ALBERTA ENERGY AND UTILITIES BOARD
Calgary Alberta

VERMILION RESOURCES LTD., CLEAR ENERGY INC., TUSK ENERGY INC.
RATEABLE TAKE **Addendum**
SPECIAL OFF-TARGET PENALTY **Decision 2003-046**
SHANE KISKATINAW D POOL **Applications No. 1293177 and 1297939**

1 DECISION

On June 10, 2003, the Alberta Energy and Utilities Board (EUB/Board) in *Decision 2003-046*[1]

- approved Application No. 1293177 for an order distributing gas production from the Shane Kiskatinaw D Pool (the D Pool) among the wells with the unique identifiers of 00/12-19-077-01W6/0, 00/02-30-077-01W6/0, 00/02-23-077-02W6/0, and 00/04-24-077-02W6/0 (the 12-19, 2-30, 2-23, and 4-24 wells respectively);

- denied Application No. 1297939 for a special off-target penalty and allowable to be applied to production from the 2-30 well; and

- ordered that, subject to the rateable take order, no off-target penalty shall be applied to the 2-30 well.

The EUB issued Order No. GA 359 on June 10, 2003, to reflect approval of Application No. 1293177. Order No. GA 360, amending Order GA 359 by giving it a revised order number, was issued on June 18, 2003.

The reasons for *Decision 2003-046* are set out below.

2 INTRODUCTION

2.1 Applications, Interventions, and Hearing

In Application 1293177, Vermilion Resources Ltd., on behalf of itself, Clear Energy Inc. (Clear), and TUSK Energy Inc. (TUSK) (Vermilion *et al.*, or the applicant) applied

- pursuant to Section 36 of the Oil and Gas Conservation Act (OGCA), for an order distributing production from the D Pool among the 12-19, 2-30, 2-23, and 4-24 wells; and

- pursuant to Section 7 of the OGCA for the rateable take order to be effective December 2002 or, in the alternative, on the date of the application, February 14, 2003.

In Application No. 1297939, Vermilion *et al.* applied

[1] The words "Sections 7 and 36" in the second bullet on page 1 of *Decision 2003-046* should be replaced with the words "Section 7," and on page 2 of the decision, the reference to the 2-24 well in the table should be replaced by a reference to the 4-24 well.

- pursuant to Section 4.060(2) of the Oil and Gas Conservation Regulations (OGCR) for a special off-target penalty of 0.0133 and an allowable production rate of 42.3 thousand cubic metres per day (10^3 m^3/d) (1.5 million cubic feet per day) (mmcfd) to be applied to production from the 2-30 well, and

- for the special off-target penalty to be made effective February 5, 2003.

Talisman Energy Inc. (Talisman) filed a submission in support of the applications, and Monolith Oil Corp. (Monolith) filed in opposition to the applications.

The hearing of the applications was held in Calgary, Alberta, over four days between May 22 and 30, 2003, before Acting Board Members K. G. Sharp, P.Eng. (Presiding Member), F. Rahnama, Ph.D., and R. G. Evans, P.Eng. Participants at the hearing are set out in the appendix.

2.2 Background

A brief history and the ownership of the wells involved in the application can be summarized as follows:

Well	Finished drilling date	On production date	Ownership, comments
12-19	November 11, 2002	January 21, 2003	Vermilion, Clear, TUSK
2-30	September 21, 2002	December 18, 2002	Monolith, with Talisman having a 10 per cent royalty interest in exchange for farming out the section involved
2-23	September 25, 2002	December 6, 2002	Belloy Gas Unit No. 1, operated by Talisman; the working interest owners in the unit include Anadarko Canada Corporation, Provident Acquisitions Inc., Dominion Exploration Canada Ltd., and Talisman
4-24	February 14, 2001	October 26, 2001	Vermilion, Clear, TUSK; the 4-24 well is the discovery well of the D Pool

Gas from the wells is processed through four different gas plants (see Figure 1) as follows:

Well	Well licensee	Name of gas plant	Location of gas plant*	Plant operator
12-19, 4-24	Vermilion	Peoria	LSD 2-20 and 6-20-76-2 W6M	Vermilion (2-20) EnCana Corporation (6-20)
2-23	Talisman	Shane	LSD 6-18-78-2 W6M	Talisman
2-30	Monolith	Dunvegan	LSD 15-3-81-4 W6M	Devon Canada (Devon)

* Locations are in the following manner: Legal Subdivision 2 of Section 20, Township 76, Range 2, West of the 6th Meridian is abbreviated as LSD 2-20-76-2 W6M.

The wells in the pool are highly productive; at the time of the hearing, the 2-23 well was producing at 133.8 10^3 m^3/d (4.75 mmcfd), the 12-19 and 4-24 wells at a combined rate of 845.2 10^3 m^3/d (30 mmcfd), and the 2-30 well at 501.5 10^3 m^3/d (17.8 mmcfd).

According to EUB records, the Monolith 2-30 well is off target, being located 9.1 metres (m) north of the south boundary of the section and 564.8 m west of the east boundary of the section. In response to an application from Vermilion for an off-target penalty to be placed on D Pool production from the 2-30 well, the EUB assigned an annual allowable production for the

remaining portion of 2003 for the well of 255.2081 million (10^6) m^3 (9.06 billion cubic feet) (bcf), based on an off-target penalty factor of 0.25, a maximum daily rate of 3.0934 10^6 m^3/d (109.8 mmcfd), and 330 days. The allowable production was effective February 5, 2003, and was calculated in accordance with Section 4.070 and Schedule 14 of the OGCR and EUB *Interim Directive (ID) 94-2: Revisions to Oil and Gas Well Spacing Administration.*

2.3 Preliminary Matters

Monolith submitted that although Application No. 1297939 was characterized by Vermilion *et al.* as an "amending application," it was in fact a review and variance application under Section 39 of the Energy Resources Conservation Act. Monolith argued that as such, it was not a properly constituted application, since the process for such an application required two steps: first, the applicant needed to show that there was reason to review the decision, and second, if the Board decided to proceed with the review, the applicant was required to put forward its case as to why a different decision should have been made. Monolith stated that the two-step process was not followed in this case and no notice of the review as such was issued.

Vermilion *et al.* contended that Application No. 1297939 was an application made under Section 4.060(2) of the OGCR and was not a review and variance application, as argued by Monolith. Vermilion *et al*. submitted that the Board had the authority to consider the application under Section 7 of the OGCA. The applicant also argued that even if there had been some procedural irregularity, the Board had full power under Sections 7 and 8 of its *Rules of Practice* to consider the off-target penalty issue at the current hearing.

The Board considers the requested special off-target penalty factor and the rateable take order to be different forms of possible remedies to the same equity issue and as such believes both should be examined at the same time as a practical matter. Given that the notice of hearing included consideration of the off-target penalty matter, the Board is satisfied that all parties had a reasonable opportunity to respond to the applicant's submissions in that regard. The Board notes that the EUB's *Rules of Practice* allow for flexibility of procedure, and on that basis and in the circumstances at hand, the Board does not believe that it is necessary to make a formal ruling on whether the off-target penalty matter had been filed in the ideal manner. In conclusion, the Board is satisfied that it can properly consider the off-target matters raised in the context of the hearing.

3 ISSUES

The Board believes that the issues to be addressed are

- the delineation of the D Pool,
- the need for and details of a special off-target penalty, and
- the need for a rateable take order, and if there is a need, the details of the rateable take order.

4 DELINEATION OF THE D POOL

The parties agreed that

- the D Pool is a sandstone channel system deposited in a southwest to northeast trend,
- geological, pressure, and seismic information confirm that the 12-19, 2-30, 2-23, and 4-24 wells are in the D Pool,
- the pool dips along the trend, with the 2-30 well having the highest structural elevation and the 2-23 well having the lowest,
- there is a gas/water interface in the 2-23 and 4-24 wells,
- original gas in place for the pool as estimated by material balance calculation is about 845 10^6 m^3 (30 bcf), and
- the existing wells encountered a narrow channel that contained only about half of the estimated gas in place for the pool.

The parties did not agree about the detailed delineation of the pool or the location of those reserves outside the main channel encountered by the wells.

4.1 Views of Vermilion *et al.*

Vermilion *et al.* interpreted that the reserves calculated to be in the D Pool were located in the narrow channel encountered by the wells involved and in overbank deposits. It mapped the pool as shown in Figure 2. It stated that seismic amplitude could be used as an accurate predictor of net pay thickness in the pool for values greater than 3 or 4 m. There would be a moderate loss of confidence around the edge of the pool for pay thicknesses less than 3 or 4 m. Vermilion *et al.* submitted that detailed seismic information fit together with log analysis to produce a net pay map which could define the pool reserves and their distribution within the pool with a high degree of confidence.

The applicant submitted at the hearing that at current production rates, the remaining life of the pool would be about nine months.

4.2 Views of Talisman

Talisman submitted that the reserves that were not in the main channel of the D Pool were likely in overbank areas. It speculated that the overbank areas would be heterogeneous and not have the same reservoir characteristics as the main channel. It considered the Vermilion *et al*. attempt to map pay thicknesses of less than 4 m to be good, but it did not necessarily agree with the interpretation. Talisman mapped the main channel of the pool as shown on Figure 2, but did not attempt to map the overbank areas.

Talisman estimated the life of the D Pool to be about two years, accounting for a decline in production rates. It also noted that production could be curtailed somewhat by water coning. Talisman also stated that pool life could be as short as nine months, depending on production rates.

4.3 Views of Monolith

Monolith said that it did not know the location of the reserves in the D Pool that were not contained in the main channel encountered by the wells. It submitted that there was no evidence of overbank deposits, and it considered that the channel trend would be unlikely to generate overbank deposits in all directions as mapped by Vermilion *et al.* Further, in Monolith's view, given that the deposit was an erosional remnant with only the deepest portions of the channel preserved, it was more likely that overbank deposits would be eroded. In any event, there would be no certainty that the overbank deposits would be in communication with the main channel.

Monolith considered that mapping using the seismic information was subjective and highly interpretive, as illustrated by the different maps produced by Vermilion *et al*. and Talisman. It concluded that the entire pool could not be reliably mapped at this time and did not present a map showing an interpretation of the pool.

Monolith estimated that at high rates, the majority of the reserves of the D Pool would be depleted within two years, but maintained that the pool might continue to produce on an economic basis for up to five years after that.

4.4 Views of the Board

The Board finds that as no well has yet been drilled that would support the overbank model presented by Vermilion *et al.*, there continues to be uncertainty regarding the location of the reserves that are not in the main channel constituting the D Pool. As it is not possible to map the entire D Pool in a reliable manner with current data, the Board concludes that there is no reason to amend the current pool order, which shows the pool as comprising the four sections shown in Figure 2. Even though material balance calculations suggest there are additional reserves in the pool outside the defined pool boundary, the Board concludes that the information available and the interpretations of the size and shape of the main channel are sufficiently consistent to allow decisions to be made regarding drainage, relative gas reserves, and approximate productive pool life.

5 NEED FOR AND DETAILS OF A SPECIAL OFF-TARGET PENALTY

5.1 Views of Vermilion *et al.*

The applicant submitted that an off-target penalty was intended to prevent a party from unfairly capturing reserves that did not belong to it. However, the off-target penalty established by the EUB in February 2003 for the 2-30 well imposed no limitation on the well, which was producing at a rate less than the daily allowable rate of 773.4 10^3 m^3/d (27.45 mmcfd).

Vermilion *et al.* estimated that, accounting for pipeline and processing capacity limitations that prevented it from increasing production from the 12-19 and 4-24 wells and given the high penalized rate assigned to the 2-30 well, the established allowable rate would permit Monolith to recover 34.5 per cent of the reserves from the D Pool, more than 6.5 times the reserves the applicant estimated to underlie the Monolith lands. Therefore, the allowable assigned by the EUB had enabled the 2-30 well to produce at levels that had caused and continued to cause significant drainage of the applicant's reserves offsetting the 2-30 well.

Vermilion *et al*. submitted that as the off-target penalty assigned to the 2-30 well did not achieve the intended purpose of protecting its correlative rights, there was a need to assign a special penalty factor that would achieve this purpose, as provided for by Section 4.060 of the OGCR. It proposed that a special penalty factor of 0.0133 be applied. The applicant obtained this value by first calculating the share of pool reserves it mapped underlying the drilling spacing unit (DSU) where the 2-30 well was located and by determining what production rate this share represented, given its own pipeline and facility limitations. The resulting rate was then divided by the EUB-calculated maximum daily rate of 3.0934 10^6 m^3/d (109.8 mmcfd) to obtain the special penalty factor. The applicant also proposed that as an alternative to the special penalty factor, an appropriate case existed for the Board to consider a reduction in the maximum daily rate assigned, to which the standard penalty could be applied.

The applicant submitted that the assignment of the special penalty factor should go back to the date of the original, ineffective penalty. On that basis, it requested that the special penalty factor and the associated allowable be effective February 5, 2003. The applicant argued that the EUB could make such an order retroactive under its general powers under Section 7 of the OGCA.

Finally, Vermilion *et al.* stated that its preference was that the application for the special off-target penalty factor be approved over the rateable take application, because the rateable take application did not address the issue of the highly off-target position of the 2-30 well.

5.2 Views of Talisman

Talisman submitted that the current off-target penalty factor on the 2-30 well offered almost no protection for the correlative rights of the other parties producing from the D Pool. On that basis, there was justification, as allowed by Section 4.060 of the OGCR, for the Board to deviate from assessing the off-target penalty factor for the well in accordance with Section 4.070 and Schedule 14 of the OGCR. Talisman suggested that a special penalty factor calculated using the formula the Board used prior to 1994 would account for the highly productive nature of the D Pool and offer meaningful protection of the correlative rights in the pool.[2] Talisman inserted 19.1 m (including a 10 m portion of the road allowance) and 300 m as values for A and B in the formula to obtain an off-target penalty factor of 0.3883. It then used the EUB-calculated maximum daily rate to obtain an allowable rate.

Talisman stated that it did not support retroactivity and if the off-target penalty factor were recalculated, it should be effective on a go-forward basis.

Finally, Talisman said that it supported approval of the rateable take application over the special off-target penalty factor application, as the rateable take order would address both allocation and a reduction in the overall rate of production from the D Pool, which it considered was needed to address conservation and equity issues in the pool (as discussed in Section 6.2).

[2] Prior to 1994, the off-target penalty was calculated as follows: Penalty Factor =(0.5 x A x B)/K, where K for a one-section DSU = 300 x 300, and A and B were the distances from the wellbore at the top of the productive reservoir to the nearest sides of the DSU, but A and B could not exceed the distance between the target area and the nearest sides of the DSU. Prior to January 1, 1992, A and B were adjusted to account for the road allowance.

5.3 Views of Monolith

Monolith submitted that off-target penalties were intended to reduce the impacts of drainage from an off-target well, but not necessarily to eliminate such drainage. It also argued that companies were entitled to rely on the current regulations and EUB past actions when anticipating any future action the EUB could take in applying a penalty to an off-target well. Monolith stated that in the case of its 2-30 well it abided by the current regulations and that the EUB calculated the existing penalty using those regulations. On that basis, Monolith considered the application for a special off-target penalty to be completely inappropriate and requested that it be dismissed.

5.4 Views of the Board

The Board believes that off-target penalties are meant to mitigate lease line drainage resulting from production of off-target wells. Further, the Board believes that in normal circumstances, companies should have confidence in anticipating that the Board will apply off-target penalties in accordance with the OCGR as they plan development. However, where such a penalty appears in any given circumstance to be ineffective and not to serve the intended purpose of protecting correlative rights, a licensee should understand that the party whose reserves are being drained has the option of applying to the EUB for a special off-target penalty or other remedies that address impacts on its correlative rights. In this regard, the Board believes that Section 4.060 of the OGCR would allow it to modify or change the penalty factor on an off-target well to address correlative rights issues if warranted by the circumstances.

In this case, the Board notes that no evidence was presented disputing that the 2-30 well is draining reserves underlying the Vermilion *et al*. lands (see Section 6). Vermilion *et al.* has applied for either a special off-target penalty or a rateable take order to address the impact on its correlative rights. In reviewing this matter, the Board notes that the D Pool is not typical of most pools in Alberta in that it is unusually permeable and productive relative to the size of the reserves. Given this very high productivity and that substantial volumes of gas are being produced from the pool, the Board is concerned that a special off-target penalty factor may not fully address equity issues for all parties in the pool. For these reasons and having regard for its conclusions set out in Section 6.4, the Board is of the view that a rateable take order represents a better solution to the equity issues raised than a special off-target penalty factor. On that basis, Application No. 1297939 for a special off-target penalty is denied.

6 NEED FOR AND DETAILS OF A RATEABLE TAKE ORDER

6.1 Views of Vermilion *et al.*

Vermilion *et al.* submitted that its D Pool reserves were being drained at a high rate by production from the Monolith 2-30 well. The applicant calculated Monolith's share of production, based on the Vermilion *et al*. mapping, to be about 6 per cent cent; however, it submitted that at current production rates Monolith was capturing from 33 to 37 per cent of the daily pool production. As the 2-30 well is located off-target towards the Vermilion *et al*. reserves in Section 19-77-1 W6M, it concluded that the reserves being drained by the 2-30 well were largely coming from its lands.
The applicant argued that its reserves would continue to be drained in the absence of an order by

the EUB, as it did not have reasonable opportunities to address the constraints resulting in the drainage. Vermilion *et al*. submitted that it was currently producing at 845.2 10^3 m^3/d (30 mmcfd), the capacity of its associated pipeline and plant facilities. It argued that its wells were not producing at capacity; however, it would not be appropriate to build any facilities to increase production as none were needed to adequately drain the pool, which it estimated would be depleted in about nine months at current rates. Vermilion *et al*. further argued that given the extremely high rates of production from the D Pool, the pool would be depleted in the time it would take to construct additional facilities. Moreover, it pointed out that access was restricted to the lands involved, which were in the "green area" of the province: If conditions were wet, matting would have to be used to move equipment or work would have to be halted until conditions became dry. In addition, access was restricted between January and April due to wildlife in the area. The applicant argued that building additional facilities to increase production to compete with the 2-30 well would not represent a reasonable opportunity; rather this would allow drainage to continue while construction proceeded, result in an unduly short pool life, be a waste of resources, and may not be considered as orderly and efficient development.

The applicant also supported Talisman's argument that there was a conservation reason to restrict total production from the D Pool (see Section 6.2) in that high rates of production could result in water coning around the 2-23 and 4-24 wells at the downdip end of the pool and isolate reserves, which may then not be produced. Vermilion *et al.* said that it had not done its own exhaustive study of the conservation issue, but was relying on the Talisman submissions in this regard.

Vermilion *et al.* submitted that given the significant drainage occurring, the limited reserves remaining in the pool, and the lack of any economic motive on Monolith's part to reach a settlement, there had not been time for more extensive negotiations than took place. In the applicant's view, Monolith's position was too far from its own or Talisman's for a negotiated agreement to occur in a reasonable time frame. The applicant noted that it had negotiated a pooling arrangement with Talisman, subject to a favourable ruling from the hearing to restrict Monolith's production to a maximum of 84.52 10^3 m^3/d (3 mmcfd), which would allow for the production of Talisman's share of gas through the Vermilion *et al.* wells.

Vermilion *et al.* acknowledged that there had been an opportunity in 2002 to acquire Section 30-77-1 W6M under an agreement Vermilion had with Talisman; however, at that time Vermilion considered that the pool could be drained through the 4-24 well and another well was not required. In addition, it considered the potential drilling location on Section 30-77-1 W6M to be off target to such a degree that the well would be so severely penalized as to render production uneconomic. On that basis, it did not acquire the section. The applicant submitted that the EUB should not give weight to the Monolith argument that Vermilion should have taken advantage of past opportunities, because a "reasonable opportunity" is prospective in nature. Vermilion *et al.* concluded that a rateable take order was needed in this case to address the drainage issue.

The applicant submitted that the rateable take order should set total pool production at the sum of the capacity of its own pipeline and processing facilities, at 845.2 10^6 m^3/d (30 mmcfd), plus the proportionate capacity based on underlying reserves for the Monolith 2-30 well. Further, it proposed that the total pool production be allocated among the parties in proportion to the reserves underlying the lands held by each of the parties. Using its mapping, the applicant calculated that 6.17 per cent of pool production should be allocated to the Monolith 2-30 well,

12.20 per cent to the Talisman 2-23 well, and 81.63 per cent to the Vermilion *et al.* 12-19 and 4-24 wells.

Vermilion *et al.* submitted that balancing of pool production should be on a monthly basis, because the pool was depleting so rapidly. If total pool production were sufficiently restricted to provide for a longer pool life, quarterly balancing would be enough. The applicant requested that the effective date of the rateable take order should be February 14, 2003, the date of its application, as provided for under Section 7 of the OGCA.

Finally, Vermilion *et al.* said that although it preferred approval of the application for the special off-target penalty (see Section 5.1), it would find a rateable take order acceptable if it provided each party involved with an equitable share of reserves from the D Pool.

6.2 Views of Talisman

Talisman submitted that a rateable take order was needed to address equity and conservation issues in the D Pool.

Talisman considered that it was beyond dispute that production from the 2-30 well was draining the Vermilion *et al.* reserves. It also submitted that the rate of production from the pool should be reduced to minimize the risk of the 2-23 well at the downdip portion of the pool watering out and causing gas to be trapped in the overbank areas of the pool and not be recovered. In Talisman's opinion, with proper management of production rates, a significant portion of the overbank reserves could be recovered without drilling additional wells. Talisman compared the D Pool to the nearby Shane Kiskatinaw B Pool (the B Pool) and said that the risk of water problems in the B Pool was being minimized by managing the production rate and the location of the production.

Talisman submitted that the Board's decision on the application should take into consideration whether the parties had a reasonable opportunity to produce their share of reserves at the present time. In this regard, it agreed with Vermilion *et al*. that the rapid depletion of the D Pool made it difficult to justify spending additional capital to build facilities or to drill new wells. In Talisman's view, the construction of additional facilities would amount to unnecessary proliferation, given that the existing wells were more than capable of draining the pool. It also considered it unlikely that the matters involved could have been resolved through negotiations, given the parties' divergent positions. Talisman concluded that a rateable take order was needed to address the issues involved.

Talisman submitted that a rateable take order should limit total pool production to 704.3 10^3 m^3/d (25 mmcfd) or to the current pipeline and processing capacity to reduce the risk that the 2-23 well would water out and cause gas entrapment to occur. It further submitted that its mapping of the main channel should be used as the basis of a formula to allocate available production in the pool. In its opinion, mapping the overbank areas was highly interpretive, whereas the channel could be mapped with a high level of confidence. On the basis of its mapping of the channel, Talisman calculated that 1.8 per cent of production should be allocated to Monolith, 17.7 per cent to Talisman, and 80.5 per cent to Vermilion *et al.* Talisman also requested that the Vermilion *et al.* allocation be split 40/60 between the 4-24 and 12-19 wells respectively to minimize drawdown of the pool close to the gas/water interface in the downdip area of the pool.

Talisman considered that balancing of production should be on a quarterly basis. It stated that it did not support retroactivity and, accordingly, any rateable take order issued should be effective on a go-forward basis.

Finally, Talisman favoured a rateable take order over a special off-target penalty, as a rateable take order could address equitable allocation of production and also limit overall production rates to ensure maximum recovery from the pool.

6.3 Views of Monolith

Monolith submitted that there was no justification for the issuance of a rateable take order in this case.

Monolith indicated that production from its 2-30 well was likely draining D Pool gas underlying Vermilion *et al*. lands, but it maintained that the applicant had had and continued to have opportunities to compete with the 2-30 well. Monolith submitted that Vermilion had an opportunity to develop Section 30-77-1 W6M when Talisman offered the section. Further, Vermilion *et al.* could have easily designed for more production when it initially built its pipeline and processing facilities and later when it expanded those facilities. Monolith argued that Vermilion *et al*. could also have taken advantage of past opportunities to tie into the Talisman Shane gas processing plant. Monolith also contended that there was still an economic opportunity for Vermilion *et al*. to construct a pipeline to tie into Devon's facilities. It did not consider the construction of facilities in the green area to be a problem, as construction could occur either in dry conditions or in wet conditions if special procedures were used.

Monolith argued that the applicant did not enter into sufficient negotiations to resolve the matters involved prior to filing the rateable take application. However, it conceded that the parties' positions continued to be far apart.

Monolith submitted that its review of the pool indicated that there was no conservation reason to limit or allocate production from the D Pool. In its opinion, the material balance analysis indicated that there was not enough of a permeability contrast between the channel and the possible overbank area to affect well behaviour. Further, there was no indication of an active water drive, so that any water problems would result from the coning of water into a producing well, rather than water influx into the pool. Therefore, while the 2-23 well may cone water, such a cone was likely to extend only tens of metres from the well, and the reserves underlying the section could be recovered through updip wells. Monolith concluded that there was no risk of gas entrapment and that recovery from the pool was not sensitive to rate of production; therefore, a rateable take order for the D Pool was not needed for conservation reasons.

Monolith was opposed to the issuance of a rateable take order; however, it indicated that in the event that the Board considered it appropriate to issue an order, the Board should consider all possible variables in determining an allocation formula, including that mapping was not reliable, there were differences in deliverability among wells, there were downdip wells with gas/water interfaces and coning issues, and there were abandoned wells in Sections 19 and 30-77-1 W6M. Monolith stated that any limitation on total pool production should not be based on the Vermilion *et al.* pipeline and processing capacity but on existing available capacity in the

general area, which it estimated to be up to 2.254 10^6 m^3/d (80 mmcfd). Monolith also indicated that if the Board used its standard allocation formula, Monolith would probably advocate use of its net pay thickness determinations, together with full section DSUs for each well, in the formula. It considered that using full section DSUs in the formula would appropriately take all of the variables involved into account.

Monolith submitted that there was no legal foundation for the Vermilion *et al*. request for a rateable take order to be made effective retroactively. It argued that retroactivity would not be appropriate in this case, as the Board had found in previous decisions that drainage occurring during negotiations or during delays resulting from environmental restrictions were not inequitable.

6.4 Views of the Board

As indicated in numerous previous reports respecting applications for rateable take orders, the Board believes that before it can approve a rateable take application, it must be persuaded that the applicant is being deprived of a reasonable opportunity to obtain its share of production from the pool. In this regard, the Board considered

- whether the applicant's reserves are being inequitably drained and whether the drainage would likely continue in the absence of a rateable take order;

- whether the applicant has reasonable opportunities to address the drainage, including
  - maximizing the production from existing wells,
  - drilling new wells to increase its share of production from the pool,
  - addressing facility constraints that may be limiting the amount of gas the applicant can produce, and
  - entering into negotiations to make a voluntary arrangement to address the drainage issue; and

- whether there are conservation reasons for the Board to impose limits on production from the D Pool.

The Board agrees with the parties that the reserves underlying the applicant's lands are being drained by production of the 2-30 well. Further, the Board considers that such drainage is likely to continue if the situation remains unchanged.

The Board believes that it would not be reasonable to expect Vermilion *et al.* to have anticipated that it would be in its current position when it was reviewing opportunities to develop Section 30-77-1 W6M or when initially planning the size of its facilities. However, the Board believes that it needs to consider whether the opportunities the applicant continues to have to mitigate the drainage of its reserves short of the rateable take order are reasonable ones. In this regard, the Board notes that the D Pool is highly prolific relative to the pool reserves and that production is occurring at relatively high rates. The result is that the projected life of the pool is very short. In light of these factors, the Board considers that no further wells are required to drain the pool within a reasonable time period and that the existing pipeline and processing facilities serving the pool are likely to be at capacity for a relatively short time since the pool is being depleted very rapidly. On that basis, the Board finds that building additional pipeline and processing

capacity for gas produced from the D Pool, whether to tie the Vermilion *et al.* wells into other existing pipeline and processing facilities in the area or to expand the Vermilion *et al.* facilities, does not represent a reasonable opportunity for Vermilion *et al*., nor does such action represent orderly and efficient development of the pool.

The Board next considered whether there are conservation reasons to limit production from the D Pool. In this regard, the Board agrees with the position taken by Monolith that the evidence does not suggest an active water drive exists in the D Pool. The Board also agrees that water coning may be an issue with respect to downdip wells such as the 2-23 well, but believes that such coning should not significantly affect overall pool recovery. The Board concludes that it is not necessary to limit overall pool production for conservation reasons.

With respect to negotiations as a means to resolve the drainage issue in the D Pool, the Board notes the argument that minimal discussions occurred prior to the filing of the application. However, given the specific circumstances, including the expected short production life of the pool, the Board considers it unlikely that additional negotiations would have resulted in resolution of the matter. The Board accepts that such discussions as occurred were at an impasse at the time of the hearing.

In view of the foregoing, the Board concludes that an order distributing production among wells in the D Pool is required to provide the parties the opportunity to obtain an equitable share of gas from the pool.

As indicated in Section 4.4, the Board considers that there is uncertainty in mapping the entire D Pool, since there is no direct evidence about where all of the pool reserves are located. On this basis, the Board does not believe that it is appropriate to use mapping as the basis for allocating production among wells in the D Pool and accordingly sees no compelling reason to deviate from the EUB's standard allocation formula set out in *Guide 65: Resources Applications for Conventional Oil and Gas Reservoirs*. In considering what factors should be inserted into the formula, the Board notes that the parties had slightly different approaches to determining the net pay thickness, porosity, and water saturation associated with each of the wells in the pool. Given the tank-like performance of the pool, the Board considers that differences in porosity and water saturation are most likely local or interpretational in nature and therefore not representative of reserves. Therefore, the Board has decided to use only the net pay thickness values in the formula and to average the net pay thickness values presented by the three parties.

With respect to the validated area to be used for each well in the standard allocation formula, the Board considers that it should be the DSU, unless there is direct evidence to suggest that reserves do not underlie major portions of the DSU. In this regard, the Board notes that there is an abandoned well in LSD 6 of Section 19-77-1 W6M and another in LSD 7 of Section 30-77-1 W6M, which did not encounter productive reserves in the D Pool. The positioning of each of these wells in the spacing unit leads the Board to conclude that it would be reasonable to assign a validated area of one-half section to the 12-19 well and a validated area of one-quarter section to the 2-30 well. As there is no direct evidence at this time that reserves do not underlie most of Sections 23 and 24-77-2 W6M, the Board concludes that the validated area for each of the 2-23 and 4-24 wells should be the entire DSU associated with the wells.

The net pay thickness and validated areas used in the formula and the resulting allocations are set

out in the Board's decision issued June 5, 2003. The Board believes that the pooling arrangement between Vermilion *et al.* and Talisman has the potential to address Talisman's concerns about high production rates in proximity to the gas/water interface of the pool. The Board considers that it would be appropriate for the rateable take order to allow flexibility as to the location of the wells produced, so long as the overall allocations are preserved. If a new well is drilled into the pool or a well subject to the rateable take order becomes incapable of production for any reason, any of the concerned parties has the option of applying to the Board for a review and amendment of the rateable take order.

As indicated previously, the Board notes that the formula allocates production to each well in the pool and accounts for any direct evidence that indicates that reserves do not underlie most of the spacing unit. Only the percentage allocation indicated by the formula may be produced, regardless of where the well is located in the spacing unit. Therefore there is no need to apply any additional special off-target penalty factor, or indeed any off-target penalty factor, to the 2-30 well.

The Board recognizes the very short life of this pool and considers it appropriate that the parties cooperate to balance production allocations on a monthly basis. Any imbalances that occur in any given month should be corrected the following month. Finally, with respect to the effective date of the order, the Board notes that Section 36 of the OGCA does not have retroactivity provisions. Notwithstanding the prolific nature of the D Pool, the Board agrees with past decisions that drainage occurring during negotiations is not improper. Since it does not intend to make the order retroactive, the Board, as indicated in its decision issued June 5, 2003, has not considered whether Section 7 of the OGCA would allow the issuance of a retroactive order in this type of case.

7 SUMMARY

Having heard the evidence about the nature of the D Pool, as well as the relative well locations and productivities, the Board concludes that an inequitable drainage situation exists in this pool that requires intervention by way of some sort of imposed production restriction.

The Board notes that Vermilion *et al*. has applied for a special off-target penalty factor or a rateable take order to address the equity issue in the pool. The Board considers a rateable take order to be the more appropriate remedy in this case to address the equity issue, as such an order recognizes the correlative rights of all parties within the pool. Accordingly, the application for a special off-target penalty factor is denied, and the rateable take application is granted as set out in the Board's *Decision 2003-046*, issued June 5, 2003.

Dated at Calgary, Alberta, on August 7, 2003.

ALBERTA ENERGY AND UTILITIES BOARD

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

F. Rahnama, Ph.D.
Acting Board Member

R. G. Evans, P.Eng.
Acting Board Member

APPENDIX THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report	Witnesses
Vermilion Resources Ltd., Clear Energy Inc., TUSK Energy Inc. (Vermilion *et al*., the applicant) M. S. Forster A. N. Silenzi	V. M. Badger, P.Geol., of Vermilion Resources Ltd. C. M. Baker, of Clear Energy Inc. C. T. Banks, P.Eng., of Clear Energy Inc. N. P. Goody, P.Geoph., of Vermilion Resources Ltd. G. J. Jeffries, P.Eng., of Vermilion Resources Ltd. W. B. Jessee, P.Eng., of TUSK Energy Inc. H. Keushnig, P.Eng., Independent Consultant M. E. Robert, P.Eng., of Vermilion Resources Ltd. R. D. Sakatch, P.Eng., of Vermilion Resources Ltd. R. J. Sheedy, of Clear Energy Inc. C. Taggart, P.Eng., of Taggart Petrophysical Services Inc.
Talisman Energy Inc. (Talisman) S. M. Munro K. Lozynsky	F. Brunner T. A. Campbell, P.Eng. J. Postlethwaite M. E. Schretlen, P.Geoph.
Monolith Oil Corp. (Monolith) R. A. Neufeld R. L. Mooney	K. V. Allen, P.Geoph., of Allen Geophysical Consulting Ltd. R. Bachman, P.Eng., of Taurus Reservoir Solutions Ltd. E. Dalton J. K. Farries, P.Eng., of Farries Engineering (1977) Ltd. D. K. MacDonald, P.Geol. I. Smith, of Telluric Petrophysical Consulting Ltd. W. P. Vermey, P.Eng.
Alberta Energy and Utilities Board staff G. D. Perkins, Board Counsel K. Fisher P. Geis, P.Geol.	

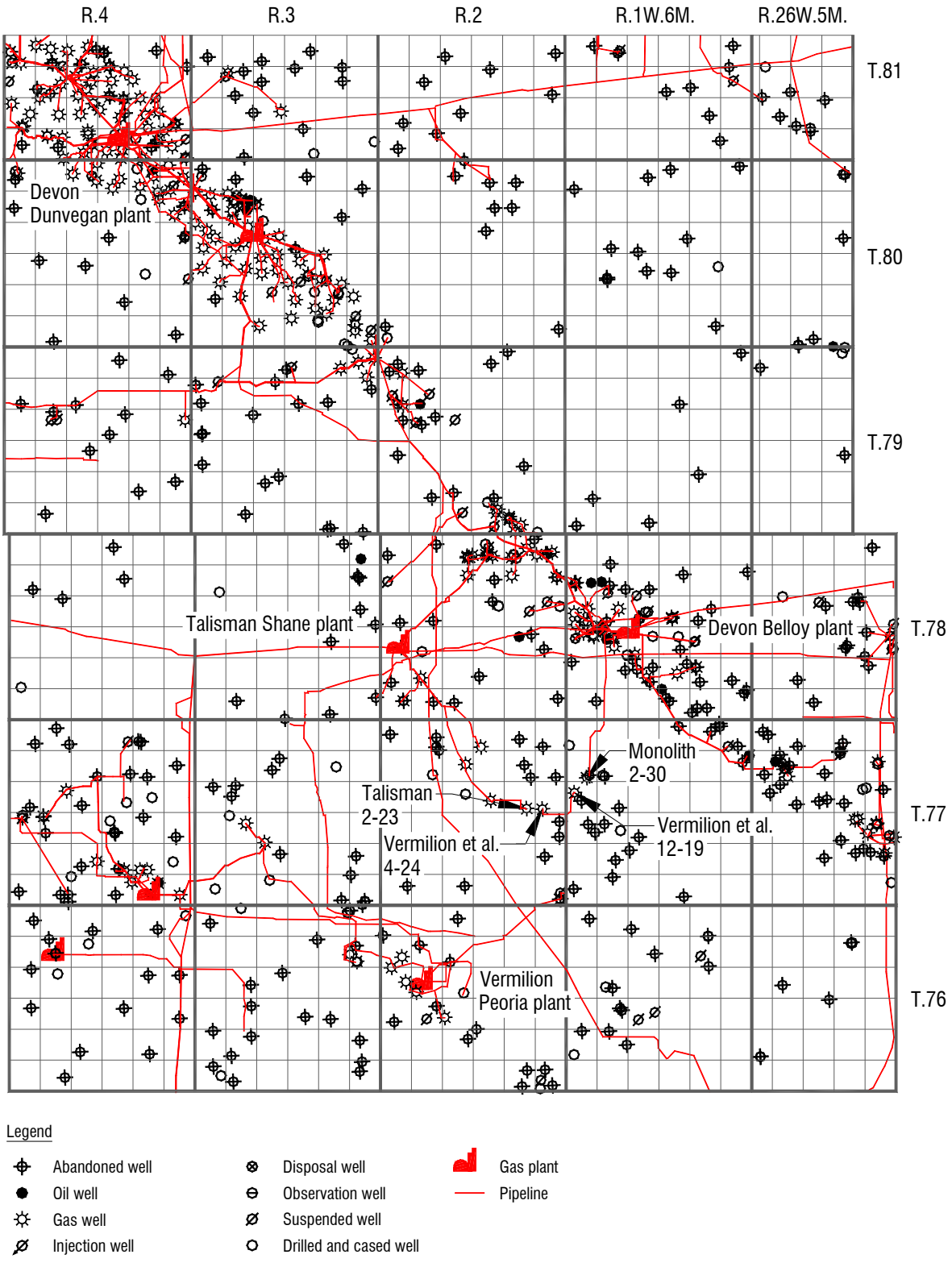

Figure 1. Gas pipeline and processing plants in general area of application
Applications No. 1293177 and 1297939
Vermilion Resources Ltd., Clear Energy Inc., and TUSK Energy Inc.

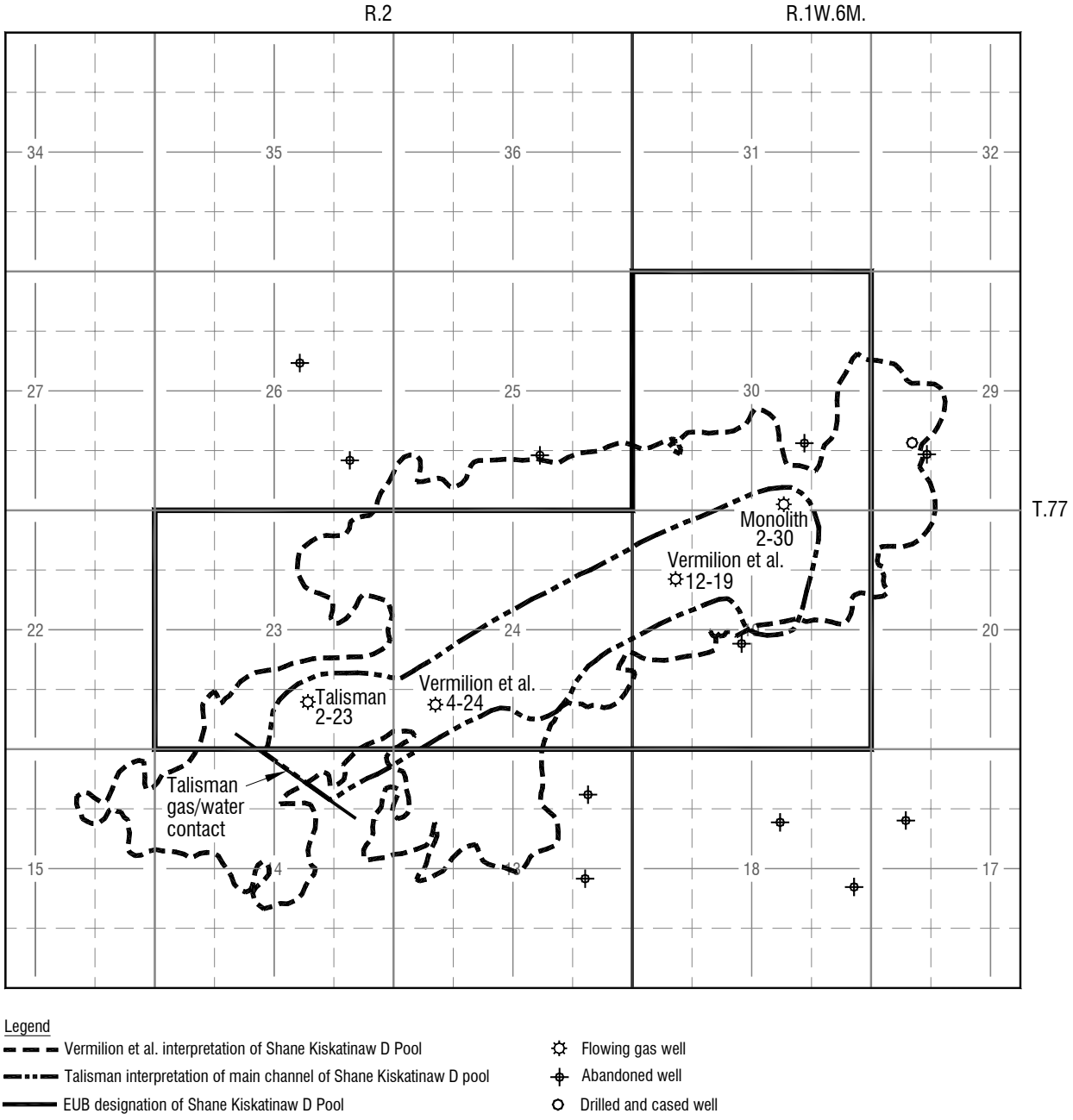

Figure 2. Shane Kiskatinaw D Pool

Applications No. 1293177 and 1297939
Vermilion Resources Ltd., Clear Energy Inc., and TUSK Energy Inc.

ALBERTA ENERGY AND UTILITIES BOARD
Calgary Alberta

VERMILION RESOURCES LTD., CLEAR ENERGY INC., TUSK ENERGY INC.
RATEABLE TAKE
SPECIAL OFF-TARGET PENALTY **Decision 2003-046**
SHANE KISKATINAW D POOL **Applications No. 1293177 and 1297939**

1 APPLICATIONS AND HEARING

In Application 1293177, Vermilion Resources Ltd. on behalf of itself, Clear Energy Inc., and TUSK Energy Inc. (Vermilion *et al*.), applied

- pursuant to Section 36 of the Oil and Gas Conservation Act (the Act), for an order distributing production from the Shane Kiskatinaw D Pool (the D Pool) among the wells with the unique identifiers of 00/12-19-077-01W6/0, 00/02-30-077-01W6/0, 00/02-23-077-02W6/0, and 00/04-24-077-02W4/0 (the 12-19, 2-30, 2-23, and 4-24 wells respectively), and

- pursuant to Sections 7 and 36 of the Act for the rateable take order to be effective December 2002 or, in the alternative, on the date of the application, February 14, 2003.

In Application No. 1297939, Vermilion *et al*. applied

- pursuant to Section 4.060(2) of the Oil and Gas Conservation Regulations for a special off-target penalty of 0.0133 and an allowable production rate of 42.3 thousand cubic metres (1.5 million cubic feet) of gas per day to be applied to production from the 2-30 well, and

- for the special off-target penalty to be made effective February 5, 2003.

The hearing of the applications was held in Calgary, Alberta, commencing May 22, 2003, before Acting Board Members K. G. Sharp, P.Eng. (Presiding Member), F. Rahnama, Ph.D., and R. G. Evans, P.Eng.

2 DECISION

The Board believes that the reserves underlying the Vermilion *et al.* lands are being drained by production from the 2-30 well and that, given the expected very short life of the D Pool and the production limitations imposed by pipeline and processing capacities, Vermilion *et al*. does not have a reasonable opportunity to obtain an equitable share of production from the pool. The Board concludes that it is appropriate to address the equity issue in this pool. Given the drainage and the possibility that a delay in issuing an order may impair the applicants' ability to obtain an equitable share of production from the D Pool, the Board is issuing its decision and this

brief report. The Board will issue a further report giving more detailed reasons for its decision in due course.

The Board concluded that a rateable take order is the appropriate remedy in this case, as such an order addresses the correlative rights of all producers in the pool. Given that a rateable take order provides a well owner with an equitable share of production from the pool regardless of where its well is located in the drilling spacing unit, the special off-target penalty, or any off-target penalty for that matter, is not required to provide for equity between the parties.

Therefore, the Board

- approves Application No. 1293177 for an order distributing production from the D Pool among the 2-19, 2-30, 2-23, and 4-24 wells;

- denies Application No. 1297939 for a special off-target penalty and allowable to be applied to production from the 2-30 well; and

- orders that, subject to the rateable take order, no off-target penalty shall be applied to the 2-30 well.

In reviewing the evidence regarding the basis for the distribution of production from the D Pool, the Board concluded that there was no compelling reason to deviate from the Board's standard allocation formula as set out in *Guide 65*.[1] The Board assumed average porosity and gas saturation values and used only net pay and validated areas in the formula. The Board obtained the net pay values used by averaging the values submitted by Vermilion *et al.,* Monolith Oil Corp. (Monolith), and Talisman Energy Inc. (Talisman). Further, in assigning validated areas, the Board had regard for the abandoned wells in Sections 19 and 30 of Township 77, Range 1, West of the 6th Meridian. The resulting allocation is shown below:

	Net Pay (metres)				Validated area	Net pay x validated area	Allocation by well (percentage of pool production)
Well	Vermilion	Monolith	Talisman	Average	(hectares)		
12-19	13.75	14.38	13.75	13.96	129.50	1807.82	31.8
2-30	7.40	8.97	8.70	8.36	64.75	541.31	9.5
2-23	4.25	4.87	5.00	4.71	259.00	1219.89	21.4
2-24	9.15	8.75	6.70	8.20	259.00	2123.80	37.3
Totals						5692.82	100.0

The Board believes that the rate of take order should be sufficiently flexible to allow for agreements between producers to pool their interests to obtain efficient production. Production must be balanced among the parties on a monthly basis, with any under- or over-production in any month being balanced in the following month.

Finally, the Board notes that Section 36 of the Act does not expressly contemplate a rateable take order being issued with retroactive effect. Without deciding the question of whether it can issue

[1] The formula in *Guide 65: Resources Applications for Conventional Oil and Gas Reservoirs* is Percentage of pool production for specific well = 100 x (wellbore net pay x porosity x gas saturation x validated area)/(sum of wellbore net pay x porosity x gas saturation x validated area for all wells).

such an order, the Board is not persuaded that this is an appropriate case in which to issue a retroactive rateable take order. Therefore the rateable take order is effective on the date it is issued.

DATED at Calgary, Alberta, on June 5, 2003.

ALBERTA ENERGY AND UTILITIES BOARD

[Original signed by]

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

[Original signed by]

F. Rahnama, Ph.D.
Acting Board Member

[Original signed by]

R. G. Evans, P.Eng.
Acting Board Member