

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

**ENCANA CORPORATION
APPLICATIONS FOR SPECIAL GAS WELL SPACING,
WELL LICENCES, AND
NATURAL GAS PIPELINE SYSTEM
CENTRON AND STRATHMORE FIELDS**

**Decision 2003-003
Applications No. 1073941,
1249836, 1249838, 1249839,
1249840, 1249842, 1249843,
1249845, and 1253483**

1 DECISION

Having carefully considered all of the evidence, the Alberta Energy and Utilities Board (EUB/Board) directs the following regarding EnCana Corporation's (EnCana's) applications:

- Application No. 1073941 for reduced gas well spacing and a holding for the area shown on the attached figure is approved. Within the holding, a producing well shall be at least 400 metres (m) from each other well producing from the same pool, a producing well shall be at least 200 m from the boundary of the holding, only one well may be produced per quarter section from the same pool, and the well at Legal Subdivision (LSD) 4 of Section 19, Township 24, Range 26, West of the 4th Meridian (the 4-19 location) is exempted from the buffer zone.
- Applications No. 1249838, 1249839, 1249840, and 1253483 for well licences at LSD 5 of Section 6, Township 25, Range 26, West of the 4th Meridian (LSD 5-6-25-26W4M), LSD 6-27-25-26W4M, LSD 6-35-24-26W4M, and LSD 9-19-24-26W4M respectively are approved.
- Applications No. 1249843 and 1249845 for well licences at LSD 2-29-24-26W4M and LSD 10-31-24-26W4M respectively are denied without prejudice to a future application that either provides additional well test data showing the effectiveness of 3-D seismic data to locate multizone targets on higher impact surface locations and with expanded work on drilling options or an alternative location that better mitigates surface impacts.
- Portions of Application No. 1249836 for pipelines are approved, specifically those portions at the following locations:
 - LSD 5-6-25-26W4M to LSD 1-1-25-27W4M
 - LSD 9-19-24-26W4M to LSD 2-30-24-26W4M
 - LSD 6-27-24-26W4M to LSD ~~16-27-24-26W4M~~ Corrected to LSD 14-27-24-26W4M as per Errata issued Jan 28, 2003
 - LSD 6-35-24-26W4M to LSD 6-35-24-26W4M
- Portions of Application No. 1249836 for pipelines are denied, specifically those portions of pipelines with either no applied-for well or a denied well at the following locations:
 - LSD 10-31-24-26W4M to LSD 16-36-24-27W4M
 - LSD 2-29-24-26W4M to LSD 7-29-24-26W4M
 - LSD 6-33-24-26W4M to LSD 11-33-24-26W4M
 - LSD 12-28-24-26W4M to LSD 6-28-24-26W4M

- The existing licence for the well in LSD 14-20-24-26W4M (the 14-20 well) is maintained, but the proposed pipeline tie-in from LSD 14-20-24-26W4M to LSD 2-29-24-26W4M is denied pending resolution of the different options for the well in LSD 2-29-24-26W4M or an alternative route.

The approvals are subject to the conditions summarized in the Appendix. The reasons for the Board's decision are presented below.

2 APPLICATIONS AND HEARING

2.1 Applications and Interventions

Application No. 1073941 for Special Gas Well Spacing

EnCana applied to the EUB pursuant to Sections 4.040 and 5.190 of the Oil and Gas Conservation Regulations to establish one-quarter section drilling spacing units (DSUs) for the production of gas from the Belly River Group, with the target areas being in LSDs 6, 8, 14, and 16, in Sections 19, 20, 21, 27-33 inclusive, and 35-24-26W4M, and in Sections 6 and 7-25-26W4M.

EnCana also applied to modify the one-quarter section DSUs by establishing a holding for the production of gas from the Belly River Group in the above-noted sections. The applicant proposed that within the holding, a producing well would be at least 400 m from each other well producing from the same pool, a producing well would be at least 200 m from the boundary of the holding, only one well would be produced per quarter section from the same pool, and the well with the unique well identifier of 00/04-19-024-26W4/0 would be exempted from the buffer zone.

Applications No. 1249838, 1249839, 1249840, 1249843, 1249845, and 1253483 for Well Licences

EnCana applied pursuant to Section 2.020 of the Oil and Gas Conservation Regulations to drill six sweet natural gas wells. It proposed in each application to drill the wells vertically from the following respective surface locations:

- Application No. 1249838: LSD 5-6-25-26W4M (the 5-6 location)
- Application No. 1249839: LSD 6-27-24-26W4M (the 6-27 location)
- Application No. 1249840: LSD 6-35-24-26W4M (the 6-35 location)
- Application No. 1249843: LSD 2-29-24-26W4M (the 2-29 location)
- Application No. 1249845: LSD 10-31-24-26W4M (the 10-31 location)
- Application No. 1253483: LSD 9-19-24-26W4M (the 9-19 location)

The purpose of the wells would be to obtain gas production from the Edmonton and Belly River Groups.

Application No. 1249836 for a Natural Gas Pipeline System

EnCana applied pursuant to Part 4 of the Pipeline Act to construct and operate a sweet gas gathering system consisting of nine pipelines in Sections 19, 20, 27, 28, 29, 30, 31, 33, and 35-24-26W4M, Section 6-25-26W4M, Section 36-24-27W4M, and Section 1-25-27W4M. The proposed pipelines would be about 5.5 km in total length, with an outside diameter of 141.3 millimetres (mm), and would transport natural gas containing 0.0 per cent hydrogen sulphide (H₂S) from the proposed wells to a tie-in point at LSD 14-26-24-26W4M.

The details of the subject applications are shown on the attached figure.

Mr. John Keer, on behalf of Kerora Farming Company Ltd., and Mr. Ron Warrack, on behalf of Bruce Farms Ltd., filed objections. These parties are residents and landowners within the area of application and farmers of large tracts of land both within the area of application and surrounding areas. They fully participated in the hearing, filing evidence and tabling a panel of expert witnesses on land use and reservoir matters. Ms. Karen Mix and Mr. Ken Mix (the Mixes), landowners, residents, horse breeders, and farmers within the area of application and immediately adjacent to the first phase of drilling, filed objections to the applications and participated for purposes of asking questions of EnCana. Ms. C. Mitzner, a resident within the larger Strathmore area, did not file any submission respecting the applications but made a statement at the hearing.

2.2 Hearing

The applications and interventions were considered at a public hearing commencing on October 22, 2002, in Strathmore, Alberta, before G. J. Miller (Presiding Board Member) and Acting Board Members F. Rahnama, Ph.D., and R. J. Willard, P.Eng.

Those who appeared at the hearing and the abbreviations used in this report are listed in the following table.

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report)

EnCana Corporation (EnCana)
B. K. O’Ferrall, Q.C.

Witnesses

J. D. Rushford, P.Eng.
C. Cline, P.Eng.
L. Hammond, P.Eng.
D. Dunn, P.Eng.
S. Leggitt, P.Geol.
P. O’Leary, P.Eng.
M. Pittman
K. Currie
T. McLean
J. McNeill

(continued)

THOSE WHO APPEARED AT THE HEARING (continued)

Principals and Representatives (Abbreviations Used in Report)

Witnesses

	D. Hoover, P.Ag., of Serecon Valuation and Agriculture Consulting Inc.
	G. Chan, P.Geol., of Jacques Whitford Environmental Limited
	N. McNally, of McNally Land Services Ltd.
	R. Telford, of McNally Land Services Ltd.
Bruce Farms Ltd. and Kerora Farming Company Ltd. (Bruce Farms and Kerora Farming)	J. Keer
B. Thompson, G. Fitch, Esq.	R. Warrack of AFG Agra Services Ltd.
	F. deMille, of AFG Agra Services Ltd.
	C. P. Outtrim, P.Eng., of Outtrim Szabo Associates Ltd
	M. Barrett
K. and K. Mix	K. Mix
C. Mitzner	C. Mitzner
Alberta Energy and Utilities Board staff	
W. Y. Kennedy, Board Counsel	
G. McLean, C.E.T.	
K. Fisher	
B. Roy	
B. Austin, P.Geol.	
A. Beken, P.Eng., P.Geol.	
J. Meckelborg	

2.3 Background

Application No. 1073941, for special gas well spacing, was initially submitted to the EUB in September 2000. PanCanadian Resources (now EnCana) applied pursuant to Sections 4.040 and 5.190 of the Regulations to establish one-quarter-section DSUs for the production of gas from the Belly River Group, with the target areas being in LSDs 6, 8, 14, and 16 in an area comprising 112 sections in the Ardenode, Centron, Gayford, and Strathmore Fields.

EnCana also applied to modify the one-quarter-section DSUs by establishing a holding for the production of gas from the Belly River Group in the above-noted sections. The applicant

proposed that within the holding, a producing well would be at least 400 m from each other well producing from the same pool, a producing well would be at least 200 m from the boundary of the holding, and only one well would be produced per quarter section from the same pool. The applicant also requested that certain wells be exempted from the buffer zone.

The EUB initially issued notice of Application No. 1073941 in December 2000. At that time, the EUB received objections to the application from Ms. Barb Borchert, Ms. Brooke Baillie, Mr. Ed Plumecke, Mr. John Keer, and Mr. Ron Warrack. Further processing of the application was deferred to permit EnCana an opportunity to resolve the concerns raised through the appropriate dispute resolution (ADR) process and negotiations. However, with the exception of Mr. Plumecke, who withdrew his objection, most of the parties were unable to resolve the concerns. The Board then considered how the application and outstanding objections should be handled. The Board set aside the objections filed by Ms. Borchert and Ms. Baillie on the basis that they did not have standing under the provisions of Section 29 of the Energy Resources Conservation Act, but provided them the option of participating in any hearing that was scheduled respecting the application. The Board then separated the area of application into a large northern portion, where Mr. Keer and Mr. Warrack did not hold a potential direct and adverse ownership position, and a southern part covering their local area of interest. The Board directed that a hearing be held to consider the special spacing application for the southern part. In the absence of local objections and having concluded that reduced spacing was otherwise in the public interest, the Board approved the northern part of the area of application in January 2002.

The EUB directed EnCana to file any related applications for initial well licences and pipelines for consideration at a combined hearing. The Board believed that this would allow parties to better understand, examine, and test the appropriateness of the strategy options and provide for a more effective and efficient decision process to deal with the early set of applications.

A well licence was previously issued for the 14-20 well. An appeal was filed with the Board citing incomplete public consultation. As a result, the Board directed that this matter be reviewed as part of the proceeding.

The subject hearing was initially scheduled to commence in July 2002, but was subsequently rescheduled at the request of some of the parties for September 2002 and then for October 2002, as noted above.

3 ISSUES

The Board believes the issues concerning the applications to be

- need for reduced gas well spacing and the applied-for gas well licences and pipelines
- development strategy and broad impacts, including
 - general strategy
 - vertical versus slant/pad drilling
 - groundwater protection
 - pipeline removal
 - minimizing other impacts
- location of the proposed wells and pipelines and associated site-specific impacts
- public consultation

4 NEED FOR REDUCED GAS WELL SPACING AND THE APPLIED-FOR GAS WELL LICENCES AND PIPELINES

4.1 Views of the Applicant

EnCana submitted that reduced gas well spacing was needed to adequately recover the sweet gas reserves in the most economic, efficient, and timely manner. The applicant noted that the Belly River Group in the area comprised a number of narrow channel deposits with high sinuosity. Furthermore, it stated that the sands were heterogeneous and varied in thickness and permeability. EnCana argued that up to four wells per section per pool were therefore required to effectively drain the gas reserves from the formation. It estimated that the additional wells that could be drilled under the requested spacing could increase the average recoverable Belly River reserves from 8.7 million cubic metres (10^6 m^3) for the existing spacing of one well per section to as much as $39.4 \times 10^6 \text{ m}^3$ for the proposed four wells per section.

EnCana further argued that the economics of drilling a well for a single zone were marginal in the area due to the relatively low productivity associated with any one given sand. Therefore, although the spacing application applied only to the various sands in the Belly River Group, EnCana said that it also wanted to develop prospective sands in the overlying Edmonton Group at the same time as it developed the Belly River sands. EnCana indicated that the sands in the Edmonton Group were also areally scattered and heterogeneous in reservoir quality and could be adequately accessed only through reduced well spacing. The applicant used 3-D seismic data to find locations where as many prospective Edmonton and Belly River sands as possible were stacked vertically, and it proposed to access the sands by drilling vertical wells.

EnCana submitted that the requested holding was appropriate to provide increased flexibility in locating both bottomhole and surface well locations.

In response to questioning, EnCana said that its understanding was that other operators in the general area that had limited well density to two wells per section per pool for the Belly River Group did so for business rather than reserves recovery reasons. The applicant explained that many of its farm in agreements included drilling commitments that reflected the approved spacing. It maintained that by delaying or proceeding in steps, a company would reduce its immediate drilling obligations. EnCana also noted that the same operators had subsequently obtained reduced gas well spacing in many areas.

EnCana concluded that there was a need for the requested reduced gas well spacing and for the applied-for wells and pipelines associated with the well spacing.

4.2 Views of Mr. Keer and Mr. Warrack

Messrs. Keer and Warrack submitted that they had no interest in how many wells EnCana required to effectively recover Belly River gas, except insofar as it affected what happened on the surface. They noted that other operators in this area received EUB approval for two wells per pool per section. Accordingly, they believed the Board should limit its approval to two wells per section and, if necessary, adjust the holding limitations to permit three wells.

The reservoir expert speaking on behalf of Messrs. Kerr and Warrack agreed, however, that reduced spacing allowing the operator to drill four wells per section would achieve much better recovery of the gas resource in these lands. He commented that a regional review of existing wells developed under reduced spacing showed a declining recovery benefit with increasing wells, levelling off at about four wells. The expert acknowledged that the analysis of this review did not include the impacts of using 3-D seismic information in selecting optimum drilling locations. He also noted that the regional review showed that about 25 per cent of the lands with reduced spacing of four wells per section per pool had actually been drilled to this density.

Messrs. Keer and Warrack stated that if the Board were to approve the downspacing application, it should deny the six well licence applications and associated pipeline applications and require EnCana to prepare and file with the Board and interveners a development plan for the area that included new surface locations that minimized surface disturbance using slant or directional drilling techniques from single drilling pads.

4.3 Views of the Mixes and Ms. Mitzner

The two parties did not comment on the need for the reduced spacing, wells, and pipelines.

4.4 Views of the Board

The Board agrees with EnCana that the geology of the Belly River Group in this area is such that additional wells are required in order to maximize recovery from the zone. The Board notes EnCana's evidence and the fact that four wells per pool per section have been approved for the Belly River Group over a large area in this region. The Board, therefore, agrees that reduced spacing with up to four wells per section will recover additional gas reserves and lead to an optimized depletion, with additional value from accelerated production and overall reduced production life for the wells and associated production facilities. The Board also acknowledges that EnCana's proposal to access multiple stacked reservoirs with any given well would assist in reducing the total number of wells and the associated surface impacts.

The Board agrees that the addition of a holding will increase flexibility to both EnCana and the landowners to locate wells without the restrictions normally applied to reduced spacing. The terms of the holding are consistent with the applied-for spacing and are accepted. In the absence of an equity objection from offset mineral owners or licensees, the Board accepts the need to exempt the existing 4-19 well from the buffer zone restrictions.

The Board acknowledges that EnCana has the petroleum and natural gas rights to explore for and produce all zones underlying the lands of application. The Board is satisfied that the need for the proposed well density and the related wells and pipelines has been established.

5 DEVELOPMENT STRATEGY AND BROAD IMPACTS

5.1 Views of the Applicant

5.1.1 General Strategy

EnCana explained that it wanted to use 3-D seismic to locate thicker multizone targets, which it believed would provide for optimum production performance and improved economics. It stated that 3-D seismic had not been generally used for such shallow reservoirs. EnCana noted that many other developments in this area were drilled based upon a more statistical approach with subsequent geological mapping that could lead to overdrilling and reduced project economics.

EnCana proposed to drilled several wells in the first year, followed by a period of well testing and evaluation, geological review, and recalibration of the 3-D seismic. It would then assess the subsequent year's drilling program. Because of the iterative nature of its development predicated on the results of previous drilling, EnCana could not provide a long-term well-specific development program. EnCana maintained that it had presented the interveners with a development plan in terms of this approach and the sequence in which it planned to progress in the area. It proposed to provide all parties with an activity plan as soon as it was available.

5.1.2 Need for the Vertical Wells versus Slant/Directional Drilling

EnCana explained that, in general, when it chose drilling locations it began by looking for minimum disturbance leases directly above the target locations. If it could not find a minimal disturbance lease, it would then look for a surface location that could access all the targeted zones using slant or directional drilling techniques. EnCana argued that this was a multizone targeted drilling play and that it took more than one sand to make a well economic. It claimed that due to the shallow depth of the subject reservoirs, a well could not be drilled to follow each and every sand development. Therefore, according to EnCana, the practical alternative was to find where the sweet spots stacked vertically and then to drill a well vertically to hit as many of them as possible. Further, it stated that the up-hole or the shallower upper sands could not be reached even with an aggressive directional well. EnCana believed that vertical drilling techniques would ensure that it would encounter fewer technical difficulties than associated with slant or directional drilling, such as setting and cementing the casing. Although EnCana favoured vertical drilling procedures, it stated that where possible in the future it would access the multiple zones from existing locations or from locations with fewer impacts using slant or directional drilling techniques in order to minimize surface disturbances. EnCana admitted, however, that deviated wells from a single surface location would reduce the operating costs over the life of the project, as it would not need as many pipelines and surface facilities compared to a vertically drilled well at each surface location. EnCana argued that there was no guarantee that drilling slant wells from pads would reduce impacts on the interveners' farming operations.

EnCana submitted that commingled production and multiple completions in several pools would assist in reducing the total number of wells and the associated surface impacts. It recognized Messrs. Keer and Warrack's question as to the need for vertical wells at various surface locations versus drilling slant holes from pads and maintained that the interveners' proposal was a

generalization that gave no indication as to whether pad drilling would achieve the target zones identified by EnCana. It submitted that multizone targets were necessary in this area, as the economics of drilling for a single zone were very marginal.

EnCana reported that it had conducted an experimental pad-based slant drilling program northeast of the lands discussed at the hearing. This specific project targeted single zones, and EnCana believed that if its multiple pay zones were not targeted, the project would ultimately be uneconomical. EnCana stated that it agreed that the pad development appeared to be a good idea in principle but believed that it would not work in practice. It indicated that the interveners did not provide site-specific evidence as to where the pads should be located, although it had invited Mr. Keer to discuss the well-site locations proposed for his land on several occasions.

5.1.3 Groundwater Protection

EnCana stated that it placed a high priority on protecting groundwater and, therefore, had obtained independent expert advice in the areas of groundwater protection and water wells in the Strathmore area. Further, EnCana noted that it ensured groundwater protection by drilling surface holes with water, cementing both surface and production casing to surface, and other appropriate drilling procedures. EnCana noted that it ensured adequate surface casing cement by using a top-drive water well rig that allowed reciprocation of the casing during cementing and by using the same cement pumps as for an oilfield rig. It stated that the use of a water well rig resulted in the cement being left to cure for a longer time than standard using an oilfield rig to drill both the surface and main hole. EnCana maintained that the surface casing cement would thus have a higher compressive strength than normally achieved prior to drilling the main hole. If cement returns were not seen on surface, EnCana noted, the regulations required a cement bond log to be run. EnCana also stated that the use of a water well rig was in keeping with its minimum disturbance drilling practices and would result in the larger oilfield rig being on the site for less time.

EnCana stated that, in its opinion, running surface casing to at least 200 m, as requested by the interveners, was not necessary to protect potable (drinkable) water aquifers in the area. It went on to state that in some circumstances setting surface casing to this depth could harm groundwater supplies and water wells.

In response to landowner preference for slant drilling, EnCana stated that achieving adequate cement on a slant hole could be a challenge. It was of the opinion that vertical surface casing was easier to cement and, therefore, more amenable to groundwater protection.

EnCana indicated that it did not have precise information on the distance from its proposed gas wells to offsetting domestic water wells, but it indicated that it was its policy to test water wells within a 200 m radius of its gas wells if requested to do so by the water well's owner. EnCana stated that it was also company policy to test water wells at a greater distance from its gas wells if requested to do so by a water well owner.

EnCana provided information at the hearing that 14 water wells appeared on the Alberta Environment database for the area of application, ranging from 21 m (70 feet) to 91 m (300 feet) in depth, but it noted that these data were not field verified. EnCana indicated that it did not

believe it was necessary to increase the depth of its surface casing adjacent to deeper water wells to protect groundwater, as groundwater below the base of surface casing would be protected by cemented production casing. EnCana proposed a surface casing depth of 85 m and noted that this casing design met the requirements of *EUB Guide 8: Surface Casing Depth Minimum Requirements*.

In response to concerns about cement storage in Section 28-24-26W4M, EnCana explained that it had landowner permission and the site was the appropriate setback from the irrigation canal. EnCana did not believe that cement storage had impacted the shallow groundwater.

5.1.4 Pipeline Removal

EnCana noted the interveners' request that pipelines should be removed from the ground when they were no longer needed, but commented that pipeline removal was not a normal practice. It said it would comply with all EUB regulations that included provision for the possible removal should there be unusual circumstances in the future.

5.1.5 Other Impacts

EnCana stated that it would fully comply with *EUB Guide 60: Upstream Petroleum Industry Flaring Guide*. In this regard, it proposed to test and clean the new wells for a few days, flaring limited volumes of sweet gas. This procedure would typically take two to three days to complete. Thereafter, it would tie in the wells to the existing downstream compressor station located at LSD 14-26-24-26W4M. EnCana also stated that when testing a well, the normal procedure would be to flare if the well was not currently tied into a gathering system. If the well was tied into an existing pipeline, it would consider implementing in-line testing instead of flaring.

EnCana provided photos of the existing wells in the area of application, noting their limited footprint on farming operations. It maintained that the access roads were low grade, with farming operations across them, except when used for emergency or infrequent well workovers. The well site after the drilling, completion, and cleanup process would be small, about 7 m (21 feet) by 7 m (21 feet), with a low pipe fence and crops growing up to about 2.5 m (8 feet) from the edge of the fence.

In response to questions about weeds, EnCana noted that it had an obligation to deal with any weed problem. It said that weeds were not an apparent problem for the area of application.

EnCana stated that it recognized that its proposed facilities would have an impact on farming operations in terms of increased cost and lost productivity, but it believed the impacts were not unmanageable and would not present an unusual interference with farming operations. EnCana maintained that the intention of its compensation policy was to account for and adequately address these impacts and therefore leave the landowner whole. EnCana further expressed the view that it was not aware of any situations where the cumulative effect of these impacts exceeded the sum of the amounts allocated to each well. It argued that the north half of section 18-22-25W4M, which was not part of the area of the applications, had four wells on it and that the map prepared by the interveners' land-use expert showed 285.3 productive acres out of 290.9 total acres. Therefore, EnCana concluded that these types of proposed wells would have little

impact on the farming operations, otherwise Mr. Keer would not be farming the north half of Section 18 as intensely as he was. EnCana submitted that it agreed with the conclusions of the interveners' report in that the magnitude of the impact varied with the location of the well sites on the agricultural land. However, EnCana maintained that the report only spoke generally of impacts and did not examine each well and pipeline specifically, nor did it account for the fact that Messrs. Keer and Warrack would farm around low-impact wells and pipe fences. EnCana asserted that it had attempted to minimize the potential impact on the interveners' lands by incorporating a number of changes in its proposed facilities as recommended in a report by its consultant.

EnCana committed to work with the landowners to address all other operational issues and identified a new program to ensure proper follow-up on commitments. This is addressed further in the public consultation section.

5.2 Views of Messrs. Keer and Warrack

5.2.1 General Strategy

Messrs. Keer and Warrack submitted that while they understood that EnCana, as mineral rights owner, had the right to harvest minerals underneath their property, they did not concede that EnCana should be able to do so in a way that might have long-term negative effects on their businesses. They expressed the view that EnCana was unable to provide a development plan that satisfactorily outlined what its vision of full development would encompass. The interveners maintained that as businessmen they wanted to be able to assess the potential negative impact that EnCana's activity might have on their operations both now and in the future. In this regard, they questioned the ground rules that would apply to the development.

5.2.2 Need for the Vertical Wells versus Slant/Directional Drilling

Messrs. Keer and Warrack maintained that EnCana could reasonably access its resources from a single pad site per section. As evidence, they filed a report that discussed ways to reduce surface disturbances associated with the applications. The study used an analogous area of land near the applied-for area that was a 36-section block of land with 60 wells drilled, of which 31 were vertical holes and 29 were slant holes. The study provided evidence on the relative success of drilling multiple slant holes from single pads located adjacent to road allowances and at the corners of sections versus drilling vertical holes, showing that the former would reduce surface disturbances while not significantly changing the likelihood of success of the development of the natural gas resource. The study further provided evidence that slant hole drilling could actually improve the economics of the development. The expert witness also stated that slant hole drilling was not new technology and that thousands of wells had been drilled in western Canada using this technology in the last eight or so years. It added that due to the random distribution of the subject reservoir sands, there could be a random arrangement of targets that occasionally lined up vertically. It added, however, that such an alignment of targets could also happen on a 30- or 45-degree trajectory of a slant hole.

Messrs. Keer and Warrack questioned EnCana's interpretation of where the sweet spots were in the targeted zones and suggested that the wells were really exploratory in nature rather than infill

wells meant to develop known reservoirs. They suggested that EnCana's uncertainty in determining the distribution of the sweet spots in various zones weakened its case with regard to its requirement to have surface locations right where it wanted them.

Messrs. Keer and Warrack felt that EnCana should be required to design its development so that where technically and economically feasible, only one surface pad location per section be permitted, from which up to four slant wells could be drilled. They stated that if the Board were not convinced that the evidence supported the imposition of that type of limit, it should limit EnCana to two surface locations per section. They felt that the onus should not be on the landowner to demonstrate that multiple bottomhole locations could be reached from one surface location but rather that the onus should be on EnCana to demonstrate that multiple bottomhole locations could not be reached from one surface location. Messrs. Keer and Warrack argued that EnCana did not supply any direct evidence that demonstrated that it could not hit the targeted reservoir sands from different surface locations than those applied for.

Messrs. Keer and Warrack felt that regardless of how many wells were drilled, EnCana should be required to locate well sites along road allowances or the edges of fields to minimize surface impacts, unless such locations were not technically feasible.

5.2.3 Groundwater Protection

The interveners indicated that groundwater was essential to the rural community and noted that farms, acreages, and hamlets between Strathmore and Calgary rely on groundwater. The interveners referred to EnCana's groundwater evidence and noted its conclusion that aquifer water levels in this area had declined due to groundwater use by increased population. Mr. Keer noted that while many water wells in this area were in the 30 to 60 m deep range (100 to 200 feet), future demand would need to access deeper groundwaters. For this reason, the interveners believed that EnCana should be required to run surface casing over all aquifers that could be sources of drinking water in the future.

The interveners also submitted water well drillers' logs from the Alberta Environment database that showed that several water wells in the area, including Mr. Keer's, were completed at depths of up to 125 m (410 feet). Mr. Keer noted that he had not noticed any change in his well water quality over the years, but mentioned that his farming operations did not include livestock, so his family's water use was for domestic purposes only.

The interveners also expressed concern that cement from some of EnCana's minimum disturbance drilling operations were stored in pits in Section 28-24-26W4M in an area close to a Western Irrigation District canal and appeared to be located over a shallow aquifer.

5.2.4 Pipeline Removal

Messrs. Keer and Warrack expressed concern about pipeline abandonments and the liability of the pipelines in the future. They stated a preference for the removal of the pipelines when they were no longer in use to avoid contamination of the soil. They argued that since there would be a ground disturbance with the installation of the pipeline, there would be an equal disturbance with the removal of the pipeline. They were concerned that pipelines abandoned in place may cause

environmental and personal harm. In addition, they had concerns about pipeline liability. They argued that ultimately the property owners would be liable for any future pipeline problems, especially if energy companies did not have an agreement with the landowner to address the cleanup of pipelines.

5.2.5 Other Impacts

Messrs. Keer and Warrack stated that a great deal of money and effort had been spent over the years to achieve efficient and competitive agribusinesses. They attested to the capital-intensive nature of farming and the necessity to use large, modern farm equipment with GPS guidance on large, unobstructed fields in order to realize efficiencies. The interveners filed a land-use report that concluded that pad drilling would be beneficial to the interveners. It explained that vertical wells drilled from separate surface locations decreased the interveners' farming efficiency and that increased density of surface facilities would cause overlap in working agricultural fields. The report stated that there would be a loss of efficiency caused by maneuvering around wells and the increased use of fertilizers and chemicals. It concluded that this could result in as much as a 19 per cent increase in time needed to work a field and, therefore, increased costs. The interveners asserted that by using four different well locations per section, EnCana was transferring the capital investment burden it wanted to avoid in a pad drilling arrangement onto the landowners. The interveners stated that EnCana should be required to locate well sites along road allowances or the edges of fields to minimize surface impacts unless such locations were not technically feasible.

Messrs. Keer and Warrack argued that the adverse effects on farming operations worsened as the field size got larger. The interveners explained that generally as the farm size increased and the size of equipment increased, the level of management increased and there was, therefore, an increased dissatisfaction with only monetary compensation.

The interveners expressed the view that EnCana had been rigid in terms of negotiating leases for its proposed facilities. Messrs. Keer and Warrack stated that a lease term of 25 years that renews automatically for subsequent 25-year terms was too burdensome and should more closely match the time line necessary for resource recovery. The interveners further stated that a shorter-term lease would also force EnCana to abandon and clean up the sites once the reserves had been depleted. Additionally, the interveners maintained that there was no mechanism in the leases to address noncompliance with EnCana's commitment to weed control on the leases.

Messrs. Keer and Warrack objected to the general nuisance and the invasion on their way of life that increased drilling density would bring in terms of increased traffic, dust, noise, etc. The interveners also stated that they had concerns with regard to potential health risks associated with living amid such dense oil and gas development. They expressed concern that the shallow sweet gas wells could be used in the future for production of gas from deeper formations that could be sour. Mr. Keer expressed concern that increased density of oil and gas activity could affect the future value of his property, which he had made application to subdivide and was expecting to market in the near future.

Messrs. Keer and Warrack took exception to the well-site photographs submitted by EnCana. They commented that the reason that these sites appeared to be properly maintained was their

personal efforts to manage the land and take extra steps, at their cost, to control weeds. The interveners filed pictures of other EnCana well sites in the region that showed extensive weed problems. Messrs. Keer and Warrack expressed concern that EnCana was not controlling weeds on existing leases, relying on landowners to identify weed or other problems. They requested that EnCana file with the EUB a weed remediation and control program and that the EUB approve and oversee its implementation.

5.3 Views of the Mixes

The Mixes stated that they had had many negative encounters with PanCanadian (now EnCana) since development started in 1997 and had grave concerns about the general increase in energy development in this area, citing flaring from the additional wells, seismic impact on water wells, dust and rig traffic control, and ability of EnCana to honour commitments. They commented that the capacity and quality of water from an existing water well had been adversely affected after a 1997 seismic program and they had encountered difficulties in having this issue addressed in spite of written acceptance of responsibility and promises by PanCanadian. Evidence to this regard was not filed, but EnCana did not refute it.

The Mixes stated their concerns regarding EnCana's failed commitment to maintain a no-fly zone over their property, which caused Mr. Mix to have a serious accident while horseback riding. While they acknowledged that some compensation was provided for the loss of a horse, they commented that many children attended their riding schools and their safety was important. They also raised concerns regarding the removal of posted signs to limit rig-related traffic in the vicinity of their riding stable without any communication or notice and the limited undertakings to control dust.

The Mixes further expressed their interest in the amount of flaring that EnCana would undertake in the vicinity of their operations, as they were worried about the effects this could have on the breeding program for the registered quarter horse mares they raised.

5.4 Views of Ms. Mitzner

Ms. Mitzner expressed concern over the volume, composition, and toxicity of flared gas that might accompany the proposed development. She stated that the current notification requirements of *Guide 60* should be extended to include landowners who had cattle in the vicinity but resided elsewhere. Ms Mitzner expressed the view that resource pollution was a violation of human rights in terms of indigenous people, farmers, and rural residents being denied their right to their health and access to their land.

5.5 Views of the Board

The Board recognizes that surface impacts from any energy development are unavoidable and believes that all practical and reasonable efforts must be made to reduce impacts to an acceptable level. Only thereafter should compensation be relied upon to address remaining impacts.

Regarding future development, the Board believes that EnCana should first drill the approved vertical wellbores to test the potential target zones and collect as much technical data as possible.

The well data, geological maps, and EnCana's 3-D seismic should be correlated and calibrated in order to support a future drilling plan.

In this regard, the Board notes EnCana's general well location principles and its commitment to drill additional wells from existing sites, near fence lines, away from houses, and on other lower impact surface areas where economically and technically feasible. The Board also notes the interveners' pad drilling model, with wells drilled from section corners, but considers the model to be a generalization. Without factoring in the existing surface development, much of which is also clustered around section corners, the model cannot serve as a blueprint for development, although it was useful in demonstrating that some pad development in certain situations could satisfy both parties' interests.

The limited footprints of the few existing well sites on Mr. Keer's and Mr. Warrack's lands shows the possibilities of how a landowner can work with a company to reduce the impact. The Board fully understands that this comes as a result of hard work and cooperation between the two parties.

The Board is concerned that for shallow development, lateral reach from a common pad may be a limiting factor. Given EnCana's intent to target multiple zones in every well, there may be less potential for pad drilling than in a single-target play. However, cumulative surface impacts must always be considered when balancing the benefits from increased energy development. It is the Board's position that EnCana must continue to apply its stated surface location practices for any additional wells in a section and, wherever possible, locate wells on pads or along the edges of sections.

The Board recognizes the concerns raised by the interveners regarding the adequacy of the compensation payouts in terms of dealing appropriately with the impacts of development on large, unobstructed fields. However, the Board's jurisdiction precludes it from addressing compensation.

The Board views protection of groundwater as an integral part of resource development. In this regard, *Guide 8* requires protection of usable groundwater, defined by Alberta Environment as groundwater containing less than 4000 milligrams per litre total dissolved solids, reflecting a quality of water that, although not potable, can be treated for consumption if it becomes necessary to access this water source in the future. *Guide 8* also states that cemented casing, but not necessarily surface casing, must be in place to protect usable groundwater. Additionally, if cement returns are not obtained at surface while cementing any string of casing, the EUB requires operators to determine the cement top and perform appropriate remedial action. EnCana provided evidence that usable groundwater extends to a depth of approximately 300 m in this area and committed to cover usable groundwater with cemented production casing.

The Board notes that EnCana does not plan to set surface casing to a depth of 300 m, or 500 feet, as requested by the interveners. Although EnCana proposes to meet the regulatory standards set in *Guide 8* to protect groundwater, the Board believes that the first-year drilling program under reduced spacing can be used to gather additional information for future industry/landowner consultations. Accordingly, the Board directs EnCana to run a cement bond log on any approved wells to confirm groundwater protection. Alternatively, the Board offers EnCana the option to

run deeper surface casing to a depth greater than offset existing domestic water wells within a 1 km radius of the approved wells.

EnCana's comments about possible technical difficulties associated with setting and cementing casing in slant wells raised concerns for the Board. The Board also notes EnCana's preferred use of water well rigs for surface casing installation, which it understands is becoming more common. The Board believes that both matters require further investigation so that a more complete understanding of the respective pros and cons can be publicly available. In this regard, the Board directs EnCana, in conjunction with EUB staff, to raise these issues with the Drilling and Completions Committee of the Canadian Association of Petroleum Producers for discussion and identification of any future actions.

The Board confirms EnCana's evidence that pipeline removal is not common practice. However, Subsection 9 (1) of the Pipeline Act does allow for consideration of this matter. The Board finds no current land use in the area of application that would warrant this additional step, but agrees that it can be a consideration at a later time. EnCana must consult with the landowners at the time of pipeline abandonment to discuss the appropriate method.

The Board agrees that private landowners in Alberta must never be left with a liability arising from oil and gas development. For this reason, legislation specifies a chain of company liabilities, and in the event that all companies are no longer solvent, an Orphan Fund has been established, funded by all companies to pay for orphan abandonment and reclamation. For these reasons, the Board is confident that landowners will not have a liability in this regard.

The Board notes that the proposed limited flaring for the applied-for sweet gas wells complies with *Guide 60*. As more wells are drilled and tied in, the Board would expect that many of the future wells will be tested through pipe, as required in *Guide 60*, further reducing the emission impact.

Well licensees are required by *Guide 60* to notify residents within 1.5 km of sweet gas wells of any nonemergency flaring at least 24 hours prior to the event. *Guide 60* also requires licensees to notify any other parties who have made a reasonable request to be notified. The Board believes that Ms. Mitzner's request for prior notification of landowners with cattle could be addressed in this manner. The Board also expects EnCana to consult with the Mixes to seek opportunities to schedule any short-term test flaring outside of the times scheduled for riding schools or other activities that involve larger groups of the public.

There was no evidence of weeds on the existing well sites in the area of application. However, the Board notes the public's concern about weeds, as evidenced in photographs of EnCana wells reportedly from sites in the general region. These resulted in public scepticism about EnCana's commitment to deal with weeds. The Board recognizes weeds as a concern for both their potential impact on offset farmlands and the first impression that an unkempt site gives to the general public. Notwithstanding EnCana's acknowledgement of its obligation to deal with weeds, the Board finds it reasonable to require EnCana to prepare and file a 2003 weed control program for both producing and suspended properties to show the public and the EUB its specific actions in this regard. In addition, the Board will require EnCana to file the weed control

program with Alberta Environment, the County of Wheatland, and the Municipal District of Rocky View.

The Board notes the interveners' concerns about impacts of oil and gas activity on residents. These concerns could increase, given future potential surface development arising from the area's proximity to Calgary and Strathmore. The Board understands that Mr. Keer has approval for a rural subdivision but has no short-term plans for development.

Given that this development is for sweet gas and the long-term nature of the modified land use, the Board sees no unacceptable or unmanageable conflict. Indeed, early development has some merit. Also, there is no evidence that any of the zones to be encountered by the proposed additional wells will be sour. If there are any major changes in well operations, this would be the subject of a future EUB application.

6 LOCATION OF THE PROPOSED WELLS AND PIPELINES AND ASSOCIATED SITE-SPECIFIC IMPACTS

6.1 Views of the Applicant

EnCana submitted that the first phase of drilling reflected its strategy of balancing energy development needs with minimizing land-use impacts. The applied-for well sites and routing of access roads and pipelines was reviewed and modified by its consultant to reduce impacts. EnCana indicated that there was some flexibility in locating surface locations for wells within limits determined by the seismic data, but stated that in this instance it had not had the opportunity to consult with the interveners and receive input on specific pipeline and well site locations in order to help further minimize the impacts. EnCana stated that it would employ low-impact construction techniques for the proposed well sites and access roads but was unable to locate all of the wells along the fence lines. EnCana also did not identify for this initial phase of drilling any practical directional well that could be drilled from the nearest existing disturbance or nearest minimum disturbance location.

EnCana stated that it was not aware of any concerns with the proposed 5-6 or 9-19 well locations. It recognized that Messrs. Keer and Warrack had concerns about the proposed locations of the other four well sites.

EnCana recognized that the 2-29 well location fell in a particularly scenic part of the Kerora Farming lands and that Mr. Keer wished to have his ashes spread there after his death. EnCana stated that it was prepared to move the well to LSD 3 to the west, if that would address Mr. Keer's concerns with the 2-29 location.

EnCana asserted that it had modified its applications to minimize the potential impacts. It changed the pipeline routings from the 5-6 and 6-27 wells and changed the location of the access road to the 6-35 well, as requested in Mr. Keer's and Mr. Warrack's written submissions. The pipeline route to the 10-31 well was revised at the request of the Mixes.

EnCana acknowledged that Messrs. Keer and Warrack would prefer the location of the proposed 6-35 well be moved to existing well sites on either 16-35-24-26W4M or 9-35-24-26W4M, but

argued that it could not access the geological targets from these existing well locations. It further argued that the proposed 6-35 well would be at the edge of a field along the quarter section boundary.

EnCana acknowledged that the proposed 6-27 and 10-31 wells would be in the middle of fields. It argued that it could not encounter the geological targets from other more preferred surface locations.

EnCana also noted that the 14-20 well was drilled along the fence line.

6.2 Views of Messrs. Keer and Warrack

Mr. Keer submitted that the 2-29 well location fell in a particularly scenic part of the Kerora Farming lands and that he wished to have his ashes spread there after his death. He requested that the 2-29 well application be denied and that EnCana be required to negotiate a new surface location.

The interveners submitted that the 6-35 well licence application should be denied on the basis that there were already two surface locations in the section. Alternatively, the well could be approved on the condition that EnCana drill from one of the two existing surface locations.

Messrs. Keer and Warrack indicated that they would prefer the original pipeline route proposed by EnCana from the 10-31 well to an existing well at 4-31-24-26W4M instead of the newly proposed route from the 10-31 well to an existing well at 16-36-24-27W4M.

Messrs. Keer and Warrack acknowledged that EnCana did reroute the proposed pipeline to connect the 5-6 well as a result of their discussions. As a result, the pipeline would follow the access road, which ran parallel to the railroad right-of-way. They also recognized that another pipeline route was amended to run directly north from the 6-27 well and that the location of the access road to the 6-35 well was amended as they requested.

Messrs. Keer and Warrack submitted that should some or all of the well licence applications be denied by the Board, the Board should also deny the associated pipeline applications, because without the wells, there would be no need for a gathering system.

6.3 Views of the Board

In assessing the specific locations of the proposed wells, pipelines, and access roads, the Board believes that it must balance the benefits advanced by EnCana with the potential negative impacts of such facilities on the environment, current land use, and to some degree possible future land uses.

The Board notes the unwillingness of Messrs. Keer and Warrack to speak to specific locations or allow surveys to be conducted, although EnCana has the legal right to do so. The hearing notice clearly identified this as a matter for consideration, and the Board believes it has enough evidence to conduct an assessment. The Board will require detailed surveys to be conducted as part of any approval it may issue.

In this regard, the Board notes EnCana's willingness to discuss minor adjustments to locations if approvals are issued. If mutually accepted adjustments are identified, this could be addressed in an amendment to the licences. The Board encourages parties to accept EnCana's offer for further consultation regarding specific lease locations, as it is an important consideration in minimizing potential impacts.

With respect to bottomhole locations of the proposed wells, the Board accepts that EnCana chose the locations based on its interpretation of the seismic and geological data to identify optimum locations. The Board is very supportive of investigating the applicability of 3-D seismic in identifying optimal locations in shallower zones. If successful, this could have positive benefits to both industry and landowner. Thereafter, surface locations and pad selection could be made with more definitive evidence.

The attached map shows the proposed well locations and important land/occupation features.

Specifically, the 10-31 and the 2-29 wells present concern to the Board. The southeast quarter of Section 29 is currently farmed. Mr. Keer has identified LSD 2 as a particularly attractive area where he wishes to have his ashes spread. The Board accepts that oilfield disturbances would conflict with this future consideration and believes that all reasonable efforts should be made to investigate an alternative site. While EnCana raised the possibility of relocating to LSD 3, it is unclear whether this change would satisfy Mr. Keer or raise new concerns from a neighbour. The Board believes it would be appropriate to reconsider Section 29 drilling options after the first group of wells are drilled.

Section 31 is one of the larger fields that Messrs. Keer and Warrack have developed to ensure optimum farming practices. While the landowners would be compensated, the Board believes the proposed 10-31 well site and other possible future sites in Section 31 could seriously affect and alter farming practices. While eventually there may be a need to have a location off a fence line or pad in Section 31, the Board does not want to adopt a maximum impact location prematurely, before 3-D seismic is tested. For this reason, the Board believes that either another site should be selected that would provide for immediate reduction in impacts or wait until more information is available.

The other proposed well sites at 5-6, 6-35, and 9-19 and the existing 14-20 well are located in close proximity to field breaks and fence lines and away from current residents and future subdivision sites. These sites may offer possible locations for additional wells. The Board is confident that these locations will result in an acceptable surface impact, given compliance with EUB regulations and other mitigative measures as can be identified from possible future discussions between the parties.

The proposed 6-27 well is located over 100 m from the nearest fence line which would result in more of an impact to farming. In reviewing this situation, the Board notes that the target is a considerable distance from existing wells and that a location in or more towards the SW quarter of Section 27 would conflict with neighbouring development. For EnCana to have practical access to its resources in this area the Board believes the 6-27 site is a reasonable surface site with acceptable impacts.

7 PUBLIC CONSULTATION

7.1 Views of the Applicant

EnCana stated that it coordinated public information sessions for the community, such as the open houses that occurred on March 7, 2001, and January 10, 2002, and held several personal meetings with the concerned parties who identified themselves, including the interveners. When EnCana filed its spacing application with the EUB, it requested assistance in providing formal notice to the large number of landowners in the area of application. EnCana submitted that the option for it to provide individual notice to every landowner in the large area of the spacing application was too cumbersome. In this regard, the EUB published a formal newspaper notice of application in the *Calgary Herald* and the *Strathmore Standard* on December 19, 2001.

In response to objections filed, EnCana stated that it made extensive efforts to try to resolve the outstanding issues prior to a hearing. This included ADR with the interveners on October 10, 16, and 17, 2001. However, the applicant concluded that a resolution would not be reached and that an EUB hearing was the only way to resolve the issues. EnCana reflected that it attempted to discuss the specific proposed wells and pipeline locations with Messrs. Keer and Warrack, but it lacked the detailed information to identify all future locations as requested. EnCana further said that there were disagreements on some of the fundamental strategy issues that precluded more specific discussions. As a result, Messrs. Keer and Warrack would not engage with EnCana to discuss the proposed project after the ADR process was unsuccessful, as they wanted a decision on reduced spacing before dealing with the development details.

To improve long-term relations with the public, EnCana stated that it had recently created for this district a “landowner resident commitment process,” in which an individual EnCana staff member would be responsible for tracking and monitoring commitments that EnCana made. This new process would start at the drilling phase and continue through the production phase and was expected to improve its corporate relationship within the community of Strathmore. EnCana said that it would provide landowners with activity plans as soon those became available.

7.2 Views of Messrs. Keer and Warrack

Messrs. Keer and Warrack indicated that the Board should have only been considering the reduced spacing application at the hearing and should not have included the well and pipeline applications. They further submitted that it was their view that the well and pipeline applications should only be considered after EnCana had submitted to the Board and the interveners a proper detailed development plan for the Strathmore area. The interveners were adamant that they had been asking EnCana for a detailed development plan from the start of EnCana’s public consultations and were disappointed that they still had not seen one. They also stated they attended EnCana’s open houses and had discussions with EnCana’s personnel, but felt that EnCana was not listening to their issues. As well, they felt that the information that was presented to them was confusing and limited in content. Messrs. Keer and Warrack felt that EnCana should have been more upfront with them, especially concerning its development plan. Mr. Warrack was suspicious that EnCana was not revealing all of the information about this project and said he did not understand why EnCana could not disclose a higher level of

information about the future development in the area.

Messrs. Kerr and Warrack expressed disappointment in the EUB notice practice. Specifically, the landowners were critical of the fact that the notice was limited to only newspaper advertisements and was issued not long before Christmas, when the public was occupied with other interests. Landowners also indicated concern about the small print size of the newspaper notice and believed that some parties may have had difficulties with the legal land description (Dominion Land Survey). Messrs. Keer and Warrack suggested that notices should be mailed to individual landowners and avoid holiday periods. They believed that the Board should consider a policy change in this regard.

7.3 Views of the Board

The Board believes that all parties did not communicate effectively. The Board believes that a commitment to mutual and constructive communication is important in order for the parties to work well with each other. Each party during the hearing agreed that good communication is necessary to understand each other's needs and businesses.

One of the identified conflict points is the extent of development planning information provided by the applicant. The Board notes EnCana's comments about the complex nature of the geology and the need to drill and evaluate wells using 3-D seismic and that EnCana also stated that future options would be evaluated at various steps over the life of the project and the parties would be updated as plans became clear. The Board acknowledges that the ability of oil and gas operators to provide a detailed development plan is often limited by the lack of geological and well performance information at early stages of a pool development.

An application for reduced spacing requires public consultation. In this regard, the public needs as much information as reasonably available to better understand potential impacts. While it must be understood that industry may not always be in a position to define multiyear or ultimate plans, descriptions of future options may be useful, as well as a commitment to provide more clarity as data become available and at a frequency suitable to the public.

At this early stage and noting the introduction of 3-D seismic data as a targeting tool, the Board acknowledges EnCana's position that it is unable to provide more definitive long-term plans. In this regard, EnCana's commitment to share annual activity plans with landowners, community groups, and others is an important step fully supported by the Board.

As previously discussed, EnCana will investigate using common surface sites for more than one well where technically and economically feasible. While the Board is not prepared to require or limit development to only pads (one site per section), it fully agrees that the onus must be on EnCana to show why the pads cannot be used. In this regard, EnCana should always look for opportunities and volunteer information to affected landowners on the different options it has investigated. The public should review the information and ask EnCana questions and may also ask for assistance from the EUB staff.

A second point of conflict was the terms of the surface lease. However, this is not a matter that the EUB has jurisdiction over. While EnCana does not believe its public open houses indicated it would be out of the area in five to seven years, the Board believes that the public can reach that

conclusion if there is not considerable care taken to explain constant rate life, future uses of the subject leases, and normal oilfield practices.

It appears to the Board that EnCana was not well prepared to follow up on its past commitments. However, the Board notes that EnCana made a commitment at the hearing to establish a system to manage all of its commitments in the Strathmore Area. The Board considers this to be a critical element in establishing positive community relations and expects EnCana to implement this strategy.

The public criticism of the EUB application notice is a matter that the Board takes very seriously. The EUB has made considerable efforts over the past few years to emphasize the importance of effectively engaging the directly affected public in meaningful consultation, including specifying the type of information to be conveyed. The Board will continue its efforts in this regard and will give full consideration to the comments made at the hearing. The Board also notes that matters relating to public consultation will be reviewed as part of a future review of well spacing matters.

8 CONCLUSIONS

The Board concludes that reduced spacing of up to four wells per pool per section, with the added flexibility for locating wells specified by a holding, is appropriate. The Board believes that a strategy of locating wells at surface locations presenting minimum disturbance as a first consideration is a necessary one. Reasons to vary from this must be part of public consultation. While the Board is not prepared to restrict surface development to one site per section, it does expect that subsequent development will result in a combination of vertical, directional, and pad development. Application of normal oilfield practices, mitigative measures, and compliance with regulations will also ensure acceptable impacts. The use of 3-D seismic information may be of benefit in dealing with both resource development and surface impact.

The best approach for ensuring that an acceptable balance is achieved is for the parties to work together. It is anticipated that there will be a number of future drilling phases for this area, and the ongoing strategy and site-specific details will need to be reviewed. The Board expects the parties to use the opportunities and renewed commitments to resolve differences. The Board further expects this decision report to assist in providing clarity for current and future development.

DATED at Calgary, Alberta, on January 15, 2003.

ALBERTA ENERGY AND UTILITIES BOARD

[Original signed by]

G. J. Miller
Presiding Board Member

[Original signed by]

F. Rahnama, Ph.D.
Acting Board Member

[Original signed by]

R. J. Willard, P.Eng.
Acting Board Member

APPENDIX TO DECISION 2003-003

SUMMARY OF THE APPLICANT'S COMMITMENTS AND CONDITIONS

Commitments

The Board notes that throughout the proceedings, EnCana undertook to conduct certain activities in connection with the proposed project that are not strictly required by the EUB's regulations or guidelines. These undertakings are described as commitments and are summarized below. It is the Board's view that when companies make commitments of this nature, they have satisfied themselves that the activities will benefit both the project and the public, and the Board takes these commitments into account when arriving at its decision. The EUB expects the applicant, having made the commitments, to fully carry out the undertakings or advise the EUB if, for whatever reasons, it cannot fulfill a commitment. At that time, the EUB will assess whether the circumstances of the failed commitments may be sufficient to trigger a review of the original approval. The affected party also has the right to ask the EUB to review an approval if commitments made by the applicant remain unfulfilled.

EnCana committed to the following during the course of the proceeding:

- 1) Implementation of a system to manage commitments made to landowners in the Strathmore area.
- 2) Sharing of additional information on development plans with residents in the Strathmore area when it becomes available.

Conditions

Conditions, generally speaking, are requirements in addition to or otherwise expanding upon existing regulations and guidelines. An applicant must comply with conditions or it is in breach of its approval and subject to enforcement action by the EUB. Enforcement of an approval includes enforcement of the conditions attached to the approval. Sanctions imposed for breach of such conditions may include the suspension of the approval, resulting in the shut-in of a facility.

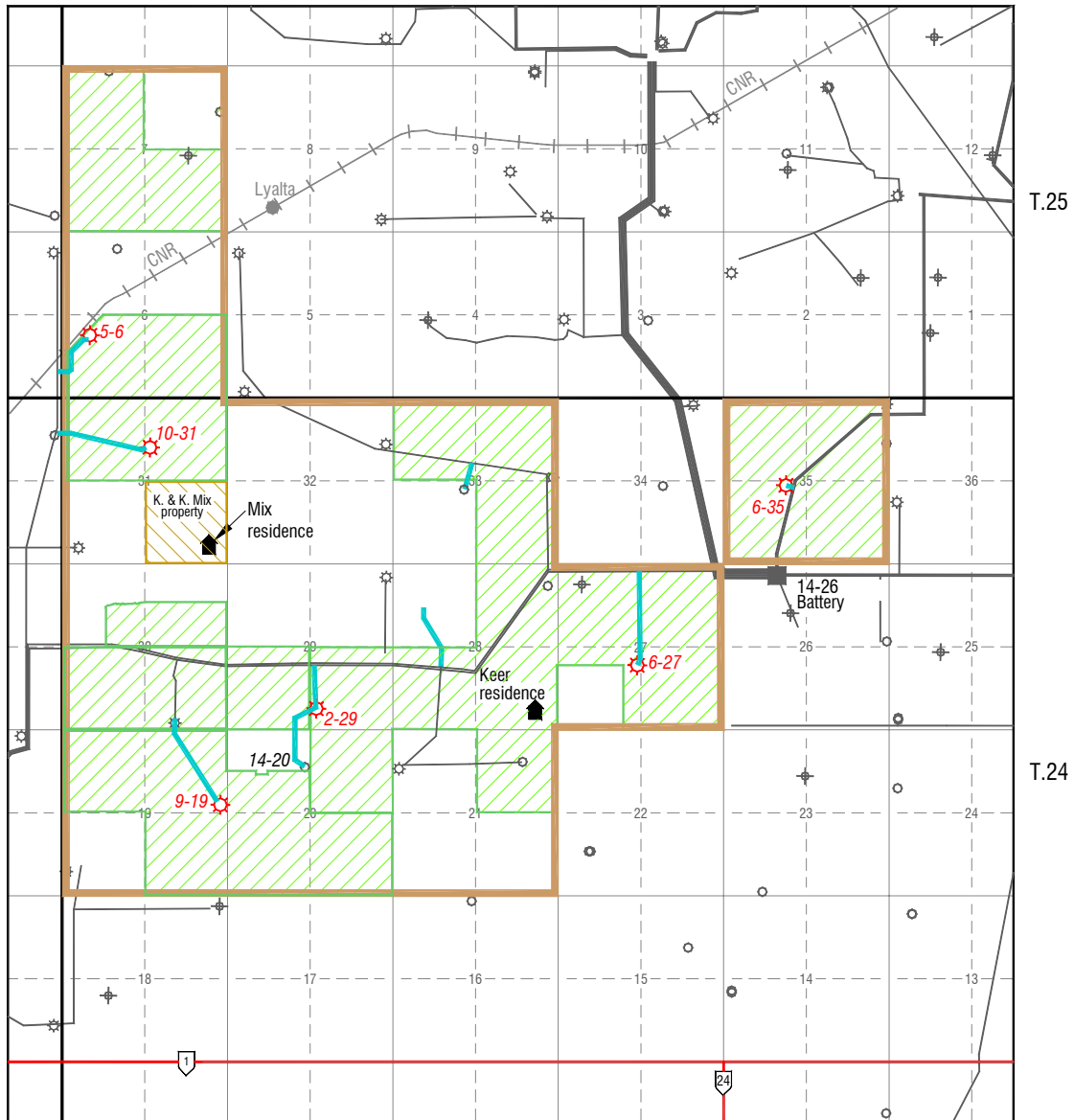
EnCana is required to fulfill the following conditions:

- 1) Detailed land surveys are to be conducted and filed with the EUB prior to issuance of the licences and permits for the approved well and pipeline applications.
- 2) Groundwater protection must be confirmed by conducting and filing with the EUB a cement bond log run from total depth to surface for each of the approved wells. Alternatively, EnCana may choose to set surface casing to a depth greater than offset domestic water wells within a 1 km radius of the approved wells.
- 3) As soon as practicable, EnCana and EUB staff will table two topics—setting and cementing casing in slant holes, and the use of water well rigs to drill and set surface casing—with the Drilling and Completions Committee of the Canadian Association of Petroleum Producers for its consideration and comments.

- 4) EnCana will prepare a weed control program for producing and suspended properties in the Centron and Strathmore fields, as defined by the EUB, and submit it to the EUB Midnapore Field Centre by May 31, 2003. In addition, the Board requires EnCana to file the weed control program with Alberta Environment, the County of Wheatland, and the Municipal District of Rocky View by the same date.

R.27

R.26W.4M.



Legend

- Spacing application boundary
- Proposed pipeline
- ★ Proposed gas wells
- Property boundary
- Bruce Farms Ltd. and Kerora Farming Company Ltd. property
- Mix property
- ▲ Residence
- Existing pipeline
- ⊗ Gas wells
- ⊕ Abandoned wells
- Drilled and cased wells

Proposed Pipelines and Wells in the Strathmore Area

Applications No. 1073941, 1249836, 1249838, 1249839, 1249840, 1249842,
 1249843, 1249845, and 1253483
 EnCana Corporation

Decision 2003-003

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

**ENCANA CORPORATION
APPLICATIONS FOR SPECIAL GAS WELL SPACING,
WELL LICENSES, AND
NATURAL GAS PIPELINE SYSTEM
CENTRON AND STRATHMORE FIELDS**

**Decision 2003-003-Errata
Application Nos. 1073941,
1249836, 1249838, 1249839,
1249840, 1249842, 1249843,
1249845, and 1253483**

An error appears in *Decision 2003-003*, issued by the Alberta Energy and Utilities Board (EUB) on January 21, 2003. The end point of one of the approved pipelines is incorrect on page 1, Section 1 of the report. Specifically, the location LSD 16-27-24-26W4M should read 14-27-24-26W4M. This error correction is reflected in the decision, that appears on the EUB Web site.

The original published decision read:

Portions of Application No. 1249836 for pipelines are approved, specifically those portions at the following locations:

- LSD 5-6-25-26W4M to LSD 1-1-25-27W4M
- LSD 9-19-24-26W4M to LSD 2-30-24-26W4M
- LSD 6-27-24-26W4M to LSD 16-27-24-26W4M
- LSD 6-32-24-26W4M to LSD 6-35-24-26W4M

It now reads:

Portions of Application No. 1249836 for pipelines are approved, specifically those portions at the following locations:

- LSD 5-6-25-26W4M to LSD 1-1-25-27W4M
- LSD 9-19-24-26W4M to LSD 2-30-24-26W4M
- LSD 6-27-24-26W4M to LSD 14-27-24-26W4M
- LSD ~~6-32-24-26W4M~~ to LSD 6-35-24-26W4M

Start location should have read: LSD 6-35-24-26W4M as per Errata 2

Dated in Calgary, Alberta, on January 28, 2003.

ALBERTA ENERGY AND UTILITIES BOARD

[Original signed by]

G. J. Miller
Presiding Board Member

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

**ENCANA CORPORATION
APPLICATIONS FOR SPECIAL GAS WELL SPACING,
WELL LICENCES, AND
NATURAL GAS PIPELINE SYSTEM
CENTRON AND STRATHMORE FIELDS**

**Decision 2003-003 Errata 2
Applications No. 1073941,
1249836, 1249838, 1249839,
1249840, 1249842, 1249843,
1249845, and 1253483**

An error appears in the errata for *Decision 2003-003* issued by the Alberta Energy and Utilities Board (EUB) on January 28, 2003. The starting point of one of the approved pipelines is incorrect. Specifically, the location LSD 6-32-24-26W4M should read 6-35-24-26W4M.

The original errata published read:

Portions of Application No. 1249836 for pipelines are approved, specifically those portions at the following locations:

- LSD 5-6-25-26W4M to LSD 1-1-25-27W4M
- LSD 9-19-24-26W4M to LSD 2-30-24-26W4M
- LSD 6-27-24-26W4M to LSD 14-27-24-26W4M
- LSD 6-32-24-26W4M to LSD 6-35-24-26W4M

It now reads:

Portions of Application No. 1249836 for pipelines are approved, specifically those portions at the following locations:

- LSD 5-6-25-26W4M to LSD 1-1-25-27W4M
- LSD 9-19-24-26W4M to LSD 2-30-24-26W4M
- LSD 6-27-24-26W4M to LSD 14-27-24-26W4M
- LSD 6-35-24-26W4M to LSD 6-35-24-26W4M

Dated in Calgary, Alberta, on January 30, 2003.

ALBERTA ENERGY AND UTILITIES BOARD

[Original signed by]

G. J. Miller
Presiding Board Member