Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
2021	04-04-23-20w3	174911-1	Cramersburg	O - OPER	0.2	114.3	G - COMPOSITE
2021	04-09-22-20w3	135519-1	Cramersburg	O - OPER	1.32	88.9	S - STEEL
2021	04-13-22-21w3	122615-1	Cramersburg	O - OPER	0.77	114.3	S - STEEL
2021	05-19-22-19w3	129177-1	Cramersburg	O - OPER	0.05	114.3	S - STEEL
2021	05-21-23-20W3	124886-1	Snipe Lake	O - OPER	0.3	88.9	S - STEEL
2021	06-22-22-20W3	181137-1	Cramersburg	O - OPER	0.97	114.3	S - STEEL
2021	06-26-21-19w3	177620-4	Cramersburg	O - OPER	0.85	114.3	S - STEEL
2021	06-26-21-20w3	128087-1	Shackleton	O - OPER	0.6	114.3	S - STEEL
2021	06-27-21-19W3	127819-98	Shackleton	O - OPER	0.8	114.3	P - POLYETH
2021	06-32-22-18w3	182134-1	Lacadena North	O - OPER	0.03	88.9	S - STEEL
2021	07-05-22-20w3	174023-2	Cramersburg	O - OPER	1.08	60.3	S - STEEL
2021	07-17-23-20w3	129115-1	Cramersburg	O - OPER	0.03	114.3	S - STEEL
2021	07-17-23-20w3	129115-1	Cramersburg	O - OPER	0.03	114.3	S - STEEL
2021	08-33-22-20w3	135503-1	Cramersburg	D - DCNT	0.41	114.3	S - STEEL
2021	09-12-22-19w3	177706-2	Miry Bay	O - OPER	1.53		S - STEEL
2021	10-03-23-18w3	128586-1	Lacadena North	O - OPER	1.14	88.9	S - STEEL
2021	10-04-23-18w3	128676-1	Lacadena North	O - OPER	1.1	88.9	S - STEEL
2021	10-28-22-19w3	177009-1	Miry Bay	O - OPER	1.66	114.3	S - STEEL
2021	10-35-22-20w3	181101-1	Cramersburg	O - OPER	0.4	114.3	S - STEEL
2021	11-12-23-19w3	181495-1	Snipe Lake	O - OPER	0.92	88.9	S - STEEL
2021	11-17-22-20w3	122452-1	Cramersburg	O - OPER	0.25	88.9	G - COMPOSITE
2021	11-27-22-19w3	177009-1	Miry Bay	O - OPER	1.66	114.3	S - STEEL
2021	11-35-22-20w3	177621-6	Cramersburg	O - OPER	0.79	114.3	S - STEEL
2021	12-06-23-20W3	122608-1	Cramersburg	O - OPER	0.61	114.3	S - STEEL
2021	12-10-23-18w3	128640-1	Lacadena North	O - OPER	0.52	114.3	S - STEEL
2021	13-08-22-20w3	128010-1	Cramersburg	O - OPER	1.78	88.9	S - STEEL
2021	13-12-22-21w3	128064-1	Shackleton	O - OPER	0.69	114.3	S - STEEL
2021	13-32-22-19w3	181128-1	Cramersburg	O - OPER	0.3	114.3	S - STEEL
2021	14-04-22-20w3	174022-3	Cramersburg	O - OPER	0.65	88.9	S - STEEL
2021	14-05-23-15w3	127822-61	Lacadena South	O - OPER	1.9	168.3	P - POLYETH
2021	14-07-21-19w3	173717-1	Shackleton	O - OPER	0.04	60.3	S - STEEL
2021	14-09-22-21w3	118960-1	Miry Bay	O - OPER	0.23	114.3	S - STEEL
2021	14-12-23-19w3	181495-1	Snipe Lake	O - OPER	0.92	88.9	S - STEEL
2021	15-06-22-18w3	177702-1	Miry Bay	O - OPER	1.04		S - STEEL
2021	15-06-22-18w3	177702-1	Miry Bay	O - OPER	1.04		S - STEEL
2021	15-15-21-20W3	186874-1	Shackleton	O - OPER	0.61	114.3	S - STEEL
2021	15-24-22-20W3	181147-1	Cramersburg	O - OPER	0.8	114.3	S - STEEL

2021	15-27-22-20w3	187653-1	Cramersburg	O - OPER	0.48	114.3	S - STEEL
2021	16-01-23-19W3	182143-1	Lacadena North	O - OPER	0.04	88.9	S - STEEL
2021	16-06-22-20w3	118998-1	Cramersburg	O - OPER	0.87	88.9	S - STEEL

5.2 Appendix B – Pipelines Intersecting Indigenous Land

Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
150605-1	Abbey	O - OPER	1	273.1	P - POLYETH
150603-1	Abbey	O - OPER	1.3	114.3	P - POLYETH
150601-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150597-1	Abbey	O - OPER	0.9	114.3	P - POLYETH
150596-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150595-1	Abbey	O - OPER	1.9	114.3	P - POLYETH
150594-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150593-1	Abbey	O - OPER	0.6	114.3	P - POLYETH
150592-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150591-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150590-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150589-1	Abbey	O - OPER	3.1	219.1	P - POLYETH
150583-1	Abbey	O - OPER	4.4	273.1	P - POLYETH
150582-1	Abbey	O - OPER	4.4	273.1	P - POLYETH
150580-1	Abbey	O - OPER	1.1	273.1	P - POLYETH
150579-1	Abbey	O - OPER	1.1	273.1	P - POLYETH
150578-1	Abbey	O - OPER	0.1	114.3	P - POLYETH
150577-1	Abbey	O - OPER	0.7	273.1	P - POLYETH
150576-1	Abbey	O - OPER	0.7	273.1	P - POLYETH
150575-1	Abbey	O - OPER	0.1	114.3	P - POLYETH
150574-1	Abbey	O - OPER	0.4	114.3	P - POLYETH
150573-1	Abbey	O - OPER	0.7	114.3	P - POLYETH
150572-1	Abbey	O - OPER	0.6	273.1	P - POLYETH
150571-1	Abbey	O - OPER	0.6	273.1	P - POLYETH
150570-1	Abbey	O - OPER	1.2	168.3	P - POLYETH
150569-1	Abbey	O - OPER	0.7	168.3	P - POLYETH
150568-1	Abbey	O - OPER	1.3	273.1	P - POLYETH
150567-1	Abbey	O - OPER	1.3	273.1	P - POLYETH
150566-1	Abbey	O - OPER	1.4	273.1	P - POLYETH
150565-1	Abbey	O - OPER	1.4	273.1	P - POLYETH
150564-1	Abbey	O - OPER	0.7	168.3	P - POLYETH
150563-1	Abbey	O - OPER	1	168.3	P - POLYETH
150562-1	Abbey	O - OPER	0.9	168.3	P - POLYETH
150561-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150560-1	Abbey	O - OPER	0.9	273.1	P - POLYETH

Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
150559-1	Abbey	O - OPER	0.7	168.3	P - POLYETH
150558-1	Abbey	O - OPER	0.8	168.3	P - POLYETH
150557-1	Abbey	O - OPER	1.1	168.3	P - POLYETH
150556-1	Abbey	O - OPER	1	168.3	P - POLYETH
150555-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150554-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150553-1	Abbey	O - OPER	0.8	168.3	P - POLYETH
150552-1	Abbey	O - OPER	0.9	168.3	P - POLYETH
150551-1	Abbey	O - OPER	0.9	168.3	P - POLYETH
150550-1	Abbey	O - OPER	0.8	168.3	P - POLYETH
150549-1	Abbey	O - OPER	0.8	168.3	P - POLYETH
150548-1	Abbey	O - OPER	3.5	273.1	P - POLYETH
150546-1	Abbey	O - OPER	2.1	114.3	P - POLYETH
150545-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150543-1	Abbey	O - OPER	1	114.3	P - POLYETH
150542-1	Abbey	O - OPER	1.1	273.1	P - POLYETH
150541-1	Abbey	O - OPER	1	273.1	P - POLYETH
150540-1	Abbey	O - OPER	0.5	114.3	P - POLYETH
150539-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150538-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150537-1	Abbey	O - OPER	0.4	273.1	P - POLYETH
150536-1	Abbey	O - OPER	0.3	273.1	P - POLYETH
150535-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150534-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150533-1	Abbey	O - OPER	1.2	114.3	P - POLYETH
150532-1	Abbey	O - OPER	0.9	114.3	P - POLYETH
150531-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150530-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150529-1	Abbey	O - OPER	1.6	273.1	P - POLYETH
150528-1	Abbey	O - OPER	1.1	273.1	P - POLYETH
150527-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150526-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150525-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150524-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150523-1	Abbey	O - OPER	1.2	273.1	P - POLYETH
150522-1	Abbey	O - OPER	1	273.1	P - POLYETH

Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
150521-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150520-1	Abbey	O - OPER	0.7	273.1	P - POLYETH
150519-1	Abbey	O - OPER	0.5	273.1	P - POLYETH
150518-1	Abbey	O - OPER	1.2	114.3	P - POLYETH
150517-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150516-1	Abbey	O - OPER	1.1	273.1	P - POLYETH
150515-1	Abbey	O - OPER	0.8	273.1	P - POLYETH
150514-1	Abbey	O - OPER	2	273.1	P - POLYETH
150513-1	Abbey	O - OPER	1.4	273.1	P - POLYETH
150512-1	Abbey	O - OPER	0.5	114.3	P - POLYETH
150511-1	Abbey	O - OPER	0.4	114.3	P - POLYETH
150510-1	Abbey	O - OPER	0.1	273.1	P - POLYETH
150509-1	Abbey	O - OPER	1.2	273.1	P - POLYETH
150508-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150507-1	Abbey	O - OPER	1.2	273.1	P - POLYETH
150506-1	Abbey	O - OPER	0.9	114.3	P - POLYETH
150505-1	Abbey	O - OPER	1	273.1	P - POLYETH
150504-1	Abbey	O - OPER	0.7	114.3	P - POLYETH
150503-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150502-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150501-1	Abbey	O - OPER	1	273.1	P - POLYETH
150500-1	Abbey	O - OPER	0.9	114.3	P - POLYETH
150499-1	Abbey	O - OPER	1.1	273.1	P - POLYETH
150498-1	Abbey	O - OPER	0.9	114.3	P - POLYETH
150497-1	Abbey	O - OPER	1	273.1	P - POLYETH
150496-1	Abbey	O - OPER	0.9	273.1	P - POLYETH
150495-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150494-1	Abbey	O - OPER	0.6	114.3	P - POLYETH
150493-1	Abbey	O - OPER	0.7	273.1	P - POLYETH
150492-1	Abbey	O - OPER	0.6	114.3	P - POLYETH
150588-1	Abbey	O - OPER	1	114.3	P - POLYETH
150587-1	Abbey	O - OPER	0.8	219.1	P - POLYETH
150586-1	Abbey	O - OPER	0.8	114.3	P - POLYETH
150585-1	Abbey	O - OPER	2.5	168.3	P - POLYETH

Line No.	Field	Current Status	Length (km)	Diam (mm)	Material
177004-1	Cramersburg	O - OPER	0.44	114.3	S - STEEL
181145-1	Cramersburg	O - OPER	0.93	114.3	S - STEEL
181128-1	Cramersburg	O - OPER	0.3	114.3	S - STEEL
129204-1	Cramersburg	O - OPER	1.74	114.3	S - STEEL
181152-1	Miry Bay	O - OPER	1.75		S - STEEL
181151-1	Miry Bay	O - OPER	2.5		S - STEEL
177011-1	Miry Bay	O - OPER	5.28	114.3	S - STEEL
135987-1	Miry Bay	O - OPER	7.8		S - STEEL
129203-1	Miry Bay	O - OPER	6.53	114.3	S - STEEL
118962-1	Miry Bay	O - OPER	7.8	114.3	S - STEEL
150584-1	Miry Bay	O - OPER	847	114.3	P - POLYETH
181081-1	Miry Bay	O - OPER	0.71		S - STEEL
127824-13	Shackleton	O - OPER	2.39	114.3	S - STEEL
150604-1	Shackleton	O - OPER	1	273.1	P - POLYETH
150602-1	Shackleton	O - OPER	0.9	273.1	P - POLYETH
150600-1	Shackleton	O - OPER	1	273.1	P - POLYETH
150599-1	Shackleton	O - OPER	1	273.1	P - POLYETH
150598-1	Shackleton	O - OPER	0.2	114.3	P - POLYETH
150547-1	Shackleton	O - OPER	3.5	273.1	P - POLYETH
150544-1	Shackleton	O - OPER	0.9	273.1	P - POLYETH

5.3 Appendix C – Pipelines Intersecting Water Crossings

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
186872-1	Shackleton	O - OPER	S - STEEL	A	A4	50.804503	-108.696645	1:1,000,000	4
127824-35	Spring Creek	O - OPER	S - STEEL	A	A4	50.812467	-108.721792	1:1,000,000	4
128095-1	Shackleton	O - OPER	S - STEEL	A	A4	50.797274	-108.681461	1:1,000,000	4
128044-1	Shackleton	O - OPER	S - STEEL	A	A4	50.826011	-108.733278	1:1,000,000	4
128044-1	Shackleton	O - OPER	S - STEEL	A	A4	50.826174	-108.732086	1:1,000,000	4
127824-35	Spring Creek	O - OPER	S - STEEL	A	A4	50.812406	-108.722892	1:1,000,000	4
127819-71	Shackleton	O - OPER	S - STEEL	A	A4	50.795779	-108.486418	1:1,000,000	8
128044-1	Shackleton	O - OPER	S - STEEL	A	A4	50.826063	-108.732892	1:1,000,000	4
127824-35	Spring Creek	O - OPER	S - STEEL	A	A4	50.812501	-108.721521	1:1,000,000	4
118957-1	Miry Bay	O - OPER	S - STEEL	A	A4	50.803934	-108.552064	1:1,000,000	5
127824-32	Spring Creek	O - OPER	S - STEEL	A	A4	50.801532	-108.600868	1:1,000,000	4
183827-1	Miry Bay	O - OPER	S - STEEL	A	A4	50.817371	-108.532514	1:1,000,000	5
187511-1	Shackleton	O - OPER	S - STEEL	A	A4	50.808691	-108.706358	1:1,000,000	4
127820-322	Lacadena South	O - OPER	S - STEEL	A	A4	50.85984	-108.387746	1:1,000,000	4
128078-1	Shackleton	O - OPER	S - STEEL	A	A4	50.799605	-108.634408	1:1,000,000	4
118962-1	Miry Bay	O - OPER	S - STEEL	A	A4	50.804124	-108.55261	1:1,000,000	5
127819-56	Shackleton	O - OPER	S - STEEL	A	A4	50.804925	-108.487156	1:1,000,000	8
127819-56	Shackleton	O - OPER	S - STEEL	A	A4	50.804931	-108.491946	1:1,000,000	8
817118-1	Lacadena South	O - OPER		A	A4	50.897619	-108.379485	1:1,000,000	4
173721-1	Miry Bay	O - OPER	S - STEEL	A	A4	50.803564	-108.551498	1:1,000,000	5
127819-93	Shackleton	O - OPER	S - STEEL	A	A4	50.803409	-108.50104	1:1,000,000	5
127824-35	Spring Creek	O - OPER	S - STEEL	A	A4	50.812637	-108.720454	1:1,000,000	4
135987-1	Miry Bay	O - OPER	S - STEEL	A	A4	50.804056	-108.553079	1:1,000,000	5
127819-62	Shackleton	O - OPER	G - COMPOSITE	A	A4	50.802166	-108.491971	1:1,000,000	8
127819-219	Shackleton	O - OPER	G - COMPOSITE	A	A4	50.795652	-108.486443	1:1,000,000	8
127819-158	Shackleton	O - OPER	G - COMPOSITE	A	A4	50.814725	-108.523217	1:1,000,000	5
127819-40	Shackleton	O - OPER	P - POLYETH	A	A4	50.682754	-108.541796	1:1,000,000	4
127820-157	Lacadena South	O - OPER	P - POLYETH	A	A4	50.855926	-108.362844	1:1,000,000	4
127820-316	Lacadena South	O - OPER	P - POLYETH	A	A4	50.863534	-108.405946	1:1,000,000	4
127819-191	Shackleton	O - OPER	P - POLYETH	A	A4	50.786391	-108.567528	1:1,000,000	5
127820-287	Lacadena South	O - OPER	P - POLYETH	A	A4	50.908504	-108.343967	1:1,000,000	4
127819-116	Shackleton	O - OPER	P - POLYETH	A	A4	50.745572	-108.548702	1:1,000,000	4
127819-134	Shackleton	O - OPER	P - POLYETH	A	A4	50.80583	-108.581675	1:1,000,000	4
127820-316	Lacadena South	O - OPER	P - POLYETH	A	A4	50.863244	-108.40569	1:1,000,000	4
127820-223	Lacadena South	O - OPER	P - POLYETH	A	A4	50.856898	-108.37272	1:1,000,000	4
127820-40	Lacadena South	O - OPER	P - POLYETH	A	A4	50.89146	-108.381094	1:1,000,000	4
127819-147	Shackleton	O - OPER	P - POLYETH	A	A4	50.745726	-108.548794	1:1,000,000	4
127822-61	Lacadena South	O - OPER	P - POLYETH	A	A4	50.928421	-108.054707	1:1,000,000	4

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
127819-14	Shackleton	O - OPER	P - POLYETH	A	A4	50.8038	-108.580588	1:1,000,000	4
127820-104	Lacadena South	O - OPER	P - POLYETH	A	A4	50.943117	-108.286729	1:1,000,000	4
127820-189	Lacadena South	O - OPER	P - POLYETH	A	A4	50.906056	-108.360702	1:1,000,000	4
127820-316	Lacadena South	O - OPER	P - POLYETH	A	A4	50.863257	-108.405769	1:1,000,000	4
127820-316	Lacadena South	O - OPER	P - POLYETH	A	A4	50.86318	-108.40308	1:1,000,000	4
127820-288	Lacadena South	O - OPER	P - POLYETH	A	A4	50.856866	-108.376145	1:1,000,000	4
127820-180	Lacadena South	O - OPER	P - POLYETH	A	A4	50.920329	-108.322347	1:1,000,000	4
127822-19	Lacadena South	O - OPER	P - POLYETH	A	A4	50.927312	-108.204957	1:1,000,000	4
127819-8	Shackleton	O - OPER	P - POLYETH	A	A4	50.806164	-108.584234	1:1,000,000	4
127820-149	Lacadena South	O - OPER	P - POLYETH	A	A4	50.897716	-108.379086	1:1,000,000	4
127820-72	Lacadena South	O - OPER	P - POLYETH	A	A4	50.938947	-108.297152	1:1,000,000	4
127820-265	Lacadena South	O - OPER	P - POLYETH	A	A4	50.863533	-108.417429	1:1,000,000	4
127824-49	Spring Creek	O - OPER	S - STEEL	B	B4	50.825957	-108.750416	1:250,000	3
128216-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.968408	-108.606056	1:250,000	3
128411-1	Lacadena North	O - OPER	S - STEEL	B	B4	51.021206	-108.34552	1:250,000	3
181468-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.961452	-108.594419	1:250,000	3
138792-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.952734	-108.570235	1:250,000	3
128289-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.972045	-108.616762	1:250,000	2
128289-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.976273	-108.611709	1:250,000	2
132181-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.898727	-108.852474	1:250,000	2
119001-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.86749	-108.823696	1:250,000	2
122406-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.837508	-108.786977	1:250,000	2
128070-1	Shackleton	O - OPER	S - STEEL	B	B4	50.790751	-108.694252	1:250,000	2
132181-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.896218	-108.85579	1:250,000	2
187571-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.816115	-108.798663	1:250,000	2
128035-1	Shackleton	O - OPER	S - STEEL	B	B4	50.802069	-108.732956	1:250,000	2
128980-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.837161	-108.787161	1:250,000	2
122612-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.866178	-108.825551	1:250,000	2
181478-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.97241	-108.574145	1:250,000	2
127824-2	Spring Creek	O - OPER	S - STEEL	B	B4	50.815424	-108.788877	1:250,000	2
128288-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.976131	-108.611525	1:250,000	2
128068-1	Shackleton	O - OPER	S - STEEL	B	B4	50.783269	-108.667468	1:250,000	2
128408-1	Lacadena North	O - OPER	S - STEEL	B	B4	51.015719	-108.333403	1:250,000	2
129028-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.871396	-108.817479	1:250,000	2
127824-19	Spring Creek	O - OPER	S - STEEL	B	B4	50.817063	-108.772778	1:250,000	2
128183-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.972418	-108.583251	1:250,000	2
187567-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.830334	-108.775718	1:250,000	2
187685-1	Cramersburg	O - OPER	S - STEEL	B	B4	50.94264	-108.840482	1:250,000	2
128272-1	Snipe Lake	O - OPER	S - STEEL	B	B4	50.97189	-108.616589	1:250,000	2

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
127824-52	Spring Creek	O - OPER	S - STEEL	B	B4	50.832744	-108.764529	1:250,000	2
122407-1	Cramersburg	O - OPER	G - COMPOSITE	B	B4	50.839371	-108.778398	1:250,000	3
127820-293	Lacadena South	O - OPER	G - COMPOSITE	B	B4	50.855656	-108.355226	1:250,000	3
127820-159	Lacadena South	O - OPER	G - COMPOSITE	B	B4	50.853897	-108.342158	1:250,000	3
122443-1	Shackleton	O - OPER	G - COMPOSITE	B	B4	50.831847	-108.740729	1:250,000	3
127820-293	Lacadena South	O - OPER	G - COMPOSITE	B	B4	50.851957	-108.356217	1:250,000	3
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.74575	-108.558639	1:250,000	3
127819-54	Shackleton	O - OPER	P - POLYETH	B	B4	50.710028	-108.515939	1:250,000	3
127819-148	Shackleton	O - OPER	P - POLYETH	B	B4	50.73889	-108.558441	1:250,000	3
122438-1	Shackleton	O - OPER	G - COMPOSITE	B	B4	50.810436	-108.724379	1:250,000	2
128985-1	Cramersburg	O - OPER	G - COMPOSITE	B	B4	50.851632	-108.793037	1:250,000	2
127819-171	Shackleton	O - OPER	P - POLYETH	B	B4	50.717316	-108.530246	1:250,000	3
127820-13	Lacadena South	O - OPER	P - POLYETH	B	B4	50.855458	-108.350767	1:250,000	3
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.74106	-108.558639	1:250,000	3
127820-92	Lacadena South	O - OPER	P - POLYETH	B	B4	50.789161	-108.368086	1:250,000	3
127820-138	Lacadena South	O - OPER	P - POLYETH	B	B4	50.782619	-108.349964	1:250,000	3
127819-116	Shackleton	O - OPER	P - POLYETH	B	B4	50.746061	-108.55748	1:250,000	3
127819-147	Shackleton	O - OPER	P - POLYETH	B	B4	50.746274	-108.557505	1:250,000	3
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.73782	-108.558639	1:250,000	3
127819-148	Shackleton	O - OPER	P - POLYETH	B	B4	50.740949	-108.558445	1:250,000	3
127819-148	Shackleton	O - OPER	P - POLYETH	B	B4	50.745636	-108.558457	1:250,000	3
127819-27	Shackleton	O - OPER	P - POLYETH	B	B4	50.708811	-108.513309	1:250,000	3
128409-1	Lacadena North	O - OPER	G - COMPOSITE	B	B4	51.017944	-108.338371	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.738701	-108.558639	1:250,000	3
127820-24	Lacadena South	O - OPER	P - POLYETH	B	B4	50.749969	-108.348961	1:250,000	2
127820-242	Lacadena South	O - OPER	P - POLYETH	B	B4	51.007612	-108.305112	1:250,000	2
127820-47	Lacadena South	O - OPER	P - POLYETH	B	B4	50.971978	-108.333781	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.731754	-108.558639	1:250,000	2
127819-151	Shackleton	O - OPER	P - POLYETH	B	B4	50.758895	-108.53731	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.732397	-108.558639	1:250,000	2
127822-35	Lacadena South	O - OPER	P - POLYETH	B	B4	50.917842	-108.231984	1:250,000	2
127819-48	Shackleton	O - OPER	P - POLYETH	B	B4	50.760105	-108.534649	1:250,000	2
127819-139	Shackleton	O - OPER	P - POLYETH	B	B4	50.765267	-108.548775	1:250,000	2
127819-10	Shackleton	O - OPER	P - POLYETH	B	B4	50.7348	-108.561084	1:250,000	2
127819-29	Shackleton	O - OPER	P - POLYETH	B	B4	50.780873	-108.47581	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.719128	-108.557563	1:250,000	2
127819-143	Shackleton	O - OPER	P - POLYETH	B	B4	50.7758	-108.46746	1:250,000	2
127819-129	Shackleton	O - OPER	P - POLYETH	B	B4	50.780041	-108.475724	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.736383	-108.558639	1:250,000	2

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
127819-186	Shackleton	O - OPER	P - POLYETH	B	B4	50.703698	-108.556057	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.733347	-108.558639	1:250,000	2
127819-25	Shackleton	O - OPER	P - POLYETH	B	B4	50.76686	-108.556178	1:250,000	2
127820-214	Lacadena South	O - OPER	P - POLYETH	B	B4	51.004981	-108.318807	1:250,000	2
127820-308	Lacadena South	O - OPER	P - POLYETH	B	B4	50.97008	-108.320377	1:250,000	2
127822-47	Lacadena South	O - OPER	P - POLYETH	B	B4	50.928239	-108.163461	1:250,000	2
127820-143	Lacadena South	O - OPER	P - POLYETH	B	B4	51.006957	-108.306867	1:250,000	2
127819-117	Shackleton	O - OPER	P - POLYETH	B	B4	50.728033	-108.57638	1:250,000	2
127820-313	Lacadena South	O - OPER	P - POLYETH	B	B4	50.96923	-108.307263	1:250,000	2
127819-10	Shackleton	O - OPER	P - POLYETH	B	B4	50.732564	-108.558607	1:250,000	2
127819-143	Shackleton	O - OPER	P - POLYETH	B	B4	50.775481	-108.473573	1:250,000	2
127820-34	Lacadena South	O - OPER	P - POLYETH	B	B4	50.970269	-108.287648	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.704176	-108.55385	1:250,000	2
127819-200	Shackleton	O - OPER	P - POLYETH	B	B4	50.73701	-108.558639	1:250,000	2
127822-27	Lacadena South	O - OPER	P - POLYETH	B	B4	50.963533	-108.15952	1:250,000	2
127821-1	Shackleton	O - OPER	S - STEEL	C	C3	50.749038	-108.511794	1:50,000	1
127821-1	Shackleton	O - OPER	S - STEEL	C	C3	50.747713	-108.511779	1:50,000	1
127821-1	Shackleton	O - OPER	S - STEEL	C	C3	50.748225	-108.511784	1:50,000	1
128428-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.006578	-108.419017	1:50,000	1
128392-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.006958	-108.482751	1:50,000	1
128243-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.970087	-108.739305	1:50,000	1
135991-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.847398	-108.846657	1:50,000	1
129067-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.881134	-108.771839	1:50,000	1
128253-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.969239	-108.718844	1:50,000	1
128177-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.972396	-108.561449	1:50,000	1
122410-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.865232	-108.757482	1:50,000	1
187684-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.945615	-108.852163	1:50,000	1
134053-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.840504	-108.826057	1:50,000	1
135522-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.854876	-108.841515	1:50,000	1
183891-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.854707	-108.847706	1:50,000	1
129072-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.950002	-108.874178	1:50,000	1
127819-164	Shackleton	O - OPER	S - STEEL	C	C4	50.779281	-108.511697	1:50,000	1
804486-1	Snipe Lake	O - OPER		C	C4	50.984547	-108.563412	1:50,000	1
129017-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.873906	-108.782294	1:50,000	1
128458-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.000894	-108.436106	1:50,000	1
128244-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.97557	-108.743696	1:50,000	1
128331-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.964243	-108.692183	1:50,000	1
187565-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.843329	-108.787668	1:50,000	1
177704-1	Miry Bay	O - OPER	S - STEEL	C	C4	50.852248	-108.489573	1:50,000	1

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
178888-1	Miry Bay	O - OPER	S - STEEL	C	C4	50.851984	-108.510854	1:50,000	1
183724-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.829533	-108.948611	1:50,000	1
135524-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.860564	-108.837812	1:50,000	1
128965-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.826734	-108.809907	1:50,000	1
187685-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.942647	-108.840884	1:50,000	1
128187-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.963987	-108.584079	1:50,000	1
134051-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.831062	-108.836217	1:50,000	1
134077-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.941885	-108.845425	1:50,000	1
127819-164	Shackleton	O - OPER	S - STEEL	C	C4	50.771111	-108.511693	1:50,000	1
127824-52	Spring Creek	O - OPER	S - STEEL	C	C4	50.827704	-108.754908	1:50,000	1
128312-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.956978	-108.643461	1:50,000	1
183747-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.821543	-108.930104	1:50,000	1
128378-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.015875	-108.421621	1:50,000	1
128382-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.018961	-108.427541	1:50,000	1
128454-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.001551	-108.436678	1:50,000	1
128064-1	Shackleton	O - OPER	S - STEEL	C	C4	50.775407	-108.655705	1:50,000	1
128190-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.96763	-108.586176	1:50,000	1
128391-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.000269	-108.475864	1:50,000	1
135986-1	Miry Bay	O - OPER	S - STEEL	C	C4	50.852493	-108.489034	1:50,000	1
804486-1	Snipe Lake	O - OPER		C	C4	50.981983	-108.586977	1:50,000	1
128429-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.007851	-108.41691	1:50,000	1
186876-1	Shackleton	O - OPER	S - STEEL	C	C4	50.77231	-108.6495	1:50,000	1
129073-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.950137	-108.874199	1:50,000	1
195105-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.804548	-108.969226	1:50,000	1
187569-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.820626	-108.790071	1:50,000	1
128467-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.007618	-108.444645	1:50,000	1
128273-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.979179	-108.615195	1:50,000	1
178923-1	Shackleton	O - OPER	S - STEEL	C	C4	50.774518	-108.669639	1:50,000	1
128964-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.829537	-108.810921	1:50,000	1
174028-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.883195	-108.773038	1:50,000	1
128243-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.967554	-108.733797	1:50,000	1
185368-1	Lacadena North	O - OPER	S - STEEL	C	C4	50.960906	-108.442891	1:50,000	1
127824-36	Spring Creek	O - OPER	S - STEEL	C	C4	50.818119	-108.775645	1:50,000	1
138801-1	Shackleton	O - OPER	S - STEEL	C	C4	50.778557	-108.660733	1:50,000	1
183863-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.830788	-108.924623	1:50,000	1
128374-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.011531	-108.453638	1:50,000	1
128273-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.979182	-108.612864	1:50,000	1
128452-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.00465	-108.440674	1:50,000	1
128397-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.010748	-108.467031	1:50,000	1

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
185373-1	Lacadena North	O - OPER	S - STEEL	C	C4	50.960876	-108.443348	1:50,000	1
127824-4	Spring Creek	O - OPER	S - STEEL	C	C4	50.827442	-108.752578	1:50,000	1
128976-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.840089	-108.803927	1:50,000	1
128242-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.974408	-108.74377	1:50,000	1
127819-164	Shackleton	O - OPER	S - STEEL	C	C4	50.749668	-108.51357	1:50,000	1
134053-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.840427	-108.832539	1:50,000	1
128976-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.840091	-108.798694	1:50,000	1
183723-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.832305	-108.930877	1:50,000	1
128216-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.96367	-108.604645	1:50,000	1
127824-19	Spring Creek	O - OPER	S - STEEL	C	C4	50.818203	-108.786033	1:50,000	1
174107-1	Shackleton	O - OPER	S - STEEL	C	C4	50.807401	-108.681441	1:50,000	1
128964-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.82763	-108.810861	1:50,000	1
128371-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.009178	-108.4476	1:50,000	1
128244-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.978386	-108.736177	1:50,000	1
128971-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.815503	-108.817881	1:50,000	1
128085-1	Shackleton	O - OPER	S - STEEL	C	C4	50.807914	-108.660206	1:50,000	1
181132-1	Miry Bay	O - OPER	S - STEEL	C	C4	50.932252	-108.58176	1:50,000	1
128388-1	Lacadena North	O - OPER	S - STEEL	C	C4	51.000824	-108.465997	1:50,000	1
183893-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.846951	-108.836443	1:50,000	1
128230-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.982696	-108.587386	1:50,000	1
128271-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.9776	-108.632731	1:50,000	1
128244-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.979051	-108.742437	1:50,000	1
177092-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.870252	-108.910095	1:50,000	1
181473-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.974772	-108.587198	1:50,000	1
183747-1	Cramersburg	O - OPER	S - STEEL	C	C4	50.823716	-108.932253	1:50,000	1
128266-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.985496	-108.657317	1:50,000	1
128290-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.969188	-108.622513	1:50,000	1
128230-1	Snipe Lake	O - OPER	S - STEEL	C	C4	50.985141	-108.563027	1:50,000	1
122420-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.859234	-108.807191	1:50,000	1
122400-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.888249	-108.763717	1:50,000	1
128409-1	Lacadena North	O - OPER	G - COMPOSITE	C	C4	51.018412	-108.337617	1:50,000	1
128180-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.976189	-108.573676	1:50,000	1
127820-239	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.836146	-108.381655	1:50,000	1
128963-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.827155	-108.820505	1:50,000	1
134055-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.833448	-108.84729	1:50,000	1
127820-159	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.857948	-108.341948	1:50,000	1
128962-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.826686	-108.828937	1:50,000	1
128427-1	Lacadena North	O - OPER	G - COMPOSITE	C	C4	51.01099	-108.40803	1:50,000	1
128240-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.969497	-108.772538	1:50,000	1

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
127820-194	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.856038	-108.20249	1:50,000	1
128240-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.971981	-108.771171	1:50,000	1
128975-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.843169	-108.815849	1:50,000	1
127820-253	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.844362	-108.396767	1:50,000	1
128188-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.968566	-108.584444	1:50,000	1
128974-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.840296	-108.832251	1:50,000	1
127820-283	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.8383	-108.388335	1:50,000	1
135496-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.833721	-108.839273	1:50,000	1
128236-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.960746	-108.788011	1:50,000	1
128223-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.975713	-108.591525	1:50,000	1
128184-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.975748	-108.586935	1:50,000	1
127820-88	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.865368	-108.232651	1:50,000	1
128215-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.945293	-108.624131	1:50,000	1
127820-268	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.856088	-108.202408	1:50,000	1
128431-1	Lacadena North	O - OPER	G - COMPOSITE	C	C4	51.012572	-108.418614	1:50,000	1
128259-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.976137	-108.702838	1:50,000	1
122425-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.844869	-108.848353	1:50,000	1
128184-1	Snipe Lake	O - OPER	G - COMPOSITE	C	C4	50.975765	-108.584968	1:50,000	1
128963-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.827072	-108.815357	1:50,000	1
127820-200	Lacadena South	O - OPER	G - COMPOSITE	C	C4	50.80334	-108.428788	1:50,000	1
128974-1	Cramersburg	O - OPER	G - COMPOSITE	C	C4	50.840373	-108.825756	1:50,000	1
127820-53	Lacadena South	O - OPER	P - POLYETH	C	C4	50.753774	-108.344868	1:50,000	1
127819-57	Shackleton	O - OPER	P - POLYETH	C	C4	50.777144	-108.486378	1:50,000	1
127819-191	Shackleton	O - OPER	P - POLYETH	C	C4	50.74968	-108.513648	1:50,000	1
127819-41	Shackleton	O - OPER	P - POLYETH	C	C4	50.752117	-108.519646	1:50,000	1
127819-200	Shackleton	O - OPER	P - POLYETH	C	C4	50.717191	-108.555965	1:50,000	1
127819-102	Shackleton	O - OPER	P - POLYETH	C	C4	50.782105	-108.496478	1:50,000	1
127819-191	Shackleton	O - OPER	P - POLYETH	C	C4	50.771144	-108.511765	1:50,000	1
127819-191	Shackleton	O - OPER	P - POLYETH	C	C4	50.77713	-108.515994	1:50,000	1
127820-11	Lacadena South	O - OPER	P - POLYETH	C	C4	50.908212	-108.235127	1:50,000	1
127820-59	Lacadena South	O - OPER	P - POLYETH	C	C4	50.766892	-108.363427	1:50,000	1
127819-81	Shackleton	O - OPER	P - POLYETH	C	C4	50.687044	-108.510365	1:50,000	1
127819-184	Shackleton	O - OPER	P - POLYETH	C	C4	50.702089	-108.517934	1:50,000	1
127820-92	Lacadena South	O - OPER	P - POLYETH	C	C4	50.78196	-108.357321	1:50,000	1
127820-133	Lacadena South	O - OPER	P - POLYETH	C	C4	50.795402	-108.367406	1:50,000	1
127819-147	Shackleton	O - OPER	P - POLYETH	C	C4	50.746095	-108.556287	1:50,000	1
127819-200	Shackleton	O - OPER	P - POLYETH	C	C4	50.727499	-108.569061	1:50,000	1
127820-78	Lacadena South	O - OPER	P - POLYETH	C	C4	50.854998	-108.406432	1:50,000	1
127819-186	Shackleton	O - OPER	P - POLYETH	C	C4	50.704725	-108.555894	1:50,000	1

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
127819-83	Shackleton	O - OPER	P - POLYETH	C	C4	50.755545	-108.614044	1:50,000	1
127820-92	Lacadena South	O - OPER	P - POLYETH	C	C4	50.773721	-108.348719	1:50,000	1
127819-54	Shackleton	O - OPER	P - POLYETH	C	C4	50.710012	-108.51798	1:50,000	1
127819-46	Shackleton	O - OPER	P - POLYETH	C	C4	50.780325	-108.511637	1:50,000	1
127819-65	Shackleton	O - OPER	P - POLYETH	C	C4	50.793395	-108.499645	1:50,000	1
127819-153	Shackleton	O - OPER	P - POLYETH	C	C4	50.716497	-108.50759	1:50,000	1
127820-134	Lacadena South	O - OPER	P - POLYETH	C	C4	50.857283	-108.337773	1:50,000	1
127819-204	Shackleton	O - OPER	P - POLYETH	C	C4	50.786686	-108.498636	1:50,000	1
127819-6	Shackleton	O - OPER	P - POLYETH	C	C4	50.723476	-108.522581	1:50,000	1
127819-33	Shackleton	O - OPER	P - POLYETH	C	C4	50.704622	-108.491045	1:50,000	1
127819-153	Shackleton	O - OPER	P - POLYETH	C	C4	50.708683	-108.494398	1:50,000	1
127819-182	Shackleton	O - OPER	P - POLYETH	C	C4	50.801815	-108.549333	1:50,000	1
127819-217	Shackleton	O - OPER	P - POLYETH	C	C4	50.746499	-108.601924	1:50,000	1
127819-200	Shackleton	O - OPER	P - POLYETH	C	C4	50.726193	-108.571981	1:50,000	1
127819-116	Shackleton	O - OPER	P - POLYETH	C	C4	50.745893	-108.556296	1:50,000	1
127820-288	Lacadena South	O - OPER	P - POLYETH	C	C4	50.847527	-108.395355	1:50,000	1
127820-78	Lacadena South	O - OPER	P - POLYETH	C	C4	50.850182	-108.400585	1:50,000	1
127820-337	Lacadena South	O - OPER	P - POLYETH	C	C4	50.88406	-108.292942	1:50,000	1
127820-22	Lacadena South	O - OPER	P - POLYETH	C	C4	50.804205	-108.397233	1:50,000	1
127819-48	Shackleton	O - OPER	P - POLYETH	C	C4	50.765265	-108.540477	1:50,000	1
127819-200	Shackleton	O - OPER	P - POLYETH	C	C4	50.729695	-108.558639	1:50,000	1
127819-200	Shackleton	O - OPER	P - POLYETH	C	C4	50.723918	-108.564925	1:50,000	1
127819-46	Shackleton	O - OPER	P - POLYETH	C	C4	50.779504	-108.511552	1:50,000	1
127819-213	Shackleton	O - OPER	P - POLYETH	C	C4	50.790069	-108.500691	1:50,000	1
127820-104	Lacadena South	O - OPER	P - POLYETH	C	C4	50.940328	-108.291391	1:50,000	1
127820-321	Lacadena South	O - OPER	P - POLYETH	C	C4	50.912481	-108.238336	1:50,000	1
127819-111	Shackleton	O - OPER	P - POLYETH	C	C4	50.69738	-108.508403	1:50,000	1
127819-27	Shackleton	O - OPER	P - POLYETH	C	C4	50.712168	-108.513689	1:50,000	1
127820-190	Lacadena South	O - OPER	P - POLYETH	C	C4	50.797379	-108.416644	1:50,000	1
127819-133	Shackleton	O - OPER	P - POLYETH	C	C4	50.69481	-108.527942	1:50,000	1
127819-213	Shackleton	O - OPER	P - POLYETH	C	C4	50.793145	-108.505382	1:50,000	1
127819-116	Shackleton	O - OPER	P - POLYETH	C	C4	50.745551	-108.551816	1:50,000	1
127819-153	Shackleton	O - OPER	P - POLYETH	C	C4	50.710292	-108.499001	1:50,000	1
127819-119	Shackleton	O - OPER	P - POLYETH	C	C4	50.739327	-108.551642	1:50,000	1
127819-48	Shackleton	O - OPER	P - POLYETH	C	C4	50.762088	-108.536667	1:50,000	1
127820-78	Lacadena South	O - OPER	P - POLYETH	C	C4	50.859617	-108.413029	1:50,000	1
127819-116	Shackleton	O - OPER	P - POLYETH	C	C4	50.745588	-108.546338	1:50,000	1
127819-217	Shackleton	O - OPER	P - POLYETH	C	C4	50.746567	-108.601189	1:50,000	1
127819-40	Shackleton	O - OPER	P - POLYETH	C	C4	50.685614	-108.536031	1:50,000	1

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
127819-171	Shackleton	O - OPER	P - POLYETH	C	C4	50.717319	-108.52785	1:50,000	1
127820-123	Lacadena South	O - OPER	P - POLYETH	C	C4	50.856648	-108.40747	1:50,000	1
127819-143	Shackleton	O - OPER	P - POLYETH	C	C4	50.779626	-108.457733	1:50,000	1
127819-153	Shackleton	O - OPER	P - POLYETH	C	C4	50.709942	-108.496494	1:50,000	1
127819-96	Shackleton	O - OPER	P - POLYETH	C	C4	50.789982	-108.528041	1:50,000	1
127819-200	Shackleton	O - OPER	P - POLYETH	C	C4	50.706352	-108.553281	1:50,000	1
127820-187	Lacadena South	O - OPER	P - POLYETH	C	C4	50.788108	-108.386798	1:50,000	1
127819-33	Shackleton	O - OPER	P - POLYETH	C	C4	50.702626	-108.4894	1:50,000	1
127819-147	Shackleton	O - OPER	P - POLYETH	C	C4	50.745725	-108.551939	1:50,000	1
127819-27	Shackleton	O - OPER	P - POLYETH	C	C4	50.73456	-108.51232	1:50,000	1
127820-263	Lacadena South	O - OPER	P - POLYETH	C	C4	50.891601	-108.23194	1:50,000	1
127819-191	Shackleton	O - OPER	P - POLYETH	C	C4	50.786461	-108.563277	1:50,000	1
127819-143	Shackleton	O - OPER	P - POLYETH	C	C4	50.776858	-108.462063	1:50,000	1
127819-48	Shackleton	O - OPER	P - POLYETH	C	C4	50.768093	-108.546259	1:50,000	1
127820-78	Lacadena South	O - OPER	P - POLYETH	C	C4	50.859084	-108.412307	1:50,000	1
127820-142	Lacadena South	O - OPER	P - POLYETH	C	C4	50.889566	-108.232854	1:50,000	1
127819-102	Shackleton	O - OPER	P - POLYETH	C	C4	50.782147	-108.496347	1:50,000	1
127819-155	Shackleton	O - OPER	P - POLYETH	C	C4	50.775343	-108.514664	1:50,000	1
127819-143	Shackleton	O - OPER	P - POLYETH	C	C4	50.775467	-108.486944	1:50,000	1
127819-55	Shackleton	O - OPER	P - POLYETH	C	C4	50.783164	-108.556198	1:50,000	1
127819-186	Shackleton	O - OPER	P - POLYETH	C	C4	50.706446	-108.555875	1:50,000	1
127820-58	Lacadena South	O - OPER	P - POLYETH	C	C4	50.84251	-108.397841	1:50,000	1
127819-72	Shackleton	O - OPER	P - POLYETH	C	C4	50.696598	-108.51729	1:50,000	1
127819-46	Shackleton	O - OPER	P - POLYETH	C	C4	50.779746	-108.511577	1:50,000	1
127819-147	Shackleton	O - OPER	P - POLYETH	C	C4	50.745727	-108.546359	1:50,000	1
127819-75	Shackleton	O - OPER	P - POLYETH	C	C4	50.75372	-108.606577	1:50,000	1
127819-65	Shackleton	O - OPER	P - POLYETH	C	C4	50.793397	-108.505051	1:50,000	1
127819-69	Shackleton	O - OPER	P - POLYETH	C	C4	50.739339	-108.60214	1:50,000	1
127820-44	Lacadena South	O - OPER	P - POLYETH	C	C4	50.788473	-108.345622	1:50,000	1
127822-28	Lacadena South	O - OPER	P - POLYETH	C	C4	50.956358	-108.233279	1:50,000	1
127820-362	Lacadena South	O - OPER	P - POLYETH	C	C4	50.759261	-108.338083	1:50,000	1
127819-161	Shackleton	O - OPER	P - POLYETH	C	C4	50.694964	-108.480973	1:50,000	1
127819-76	Shackleton	O - OPER	P - POLYETH	C	C4	50.73209	-108.543036	1:50,000	1
127820-131	Lacadena South	O - OPER	P - POLYETH	C	C4	50.7927	-108.399014	1:50,000	1
127819-85	Shackleton	O - OPER	P - POLYETH	C	C4	50.792035	-108.534389	1:50,000	1
127819-38	Shackleton	O - OPER	P - POLYETH	C	C4	50.78106	-108.549619	1:50,000	1
127820-178	Lacadena South	O - OPER	P - POLYETH	C	C4	50.915972	-108.280003	1:50,000	1
127822-53	Lacadena South	O - OPER	P - POLYETH	C	C4	50.933434	-108.085528	1:50,000	1
127819-95	Shackleton	O - OPER	P - POLYETH	C	C4	50.776627	-108.488758	1:50,000	1

Line	Field	Status	Material	Cat.	Subcat.	Latitude	Longitude	Waterbody Map Scale	Stream Order
127822-33	Lacadena South	O - OPER	P - POLYETH	C	C4	50.930078	-108.227289	1:50,000	1
127820-324	Lacadena South	O - OPER	P - POLYETH	C	C4	50.933327	-108.298637	1:50,000	1
127820-212	Lacadena South	O - OPER	P - POLYETH	C	C4	50.916226	-108.232099	1:50,000	1
127819-76	Shackleton	O - OPER	P - POLYETH	C	C4	50.735008	-108.539959	1:50,000	1
127820-212	Lacadena South	O - OPER	P - POLYETH	C	C4	50.91655	-108.231845	1:50,000	1
127819-152	Shackleton	O - OPER	P - POLYETH	C	C4	50.791933	-108.531218	1:50,000	1
127819-156	Shackleton	O - OPER	P - POLYETH	C	C4	50.769782	-108.510413	1:50,000	1
127819-72	Shackleton	O - OPER	P - POLYETH	C	C4	50.69348	-108.525611	1:50,000	1
127821-2	Shackleton	D - DCNT	G - COMPOSITE	E	E6	50.77941	-108.511604	1:50,000	1
127821-2	Shackleton	D - DCNT	G - COMPOSITE	E	E6	50.771034	-108.511576	1:50,000	1
127821-2	Shackleton	D - DCNT	G - COMPOSITE	E	E6	50.780219	-108.511689	1:50,000	1
127821-2	Shackleton	D - DCNT	G - COMPOSITE	E	E6	50.749634	-108.513431	1:50,000	1
127821-2	Shackleton	D - DCNT	G - COMPOSITE	E	E6	50.779892	-108.511655	1:50,000	1
127820-365	Lacadena South	D - DCNT	P - POLYETH	E	E6	50.855993	-108.202564	1:50,000	1
127820-284	Lacadena South	A - ABND	P - POLYETH	E	E6	50.86541	-108.232858	1:50,000	1
178880-1	Shackleton	A - ABND	S - STEEL	F	F2	50.797632	-108.648476	1:1,000,000	4
126973-2	Shackleton	A - ABND	P - POLYETH	F	F4	50.789112	-108.368138	1:250,000	3
126973-8	Shackleton	A - ABND	P - POLYETH	F	F4	50.763106	-108.356518	1:250,000	2
126973-6	Shackleton	A - ABND	P - POLYETH	F	F4	50.763099	-108.356523	1:250,000	2
128067-1	Shackleton	A - ABND	S - STEEL	F	F6	50.778814	-108.660214	1:50,000	1
126973-5	Shackleton	A - ABND	P - POLYETH	F	F6	50.762056	-108.348598	1:50,000	1
126973-5	Shackleton	A - ABND	P - POLYETH	F	F6	50.765109	-108.34858	1:50,000	1
126973-2	Shackleton	A - ABND	P - POLYETH	F	F6	50.781872	-108.35748	1:50,000	1
126973-5	Shackleton	A - ABND	P - POLYETH	F	F6	50.767153	-108.348454	1:50,000	1
126973-2	Shackleton	A - ABND	P - POLYETH	F	F6	50.773731	-108.348969	1:50,000	1
126973-8	Shackleton	A - ABND	P - POLYETH	F	F6	50.761486	-108.350241	1:50,000	1
126973-6	Shackleton	A - ABND	P - POLYETH	F	F6	50.759869	-108.354694	1:50,000	1
126973-16	Shackleton	A - ABND	P - POLYETH	F	F6	50.759503	-108.349162	1:50,000	1

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Appendix B - Ministers Order MRO 14/22

MINISTER'S ORDER

MRO 14/22

Under *The Pipelines Act, 1998* and *The Oil and Gas Conservation Act*

Pursuant to section 12 of *The Pipelines Act, 1998,* the Minister hereby suspends the licences of all flowline segments listed in **Table 1: Abbey Resources High and Very High Risk Segments**, which are licensed to Abbey Resources Corp. effective Monday, January 24, 2022.

Pursuant to section 17.01 of *The Oil and Gas Conservation Act*, Abbey Resources Corp. is hereby ordered to suspend operation of all flowline segments listed in **Table 1: Abbey Resources High and Very High Risk Segments** effective Monday, January 24, 2022. The flowline segments shall be suspended in a manner that complies with Clause 10.15.1 of *Canadian Standards Association Group (CSA) Z662:19 Oil and gas pipeline systems (CSA Z662:19).*

The lines listed in **Table 1: Abbey Resources High and Very High Risk Segments** must be shut in by Monday, February 7, 2022.

Discontinuation of the segments in accordance with Clause 10.15.1 of *CSA Z662:19* must be completed by Monday, April 25, 2022.

Dated at Regina, Saskatchewan, January 24, 2022.

Hordenchuk, Sharla ER

Digitally signed by Hordenchuk, Sharla ER
Date: 2022.01.24 16:00:08 -06'00'

Sharla Hordenchuk, Assistant Deputy Minister
Energy Regulation Division
Ministry of Energy and Resources

Table 1: Abbey Resources High and Very High Risk Segments

Converge Based Risk Analysis Results					Pipeline Specifications								
ER Licence	Segment ID	Approval-Line	Status	Substance	From Location	From Facility	To Location	To Facility	Outer Diameter (mm)	Wall Thickness (mm)	Length (km)	Material Type	Max Operating Pressure (kPa)
PL-00000329	SK PS 00107411	127824-6	O-OPER	NATURAL GAS	14-18-022-20W3	WE-WELL	14-09-022-20W3	WE-WELL	114.3	3.2	3.87	S-STEEL	4960
PL-00000329	SK PS 00107437	127824-32	O-OPER	NATURAL GAS	08-20-021-19W3	PB-PL CONCT B	14-20-021-19W3	PB-PL CONCT B	219.1	4	1.34	S-STEEL	4960
PL-00000329	SK PS 00107440	127824-35	O-OPER	NATURAL GAS	08-29-021-20W3	WE-WELL	13-26-021-20W3	WE-WELL	168.3	3.2	3.64	S-STEEL	4960
PL-00000332	SK PS 00107624	127819-164	O-OPER	NATURAL GAS	11-24-021-19W3	CS-COMP STN	14-36-020-19W3	CS-COMP STN	168.3	4.8	6.1	S-STEEL	9930
PL-00000329	SK PS 00107406	127824-1	O-OPER	NATURAL GAS	14-20-021-19W3	WE-WELL	14-30-021-19W3	WE-WELL	219.1	4	2.27	S-STEEL	4960
PL-00000962	SK PS 00110615	173721-1	O-OPER	NATURAL GAS	09-25-021-19W3	PB-PL CONCT B	01-22-021-19W3	PB-PL CONCT B	114.3	3.2	7.5	S-STEEL	4960
PL-00000332	SK PS 00107531	127819-71	O-OPER	NATURAL GAS	06-19-021-18W3	WE-WELL	08-19-021-18W3	WE-WELL	114.3	3.2	0.9	S-STEEL	4960
PL-00000329	SK PS 00107424	127824-19	O-OPER	NATURAL GAS	14-25-021-21W3	WE-WELL	14-29-021-20W3	WE-WELL	114.3	3.2	3.5	S-STEEL	4960
PL-00000329	SK PS 00107457	127824-52	O-OPER	NATURAL GAS	14-31-021-20W3	WE-WELL	08-31-021-20W3	WE-WELL	114.3	3.2	1.26	S-STEEL	4960
PL-00000332	SK PS 00107674	127819-214	O-OPER	NATURAL GAS	16-13-021-20W3	WE-WELL	06-20-021-19W3	WE-WELL	114.3	3.2	2.6	S-STEEL	4960
PL-00000647	SK PS 00108659	122480-1	O-OPER	NATURAL GAS	05-02-023-20W3	PB-PL CONCT B	13-32-022-20W3	PB-PL CONCT B	219.1		4.1	S-STEEL	4960
PL-00000644	SK PS 00108152	174029-1	O-OPER	NATURAL GAS	13-19-022-20W3	PB-PL CONCT B	13-18-022-20W3	PB-PL CONCT B	219.1	0	1.3	S-STEEL	4960
PL-00000329	SK PS 00107416	127824-11	O-OPER	NATURAL GAS	08-04-022-20W3	WE-WELL	14-30-021-19W3	WE-WELL	168.3	4	7.24	S-STEEL	4960
PL-00000329	SK PS 00107428	127824-23	O-OPER	NATURAL GAS	08-31-021-19W3	WE-WELL	14-30-021-19W3	WE-WELL	168.3	4	1.56	S-STEEL	4960
#N/A	#N/A	804486-1	O-OPER	NATURAL GAS	04-10-023-18W3		13-21-023-19W3		168.3	3.2	13.12	S-STEEL	8619
PL-00000329	SK PS 00107418	127824-13	O-OPER	NATURAL GAS	08-09-022-20W3	WE-WELL	08-03-022-20W3	WE-WELL	114.3	3.2	2.39	S-STEEL	4960
PL-00000647	SK PS 00109340	128971-1	O-OPER	NATURAL GAS	05-26-021-21W3	PB-PL CONCT B	14-26-021-21W3	PB-PL CONCT B	114.3		1.19	S-STEEL	4960
PL-00000647	SK PS 00108727	128005-1	O-OPER	NATURAL GAS	08-18-022-21W3	PB-PL CONCT B	11-12-022-22W3	PB-PL CONCT B	168.3		2.9	S-STEEL	4960
PL-00000644	SK PS 00108472	187567-1	O-OPER	NATURAL GAS	08-36-021-21W3	PB-PL CONCT B	16-36-021-21W3	PB-PL CONCT B	114.3	0	0.64	S-STEEL	4960
PL-00000332	SK PS 00107516	127819-56	O-OPER	NATURAL GAS	14-20-021-18W3	WE-WELL	16-24-021-19W3	WE-WELL	114.3	4	2.4	S-STEEL	4960
PL-00000644	SK PS 00108173	177011-1	O-OPER	NATURAL GAS	10-27-022-19W3	PA-PL CONCT A	06-19-022-18W3	PA-PL CONCT A	114.3	3.2	5.28	S-STEEL	4960
PL-00000644	SK PS 00108479	187585-1	O-OPER	NATURAL GAS	08-16-022-21W3	WE-WELL	08-15-022-21W3	WE-WELL	168.3	0	1.5	S-STEEL	4960
PL-00000647	SK PS 00109529	129203-1	O-OPER	NATURAL GAS	10-28-022-19W3	WE-WELL	02-06-023-19W3	WE-WELL	114.3		6.53	S-STEEL	4960
PL-00000332	SK PS 00107488	127819-28	O-OPER	NATURAL GAS	08-26-021-19W3	PB-PL CONCT B	11-24-021-19W3	PB-PL CONCT B	168.3	4.8	1.5	S-STEEL	4960
#N/A	#N/A	806043-1	A-ABND	NATURAL GAS	04-29-021-23W3		04-28-021-22W3		114.3	4	11.72	S-STEEL	8619
PL-00000644	SK PS 00108474	187569-1	O-OPER	NATURAL GAS	16-26-021-21W3	PB-PL CONCT B	06-36-021-21W3	PB-PL CONCT B	114.3	0	1.38	S-STEEL	4960
PL-00000644	SK PS 00108185	177092-1	O-OPER	NATURAL GAS	06-13-022-22W3	PB-PL CONCT B	06-18-022-21W3	PB-PL CONCT B	88.9	0	1.67	S-STEEL	4960
PL-00000644	SK PS 00108184	177091-1	O-OPER	NATURAL GAS	06-14-022-22W3	WE-WELL	06-13-022-22W3	WE-WELL	88.9	0	1.67	S-STEEL	4960
PL-00000962	SK PS 00110160	118962-1	O-OPER	NATURAL GAS	03-09-022-19W3	PB-PL CONCT B	01-22-021-19W3	PB-PL CONCT B	114.3	3.2	7.8	S-STEEL	4960
PL-00000644	SK PS 00108304	181468-1	O-OPER	NATURAL GAS	06-16-023-19W3	PB-PL CONCT B	15-16-023-19W3	PB-PL CONCT B	114.3	0	0.67	S-STEEL	4960
PL-00000332	SK PS 00107553	127819-93	O-OPER	NATURAL GAS	08-25-021-19W3	WE-WELL	11-24-021-19W3	WE-WELL	114.3	4	1.9	S-STEEL	4960
PL-00000644	SK PS 00108431	186872-1	O-OPER	NATURAL GAS	16-21-021-20W3	PB-PL CONCT B	08-27-021-20W3	PB-PL CONCT B	114.3	0	1.97	S-STEEL	4960
PL-00000647	SK PS 00109368	129028-1	O-OPER	NATURAL GAS	08-15-022-21W3	PB-PL CONCT B	14-14-022-21W3	PB-PL CONCT B	168.3		1.4	S-STEEL	4960
PL-00000647	SK PS 00109400	129073-1	O-OPER	NATURAL GAS	14-09-023-21W3	PB-PL CONCT B	14-10-023-21W3	PB-PL CONCT B	114.3		1.6	S-STEEL	4960
PL-00000329	SK PS 00107408	127824-3	O-OPER	NATURAL GAS	14-29-021-19W3	PB-PL CONCT B	13-26-021-20W3	PB-PL CONCT B	219.1	5.6	6.14	S-STEEL	4960
PL-00000332	SK PS 00107637	127819-177	O-OPER	NATURAL GAS	08-20-021-19W3	WE-WELL	14-16-021-19W3	WE-WELL	219.1	4	1.1	S-STEEL	4960
PL-00000329	SK PS 00107454	127824-49	O-OPER	NATURAL GAS	08-31-021-20W3	WE-WELL	14-29-021-20W3	WE-WELL	114.3	3.2	1.17	S-STEEL	4960
PL-00000644	SK PS 00108314	181478-1	O-OPER	NATURAL GAS	08-22-023-19W3	PB-PL CONCT B	06-22-023-19W3	PB-PL CONCT B	114.3	0	0.76	S-STEEL	4960
#N/A	#N/A	806038-1	O-OPER	NATURAL GAS	08-18-023-18W3		16-33-023-18W3		114.3	3.2	7.1	S-STEEL	8964

#N/A	#N/A	817118-1	O-OPER	NATURAL GAS	01-19-022-17W3		04-10-023-18W3		168.3	3.2	9.8	S-STEEL	8619
PL-00000647	SK PS 00109130	128430-1	O-OPER	NATURAL GAS	13-35-023-18W3	PB-PL CONCT B	04-02-024-18W3	PB-PL CONCT B	168.3		0.5	S-STEEL	4960
PL-00000644	SK PS 00108367	183861-1	D-DCNT	NATURAL GAS	04-28-021-22W3	WE-WELL	14-34-021-22W3	WE-WELL	267	0	2.4	S-STEEL	4960
PL-00000644	SK PS 00108246	181082-1	O-OPER	NATURAL GAS	14-26-022-22W3	WE-WELL	14-23-022-22W3	WE-WELL	88.9	0	1.63	S-STEEL	4960
PL-00000644	SK PS 00108545	187684-1	O-OPER	NATURAL GAS	14-10-023-21W3	PB-PL CONCT B	08-10-023-21W3	PB-PL CONCT B	114.3	0	1.08	S-STEEL	4960
PL-00000644	SK PS 00108476	187571-1	O-OPER	NATURAL GAS	08-26-021-21W3	WE-WELL	16-26-021-21W3	WE-WELL	88.9	0	0.82	S-STEEL	4960
PL-00000647	SK PS 00109357	129017-1	O-OPER	NATURAL GAS	10-13-022-21W3	WE-WELL	13-18-022-20W3	WE-WELL	168.3		1.2	S-STEEL	4960
PL-00000644	SK PS 00108546	187685-1	O-OPER	NATURAL GAS	08-10-023-21W3	PB-PL CONCT B	06-11-023-21W3	PB-PL CONCT B	114.3	0	0.87	S-STEEL	4960
PL-00000644	SK PS 00108265	181128-1	O-OPER	NATURAL GAS	01-05-023-19W3	WE-WELL	14-32-022-19W3	WE-WELL	114.3	0	0.3	S-STEEL	4960
PL-00000647	SK PS 00108946	128243-1	O-OPER	NATURAL GAS	02-21-023-20W3	WE-WELL	12-21-023-20W3	WE-WELL	114.3		1.08	S-STEEL	4960
PL-00000647	SK PS 00108919	128216-1	O-OPER	NATURAL GAS	12-09-023-19W3	PB-PL CONCT B	13-21-023-19W3	PB-PL CONCT B	168.3		4.1	S-STEEL	4960
PL-00000379	SK PS 00107736	177620-4	O-OPER	NATURAL GAS	07-01-023-20W3	PB-PL CONCT B	05-01-023-20W3	PB-PL CONCT B	114.3	0	0.85	S-STEEL	4960
PL-00000647	SK PS 00108765	128044-1	O-OPER	NATURAL GAS	06-32-021-20W3	PB-PL CONCT B	08-32-021-20W3	PB-PL CONCT B	88.9		0.84	S-STEEL	4960
PL-00000329	SK PS 00107456	127824-51	O-OPER	NATURAL GAS	08-36-021-20W3	WE-WELL	13-26-021-20W3	WE-WELL	219.1	4	3.53	S-STEEL	4960
PL-00000332	SK PS 00107596	127819-136	O-OPER	NATURAL GAS	06-20-021-19W3	WE-WELL	08-20-021-19W3	WE-WELL	114.3	3.2	1	S-STEEL	4960
PL-00000307	SK PS 00107366	174022-2	O-OPER	NATURAL GAS	01-07-022-20W3	PB-PL CONCT B	16-05-022-20W3	PB-PL CONCT B	88.9	0	1.48	S-STEEL	4960
PL-00000644	SK PS 00108164	174906-1	O-OPER	NATURAL GAS	08-01-023-18W3	WE-WELL	16-01-023-18W3	WE-WELL	88.9	0	0.8	S-STEEL	4960
PL-00000307	SK PS 00107367	174022-3	O-OPER	NATURAL GAS	14-04-022-20W3	WE-WELL	13-04-022-20W3	WE-WELL	88.9	0	0.65	S-STEEL	4960
PL-00000342	SK PS 00107692	174023-2	O-OPER	NATURAL GAS	06-05-022-20W3	PB-PL CONCT B	05-04-022-20W3	PB-PL CONCT B	60.3	0	1.08	S-STEEL	4960
PL-00000379	SK PS 00107738	177620-6	O-OPER	NATURAL GAS	02-06-023-19W3	PB-PL CONCT B	05-06-023-19W3	PB-PL CONCT B	114.3	0	0.88	S-STEEL	4960
PL-00000343	SK PS 00107697	174027-7	O-OPER	NATURAL GAS	08-19-022-20W3	PB-PL CONCT B	16-18-022-20W3	PB-PL CONCT B	114.3	0	0.73	S-STEEL	4960
PL-00000380	SK PS 00107740	177621-1	A-ABND	NATURAL GAS	04-36-022-20W3	PB-PL CONCT B	02-06-023-19W3	PB-PL CONCT B	114.3	0	3.43	S-STEEL	0
PL-00000380	SK PS 00107745	177621-6	O-OPER	NATURAL GAS	11-35-022-20W3	WE-WELL	16-34-022-20W3	WE-WELL	114.3	0	0.79	S-STEEL	4960
PL-00000329	SK PS 00107407	127824-2	O-OPER	NATURAL GAS	06-25-021-21W3	WE-WELL	14-25-021-21W3	WE-WELL	114.3	3.2	0.92	S-STEEL	4960
PL-00000329	SK PS 00107453	127824-48	O-OPER	NATURAL GAS	14-29-021-20W3	WE-WELL	08-29-021-20W3	WE-WELL	114.3	3.2	1.14	S-STEEL	4960
PL-00000329	SK PS 00107409	127824-4	O-OPER	NATURAL GAS	16-31-021-20W3	WE-WELL	08-31-021-20W3	WE-WELL	114.3	3.2	0.76	S-STEEL	4960
PL-00000329	SK PS 00107432	127824-27	O-OPER	NATURAL GAS	06-31-021-20W3	WE-WELL	08-31-021-20W3	WE-WELL	114.3	3.2	0.99	S-STEEL	4960
PL-00000647	SK PS 00109436	129109-1	O-OPER	NATURAL GAS	14-31-022-20W3	PB-PL CONCT B	13-19-022-20W3	PB-PL CONCT B	219.1		3.7	S-STEEL	4960
PL-00000647	SK PS 00109437	129110-1	O-OPER	NATURAL GAS	05-31-022-20W3	PB-PL CONCT B	13-19-022-20W3	PB-PL CONCT B	219.1		2.5	S-STEEL	4960
PL-00000647	SK PS 00109521	129195-1	O-OPER	NATURAL GAS	02-06-023-19W3	PB-PL CONCT B	05-02-023-20W3	PB-PL CONCT B	219.1		4.6	S-STEEL	4960
PL-00000647	SK PS 00108602	122412-1	O-OPER	NATURAL GAS	10-18-022-20W3	WE-WELL	13-18-022-20W3	WE-WELL	168.3		1	S-STEEL	4960
PL-00000644	SK PS 00108147	174021-1	O-OPER	NATURAL GAS	05-08-022-20W3	PB-PL CONCT B	01-07-022-20W3	PB-PL CONCT B	88.9	0	1.09	S-STEEL	4960
PL-00000644	SK PS 00108148	174024-1	O-OPER	NATURAL GAS	08-08-022-20W3	WE-WELL	05-09-022-20W3	WE-WELL	60.3	0	0.1	S-STEEL	4960
PL-00000644	SK PS 00108154	174102-1	O-OPER	NATURAL GAS	08-25-021-20W3	WE-WELL	08-25-021-20W3	WE-WELL	60.3	0	0.04	S-STEEL	4960
PL-00000644	SK PS 00108179	177085-1	O-OPER	NATURAL GAS	04-10-023-20W3	PB-PL CONCT B	08-09-023-20W3	PB-PL CONCT B	114.3	0	0.79	S-STEEL	4960
PL-00000644	SK PS 00108132	118963-1	O-OPER	NATURAL GAS	12-19-022-19W3	WE-WELL	05-19-022-19W3	WE-WELL	114.3	0	0.2	S-STEEL	4960
PL-00000647	SK PS 00108661	122573-1	O-OPER	NATURAL GAS	16-04-023-20W3	WE-WELL	16-04-023-20W3	WE-WELL	114.3	3.2	0.03	S-STEEL	4960
PL-00000647	SK PS 00108667	122580-1	O-OPER	NATURAL GAS	07-10-023-20W3	WE-WELL	07-10-023-20W3	WE-WELL	114.3	3.2	0.03	S-STEEL	4960
PL-00000647	SK PS 00108669	122582-1	O-OPER	NATURAL GAS	06-02-023-20W3	WE-WELL	06-02-023-20W3	WE-WELL	114.3	3.2	0.02	S-STEEL	4960
PL-00000647	SK PS 00108672	122585-1	O-OPER	NATURAL GAS	05-01-023-20W3	WE-WELL	05-01-023-20W3	WE-WELL	114.3	3.2	0.02	S-STEEL	4960
PL-00000647	SK PS 00108663	122575-1	O-OPER	NATURAL GAS	16-19-022-20W3	WE-WELL	16-19-022-20W3	WE-WELL	114.3	3.2	0.03		4965
PL-00000343	SK PS 00107693	174027-1	O-OPER	NATURAL GAS	14-15-022-20W3	WE-WELL	08-16-022-20W3	WE-WELL	114.3	0	1.68	S-STEEL	4960
PL-00000644	SK PS 00108167	174910-1	O-OPER	NATURAL GAS	13-32-022-20W3	PB-PL CONCT B	16-31-022-20W3	PB-PL CONCT B	219.1	0	0.4	S-STEEL	4960
PL-00000644	SK PS 00108146	173723-1	O-OPER	NATURAL GAS	16-18-022-20W3	PB-PL CONCT B	13-18-022-20W3	PB-PL CONCT B	114.3	0	1.28	S-STEEL	4960
PL-00000329	SK PS 00107414	127824-9	O-OPER	NATURAL GAS	14-02-022-20W3	WE-WELL	06-02-022-20W3	WE-WELL	114.3	3.2	0.78	S-STEEL	4960
PL-00000343	SK PS 00107696	174027-6	O-OPER	NATURAL GAS	14-17-022-20W3	PB-PL CONCT B	16-18-022-20W3	PB-PL CONCT B	114.3	0	0.68	S-STEEL	4960

PL-00000343	SK PS 00107695	174027-5	O-OPER	NATURAL GAS	07-17-022-20W3	PB-PL CONCT B	11-17-022-20W3	PB-PL CONCT B	114.3	0	0.76	S-STEEL	4960
PL-00000644	SK PS 00108149	174025-1	O-OPER	NATURAL GAS	13-09-022-20W3	PB-PL CONCT B	12-09-022-20W3	PB-PL CONCT B	114.3	0	0.4	S-STEEL	4960
PL-00000343	SK PS 00107694	174027-4	O-OPER	NATURAL GAS	08-17-022-20W3	WE-WELL	08-17-022-20W3	WE-WELL	114.3	0	0.02	S-STEEL	4960
PL-00000644	SK PS 00108258	181105-1	O-OPER	NATURAL GAS	14-04-023-20W3	WE-WELL	14-04-023-20W3	WE-WELL	88.9	0	0.04	S-STEEL	4960
PL-00000644	SK PS 00108151	174028-1	O-OPER	NATURAL GAS	08-24-022-21W3	WE-WELL	05-19-022-20W3	WE-WELL	88.9	0	0.2	S-STEEL	4960
PL-00000644	SK PS 00108150	174026-1	O-OPER	NATURAL GAS	14-20-022-20W3	WE-WELL	14-20-022-20W3	WE-WELL	88.9	0	0.04	S-STEEL	4960
PL-00000329	SK PS 00107441	127824-36	O-OPER	NATURAL GAS	16-25-021-21W3	WE-WELL	16-25-021-21W3	WE-WELL	114.3	3.2	0.21	S-STEEL	4960
PL-00000329	SK PS 00107442	127824-37	O-OPER	NATURAL GAS	16-04-022-20W3	WE-WELL	08-04-022-20W3	WE-WELL	114.3	3.2	0.66	S-STEEL	4960
PL-00000644	SK PS 00108188	177096-1	O-OPER	NATURAL GAS	14-23-022-22W3	PB-PL CONCT B	06-23-022-22W3	PB-PL CONCT B	114.3	0	0.81	S-STEEL	4960
PL-00000307	SK PS 00107365	174022-1	O-OPER	NATURAL GAS	14-06-022-20W3	WE-WELL	03-07-022-20W3	WE-WELL	88.9	0	0.21	S-STEEL	4960
PL-00000342	SK PS 00107691	174023-1	O-OPER	NATURAL GAS	08-06-022-20W3	WE-WELL	05-05-022-20W3	WE-WELL	60.3	0	0.39	S-STEEL	4960
PL-00000329	SK PS 00107433	127824-28	R-RMVD	NATURAL GAS	10-36-021-20W3	WE-WELL	10-36-021-20W3	WE-WELL	114.3	3.2	0.04	S-STEEL	4960
PL-00000962	SK PS 00110616	174014-1	O-OPER	NATURAL GAS	07-29-021-18W3	WE-WELL	16-30-021-18W3	WE-WELL		0	2.07	S-STEEL	4960
PL-00000962	SK PS 00110624	174909-1	O-OPER	NATURAL GAS	05-02-023-20W3	PB-PL CONCT B	04-02-023-20W3	PB-PL CONCT B		0	0.38	S-STEEL	4960
PL-00000644	SK PS 00108496	187608-2	O-OPER	NATURAL GAS	14-12-022-21W3	WE-WELL	06-13-022-21W3	WE-WELL	114.3	0	0.73	S-STEEL	4960
PL-00000962	SK PS 00110665	181132-1	O-OPER	NATURAL GAS	11-03-023-19W3	WE-WELL	10-04-023-19W3	WE-WELL	114.3	3.2	1.02	S-STEEL	4960
PL-00000644	SK PS 00108330	181497-1	O-OPER	NATURAL GAS	16-12-023-19W3	WE-WELL	16-01-023-19W3	WE-WELL	114.3	0	1.42	S-STEEL	4960
PL-00000644	SK PS 00108175	177012-2	O-OPER	NATURAL GAS	03-03-023-19W3	WE-WELL	01-04-023-19W3	WE-WELL	114.3	0	0.76	S-STEEL	4960
PL-00000644	SK PS 00108275	181149-2	O-OPER	NATURAL GAS	15-24-022-20W3	WE-WELL	15-24-022-20W3	WE-WELL	88.9	0	0.02	S-STEEL	4960
PL-00000644	SK PS 00108443	187069-1	O-OPER	NATURAL GAS	10-20-022-20W3	WE-WELL	10-20-022-20W3	WE-WELL	88.9	0	0.03	S-STEEL	4960
PL-00000644	SK PS 00108261	181124-1	O-OPER	NATURAL GAS	04-11-023-20W3	PB-PL CONCT B	14-02-023-20W3	PB-PL CONCT B	114.3	0	0.5	S-STEEL	4960
PL-00000644	SK PS 00108166	174908-1	O-OPER	NATURAL GAS	16-08-023-17W3	PB-PL CONCT B	11-08-023-17W3	PB-PL CONCT B	114.3	0	1.39	S-STEEL	4960
PL-00000647	SK PS 00109574	135482-1	O-OPER	NATURAL GAS	08-36-022-21W3	WE-WELL	05-31-022-20W3	WE-WELL	114.3		0.17	S-STEEL	4960
PL-00000647	SK PS 00108676	122591-1	O-OPER	NATURAL GAS	16-31-022-20W3	WE-WELL	16-31-022-20W3	WE-WELL	114.3		0.12	S-STEEL	4960
PL-00000332	SK PS 00107511	127819-51	O-OPER	NATURAL GAS	16-20-021-19W3	WE-WELL	08-20-021-19W3	WE-WELL	114.3	3.2	0.8	S-STEEL	4960
PL-00000329	SK PS 00107443	127824-38	O-OPER	NATURAL GAS	06-09-022-20W3	WE-WELL	16-04-022-20W3	WE-WELL	114.3	3.2	1.14	S-STEEL	4960
PL-00000329	SK PS 00107447	127824-42	O-OPER	NATURAL GAS	16-19-021-19W3	WE-WELL	14-19-021-19W3	WE-WELL	114.3	3.2	0.78	S-STEEL	4960
PL-00000329	SK PS 00107448	127824-43	O-OPER	NATURAL GAS	16-03-022-20W3	WE-WELL	08-03-022-20W3	WE-WELL	114.3	3.2	0.64	S-STEEL	4960
PL-00000332	SK PS 00107672	127819-212	O-OPER	NATURAL GAS	10-24-021-19W3	WE-WELL	09-24-021-19W3	WE-WELL	114.3	3.2	0.3	S-STEEL	4960
PL-00000647	SK PS 00109243	128616-1	O-OPER	NATURAL GAS	14-33-022-18W3	PB-PL CONCT B	04-03-023-18W3	PB-PL CONCT B	168.3		0.3	S-STEEL	4960
PL-00000644	SK PS 00108144	173717-1	O-OPER	NATURAL GAS	14-07-021-19W3	WE-WELL	14-07-021-19W3	WE-WELL	60.3	0	0.04	S-STEEL	4960
PL-00000962	SK PS 00110620	174018-1	O-OPER	NATURAL GAS	01-31-021-18W3	WE-WELL	01-31-021-18W3	WE-WELL		0	0.2	S-STEEL	4960
PL-00000644	SK PS 00108192	177310-1	O-OPER	NATURAL GAS	14-29-021-21W3	WE-WELL	16-30-021-21W3	WE-WELL	88.9	0	1.08	S-STEEL	4960
PL-00000647	SK PS 00108681	122608-1	O-OPER	NATURAL GAS	12-06-023-20W3	WE-WELL	08-01-023-21W3	WE-WELL	114.3		0.61	S-STEEL	4960
PL-00000644	SK PS 00108368	183862-1	O-OPER	NATURAL GAS	08-34-021-22W3	WE-WELL	14-34-021-22W3	WE-WELL	88.9	0	1.12	S-STEEL	4960
PL-00000644	SK PS 00108568	195042-1	O-OPER	NATURAL GAS	06-04-022-22W3	WE-WELL	08-04-022-22W3	WE-WELL	88.9	0	0.71	S-STEEL	4960
PL-00000644	SK PS 00108560	195033-1	O-OPER	NATURAL GAS	06-02-022-22W3	WE-WELL	08-03-022-22W3	WE-WELL	88.9	0	0.69	S-STEEL	4960
PL-00000644	SK PS 00108301	181465-1	O-OPER	NATURAL GAS	14-09-023-19W3	PB-PL CONCT B	06-16-023-19W3	PB-PL CONCT B	114.3	0	0.69	S-STEEL	4960
PL-00000644	SK PS 00108171	177005-1	O-OPER	NATURAL GAS	01-04-023-19W3	PB-PL CONCT B	03-04-023-19W3	PB-PL CONCT B	114.3	0	0.92	S-STEEL	4960
PL-00000329	SK PS 00107450	127824-45	O-OPER	NATURAL GAS	16-02-022-20W3	WE-WELL	14-02-022-20W3	WE-WELL	114.3	3.2	0.78	S-STEEL	4960
PL-00000329	SK PS 00107451	127824-46	O-OPER	NATURAL GAS	14-09-022-20W3	WE-WELL	08-09-022-20W3	WE-WELL	114.3	3.2	1.02	S-STEEL	4960
PL-00000329	SK PS 00107431	127824-26	O-OPER	NATURAL GAS	06-18-022-20W3	WE-WELL	14-18-022-20W3	WE-WELL	114.3	3.2	0.81	S-STEEL	4960
PL-00000644	SK PS 00108433	186874-1	O-OPER	NATURAL GAS	15-15-021-20W3	WE-WELL	16-15-021-20W3	WE-WELL	114.3	0	0.61	S-STEEL	4960
PL-00000329	SK PS 00107415	127824-10	O-OPER	NATURAL GAS	16-36-021-20W3	WE-WELL	14-36-021-20W3	WE-WELL	114.3	3.2	0.63	S-STEEL	4960
PL-00000644	SK PS 00108140	126974-1	A-ABND	NATURAL GAS	06-31-021-19W3	BE-BLIND	08-36-021-20W3	BE-BLIND	114.3	3.2	0.7	S-STEEL	4960
PL-00000329	SK PS 00107430	127824-25	O-OPER	NATURAL GAS	06-19-022-20W3	WE-WELL	14-18-022-20W3	WE-WELL	114.3	3.2	0.86	S-STEEL	4960

PL-00000962	SK PS 00110614	173720-1	O-OPER	NATURAL GAS	14-25-021-19W3	WE-WELL	11-25-021-19W3	WE-WELL	114.3	3.2	0.44	S-STEEL	4960
PL-00000647	SK PS 00109333	128964-1	O-OPER	NATURAL GAS	14-35-021-21W3	WE-WELL	06-35-021-21W3	WE-WELL	88.9		0.78	S-STEEL	4960
PL-00000962	SK PS 00110676	183890-1	O-OPER	NATURAL GAS	14-17-022-21W3	WE-WELL	14-16-022-21W3	WE-WELL		0	1.81	S-STEEL	4960
PL-00000644	SK PS 00108390	183908-1	O-OPER	NATURAL GAS	07-04-023-20W3	WE-WELL	10-04-023-20W3	WE-WELL	114.3	0	0.44	S-STEEL	4960
PL-00000644	SK PS 00108276	181150-1	O-OPER	NATURAL GAS	06-25-022-20W3	WE-WELL	04-36-022-20W3	WE-WELL	114.3	0	1.1	S-STEEL	4960
PL-00000644	SK PS 00108522	187651-1	O-OPER	NATURAL GAS	07-35-022-20W3	PB-PL CONCT B	16-27-022-20W3	PB-PL CONCT B	114.3	0	1.43	S-STEEL	4960
PL-00000644	SK PS 00108176	177013-1	O-OPER	NATURAL GAS	01-03-023-19W3	WE-WELL	14-34-022-19W3	WE-WELL	114.3	0	0.7	S-STEEL	4960
PL-00000644	SK PS 00108273	181148-1	O-OPER	NATURAL GAS	14-24-022-20W3	WE-WELL	06-25-022-20W3	WE-WELL	114.3	0	0.75	S-STEEL	4960
PL-00000644	SK PS 00108531	187664-1	O-OPER	NATURAL GAS	14-25-022-21W3	WE-WELL	15-26-022-21W3	WE-WELL	88.9	0	1.31	S-STEEL	4960
PL-00000644	SK PS 00108505	187623-1	O-OPER	NATURAL GAS	06-08-022-20W3	WE-WELL	05-08-022-20W3	WE-WELL	88.9	0	0.49	S-STEEL	4960
PL-00000644	SK PS 00108487	187596-1	O-OPER	NATURAL GAS	06-27-022-21W3	WE-WELL	08-27-022-21W3	WE-WELL	88.9	0	0.81	S-STEEL	4960
PL-00000647	SK PS 00109483	129156-1	O-OPER	NATURAL GAS	04-02-023-20W3	PB-PL CONCT B	02-04-023-20W3	PB-PL CONCT B	114.3		2.28	S-STEEL	4960
PL-00000647	SK PS 00108687	122614-1	O-OPER	NATURAL GAS	02-14-022-21W3	WE-WELL	04-13-022-21W3	WE-WELL	114.3		0.98	S-STEEL	4960
PL-00000644	SK PS 00108200	177741-1	O-OPER	NATURAL GAS	14-31-022-18W3	WE-WELL	10-31-022-18W3	WE-WELL	88.9	0	0.66	S-STEEL	4960
PL-00000647	SK PS 00108688	122615-1	O-OPER	NATURAL GAS	04-13-022-21W3	WE-WELL	02-13-022-21W3	WE-WELL	114.3		0.77	S-STEEL	4960
PL-00000647	SK PS 00109596	135507-1	O-OPER	NATURAL GAS	06-34-022-20W3	WE-WELL	03-34-022-20W3	WE-WELL	114.3		0.46	S-STEEL	4960
PL-00000647	SK PS 00109523	129197-1	O-OPER	NATURAL GAS	09-02-023-20W3	PB-PL CONCT B	08-02-023-20W3	PB-PL CONCT B	114.3		0.03	S-STEEL	4960
PL-00000647	SK PS 00109589	135497-1	O-OPER	NATURAL GAS	14-32-022-20W3	WE-WELL	14-32-022-20W3	WE-WELL	114.3		0.03	S-STEEL	4960
PL-00000644	SK PS 00108203	178845-1	O-OPER	NATURAL GAS	14-06-023-18W3	WE-WELL	14-06-023-18W3	WE-WELL	60.3	0	0.05	S-STEEL	4960
PL-00000644	SK PS 00108269	181137-1	O-OPER	NATURAL GAS	11-22-022-20W3	WE-WELL	14-15-022-20W3	WE-WELL	114.3	0	0.97	S-STEEL	4960
PL-00000644	SK PS 00108189	177208-1	O-OPER	NATURAL GAS	16-08-023-18W3	WE-WELL	16-05-023-18W3	WE-WELL	60.3	0	1.54	S-STEEL	4960
PL-00000644	SK PS 00108524	187653-1	O-OPER	NATURAL GAS	15-27-022-20W3	WE-WELL	14-27-022-20W3	WE-WELL	114.3	0	0.48	S-STEEL	4960
PL-00000962	SK PS 00110623	174908-900	O-OPER	NATURAL GAS	06-12-023-18W3	PB-PL CONCT B	06-12-023-18W3	PB-PL CONCT B	114.3	0	0.28	S-STEEL	4960
PL-00000647	SK PS 00109532	129206-1	O-OPER	NATURAL GAS	07-34-022-19W3	WE-WELL	15-34-022-19W3	WE-WELL	114.3		1.2	S-STEEL	4960
PL-00000329	SK PS 00107444	127824-39	O-OPER	NATURAL GAS	13-31-021-19W3	WE-WELL	05-31-021-19W3	WE-WELL	114.3	4	0.83	S-STEEL	4960
PL-00000332	SK PS 00107582	127819-122	O-OPER	NATURAL GAS	06-21-021-19W3	WE-WELL	08-20-021-19W3	WE-WELL	114.3	3.2	0.8	S-STEEL	4960
PL-00000644	SK PS 00108159	174107-1	O-OPER	NATURAL GAS	13-23-021-20W3	PB-PL CONCT B	05-26-021-20W3	PB-PL CONCT B	114.3	0	0.87	S-STEEL	4960
PL-00000329	SK PS 00107452	127824-47	O-OPER	NATURAL GAS	14-19-021-19W3	WE-WELL	14-30-021-19W3	WE-WELL	114.3	3.2	1.47	S-STEEL	4960
PL-00000644	SK PS 00108162	174111-1	O-OPER	NATURAL GAS	14-33-021-20W3	PB-PL CONCT B	16-33-021-20W3	PB-PL CONCT B	114.3	0	0.99	S-STEEL	4960
PL-00000329	SK PS 00107421	127824-16	O-OPER	NATURAL GAS	16-29-021-20W3	WE-WELL	08-29-021-20W3	WE-WELL	114.3	3.2	0.81	S-STEEL	4960
PL-00000329	SK PS 00107435	127824-30	O-OPER	NATURAL GAS	06-29-021-20W3	WE-WELL	08-29-021-20W3	WE-WELL	114.3	3.2	0.87	S-STEEL	4960
PL-00000329	SK PS 00107426	127824-21	O-OPER	NATURAL GAS	06-36-021-20W3	WE-WELL	14-25-021-20W3	WE-WELL	114.3	3.2	0.98	S-STEEL	4960
PL-00000644	SK PS 00108153	174101-1	O-OPER	NATURAL GAS	08-30-021-19W3	WE-WELL	06-30-021-19W3	WE-WELL	114.3	0	0.84	S-STEEL	4960
PL-00000644	SK PS 00108163	174111-2	O-OPER	NATURAL GAS	14-34-021-20W3	PB-PL CONCT B	16-34-021-20W3	PB-PL CONCT B	114.3	0	0.65	S-STEEL	4960
PL-00000329	SK PS 00107420	127824-15	O-OPER	NATURAL GAS	16-25-021-20W3	WE-WELL	14-25-021-20W3	WE-WELL	114.3	3.2	0.82	S-STEEL	4960
PL-00000644	SK PS 00108143	173716-1	O-OPER	NATURAL GAS	14-07-021-19W3	PB-PL CONCT B	13-07-021-19W3	PB-PL CONCT B	114.3	0	0.69	S-STEEL	4960
PL-00000332	SK PS 00107504	127819-44	O-OPER	NATURAL GAS	06-24-021-19W3	WE-WELL	11-24-021-19W3	WE-WELL	114.3	3.2	0.3	S-STEEL	4960
PL-00000341	SK PS 00107689	173718-1	O-OPER	NATURAL GAS	08-08-021-19W3	WE-WELL	16-08-021-19W3	WE-WELL	114.3	0	0.58	S-STEEL	4960
PL-00000329	SK PS 00107410	127824-5	O-OPER	NATURAL GAS	06-02-022-20W3	WE-WELL	06-02-022-20W3	WE-WELL	114.3	3.2	0.15	S-STEEL	4960
PL-00000329	SK PS 00107445	127824-40	O-OPER	NATURAL GAS	06-03-022-20W3	WE-WELL	06-03-022-20W3	WE-WELL	114.3	3.2	0.04	S-STEEL	4960
PL-00000332	SK PS 00107490	127819-30	O-OPER	NATURAL GAS	16-19-021-18W3	WE-WELL	16-19-021-18W3	WE-WELL	114.3	3.2	0.04	S-STEEL	4960
PL-00000332	SK PS 00107507	127819-47	O-OPER	NATURAL GAS	09-24-021-19W3	WE-WELL	16-24-021-19W3	WE-WELL	114.3	3.2	0.1	S-STEEL	4960
PL-00000647	SK PS 00109339	128970-1	O-OPER	NATURAL GAS	14-26-021-21W3	PB-PL CONCT B	16-26-021-21W3	PB-PL CONCT B	114.3		1.1	S-STEEL	4960
PL-00000647	SK PS 00109665	135997-1	O-OPER	NATURAL GAS	14-16-022-21W3	PB-PL CONCT B	16-16-022-21W3	PB-PL CONCT B	114.3		0.57	S-STEEL	4960
PL-00000644	SK PS 00108489	187598-1	O-OPER	NATURAL GAS	16-24-022-21W3	WE-WELL	14-24-022-21W3	WE-WELL	88.9	0	0.63	S-STEEL	4960
PL-00000647	SK PS 00109653	135979-1	O-OPER	NATURAL GAS	01-33-021-21W3	PB-PL CONCT B	06-33-021-21W3	PB-PL CONCT B	114.3		1.05	S-STEEL	4960

PL-00000644	SK PS 00108165	174907-1	O-OPER	NATURAL GAS	14-08-023-17W3	WE-WELL	11-08-023-17W3	WE-WELL	88.9	0	0.77	S-STEEL	4960
PL-00000647	SK PS 00109114	128414-1	O-OPER	NATURAL GAS	06-06-024-17W3	PB-PL CONCT B	15-36-023-18W3	PB-PL CONCT B	168.3		1.7	S-STEEL	4960
PL-00000644	SK PS 00108534	187669-1	O-OPER	NATURAL GAS	16-16-022-21W3	PB-PL CONCT B	08-16-022-21W3	PB-PL CONCT B	114.3	0	0.71	S-STEEL	4960
PL-00000332	SK PS 00107614	127819-154	O-OPER	NATURAL GAS	08-19-021-18W3	WE-WELL	16-19-021-18W3	WE-WELL	114.3	4	0.9	S-STEEL	4960
PL-00000647	SK PS 00109444	129117-1	O-OPER	NATURAL GAS	14-08-023-20W3	WE-WELL	15-08-023-20W3	WE-WELL	114.3		0.37	S-STEEL	4960
PL-00000644	SK PS 00108156	174104-1	O-OPER	NATURAL GAS	16-26-021-20W3	WE-WELL	13-26-021-20W3	WE-WELL	60.3	0	1.54	S-STEEL	4960
PL-00000644	SK PS 00108155	174103-1	A-ABND	NATURAL GAS	08-35-021-20W3	PB-PL CONCT B	05-35-021-20W3	PB-PL CONCT B	60.3	0	1.49	S-STEEL	4960
PL-00000644	SK PS 00108160	174108-1	O-OPER	NATURAL GAS	14-35-021-20W3	WE-WELL	13-35-021-20W3	WE-WELL	60.3	0	0.59	S-STEEL	4960
PL-00000644	SK PS 00108142	173715-1	O-OPER	NATURAL GAS	08-07-021-19W3	WE-WELL	16-07-021-19W3	WE-WELL	60.3	0	0.6	S-STEEL	4960
PL-00000644	SK PS 00108145	173719-1	O-OPER	NATURAL GAS	14-08-021-19W3	WE-WELL	14-08-021-19W3	WE-WELL	60.3	0	0.23	S-STEEL	4960
PL-00000644	SK PS 00108161	174110-1	O-OPER	NATURAL GAS	16-33-021-20W3	PB-PL CONCT B	16-33-021-20W3	PB-PL CONCT B	88.9	0	0.2	S-STEEL	4960
PL-00000644	SK PS 00108141	173714-1	A-ABND	NATURAL GAS	08-18-021-19W3	BE-BLIND	08-18-021-19W3	BE-BLIND	60.3	0	0.2	S-STEEL	4960
PL-00000644	SK PS 00108157	174105-1	A-ABND	NATURAL GAS	15-27-021-20W3	PB-PL CONCT B	16-27-021-20W3	PB-PL CONCT B	60.3	0	0.44	S-STEEL	4960
PL-00000647	SK PS 00108693	122622-1	O-OPER	NATURAL GAS	12-16-022-21W3	WE-WELL	14-17-022-21W3	WE-WELL	114.3		1.74	S-STEEL	4960
PL-00000662	SK PS 00109709	135521-1	O-OPER	NATURAL GAS	04-10-022-21W3	WE-WELL	08-09-022-21W3	WE-WELL			0.45	S-STEEL	4960
PL-00000962	SK PS 00110677	183892-1	O-OPER	NATURAL GAS	14-03-022-21W3	WE-WELL	08-03-022-21W3	WE-WELL		0	1.09	S-STEEL	4960
PL-00000647	SK PS 00109434	129107-1	O-OPER	NATURAL GAS	05-30-022-20W3	PB-PL CONCT B	05-19-022-20W3	PB-PL CONCT B	114.3		1.68	S-STEEL	4960
PL-00000647	SK PS 00109500	129173-1	O-OPER	NATURAL GAS	15-27-022-20W3	WE-WELL	15-27-022-20W3	WE-WELL	114.3		0.03	S-STEEL	4960
PL-00000962	SK PS 00110621	174019-1	O-OPER	NATURAL GAS	14-31-021-18W3	WE-WELL	16-24-021-19W3	WE-WELL		0	5.16	S-STEEL	4960
PL-00000962	SK PS 00110617	174015-1	O-OPER	NATURAL GAS	08-30-021-18W3	WE-WELL	14-30-021-18W3	WE-WELL		0	1.7	S-STEEL	4960
PL-00000962	SK PS 00110618	174016-1	O-OPER	NATURAL GAS	06-32-021-18W3	WE-WELL	14-29-021-18W3	WE-WELL		0	0.54	S-STEEL	4960
PL-00000962	SK PS 00110622	174020-1	O-OPER	NATURAL GAS	16-31-021-18W3	WE-WELL	14-31-021-18W3	WE-WELL		0	0.86	S-STEEL	4960
PL-00000647	SK PS 00109425	129098-1	O-OPER	NATURAL GAS	07-26-022-21W3	PB-PL CONCT B	15-23-022-21W3	PB-PL CONCT B	114.3		0.73	S-STEEL	4960
PL-00000644	SK PS 00108158	174106-1	O-OPER	NATURAL GAS	08-27-021-20W3	PB-PL CONCT B	05-26-021-20W3	PB-PL CONCT B	114.3		0.2	S-STEEL	4960
PL-00000647	SK PS 00109504	129177-1	O-OPER	NATURAL GAS	05-19-022-19W3	WE-WELL	05-19-022-19W3	WE-WELL	114.3		0.05	S-STEEL	4960
PL-00000380	SK PS 00107744	177621-5	O-OPER	NATURAL GAS	07-35-022-20W3	PB-PL CONCT B	10-35-022-20W3	PB-PL CONCT B	114.3	0	0.69	S-STEEL	4960
PL-00000379	SK PS 00107737	177620-5	O-OPER	NATURAL GAS	05-06-023-19W3	WE-WELL	08-01-023-20W3	WE-WELL	114.3	0	0.76	S-STEEL	4960
PL-00000644	SK PS 00108178	177084-1	O-OPER	NATURAL GAS	16-04-023-20W3	PB-PL CONCT B	04-10-023-20W3	PB-PL CONCT B	114.3	0	0.43	S-STEEL	4960
PL-00000379	SK PS 00107734	177620-2	O-OPER	NATURAL GAS	05-01-023-20W3	PB-PL CONCT B	08-02-023-20W3	PB-PL CONCT B	114.3	0	0.41	S-STEEL	4960
PL-00000644	SK PS 00108285	181288-1	O-OPER	NATURAL GAS	06-03-023-18W3	WE-WELL	05-03-023-18W3	WE-WELL	88.9	0	0.68	S-STEEL	4960
PL-00000647	SK PS 00109442	129115-1	O-OPER	NATURAL GAS	07-17-023-20W3	WE-WELL	08-17-023-20W3	WE-WELL	114.3		0.03	S-STEEL	4960
PL-00000644	SK PS 00108208	178851-1	O-OPER	NATURAL GAS	14-04-023-18W3	WE-WELL	14-04-023-18W3	WE-WELL	60.3	0	0.03	S-STEEL	4960
PL-00000644	SK PS 00108378	183893-1	O-OPER	NATURAL GAS	14-03-022-21W3	WE-WELL	16-04-022-21W3	WE-WELL	88.9	0	0.69	S-STEEL	4960
PL-00000644	SK PS 00108377	183891-1	O-OPER	NATURAL GAS	08-09-022-21W3	WE-WELL	06-09-022-21W3	WE-WELL	88.9	0	0.91	S-STEEL	4960
PL-00000644	SK PS 00108529	187662-1	O-OPER	NATURAL GAS	08-03-022-21W3	WE-WELL	06-02-022-21W3	WE-WELL	88.9	0	0.82	S-STEEL	4960
PL-00000644	SK PS 00108136	119000-1	O-OPER	NATURAL GAS	06-15-022-21W3	WE-WELL	08-15-022-21W3	WE-WELL	88.9	0	0.74	S-STEEL	4960
PL-00000644	SK PS 00108135	118998-1	O-OPER	NATURAL GAS	08-06-022-20W3	PB-PL CONCT B	01-07-022-20W3	PB-PL CONCT B	88.9	0	0.87	S-STEEL	4960
PL-00000644	SK PS 00108503	187621-1	O-OPER	NATURAL GAS	06-07-022-20W3	WE-WELL	03-07-022-20W3	WE-WELL	88.9	0	0.75	S-STEEL	4960
PL-00000644	SK PS 00108475	187570-1	O-OPER	NATURAL GAS	14-26-021-21W3	WE-WELL	14-26-021-21W3	WE-WELL	88.9	0	0.22	S-STEEL	4960
PL-00000644	SK PS 00108279	181157-1	O-OPER	NATURAL GAS	16-26-021-21W3	WE-WELL	16-26-021-21W3	WE-WELL	88.9	0	0.04	S-STEEL	4960
PL-00000644	SK PS 00108172	177009-1	O-OPER	NATURAL GAS	10-28-022-19W3	PB-PL CONCT B	10-27-022-19W3	PB-PL CONCT B	114.3	3.2	1.66	S-STEEL	4960
PL-00000644	SK PS 00108528	187659-1	O-OPER	NATURAL GAS	05-21-022-20W3	WE-WELL	08-20-022-20W3	WE-WELL	114.3	0	0.66	S-STEEL	4960
PL-00000962	SK PS 00110671	181156-1	O-OPER	NATURAL GAS	08-28-022-19W3	WE-WELL	10-28-022-19W3	WE-WELL	114.3	3.2	0.81	S-STEEL	4960
PL-00000644	SK PS 00108169	177003-1	O-OPER	NATURAL GAS	04-05-023-19W3	WE-WELL	02-06-023-19W3	WE-WELL	114.3	0	0.78	S-STEEL	4960
PL-00000379	SK PS 00107733	177620-1	O-OPER	NATURAL GAS	08-02-023-20W3	PB-PL CONCT B	06-02-023-20W3	PB-PL CONCT B	114.3	0	0.74	S-STEEL	4960
PL-00000644	SK PS 00108263	181126-1	O-OPER	NATURAL GAS	11-10-023-20W3	PB-PL CONCT B	07-10-023-20W3	PB-PL CONCT B	114.3	0	0.78	S-STEEL	4960

PL-00000644	SK PS 00108252	181093-1	O-OPER	NATURAL GAS	06-06-023-20W3	WE-WELL	14-06-023-20W3	WE-WELL	114.3	0	0.92	S-STEEL	4960
PL-00000381	SK PS 00107746	187654-1	O-OPER	NATURAL GAS	14-27-022-20W3	WE-WELL	03-34-022-20W3	WE-WELL	114.3	0	0.49	S-STEEL	4960
PL-00000644	SK PS 00108181	177087-1	O-OPER	NATURAL GAS	14-09-023-20W3	PB-PL CONCT B	12-09-023-20W3	PB-PL CONCT B	114.3	0	0.49	S-STEEL	4960
PL-00000644	SK PS 00108385	183903-1	O-OPER	NATURAL GAS	06-09-023-20W3	PB-PL CONCT B	10-09-023-20W3	PB-PL CONCT B	114.3	0	0.45	S-STEEL	4960
PL-00000381	SK PS 00107747	187654-2	O-OPER	NATURAL GAS	16-28-022-20W3	PB-PL CONCT B	01-33-022-20W3	PB-PL CONCT B	114.3	0	0.51	S-STEEL	4960
PL-00000644	SK PS 00108478	187584-1	O-OPER	NATURAL GAS	08-16-022-21W3	PB-PL CONCT B	06-16-022-21W3	PB-PL CONCT B	168.3		0.9	S-STEEL	4960
PL-00000341	SK PS 00107690	173718-2	O-OPER	NATURAL GAS	14-18-021-19W3	WE-WELL	14-07-021-19W3	WE-WELL		0	1.84	S-STEEL	4960
PL-00000962	SK PS 00110619	174017-1	O-OPER	NATURAL GAS	14-29-021-18W3	WE-WELL	14-29-021-18W3	WE-WELL		0	0.03	S-STEEL	4960
PL-00000644	SK PS 00108272	181147-1	O-OPER	NATURAL GAS	08-24-022-20W3	WE-WELL	15-24-022-20W3	WE-WELL	114.3	0	0.8	S-STEEL	4960
PL-00000644	SK PS 00108254	181101-1	O-OPER	NATURAL GAS	10-35-022-20W3	WE-WELL	11-35-022-20W3	WE-WELL	114.3	0	0.4	S-STEEL	4960
PL-00000644	SK PS 00108384	183902-1	O-OPER	NATURAL GAS	14-09-023-20W3	WE-WELL	14-09-023-20W3	WE-WELL	114.3	0	0.29	S-STEEL	4960
PL-00000644	SK PS 00108481	187587-1	O-OPER	NATURAL GAS	16-14-022-21W3	PB-PL CONCT B	16-14-022-21W3	PB-PL CONCT B	168.3	0	0.1	S-STEEL	4960
PL-00000647	SK PS 00109239	128612-1	O-OPER	NATURAL GAS	14-32-022-18W3	PB-PL CONCT B	16-32-022-18W3	PB-PL CONCT B	114.3		1.09	S-STEEL	4960
PL-00000647	SK PS 00109308	128682-1	O-OPER	NATURAL GAS	15-05-023-18W3	PB-PL CONCT B	16-05-023-18W3	PB-PL CONCT B	114.3		0.38	S-STEEL	4960
PL-00000962	SK PS 00110648	178894-1	O-OPER	NATURAL GAS	14-16-022-20W3	PA-PL CONCT A	16-16-022-20W3	PA-PL CONCT A		0	0.83	S-STEEL	4960
PL-00000647	SK PS 00109110	128408-1	O-OPER	NATURAL GAS	08-05-024-17W3	WE-WELL	06-05-024-17W3	WE-WELL	168.3		0.8	S-STEEL	4960
PL-00000962	SK PS 00110204	127820-37	D-DCNT	NATURAL GAS	14-24-022-18W3	BE-BLIND	01-19-022-17W3	BE-BLIND	219.1	5.6	3.2	S-STEEL	4960
PL-00000644	SK PS 00108253	181097-1	O-OPER	NATURAL GAS	11-35-022-19W3	WE-WELL	10-27-022-19W3	WE-WELL	114.3	3.2	3.24	S-STEEL	4960
PL-00000647	SK PS 00109126	128426-1	O-OPER	NATURAL GAS	08-25-023-18W3	WE-WELL	14-35-023-18W3	WE-WELL	114.3		3.47	S-STEEL	4960
PL-00000662	SK PS 00109712	135987-1	O-OPER	NATURAL GAS	03-09-022-19W3	PA-PL CONCT A	01-22-021-19W3	PA-PL CONCT A			7.8	S-STEEL	4960
PL-00000647	SK PS 00108878	128175-1	O-OPER	NATURAL GAS	06-23-023-19W3	PB-PL CONCT B	03-26-023-19W3	PB-PL CONCT B	168.3		1.1	S-STEEL	4960
PL-00000647	SK PS 00108813	128095-1	O-OPER	NATURAL GAS	05-23-021-20W3	PB-PL CONCT B	13-23-021-20W3	PB-PL CONCT B	114.3		1.03	S-STEEL	4960
PL-00000647	SK PS 00108691	122618-1	C-CANC	NATURAL GAS	10-14-022-21W3	WE-WELL	12-13-022-21W3	WE-WELL	114.3		0.84	S-STEEL	4960
PL-00000644	SK PS 00108240	178920-1	O-OPER	NATURAL GAS	08-02-022-19W3	WE-WELL	16-27-021-19W3	WE-WELL	114.3	3.2	3.41	S-STEEL	4960
PL-00000647	SK PS 00109090	128388-1	O-OPER	NATURAL GAS	05-33-023-18W3	PB-PL CONCT B	07-33-023-18W3	PB-PL CONCT B	114.3		1.08	S-STEEL	4960
PL-00000647	SK PS 00109028	128326-1	O-OPER	NATURAL GAS	16-14-023-20W3	PB-PL CONCT B	07-13-023-20W3	PB-PL CONCT B	114.3		2.15	S-STEEL	4960
PL-00000647	SK PS 00108975	128272-1	O-OPER	NATURAL GAS	08-19-023-19W3	PB-PL CONCT B	07-20-023-19W3	PB-PL CONCT B	114.3		1.21	S-STEEL	4960
PL-00000647	SK PS 00108992	128290-1	O-OPER	NATURAL GAS	14-17-023-19W3	PB-PL CONCT B	06-20-023-19W3	PB-PL CONCT B	114.3		1.26	S-STEEL	4960
PL-00000647	SK PS 00108947	128244-1	O-OPER	NATURAL GAS	12-21-023-20W3	PB-PL CONCT B	15-21-023-20W3	PB-PL CONCT B	114.3		1.51	S-STEEL	4960
PL-00000647	SK PS 00108990	128288-1	O-OPER	NATURAL GAS	07-20-023-19W3	PB-PL CONCT B	16-20-023-19W3	PB-PL CONCT B	114.3		0.78	S-STEEL	4960
PL-00000962	SK PS 00110534	127820-322	O-OPER	NATURAL GAS	10-11-022-18W3	WE-WELL	16-11-022-18W3	WE-WELL	219.1	4.8	0.5	S-STEEL	4960
PL-00000962	SK PS 00110203	127820-31	O-OPER	NATURAL GAS	01-19-022-17W3	PB-PL CONCT B	14-12-022-18W3	PB-PL CONCT B	219.1	4.8	4.2	S-STEEL	4960
PL-00000647	SK PS 00108886	128183-1	O-OPER	NATURAL GAS	06-22-023-19W3	PB-PL CONCT B	08-21-023-19W3	PB-PL CONCT B	114.3		0.73	S-STEEL	4960
PL-00000647	SK PS 00108890	128187-1	O-OPER	NATURAL GAS	13-15-023-19W3	PB-PL CONCT B	16-16-023-19W3	PB-PL CONCT B	88.9		0.52	S-STEEL	4960

Appendix C - Sproule Standard Abbreviations and Units

Abbreviations

AER	Alberta Energy Regulator
ARF	Alberta royalty framework (pre-January 1, 2017)
AOF	absolute open flow
Boe	barrels of oil equivalent
bpd	barrels per day
bopd	barrels of oil per day
Boepd	barrels of oil equivalent per day
bwpd	barrels of water per day
CAD	Canadian
Cr	Crown
DPIIP	discovered petroleum initially-in-place
DSU	drilling spacing unit
FH	Freehold
GCA	gas cost allowance
GOR	gas-oil ratio
GORR	gross overriding royalty
KB	kelly bushing
LPG	liquified petroleum gas
LRR	lease royalty rate
McfGE	thousands of cubic feet of gas equivalent
Mcfpd	thousands of cubic feet per day
MMbtu	million British thermal units
MPR	maximum permissive rate
MRF	Alberta modernized royalty framework (post-December 31, 2016)
MRL	maximum rate limitation
NC	‘new’ Crown
NCI	net carried interest
NGL	natural gas liquids
NORR	net overriding royalty
NPI	net profits interest
NRA	no reserves assigned
NRI	net revenue interest
NPV	net present value
OC	‘old’ Crown
ORRI	overriding royalty interest
P&NG	petroleum and natural gas
PSU	production spacing unit
PVT	pressure-volume-temperature
TPIIP	total petroleum initially-in-place
Unecon	uneconomic reserves evaluation case
UPIIP	undiscovered petroleum initially-in-place
WI	working interest

Imperial and Metric Units

Imperial Units			Metric Units	
M (10^3)	thousand	**Prefixes**	k (10^3)	kilo
MM (10^6)	million		M (10^6)	mega
B (10^9)	billion		G (10^9)	giga
T (10^{12})	trillion		T (10^{12})	tera
Q (10^{15})	quadrillion		P (10^{15})	peta
in.	inches	**Length**	cm	centimetres
ft	feet		m	metres
mi	miles		km	kilometres
ft^2	square feet	**Area**	m^2	square metres
ac	acres		ha	hectares
cf or ft^3	cubic feet	**Volume**	m^3	cubic metres
scf	standard cubic feet			
gal	gallons		L	litres
Mcf	thousand cubic feet			
MMcf	million cubic feet			
Bcf	billion cubic feet		e^6m^3	million cubic metres
bbl	barrels		m^3	cubic metres
Mbbl	thousand barrels		e^3m^3	thousand cubic metres
stb	stock tank barrels		stm^3	stock tank cubic metres
bbl/d	barrels per day	**Rate**	m^3/d	cubic metre per day
Mbbl/d	thousand barrels per day		e^3m^3/d	thousand cubic metres
Mcf/d	thousand cubic feet per day		e^3m^3/d	thousand cubic metres
MMcf/d	million cubic feet per day		e^6m^3/d	million cubic metres
Btu	British thermal units	**Energy**	J	joules
oz	ounces	**Mass**	g	grams
lb	pounds		kg	kilograms
ton	tons		t	tonnes
lt	long tons			
psi	pounds per square inch	**Pressure**	Pa	pascals
			kPa	kilopascals (10^3)
psia	pounds per square inch absolute			
psig	pounds per square inch gauge			
°F	degrees Fahrenheit	**Temperature**	°C	degrees Celsius
°R	degrees Rankine		K	degrees Kelvin
M$	thousand dollars	**Dollars**	k$	1 kilodollar

APPENDIX B

Ministry of Energy and Resources
1000, 2103 11th Avenue
Regina, SK Canada S4P 3Z8

September 3, 2021

Jim Gettis
Abbey Resources Corp.
505 3rd Street S.W
Calgary AB T2P 3E6

Dear Mr. Gettis

Re: Request for Pipeline Integrity Risk Assessment

The Ministry of Energy and Resources (ER) is requesting Abbey Resources Corporation (Abbey) conduct a risk assessment of all Abbey pipeline systems within Saskatchewan. Pursuant to Section 3.5 of *Directive PNG034: Saskatchewan Pipeline Code*, operators are required to actively maintain the integrity of a pipeline in accordance with CSA Z662 and the Directive. Recent incident data suggests that Abbey has incurred a high rate of failure on its pipeline systems, approximately three times higher than other operators of comparable size. Field observations also indicate that a number of failures have occurred near or at recent spill locations. As a result, ER has concerns related to the integrity of Abbey's pipeline infrastructure.

The purpose of this risk assessment is to identify and prioritize risk so that Abbey can develop a mitigation plan that can effectively reduce the number of incidents. ER recommends that Abbey follow Annex B of CSA Z662:19 and ASME B31.8S-2020 when preparing their risk assessment.

The risk assessment shall be signed and sealed by a professional engineer who is registered with the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS) and who is competent in the area of pipeline integrity risk assessments.

ER is requesting that Abbey provide the results of this risk assessment by **December 6th, 2021**. Any questions can be directed to me at Chad.Lang@gov.sk.ca.

Sincerely,

Chad Lang, P.Eng.
Manager, Pipeline and Regulatory Section
Energy Regulation Division, Ministry of Energy and Resources