

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

**CANADIAN 88 ENERGY CORP.
APPLICATION TO VARY OR RESCIND
THE MAXIMUM DAILY ALLOWABLE
FOR A HORIZONTAL GAS WELL
LOCATED IN THE CROSSFIELD EAST FIELD**

**Decision 98-15
Application No. 1012884**

1 INTRODUCTION

1.1 Background

On 17 November 1995, Mobil Oil Canada Limited (Mobil) applied to the Alberta Energy and Utilities Board (EUB) for an order prescribing a special drilling spacing unit (DSU) comprised of fractional Section 27 of Township 30, Range 29, West of the 4th Meridian (Section 27), containing approximately 125 hectares, for the production of gas from the Crossfield Member of the Wabamun Formation (see attached figure). The EUB issued a notice of the application on 14 December 1995 which stated that gas production from Section 27 would be subject to an EUB prescribed allowable. The application was subsequently approved on 13 March 1996 and EUB Order No. SU 2422A was issued.

On 21 March 1996, Mobil applied to the EUB for a well licence to drill a horizontal gas well in Legal Subdivision 8, Section 27, Township 30, Range 29, West of the 4th Meridian (the 8-27 well). The EUB subsequently issued a licence for the 8-27 well on 6 May 1996, and Mobil drilled it shortly thereafter.

The 8-27 well came on production on 2 January 1997 and achieved average rates approaching $300 \times 10^3 \text{ m}^3/\text{d}$. As of April 1998, the 8-27 well was producing at an average rate of about $175 \times 10^3 \text{ m}^3/\text{d}$. In comparison, as of April 1998, wells in adjacent sections were producing at average rates ranging from about 10 to $90 \times 10^3 \text{ m}^3/\text{d}$. The 8-27 well is currently subject to an EUB prescribed daily average allowable of $827 \times 10^3 \text{ m}^3/\text{d}$, as indicated in a letter from the EUB to Mobil dated 30 May 1997.

The allowable for the 8-27 well was calculated in a manner consistent with other gas wells in fractional section DSUs. That is, an area adjustment factor, in accordance with Section 4.050(2) of the Oil and Gas Conservation (O&GC) Regulations, is applied against an EUB calculated base allowable. The base allowable is calculated using the maximum daily allowable (Q_{max}) equation described in Section 10.300 of the O&GC Regulations. The EUB introduced this equation in 1954 to establish maximum daily allowables for all gas wells to prevent excessively high producing rates from adversely affecting ultimate recovery from gas pools. However, since 1973, the EUB has permitted gas wells to produce at rates consistent with good production practice (GPP) with some exceptions. EUB practice is to assign an allowable for a well in a fractional section DSU once, and not change it during the life of the well.

The EUB calculated the allowable for the 8-27 well using data from a four-point modified isochronal absolute open flow (AOF) test conducted in August 1996, an area adjustment factor of 0.483 (i.e., 125 hectares divided by 259 hectares), and a drawdown factor (f factor) of 0.30. Mobil requested the f factor of 0.30 in a 20 March 1997 letter to the EUB to be consistent with the f factor that Canadian 88 Energy Corp. (Canadian 88) had requested and obtained for the offsetting well located at Legal Subdivision 9, Section 34, Township 30, Range 29, West of the 4th Meridian (the 9-34 well). The detailed allowable calculation for the 8-27 well is provided as an attachment to this report.

1.2 Application and Interventions

Canadian 88 applied to the EUB for an order to vary or rescind the maximum daily allowable for Mobil's 8-27 well because it believed that the EUB's current use of the Qmax equation is inappropriate for calculating equitable allowables for horizontal gas wells such as the 8-27 well.

As a result, Canadian 88 contended that it was being directly and adversely affected due to drainage of its offsetting lands, since the 8-27 well was located in a fractional section DSU. Consequently, Canadian 88 also asked for the well to be shut in until the matter was resolved.

In response to the application, the Board convened a public hearing, but denied Canadian 88's request that the 8-27 well be shut in pending resolution of the matter. Given that the matter could have implications for future EUB policy and practice, the Board invited input from all interested parties regarding the approach the EUB should adopt for establishing gas allowables for wells in cases involving fractional section DSUs. In particular, the Board requested input on whether the Qmax equation, or alternatives to it, should be used to establish the base allowable.

The Board received an intervention from Mobil requesting that Canadian 88's application be denied in its entirety. The Board also received a letter from the Canadian Association of Petroleum Producers (CAPP) expressing the view that the matter could be decided based on the specific facts at issue, and might have no implications for EUB policy. CAPP requested that the Board not address EUB policy at the hearing, and noted that any decision by the Board to amend its existing policy and practice for establishing gas allowables for wells in cases involving fractional section DSUs should be undertaken only after extensive and meaningful consultation with industry.

1.3 Hearing

A public hearing of the application commenced on 18 March 1998 in Calgary, Alberta before J. P. Prince, Ph.D., J. D. Dilay, P.Eng., and E. A. Shirley, P.Geol.. Shortly following commencement of the hearing, Mobil requested that the hearing be adjourned so that it would have adequate time to review new evidence submitted at the opening of the hearing by Canadian 88. The Board determined that it was appropriate to grant the request, but prior to adjourning, Canadian 88 provided a brief verbal summary of the new evidence. The hearing was rescheduled and subsequently held on 26 and 27 May 1998 in Calgary, Alberta before the same division of the Board. A list of the hearing participants is provided in the following table.

Hearing Participants

Principals and Representatives

Witnesses

Canadian 88 Energy Corp.
S. Carscallen

C. W. Chapman, P.Eng.
(of Chapman Petroleum
Engineering Ltd.)
G. T. Huitema, P.Eng.

Mobil Oil Canada Limited
K. F. Miller

P. S. Kerford, P.Geol.
R. S. McLeod, P.Eng.
W. J. Wakaryk, P.Eng.

Alberta Energy and Utilities Board staff

T. L. Byrnes, P.Eng.
D. A. Larder
K. F. Schuldhaus, P.Eng.
A.E.M. Wiechert, P.Geol.

Canadian 88 submitted an affidavit from Mr. Charles Ryan, owner of the freehold mineral rights in the East half of Section 26, Township 30, Range 29, West of the 4th Meridian, in support of its application. In his affidavit, Mr. Ryan indicated that he believed Mobil's drilling of the horizontal 8-27 well would result in inequitable drainage of reserves to which he holds the mineral rights.

2 ISSUES

The Board considers the issues with respect to the application to be as follows:

- C equity and methodology for determining the allowable for the 8-27 well,
- C status of EUB Order No. SU 2422A, dated 13 March 1996, and
- C effective date of the allowable for the 8-27 well and implications for future EUB policy and practice.

3 EQUITY AND METHODOLOGY

3.1 Views of the Applicant

Canadian 88 stated that the current use of the Qmax equation to establish the base allowable for the 8-27 well is inequitable because it results in no constraint to production from the well. The

calculated allowable greatly exceeds the productive capability of the 8-27 well, and therefore, production from the well for all practical purposes, is unrestricted. Canadian 88 submitted that the unrestricted rates at which the 8-27 well is being allowed to produce will result in significant drainage of reserves from the surrounding lands owned mostly by Canadian 88. If there is no change to the allowable for the 8-27 well, it will ultimately produce about 16 per cent of the reserves in the pool, even though Section 27 contains only about 4 per cent of the volumetrically-estimated pool reserves. Canadian 88 acknowledged that the 8-27 well is entitled to produce, however, in order to eliminate the inequitable drainage that is occurring, production rates from the well should be restricted such that the recovery of the volumetric reserves attributable to Section 27 not be significantly exceeded.

Canadian 88 argued that, since the Q_{max} equation was intended to address conservation and not equity, its use results in an allowable that does not effectively restrict production at the 8-27 well. It acknowledged that the EUB's current use of the Q_{max} equation for establishing base allowables does work in some instances. However, the applicant argued that this is a special circumstance where the current procedures involving the Q_{max} equation results in a solution that does not address equity. The objective of the application is not to establish a procedure for dealing with horizontal wells in fractional section DSUs, but rather a procedure for dealing with a highly productive well that is causing an inequitable situation. In that regard, Canadian 88 contended that its primary concern is that the 8-27 well is a highly productive well, not that it is a horizontal well.

Canadian 88 submitted two alternative approaches for establishing an allowable for the 8-27 well that it believed would be more appropriate. These two approaches were referred to as the Reserve Based Q_{max} and the Actual Production Based Q_{max} . Although Canadian 88 indicated that the Actual Production Based Q_{max} methodology would be an acceptable alternative, it expressed its preference for the Reserve Based Q_{max} methodology, contending that it addresses equity to a higher degree. Canadian 88 submitted that, for either approach, it is of paramount importance that the allowable be reestablished on an annual basis to preserve equity over the long term because of declining reservoir pressure. The applicant indicated that it would prefer that the Board no longer consider the alternative approach outlined in Tab 7 of its 4 November 1997 application.

Canadian 88 submitted that its proposed Reserve Based Q_{max} methodology is modelled after the Preliminary Rate Limitation (PRL) formula used by the EUB for establishing oil well allowables. Under the proposed approach, the base allowable would be equal to the recoverable gas-in-place for a full section DSU minus one-half the cumulative gas production from the well at the end of each calendar year divided by 3650 days. The recoverable gas-in-place reflects a full section DSU to allow for the application of the area adjustment factor to the resulting base allowable. On the basis of this approach, and its estimate of the recoverable gas-in-place attributable to Section 27, Canadian 88 calculated a daily average allowable of $52 \times 10^3 \text{ m}^3/\text{d}$ for the 8-27 well. However, Canadian 88 stated that it is not necessarily advocating that its recoverable gas-in-place estimate be used in the calculation, and that Mobil could submit its own estimate for scrutiny by the Board, in the event of a favourable decision by the Board regarding this approach. In response to questioning, Canadian 88 acknowledged that, at current production rates, its own 9-34 well would produce about 8 per cent of the reserves in the pool, even though it has only about 4 per cent of the volumetrically-estimated pool reserves attributed to it.

Canadian 88 stated that no one had complained about the allowable for the 9-34 well, but, as a result of the hearing, if the Board were to establish the allowable for the 9-34 well using the Reserve Based Qmax methodology, this would be acceptable.

Under the alternative approach referred to as the Actual Production Based Qmax methodology, the 8-27 well's actual production rate would be measured over a given month (e.g., January), which Canadian 88 submitted would be a test of the well's actual productive capability for that year. The area adjustment factor would be applied to this rate to establish a daily average allowable. Canadian 88 contended that this approach is reasonable because it utilizes actual production data rather than theoretical calculations. However, it acknowledged that a well's actual production rate may not be as high as its productive capability, and that adding compression could increase the rate at which a well produces. In that regard, Canadian 88 indicated that, if compression were added to the 8-27 well during the test period and it produced up to its productive capability, this would be acceptable but not preferred.

Canadian 88 argued that, although the reservoir may have been capable of producing about $1300 \times 10^3 \text{ m}^3/\text{d}$ at the well sandface (as calculated by Chapman Petroleum Engineering Ltd.) when the August 1996 AOF test was conducted, the well itself was not capable of producing at that rate. Therefore, Canadian 88 maintained that a traditional AOF test cannot be used to estimate the productive capability of the 8-27 well, and that actual production data should be used instead. Furthermore, it contended that conducting a new AOF test would not assist in establishing an equitable allowable for the 8-27 well, since using the Qmax equation under almost any circumstances would not preserve the equity for surrounding wells.

Canadian 88 submitted that reference to a production penalty and an area adjustment factor in Section 4.050(2) of the O&GC Regulations should imply something that is meaningful and realistic. In contrast, using the Qmax equation results in an allowable for the 8-27 well that is so high that production from the well is not effectively restricted. Canadian 88 further submitted that Section 4.050(2) does not state how the base allowable shall be determined, and that the EUB has not established a customary practice for dealing with fractional section DSUs. If the Board believes that an established practice does exist for determining base allowables for fractional section DSUs, it should take into consideration that this case is quite unique—that is, a horizontal well in a fractional section DSU surrounded by lands owned by other parties. Any existing practice probably did not contemplate these circumstances, and should have been reviewed, with input from potentially affected parties, prior to the Board making a decision on the allowable for the 8-27 well.

Canadian 88 agreed that the law of capture should prevail when a well is drilled in a normal DSU in accordance with Section 4.020(2) of the O&GC Regulations, and is highly productive in comparison to offsetting wells in the same pool. However, in this case, the 8-27 well has been drilled on a fractional section DSU, and therefore, should be permitted to produce only in such a way that the equity of the surrounding producers and royalty owners is not adversely affected. Furthermore, Canadian 88 asserted that Mobil deliberately drilled the 8-27 well as a horizontal well with the intent of draining a disproportionate amount of reserves from the pool. Therefore, restricting production from the 8-27 well in order to ensure equitable drainage would be fair and reasonable. It would not be unjust since Mobil assumed the risk of drilling the 8-27 well with the knowledge that it was being drilled on land which would not satisfy the terms of Section

4.020(2), and would require approval prior to production under Section 4.050(1) of the O&GC Regulations. Canadian 88 argued that it is not reasonable for Mobil to expect the Board to disregard spacing regulations and equity concerns of others simply because it drilled a highly capable well in the pool.

Canadian 88 submitted that normal DSUs were established to create a common opportunity and expected drainage area around a well. However, when dealing with wells in fractional section DSUs, the expected drainage area overlaps onto surrounding lands. In that regard, Canadian 88 agreed that the area adjustment factor is intended to adjust the drainage area of wells in fractional section DSUs, provided the base allowable is appropriate and does not result in inequitable drainage from surrounding lands. Canadian 88 acknowledged that, in order to protect itself against drainage in areas consisting of normal DSUs, it would be forced to make an economic decision either to drill a well or live with the loss of reserves. Canadian 88 further acknowledged that, if it decided to drill a well which ultimately was not highly productive in comparison to offsetting wells, it would also have to accept that result.

In response to questioning, Canadian 88 confirmed that it had redrilled the well located at Legal Subdivision 7, Section 26, Township 30, Range 29, West of the 4th Meridian (the 7-26 well) as a horizontal well. Canadian 88 stated that it now expects the 7-26 well to be capable of producing in excess of $250 \times 10^3 \text{ m}^3/\text{d}$ rather than $76 \times 10^3 \text{ m}^3/\text{d}$, as indicated in Exhibit 43. As a result, the 7-26 well would produce approximately 18 per cent of the reserves in the pool, even though it has only about 7 per cent of the volumetrically-estimated pool reserves attributed to it.

3.2 Views of the Interveners

Mobil supported the EUB practice of using the Q_{max} equation to calculate a base allowable, although it presented some possible changes to the current Q_{max} equation. It viewed the use of a Q_{max} calculated base allowable along with an area adjustment factor as described in Section 4.050(2) of the O&GC Regulations as putting a well drilled in a fractional section DSU on an equivalent basis, as far as equity is concerned, to a well drilled in a full section DSU. Moreover, the procedure was seen as not penalizing horizontal wells in comparison to vertical wells. Furthermore, Mobil asserted that only the area adjustment factor should be viewed as accounting for equity and drainage concerns, and that the base allowable for the 8-27 well, established using the Q_{max} equation, should be a GPP rate.

With respect to the August 1996 AOF test, Mobil stated that the extended flow rate was a stabilized rate, acceptable for use in the Q_{max} equation. Mobil based this assertion on the high capacity of the well, the significant separation between the short-term and extended flow rate curves on the deliverability plot, the distinct profile of the extended flow versus the short-term flow curves on the pressure versus time plot, the radius of investigation reached during the test, and a comparison of the flowing wellhead pressure during the test to those taken in 1997. Mobil acknowledged that some of this evidence was judgemental, but asserted that its engineering experience supported its belief that the extended flow rate from the August 1996 AOF test was stabilized within reasonable accuracy.

Mobil stated that an f factor of 0.30 is reasonable for the 8-27 well. It agreed that the August 1996 AOF test was not run at a drawdown that corresponds to such an f factor, but asserted that the test was still theoretically valid to use in the Q_{max} equation. However, Mobil agreed that a

new AOF test could assist in establishing an equitable allowable for the 8-27 well.

Mobil asserted that the Reserve Based Qmax methodology proposed by the applicant does not allow for competitive operations. The approach is rock-volume based and does not account for the deliverability potential of a well. It viewed the approach to be similar to some unitization agreements, which require a great deal of information and time to properly implement. It saw the heterogeneous nature of the pool as a hindrance to agreement on the distribution of porosity, permeability, net pay, and other parameters. Additionally, Mobil viewed the approach to be difficult or impossible to apply early in the life of a pool. It also stated that this approach would be unfair and uncertain, and involved too many unknowns for sound investment decisions to be made.

Mobil also rejected the applicant's proposed Actual Production Based Qmax methodology. It argued that such an approach would be arbitrary and not reflective of the actual deliverability of the well, and therefore, would not allow for competitive operations of the well. It asserted that the rates calculated using such a methodology would have to be proportional to the remaining gas-in-place for each DSU in order for the methodology to be valid. Mobil stated that there would be questions regarding the duration, criteria, and conditions of the production test. Additionally, such an approach would require annual testing of wells which would be a burden on industry, and could be environmentally unsound due to the flaring of gas during the test. As with the Reserves Based Qmax methodology, this approach would be difficult or impossible to apply early in the life of a pool.

Mobil contended that the reserves analyses submitted by Canadian 88 were inaccurate, and that the applicant had manipulated the data to meet its needs. It stated that it had chosen to refute the conceptual basis of the Reserves Based and Actual Production Based Qmax methodologies proposed by Canadian 88 rather than the details of its submission, particularly its estimation of reserves. Furthermore, Mobil did not believe that it had to refute Canadian 88's analyses in detail, as the burden of proof falls on the applicant to prove its case. Mobil also stated that its reserves information is confidential. Although Mobil chose not to address the detailed reserve analyses, it noted that the applicant had not changed the rock volume attributed to the 9-34 well in the Reserve Based Qmax methodology, even though this Canadian 88 well also is in a fractional section DSU.

On the matter of the capability of the 8-27 well, Mobil agreed that the well was not capable of producing the EUB-calculated Qmax rate of 1713 10³ m³/d, given that the well's AOF was approximately 1300 10³ m³/d. However, it argued that the 8-27 well could have initially produced at the well's assigned allowable of 827 10³ m³/d, given the right surface facilities. It contended that it was operating the well in accordance with the existing allowable, well design, field facilities, and overall area operations, although it agreed that the currently-assigned allowable was not affecting the operation of the well at present. It asserted that a well's rate would naturally decline over time as wells interfered with each other, and stated that it would be unfair to apply a penalty to that rate. Furthermore, Mobil contended that the current capability of the 8-27 well was irrelevant to establishing its allowable as the Qmax rate is calculated based on a well's capability at an earlier point in time.

Mobil acknowledged that it knew at the time it made its allowable submission for the 8-27 well

that the calculated base allowable of 1713 10; m;/d for the well was greater than the well's capability. However, it used the Qmax equation as directed by EUB staff, and as is consistent with EUB practice. Mobil checked the allowable submission by Canadian 88 for the 9-34 well, and found that this well's potential also was greater than its capability.

Mobil contended that there is nothing unique about a horizontal well in a fractional section DSU, or about drilling a horizontal well, or about a well having a higher productivity than offset wells. Moreover, the EUB's practice of applying an area adjustment factor to the Qmax calculated base allowable, resulting in an area-adjusted allowable, works equally well for vertical and horizontal wells. In addition, once the area-adjusted allowable is applied to a well in a fractional section DSU, whether vertical or horizontal, the fractional section DSU well is on an equivalent basis to a similar well drilled in a full section DSU. Therefore, the same law of capture and competitive operations should apply to fractional section DSUs, adjusted for area, as applies to full section DSUs. It submitted that accepting Canadian 88's arguments would amount to an after-the-fact change in the rules. Mobil expressed the view that the EUB should not treat horizontal wells differently than vertical wells, stating that it should be up to industry to select the type of well to drill based on economics. In this particular case, Mobil contended that the current operation of the 8-27 well represents competitive operations, and that the after-the-fact success of the 8-27 well is what made its allowable an issue.

Mobil viewed competitive operations as implying that a company may exercise its technical and business knowledge, skills, and judgement, to effectively and economically produce the oil and gas to which it holds mineral rights, while adhering to all applicable government regulations. Mobil described GPP as meaning that there are no EUB restrictions on the production rate of a well. It agreed that protection of the reservoir would be one reason that an operator would choose to restrict production. Mobil contended that the GPP rate should be set using some fraction of the AOF, and that the area-adjusted Qmax rate, calculated using the EUB's current practice, is equivalent to an area-adjusted GPP rate. Mobil referred to ERCB Informational Letter 85-10¹, noting that it indicates that, "The Board considers its method of calculating the maximum daily production rate (Qmax) to be a good preliminary basis for estimating a production rate consistent with good production practice and believes that the operator may wish to use this means of establishing a maximum daily production rate in the absence of a more sophisticated estimate."

¹Informational Letter 85-10, Maximum Daily Rates Of Production For Gas Wells, Energy Resources Conservation Board, 1985.

Mobil also referred to Section 4(d) of the O&GC Act, noting that one of the purposes of the Act is to afford each owner the opportunity of obtaining his share of the production of oil or gas from any pool. It emphasized that the Act did not afford an operator its share, rather, it afforded the opportunity to obtain its share. Mobil contended that the Reserve Based Qmax methodology proposed by Canadian 88 moves beyond affording Canadian 88 an opportunity to obtain its share, to ensuring that Canadian 88 obtains its share. Such an approach would be inconsistent with Section 4(d) and EUB practice. Mobil further referenced ERCB Decision 88-8², noting that this decision stated that, before approving an application for a rateable take order, the Board believes it must be convinced that a limitation of production rates is necessary because a well owner is being deprived of an opportunity to produce his share of the reserves of a pool. To demonstrate that an owner is not producing his share of reserves, the Board takes the position that the owner must be able to show that drainage is actually occurring or that it can be expected to occur with a very high degree of certainty. Additionally, the drainage must be as a result of the owner not having an opportunity to have produced his share of gas. In a case where the only limitation on production is the lack of wells or well capability, the Board considers that a producer is not being denied the opportunity to obtain his equitable share. Mobil asserted that Canadian 88 is not being denied its opportunity to obtain its equitable share, citing Canadian 88's opportunity to drill horizontal wells as it has with the 7-26 well.

3.3 Views of the Board

The Board agrees with Canadian 88 that the use of the Qmax equation stemmed from and relates to conservation, not equity. In addition, the parties acknowledged and the Board agrees, that in the case at hand, the use of the Qmax equation results in an allowable that does not effectively restrict the 8-27 well's production rate. That is, the well can currently produce at its maximum rate without exceeding its area-adjusted allowable. If this maximum rate of production could adversely affect ultimate recovery from the pool, the use of the Qmax equation would be inappropriate. But since there are no conservation issues involved, the appropriateness of the use of the Qmax equation is not easily determined. In this connection, the Board notes that the high Qmax rate is, in part, attributable to the use of an f factor of 0.30. ERCB Informational Letter 85-10 recommends the use of an f factor in the range of 0.75 to 0.85, although it acknowledges there may be no real limit on the f factor in the absence of conservation issues. The Board does not believe that the Qmax equation was intended to be used with an f factor as low as 0.30. Moreover, this low value for the f factor is currently used only for the 8-27 and 9-34 wells. Canadian 88 requested the value for the 9-34 well, and consistency required that the Board allow the same value for the 8-27 well.

While it is true that, in this instance, the use of the Qmax equation leads to an anomalous result where the analytical solution exceeds the currently achievable rate of production, that does not necessarily mean the result is inequitable. It may be reasonable to interpret the Qmax rate as being irrelevant to equity; relevant only to conservation. Effective conservation of resources requires rates of production that do not reduce the reserves recoverable from a particular reservoir. Nonetheless, to the extent that the Qmax rate can be viewed as a reasonable proxy for

²Decision D 88-8, Application 871060 and Application 880038, Energy Resources Conservation Board, 17 June 1988.

GPP, that in itself may imply that equity is possible, as long as all parties have the opportunity to produce at the GPP rate.

The Board agrees with Canadian 88 that, when the Qmax equation was introduced, horizontal wells were probably not contemplated, although the potential for very high productivity wells has no doubt always been recognized. However, the Board agrees with Mobil that it should not interpret regulations in such a way as to interfere with the strategic choices of companies in determining how to develop their properties in the absence of compelling reasons to do so, such as conservation issues. In this case, the Board has not been persuaded that the law of capture, implying competitive operations, should be viewed differently for fractional section DSUs as opposed to full section DSUs. In addition, although Canadian 88 stated at one point that it was the high productivity of well 8-27 and not the fact that the well was horizontal, that was the source of the problem, on other occasions it was clearly the existence of a horizontal well, with its assumed higher production rates, that was the irritant. Mobil's position that the Board should not treat horizontal and vertical wells differently, but rather should allow the choice of the type of well to be a component of competitive decision-making is persuasive.

The Board acknowledges Canadian 88's comments with respect to the wording of Section 4.050(2) of the O&GC Regulations. However, the fact that some specific situation involves an unusual result does not necessarily mean a regulation is ineffective. In this situation, the Board believes that a production penalty on a well in a fractional section DSU should restrict an operator's opportunity to produce at the GPP rate, rather than restricting the opportunity to produce at the actual surface capability of the well under specific operating conditions. The Board believes the area adjustment factor provides such a restriction, and, in this case, the restriction should be applied to the GPP rate. The Board notes that operators of wells in full section DSUs have the opportunity to produce their wells up to a GPP rate, which is essentially an unrestricted rate except for conservation considerations.

Regarding the validity of the August 1996 AOF test, the Board accepts that the test is valid and sees no reason to require that a new AOF test be conducted.

In the final analysis, the Board believes that the issue of whether or not Canadian 88 has the opportunity to produce its share of reserves is of primary importance in this matter. The Board continues to be of the view, as stated in ERCB Decision 88-8, that for an owner to demonstrate that it is not producing its share of reserves, it must show that drainage is actually occurring or can be expected to occur with a high degree of certainty. Furthermore, the drainage must be as a result of the owner not having the opportunity to produce its share of reserves. In a case where the only limitation on production is the lack of wells or well capability, the Board does not believe that owner is being denied the opportunity to obtain its equitable share. The Board recognizes that the above approach may encourage the drilling of wells that are not needed other than to protect an owner's equity interests. However, that result is justified by the importance of allowing for competitive operations.

In this particular case, the Board does not believe that Canadian 88 is being denied the opportunity to obtain its equitable share of reserves because it has the opportunity to drill a horizontal well, as evidenced by its redrilling of the 7-26 well as a horizontal well. Therefore, the Board does not accept Canadian 88's argument that the 8-27 well should be treated differently than other wells in fractional section DSUs because it is a highly productive well. Furthermore, the Board believes that, if it varied the allowable for the 8-27 well as requested by Canadian 88, Mobil could in effect be restricted from protecting its equity interests.

Given the above, the Board continues to believe that its current approach for establishing the allowable for the 8-27 well using the Qmax equation is appropriate, and should remain unchanged so as to be consistent with the approach used for other wells in fractional section DSUs.

4 STATUS OF EUB ORDER NO. SU 2422A

4.1 Views of the Applicant

Canadian 88 asked that the Board set aside EUB Order No. SU 2422A, dated 13 March 1996, on the basis that Mobil's application for an order prescribing Section 27 as a special DSU contained material deficiencies, notably, that it did not disclose the fact that Mobil would be drilling a horizontal well on Section 27. Canadian 88 submitted that it would not have given its consent, nor would Mr. Ryan, to the application had it known that a horizontal well was to be drilled. Canadian 88 contended that a horizontal well is equivalent to a high productivity well and that inequitable drainage would inevitably occur on its adjacent lands. Canadian 88 argued that the failure to disclose this important fact resulted in the non-compliance with certain parts of Section 15.160 of the O&GC Regulations and vitiated both Canadian 88's consent and Order No. SU 2422A.

4.2 Views of the Interveners

Mobil argued that Section 15.160 of the O&GC Regulations does not require any special duty of disclosure regarding horizontal drilling and that drilling a horizontal well on a fractional section does not create inequitable drainage. Furthermore, it contended that the request for a rescission of Order No. SU 2422A was improperly before the Board as it was not set forth in Canadian 88's application.

4.3 Views of the Board

The application filed by Canadian 88, dated 4 November 1997, which is the subject matter of the hearing, does not seek a rescission of Order No. SU 2422A, rather it seeks the variance or rescission of the prescribed maximum daily allowable for Mobil's 8-27 well. No reference to any other relief is contained in any of the correspondence, dated May 1996 to February 1998, from Canadian 88 to the Board or to Mobil. Furthermore, there is no reference to setting aside Order No. SU 2422A in the notice of hearing issued by the Board, only the issue of the maximum daily allowable. The application by Canadian 88 to the Board to rescind or set aside Order No. SU 2422A was first presented at the hearing.

Section 7 of the EUB's Rules of Practice requires an applicant to concisely set forth the facts that it is relying upon as well as the relief that it seeks. Canadian 88's application for the rescission of Order No. SU 2422A is deficient in this regard and not properly before the Board. Furthermore, the Board declines to exercise its discretion under Section 10(3)(f) of the Alberta Energy and Utilities Board Act to consider the relief requested by Canadian 88 because of the inadequate notice of this issue afforded to participants prior to the hearing. In any event, the

Board does not accept the general argument that a horizontal well would have an inevitable impact on correlative rights.

5 EFFECTIVE DATE OF THE ALLOWABLE AND IMPLICATIONS FOR FUTURE EUB POLICY AND PRACTICE

5.1 Views of the Board

The Board notes that both the applicant and intervener presented evidence and arguments at the hearing regarding the effective date of the allowable for the 8-27 well. Given that the Board continues to believe that its current approach for establishing the allowable for the 8-27 well is appropriate, it does not believe that it is necessary to address the arguments made regarding the effective date of the allowable. Notwithstanding the above, the Board acknowledges that Canadian 88's concerns regarding this matter should have been addressed by the EUB in a more timely manner, and intends to follow up on its internal procedures.

Similarly, because this decision does not alter current EUB practice, the Board does not foresee any implications for future EUB policy and practice regarding fractional section DSUs. However, the Board notes that the circumstances surrounding this matter are somewhat unique to fractional section DSUs. Cases involving off-target wells may be treated differently.

6 DECISION

Having considered all of the evidence, the Board denies Application No. 1012884.

Dated at Calgary, Alberta, on 26 August 1998.

ALBERTA ENERGY AND UTILITIES BOARD

<Original signed by>

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

<Original signed by>

J. D. Dilay, P.Eng.
Board Member

<Original signed by>

E. A. Shirley, P.Geol.
Acting Board Member

Allowable Calculation for the 8-27 Well

$$Q_{\max} = q [(P_i^2 - f^2 P_i^2) / (P_r^2 - P_{wf}^2)]^n [P_r / P_i]$$

where

- q = flow rate under stabilized conditions
- P_{wf} = stabilized flowing bottom hole pressure corresponding to q
- P_r = stabilized shut in bottom hole pressure
- P_i = initial stabilized shut in pressure in the reservoir
- n = inverse slope of the simplified deliverability plot
- f = fraction, to be set at a value which generally reflects permeability considerations, proximity of underlying water or oil, and other pertinent reservoir data

Parameters for the 8-27 well

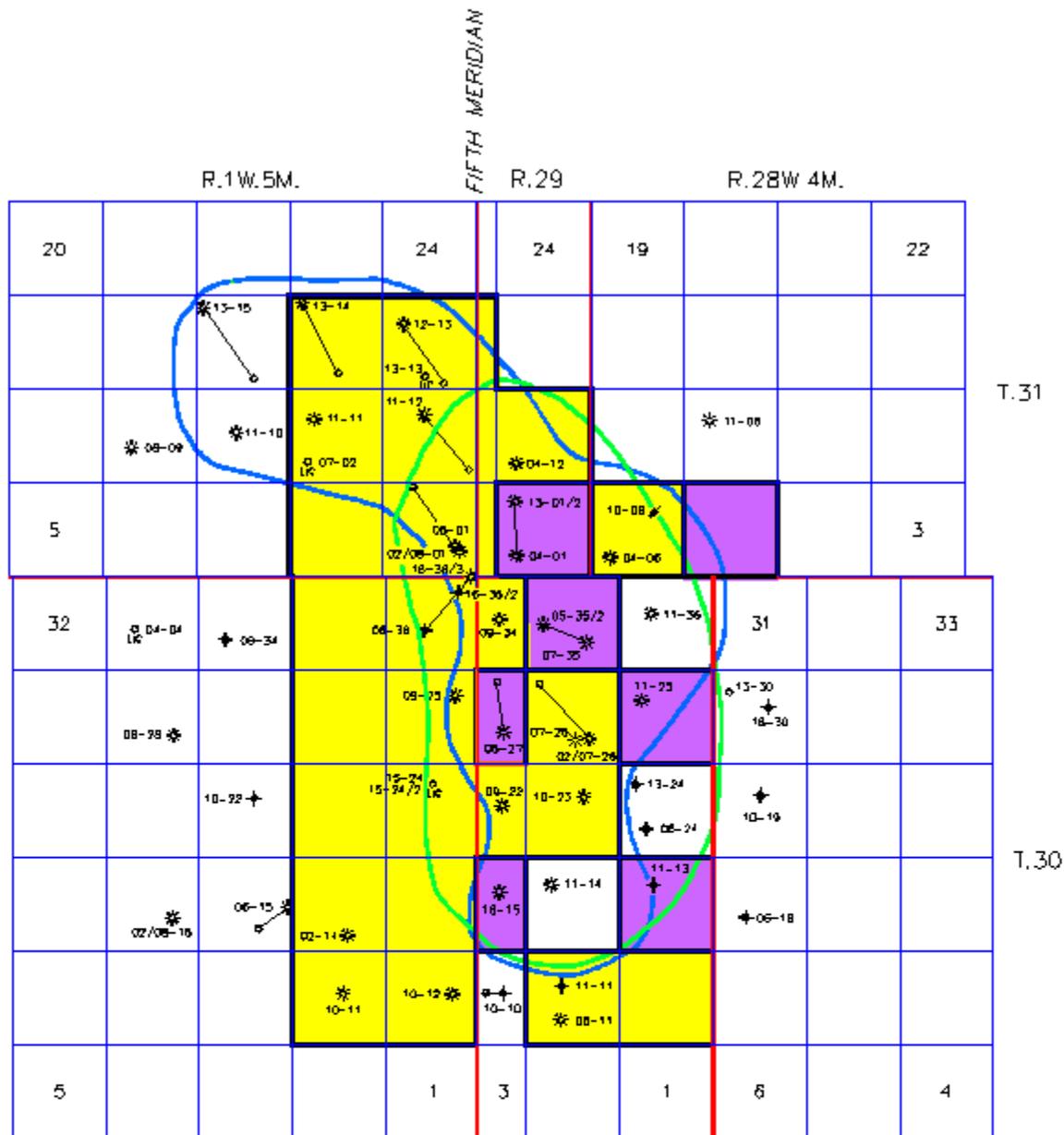
- q = 267 10³ m³/d
- P_{wf} = 15 942 kPa
- P_r = 17 205 kPa
- P_i = 24 360 kPa
- n = 0.863
- f = 0.30

$$Q_{\max} = 1713 \cdot 10^3 \text{ m}^3/\text{d}$$

$$\text{Area Adjustment Factor} = 0.483$$

$$\text{Daily Average Allowable} = 1713 \cdot 10^3 \text{ m}^3/\text{d} (0.483$$

$$= 827 \cdot 10^3 \text{ m}^3/\text{d}$$



LEGEND

- | | |
|-----------------------|--------------------------------------|
| * Flowing Gas | — Canadian 88 Effective Pool Outline |
| ✦ Abandoned | — Mobil Pool Outline |
| ★ Water Disposal | ▭ Fractional Section 27-030-29W4M |
| ◆ Flowing/Pumping Oil | ▭ Canadian 88 Lands |
| ○ Standing Well | ▭ Mobil Lands |
| * 10-11 Well ID | |
| — Horizontal Well | |
| LR Licensed Location | |

CROSSFIELD EAST-LONE PINE CREEK AREA
APPLICATION 1012884

DECISION 98-15