

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

MAGIN ENERGY INC. APPLICATION FOR A PIPELINE PERMIT

**Examiner Report 98-10
Application No. 1012146**

1 INTRODUCTION

1.1 Application

Magin Energy Inc. (Magin) applied to the Alberta Energy and Utilities Board (EUB), pursuant to Part 4 of the Pipeline Act, for a permit to construct and operate approximately 500 metres (m) of 87.6 millimetre (mm) outside diameter fibreglass pipeline. The purpose of the pipeline is to transport effluent from a well located in Legal Subdivision (Lsd) 5 of Section 35, Township 37, Range 4, West of the 4th Meridian (5-35 well) to a tie-in point located in Lsd 8 of Section 34, Township 37, Range 4, West of the 4th Meridian (8-34). Transportation of the well effluent would continue through an existing pipeline to a battery in Lsd 1 of Section 34, Township 37, Range 4, West of the 4th Meridian (1C-34) (see attached map).

1.2 Interventions

Mr. and Mrs. Craig Prediger (Predigers), landowners of Section 34 and leaseholders of Section 35, submitted an intervention to the application. The Predigers expressed concern with past operating practices and objected to the approval of an additional pipeline on their land until problems regarding soil erosion, reclamation of past spills, and the integrity of existing pipelines on their property were addressed.

In addition, Mr. Gerald Fossen, landowner of Section 32, Township 37 Range 4, West of the 4th Meridian appeared at the hearing and was registered as an intervener. Mr. Fossen was concerned with pipeline failures of the Magin system on his land.

1.3 Hearing

A hearing to consider the application was convened on 12 May 1998 in Provost, Alberta before examiners G. W. Dilay, P.Eng., F. G. Sorensen, and W. Elsner, P.Geol. Immediately after opening the hearing, a site visit of the proposed pipeline route and spill sites was conducted.

Those who appeared at the hearing are listed in the following table:

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report)

Witnesses

Magin Energy Inc. (Magin)

B. O'Ferrall, L.L.B.

J. McCormick, B.Comm.

H. Chang, P.Eng.

J. Boone

J. Risler, P.Eng.

R. Ball

R. Dear, B.Ed.

L. Blakley, C.E.T.

Mr. and Mrs. C. Prediger (Predigers)

T. Roberts, L.L.B.

C. Prediger

G. Fossen (Fossen)

G. Fossen

Alberta Energy and Utilities Board staff

S. D. Wilson, B.Sc.

L. J. Morrison, M.Sc.

K. E. Wherry, B.E.S.

D. Larder, Board Counsel

2 ISSUES

The examiners consider the issues respecting the application to be:

- need for the pipeline,
- proposed route of the pipeline,
- integrity of the tie-in pipeline,
- construction and reclamation methodology, and,
- other environmental issues.

3 NEED FOR THE PIPELINE

3.1 Views of Magin

Magin stated that the pipeline is needed to transport effluent from the 5-35 well, which produces from the Dina Formation, to a pipeline tie-in point in Lsd 8-34. The production would be transported through an existing pipeline terminating at the 1C-34 battery. Magin did not provide any supporting geological data but stated that the 5-35 well has approximately 9540 cubic metres (m³) (60 000 barrels) of recoverable oil reserves, with only 395 m³ (2500 barrels) recovered to date. It further stated the battery is operating at 25 per cent capacity and is capable of handling

the volume of effluent this well produces, in addition to production from other wells in the field. Magin believes the reservoir characteristics of the well are such that with a higher rate of fluid withdrawal allowed by the tie-in of the 5-35 well to the pipeline, the oil to water ratio could be increased from 8 per cent to approximately 20 per cent, thus increasing the oil recovered. Magin stated that when wells in the area were produced using high volume lift, there was a general decrease in the water cut due to the water inflow characteristics in the wellbore. Magin indicated that trucking the well effluent is not economical when the water cut is high and concluded that a pipeline is the only viable alternative.

3.2 Views of the Interveners

The Predigers stated that the 5-35 well has a high water cut and questioned whether it was economic to construct a pipeline. The Predigers believed that the well effluent could continue to be transported by truck.

3.3 Views of the Examiners

The examiners are satisfied that there is a need to produce the reserves from the subject well, and that trucking the effluent from the 5-35 well is not a feasible alternative. The examiners accept that a portion of the reserves for the 5-35 well have not been recovered and a pipeline is needed to transport the well effluent to increase the recovery of the remaining reserves.

4 PROPOSED ROUTE OF THE PIPELINE

4.1 Views of Magin

Magin submitted that the pipeline route was not an issue and that there was no objection to the proposed routing. It acknowledged that use of the existing access road to the 5-35 well site location as the working side of the right-of-way (ROW) would help to reduce the impact to native vegetation within lands under the jurisdiction of the Special Areas Board. Magin agreed it could use the 5-35 well access road, if this was agreed to by the lessee (Predigers). However, Magin stated that its proposed ROW (which does not use the access road) is preferred, as it allows the easiest opportunity for a right-angle crossing of the high-grade gravel road between Section 34-37-4 W4M (Section 34) and Section 35-37-4 W4M (Section 35) and avoids the need for grading the knoll on the west side of the road.

4.2 Views of the Intervener

The Predigers stated they do not have a concern with the proposed ROW location, in either of Sections 34 or 35. However, the Predigers further stated they do not want any pipelines constructed in the access road ROW on either their own property or their leased property, but would be willing to accept the use of the 5-35 well access road as part of the ROW if this was specified by the Special Areas Board.

4.3 Views of the Examiners

The examiners note that the EUB Informational Letter 96-9, *Revised Guidelines for Minimizing Disturbance on Native Prairie Areas* (IL 96-9), indicates pipelines should follow the disturbed areas of access roads wherever possible. However, the examiners believe that the proposed location of the ROW in Section 35, which does not follow the access road, is acceptable because of the need to avoid the knoll on the west side of the high grade gravel road and because the landowners prefer the entire ROW be located off the access road. The examiners also note that no concern was raised with the pipeline route in Section 34. Therefore, the examiners believe the applied-for route of the pipeline is acceptable.

5 INTEGRITY OF THE TIE-IN LINE

5.1 Views of the Applicant

Magin stated that the tie-in line from 8-34 to the battery was a carbon steel line constructed in 1992. Magin indicated that the fittings between pipe joints were butt welded; however, discussions with its pipeline contractor suggested that there was the possibility that some of the pipe joints were connected by Zaplock™ [mechanical interference fitted joints (MIF)]. Magin stated the MIF joints were a concern if they were not installed correctly during construction. Magin committed to investigate its records and upon doing so confirmed the tie-in line was butt-welded only.

Magin stated that the tie-in line has not had any record of previous breaks. Magin submitted it had a corrosion inhibitor system in place as of 1 April 1998 for the tie-in line. The line was cleaned with a foam pig and a corrosion inhibitor was introduced to mitigate any additional internal corrosion. In addition, Magin committed to pressure test the line up to 6200 kiloPascals (kPa) (900 psi) over a 24-hour period to confirm the integrity of the line. Magin believed conducting a pressure test would be sufficient to prove line integrity. The EUB received the results of the pressure test on 28 August 1998.

In response to questions at the hearing, Magin committed to run a “smart pig” (ultrasonic sensing equipment incorporated into a pig) to measure the wall thickness and thereby check the internal integrity of the pipeline. Magin reported its findings to the EUB on 23 June 1998 and indicated that a smart pig could not be run because of two 90-degree bends in the tie-in line. Magin further reported that there are no known smart pigs that can be sent down the line in question.

5.2 Views of the Interveners

The Predigers believed that the tie-in line experienced a break in 1995 and they were concerned about the possibility of further breaks to the line. To ensure that no further leaks occur on their land, they would like Magin to replace all the pipelines in Section 34 with fibreglass lines or insert fibreglass liners. They were not satisfied with Magin's corrosion control program for steel pipelines since the pipeline on the Fossen's land experienced leaks after a corrosion inhibitor had been added to that line. The Predigers would be satisfied with fibreglass liners inserted in the existing pipelines as long as every pipeline in Section 34 had liners inserted. This approach would also reduce the amount of land disturbance compared to the disturbance experienced when a new pipeline is installed.

The Predigers were not convinced that pressure testing would prove pipeline integrity in the tie-in line, as the test cannot determine the amount of corrosion that has occurred. They believe that a test with a smart pig is the most reliable method of determining the integrity of the pipeline, as particularly set forth in their consultant's letter of 19 October 1998.

5.3 Views of the Examiners

The examiners note that EUB records indicate there have not been any breaks on the tie-in line and that Magin has instituted a corrosion inhibitor program for the line. Also, the results of the pressure test submitted by Magin indicate the test was satisfactory.

The examiners note that at the hearing, Magin committed to run a smart pig on the tie-in line. In subsequent correspondence, Magin stated it believed that the 90 degree bends in the tie-in line would not allow the use of a smart pig. The examiners are not convinced that a smart pig could not be run. However, the examiners believe that running a smart pig in the tie-in line is not required because there is no record of any previous breaks on the line, the line has been successfully pressure tested, and a corrosion inhibitor program is in place.

The examiners believe that a hydrostatic test is an accepted method for testing pipeline integrity in Alberta and therefore believe that the tie-in line is acceptable.

6 CONSTRUCTION AND RECLAMATION METHODOLOGY

6.1 Views of Magin

Magin stated that construction of the proposed pipeline would take approximately two weeks from the commencement of construction to final reclamation (including seeding for revegetation), and indicated summer is the preferred season for construction.

Magin indicated that it would prefer to use a minimal disturbance approach to topsoil handling. However, Magin stated it would strip the entire ROW as requested by Mr. Prediger. Magin proposed to reduce the risk of soil pulverization and compaction by limiting vehicular access on the ROW (i.e., by allowing only service vehicles on the site) and by using tracked equipment.

During construction Magin agreed to control erosion by wetting down the ROW and topsoil stockpiles, or other appropriate means, as necessary. Further, it agreed to control erosion by the use of a tackifier (an organically derived mulch sprayed as a slurry on the ground) or other suitable means, as necessary after the construction is completed. Magin subsequently agreed that it would spread manure on the ROW to control erosion and thus satisfy the request of the Predigers. Magin indicated its willingness to purchase manure from the Predigers if the manure was of suitable quality, a sufficient quantity was available, and the price was competitive.

Magin indicated 5 m of extra workspace would be required for a distance of 30 m on each side of the high-grade gravel road (between Sections 34 and 35), in order to excavate under the gravel road. Magin indicated topsoil from the extra work space would be stripped, protected, and reclaimed in the same manner as for the remainder of the ROW.

Magin indicated it would not be prepared to fence the ROW during construction due to the safety concerns of operating construction equipment in a confined area. However, Magin stated that it would be willing to fence the ROW for a reasonable period following construction to allow revegetation efforts to be successful before the ROW is subject to cattle grazing. Magin also said it is willing to work with the Predigers to minimize the impact of construction and reclamation on the local cattle grazing operation by moving cattle to alternative pasture lands, providing feed at an alternative location, providing compensation, and/or by some other method.

Magin stated it had preliminary discussions with the Special Areas Board regarding revegetation of the ROW and it had received a listing of the recommended native grass seed mixes for use on Special Areas land. Magin stated it would use the recommended native grass seed mix for sandy soil, and as an undertaking provided the EUB and the Predigers with a copy of that seed mix.

Magin indicated that if revegetation efforts were unsuccessful or only partially successful, then further evaluation and revegetation steps would be taken to ensure successful reclamation.

Magin also stated it understood its responsibility for post-construction erosion control, and the need to establish a self-sustaining vegetation cover.

With respect to the request by the Predigers to have a third party consultant review construction, Magin submitted that as a third party contractor was required to construct the pipeline any further certification confirming that the construction met quality control specifications was not necessary. In addition, Magin committed to take particular care when constructing the pipeline, to alleviate the Prediger's concern about rocks being present when the proposed pipeline is laid in the trench. As the proposed pipeline would be a fibreglass line, Magin acknowledged that special care must be taken.

6.2 Views of the Interveners

The Predigers indicated their preferred pipeline construction method would be to strip the topsoil along the entire ROW. The Predigers stated they had experienced previous pipeline construction using trenching in the sandy soil where compaction of the soil and slumping of the topsoil over the pipeline were the biggest problems. The Predigers stated they preferred that manure be added on top of the replaced soil to help prevent erosion, act as fertilizer for revegetation, and to deter cattle from grazing the ROW for a period of time.

The Predigers were concerned that the proposed pipeline construction may interfere with their cattle grazing operation. They stated that they would like Magin to fence the ROW during the construction period to protect cattle from falling into an open trench. The Predigers did not find alternatives such as use of alternate pastures (having their cattle bred by different bulls in different pasture arrangements), having feed supplied at their barns, or compensation acceptable. In testimony, they concurred that the delay of pipeline construction to late October, after the cattle have been removed from the land, was an acceptable option. Further, they requested that a trench plug be maintained to allow passage of cattle and a truck across the trench at a location near the fence east of the well at 8-34-37-4 W4M.

The Predigers stated that they want the Special Areas Board to specify the seed mix to be used for revegetation on both Section 34 (owners) and Section 35 (leased). The Predigers indicated that the seed mix used for revegetation should not contain any crested wheat grass. They expressed no particular concern for weeds in the area, and believed that the current practice of mowing to control weeds was sufficient.

The Predigers indicated that they were concerned about the quality control aspect of constructing fibreglass lines on their land, and highlighted the concern of rocks being present in the pipeline ditch. They wanted to have a third party inspection of the line construction to ensure the construction practices were adequate, with no rocks being present in the trench prior to back filling.

6.3 Views of the Examiners

The examiners acknowledge that a minimum disturbance approach to pipeline construction is preferred in native prairie landscapes (in accordance with IL 96-9) and in general to maximize environmental conservation (in accordance with Alberta Environmental Protection's (AEP) Guide for Pipelines). However, the examiners note that several pipelines have been installed on the Prediger's land and that suitable reclamation has been achieved using a full ROW topsoil stripping method and application of manure during reclamation. The examiners further note that Magin has agreed to use this method of construction and reclamation, and may alleviate the Prediger's concerns regarding the soil handling and compaction.

With respect to erosion control during construction, the examiners believe that methods such as watering the ROW and topsoil stockpiles, as needed, will provide a suitable level of protection. The examiners acknowledge that Magin has agreed to spread manure on the ROW as the method of post-construction erosion control. Further, the examiners note that Magin has agreed to purchase manure from the Predigers for this purpose, provided that the manure is of suitable quality, available in sufficient quantity, and sold at a competitive price.

The examiners agree with Magin's need for extra workspace on either side of the road crossing to facilitate a bored crossing. The examiners believe that suitable precautions are needed to ensure that topsoil resources are protected from wind erosion, and from mixing with, or burial by, the high volume of loose, sandy soil, which will be excavated from the bell hole. The examiners believe that Magin's proposed method for handling topsoil will provide adequate protection.

The examiners are in agreement with the safety concerns of Magin pertaining to equipment maneuverability in a confined space, if the ROW were to be fenced during construction. The examiners believe Magin's willingness to work with the Predigers to minimize impacts to the local cattle grazing operation during the construction and reclamation activities provides a suitable alternative to fencing. Fencing to protect the newly revegetated ROW may be required, given the local grazing activities, and Magin should gain consensus on this issue with the Predigers, the Special Areas Board, and the local reclamation officer.

The examiners note that Magin will use a seed mix recommended by the Special Areas Board for revegetation and that this seed mix is acceptable to the Predigers. The examiners have received a copy of the recommended seed mix from Magin and note that it does not include crested wheat grass, as requested by the Predigers.

The examiners note that Magin agreed to a number of construction and reclamation requests of the Prediger's. The examiners are aware that a number of pipelines have been built on the Prediger's land using these techniques and believe them to be acceptable. However, Magin's

testimony brought into question its understanding of what suitable construction and reclamation practices are for the environment in which it wishes to construct the proposed pipeline. Magin demonstrated an apparent lack of understanding for the contents of specific documents outlining environmental requirements for the construction of Class II pipelines (e.g., AEP Guide for Pipelines). While the examiners understand that industry often retains the services of qualified environmental consultants to address the environmental requirements of proposed developments, it remains the responsibility of the proponent to be familiar with the environmental requirements it is required to follow, and to ensure that its proposed development will have minimal impact on the environment and surface landowner. Accordingly, the examiners recommend that Magin be required to prepare a site-specific environmental protection plan which documents what methods will be used for soil handling, erosion control, and revegetation. This plan should be submitted to the EUB's Wainwright Field Centre and copies forwarded to the Special Areas Board and the local reclamation officer at least ten working days prior to construction of the pipeline.

The examiners note that although Class II pipelines are exempt from a formal AEP Conservation and Reclamation Approval process, the proposed pipelines are required to be constructed in accordance with the guidelines set out in AEP's Guide for Pipelines. The examiners note that for short length pipelines, many operators may not be doing complete soil inventories. However, operators would be expected to have examined the site to the degree necessary to satisfy themselves that their soil handling procedures are appropriate and will minimize impact. Operators should have discussed this conclusion with the local land reclamation officer of AEP and the landowner prior to any application being made to the EUB for a permit to construct. Further, the examiners note that ongoing maintenance includes conducting pipeline integrity surveys and maintaining contact with the landowner and occupant throughout the operating life of the pipeline.

7 OTHER ENVIRONMENTAL ISSUES

7.1 Views of Magin

Magin acknowledged the environmental issue associated with breaks on its existing pipelines in Section 34. Magin stated that it has engaged competent advisors who have determined alternative methods of remediation for the areas that may have been contaminated by effluent spills. Magin asserted that it intends to further investigate and delineate the possible damage caused by recent pipeline failures.

Magin proposed to remediate an oil/salt water spill which occurred in 1998 from a pipeline near the 8-34 well site by removing the contaminated soil and replacing it with clean fill. It stated the reason for considering this option for remediation was related to the depth of contamination by both crude oil and salt water, and a desire to expedite reclamation of off site effects and shorten the overall reclamation time. As pointed out by Magin during the field visit, this site was being treated by Cotton Gator (an absorbent material) that was spread on the surface.

Magin has been advised by its environmental consultant to remediate the salt water spill at wellsite 2C-34, which is characterized by a hard ground surface. Magin stated it had been working on this salt water spill over the last few years; however, it indicated that more work would be undertaken by its environmental consultant.

Magin indicated that its response procedure to a possible spill on the proposed fibreglass line or the existing steel lines on the Prediger's land or leased land would include isolating the pipeline, containing the spill, digging a bell hole, and collecting effluent with a vacuum truck followed by remedial clean-up based on its environmental procedures.

7.2 Views of the Interveners

The Predigers identified four occurrences of pipeline breaks along routes constructed by Discovery West Corporation (now owned by Magin) on the SE 34-37-4 W4M. The Predigers requested that the EUB require Magin to reclaim the sites which have been contaminated as a result of the pipeline breaks, and advise the Predigers as to what remedial steps Magin proposes to take to reclaim areas which have been contaminated by the pipeline breaks.

The Predigers were concerned that only limited reclamation efforts had been undertaken and that there had been delays in commencing reclamation activities. They indicated Magin had failed to provide them with information, preferably a written letter, stating what reclamation activities were or would be undertaken. The Predigers also noted the on-lease and off-lease damage caused by the salt water spill at the 2C-34 wellsite. They reported that the spill occurred in 1995, some seeding was done at the spill site in 1996, a complaint was lodged in the summer of 1997, and in the fall of 1997 the site was again reseeded. The Predigers testified that they were not aware if any activities have been undertaken to remediate the soil conditions at the 2C-34 wellsite spill.

Mr. Fossen stated his principle concern with respect to the proposed pipeline is environmental protection, specifically related to groundwater. Mr. Fossen described similar pipeline breaks that had occurred on his land as those described by the Predigers. Mr. Fossen also noted that Magin had been slow in responding to the salt water/oil pipeline breaks on his property. Further, he is worried that salt water and hydrocarbon spills on his land or the Prediger's land (located about 1.5 km away) may migrate through the sandy soil and affect aquifers in the area.

7.3 Views of the Examiners

The examiners note that there are clearly established requirements for the reporting of spills and their subsequent clean up and remediation. Industry is responsible for reporting spills in the manner outlined by the EUB's Informational Letter 98-1. The subsequent clean up and remediation must be undertaken as required by the EUB and AEP. The EUB's Informational Letter 98-2 provides clarification of jurisdictional and procedural issues for remediation and reclamation activities for on-lease and off-lease situations.

The examiners acknowledge the salt water and oil/salt water emulsion spills that have occurred at well sites 2C, 8B, and 8C-34 and are concerned about the delays in the treatment of these spills and the lack of remediation and surface reclamation at these sites. The examiners also note that the spill and remediation problems are not limited to the Prediger's land as illustrated in Mr. Fossen's testimony. The examiners acknowledge that Magin has only recently acquired responsibility for these sites and are encouraged by the current commitment by Magin, made at the hearing, to remediate the spill sites. The proposed remediation plans are reasonable and consistent with acceptable industry practices.

In light of the concerns of the Predigers, the examiners believe that Magin should become more

proactive in the prevention of spills and their timely, effective remediation. This requires Magin to improve its communication with landowners when spills do occur, by regularly communicating to the landowners what has occurred, what is proposed to be done, and allowing the landowners an opportunity to provide input into proposed solutions.

The examiners acknowledge the concern of Mr. Fossen regarding the need for environmental protection, particularly with respect to groundwater. The examiners believe the commitments made by Magin to address spill remediation in a timely manner, should reduce the risk of groundwater contamination.

8 OTHER MATTERS

During the hearing Magin indicated that the tie-in line is currently transporting production from the 8C-34 well. If this line were to also transport production from the 5-35 well, this line would then become a common flow line. The examiners note that approval from the EUB is required to permit use of a common flow line.

9 RECOMMENDATION

The examiners have considered the evidence and recommend that the Board approve Application No. 1012146 subject to the condition that a site-specific environmental protection plan be submitted as noted in this report.

DATED at Calgary, Alberta on 1 December 1998.

ALBERTA ENERGY AND UTILITIES BOARD

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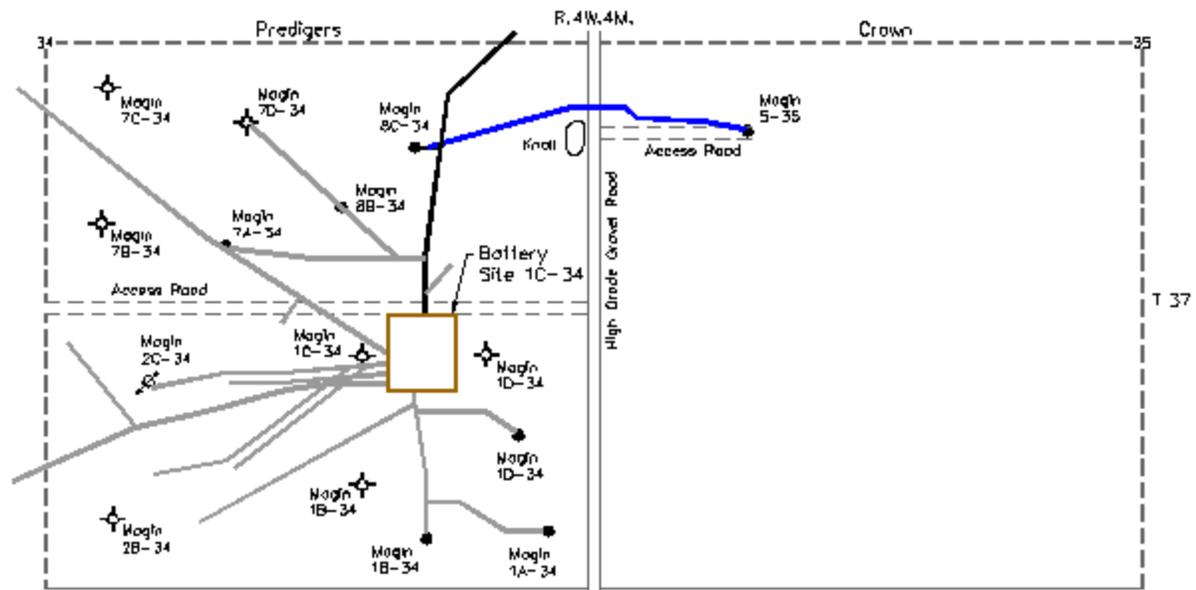
G. W. Dilay, P.Eng.

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W. Elsner, P.Geol.



Legend

- MagIn Existing Pipelines
- Tie-in line
- ★ Abandoned Well
- Injection Well
- Proposed Pipeline
- Oil Well

Proposed Pipeline
 Application No. 1012146
 MagIn Energy Inc.

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