

1 INTERIM DECISION

Having considered the evidence submitted to the interim hearing, the Alberta Energy and Utilities Board (EUB/Board) concludes that continued production of associated gas from certain zones in 10 wells may present a significant risk to future bitumen recovery and may result in associated economic losses in portions of the Chard area, pending the outcome of the main hearing of applications scheduled to commence on November 13, 2001. Accordingly, the Board grants the subject application in part. Specifically, the Board will order the interim shut-in of associated gas production effective September 1, 2001, from specific perforated intervals within the McMurray Formation in 10 wells listed in Appendix 1. The wells are to remain shut in pending the Board's final decision regarding Application No. 1085793. An order requiring the interim shut-in of gas production will be issued shortly.

This interim decision should not be considered as conclusive or permanent with regard to the issues to be addressed at the main hearing. An interim decision necessarily means that the Board did not have the benefit of the entirety of the evidence and argument that will ultimately be made available to it, nor was it in a position to assess the merits based on the totality of evidence. Accordingly, the Board will not be bound by the above interim decision.

2 INTRODUCTION

2.1 Background

On January 29, 2001, Petro-Canada Oil and Gas (Petro-Canada) applied, pursuant to Section 3(5) of the Oil Sands Conservation Regulation (OSCR), for an order to shut in Wabiskaw-McMurray gas production from specific wells located in and surrounding the area of its Chard oil sands leases (i.e., Application No. 1085793). Petro-Canada submitted that the order was needed to prevent the continuing adverse impact on the ultimate recovery of underlying bitumen due to pressure depletion as a result of gas production. Petro-Canada's Chard oil sands leases are located in whole or in part in Townships 79 to 81, Ranges 6 to 8, West of the 4th Meridian.

On April 26, 2001, the Board issued its decision to proceed with a common hearing on both specific gas production applications and the review of existing gas production in the Leismer Field and Chard area, including Petro-Canada's application to shut in gas production at Chard. Furthermore, with respect to the matter of shutting in gas production pending the outcome of the main hearing, the Board decided that the evidence required to make such a determination is both detailed and complex and, therefore, was not prepared to make such a decision in advance of considering all the evidence at the main hearing.

2.2 Application and Interventions

On May 25, 2001, Petro-Canada applied, pursuant to Sections 42 and 43 of the Energy Resources Conservation Act (ERCA), for the interim shut-in of Wabiskaw-McMurray gas production from 40 wells in the Chard area, pending the Board's final decision from the main hearing. Petro-Canada submitted that the Board erred in its April 26, 2001, decision to not shut in gas production pending the outcome of the main hearing, because the energy statutes require the Board to fulfill its conservation mandate on an interim as well as on a permanent basis. Petro-Canada further submitted that the Board's decision was subject to a review under Section 43 of the ERCA, since the Board did not hold a hearing prior to making its decision.

The Board subsequently received a submission from the Chard Gas Producers (CGP), consisting of Calpine Canada Natural Gas Company, Canadian Forest Oil Ltd., Paramount Resources Ltd., and Rio Alto Exploration Ltd., dated June 4, 2001, and a submission from Northstar Energy Corporation (Northstar), dated June 4, 2001. Both the CGP and Northstar opposed Petro-Canada's request for a review or hearing of its application for the interim shut-in of gas production at Chard, submitting that the matter could only be properly considered at the main hearing. The CGP further submitted that the Board does not have the jurisdiction to grant an interim shut-in order of the nature sought by Petro-Canada. It argued that the Board's decision to not shut in gas pending the outcome of the main hearing was an interlocutory decision and that, therefore, Section 43 of the ERCA could not be used in this context.

On June 5, 2001, the Board issued its decision (Appendix 2) to conduct a hearing to consider Petro-Canada's application for the interim shut-in of gas production from 40 wells in the Chard area.

2.3 Hearing

A public hearing of the subject application was held from July 3 to 5, 2001, in Calgary, Alberta, before J. D. Dilay, P.Eng., B. T. McManus, Q.C., and C. A. Langlo, P.Geol. A list of those who appeared at the hearing is provided in the following table.

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report)

Witnesses

Petro-Canada Oil and Gas (Petro-Canada)

W. T. Corbett, Q.C.
S. R. Miller

J. Fong, P.Eng.
C. Hartford, P.Eng.
D. Lee, P.Geol.

AEC Oil & Gas (AEC)

R. M. Perrin

Chard Gas Producers (CGP)

K. F. Miller

D. Bertram, P.Eng.,
of Adams Pearson Associates Inc.
L. Mattar, P.Eng.,
of Fekete Associates Inc.
P. Putnam, Ph.D., P.Geol.,
of Petrel Robertson Consulting Ltd.
C. Riddell, P.Geol.,
of Paramount Resources Ltd.

Northstar Energy Corporation (Northstar)

S. M. Munro

G. Birrell
J. Pearce, P.Eng,
A. Stroich, P.Eng.

Alberta Energy and Utilities Board staff

M. E. Connelly, P.Geol.
G. W. Dilay, P.Eng.
K. M. Johnston
D. A. Larder
K. F. Schuldhuis, P.Eng.

3 JURISDICTION OF THE BOARD TO ISSUE AN INTERIM SHUT-IN ORDER

In the circumstances of the present application, the Board derives its authority to shut in existing gas production on an interim or interlocutory basis from Section 15 of the ERCA and Section 3(5) of the OSCR. The validity of the regulation was recently upheld by the Alberta Court of Appeal in the Giant Grosmont Decision,¹ which, in holding that the regulations were intra vires the Board, affirmed that the combined effect of the relevant energy legislation (i.e., ERCA, Oil and Gas Conservation Act, Oil Sands Conservation Act, Alberta Energy and Utilities Board Act)

¹ Giant Grosmont Petroleum Ltd. et al. vs. Gulf Canada Resources Ltd., Petro-Canada, and EUB, Unreported, June 29, 2001 (C.A.)

was to imbue the Board with the necessary authority, implied or explicit, to fulfill its primary statutory duty of ensuring that energy resources are not wasted.

It is the Board's view that the specific power to grant an interim shut-in order for conservation purposes is clearly set forth in Section 3(5) of the OSCR, which states:

Where it appears to the Board that the ultimate recovery of crude bitumen in the oil sands strata may be affected by gas production, the Board may, on its own initiative or on application by an affected party, make any order or directive it considers necessary to effect the conservation of the crude bitumen in any particular case.

The words used in the regulation are broad and clear. The Board may make any order it deems necessary for the conservation of bitumen. The Board considers that the issuance of an interim shut-in order in appropriate circumstances falls within the authority granted to it by this provision. Section 15 of the ERCA further enhances the Board's authority by investing it with the power to do all things that are necessary for or incidental to the performance of the Board's statutory responsibilities.

The Board appreciates that there is a limited evidentiary record upon which to make an interim decision. There will be a great deal more evidence to be considered at the main hearing. It is important to note that the Board is not engaged in the final determination of the merits of the respective parties' positions and that this interim decision should not be interpreted in that light.

With respect to the appropriate test on an interim shut-in application, it is the Board's view that while the tripartite test utilized in civil litigation may offer some general guidance to the Board's deliberations, its strict application does not provide the appropriate basis upon which an interim shut-in application should be considered. The issue from the Board's perspective is one of conservation of energy resources in the public interest and, specifically, the impact of producing gas wells on the conservation of bitumen pending the outcome of the main hearing. The conservation issue will be moot at the main hearing if, for example, the ongoing pressure decline of the overlying gas zone leading up to the main hearing significantly reduces or sterilizes the ultimate recovery of the bitumen resource.

An interim shut-in application does not require irreparable harm to be established conclusively or that the Board conduct an analysis of the balance of convenience between the parties regarding the shut-in of gas. Where it appears to the Board that bitumen recovery may be affected by gas production, the Board may take such conservation action that it deems necessary. This is not to say that on an interim basis the nature of the potential competing harm to the parties is not a relevant consideration, only that the Board is not bound to apply the strict tripartite test in determining whether to grant an interim shut-in order. The Board's focus is centred on the potential for the significant waste of bitumen resources during the period required to consider the main shut-in application.

On the evidence before it, the Board believes that a serious issue has been raised by Petro-Canada regarding continuing pressure depletion of overlying gas zones through production of gas from certain wells.

The Board is of the view that it does not have the authority to compel Petro-Canada to provide

an undertaking for damages, as would likely be the case in most civil actions where interim injunctive relief is granted. There is no provision in the energy statutes that allows the Board to make an order for this type of compensation. To the contrary, Section 91 of the Oil and Gas Conservation Act specifically reserves the power to the Lieutenant Governor in Council to direct compensation be paid to parties suffering damages resulting from Board orders.

4 ISSUES

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

- geological interpretation,
- effect of associated gas production on bitumen recovery by steam-assisted gravity drainage (SAGD),
- feasibility of artificial repressuring,
- economics and public interest, and
- submission of pressure data.

5 VIEWS OF THE BOARD

Given the interim nature of the subject application and the need to issue a timely decision, this report contains only the views of the Board and not the views of the hearing participants, as is the Board's normal practice.

5.1 Geological Interpretation

The Board has reviewed the geophysical logs of wells in the Chard area, in particular the 40 gas wells that Petro-Canada is requesting be shut in. The Board believes that the bitumen-bearing, fining-upward, stacked channel sands of the McMurray Formation at Chard are analogous to Surrmont. However, the Board recognizes that there may be other reservoir sands, in addition to stacked channel sands, especially in the upper part of the McMurray Formation. Based on well log character, the Board agrees that in the upper part of the McMurray Formation there are three coarsening-upward sand-dominated sequences, as identified by the CGP. The uppermost and the lowermost sequences appear to be correlatable over large areas of Chard. Both intervals are characterized by a basal mudstone, approximately 1 metre thick, that has a high gamma ray reading and resistivity reading of 7 to 9 ohm-metres. Where these basal mudstones are present, fluid distribution in some cases supports vertical separation. On the basis of the evidence before it, the Board believes that where these two basal mudstones have been preserved, the gas in the intervals above them is not in vertical communication with the underlying bitumen.

However, where later channels have downcut and removed these coarsening-upward sequences and associated mudstones, there is no evidence of vertical separation between gas and the underlying bitumen. The lowermost coarsening-upward sequence, although present over much of the Chard area, is the most commonly eroded. The uppermost coarsening-upward sequence is the best preserved and appears to correlate to the bayfill sheet sandstone described by Petro-Canada.

The middle parasequence interval, identified by the CGP, is a more complex unit in that the Board finds it does not have the same consistent coarsening-upward log character as seen in the other two intervals, nor is there a correlatable basal mudstone unit associated with it. Therefore, based on the lack of an associated mudstone unit, the Board does not recognize any vertical barriers separating this sand interval from the lowermost coarsening-upward sequence or, in its absence, any underlying stacked channel sandstones.

Bitumen occurring within these three upper McMurray sequences is thin and vertically separate from the thick bitumen sands of the underlying stacked channels and the Board does not expect it to be thermally exploitable. However, the Board believes that the bitumen within the underlying stacked channel sands at Chard is of sufficient quantity and quality to warrant consideration for protection for future development.

The Board has reviewed the relationship of the overlying Wabiskaw C sand to the McMurray sands. The Board believes that in instances where the three coarsening-upward sequences have been removed by channelling, the Wabiskaw C gas is vertically separated from McMurray gas and bitumen by a laterally correlatable intervening shale associated with the Wabiskaw C sand. On this basis, the Board does not believe that shut-in of Wabiskaw gas production is necessary at this time.

The Board is relying on the above interpretation of the upper McMurray and Wabiskaw C sands to assess Petro-Canada's application for the interim shut-in of 40 gas wells at Chard. The Board identified gas zones that have the potential to be in vertical communication with the underlying bitumen. The Board then reviewed the gas and water pools for the identified wells, as mapped by both Petro-Canada and the CGP, to determine any subsequent wells that have gas or water zones in lateral communication. For the purposes of this interim decision, the Board relied on the definition of a region of influence as stated in EUB *Interim Directive 99-1*.² Appendix 1 lists 10 wells and the specific perforated intervals, all within the McMurray Formation, for which the Board believes there is potential communication between the gas and the bitumen in the underlying stacked channel sands.

5.2 Effect of Associated Gas Production on Bitumen Recovery by SAGD

As was the case in the general inquiry³ and the Gulf Surmont Hearing, assessment of the impact of gas production on bitumen recovery by SAGD for this interim shut-in application was based on reservoir simulation. Petro-Canada used the same simulation work it submitted to the Gulf Surmont Hearing (with the addition of a third reservoir model), which the Board notes was

² EUB *Interim Directive 99-1: Gas/Bitumen Production in Oil Sands Areas—Application, Notification, and Drilling Requirements*, February 3, 1999.

³ EUB *Inquiry: Gas/Bitumen Production in Oil Sands Areas*, March 1998.

extensively debated at that hearing. With respect to the CGP's simulation work, the Board notes that it was an interim model study and that a three-dimensional (3-D) probabilistic geological model is currently being developed to corroborate the results of the interim model study. Although Northstar did not conduct its own simulation study, by referring to Petro-Canada's simulation work it stated that for the Chard A prospect, shutting in gas at this time would reduce the recovery of bitumen by 40 per cent compared to the recovery achievable if the overlying zone is repressured to 1750 kilopascals absolute (kPaa). This indicates to the Board that Northstar acknowledges that low gas zone pressures can have a significant negative impact on bitumen recovery.

Notwithstanding the Board's acknowledgement about the uncertainties with using reservoir simulation, it concluded that the reservoir modelling work submitted to the Gulf Surmont Hearing (which included Petro-Canada's modelling work) reasonably demonstrated that producing associated gas in the Surmont area would likely have a detrimental effect on SAGD performance and that the detrimental effect increases with decreasing gas cap pressure. Considering the previous extensive debate on Petro-Canada's simulation work and the differing views presented at the interim hearing, the Board believes there needs to be a more thorough debate of the simulation work for the Chard area before it is prepared to reconsider its conclusions on the simulation work submitted by Petro-Canada to the Gulf Surmont Hearing. Until this is done at the main hearing, the Board is of the view that producing gas from the specific perforated intervals in the 10 wells listed in Appendix 1 could have a detrimental effect on bitumen recovery.

For these 10 wells, the Board notes Petro-Canada's estimate that the pool pressures in January 2001 for 7 of the wells were in the range of 335 to 550 kPaa and for 2 of the wells were about 970 kPaa. No estimate was provided for one of the wells because of limited data. For the same 10 wells, the CGP estimated that the pool pressures in February 2001 for 4 of the wells were in the range of 350 to 570 kPaa and for 2 of the wells were in the range of 1000 to 1085 kPaa. No estimates were provided for 4 of the wells. The CGP stated that its estimates of the pool pressure decline rates are consistent with Petro-Canada's average estimate of 6.3 kilopascals (kPa) per month. Considering its conclusions in the Gulf Surmont Decision (*Decision 2000-22*) that artificial lift becomes increasingly difficult as the steam chamber pressure is decreased below 800 kPaa and that the minimum steam chamber pressure required for artificial lift to be technically feasible is in the range of 400 to 600 kPaa, the Board agrees with Petro-Canada that there is an urgent need to deal with the production of gas from the specific perforated intervals in the 10 wells listed in Appendix 1.

5.3 Feasibility of Artificial Repressuring

The Board notes that since the issuance of *Decision 2000-22*, no field tests have occurred to demonstrate the viability of repressuring a gas zone in a similar geologic setting to that at Surmont or Chard. While the Board acknowledges that repressuring of a depleted gas zone may be demonstrated to be a viable option in the future, it is not prepared to reconsider its previous conclusion in *Decision 2000-22* and rely on repressuring until it has been proven that its implementation is both feasible and practical on the basis of field data.

5.4 Economics and Public Interest

The Board agrees with Petro-Canada that in this case the relevant measure of economic impact is the value of bitumen that could be sterilized relative to the cost of deferred gas production. Petro-Canada's evidence indicated the potential economic impacts of allowing a pressure decline of 1050 kPa and suggested that a linear extrapolation to reflect smaller pressure changes would be appropriate. Therefore, a pressure drop of 75 kPa—as the estimated result of one year of continued gas production—would have the following impacts on a single 30 000 barrel per day SAGD project (all money values discounted at 10 per cent):

- about 2 million barrels of bitumen would not be recovered;
- operating costs would increase by almost \$3 million; and
- Crown royalties and pre-tax cashflow would be reduced by about \$7 million.

With the potential for four such projects ultimately being undertaken in Chard, the magnitude of combined economic losses (royalties, taxes, and corporate profits) could be several times those listed above. Furthermore, the potential combined economic losses could be significantly greater if the decline in reservoir pressure were to proceed beyond the commercial viability of any bitumen production at Chard.

On the other hand, the combined value of before-tax cashflow and royalties from all future gas production at Chard would be about \$40 million when discounted at 10 per cent. Deferring this income stream for one year would imply a loss in terms of the time value of money of about \$4 million, again with a discount rate of 10 per cent. Notwithstanding the CGP's reservations about the future commercial viability of SAGD development at Chard, the Board believes that it would be imprudent to potentially jeopardize a significant bitumen resource.

5.5 Submission of Pressure Data

The Board notes that during the interim hearing Petro-Canada raised a concern that a number of pressure points used in the CPG's submission were not in the public domain. If these data have in fact not been submitted to the public domain, the Board shares Petro-Canada's concern. Section 11.120 of the Oil and Gas Conservation Regulations states that the licensee of a well shall supply to the Board each pressure and deliverability test made on the well. This means that all pressure and deliverability test data that are collected must be submitted to the Board, including any data over and above the minimum requirements of EUB *Guide 40*.⁴ However, as stated in *Guide 40*, only those tests conducted under controlled conditions need to be submitted to the Board. A casual reading of a wellhead pressure with a portable dial gauge or a pumping fluid level does not have to be submitted. Likewise, a test that failed and has no useful information does not have to be submitted, with the exception of drill stem tests, where all tests must be submitted including misruns. If there are doubts or questions about whether data should be submitted, the EUB should be contacted for direction.

⁴ EUB *Guide 40: Pressure and Deliverability Testing Oil and Gas Wells—Minimum Requirements and Recommended Practices*, May 1999.

To ensure that all participants of the main hearing have access to all pertinent nonconfidential pressure data, the Board directs that all pressure tests taken in the Leismer Field and Chard area not currently in the public domain be submitted to the EUB in accordance with *Guide 40* by September 4, 2001. Any company submitting pressure data shall also provide the Board and any relevant applicant or intervener to the main hearing with a listing of any pressure tests filed. Noncompliance with the submission requirements outlined in the guide will result in consequences that escalate in severity, consistent with the EUB's enforcement policy.

DATED at Calgary, Alberta, on August 2, 2001.

ALBERTA ENERGY AND UTILITIES BOARD

(Original signed by)

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

(Original signed by)

B. T. McManus, Q.C.
Board Member

(Original signed by)

C. A. Langlo, P.Geol.
Acting Board Member

APPENDIX 1 McMURRAY GAS ZONES TO BE SHUT IN

	Licensee	Unique Well ID	Perforated Interval (mKB)
1	Rio Alto	00/12-35-079-07W4/0	348.5 - 350.0
2	Rio Alto	00/06-20-080-06W4/0	285.5 - 288.0
3	Rio Alto	00/10-27-080-06W4/0	245.7 - 250.2, 251.8 - 252.4
4	Rio Alto	00/11-28-080-06W4/2	284.0 - 296.0
5	Rio Alto	00/07-13-080-07W4/0	309.5 - 312.5, 313.5 - 314.5, 315.0 - 316.5
6	Rio Alto	00/07-14-080-07W4/0	327.5 - 328.5
7	Calpine	00/08-07-081-07W4/0	386.0 - 388.0
8	Calpine	00/06-17-081-07W4/0	385.0 - 386.0
9	Northstar	00/11-13-081-08W4/0	445.5 - 446.5, 457.5 - 458.5
10	Northstar	00/10-14-081-08W4/0	459.0 - 460.5

APPENDIX 2

File No. 7000-1085793-01

June 4, 2001

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TO ALL OTHER INTERESTED PARTIES

Dear Sir or Madam:

APPLICATION NO. 1094706
INTERIM SHUT IN OF GAS PRODUCTION
CHARD AREA
PETRO-CANADA OIL AND GAS

This letter deals with:

- the Alberta Energy and Utilities Board's (EUB or Board) decision to conduct a hearing in order to reconsider its earlier decision of April 26, 2001 in which it denied Petro-Canada Oil and Gas' (Petro-Canada) application to issue an interim shut-in order of certain gas wells in the Chard area,
- the nature of the proposed hearing including identification of the participants, filing schedule, hearing dates and allotment of hearing time for participants, and
- a Board request to Petro-Canada for additional information.

Shut-In Request

The Board received an application dated May 25, 2001, from Petro-Canada requesting the Board to further consider an interim shut-in of 40 producing gas wells in the Chard area on the grounds that continued pressure depletion of gas pools overlying its bitumen resource would significantly impair the extraction of the bitumen or sterilize the resources. In the alternative, Petro-Canada asked that the Board establish a minimum operating pressure for each well; if the pressure declined below the minimum, the well would be shut-in. Petro-Canada provided additional pressure data in its interim shut-in request and also referred to the information in its January 29, 2001 application in support of its application.

Petro-Canada invoked sections 42 and 43 of the *Energy Resources Conservation Act* (ERC Act) as the basis of its application. It submitted that the Board erred in its decision of April 26, 2001 by denying Petro-Canada's earlier shut-in request because the energy statutes require the Board to fulfill a conservation and prevention of waste duty, on an interim as well as permanent basis. It argued that sufficient evidence was presented regarding the negative impact of continued gas production on the recovery of bitumen resources to enable the Board to shut-in the gas wells on an interim basis. It also contended that the Board's decision of April 26, 2001, constituted an "order or direction" under section 43 of the ERC Act in circumstances where the Board failed to hold a hearing. The result, it submitted, was that it was entitled to have its application considered at a hearing.

The Board also received a joint submission from counsel on behalf of Calpine Canada Natural Gas Company, Canadian Forest Oil Ltd., Paramount Resources Ltd. and Rio Alto Exploration Ltd. (the Chard Gas Producers) dated June 4, 2001, and a submission from Northstar Energy Corporation (Northstar) dated June 4, 2001. The Board did not receive a submission from Alberta Energy Company which owns one or two wells in the Chard area. Both the Chard Gas Producers and Northstar opposed Petro-Canada's request for a review or hearing of its application for the interim shut-in of 40 gas wells. They argued that the Board had made its decision on April 26, 2001, and it would be unfair to re-open the issue, especially in light of the complex and detailed evidence that would be required. They expressed a strong concern that there would not be adequate time to prepare a full and proper technical response to the interim shut-in application and questioned the urgency of the circumstances advanced by Petro-Canada. Northstar noted that Petro-Canada had waited eight months from the Gulf Surmont decision (D 2000-22) and three years from the Gulf Surmont Inquiry Report to make this interim application. These interveners maintained that they would suffer significant financial losses if they were unable to take the benefit of their considerable existing investment in the gas wells. They contended that the matter could only be properly considered at the main hearing.

The Chard Gas Producers submitted that the Board did not have jurisdiction to make an interim shut-in order because it was an extraordinary remedy and no specific statutory provision in the energy statutes sanctioned such an exercise of power. Further, they argued that the decision to deny the initial shut-in request was essentially an interlocutory decision and that section 43 of the ERC Act cannot be used in this context.

The Board has instructed me to advise that it has thoroughly reviewed the submissions of the parties to this application and has concluded that it will conduct a hearing to consider Petro-Canada's interim shut-in application. The Board believes that the conservation issue raised by

the interim application merits a reconsideration of its earlier decision and that the most efficient means to conduct the reconsideration is through a hearing. The matter of potential impairment or sterilization of the recovery of bitumen resources is a fundamental concern of the Board. The Board notes that a considerable length of time will be required to conduct a hearing and issue a decision on the main application. As a result, the decision to shut-in or not to shut-in on an interim basis is a substantive one which may have serious conservation consequences. In these circumstances, the Board does not view its decision to conduct a hearing to reconsider the matter as similar to the review it might give a procedural or interlocutory matter such as a decision to grant or not grant an adjournment, or to set an initial hearing date, or to hold a combined hearing.

It is the Board's view that sufficient authority is found in section 15 of the ERC Act and section 3(5) of the Oil Sands Conservation Act Regulations (OSC Regulations) to issue an interim shut-in order if it is determined that one is required. Section 15 provides that the Board may do all things that are necessary or incidental to the performance of its duties, while section 3(5) of the OSC Regulations specifically states that the Board may "... make any order or directive it considers necessary to effect the conservation of the crude bitumen in any particular case." The plain meaning of both provisions, in the context of the Board's conservation mandate, support the Board's conclusion that it possesses the requisite authority to shut-in gas wells in the Chard area on an interim basis, if it so decides.

Hearing Process

As indicated, the Board will hold a hearing to determine whether 40 gas wells in the Chard area should be shut-in, pending the outcome of the main hearing. The Board acknowledges that an interim shut-in application of this nature must, necessarily, be somewhat constrained in terms of the amount and nature of the evidence, timing considerations, and the number of parties who will participate. Accordingly, the Board directs that the following parties (who are the owners and/or operators of the subject wells) may intervene in the Petro-Canada's interim shut-in application:

- Calpine Canada Natural Gas Company
- Canadian Forest Oil Ltd.
- Paramount Resources Ltd.
- Rio Alto Exploration Ltd. (the Chard Gas Producers)
- Alberta Energy Company Ltd.
- Northstar Energy Corporation

The hearing will held over two and one-half days commencing on Tuesday, July 3, 2001 at 1:00 p.m. The location will be announced shortly. Parties shall comply with the following filing schedule:

Deficiency Letter to Petro-Canada and	
Notice of Hearing (this letter)	June 5, 2001
Deficiency Response	June 13, 2001
Intervenors' submissions	June 27, 2001

Hearing dates

July 3, 4 and 5, 2001

At the hearing, participants will be limited in the amount of time allowed to present their positions. The following allotment of time is proposed as an outline; the Board will strive to be flexible and fair to all parties as the hearing unfolds.

Petro-Canada Direct Evidence	1.5 hr.
Interveners' Cross-Examination	5.0 hr.
Board Staff and Board Questioning	0.5 hr.
Interveners' Direct Evidence	2.0 hr.
Petro-Canada Cross-Examination	5.0 hr.
Board Staff and Board Questioning	0.5 hr.
Petro-Canada Argument	1.0 hr.
Interveners' Argument	1.5 hr.

Additional Information

The Board has reviewed the present Petro-Canada application with a view to deficiencies. The EUB requires that fourteen copies of the following additional information be submitted by June 13, 2001, with copies to the above described parties by the same date:

1. On Page 6 of the application, Petro-Canada references a quote from EUB *Decision 2000-22* that states, "*The Board accepts that the evidence provided by Petro-Canada from its Chard leases is analogous to Gulf's Surmont leases based on its proximity and the similar geologic character of the McMurray Formation.*" The EUB notes that the evidence provided by Petro-Canada at the Surmont Hearing was for its Chard A Bitumen Prospect. Briefly comment on the applicability of this evidence to the remainder of Petro-Canada's Chard leases.
2. On Page 8 of the application, it states that the calculated volume weighted average pressure of all the gas pools listed in Table 1 is 670 kPaa. On Table 1, the calculated volume weighted average pressure of all the pools is shown to be 854 kPaa in August 2000 and 732 kPaa in January 2001. For the calculated volume weighted average pressure of 670 kPaa, provide the date of this pressure value and the data on which it is based including all calculations.
3. For the gas pools listed in Table 1 of the application, provide an estimate of the monthly pressure decline rate for each pool and an aggregate volume weighted average monthly pressure decline rate for all the pools.
4. On Page 9 of the application, Petro-Canada requests that, if the Board is not prepared to shut in all Category 1 and 2 wells, the Board direct the shut in of wells that do not demonstrate a well pressure in excess of 1200 kPaa (i.e., minimum operating pressure).

- Briefly elaborate on the basis for a 1200 kPaa minimum operating pressure.
 - Comment on the need for segregated zone pressures for Category 2 wells.
 - For wells/zones that do not have recent pressure measurements, comment on the timing of conducting and submitting pressure tests for these wells/zones.
 - Comment on the need and frequency for pressure monitoring of wells/zones above the requested 1200 kPaa minimum operating pressure.
 - Provide a list of the most recent pressure measurement (including the test date) for each well/zone requested to be shut in and, where possible, an estimate of the current pressure and monthly pressure decline rate.
5. For Appendix 3 of the application, summarize the criteria used to determine whether or not a pressure measurement is “selected”.
6. Provide a summary analysis showing the following:
- Annual bitumen production if the interim order were granted.
 - Annual bitumen production at successively lower reservoir pressures, under the assumption that the interim order were not granted.
 - The net present values of the bitumen volumes that could potentially be sterilized at successively lower reservoir pressures if the interim order were not granted.
 - The net present value of the gas that would be shut-in if the interim order were granted.
 - The net present value of the gas that would be shut-in at successively lower minimum operating pressures.
 - The relevant assumptions that are used in the above analyses.

If you have any questions regarding the above, please contact the undersigned at 297-7402 or Ken Schuldhuis at 297-3572.

Yours truly,

Douglas A. Larder
Board Counsel