Decision 2004-062

Review of Wells with Wabiskaw-McMurray Intervals Previously Allowed to Produce Gas by Decision 2003-023

Chard Area and Leismer Field

July 27, 2004

Alberta Energy and Utilities Board

ALBERTA ENERGY AND UTILITIES BOARD
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ALBERTA ENERGY AND UTILITIES BOARD
Calgary Alberta

REVIEW OF WELLS WITH
WABISKAW-MCMURRAY INTERVALS
PREVIOUSLY ALLOWED TO PRODUCE GAS
BY DECISION 2003-023 **Decision 2004-062**
CHARD AREA AND LEISMER FIELD **Proceeding No. 1347004**

1 DECISION

Having considered the evidence submitted at the hearing, the Alberta Energy and Utilities Board (EUB/Board) decides that gas production from certain intervals be allowed to continue or be shut in as set out in the attached Tables 1 and 2 respectively. Gas production from those intervals required to be shut in must be shut in by September 1, 2004.

The above decision results in the following considerations and requirements:

1) The Board recognizes that some unusual circumstances may arise as a result of the above decision and, therefore, it may be appropriate for the Board to grant relief from some of its regulatory requirements. For example, there are requirements related to the suspension and abandonment of wells, pipelines, and other field facilities and requirements pertaining to long-term inactive wells that can trigger liability management considerations. Therefore, the Board is prepared to consider requests for relief from such requirements.

2) In overlapping gas pools where one pool is allowed to produce and another is required to be shut in, there must be segregation between the pools in all wellbores or both pools must be shut in. In order to demonstrate segregation in the wellbore, zonal segregation tests shall be conducted and submitted to the EUB in accordance with Section 11.150(1) and (2) of the *Oil and Gas Conservation Regulations* to confirm that segregation has been established between a pool that is permitted to produce gas and a pool that is not permitted to produce gas.

2 HEARING

On March 8, 2004, the Board requested submissions from interested parties as to whether the Board should review approvals to produce gas for specified intervals in wells in the Chard area and Leismer Field (Chard-Leismer) considered in *Decision 2003-23*,[1] resulting from the Chard-Leismer hearing. The Board considered the submissions received and on April 7, 2004, advised parties that it had decided to conduct a hearing to review the production status of the intervals involved. This interim proceeding, constituting that review hearing, was held on June 21 and 22, 2004, before Board Member J. D. Dilay, P.Eng. (Presiding Member) and Acting Board Members C. A. Langlo, P.Geol., and G. D. Williams, Ph.D., P.Geol. Parties that attended the hearing are listed in Appendix 1.

[1] *Decision 2003-023: Chard Area and Leismer Field, Athabasca Oil Sands Area—Applications for the Production and Shut-in of Gas,* March 18, 2003.

The Board considered the recommendations put forward in the submission dated January 26, 2004, by an EUB staff submission group (SSG), made in the Phase 3 Proceedings Under Bitumen Conservation Requirements,[2] to continue or vary the production status of gas zones for the intervals noted in Appendix 2 for wells in Chard-Leismer. The Board also considered the parties' submissions filed June 11 and the reply submissions filed June 16, 2004.

3 ISSUE

Similar to the Phase 3 Proceedings Under the Bitumen Conservation Requirements, the Board considers the issue in this hearing to be whether or not gas is associated with potentially recoverable bitumen in the intervals listed in Appendix 2 and whether gas production from those intervals should be shut in or allowed to continue. New facts, changes in circumstances, or facts not placed in evidence during the Chard-Leismer hearing, together with the submissions and evidence of the parties, could cause the Board to vary the production status of the perforated intervals in the wells in question from the production status prescribed in *Decision 2003-023.* Whereas in the Phase 3 Proceedings the issue of gas association with bitumen included a discussion of three factors—potentially recoverable bitumen, pooling, and lateral continuity of mudstones and shales—in this review hearing the discussion focused on pooling. The matter of including a pressure monitoring program for three specific wells was also raised at the hearing.

4 AUTHORITY FOR THE PROCEEDING

Some of the parties raised concerns about the Board's authority to hold an interim review hearing with a limited scope and using an expedited hearing process. Other participants presented views to the contrary. The Board decided to hold an interim review hearing because the Wabiskaw-McMurray gas pools in the area of concern are generally at an advanced state of depletion and immediate action is required to mitigate further risk to bitumen recovery. Furthermore, the Board continues to believe that the depressuring of gas zones that are associated with potentially recoverable bitumen poses an unacceptable risk to the bitumen resource. A protracted review hearing would not address the issues identified by the Board within the timeframe needed to ensure conservation of the bitumen resource. For these reasons, the Board also limited the scope of the interim review hearing to assessing whether gas is associated with potentially recoverable bitumen in order to prevent the waste of and to effect the conservation of the crude bitumen in Chard-Leismer. Furthermore, a full hearing is contemplated that will provide an opportunity for the parties to address the complete range of issues that may exist.

The authority of the Board to initiate a review of a Board's decision or order is set out in Section 39 of the *Energy Resources Conservation Act*, Section 3(5) of the *Oil Sands Conservation Regulation,* and Section 46(1) of the *Alberta Energy and Utilities Board Rules of Practice*. In particular, the Board notes that for decisions made under the *Oil Sands Conservation Act,* the

[2] *Decision 2004-045: Phase 3 Proceedings Under Bitumen Conservation Requirements and Applications for Approval to Produce Gas in the Athabasca Wabiskaw-McMurray Area,* May 31, 2004.

Board may review a decision on its own initiative if it considers that necessary for effecting the conservation of the crude bitumen where it appears to the Board that the ultimate recovery of crude bitumen may be affected by gas production.

5 VIEWS OF THE BOARD

In reaching its decision, the Board had regard for the evidence and testimony submitted at the hearing. Although the Board has typically summarized the evidence and views of the hearing participants in its decision reports, it has not done so in this report in order to be able to release the report at the earliest possible time, recognizing the urgency of the matter. The full record of the hearing, including the submissions and transcripts, are publicly available through the EUB's Information Services group.

The Board continues to hold the view that the Regional Geological Study[3] (RGS) and the different interpretation placed on gas communication with bitumen that is reflected in the RGS for Chard-Leismer constitute evidence that was not available during the Chard-Leismer hearing. The RGS is the most current and comprehensive evidence presented to date in a bitumen conservation proceeding before the Board. The RGS covers a much larger area than that considered in *Decision 2003-023*: 100 townships as opposed to 18. Using that larger data set, the RGS developed a geological model that incorporated the general stratigraphy from *Decision 2003-023* and applied a new methodology to the mapping of gas pools in the study area.

5.1 Pooling

The Board had regard for the geological and engineering evidence that was submitted in its consideration of gas pooling for the five pools containing contested intervals:

- Chard McMurray P Pool,
- Chard McMurray VV Pool,
- Hangingstone McMurray V2V Pool,
- Hangingstone Wabiskaw-McMurray D Pool, and
- Leismer Wabiskaw-McMurray A Pool.

The Board made decisions regarding the production status of intervals on a pool basis.

5.1.1 Chard McMurray P Pool

The Board agrees with Canadian Natural Resources Limited (CNRL) and the SSG that the gas/bitumen contact in the McMurray A2 sand in the 11-34-80-6W4M well, when compared to the gas in the McMurray channel in the P Pool, is outside the tolerance that the RGS said should be considered in pooling. On this basis, the Board interprets the McMurray A2 sand in the 11-34 well to be a single well pool. Since the regional McMurray A2 mudstone is present in this well,

[3] *Report 2003-A: Athabasca Wabiskaw-McMurray Regional Geological Study*, December 31, 2003.

the Board will continue to allow the gas in the McMurray A2 sand to be produced from this well. The Board notes Petro-Canada's view that a gas/bitumen contact is a static contact and that differences in such contact elevations are not persuasive evidence of separate gas pools. However, the Board accepts the tolerance of ± 5 metres (m) in gas/bitumen contacts that the RGS said should be considered in pooling, depending on the size of the pool and regional dip. In the absence of evidence to the contrary and to maintain consistency, the Board accepts this criterion to determine pooling for the P Pool.

5.1.2 Chard McMurray VV Pool

The Board interprets the gas in the McMurray A sand in wells 10-11, 7-14, and 10-23-80-7W4M to be in a common pool. In making this interpretation, the Board considers that the apparent gas/water contact in the 7-14 well is not significant with respect to pooling. The Board does not believe that there is sufficient evidence to warrant changing the interpretation it made in *Decision 2003-023* that the McMurray A gas in the 10-11 and 7-14 wells is not in lateral communication with the McMurray channel gas in well 7-13-80-7W4M. Since the McMurray A gas in wells 10-11, 7-14, and 10-23 is underlain by the regional McMurray A2 mudstone, the Board will allow this gas to continue to be produced from these wells.

5.1.3 Hangingstone McMurray V2V Pool

The Board agrees with Calpine Canada Resources Company and the SSG that the McMurray B gas in the 3-34, 4-35-80-7W4M, and 14-3-81-7W4M wells is in a separate pool from the McMurray channel gas in the remaining wells in the V2V Pool. This is based on the abandoned wells at 4-9 and 5-10-81-7W4M. Further, the 5-10 well encountered water in a McMurray channel that is structurally higher than the gas in all the wells in the V2V Pool. Since the gas in the 3-34, 4-35, and 14-3 wells is underlain by the regional McMurray B2 mudstone, the Board will allow production to continue from the McMurray B interval in these wells.

5.1.4 Hangingstone Wabiskaw-McMurray D Pool

The Board agrees with Calpine that the McMurray A2 gas in the 8-7 and 6-17-81-7W4M wells is in a common pool (along with wells 11-13 and 10-14-81-8W4M) that is separate from the wells to the north, based on a gas/bitumen contact in the 11-20-81-7W4M well that is more than 5 m above the base of the gas in the 6-17 well. Since the 6-17 and 11-20 wells are in separate pools, based on contact elevations, the 11-13 and 10-14 wells would not be in sections that are adjacent to a section in the northern part of the D Pool that also has a well, and therefore the Board has pooled the 11-13 and 10-14 wells with the 8-7 and 6-17 wells. The McMurray A2 gas in the 8-7, 6-17, 11-13, and 10-14 wells is underlain by the regional McMurray A2 mudstone; therefore, the Board will continue to allow this gas to be produced from these wells. The Board agrees with the SSG that the McMurray A2 gas in wells 16-31-80-7W4M, 14-25, and 12-26-80-8W4M is not part of the D Pool. Since this gas is underlain by the regional McMurray A2 mudstone, the Board will allow it to continue to be produced from these wells.

With respect to the SSG's interpretation that the 10-24-81-9W4M well is in the Corner McMurray G Pool rather than the D Pool, the Board notes that this well is not on the list of wells

to be considered in this hearing. Consequently, the Board has not made any further decision regarding this well.

5.1.5 Leismer Wabiskaw-McMurray A Pool

The Board agrees with CNRL and the SSG that pressure data indicate that the 11-8-79-6W4M well is in a separate pool from the 11-6-79-5W4M well and that the likely cause of the pressure depletion in the 11-8 well is production from the Chard Wabiskaw-McMurray A Pool. Although the pressure data indicate that the 12-31-79-6W4M well was depleted without being produced, the Board is not convinced that the McMurray channel gas in this well is in lateral contact with the McMurray A gas in the Chard Wabiskaw-McMurray A Pool, as suggested by the SSG. This is because of the large difference in gas/bitumen contacts in the 12-31 well and in the 10-30-79-6W4M and 7-6-80-6W4M wells. The Board indicated in *Decision 2003-023* that the pressure depletion in the 12-31 well could be attributed to production of McMurray B1 gas at the 12-35 and 12-36-79-7W4M wells. However, on the basis of the ±5 m tolerance for gas/bitumen contacts that the RGS said should be considered, the Board concludes that the McMurray B1 interval in the 12-36 well is in a separate pool from the McMurray channel in the 12-31 well. This difference in gas/bitumen contacts and the presence of a gas/water contact in the McMurray A2 interval in the 12-36 well that is significantly higher than the gas/bitumen contact in the McMurray channel in the 12-31 well suggest that the 12-35 and 12-36 wells may not be the source of pressure depletion in the 12-31 well. The Board also does not agree with CNRL's view that the pressure depletion at 12-31 could be explained by a connection to the Leismer Wabiskaw-McMurray A Pool through the Wabiskaw C interval because there do not appear to be any nearby wells that were producing from this interval at the time of the pressure depletion. The Board believes that the pressure depletion at 12-31 could have been through the Wabiskaw C interval and the open perforations in the 12-31 and 7-6 wells.

The Board concludes that the 11-8 well is part of the Chard Wabiskaw-McMurray A Pool and will allow the well to continue to be produced along with the other wells in that pool.

5.2 Pressure Monitoring Requirements

With respect to Petro-Canada's request that three wells (3-34, 4-35-80-7W4M, and 14-3-81-7W4M) in the Hangingstone McMurray S2S Pool be included in a pressure monitoring program, the Board takes a similar view to that taken in *Decision 2003-23*: rather than directing that a pressure monitoring program be implemented, the Board encourages the gas and bitumen owners to cooperatively develop and implement a pressure monitoring program that is acceptable to all parties. If requested, the Board would be prepared to work with the interested parties in this regard.

6 CONCLUSIONS

For the reasons set forth in this decision report, the Board concludes that gas is not associated with potentially recoverable bitumen in the intervals listed in Table 1. Gas production from those intervals can continue.

The Board accepts the SSG's recommendations to shut in gas from the intervals listed in Table 2, which were not contested at the hearing. Gas production from those intervals must be shut in by September 1, 2004.

DATED at Calgary, Alberta, on July 27, 2004.

ALBERTA ENERGY AND UTILITIES BOARD

<original signed by>

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

<original signed by>

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

<original signed by>

G. D. Williams, Ph.D., P.Geol.
Acting Board Member

LEGEND FOR DECISION 2004-062 TABLES 1 AND 2

Decision Code

PC – Pooling change
PSD – Pressure data supports decision
RMP – Regional mudstone/shale present
SSG-PRU – SSG produce recommendation uncontested

Company Abbreviations

Calpine	Calpine Canada Resources Company
CNRL	Canadian Natural Resources Limited
Devon	Devon Canada Corporation
EnCana	EnCana Oil & Gas Ltd.
EnCana C.	EnCana Corporation
Northstar	Northstar Energy Corporation

Table 1. Wabiskaw-McMurray Intervals Allowed to Continue to Produce Gas

Field Name	Pool Name	Well ID	Perforated Interval (mKB)	Pay Top Depth	Pay Base Depth	Stratigraphic Interval	Licensee	Reason for Decision
CHARD	MCMURRAY P	00/11-34-080-06W4/0	242.0-244.5	242.2	246.5	McM A2 Seq	CNRL	PC, RMP
CHARD	MCMURRAY VV	00/10-11-080-07W4/0	315.1-319.0	315.2	318.0	McM A1 Seq	CNRL	PC, RMP
				318.0	318.5	McM A2 Seq		PC, RMP
		00/07-14-080-07W4/0	319.5-321.0	320.0	323.0	McM A Channel	CNRL	PC, RMP
		00/10-23-080-07W4/0	315.5-319.0	315.5	319.0	McM A Channel	CNRL	PC, RMP
HANGINGSTONE	MCMURRAY S2S	00/03-34-080-07W4/0	334.5-337.0	334.7	338.5	McM A2 Seq	Calpine	SSG-PRU*
		00/04-35-080-07W4/0	319.5-322.0	318.7	322.5	McM A Channel	Calpine	SSG-PRU*
		00/14-03-081-07W4/0	347.0-350.0	347.5	350.5	McM A2 Seq	Calpine	SSG-PRU*
HANGINGSTONE	MCMURRAY V2V	00/03-34-080-07W4/0	340.5-341.0	340.4	347.0	McM B1 Channel	Calpine	PC, RMP
			344.5-346.5					
		00/04-35-080-07W4/0	325.0-327.0	325.0	330.0	McM B1 Seq	Calpine	PC, RMP
			328.0-329.0					
			331.5-333.0	331.2	333.1	McM B2 Seq		PC, RMP
		00/14-03-081-07W4/0	352.5-354.5	352.8	358.0	McM B1 Channel	Calpine	PC, RMP
			356.0-358.0					
HANGINGSTONE	WABISKAW-MCMURRAY D	00/16-31-080-07W4/0	363.0-364.0	363.0	365.4	McM A2 Seq	Northstar	SSG-PRU, PC,RMP
		00/14-25-080-08W4/0	386.0-387.0	386.4	388.5	McM A2 Seq	Northstar	SSG-PRU, PC,RMP
		00/12-26-080-08W4/0	395.5-397.5	395.5	397.8	McM A2 Seq	Northstar	SSG-PRU, PC,RMP
		00/08-07-081-07W4/0	381.0-382.5	381.0	382.8	McM A2 Seq	Calpine	PC, RMP
		00/06-17-081-07W4/0	378.5-381.0	378.5	381.5	McM A2 Seq	Calpine	PC, RMP
		00/11-13-081-08W4/0	440.0-441.0	439.8	441.5	McM A2 Seq	Northstar	PC, RMP
		00/10-14-081-08W4/0	453.0-454.0	453.2	456.2	McM A2 Seq	Northstar	PC, RMP
LEISMER	WABISKAW-MCMURRAY A	00/11-08-079-06W4/0	244.0-248.0	244.0	251.5	McM A2 Seq	CNRL	PC, PSD, RMP

* Petro-Canada initially had a concern about gas production from these intervals; it subsequently stated that it was not presently requesting shut-in but asked that these intervals be included in a pressure monitoring program.

Table 2. Wabiskaw-McMurray Intervals Required to Be Shut in

Field Name	Pool Name	Well ID	Perforated Interval (mKB)	Pay Top Depth	Pay Base Depth	Stratigraphic Interval	Licensee
HANGINGSTONE	MCMURRAY Z2Z	00/06-11-081-08W4/0	440.0-442.5	440.0	446.0	McM B1 Channel	Northstar
LEISMER	MCMURRAY AA	00/11-04-080-09W4/0	434.5-439.0	434.3	440.0	McM B1 Seq	EnCana
			440.5-441.5	440.0	447.0	McM B2 Seq	
	WABISKAW-MCMURRAY A	00/13-27-078-07W4/0	283.0-284.3	283.0	284.5	Wbsk C Sand	CNRL
		00/05-34-078-07W4/0	282.0-283.0	282.0	283.5	Wbsk C Sand	CNRL
			284.0-285.0	284.0	285.5	Wbsk D Valley Fill	
		00/16-34-078-07W4/0	281.0-282.0	281.0	282.8	Wbsk C Sand	CNRL
			283.0-284.5	283.0	286.5	McM A2 Seq	
		00/11-06-079-06W4/0	292.0-295.0	292.0	296.8	McM A2 Seq	CNRL
		00/13-01-079-07W4/0	289.0-290.0	289.0	293.5	McM A2 Seq	CNRL
			291.0-292.0				
		00/11-03-079-07W4/0	286.5-287.5	286.8	288.0	Wbsk C Sand	CNRL
			288.5-290.0	289.0	290.5	McM A Channel	
		00/01-04-079-07W4/0	286.8-287.8	286.8	288.0	Wbsk C Sand	CNRL
		00/02-10-079-07W4/0	286.5-288.0	286.8	288.0	Wbsk C Sand	CNRL
			289.0-291.0	289.0	290.0	McM A1 Seq	CNRL
				290.0	293.0	McM A2 Seq	
		00/10-10-079-07W4/0	291.0-293.0	291.0	293.0	Wbsk C Sand	CNRL
		00/10-11-079-07W4/0	282.0-283.5	282.7	283.5	Wbsk C Sand	CNRL
			284.5-288.5	285.0	288.8	McM A2 Seq	CNRL
		00/09-12-079-07W4/0	No Perforations	282.7	283.7	Wbsk C Sand	CNRL
				284.3	289.0	McM A Channel	
		00/10-12-079-07W4/0	283.0-285.0	283.0	287.2	McM A Channel	CNRL
		00/04-13-079-07W4/0	283.0-284.0	283.0	284.0	Wbsk C Sand	CNRL
			285.0-287.0	284.8	287.0	McM A1 Seq	
		00/11-13-079-07W4/0	269.0-270.6	269.0	270.0	Wbsk C Sand	CNRL
			271.0-271.5	271.0	275.5	McM A Channel	
		00/01-15-079-07W4/0	292.5-293.5	292.8	294.5	Wbsk C Sand	CNRL
			295.0-297.0	295.5	299.0	McM A Channel	
		00/04-21-079-07W4/0	308.0-309.0	308.2	309.0	Wbsk C Sand	CNRL
			310.5-312.0	310.3	314.0	McM A Channel	
		00/12-22-079-07W4/0	311.5-312.5	312.0	312.6	Wbsk C Sand	CNRL
							(continued)

Table 2. Wabiskaw-McMurray Intervals Required to Be Shut in (concluded)

Field Name	Pool Name	Well ID	Perforated Interval (mKB)	Pay Top Depth	Pay Base Depth	Stratigraphic Interval	Licensee
		00/04-27-079-07W4/0	304.0-305.0	304.2	305.2	Wbsk C Sand	CNRL
			306.5-307.5	306.5	308.0	McM A1 Seq	
		00/11-33-079-07W4/0	320.5-321.8	320.5	321.8	McM A1 Seq	CNRL
		00/10-01-079-08W4/0	295.0-296.0	295.0	296.0	Wbsk C Sand	CNRL
			298.0-299.0	298.0	299.6	McM A2 Seq	
		00/10-02-079-08W4/0	299.6-300.3	299.8	301.0	Wbsk C Sand	CNRL
			302.5-303.5	302.2	303.8	McM A2 Seq	
		00/04-10-079-08W4/0	319.5-320.5	320.0	321.5	Wbsk C Sand	CNRL
		00/13-15-079-08W4/0	336.0-337.5	336.3	338.0	Wbsk C Sand	CNRL
		00/16-22-079-08W4/2	346.5-347.5	346.2	348.0	Wbsk C Sand	CNRL
		00/12-23-079-08W4/2	332.0-333.5	332.6	333.3	Wbsk C Sand	CNRL
		00/11-24-079-08W4/2	309.8-311.0	309.8	312.7	Wbsk C Sand	CNRL
		00/01-26-079-08W4/0	338.0-339.0	338.0	339.5	Wbsk C Sand	EnCana C.
		00/04-29-079-08W4/0	372.2-373.2	372.5	374.0	Wbsk C Sand	EnCana
		00/10-36-079-08W4/0	333.5-334.7	332.6	334.6	Wbsk C Sand	EnCana C.
	WABISKAW-MCMURRAY B	00/11-16-076-06W4/0	318.5-321.5	319.0	323.0	Wbsk D Valley Fill	Devon
	WABISKAW-MCMURRAY C	00/09-21-079-09W4/0	411.5-413.0	411.3	412.5	Wbsk C Sand	EnCana
				412.5	413.3	McM A1 Seq	
	WABISKAW-MCMURRAY E	00/10-28-079-09W4/0	409.0-410.5	409.0	410.0	Wbsk C Sand	EnCana
				410.0	410.8	McM A1 Seq	
			412.0-412.5	412.2	413.0	McM A2 Seq	
		00/11-04-080-09W4/0	426.5-429.5	426.5	428.0	McM A1 Seq	EnCana
				428.0	429.5	McM A2 Seq	
		00/12-16-080-09W4/0	432.3-434.0	432.0	433.5	McM A1 Seq	EnCana
				433.5	434.0	McM A2 Seq	

APPENDIX 1 THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations used in report)	Witnesses
Calpine Canada Resources Company (Calpine) D. G. Davies	E. M. Mathison, P.Geol., of Fekete Associates Inc. (Fekete) J. K. Wilhelm, P.Eng., of Fekete
Canadian Natural Resources Limited (CNRL) P. J. McGovern	J. MacTaggart J. J. Waterfield, P.Geol.
EnCana Corporation (EnCana) D. G. Davies	
EUB Staff Submission Group (SSG) D. A. Larder	M. E. Connelly, P.Geol. B. Fairgrieve, P.Geol. F. J. Hein, Ph.D., P.Geol. T. R. Keelan, P.Eng. K. F. Schuldhaus, P.Eng. W. A. Warren, P.Eng.
Nexen Canada Ltd. S. E. Young	
Petro-Canada W. T. Corbett, Q.C.	M. P. Cimolai, of Core Laboratories Canada Ltd. J. H. Fong, P.Eng. K. N. Wilde
Alberta Energy and Utilities Board staff G. Bentivegna K. Bieber, P.Geol. G. W. Dilay, P.Eng. R. Happy, P.Geol. K. Fisher E. E. Smith, P.Eng.	

APPENDIX 2 WELLS AND INTERVALS TO BE CONSIDERED FOR SHUT-IN OR PRODUCTION IN PROCEEDING NO. 1347004[4]

#	Licensee	Unique Well ID	Wabiskaw-McMurray Perforated Interval (mKB)
1	Calpine Canada Resources Company	00/03-34-080-07W4/0	334.5-337.0
			340.5-341.0
			344.5-346.5
2	Calpine Canada Resources Company	00/04-35-080-07W4/0	319.5-322.0
			325.0-327.0
			328.0-329.0
			331.5-333.0
3	Calpine Canada Resources Company	00/14-03-081-07W4/0	347.0-350.0
			352.5-354.5
			356.0-358.0
4	Calpine Canada Resources Company	00/08-07-081-07W4/0	381.0-382.5
5	Calpine Canada Resources Company	00/06-17-081-07W4/0	378.5-381.0
1	Canadian Natural Resources Limited	00/05-34-078-07W4/0	282.0-283.0
			284.0-285.0
2	Canadian Natural Resources Limited	00/01-04-079-07W4/0	286.8-287.8
3	Canadian Natural Resources Limited	00/02-10-079-07W4/0	286.5-288.0
			289.0-291.0
4	Canadian Natural Resources Limited	00/04-13-079-07W4/0	283.0-284.0
			285.0-287.0
5	Canadian Natural Resources Limited	00/01-15-079-07W4/0	292.5-293.5
			295.0-297.0
6	Canadian Natural Resources Limited	00/04-21-079-07W4/0	308.0-309.0
			310.5-312.0
7	Canadian Natural Resources Limited	00/12-22-079-07W4/0	311.5-312.5
8	Canadian Natural Resources Limited	00/04-27-079-07W4/0	304.0-305.0
			306.5-307.5
9	Canadian Natural Resources Limited	00/10-01-079-08W4/0	295.0-296.0
			298.0-299.6
10	Canadian Natural Resources Limited	00/10-02-079-08W4/0	299.6-300.3
			302.5-303.5
11	Canadian Natural Resources Limited	00/04-10-079-08W4/0	319.5-320.5
12	Canadian Natural Resources Limited	00/13-15-079-08W4/0	336.0-337.5
13	Canadian Natural Resources Limited	00/13-27-078-07W4/0	283.0-284.3

(continued)

[4] The intervals and wells noted in the table are the same as set out in the Board's letter of March 8, 2004, except for the following corrections:
- For Calpine Canada Resources Company: for well 00/03-34-080-07W4/0, the interval 331.0-332.0 m has been deleted and the interval 340.5-341.0 m has been added, and for well 00/04-35-080-07W4/0, the interval 315-316 m has been deleted.
- For Canadian Natural Resources Limited: for well 00/10-01-079-08W4/0, the interval 298.0-299.6 m has been added, and for well 00/10-02-079-08W4/0, the interval 302.5-303.5 m has been added.

Wells and Intervals to Be Considered for Shut-in or Production in Proceeding No. 1347004 (concluded)

14	Canadian Natural Resources Limited	00/16-34-078-07W4/0	281.0-282.0
			283.0-284.5
15	Canadian Natural Resources Limited	00/11-06-079-06W4/0	292.0-295.0
16	Canadian Natural Resources Limited	00/11-08-079-06W4/0	244.0-248.0
17	Canadian Natural Resources Limited	00/13-01-079-07W4/0	289.0-290.0
			291.0-292.0
18	Canadian Natural Resources Limited	00/11-03-079-07W4/0	286.5-287.5
			288.5-290.0
19	Canadian Natural Resources Limited	00/10-10-079-07W4/0	291.0-293.0
20	Canadian Natural Resources Limited	00/10-11-079-07W4/0	282.0-283.5
			284.5-288.5
21	Canadian Natural Resources Limited	00/09-12-079-07W4/0	No Perforations
22	Canadian Natural Resources Limited	00/10-12-079-07W4/0	283.0-285.0
23	Canadian Natural Resources Limited	00/11-13-079-07W4/0	269.0-270.6
			271.0-271.5
24	Canadian Natural Resources Limited	00/11-33-079-07W4/0	320.5-321.8
25	Canadian Natural Resources Limited	00/16-22-079-08W4/2	346.5-347.5
26	Canadian Natural Resources Limited	00/12-23-079-08W4/2	332.0-333.5
27	Canadian Natural Resources Limited	00/11-24-079-08W4/2	309.8-311.0
28	Canadian Natural Resources Limited	00/11-34-080-06W4/0	242.0-244.5
29	Canadian Natural Resources Limited	00/10-11-080-07W4/0	315.1-319.0
30	Canadian Natural Resources Limited	00/07-14-080-07W4/0	319.5-321.0
31	Canadian Natural Resources Limited	00/10-23-080-07W4/0	315.5-319.0
1	Devon Canada Corporation	00/11-16-076-06W4/0	318.5-321.5
2	Northstar Energy Corporation	00/16-31-080-07W4/0	363.0-364.0
3	Northstar Energy Corporation	00/14-25-080-08W4/0	386.0-387.0
4	Northstar Energy Corporation	00/12-26-080-08W4/0	395.5-397.5
5	Northstar Energy Corporation	00/06-11-081-08W4/0	440.0-442.5
6	Northstar Energy Corporation	00/11-13-081-08W4/0	440.0-441.0
7	Northstar Energy Corporation	00/10-14-081-08W4/0	453.0-454.0
1	EnCana Oil & Gas Co. Ltd.	00/04-29-079-08W4/0	372.2-373.2
2	EnCana Oil & Gas Co. Ltd.	00/09-21-079-09W4/0	411.5-413.0
3	EnCana Oil & Gas Co. Ltd.	00/10-28-079-09W4/0	409.0-410.5
			412.0-412.5
4	EnCana Oil & Gas Co. Ltd.	00/11-04-080-09W4/0	426.5-429.5
			434.5-439.0
			440.5-441.5
5	EnCana Oil & Gas Co. Ltd.	00/12-16-080-09W4/0	432.3-434.0
6	EnCana Corporation	00/01-26-079-08W4/0	338.0-339.0
7	EnCana Corporation	00/10-36-079-08W4/0	333.5-334.7