

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

**ENCAL ENERGY LTD.
APPLICATION TO CONSTRUCT AND OPERATE
A SOUR GAS PIPELINE
WILSON CREEK TO RIMBEY AREA**

**Decision 99-11
Application No. 1030532**

1 DECISION

Having carefully considered all of the evidence, the Alberta Energy and Utilities Board (the Board or the EUB) has determined that Application No. 1030532 meets all of the Board's regulatory requirements and hereby reinstates Pipeline Permit No. 32552 to Encal Energy Ltd. (Encal).

The reasons for the Board's decision are presented below.

2 APPLICATION AND HEARING

2.1 Application and Intervention

Encal applied to the EUB pursuant to Part 4 of the Pipeline Act for a permit to construct and operate a 219.1 millimetre outside diameter pipeline for a length of 37.5 kilometres. The application stated that the pipeline would run from the Wilson Creek area at Legal Subdivision 6, Section 18, Township 43, Range 4, West of the 5th Meridian, to the existing Gulf Rimbey gas plant at Legal Subdivision 2, Section 5, Township 44, Range 1, West of the 5th Meridian. The proposed pipeline would transport sour natural gas containing up to 20 moles of hydrogen sulphide per kilomole of natural gas (two per cent hydrogen sulphide). Encal estimated that the pipeline would be designated as a Level 1 facility with a maximum operating pressure of 9930 kilopascals and a hydrogen sulphide release volume of 297 cubic metres.

On 11 February 1999, the EUB issued pipeline Approval No. 32552 to Encal. In letters dated 11 February 1999 and 16 February 1999, landowners Fred and Cathy Whatmore (the Whatmores) requested that the Board review its decision to approve the subject pipeline pursuant to Section 43 of the Energy Resources Conservation Act.

In a letter dated 19 February 1999, local area trapper, Mr. Gerald Rhine also requested the Board review its decision to approve the subject pipeline pursuant to Section 43 of the Energy Resources Conservation Act.

The Board was satisfied that the Whatmore's and Mr. Rhine were affected persons pursuant to Section 43 of the Energy Resources Conservation Act by virtue of the previous decision of the Board to approve the Encal pipeline and that the issues raised were within its jurisdiction. On 8 March 1999 the Board ordered that a public hearing under Section 43 of the Energy Resources Conservation Act be held.

2.2 Pre-Hearing Meeting

The Board held a pre-hearing meeting in Rimbey, Alberta, on 19 March 1999 to consider questions that had been raised regarding the standing of participants, the information needs of the parties, the proposed timing and location of the hearing and the issues expected to be considered at the hearing. A Memorandum of Decision (Attachment 1) resulting from the pre-hearing meeting was issued on 29 March 1999.

2.3 Hearing

The application was considered by the Board at a public hearing in Rimbey, Alberta, on 5 April 1999, before Board Members B. F. Bietz, P.Biol., G. J. Miller, and Acting Board Member B. Schnitzler, P.Eng. Those who appeared at the hearing are listed on the following table.

THOSE WHO APPEARED AT THE HEARING

**Principals and Representatives
(Abbreviations Used in Report)**

Witnesses

Encal Energy Ltd. (Encal)

L. Cusano
D. Wood

T. Barrows, P.Eng.
R. Phipps, P.Eng.
of Concise Design Engineering
Services
T. Wollen
B. Vermeulen
T. Gibson
of Gecko Management Consultants

Fred and Cathy Whatmore (the Whatmores)

M. Bronaugh

M. Bronaugh

Gerald Rhine

P. Hannemann

G. Rhine

Phyllis and Bill Turnasky (the Turnaskys)

J. Chalack

(Area Landowners)

Barry Edge

R. Linda Edge, Dean Edge

Dennis Pregoda, Phyllis Pregoda

Charlotte Pregoda

Jim and Darla Houghton

Manfred and Gerda Crell

Wray Lucas, Guy Lukas, Shirley Lucas

Hayden and Shirley Lynch

Larry and Karen Vetsch

R. Elander

Myron Pearman

M. Pearman

Alberta Energy and Utilities Board staff

D. Larder, Board Counsel

G. McLean

T. Pesta, P.Eng.

M. Craig

Don Whitecotton filed a submission, but did not participate in the hearing. Rolanda Edie registered as a participant during the hearing but did not participate directly.

3 ISSUES

The Board considers the issues to be:

- C need for the pipeline,
- C safety of the pipeline including materials, design, construction, maintenance, and emergency situations, and
- C impacts of the pipeline on the public, including health, environment, land usage, and economic considerations.

4 NEED FOR THE PIPELINE

4.1 Views of the Applicant

Encal stated that the proposed pipeline would allow for the orderly and efficient development of gas reserves in the Wilson Creek area. Encal estimated the combined current and yet to be developed gas reserves in the Wilson Creek area to be approximately 150 billion cubic feet ($4226 \times 10^6 \text{m}^3$) with a deliverability of 40 million cubic feet per day ($1127 \times 10^3 \text{m}^3/\text{d}$). Encal indicated that it had considered other possible existing pipelines that could potentially transport gas from the Wilson Creek area to the Rimbey gas plant and had determined that the only technically and economically acceptable option was the construction of the proposed pipeline. Encal also stated that it had confirmed that the Rimbey gas plant has sufficient available processing capacity to handle the additional gas from the pipeline. PanCanadian Petroleum Limited submitted a letter outlining that, as an area operator, it confirmed and supported the need for the pipeline in order to transport the gas to the Rimbey gas plant.

4.2 Views of the Interveners

The interveners did not dispute or challenge the need for the pipeline.

4.3 Views of the Board

The Board is satisfied that a new pipeline is needed to ensure efficient and orderly development of gas reserves in the Wilson Creek area.

5 SAFETY

5.1 Views of the Applicant

Encal stressed that its pipeline application was not exceptional in any manner. It stated that it was seeking a standard approval within existing regulations to build and operate a Level 1 sour natural gas pipeline. Encal stated that it proposed to install 15 emergency shutdown (ESD) valves to maintain potential release volumes of hydrogen sulphide from the pipeline at Level 1

volumes and that these potential hydrogen sulphide release volumes had been calculated at standard atmospheric temperature and pressure as required by the EUB. Encal also committed to limit the future hydrogen sulphide concentration of the transported gas to two per cent or less.

Encal stated that all materials and designs for the proposed pipeline would meet or exceed the latest applicable standards. In particular, the pipeline material would exceed Canadian Standards Association standard Z245.1 Category II requirements and would be specifically selected for its hydrogen induced cracking resistant properties. The radiographic inspection of the circumferential welds would exceed the requirements of CSA Z662, specifically in dealing with weld root bead defects. Encal also noted that only experienced pipeline contractors were considered for the construction of the pipeline.

With respect to concerns raised by the Whatmores regarding the safety of the proposed road crossing near their property, Encal stated that the pipeline would cross the road at an angle greater than 60 degrees. Encal noted that this would meet the requirements of both CSA Z662 and the County.

Encal stated that it was preparing an extensive pipeline operations manual that will include a comprehensive corrosion mitigation and monitoring program, leak survey requirements, and a testing schedule for the emergency shutdown valves. Encal was confident that its operations manual, in combination with an education process for the operators would identify any conditions which could affect the pipeline integrity.

Encal noted that the gas would be dehydrated to control water entry into the pipeline and that the absence of water in the pipeline would greatly reduce the possibility of corrosion. In addition, Encal stated that it would also implement a comprehensive corrosion inhibition program.

Encal indicated that the ESD valves for the proposed pipeline would be set to close when the pipeline pressure decreased approximately 1400 kPa (200 psig) below normal operating pressure. The size of the leak needed to trigger the valve(s) to close would depend on the volume of gas flowing through the pipeline at the time of the leak. However, Encal confirmed that small leaks would not result in the closure of the ESD valves and if they occurred, would likely be detected by odour. Larger leaks would be expected to be detected at the Rimbey gas plant due to pressure changes while others would, if sufficiently large, activate the ESD valves.

At the hearing, Encal stated that it would use a 900 metre (m) planning zone for its emergency response plan (ERP). Encal noted that it also planned to prepare the ERP before the start of pipeline operation, and that there would be very close consultation with residents and other area operators. In response to concerns raised by Mr. Rhine as to how Encal would advise transient occupants of the area of an emergency, Encal proposed that Mr. Rhine would be provided with a phone number to inform Encal of his whereabouts on those occasions when he is within the area of the pipeline. As a result, if an emergency were to occur, Encal would know his location and would be able to ensure his safety.

5.2 Views of the Interveners

The Whatmores stated that given a choice they would rather not have the pipeline built near their home, but if it must be built, that it should be built to the highest possible standards. The Whatmores were supportive of Encal's effort to satisfy the County's requirements for road crossings. However, they remained concerned about the sharpness of the bends required to accomplish the crossing. They stressed that the pipeline road crossing near their property should be constructed at as close to 90 degrees to the road as possible.

The Whatmores indicated that, given the evidence provided by Encal at the hearing, they were satisfied with Encal's radiographic welding inspection requirements. However, they remained concerned whether Encal's maintenance program for the pipeline and the ESD valves was adequate to ensure that the pipeline and the valves functioned as designed.

The Whatmores suggested that in calculating hydrogen sulphide release volumes, actual ambient air pressure and ground elevation should be used to ensure that realistic volumes are determined and the effects of air with lower oxygen levels are considered. Following the hearing, in response to an undertaking provided by Encal, the Whatmores provided calculations based on expected flow rates from the pipeline that they believed demonstrated that in fact the proposed pipeline was a Level 2 facility and should be licensed by the Board as such.

The Whatmores argued that the precise size of leak needed to activate the ESD valves is not known, and furthermore, that likely only a leak from a very large hole would shut the valves. Therefore, they were particularly concerned that a larger volume of hydrogen sulphide gas could be released than was calculated in defining the level of the pipeline.

The Whatmores also noted that the risk to them from the pipeline is the same regardless of the width of the emergency planning zone (EPZ) used by Encal. However they suggested that the EPZ could in fact be wider than the 900 m proposed by Encal if the effect of actual pipeline altitude is considered in calculating the hydrogen sulphide release volume.

The Whatmores were also concerned that should the pipeline license be granted to Encal, it would be open ended and would not contain any termination date. They argued that all mechanical devices have some finite life and furthermore, that it was only logical that the risk of failure would increase with the age of the facility. Therefore, they recommended that the Board establish a termination date for the pipeline licence.

The Turnaskys expressed a preference for the use of the latest and the best technology available for the pipeline, and questioned what would be released to the air as a result of flaring at the well sites and the plant. The Turnaskys also expressed a concern about how quickly a pipeline leak would be detected, and about the emergency response planning and the actual response by Encal.

Mr. Rhine was concerned about how he would be contacted if he is near the pipeline and there is a release of hydrogen sulphide from the pipeline.

5.3 Views of the Board

The Board requires that the design, construction, testing, operation, maintenance, and repair of pipelines to be in accordance with the Pipeline Act and Regulations and in accordance with the latest published edition of the appropriate CSA standards. In this case, the Board notes that Encal's proposed pipeline would meet or exceed those requirements and the Board is satisfied that the pipeline, as designed, is acceptable. The Board is also satisfied that the pipeline crossing near the Whatmores property, as proposed, can be constructed safely, using standard pipeline construction techniques.

With regards to the concerns raised as to the appropriate classification of the proposed pipeline, the Board is satisfied that Encal's calculations of potential hydrogen sulphide release volumes were done in accordance with the EUB requirements and that the pipeline has been correctly classified as a Level 1 pipeline. As defined in EUB Interim Directive 81-3, the Board requires the release volume be established using maximum operating pressure, expressed in cubic metres, at standard conditions. For the purpose of this calculation, the applicant is also asked to assume that any automatic block valves (ESD valves) close instantaneously upon failure of the pipeline. The Board believes that Encal has met both these requirements.

It is important to note that the EUB uses a standardized method to calculate release volumes for all sour gas pipelines in the Province. This standardized approach is used in order to ensure that there is a consistent classification of pipelines into one of four categories based on their theoretical hydrogen sulphide release volumes. All pipeline levels are defined according to the above prescribed rules. For emergency response planning purposes, the size of the emergency planning zone (EPZ) is calculated based on the maximum hydrogen sulphide release volume of a pipeline as described above. An EPZ is defined as a manageable area where the public would be at greatest risk in the event of a worst case failure of a sour gas pipeline. The industrial operator must define procedures in its ERP for protection of the public within the EPZ in the initial stages of an emergency. The operator must also have procedures in place to ensure the safety of those affected beyond the EPZ in the event the impacts extend beyond the EPZ. The EPZ does not define the maximum extent of any impact a release may have on the public or the environment.

The Board acknowledges that the actual volume released could be slightly smaller or larger than the calculated volume depending on the actual operating conditions and location of the pipeline. However, for the purposes of creating a standardized methodology for classifying pipelines, and therefore the associated emergency response planning requirements, the Board is satisfied that the established approach remains appropriate.

The Board continues to believe that the primary method for reducing the risk to the public from any pipeline is to ensure that the appropriate measures are taken to minimize the likelihood of a pipeline leak. Such measures included appropriate operation and maintenance of the pipeline, including pipeline inspection, adequate mitigation and monitoring of corrosion, as well as testing of the ESD valves. The Board is satisfied that Encal will have in place, prior to the start of operation, the appropriate methods and procedures needed to ensure that the pipeline is

operated and maintained safely. All such procedures and how they are applied by Encal will also be subject to both audits and field inspections by the EUB.

The Board agrees that, in the unlikely circumstance of a pipeline leak, the means of detecting the leak and the speed with which the leak would be detected is greatly influenced by the size of the leak and its location. The Board also recognizes that no matter how comprehensive the various safety measures taken, there is some inherent risk associated with the transportation of sour gas by pipeline. However, the Board is satisfied that Encal's proposed program has reduced those risks to acceptable levels and does adequately protect public safety.

The Board accepts that Encal has not yet completed the preparation of its ERP. However, the Board will require that Encal meet its commitment to complete the plan prior to the start of operation of the pipeline. The Board will also expect that the plan would address unique considerations such as being able to evacuate Mr. Rhine, should he be in the area during an emergency. The EUB will ensure that the above issues have been adequately addressed in its review of the Encal ERP.

The Board has also carefully considered the intervener's request that any approval be only for a fixed period of time. The Board does not believe, however, that such a requirement is warranted. As a general rule, the Board believes that it should only institute new regulatory requirements when it perceives that there would be a net benefit to the public. In this case, the Board does not believe that either public safety or the orderly development of the province's energy resources would benefit from requiring companies, at a minimum, to routinely reapply for extensions to facility permits or in the more extreme case, arbitrarily retiring facilities based solely on their age. As noted earlier, the Board believes that it is the rigor and effectiveness of a company's inspection and maintenance program, and not the facility's age, that will ultimately determine its effective life.

7 IMPACTS

7.1 Views of the Applicant

Encal did not dispute the known health effects associated with exposure to hydrogen sulphide gas but stressed that it did not anticipate any person being exposed to unacceptable levels of hydrogen sulphide as a result of either the construction or the operation of the proposed pipeline. Encal also agreed that certain area residents may be more susceptible to potential health effects as a result of exposure to hydrogen sulphide gas and committed to identify and include information on those individuals in its ERP.

Encal accepted that area residents were also concerned about the potential health effects caused by emissions from flares in the area. However, Encal suggested that the pipeline would not add significant amounts of flare emissions to the atmosphere in the long term, as it does not anticipate any additional flaring at its well sites once the pipeline is constructed and operational. Encal also stated that the pipeline pig receiving and sending traps would be vented through

ammonia filters and the liquids would be trucked away so that there would be no localized

hydrogen sulphide emissions into the atmosphere during pipeline pigging operation.

Encal stated that it did not know if there would be increased flaring at the Rimbey gas plant due to the delivery of its gas to the plant. Encal did state, however, that it believed that the plant operator at Rimbey has committed to investigate acid gas reinjection at the plant which will, in turn, reduce flared emissions in that area. Encal suggested that the acid gas reinjection system could be in place by the end of year 2000.

With regards to impacts to landowners, Encal described how these had been minimized during the design of its pipeline through the use of existing pipeline corridors, extensive public consultations and rerouting of the pipeline where land use conflicts were identified. Encal noted that a Conservation and Reclamation plan has been prepared and submitted to Alberta Environmental Protection, including an amendment for spring/summer construction, and that the company would use a qualified environmental inspector to ensure compliance.

Encal stressed that no landowners would be affected by setback restrictions as the pipeline would be constructed as a Level 1 facility and would not have any setback restrictions other than the 20 m right-of-way. Encal noted that all landowners directly affected by the pipeline right-of-way have signed pipeline right-of-way agreements with certain conditions including one which stipulates that Encal, or any of its successors, will continue to keep the pipeline designation as a Level 1 facility.

At the hearing, Encal confirmed that it intended to meet that commitment as well as to ensure that any assignee of the pipeline was required to also meet that commitment to the area residents. Encal supported the area resident's request for the Board to annex the conditions set forth in their agreement with Encal into the pipeline permit. Encal also confirmed that if any person or livestock is injured or killed as a result of the construction or operation of the pipeline, Encal's insurance policy would compensate individuals for their losses.

Encal noted that the construction phase of the pipeline would employ in excess of 150 people and operation of the pipeline would create two permanent jobs. Encal estimated the pipeline would generate 4 million dollars per year in crown and freehold royalties and 30 thousand dollars per year in municipal taxes. Encal argued that it did not believe the pipeline would have any effect on Mr. Rhine's livelihood and stated that the pipeline would be present in only one in twenty eight quarter sections in which Mr. Rhine has permission to trap.

7.2 Views of the Interveners

The Whatmores expressed concern for the health and safety of themselves and their children should an accidental release of hydrogen sulphide gas occur. The Whatmores argued that the level of toxicity of hydrogen sulphide gas is dependent on the ratio of hydrogen sulphide gas to oxygen. Because the amount of oxygen in the air is a function of ambient air pressure and ground elevation, a pipeline leak at the relatively high altitude of the Whatmore's residence

would place them at additional risk. The Whatmores suggested that in fact the proposed pipeline is “environmentally conventional” rather than “environmentally sensitive” as suggested by Encal.

Mr. Rhine expressed concern for his own health and the health of the animals he traps should an accidental release of hydrogen sulphide gas occur. He questioned Encal’s ability to locate him in a timely manner in the event of an emergency situation. Mr. Rhine also expressed his concern for the general health of humans, wild animals, and livestock in the area as a result of emissions caused by flaring. Mr. Rhine expressed the view that generally oilfield activity in the area has changed the environment in such a way as to significantly reduce the number of fur bearing animals.

The Turnaskys expressed a concern for human and animal health with regard to flaring emissions from both the wells that would be tied into the pipeline and the increased emissions from the Rimbey gas plant. The Turnaskys stated that available research suggested that over 250 compounds, many of them toxic, are released into the atmosphere as a result of flaring and that these compounds may also leach into the ground and water table and affect animal and human health. The Turnaskys supported any reduction in flaring and the implementation of an acid gas reinjection system at the Rimbey gas plant.

The Area Landowners group stated in argument at the hearing that they had no objection to the pipeline as agreed to with Encal, provided the Board annex the conditions set forth in their agreement with Encal into the pipeline permit. Of particular concern to the area residents was the condition which states “Encal shall not apply in the future to increase the subject pipeline to other than a Level 1 sour gas line as defined in current EUB guidelines”. Also, the area residents expressed the importance that they placed on the clauses of the same agreement which make Encal liable for any damages to property or livestock as a result of the construction or operation of the pipeline.

Mr. Pearman raised concerns about the delays created by the hearing process since this would result in the pipeline being constructed in the spring and summer rather than in the winter. Mr. Pearman argued that spring and summer construction would put undue stress on both the environment and County roads. Mr. Pearman also indicated concern over Encal’s insurance and its ability to compensate him in a fair and timely manner should any of his livestock be hurt or killed due to the construction or operation of the pipeline. Therefore he stated that he would have preferred if Encal had been able to proceed with winter construction as originally planned since he perceived the environmental risks associated with construction to be less in the winter.

Mr. Pearman expressed his opinion that the pipeline project would have a net positive effect on the local and provincial economies and stated that delays in the project would have detrimental impacts on those economies. Mr. Pearman described how he felt the economic benefits of such projects far outweighed the potentially detrimental effects of the pipeline and that pipelines currently on his land have not caused any problems or inconveniences to himself or his family. He also indicated concern over the amount of money that was being spent on the hearing.

7.3 Views of the Board

The Board heard considerable discussion related to potential impacts due to the construction and operation of the proposed pipeline. The Board believes that Encal has committed to prudent measures which are intended to mitigate many of the concerns.

The Board agrees that in the unlikely circumstance of a pipeline leak or rupture there is always some risk that humans and animals in the vicinity of the leak may experience health effects due to exposure to hydrogen sulphide gas. However, the Board is satisfied that the risk that any leak would not be detected and dealt with before it could pose a danger to the public has been adequately addressed. The Board is also satisfied that the ERP can be designed in a manner that would adequately address unique considerations such as being able to evacuate Mr. Rhine, should he be in the area during an emergency.

The Board believes that the proposed pipeline will result in only minimal environmental impacts and believes that these impacts can be further minimized through the use of a qualified environmental inspector to ensure compliance with the Conservation and Reclamation plan. Furthermore, the Board notes that the plan will require Alberta Environmental Protection approval and will require compliance with all defined and prescribed rules and procedures. With respect to land usage, the Board is satisfied that landowners would not be affected by setback restrictions beyond the pipeline's 20 m right-of-way, for which the landowners have signed right-of-way agreements.

The Board also notes and accepts Encal's commitment to maintain the proposed pipeline as a Level 1 sour gas facility. The Board cannot be bound by any agreement between private parties. However, as with any application, the Board expects that an applicant will meet all public commitments made during the course of a hearing. Failure of an applicant to meet those commitments may result in a range of actions by the Board up to and including a review of the approval itself. The Board is not prepared, however, to condition the approval with the above agreement between Encal and the area landowners. The Board will ensure that this decision and therefore Encal's commitments are appropriately appended to this and any subsequent approval.

The Board believes the pipeline would have a positive impact on the local and provincial economies and believes the impact on Mr. Rhine's livelihood would be minimal.

Dated at Calgary, Alberta, on 17 May 1999.

ALBERTA ENERGY AND UTILITIES BOARD

[Original signed by]

Brian F. Bietz, P.Biol.
Board Member

[Original signed by]

Gordon Miller
Board Member

[Original signed by]

Bill Schnitzler, P.Eng.
Acting Board Member