

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

SHELL CANADA LTD.

APPLICATION TO DRILL FOUR CRITICAL

SOUR GAS WELLS AND CONSTRUCT AND OPERATE

RELATED PIPELINE AND FACILITIES

CASTLE RIVER AREA

Decision 2000-17

Applications No. 1040416, 1040417

1040418, 1041202, 1044487, and 1044489

1 DECISION

The Board, having carefully considered the evidence, believes that the proposed energy project development plan is acceptable and in the public interest. The Board therefore approves Applications No. 1040416, 1040417, 1040418, 1041202, 1044487, and 1044489, subject to Shell meeting all regulatory requirements as well as all commitments made to area residents.

2 INTRODUCTION

2.1 Application and Intervention

Shell Canada Inc. (Shell) applied on April 29, 1999, to the Alberta Energy and Utilities Board (the EUB/Board), pursuant to Section 2.020 of the Oil and Gas Conservation Regulations, for well licences (Applications No. 1040416, 1040417, 1040418, 1041202) to drill two horizontal sour gas wells from a surface location in Legal Subdivision (LSD) 6, Section 17, Township 6, Range 2, West of the 5th Meridian (6-17) and two horizontal sour gas wells from a surface location overlapping LSDs 10 and 15, Section 7, Township 6, Range 2, West of the 5th Meridian (10-7) (see figure attached). The purpose of the wells is to obtain gas production from the Mississippian and Devonian age formations. Shell also applied under Part 4 of the Pipeline Act to construct and operate pipelines and related facilities (Applications No. 1044487 and 1044489) to transport the sour gas produced from the above-mentioned wells.

In response to a concern by local residents that they be able to consider a total development plan for any new energy projects in the Screwdriver Creek valley, Canadian 88 Energy Corporation (Canadian 88) also submitted an application in association with the above Shell applications. The Canadian 88 application is for a single well, pipeline, and related facilities for a location proximal to the proposed Shell developments. In accordance with the principles outlined in EUB *Informational Letter 93-9: Oil and Gas Developments Eastern Slope (Southern Portion) (IL 93-9)*, the applicants also jointly prepared an environmental assessment for the region.

Although the Shell and Canadian 88 applications were heard concurrently at the same public hearing, the two companies' applications are independent of each other and therefore are considered in separate decision reports. However, where necessary to assess the broader effects of regional developments, both potential projects are referenced.

The EUB received objections to the subject applications from Dave and Jean Sheppard, Mike Judd and LeeAnne Touche, and Kim and Sylvia Barbero. Their residences are all located in the Screwdriver Creek valley near the proposed well and pipeline locations. James Rennie, a seasonal resident of Beaver Mines, and James Tweedie, representing the Castle Crown

Wilderness Coalition, also submitted objections to the applications. Accordingly, the EUB directed, pursuant to Section 29 of the Energy Resources Conservation Act, that a public hearing be held to consider the applications.

2.2 Preliminary Matters

The EUB originally scheduled the hearing to consider the applications and interventions commencing November 2, 1999. Due to requests from some of the parties and to allow for an interrogatory process to facilitate information exchange, the hearing was rescheduled to January 11, 2000.

Prior to the start of the hearing, an agreement was reached between Shell on the one hand and the Sheppards and the Barberos on the other that resulted in these residents withdrawing their objection to Shell's applications. The commitments made by Shell to the Sheppards and Barberos were read into the record. The Board expects Shell to honour its commitments to the residents and therefore will not specifically condition its approval in this regard.

2.3 Hearing

A public hearing was convened on January 11, 2000, in Pincher Creek before a Board panel consisting of Dr. B. F. Bietz, P.Biol. (Chair), Acting Board Member K. G. Sharp, P.Eng., and Acting Board Member W. G. Remmer, P.Eng. Prior to the hearing, the Board viewed the area of the proposed development.

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)

Shell Canada Ltd. (Shell)

S. Denstedt
B. Gilmore
J. Jamieson

Witnesses

I. Kilgour, P.Eng.
M. Minchau, P.Eng.
G. Mulzet
K. Johnson, P.Eng.
D. Mead, Ph.D.
D. Leahey, Ph.D.,
of Jacques Whitford
Environment Limited
R. Eccles, P. Biol.,
of AXYS Environmental
Consulting Ltd.

THOSE WHO APPEARED AT THE HEARING (continued)

Principals and Representatives (Abbreviations Used in Report)

Witnesses

Canadian 88 Energy Corporation (Canadian 88)

R. Neufeld
G. Moores

G. R. Gill, P.Eng.
G. Dowling
F. Ceh, C.E.T.
G. Thompson, P.Geol.
R. Eccles, P.Biol.,
of AXYS Environmental
Consulting Ltd.
M. Neville,
of AXYS Environmental
Consulting Ltd.

M. Judd and L. Touche
M. Sawyer

Dr. B. Horejsi
M. Judd
L. Touche

J. Rennie

J. Rennie

Castle Crown Wilderness Coalition (CCWC)
J. Tweedie

J. Tweedie

Alberta Energy and Utilities Board Staff

S. D. Wilson
W. Y. Kennedy, Board Counsel
J. Baker, P.Biol.
A. Beken P.Eng., P.Geol.
M. Brown, P.Eng.
R. Powell, P.Biol.

3 ISSUES

The Board considers the issues with respect to the applications to be

- need for the wells,
- proposed surface locations,
- flaring and associated air quality concerns,
- cumulative environmental effects, and
- noise and safety

4 NEED FOR THE WELLS

4.1 Views of the Applicant

Shell said that its objective in applying to drill four horizontal wells in the Castle River area is to recover reserves and obtain production from Mississippian and Devonian age formations. Shell explained that if it receives the Board's approval, it would drill the first well from a surface location at 6-17 to a bottomhole Devonian target at 5-20 (the 5-20 well). Shell stated that it intended to begin drilling in May 2000 and complete it in October 2000.

Shell stated that the knowledge it would gain from the 5-20 well would directly impact the ultimate design of any further drilling program. However, based on the information that it had at present, Shell expected that it would next drill from the 10-7 surface location. The third well it proposed to drill was from the 6-17 surface location to a 2-20 bottomhole location (the 2-20 well), while the fourth well would again be drilled from the 10-7 site.

Shell stated that it considered the proposed 2-20 well to be a development well, while it classified the other three wells as exploratory. Given that its development plan covers three years, with a degree of uncertainty around timing and the drilling sequence, Shell expressed the need to have some flexibility on the expiry dates for any EUB approvals issued as a result of its applications.

Shell stated that it believed that over the three years it would effectively drain the existing reserves as they were currently interpreted. However, based on the future performance of both existing and proposed wells, Shell acknowledged that it may eventually consider drilling additional wells to improve recovery from the same reservoirs.

Shell estimated that the proposed wells were likely to have about a 20-year productive life. Shell indicated that it needed to drill the new wells due to expiring mineral leases and in order to obtain production from these formations to meet processing capacity requirements at the Shell Waterton Gas Plant.

4.2 Views of the Interveners

The interveners did not contest the need for the wells, nor did they propose alternative bottomhole locations. They did, however, express the view that Shell's need to drill for minerals was questionable, given the impacts that would occur in the area. They stated that the Board must consider the broader public interest, having regard for the social and environmental effects of the project on the Screwdriver Creek valley.

4.3 Views of the Board

The Board notes that Shell has acquired the appropriate petroleum and natural gas rights. It is satisfied that Shell has the right to explore for and produce the reserves underlying the subject sections and that a need for the wells has been established. The Board also believes that the wells could benefit the province of Alberta by confirming additional natural gas reserves and supplying additional economic benefit to the mineral owners, as well as to the Crown through royalties and taxes. The Board is also prepared to be flexible in its administration of the length of

term required for the approvals. The first well licence at the 6-17 surface location to a bottomhole location of 5-20 will be issued for a standard term of one year. The additional well and pipeline licences will be granted a three-year term.

5 PROPOSED SURFACE LOCATIONS

5.1 Views of the Applicant

Shell submitted that the surface locations at 6-17 and 10-7 were chosen based on geological, topographical, environmental, and engineering considerations. It said that the proposed wells would be on or near existing well sites and roads, thereby minimizing surface disturbance. Further, it pointed out that the 6-17 location uses an existing well site, the 10-7 location is adjacent to an existing well site, and the new pipeline will be able to make use of an existing right-of-way, thereby requiring only 1.2 kilometres (km) of new right-of-way. Shell stated that as a result of its consultation with the public it had agreed to move its pipeline in order to reduce the Sheppards' concerns with the impact of pipeline setbacks on any future development of the northwest corner of their property. In addition, Shell noted that no new access would be required for the 6-17 surface location and it would require only 350 metres (m) of new roadway to access the 10-7 surface location.

Shell reconfirmed that it had offered to share the 10-7 surface location with Canadian 88 for its proposed well. Shell stated that in order to accommodate the Canadian 88 well at the 10-7 site, there would be a need to redesign and reconfigure the lease. This would be done in consultation with Canadian 88, the environmental consultant, and the landowners.

5.2 Views of the Interveners

Mr. Judd submitted that the 10-7 surface location would be in full view of his property and that this would affect the aesthetic value of the landscape and his guide outfitting business. In addition, Ms. Touche indicated that the 10-7 surface location would disrupt their lifestyle and their peace of mind and would have a negative effect on her art education business.

5.3 Views of the Board

The Board notes that a number of criteria, including geological, engineering, and environmental considerations, in addition to the concerns of landowners, must be considered when identifying a suitable location for wells and pipelines. The Board notes that the proposed surface locations have been chosen to either use or be adjacent to existing surface disturbance. The Board acknowledges that while there will be some impacts on all of the residents of the Screwdriver Creek valley from the proposed well sites, both the 6-17 and 10-7 surface locations provide a reasonable compromise among the needs of all the parties. The Board also believes that the proposed pipeline routing is acceptable for similar reasons. The Board notes that Shell has made a significant effort to minimize new surface disturbance in its development plans and encourages future development in the area to follow this practice if at all possible.

The Board is particularly encouraged by the fact that Shell is willing to accommodate another applicant's well on its lease site, as such initiatives can further reduce new surface disturbance and associated road access. The Board believes that this approach meets both the spirit and the

intent of *IL 93-9*, which states: “Operators proposing developments within this region (i.e., the Eastern Slopes) are expected to consolidate their plans and activities with other operators to the greatest degree practicable wherever this may reduce area impacts.”

6 FLARING AND ASSOCIATED AIR QUALITY CONCERNS

6.1 Views of the Applicant

Shell stated that it had been able to successfully eliminate routine flaring at Junction J on the existing Carbondale pipeline system (see figure attached) since July 1999. This was accomplished by using sweet fuel gas to purge the pigging barrels into the production pipeline and by burning the remaining sweet fuel gas from the barrels in the line heater. Shell indicated that it would apply the same technology to production from the 10-7 and 6-17 well sites. If the proposed wells were successful, Shell also committed to limit routine flaring during production from the proposed development to no more than one day per month per well. In addition, Shell believed it could coordinate planned activity at the proposed wells and Canadian 88’s Waterton Junction so that flaring would not occur simultaneously.

In response to questioning about techniques available to minimize or reduce flaring at Waterton Junction (a Canadian 88 facility), Shell indicated that it had shared the knowledge it had gained at Junction J with Canadian 88 and had provided input into the technology Canadian 88 will use. Shell observed, however, that Waterton Junction was a Canadian 88 facility and that Canadian 88 would have the final say in how the operation would be run and what technology would be used.

Shell believed that operations associated with the proposed Castle River wells would not significantly affect local air quality because of its plan to greatly reduce well-test flaring through the use of in-line testing at the four wells. The only time that significant flaring would occur would be at start-up or, if necessary, in emergency situations. Shell stated that initial start-up would only require short-duration flaring to atmosphere in order to unload the wells. Shell stated that this would normally take four to eight hours and it would do its best to minimize the time. Shell noted that it has had success in this area with lifting completion fluids from the wellbore in the anticipated four-to-eight-hour time frame. Pilot gas would be used to ensure a flare during the initial stages of the cleanup. Additionally, it stated that it would be using mobile downwind monitoring during start-up flaring and in-line testing.

Shell stated that the dispersion modelling of the combustion products arising from flaring carried out in its environmental assessment was based on 1999 protocols in place at the time the assessment was conducted and on its best estimate of the wellbore parameters. It maintained that while other approaches could be used for dispersion modelling, the method it had used was based on sound science, was sufficiently conservative, and was appropriate. Shell stated it did not intend to apply for a flare permit at this time but would apply in due course, pending more wellbore information. Shell said that it would meet the requirements of the EUB’s *Guide 60* and any other appropriate flaring regulations in place at that time.

Shell observed that a comprehensive corrosion management program is essential to protect pipeline integrity and stated that it had set in place the operational procedures necessary to ensure that leaks would not occur and therefore that public safety and air quality were protected.

Shell noted that it would have well-test separators on location to separate and measure produced fluids. In its effort to avoid flaring, it felt confident that it would not negatively impact pipeline integrity as a result of well testing.

6.2 Views of the Interveners

Mr. Judd, Ms. Touche, and Mr. Rennie all stated that they had had significant negative experiences with atmospheric emissions arising from leaks, flares, and other sour gas activity in the region, which had caused them emotional and physical stress. As a result, air quality issues associated with sour gas developments were of principal concern to them. They also stated their belief that Shell had used inappropriate and erroneous modelling approaches and had failed to demonstrate that its project would not result in contraventions of the Alberta Ambient Air Quality Guidelines.

With respect to the emissions predicted by Shell, the interveners questioned the length of time calculated for full-effluent flaring, the expected H₂S content of the flared gas, and the validity of the adjustment factor used in the dispersion modelling conducted by Shell's expert witness. In addition, the interveners questioned the practice of using a flat terrain assumption instead of a complex terrain assumption, which would better reflect conditions in the Screwdriver Creek valley. The interveners noted that Shell's modelling predicted exceedances of Alberta Environment Air Quality Guidelines in extremely unstable atmospheric conditions. They requested, should the Board approve the application, that the applicant not be allowed to flare under these conditions.

The interveners also questioned whether in preparing its application, Shell had followed the flaring guidelines in effect as of January 1, 2000, and outlined in the EUB's *Guide 60*. The interveners stated that Shell's modelling approach was inconsistent with both *Guide 60* and the most recent draft guidelines from Alberta Environment. The interveners contended that Shell was aware of these new guidelines and chose not to consider them as part of the application.

6.3 Views of the Board

The Board notes the effort that Shell has made with regards to eliminating routine flaring in the Screwdriver Creek valley and the innovative technical solutions it has found with regard to the purging of the pig barrels with sweet fuel gas at Junction J. The Board recognizes that there is a need for short-term flaring at newly drilled wells in order to clean up the wellbore to allow for proper testing of the well. The Board believes that Shell's plan to in-line test the proposed wells to existing pipeline systems is appropriate and will help to minimize sour flaring to atmosphere. The Board is also cognizant of the fact that during emergency situations Shell may flare if the well cannot be shut in, as this procedure is necessary to protect public safety. The Board also notes that Shell has had significant experience with the potential increased risks of initial pipeline corrosion associated with this approach and the Board is satisfied that Shell will put appropriate corrosion inhibition and monitoring systems in place. As a result, the Board believes that the proposed program will mitigate any risk of undue pipeline corrosion and subsequent leaks that could contribute to air quality concerns in the area.

With regard to the question raised as to the appropriate method for modelling potential emissions, the Board believes that the approach used by Shell was consistent with the

requirements in place when the assessment was done. The Board also believes that for the purposes of considering the impact of approving the subject applications, the modelling presented by the applicant provides useful information about the possible concentrations that may result from testing. The Board notes that Shell has committed to use the most recent applicable modelling approach, as well as to incorporate any data obtained during the drilling of the well, when it formally applies for a flaring permit, and the Board confirms that Shell will be required to meet all aspects of the current approach at the time the permit is applied for. Should this modelling indicate that exceedances of the ambient air quality guidelines may occur, then Shell will be required to design its well-testing program to ensure that it is able to meet the ambient air quality requirements in place at the time.

7 CUMULATIVE ENVIRONMENTAL EFFECTS

7.1 Views of the Applicant

In conjunction with Canadian 88, Shell submitted an environmental assessment as part of its application, in accordance with the requirements outlined in *IL 93-9*. As a result of the findings of this assessment, Shell submitted that it believed that there were significant regional, cumulative environmental effects attributable to energy, agricultural, recreational, and residential development. Furthermore, Shell believed that while such thresholds were not as yet established, it was possible that the biological thresholds for some species in the region were either being approached or may have been exceeded. Shell argued, however, that the effects of its project, particularly given its relatively small size and the minimal amount of new disturbance, would not result in a measurable change in the existing environment. Therefore Shell believed that its proposed project would not contribute significantly to the existing cumulative effects in the region.

Shell stated that in its environmental assessment it had focused particularly on the potential impacts on two species, elk and grizzly bears. Shell maintained that on a regional level its development would not contribute significantly to the existing cumulative effects on either elk or grizzly bears, nor adversely affect the potential for future management initiatives for these species. It noted in particular that it did not believe that the Screwdriver Creek valley would be a suitable candidate site for any regional wildlife management initiatives due to the existing level of human activity in the valley and the surrounding area.

Shell argued that, according to the Castle River Sub-Regional Integrated Regional Plan (IRP), its proposed project is an acceptable land-use activity for public (Crown) land and that the landowners had given their consent to the project where it crosses private land. Shell submitted that its reclamation plans for the project would enhance vegetation for livestock and some wildlife species, both of which are stated in the IRP to be a priority for the management of Crown land.

7.2 Views of the Interveners

The Castle Crown Wilderness Coalition (CCWC) indicated that it had decided not to debate its issues with Shell at the hearing. The CCWC did make a general statement in terms of its ongoing and increasing concerns regarding the overall state of the ecosystem of the Castle region and the negative effect that industrial activity had had on that ecosystem.

Mr. Judd and Ms. Touche indicated that they agreed with Shell's conclusion that the cumulative effects of human activity in the region were significant and that the biological threshold for the long-term viability of some species had been exceeded. They did not accept, however, Shell's conclusion that the proposed project would not contribute significantly to regional cumulative environmental effects. The expert witness for the interveners stated that various forms of human encroachment were the main causes of habitat loss and that roads, cut lines from seismic operations, and other access trails in particular contributed to habitat loss, as well as to fragmentation of the landscape. The interveners suggested that a coordinated, integrated effort on behalf of the responsible land management agencies would be necessary to restore the ecological integrity of the local region back to an acceptable level. They suggested that this could be accomplished, at least in part, by closing and reclaiming roads, cut lines, and other trails in the area. Mr. Judd further commented that he did not believe that there could be effective enforcement of the existing regional access management plan due to the high density of access points already in the region.

The interveners noted that thresholds that measure ecological integrity are lacking and that the province's natural resource management agencies need to set such thresholds and measurable targets to effectively protect areas such as the Castle Crown region. They maintained that no development of any sort should be allowed in an area where the thresholds have already been exceeded and that industrial development should be directed to areas where thresholds have not been exceeded. The interveners took the position that the Board needs appropriate guidelines or thresholds for industrial activity in order to be able to balance this against the human use of the landscape.

7.3 Views of the Board

With regard to the environmental assessment carried out by Shell, the Board believes that the proponent has met or exceeded the requirements stated in *IL 93-9*. Specifically, the assessment has considered the sensitivity of the development area, as well as the region, and the concerns raised by the landowners.

The Board notes that all parties accepted that the region contains significant ecological values and, furthermore, that these values had to some degree been compromised by the range of human activities in the area. The Board believes that this is a reasonable conclusion from the work carried out by the proponent, particularly in the absence of any evidence to the contrary.

In this instance, the Board notes that the proposed Shell development is on the periphery of areas within the region of greatest importance to key wildlife species, such as elk and grizzly bears. Furthermore, the development as proposed does appear to be generally consistent with the present IRP. Therefore, although it is clear from the evidence presented that the development will likely have a small incremental effect on regional wildlife populations, the Board is prepared to accept Shell's position that these effects will not be sufficiently large so as to outweigh the other public benefits arising from the proposed development. The Board also agrees with Shell's position that if regionally based actions are eventually taken to address regional effects, the sites selected by Shell for its wells, given the high level of existing human activity and the preponderance of private land, are unlikely to be candidates for such actions.

Historically, the Board has turned to the regional IRP for guidance as to acceptable forms of activity and development, particularly on Crown lands. In this case, however, the Board notes that both the public and the industry participants took a common view that it was possible or even likely that the biological thresholds for at least some key species identified as important in the IRP may now have been exceeded in the region. This would appear to strongly suggest that the publicly available planning tools for the region may now be outdated and inadequate to address the current level of development. The Board also agrees with the position taken by the parties that, in the absence of threshold values against which to measure such ecological effects, it is difficult for an applicant, the public, or the Board to evaluate to what degree incremental impacts from new development would be acceptable. Nor is possible to determine what mitigative actions, such as facility, road, or cut-line abandonment and reclamation in other portions of the region, might be used to reduce the cumulative effects to suitable levels.

For almost two decades the EUB has been directly involved in adjudicating conflicts in the Castle Crown region between the proponents of new energy development and members of the public that believe that the ecological values of the region are at risk. The Board also expects that there will continue to be applications in this region for new energy development into the foreseeable future. The evidence provided at this hearing suggests that at least some of the predicted environmental effects may now be occurring, although clearly not only because of oil and gas development. In order to ensure that future energy development in the region continues to be environmentally acceptable, the Board strongly believes that additional evidence such as would be found in an updated integrated resource management strategy must be developed to confirm that the region's environmental values are being adequately protected. Alternatively, work needs to be initiated in a timely fashion to create strategies to address the future cumulative effects of human activities, including energy development, in the Castle Crown region. The Board intends to raise this issue with the appropriate land management agencies to consider such an initiative for this region of the province. The Board expects that the energy industry would also be interested in participating in such an initiative in order to establish some certainty for future development.

8 NOISE AND SAFETY

8.1 Views of the Applicant

Shell stated that eliminating routine flaring at Junction J in part also reduced noise levels at the facility. Shell noted that in October 1999 noise was further reduced at Junction J by installing a muffler on the line heater exhaust stack and it committed to use similar technology for the proposed development to minimize noise impacts on nearby landowners.

Shell stated that it had also agreed to use a modern electric top-drive rig with a noise suppressant muffler to reduce the diesel engine noise common with older rigs. It stated that it planned to use wood planking on decks to further reduce noise levels. In addition, Shell had agreed to orient the drilling rig so as to minimize noise at the Shepherds' as well as for other area residences. Shell stated that it believed that the Sheppards' concerns related to noise had been resolved and a cooperative relationship on this issue had been developed. Shell also stated that it did not expect any significant noise at the Barbero residence and it believed that it had resolved any noise issues with the Barberos regarding the 6-17 site. The company stated that it had made a written commitment that if the Barberos find the noise levels excessive, all reasonable steps would be

taken to further reduce noise at their residence. Shell stated that it had agreed to do this even if measures in excess of the EUB's *Interim Directive (ID): 99-8 Noise Control Directive* were required.

Shell acknowledged the possibility that two wells could be drilled simultaneously in the Screwdriver Creek valley and that the noise resulting from such a drilling event at any given residence had not been assessed. Shell agreed to coordinate its drilling efforts with those of Canadian 88 in order to minimize the noise resulting from drilling.

With regard to safety issues, Shell stated that it had filed an emergency response plan (ERP) with the EUB for the four proposed wells and that it had communicated this plan to the public. Shell noted that it had also submitted a copy of its ERP to the EUB. Shell stated that the ERP for the proposed wells is intended to address site-specific and area-specific safety issues and to provide the mechanism to activate the Shell Waterton Complex ERP should an incident occur at the drilling site. Shell believed that its Waterton personnel thoroughly understand the ERP as a result of frequent safety meetings and emergency procedures training.

Shell stated that it had demonstrated the effectiveness of its emergency response system and plans through ongoing practice drills. It indicated that it contacts residents within the ERP annually to update the plan and to discuss issues and concerns. In order to address the local residents' concerns regarding restricted egress, Shell stated that it had modified its ERP to communicate at the earliest stage of an emergency (Level 1) during the drilling of the proposed wells. During the operational stage, Shell indicated that it would contact residents on a one-on-one basis and determine their specific needs. This commitment, Shell stated, was made primarily due to the limited road access for some residents through the ERP zone.

Shell noted that the drilling of its well could occur in the same time frame as drilling of the Canadian 88 well. Shell stated that it had committed to consult with Canadian 88 regarding its drilling plans in order to ensure that drilling through the critical zone would not occur simultaneously.

Shell noted that with respect to the pipeline leak detection concerns raised by Mr. Rennie, it was confident that the measures taken would maintain pipeline integrity and provide protection to the community. These measures included visual inspections by operators and other staff, corrosion prevention programs with inhibitors, testing of the pipeline with internal inspection tools, and monitoring of pressures. Shell noted that effective communication with residents was also important, especially if the public noticed something unusual, because a call would allow the company to dispatch personnel immediately to investigate. In response to a request from Mr. Rennie, Shell stated that it did not believe that present technology would allow for effective H₂S detection monitoring along the entire pipeline right-of-way.

8.2 Views of the Interveners

None of the interveners stated specific objections to noise levels during the hearing.

With regards to safety issues, Mr. Judd and Ms. Touche both expressed concern over the level of H₂S associated with the proposed wells. They also expressed concern about Shell's ability to respond to its 24-hour emergency number, citing one occasion when they had called the number

and had received no response. Mr. Judd stated that he was also concerned about the EUB's ability to respond to an emergency situation in a timely manner, given the distance of the two relevant EUB field offices (Medicine Hat and Calgary) from the region.

Mr. Judd and Ms. Touche also expressed concerns about evacuation in the event of an emergency. They noted that the only escape route would be through the centre of the ERP zone identified by Shell in its emergency plan. They indicated that this was not acceptable because it endangered the health and safety of residents at the Judd residence, as well as potential business clients. Mr. Judd and Ms. Touche also expressed some concern regarding the impacts to their safety from the number of vehicles and the speed at which they travel on the road into the Screwdriver Creek valley. Ms. Touche expressed concern for the safety of her students due to the vehicular traffic generated by the oil and gas operators, especially in the summer months when her students were in the area, in addition to disturbance from noise and dust.

Mr. Rennie stated that the ERP submitted by Shell did not meet his expectations. Mr. Rennie also stated that he was not satisfied with past responses by industry with respect to investigation into potential gas leaks in pipelines. He stated that, in his opinion, residents in the area adjacent to existing well sites and pipeline rights-of-way were considered to be the first line of defence when it came to emergency response. He felt that this was unacceptable.

Mr. Rennie was also concerned about the lack of leak detection equipment along the pipelines (specifically H₂S monitoring devices that would shut down the pipeline at a defined limit), and he asked the Board to require the pipeline to be shut in if this limit were reached. He indicated that he had been exposed to H₂S gas by accidental releases of sour gas in or around the Beaver Mines area and was concerned for the safety of both his family and the general public.

8.3 Views of the Board

The Board recognizes the considerable efforts made by the Sheppards, the Barberos, and Shell in coming to an agreement regarding how to ensure that noise from the proposed well sites are kept at acceptable levels.

With regard to public safety issues, the Board notes that while Shell has been able to effectively address the concerns of some residents, unfortunately other landowners remain unconvinced of the applicant's abilities to effectively respond to an emergency, should one occur. The Board does believe that in this instance Shell has made a significant effort to address those concerns and make changes to its response plans. The Board encourages Shell to continue to work with all area residents and other operators to continually enhance its emergency response capability. The Board does believe that Shell's efforts to date have been reasonable, and as a result of considering all the evidence before it, the Board is convinced that the wells and associated pipelines and facilities can be drilled, constructed, and operated safely. The Board also believes that Shell has appropriate procedures in place to react effectively in the event of an emergency.

In order to assist Shell in its efforts to meet public concerns, the EUB will work closely with the applicant as the ERP and the drilling plan are being finalized. The Board will bring the issues raised by the interveners regarding the EUB's ability to respond effectively to a complaint or emergency to the attention of its Field Surveillance and ask them to determine if action is required and what options exist to further mitigate the concerns.

With regard to the public's role in identifying odours in their vicinity and notifying operators, the Board notes that this should not be considered the "first line of defence." The Board believes that in fact there are numerous safety provisions in place to reduce the risks of any emissions to acceptable levels. However, the public should not ignore odours or other situations and should be prepared to call operators if they have any concerns regarding their safety. Furthermore, the Board believes that the public should, in turn, expect a timely response from the industry.

With respect to Mr. Rennie's request that H₂S monitoring devices be required along the pipeline routes, the Board concurs with the proponent that the technology is not adequately advanced to require that applicants consider such a step. The Board does note that the industry in general and Shell in particular have made a significant effort recently to better understand and control sources of pipeline leaks and therefore contribute to increasing public safety.

Dated at Calgary, Alberta, on March 8, 2000.

ALBERTA ENERGY AND UTILITIES BOARD

(Original signed by)

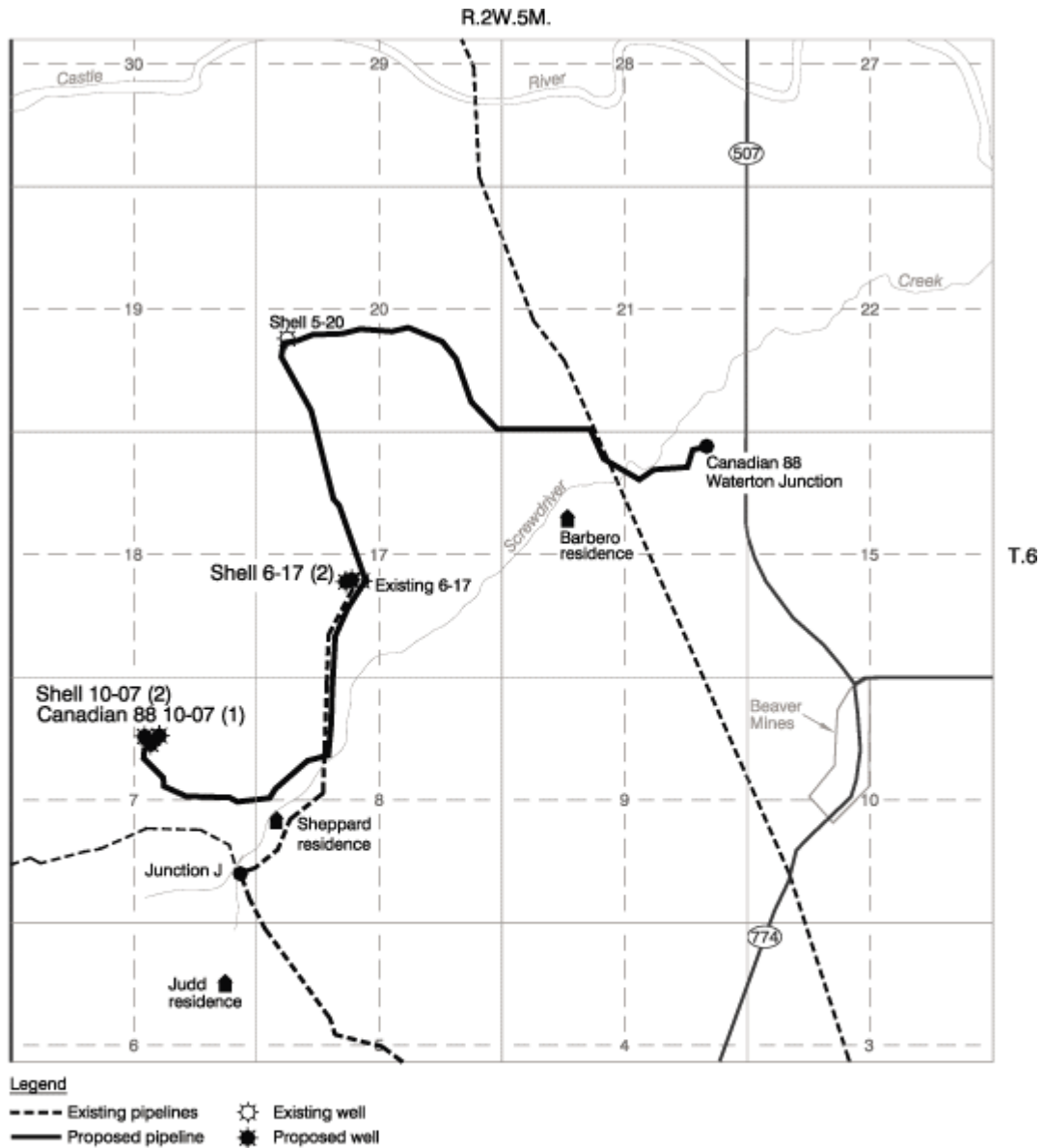
B. F. Bietz, Ph.D., P.Biol.
Chair

(Original signed by)

K. G. Sharp, P.Eng.
Acting Board Member

(Original signed by)

W. G. Remmer, P.Eng.
Acting Board Member



Castle River Area

Applications No. 1040416, 1040417, 1040418, 1041202, 1044487, and 1044489
 Shell Canada Ltd.

Decision 2000-17

