

General Bulletin

GB 2003-16

June 3, 2003

To: All Oil, Gas, and Oil Sands Operators

PROPOSED CONSERVATION POLICY AFFECTING GAS PRODUCTION IN ATHABASCA WABISKAW-MCMURRAY OIL SANDS AREAS

Further Consultation Steps

The Alberta Energy and Utilities Board (EUB/Board) announces with this general bulletin (GB) further steps to review and revise its conservation policy respecting gas production from the Wabiskaw-McMurray in the Athabasca Oil Sands Area.

The Board has received 16 submissions in response to *GB 2003-12*. These are available for viewing on the EUB Web site at

<http://www.eub.gov.ab.ca/BBS/applications/GasProdOilSands.htm>.

Having reviewed these submissions, and considering previous relevant views and evidence and its own knowledge, the Board has decided to

- 1) provide a description of the conservation policy (attached) it proposes to implement;
- 2) receive any further submissions that interested parties wish to file on or before 4:00 p.m., Thursday, June 26, 2003; and
- 3) convene a two-day consultation meeting where each interested party will have an opportunity to speak to its submission and those of others, starting at 8:30 a.m. on Thursday July 3, 2003. Parties who have filed a written submission, either on May 12, 2003, as set out in *GB 2003-12*, or on June 26, 2003, will be afforded 30 minutes to speak to their own submissions and 15 minutes to respond to the submissions of other parties. This will also provide the Board an opportunity to ask their own questions. The Board will confirm the order of oral submissions and the location of the meeting prior to July 3, 2003.

Any party intending to file further submissions on or before Thursday, June 26, 2003, should send two paper copies, along with an electronic version, to

Attention: Terry Abel, P.Eng.
Applications Branch
Alberta Energy and Utilities Board
640-5 Avenue SW
Calgary, Alberta T2P 3G4
E-mail: terry.abel@gov.ab.ca

Following these additional consultation steps, the Board will consider all input it receives

respecting this conservation policy, together with all evidence and argument already on the public record from previous proceedings as described in *GB 2003-12*, and issue its policy.

Immediate Change to Interim Directive (ID) 99-1: Gas/Bitumen Production in Oil Sands Areas Application, Notification, and Drilling Requirements

The Board further announces with this GB the immediate implementation of a reduced Wabiskaw and McMurray gas production application area, as shown on the map included with the attachment. The effect of this change is that applications for approval of gas production are only required within the new reduced application area. Please note the treatment of wells in gas Pool Orders that overlap the application area boundary, as described in the attachment.

The Board believes that outside the revised application area there is little or no general risk of bitumen sterilization from gas production. The Board has decided to advance this revision to *ID 99-1* without delay in recognition of the need to provide more certainty for producers at the earliest possible opportunity. Any outstanding gas production applications outside the amended application area as defined in the attachment will be closed and returned to the applicant.

Outside the new application area, oil sands leaseholders that have a local concern may request a gas shut-in review or the Board may conduct such a review on its own initiative. In addition, the existing drilling requirements in *ID 99-1* remain in effect. Appropriate further revisions to *ID 99-1* will be made when the Board completes its policy review.

Questions regarding this GB may be directed to Terry Abel, at (403) 297-3382.

[Original signed by]

M. N. McCrank, Q.C.
Chairman

Attachment

ATTACHMENT TO *GENERAL BULLETIN (GB) 2003-16*

Proposed Conservation Policy Affecting Gas Production in Athabasca Wabiskaw-McMurray Oil Sands Areas

Summary

Based on the evidence and conclusions derived from lengthy proceedings before the Board and on its continuing technical review, the Board believes that gas production from some grandfathered wells (completed before July 1998) presents an unacceptable risk to future thermal bitumen recovery. In addition, the Board is of the view that generally Wabiskaw-McMurray gas pools are at an advanced stage of depletion, the depletion is ongoing, and, consequently, immediate action is required to mitigate further risk to thermal bitumen recovery. Continued use of the current lengthy application and hearing process will not address grandfathered wells in time to achieve the Board's overall conservation objective.

Therefore, to effect bitumen conservation and to provide greater certainty for producers within the Athabasca Wabiskaw-McMurray deposit, the Board will

- effective August 1, 2003, shut in gas production from the Wabiskaw-McMurray in the new reduced application area described below;
- complete a detailed review of shut-in gas production within the new application area as described below to allow the production of nonassociated gas;
- effective immediately, allow gas production without application from the Athabasca Wabiskaw-McMurray in wells outside the new application area; and
- amend the Wabiskaw and McMurray Gas Production Application areas described in *ID 99-1: Gas/Bitumen Production in Oil Sands Areas Application, Notification, and Drilling Requirements*.

Policy Description

Part 1: Wabiskaw-McMurray Gas Shut-in—Effective August 1, 2003

Effective August 1, 2003, all Wabiskaw-McMurray gas production from wells within the new reduced application area and within overlapping Pool Orders must be shut in. Wabiskaw-McMurray gas production from those wells approved for production or wells not required to be shut in, as described in *Decision 2003-023*,¹ are exempt. Wabiskaw-McMurray gas production from wells previously approved under *ID 99-1* but within the new reduced application area must be shut in, as the Board believes these wells need to be reviewed in a manner consistent with *Decision 2003-023*. The proposed shut-in will supersede any existing commingling orders. Affected wells will be listed in a forthcoming interim directive.

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

Part 2: Amendments to ID 99-1—Effective Immediately

The gas production application areas for the Wabiskaw and McMurray are rescinded (Maps 4 and 5 of *ID 99-1*) and replaced by a single area, as shown on the attached map. The description of the application criteria for the Wabiskaw and McMurray contained within the appendix of *ID 99-1* is replaced with the following:

Wabiskaw-McMurray Deposit

Applications for approval to produce gas are required for wells drilled within the Wabiskaw-McMurray application area shown on Map 4 and for wells drilled outside this area that are within or extend a Wabiskaw or McMurray Pool Order that overlaps the application area.

Previously, when a Wabiskaw-McMurray gas well drilled outside the application area discovered bitumen meeting the criteria outlined in *ID 99-1* an application was required. With these changes, applications are no longer required outside of the new application area unless drilled into a Pool Order that overlaps the new application area. Notwithstanding, oil sands leaseholders that have a local concern may request a gas shut-in review or the Board may conduct such a review on its own initiative. Drilling requirements specified in *ID 99-1* continue to apply outside the new application area.

Discussion

Process to Date

The conservation conflict between associated gas production in oil sands areas and potential thermal bitumen recovery using steam-assisted gravity drainage (SAGD) initially came to the Board's attention in 1996 with the submission of a gas shut-in request from an oil sands leaseholder. The Board's first action was to investigate the matter at an inquiry held in 1997, from which the Board determined that there was a need for regulatory intervention under its conservation mandate and legislation. Through collaboration with industry, the Board developed and issued *ID 99-1*, which sets out the current policy for dealing with gas production in Oil Sands Areas. The Board subsequently held a hearing in 1999 dealing with the Surmont Area and disallowed gas production from 146 wells to ensure the conservation of bitumen. In 2001/2002, the Board held another hearing dealing with the Chard-Leismer Area and disallowed gas production from a further 60 wells.

In *Decision 2003-023*, issued in March 2003, the Board made several conclusions that summarize its current views on the gas/bitumen issue after six years of discussion and evaluation:

- Wabiskaw-McMurray gas production associated with channel bitumen presents an unacceptable risk to SAGD bitumen recovery.
- There is currently insufficient understanding of the capabilities and limitations of SAGD to definitively establish commercial bitumen pay criteria; therefore, until more information becomes available, the Board believes it should continue to use the criteria outlined in *ID 99-1*.

- Repressuring depleted gas zones should not be relied on until it has been proven to be feasible and practical on the basis of field tests.
- The risks to SAGD bitumen production increase at lower operating pressures, such that depressuring gas zones associated with bitumen should be minimized to better ensure successful SAGD operations in terms of resource recovery and minimizing the technical difficulty of lifting SAGD fluids.
- The minimum steam chamber pressure required for artificial lift to be technically feasible is in the range of 400 to 600 kilopascals absolute.

Area of Concern

The thickest bitumen within the Athabasca Wabiskaw-McMurray deposit is generally located in a north–south trending channel complex along the eastern portion of the Athabasca area. This bitumen trend contains all existing and proposed SAGD projects in the Athabasca Oil Sands Area, as well as the areas included in the Surmont and Chard/Leismer hearings. The Board has defined an area of concern (see attached map) that encompasses this thick bitumen trend and believes the entire area has similarities with respect to geological environment, bitumen thickness encountered, and general gas production history. This area is coincident with channel sequences having thicknesses generally exceeding 10 metres (m) and over 6 weight per cent bitumen (approximately 50 per cent saturation). Outside the area, the Wabiskaw-McMurray deposit typically becomes thinner, channel sequences are less predominant, and the bitumen is generally not believed to be exploitable using SAGD or reasonably foreseeable thermal technologies.

Within the area of concern, there is approximately 80 billion cubic metres (m³) (500 billion barrels) of bitumen in-place in the Wabiskaw-McMurray. Using a 20 per cent factor, consistent with the Board’s reserves report,² results in reserves in the order of 16 billion m³ (100 billion barrels). To put this in context, this volume is 7 times greater than all the conventional oil produced to date or 60 times the remaining conventional oil reserves in Alberta.

Within the area of concern, there is about 30 billion m³ (1 trillion cubic feet) of remaining gas reserves in the Wabiskaw-McMurray, about 2 per cent of the provincial total. This gas has an energy equivalence of about 28 million m³ (175 million barrels) of bitumen, or in other terms, the energy content of the recoverable crude bitumen reserves at risk is about 600 times larger than the energy content of the proposed shut-in Wabiskaw-McMurray gas production. In 2002, gas production from the Wabiskaw-McMurray from within the area of concern was about 2.5 billion m³ (90 billion cubic feet), which is also about 2 per cent of the provincial total.

The Board notes that in 2002 about 50 per cent of the gas production within the area of concern came from zones other than the Wabiskaw-McMurray. This gas will be allowed to continue to produce.

Need for Policy Change

The Board has reviewed the Wabiskaw-McMurray gas production and believes that for the area of concern gas pools are generally at an advanced stage of depletion and are approaching the technical limit for artificial lift for SAGD. The Board observed in the Chard/Leismer hearing

² *Statistical Series 2003-98: Alberta’s Reserves 2002 and Supply/Demand Outlook 2003-2012.*

that there are pools with pressures near or below this limit. The majority of the depletion in the area of concern can be attributed to grandfathered production, some of which commenced in the early 1980s.

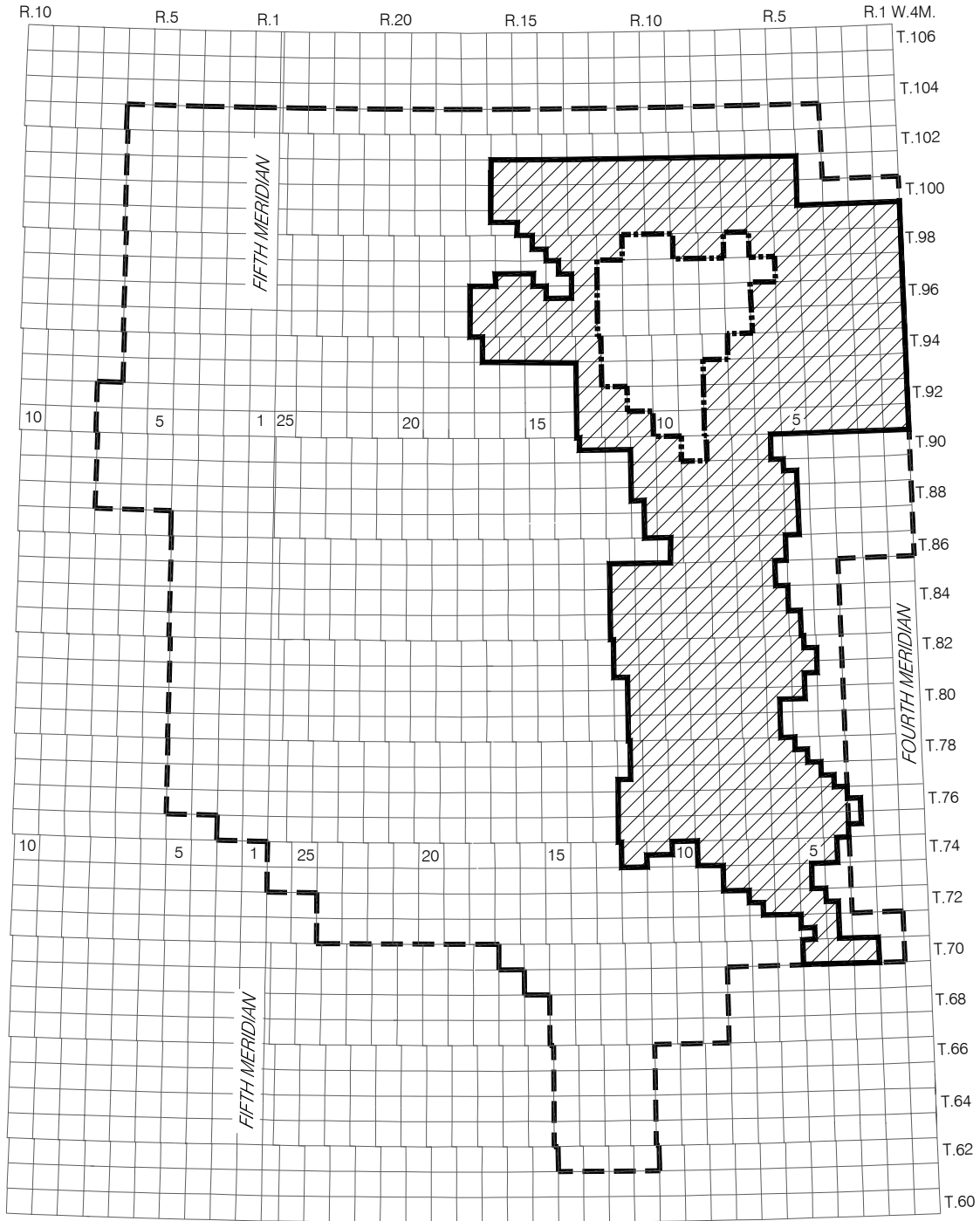
The Board has conducted two significant hearings within the area of concern, Surmont and Chard/Leismer, where some grandfathered wells were addressed in response to concerns raised by interested parties. These lengthy hearings established for the Board the significance of associated gas production from grandfathered wells on bitumen recovery. The Board believes that its conclusions from these hearings (as set forth previously) should be extrapolated to the Board's area of concern because of the similarity in geological environment, bitumen thickness encountered, and general gas production history. These two hearings took two years each to complete and addressed only about one-quarter of the total grandfathered wells in the area of concern. Given the existing level of pressure depletion, the Board concludes that bitumen conservation cannot be effectively addressed in the area of concern using the hearing process for grandfathered production.

New Policy




The Board's conservation mandate obligates it to address the identified risk to bitumen conservation. Gas pools in the area of concern are at an advanced state of depletion; therefore, continued pressure decline must be arrested immediately to conserve the bitumen with the highest potential for thermal development. The Board believes that the most rational and compelling course of action to effect bitumen conservation is to immediately shut in all Wabiskaw-McMurray gas in the area of concern except that addressed in *Decision 2003-023*. The Board recognizes that this action will result in the shut-in of some nonassociated gas. However, in the Board's view, to properly identify nonassociated gas requires the development of a regional geological model. Based on the Board's experience with the Chard/Leismer hearing, the Board concludes that this work would require more time than is available to effect bitumen conservation.

The geology of the Wabiskaw-McMurray in the area of concern is complex. For the Board to determine whether gas is associated with bitumen requires an understanding of the local geology in the context of a regional geological framework. This geological work, initiated in the Chard/Leismer area, is not complete for the remainder of the area of concern and will be a priority for the Board. The Board believes that applications in this area need to be deferred to facilitate early completion of the study. This provides for the most efficient and consistent processing of subsequent applications and would result in the earliest identification of nonassociated gas.

The Board's new policy also exempts the need for Board approval for gas production outside the new application area. Notwithstanding, oil sands leaseholders that have a local concern may request a gas shut-in review or the Board may conduct such a review on its own initiative. It is the Board's opinion that the bitumen in this area is generally a poorer quality resource that is not exploitable using SAGD or reasonably foreseeable thermal technologies. By removing this requirement, the Board is providing more certainty for producers developing gas reserves in this area.



LEGEND

-  Athabasca Oil Sands Area
-  Wabiskaw - McMurray Gas Production Application Area
-  Excluded mineable oil sands area

New reduced Wabiskaw - McMurray Gas Production Application Area