

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

ANG GATHERING & PROCESSING LTD. APPLICATION FOR A PERMIT TO CONSTRUCT SOUR NATURAL GAS PIPELINES IN THE EDSON AREA

**Addendum to Decision D 97-18
Application No. 1007783**

1 APPLICATION

ANG Gathering & Processing Ltd. (ANG) applied to the Alberta Energy and Utilities Board (Board), pursuant to part 4 of the Pipeline Act, for a permit to construct and operate a gas gathering system consisting of approximately 222 kilometres of sour natural gas pipeline with a maximum 219.1-millimetre outside diameter. The proposed pipeline would transport natural gas containing up to 275 moles per kilomole of hydrogen sulphide and would be constructed from a proposed fuel gas conditioning facility located in Legal Subdivision 8, Section 24, Township 57, Range 6, West of the 6th Meridian to existing pipeline tie-in points/facilities located in Lsd 8-4-59-23 W5M, Lsd 5-25-51-22 W5M, and Lsd 5-11-53-18 W5M. ANG proposes to transport this sour natural gas for processing at the Talisman Edson and Petro-Canada Hanlan-Robb gas processing facilities.

An application was also submitted by Petro-Canada to resume operation of an existing discontinued sour gas pipeline. The pipeline would transport sour natural gas from the proposed ANG pipeline at 5-25-51-22 W5M to the existing Petro-Canada gas processing facility in 16-2-49-20 W5M. The application was submitted as routine and will be held in abeyance pending the decision on the ANG application.

2 HEARING

A public hearing of the application was held in Calgary, Alberta on 21 October 1997 and re-opened in Edson, Alberta on 9 December 1997 before Board Members J. P. Prince, Ph.D., G. J. Miller, and Acting Board Member T. M. Hurst.

The routing of the pipeline was opposed by Bev Collin Holdings Ltd., owner of the SE 3 15-53-18 W5M, at the hearing on 21 October 1997. At the hearing, ANG filed an amendment to its application to increase the hydrogen sulphide content of the natural gas up to 275 moles per kilomole from the 175 moles per kilomole originally set forth in the application. Following the hearing, ANG gave notice of the amendment to affected landowners and occupants along the pipeline route. As a result of the notice, additional interventions were received from landowners and occupants who expressed concerns with the increased hydrogen sulphide content and the proximity of the pipeline to their lands. The hearing was re-opened in Edson, Alberta on 9 December 1997 to address these concerns. Bev Collin Holdings Ltd. did not appear at the hearing on this date. On 22 December 1997, a written argument was received from Bev Collin Holdings Ltd.'s solicitor outlining its objections to the application and was considered by the Board. The Board, in Decision 97-18, approved ANG's application along the applied-for route subject to a number of conditions that were to follow. This addendum to Decision 97-18 provides the reasons for the Board's decision and the associated conditions.

The alignment of the proposed pipeline and alternate routes presented at the hearing are shown on the attached figures.

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

THOSE WHO APPEARED AT THE HEARING C21 OCTOBER 1997

Principles and Representatives (Abbreviations Used in Report)	Witnesses
ANG Gathering & Processing Ltd. (ANG) D. Davies	D. White, R.E.T. D. Robertson, P.Eng. B. Draper, P.Eng. G. Parr
Bev Collin Holdings Ltd. R. Kruhlak	R. Collin K. Mackenzie
Alberta Energy and Utilities Board staff D. Larder, Board Counsel S. Lee, P.Eng. J. Amoruso	

THOSE WHO APPEARED AT THE RE-OPENING OF HEARING C9 DECEMBER 1997

Principles and Representatives (Abbreviations Used in Report)	Witnesses
ANG Gathering & Processing Ltd. (ANG) D. Davies	D. White, R.E.T. D. Robertson, P.Eng. N. Lenstra, P.Eng. R. Seagar
K. Smith	
W. Behrens	
H. Bugg	
R. Rautio	
Alberta Energy and Utilities Board staff D. Larder, Board Counsel S. Lee, P.Eng. J. Amoruso	

2 ISSUES

The Board considers the issues to be :

- C need for the pipeline,
- C route selection, and
- C pipeline design and safety.

3 NEED FOR THE PIPELINE

3.1 Views of the Applicant

ANG offered evidence to the effect that the proposed project would access several stranded gas pools from mostly deep, sour gas formations in the area between Grande Cache and Edson. Land activity and proposed drilling have increased significantly in the last half year in the proposed gathering area and it is ANG's view that this level of activity would be sustained and expanded as a result of the construction of the pipeline and related infrastructure.

ANG noted that the project represents a mutual commercial commitment by producers, processors, and ANG which all share in the risk. It satisfies the needs of custom processors and producers in the area.

ANG stated that it intends to utilize existing spare capacity at the Edson and Hanlan-Robb gas processing facilities to process the gas, therefore, eliminating the need to build new gas plants. There are also two existing pipelines and related facilities in ANG's service area that could carry some percentage of the gas to existing gas plants. These are the Kaybob West and Obed pipelines. The applicant expressed interest in utilizing this capacity in the event that it cannot transport its forecasted supplies through its proposed pipeline.

3.2 Views of the Interveners

The interveners did not raise any concerns at the hearing related to ANG's assessment of the need for the proposed pipeline.

3.3 Views of the Board

The Board accepts the applicant's submission on the need for the pipeline and, in particular, the need to access existing stranded pools and to facilitate the exploration for additional reserves along the service area. The Board concludes that the project is necessary and in the public interest.

4 ROUTE SELECTION

4.1 Views of the Applicant

ANG presented evidence in support of its preferred route and an analysis of the alternate routes that were identified in its application.

ANG stated that, in its route selection process, consideration was given to minimizing overall linear disturbance by taking advantage of existing pipeline corridors, finding the best river crossing locations, avoiding Special Places 2000 areas, swampy areas, lakes, recreational areas, and populated areas. A detailed routing analysis was done in the Grande Cache, Edson, and Robb regions which concluded that the applied-for pipeline route is the best alternative considering all the route selection criteria (Figure 1).

ANG stated that the applied-for route traversing land owned by Bev Collin Holdings Ltd, the SE 3 15-53-18 W5M, was primarily chosen to utilize the existing Nova pipeline corridor. It stated that this route would minimize environmental disturbance, impact fewer landowners, and would be the safest (Figure 2).

ANG noted that the alternate route proposed by Bev Collin Holdings Ltd. was considered and not chosen for the following reasons:

- \$** a section of the route would result in the development of a second pipeline corridor causing unnecessary environmental disturbance;
- \$** greater risk to the general public as the pipeline enters an area with commercial facilities and parallels a portion of Highway 16;
- \$** the route would run west of the trailer park and the prevailing winds from the west would put the trailer park at greater risk; and
- \$** the pipeline would have greater impact on the Branch Corner Development Area proposed by the M.D. of Yellowhead.

4.2 Views of the Interveners

Bev Collin Holdings Ltd. expressed concerns with the last 5 to 6 kilometres of ANG's proposed route. Mr. Collin stated this portion of the route would limit the ability to develop his land for commercial use. He also suggested an alternate route which would remove the pipeline from his land and relocate it to the west and to the south of his land (Figure 2).

The remaining landowners and occupants expressed concerns with the applicant's amendment to its application to increase the H₂S content of the pipeline to 275 moles per kilomole. They were concerned with the potential implications of a sour gas pipeline of this nature in close proximity to their land. Risks to public safety associated with sour gas pipelines were the focus of their opposition. They suggested resolutions ranging from additional safety features to not building the pipeline at all.

4.3 Views of the Board

The Board agrees with the principles used by ANG to select its preferred route and is satisfied that the concerns identified by the interveners were considered during the selection process. However, the Board recognizes that a conflict of interest exists between ANG and Bev Collin Holdings Ltd. with respect to the route in the vicinity of the latter's land. While ANG acknowledged it would have to compensate Mr. Collin for affecting the value of potential development of his land, the intervener indicated a preference to maintain the option to develop

his land at some future time. In considering these conflicting positions, the Board carefully scrutinized the alternative routes put forward by both the applicant and Mr. Collin. The applicant's consultant, AXYS Environmental Consulting Ltd., assessed 6 routes using 14 criteria, each of which was assigned weights from 1 to 10 (Exhibit 2 from 9 December 1997 sitting). The criteria included factors such as length, length not paralleling existing pipelines, number of residences within 500 metres, number of high-density residence facilities within 500 metres, number of water crossings, length in critical wildlife habitat and Special Places 2000 areas, and a number of areas with historical resources potential. The assessment concluded that the applied-for route was the most desirable based on the criteria and weights chosen. The Board reviewed that analysis in some detail and concluded that it was a reasonable assessment of the alternatives.

Of particular importance to the Board was the fact that the applicant's preferred route followed the existing pipeline corridor north of the plant. The report included the following statement: "Intuitively, AXYS feels that the location of the proposed pipeline within the corridor will reduce the likelihood of accidental, unsafe activities by proposed third parties since the existing pipeline corridor is well known in the area." The Board concurs with this statement because third-party damage is a significant cause of pipeline ruptures. Safety of residents is of paramount importance to the Board, and the location of the pipeline within the existing corridor was a major reason for its decision on routing. The alternate route put forward by Mr. Collin was judged by the Board to be less satisfactory from that point of view.

As well, Mr. Collin's concerns relate to a possible future development of his property. In that regard, the Board notes that while a measure of planning has been undertaken by Mr. Collin, significant work, for example a formal application to municipal planning authorities for a subdivision, has not been initiated. At this time, the Board is unable to conclude that future development would be hampered by the routing of the pipeline across his land. In any case, the need for the pipeline exists today and the safest route for it is in the existing pipeline corridor. Therefore, the Board agrees that the applied-for route is the best from the point of view of the overall public interest.

5 PIPELINE DESIGN AND SAFETY

5.1 Views of the Applicant

ANG stated that the proposed pipeline system was designed in accordance with the requirements of the applicable standards and regulations. A corrosion prevention program would be implemented to reduce overall pipeline corrosion. Over-pressuring of the pipeline or excessive volumes of H₂S release in the event of a pipeline rupture would be prevented through the use of ESD valves which are designed to close automatically when the pipeline pressure reaches a pre-determined high/low setpoint. In addition, relief valves are installed to protect gas plant piping and inlet separators from over-pressuring. A Supervisory Control and Data Acquisition (SCADA) system would also be installed to prevent any section of the pipeline from exceeding its licenced maximum H₂S concentration. In areas of high population density, such as the area north of the Edson plant, H₂S detectors would be installed at ESD valve locations and would set off an alarm to notify the operator if H₂S is detected.

ANG noted that the majority of the pipeline route traverses remote areas where there are no permanent dwellings and was therefore designated as a Level 4 facility. In populated areas, in particular the area approximately 8 kilometres north of the Edson gas plant, ANG stated that it

would design that section of pipeline as a Level 2 facility and conform to the setback requirements of EUB Interim Directive ID 81-3. In addition, ANG stated that it would design and implement an emergency response plan to prepare, notify and, if necessary, safely evacuate residents in the event of a pipeline failure.

ANG stated that to alleviate the concerns of Mr. and Mrs. Bugg, who are landowners in the NW³ 29 and N² 30-53-18 W5M, an additional ESD valve will be installed 5 kilometres west of the last valve, the result being a reduced volume of potential H₂S release should a pipeline failure occur.

5.2 Views of the Interveners

Mr. Smith, landowner in the SW³ 28-53-18 W5M, stated that his concerns were related to the risk involved in constructing a pipeline with such a high H₂S content in a rural residential area. He stated that the applicant did not demonstrate that models of H₂S release have been used in support of safety concerns with its proposed pipeline and, as a result, Mr. Smith questioned the impact on the residents should a pipeline failure occur. Mr. Smith stated that the portion of pipeline that would access the Edson plant should not be constructed and ANG be required to find an alternate processing facility where safety concerns are minimized.

Mr. Bugg expressed similar concerns with the impact of a pipeline failure on his family and livestock.

Mrs. Behrens, landowner in the NE³ 11-53-18 W5M, questioned why the applicant is not putting more ESD valves as a safety precaution along the 30 kilometres of pipeline from Section 29-53-18 W5M to the Athabasca junction. She is a registered trapline owner along this portion of the pipeline and is in the area for a good part of the winter.

Mrs. Rautio, landowner in the SW³ 15-53-18 W5M, owns the Branch Corner Mobile Home Park. She expressed concerns with having a sour gas pipeline so close to her trailer park, considered a public facility. She stated that some of the trailers may be within the 500-metre setback imposed by the proposed Level 2 pipeline.

5.3 Views of the Board

The Board acknowledges ANG's experience with the construction and operation of sweet natural gas pipelines in Alberta. However, the Board notes that ANG has limited experience with sour gas lines, particularly lines carrying H₂S at concentrations as proposed in the subject application.

ANG acknowledged that the majority of the pipelines it operates transport sweet gas and, of the 300 kilometres of sour gas pipeline it operates, approximately 1 per cent carry sour gas with an H₂S content exceeding the levels planned for the proposed pipeline. While the Board recognizes that ANG has the technical and managerial capacity to effectively construct and operate the pipeline, its response to questions at the hearing did not allay the concerns of interveners and, as well, raised a question with the Board as to whether the applicant had a full appreciation of the issues associated with pipelining sour gas.

The Board believes the proposed pipeline satisfies technical design criteria such that it can be constructed and operated safely. However, it believes that a number of conditions are required to ensure that ANG addresses all aspects of transporting sour gas in a populated area. These conditions are:

- C To mitigate the possibility of third-party damage to the pipeline, the Board requires that ANG erect warning signs, from Section 31-53-18 W5M to the Talisman plant, at intervals that clearly and continuously mark the location of the pipeline, similar to the EUB requirements for high vapour pressure pipelines in an urban area. Although the pipeline will be placed in an existing corridor, additional warning signs are required as this will be the first sour gas pipeline in the corridor.
- C After running the baseline survey on the pipeline with an electronic line-a-log or smart pig, the Board requires that follow-up surveys be conducted on the portion of the pipeline from the Athabasca junction to the Talisman plant to detect possible corrosion or pitting. Any anomalies or unexpected results must be reported to the Board. The first follow-up survey should occur 6 months after establishment of the baseline. The second follow-up should occur 12 months after the first (or earlier if the results of the first follow-up suggest that would be advisable). The frequency of surveying thereafter will be determined by ANG depending on the results of these initial surveys. The Board also expects that once the pipeline is in operation, ANG will monitor operating conditions closely and adapt the corrosion mitigation program as necessary.
- C To enhance safety in the populated area north-west of the Talisman plant, the Board requires that two additional ESD valves and remote H₂S sensing detectors be placed in the vicinity of Mr. Bugg's land.
- C In preparation of an Emergency Response Plan (ERP), the Board considers it important that the report be designed to account for the risks associated with a pipeline of this nature. In this regard, ANG is required to conduct a risk assessment related to the populated area near Edson and adapt its ERP based on the results of the assessment. The ERP must satisfy the requirements of the "Guidelines for Preparation of Sour Gas Emergency Response Plans for Sour Gas and Oil Facilities" prepared by the Canadian Petroleum Association, April 1987., and Informational Letter 87-8. The ERP must be submitted to the Board for review and approval prior to operation of the pipeline.

6 DECISION

The Board carefully considered the arguments presented by both the applicant and interveners and hereby approves Application No. 1007783 along the applied-for route for the reasons discussed in this report, subject to the conditions that ANG:

- \$** erect warning signs at intervals that clearly and continuously mark the location of the pipeline;

- § run a baseline survey on the pipeline with an electronic line-a-log or smart pig and conduct two specific follow-up surveys, one 6 months after the baseline has been established and the other approximately 12 months after the first follow-up (or earlier if the results of the first follow-up suggest that would be advisable);
- § install two additional ESD valves and remote H₂S detectors upstream of the Talisman plant, thus extending the Level 2 classification. The spacing would be at intervals of approximately 1.17 kilometres from the proposed valve at 11-29-53-18 W5M. The first valve would be in the NE **3** 30-53-18 W5M, the second in the SW **3** 31-53-18 W5M, thus making it a Level 2 pipeline in this area. The additional valve proposed by ANG would then be installed 5 kilometres from the second valve; and
- § adapt the ERP associated with the project on the basis of a localized assessment of risks in the region from NW **3** 29-53-18 W5M to the Talisman plant.

DATED at Calgary, Alberta, on 4 February 1998.

ALBERTA ENERGY AND UTILITIES BOARD

(Original signed by)

J. P. Prince, Ph.D.
Presiding Member

(Original signed by)

G. J. Miller
Board Member

(Original signed by)

T. M. Hurst
Acting Board Member

Attachments

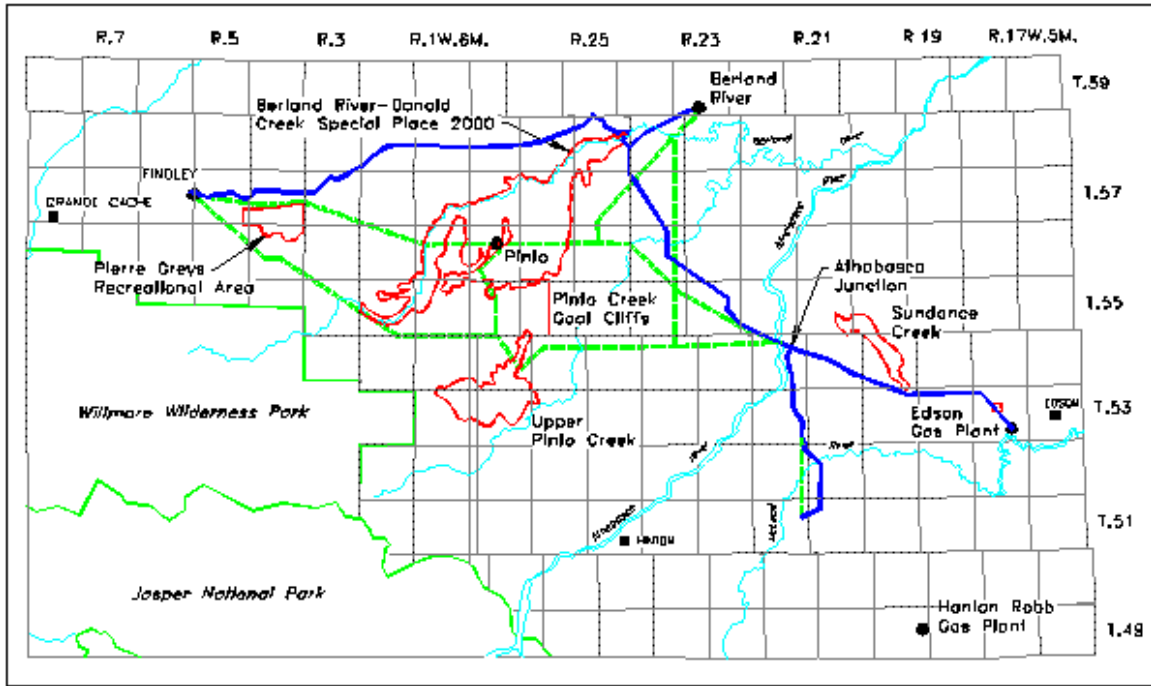


Figure 1
EDSON AREA

Application No. 1007783

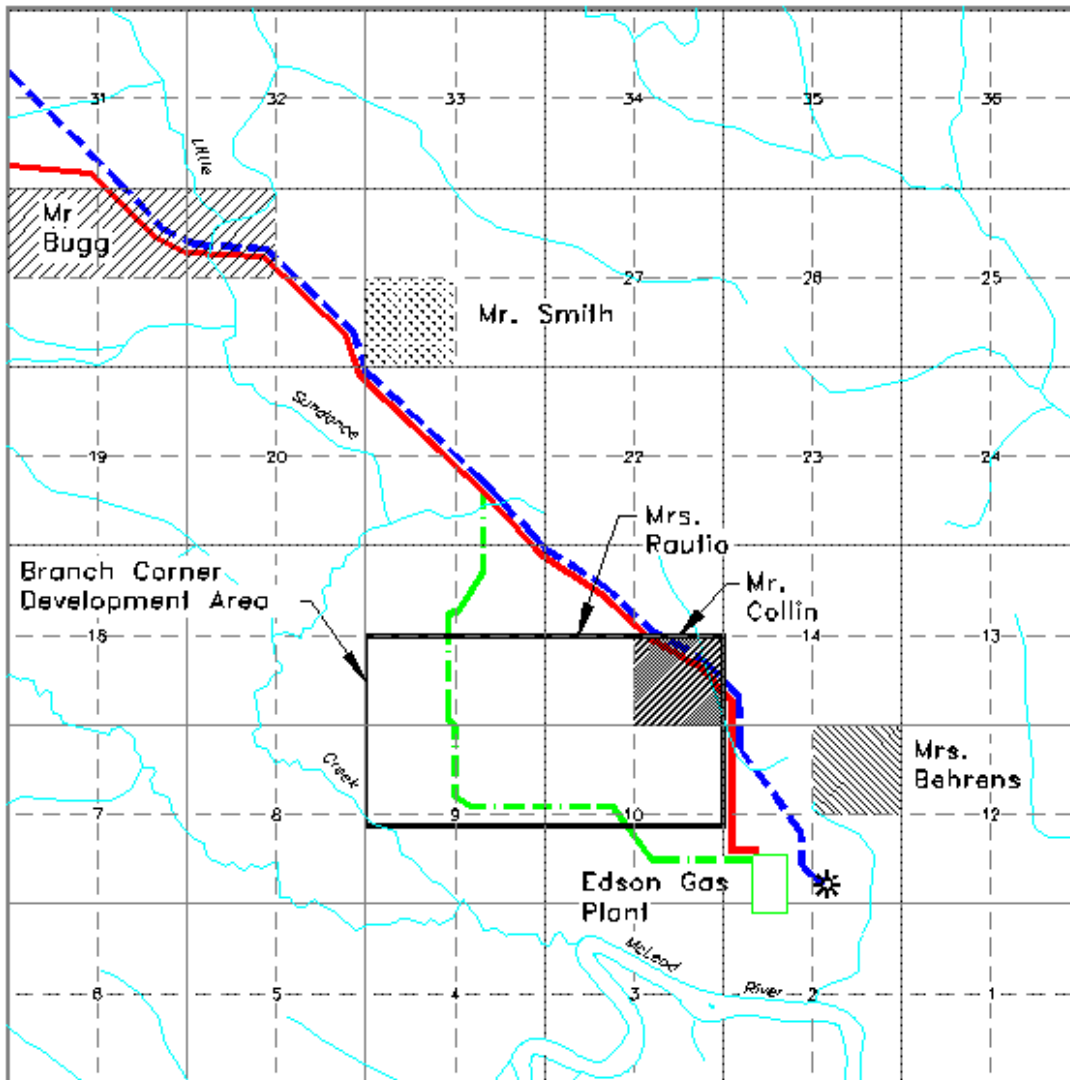
ANG Gathering & Processing Ltd.

Legend

- ANG Applied for Route
- ANG Alternate Route

Decision 97-18

R.18W.5M.



Legend

- ANG Applied for Route
- - - Existing Nova Pipeline
- - - Bev Collin Holdings Ltd. Alternate Route

Figure 2
EDSON AREA

Application No. 1007783
ANG Gathering & Processing Ltd.

Decision 97-18

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

**ANG GATHERING & PROCESSING LTD.
APPLICATION FOR A PERMIT TO CONSTRUCT
SOUR NATURAL GAS PIPELINES
IN THE EDSON AREA**

**Decision 97-18
Application No. 1007783**

1 APPLICATION

ANG Gathering & Processing Ltd. (ANG) applied to the Alberta Energy and Utilities Board (Board), pursuant to part 4 of the Pipeline Act, for a permit to construct and operate a gas gathering system consisting of approximately 222 kilometres of sour natural gas pipelines with a maximum 323.1-millimetre outside diameter. The proposed pipelines would transport natural gas containing up to 275 moles per kilomole of hydrogen sulphide and would be constructed from a proposed fuel gas conditioning facility located in Legal Subdivision 5, Section 19, Township 57, Range 5, West of the 6th Meridian to existing pipeline tie-in points/facilities located in Lsd 8-4-59-23 W5M, Lsd 5-25-51-22 W5M, and Lsd 5-11-53-18 W5M. ANG proposes to transport this sour natural gas for processing at the Talisman Edson and Petro-Canada Hanlan Robb gas processing facilities.

2 HEARING

A public hearing of the applications was held in Calgary, Alberta, on 21 October 1997 and re-opened in Edson, Alberta on 9 December 1997 before Board Members J. P. Prince, Ph.D. and G. J. Miller, and Acting Board Member T. M. Hurst.

The routing of the pipeline was opposed by Bev Collin Holdings Ltd., owner of the SE³ 15-53-18 W5M. At the hearing on 21 October 1997, ANG filed as evidence an amendment to their application to increase the hydrogen sulphide content of the natural gas up to 275 moles per kilomole from the 175 moles originally set forth in the application. Following the hearing, ANG gave notice of the amendment to affected landowners and occupants along the pipeline route. As a result of the notice, additional interventions were submitted from landowners and occupants who expressed concerns with the increased hydrogen sulphide content and the proximity of the pipeline to their lands. The hearing was re-opened in Edson, Alberta on 9 December 1997 to address these concerns. On 22 December 1997, a written submission was received from Bev Collin Holdings Ltd.'s solicitor regarding the merits of the application and were considered by the Board.

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

THOSE WHO APPEARED AT THE HEARING C21 OCTOBER 1997

Principles and Representatives
(Abbreviations Used in Report)

Witnesses

ANG Gathering & Processing Ltd.
D. Davies

D. White, P.Eng.
D. Robertson, P.Eng.
B. Draper, P.Eng.
G. Parr

Bev Collin Holdings Ltd.
R. Kruhlak

R. Collin
K. Mackenzie

Alberta Energy and Utilities Board staff
D. Larder, Legal Counsel
S. Lee, P.Eng.
J. Amoruso

THOSE WHO APPEARED AT THE RE-OPENING OF HEARING C9 DECEMBER 1997

Principles and Representatives
(Abbreviations Used in Report)

Witnesses

ANG Gathering & Processing Ltd.
D. Davies

D. White, P.Eng.
D. Robertson, P.Eng.
N. Lenstra, P.Eng.
R. Seagar

K. Smith

W. Behrens

H. Bugg

R. Rautio

Alberta Energy and Utilities Board staff
D. Larder, Legal Counsel
S. Lee, P.Eng.
J. Amoruso

3 SUMMARY AND CONCLUSION

The Board has decided to approve the pipeline along the route requested by the applicant. However, the approval will be subject to a number of conditions to enhance the safety of the line in the vicinity of Edson and the Talisman plant. The Board is issuing this approval, in interim form, to allow the applicant to begin construction in regions other than Edson, should it so desire. For this reason, only a brief overview of the issues and the Board's views has been provided here. A complete report on the Board's decision, including reasons and conditions will be issued in January 1998.

The issues presented at the hearing focused on appropriate routing and safety of the pipeline. ANG presented evidence in support of their preferred route and an analysis of the alternate routes that were identified in their application. ANG recognized the concerns of the landowners and occupants regarding safety matters relating to sour gas pipelines in a populated area and stated that their design standards will meet those prescribed in the regulations and codes governing sour gas pipeline construction and operation in Alberta.

Bev Collin Holdings Ltd. expressed concerns with ANG's route selection over the last five to six kilometers of the pipeline route. Mr. Collin's concerns related to potential limitations in his ability to develop his land for commercial use and included an alternate route recommendation. The remaining landowners and occupants were concerned with the potential implications of a sour gas pipeline in close proximity to their land. Risks to public safety associated with sour gas pipelines and the loss in property values were the focus of their opposition. They suggested resolutions ranging from additional safety features to not building the pipeline at all.

The Board acknowledges ANG's experience with the construction and operation of sweet natural gas pipelines in Alberta. However, the Board notes that ANG has little experience with sour gas lines and that the increase in H₂S concentration to current levels was unexpected. The company's response to questioning at the hearing raised concerns with respect to their knowledge and ability to safely operate a sour gas pipeline. While the Board believes that the line can be constructed and operated safely, it will impose conditions on the approval to ensure that ANG thoroughly addresses all aspects of transporting sour gas in a populated region. The conditions will include the installation of at least one more ESD valve to the north of Mr. Bugg's land, as well as conditions related to operating the pipeline and the development of a thorough risk assessment to be used in the preparation or adaptation of an emergency response plan.

4 DECISION

Having considered all of the evidence, the Board is prepared to approve ANG's Application No. 1007783 along the applied-for route. Construction of the 35 kilometre section of the pipeline that terminates at the Talisman Edson gas processing plant **shall not** proceed until the Board's final report with conditions has been issued. A detailed report giving the reasons for the Board's decision, along with the conditions, will be issued in due course.

DATED at Calgary, Alberta, on 22 December 1997.

ALBERTA ENERGY AND UTILITIES BOARD

(Original signed by)

J. P. Prince, Ph.D.
Presiding Member

G. J. Miller*
Board Member

(Original signed by)

T. M. Hurst
Acting Board Member

* Mr. Miller was not available for signature but concurred with the decision.