



GB 2003-28  
PHASE 3 FINAL PROCEEDING  
BITUMEN CONSERVATION  
REQUIREMENTS

REPLY SUBMISSION  
MAY 19, 2005

PROCEEDING NO.  
1347905

**NEXEN INC.**

## **I. Introduction and Summary of Reply Submission**

Nexen Inc. ("Nexen") submits the following reply to the response submission of Canadian Natural Resources Limited (CNRL).<sup>1</sup>

CNRL attempts to make a case that the evidence presented by wells in densely-cored areas should be ignored and, correspondingly, that the absence of core data at a few wells within the same area proves the presence of a seal and therefore gas should be allowed to produce at those wells. Additionally, without having studied the cores in question, CNRL alleges discrepancy between the Wabiskaw D Shale determinations of the SSG and Nexen. CNRL then concludes that the gas above the Wabiskaw D Shale interval should be allowed to produce, ignoring the fact that neither Nexen nor the SSG interpreted the presence of a competent sealing unit. CNRL's reasoning disregards technical evidence in order to conclude that gas should produce. In Nexen's view, this is erroneous and illogical.

## **II. CNRL's Comments on Wabiskaw D Shale Thickness Determination from Core and Logs**

CNRL alleges a discrepancy between the interpretations of the SSG and Nexen with respect to the thickness and/or presence of the Wabiskaw D Shale.

CNRL asserts that either the SSG or Nexen is incorrect in its Wabiskaw D Shale interpretation without having studied the wells and cores in question, and without offering any interpretation of its own. CNRL concludes that differing interpretations of a complex geological interval should result in a decision to allow gas to produce, despite the fact that both Nexen and the SSG interpret the absence of a seal in the units examined. It is difficult to follow the logic that would lead to CNRL's conclusion.

Nexen has reviewed its submission of February 14, 2005, and stands behind the accuracy of its work regarding the Wabiskaw D Shale unit. Detailed core-to-log correlation demonstrates that the interval picked by Nexen, and referred to by Nexen as the "Wabiskaw D Shale", corresponds to the log interval identified as the "Wabiskaw D Shale" in EUB Decision 2003-23<sup>2</sup>, and in the Regional Geologic Study<sup>3</sup>. Nexen has demonstrated through its extensive core study and core-to-log correlation that the Wabiskaw D Shale at Long Lake is not a competent and continuous barrier to vertical communication. It has also demonstrated that there is no continuous and correlatable shale in excess of 0.5 meters thickness in the Wabiskaw D Shale interval at Long Lake.

The work of the SSG also finds the absence of a sealing unit between Wabiskaw C gas and McMurray bitumen at Long Lake. The SSG and Nexen have arrived at the same conclusion. Any uncertainty in the geological picks within the interval examined simply

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<sup>1</sup> Reply Evidence of Canadian Natural Resources Limited, May 9, 2005.

<sup>2</sup> EUB Decision 2003-23; Section 5.2.2 Stratigraphic Framework, pages 16-17.

<sup>3</sup> EUB Report 2003-A: Athabasca Wabiskaw-McMurray Regional Geological Study, December 31, 2003, pages 24-25.

demonstrates the geologic complexity of the interval in question, and leads to the inexorable conclusion that gas should be shut in due to the absence of a competent barrier.

### **III. CNRL's Comments on Wells Recommended for Shut In by Nexen**

In challenging Nexen's February 14<sup>th</sup> 2005 request that the Wabiskaw C gas in the bitumen evaluation wells and the gas wells be shut in or denied for production, CNRL makes the claim that no new evidence was brought forward by Nexen. Nexen's February 14<sup>th</sup> 2005 submission consists of an extensive Wabiskaw D Shale core-to-log correlation study, using the data provided by the densely-drilled and densely-cored Long Lake bitumen development area. CNRL asserts that the absence of core at an individual well should be interpreted to prove the presence of a seal, while disregarding the weight of evidence from numerous cored wells in the immediate vicinity that show no seal. CNRL argues that an absence of evidence should carry more weight than available core evidence. In Nexen's view, this argument lacks technical merit.

Nexen's February 14<sup>th</sup> submission clearly shows that the Wabiskaw D Shale lacks the characteristics of a competent seal, and fails to provide a continuous and correlatable barrier in excess of 0.5 meters thickness. CNRL urges that such evidence should be disregarded. It is Nexen's submission that this position cannot be supported.

### **IV. Conclusion**

CNRL argues that inconsistency between Nexen and the SSG on the Wabiskaw D Shale interpretation should result in gas production from the Wabiskaw C sand. Regardless of the complexity of the geological intervals at Long Lake, both Nexen and the SSG interpret that there is no competent and continuous barrier between Wabiskaw C gas and the McMurray bitumen. Both interpretations support the conclusion that gas should be shut-in in order to prevent pressure depletion in underlying bitumen.

**All of which is respectfully submitted by Lori Skulski on behalf of Nexen Inc. this 19<sup>th</sup> day of May, 2005.**



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