Alberta Energy Regulator

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Via Email

December 19, 2023

Canadian Natural Resources Limited

Attention: Arly Castillo

Kelt Exploration Ltd.

Attention: Aaron Montgomery

Dear Parties:

RE: Request for Regulatory Appeal by Canadian Natural Resources Limited
Kelt Exploration Ltd.
Class II Disposal Approval No.: 12846B
Location: 03-02-073-08W6
Request for Regulatory Appeal No.: 1943598

The Alberta Energy Regulator (AER) has considered the request of Canadian Natural Resources Limited (Canadian Natural) made under section 38 of the *Responsible Energy Development Act* (*REDA*) for a regulatory appeal of the AER's decision to approve Application No. 1943113 (Application) and issue Kelt Exploration Ltd. (Kelt) the Class II Disposal Approval No. 12846B (Approval). In the alternative, Canadian Natural requested the AER use its alternative dispute resolution process. The AER has reviewed Canadian Natural's submissions dated July 12, 2023, August 29, 2023, and September 22, 2023, and the submissions made by Kelt dated August 9, 2023, and September 12, 2023.

After drilling the Class II disposal well Kelt submitted Application 1948397 and received Approval No. 12846C on October 4, 2023, which amended the location to unique well identifier 00/04-02-073-08W6/0 (Well 04-02). Kelt committed to refraining from fracture-stimulating the Belloy Formation and the AER approved a maximum wellhead injection pressure of 18,850 kPa (gauge).

For the reasons that follow, the AER has decided that Canadian Natural is not eligible to request a regulatory appeal in this matter. Therefore, the request for a regulatory appeal is dismissed.

Background

With regard to a regulatory appeal the applicable provision of *REDA* is section 38, which states:

> 38(1) An eligible person may request a regulatory appeal of an appealable decision by filing a request for regulatory appeal with the Regulator in accordance with the rules.
>
> [emphasis added]

There are three components to subsection 38(1) of *REDA*:

(a) The decision must be an appealable decision;

(b) The request must be filed in accordance with the *Alberta Energy Regulator Rules of Practice* (*Rules*); and

(c) The requester must be an eligible person.

All three components must be met in order to be eligible to request a regulatory appeal under subsection 38(1).

Reasons for Decision

The Application was approved without a hearing and a decision was made under an energy resource enactment, specifically paragraph 39(1)(d) of the *Oil and Gas Conservation Act*. The Approval is an appealable decision.

Canadian Natural requested a regulatory appeal within 30 calendar days of the Approval, in accordance with s. 30(3)(m) of the *Rules.*

Is the Requester an Eligible Person

The remaining and deciding component of the test to request a regulatory appeal under subsection 38(1) of *REDA* is the question of whether Canadian Natural is an "eligible person" according to the definition in subsection 36(b)(ii) of *REDA*.

In order to establish that it is an eligible person, Canadian Natural must demonstrate that it "is directly and adversely affected" by the AER's Approval.

Legislative Test

The AER typically applies a "may be directly and adversely affected" test when determining eligibility to request a regulatory appeal under section 38 of *REDA*. To do otherwise would be to impose a near impossible threshold on requesters, since the actual effects resulting from a decision, especially to issue an approval which authorizes an underlying physical activity, often cannot be known with any certainty in advance.

In *Court v Alberta (Environmental Appeals Board)*,[1] the then Court of Queen's Bench of Alberta examined the interpretation of the phrase "is directly affected" as it is used in section 95 of the *Environmental Protection and Enhancement Act* (*EPEA*). Subsection 95(5)(a)(ii) of *EPEA* allows the Environmental Appeals Board (EAB) to dismiss a notice of appeal submitted under certain provisions of *EPEA* if the EAB is of the opinion that the person submitting the notice of appeal is not directly affected by the decision.

The reviewing Justice found that, in order to establish eligibility for appeal, "the appellant must prove, on a balance of probabilities, that he or she is personally directly affected by the approval being appealed".[2] Further, the Justice found that "the appellant need not prove, by a preponderance of evidence, that he or she will in fact be harmed or impaired by the [decision]. The appellant need only prove a 'potential' or 'reasonable probability' for harm."[3] [emphasis added]

Based on the above, the "is directly and adversely affected" requirement under subsection 36(b) of the *REDA* does not require a higher standard of demonstrating actual effect.

Directly and Adversely Affected

Canadian Natural's Submissions

Canadian Natural alleged that its production from the overlying Montney Formation may be adversely affected by Kelt's disposal of produced water into the Belloy formation. Canadian Natural stated that the Peace River Arch is a structurally complex area where 3D seismic data maps out many faults, and there may be smaller faults that are not resolvable with seismic imaging. Canadian Natural submits that small faults and associated fracture networks pose a risk that the Belloy fluids might not be contained from the overlying Montney reservoir. Canadian Natural states that Montney production requires hydraulic fracture stimulation that significantly alters the properties of the Montney sediments and compromises its ability to act as confining strata. Canadian Natural provides examples of wells that target below the Montney C top and submits that well performance relies on fracture-stimulation reaching down into the lower Montney just above the Belloy Formation.

Canadian Natural submits that the step rate injectivity test proposed by Kelt is inappropriate and poses significant risk of fracturing the Belloy Formation since it does not account for low tubing friction. Canadian Natural submits that its calculation of the maximum well head injection pressure (MWHIP) that

[1] *Court v Alberta Environmental Appeal Board*, 2003 ABQB 456 (*Court*). *Court* was a judicial review of a decision of the Environmental Appeal Board (EAB) to dismiss a notice of appeal, a regulatory process very similar to the AER's request for regulatory appeal process.
[2] *Ibid* at para 69.
[3] *Ibid* at para 71.

does not include tubing frictional losses may be viewed as conservative. However, Canadian Natural submits that injection rates will drop over time due to formation reservoir pressure increase and skin damage, resulting in significantly lower tubing friction loss. Canadian Natural states that friction reducing chemicals are commonly mixed with Montney stimulation fluids. Therefore, Canadian Natural submits a conservative approach to the MWHIP calculation is required to account for the low velocity, low tubing friction and avoid fracturing the Belloy Formation.

Canadian Natural submits that acid gas injection to the Belloy Formation began about 7 years before the first fracture-stimulated Montney horizontal well in the Wembley area was spud, noting that in the subsequent 14 years industry and technological advancements have transformed the Montney into an economic resource. Canadian Natural submits that the current density of horizontal wells in the greater Wembley area would not previously have been considered feasible, which results in an increased risk profile associated with Belloy injection schemes.

Canadian Natural submits that *Directive 065* should be amended to require notification of overlying Montney Formation mineral rights holders for Belloy Formation disposal injection schemes. Canadian Natural submits that integrated operational decisions that maximize resource potential can be made when the injection operator into the Belloy Formation holds the overlying mineral rights to exploit the Montney Formation.

Kelt's Submissions

In its submissions, Kelt noted its commitments not to fracture-stimulate the Belloy Formation; to help prevent exceeding the fracture gradient at Well 04-02 by applying for its MWHIP using a step rate injectivity test analogous to the Kelt Belloy disposal well 06-06-074-08W6, and to measure an initial reservoir pressure in the Belloy zone by conducting a stabilized shut-in bottom hole pressure test per *Directive 040* before commencing disposal operations.

Kelt submits that the Belloy Formation is used for disposal throughout the Wembley area, in part because it is geologically contained above and below the porous disposal interval. Kelt submits that the top of the Belloy Formation is capped by a tightly cemented sandstone interval ranging in thickness from 4 to 5 m. Below the tightly cemented sandstone caprock is an approximately 12 m thick interval of interbedded sandstones and tight sandstones with a porosity of 6% or less. Kelt states that the target disposal zone of high-quality porosity is approximately 12 m below the top of the Belloy and 17 m thick using a 9% porosity cut-off.

Kelt provides examples of Belloy Formation disposal scheme approval holders, including some that do not hold the overlying production rights to the Montney Formation. Kelt submits that its proposed step rate injectivity test is an industry standard approach and mitigates the risk of fracturing the Belloy.

Kelt submits that Canadian Natural has not provided any data, such as operational data from Canadian Natural's produced water disposal well into the Belloy Formation that commenced operation in September 2021, indicating that the Belloy cap rock has been breached.

AER Findings

Canadian Natural must provide evidence in support of its regulatory appeal request and the potential direct and adverse effect it is concerned about. Speculation is not enough.

The AER finds Canadian Natural's concerns are speculative in nature. Canadian Natural did not provide data or other evidence of potential communication between the Belloy Formation and the Montney Formation in the Wembley Field to support its concerns or to identify a risk created by the operating conditions specified in the Approval.

The AER makes data driven decisions based on the parties' submissions. The type of data or information that may demonstrate to the AER that there may be potential communication includes: 1) a marked increase in water cuts with altered chemical composition in Montney Formation producing wells coinciding with the start up of a Belloy Formation disposal well; 2) a marked change in reservoir pressure; or 3) equalization of reservoir pressure between the Montney and the Belloy wells.

Both Kelt and Canadian Natural provided examples of disposal schemes into the Belloy Formation in the greater Wembley area previously approved by the AER. None of these Belloy Formation disposal scheme examples have demonstrated communication with the overlying Montney Formation. Canadian Natural did not distinguish how this Approval would result in an adverse affect to overlying production from the Montney Formation.

The AER also notes that Kelt has committed 1) not to fracture-stimulate the Belloy Formation; 2) to help prevent exceeding the fracture gradient at Well 04-02 by applying for its MWHIP using a step rate injectivity test analogous to the Kelt Belloy disposal well 06-06-074-08W6; and 3) to measure an initial reservoir pressure in the Belloy zone by conducting a stabilized shut-in bottom hole pressure test per *Directive 040* before commencing disposal operations.

Given the above, the AER is of the view that Canadian Natural has not demonstrated that it may be directly and adversely affected by the Approval.

Conclusion

The AER has determined that Canadian Natural is not an eligible person since it has not demonstrated that it may be directly and adversely affected by the Approval. Accordingly, this request for regulatory appeal is dismissed. Additionally, the AER does not consider using its alternative dispute resolution process to resolve this dispute appropriate.

Sincerely,

<Original signed by>

Paul Ferensowicz
Principal, Regulatory Advisor

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Alexandra Robertson
Principal, Engineer

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Michael Bevan
Senior Advisor, Water