



NWT OFFICE OF THE REGULATOR OF OIL AND GAS OPERATIONS

Office of the Regulator of Oil and Gas Operations

P.O. Box 1320, Yellowknife, NT X1A 2L9

Tel: 867-767-9097 • Fax: 867-920-0798 • Web: www.oro.go.gov.nt.ca

Courier Address: 4th floor, 5201 – 50th Avenue, Yellowknife, NT X1A 3S9

Angie Stastook
Specialist Asset Liability & ESG
Prairie Provident Resources Canada Ltd.
1100, 640 – 5 AVE SW
CALGARY AB T2P 3G4

July 24, 2023

Dear Angie Stastook:

Decision: Request for Variation to ACW-2021-PPR-L-68-WID1207 Denied

On July 6, 2023, I issued my decision denying Prairie Provident Resources (PPR) a variation to ACW-2021-PPR-L-68-WID1207, issued on January 11, 2022.

On July 18, 2023, the Office of the Regulator of Oil and Gas Operations (OROGO) received an email from Yellowstone Resources, consultants to Prairie Provident Resources (PPR), proposing a further change to the abandonment program for the South Pointed Mountain L-68 well (WID1207). Although this email does not specifically request a variation to ACW-2021-PPR-L-68-WID1207, because it proposes a change to the approved abandonment program, I am treating it as a second request for variation.

This decision:

1. Provides context for PPR's request;
2. Considers PPR's arguments in support of its request; and
3. Concludes with my decision on the request.

Context

Section 56 of the *Oil and Gas Drilling and Production Regulations* (OGDPR) states that abandoned wells must be left in a state that “provides for isolation of all oil and gas bearing zones and discrete pressure zones”. Section 6A of the *Well Suspension and Abandonment Guidelines and Interpretation Notes* (Guidelines) describes the various methods that are acceptable for achieving the isolation required under the OGDPR. Section 1 of the Guidelines states that “applicants may suggest alternative approaches, where those approaches are demonstrated to meet or exceed the same standards for the protection of human safety and the environment”.

.../2

The South Pointed Mountain L-68 well is a non-compliant suspended well because the barriers in place for suspension of the Lower and Upper Muskwa formations and Exshaw formation do not meet the requirements of the Guidelines. The well has a non-serious Surface Casing Vent Flow (SCVF) producing muds and fluids as well as gas and has shut in pressures on the casing and the tubing indicating a possible leaking barrier downhole.

The South Pointed Mountain L-68 well contains a frac string and six sets of suspended perforations across two zones (Muskwa and Exshaw). The Guidelines require that each perforated zone be abandoned separately with a cement squeeze and either a cement retainer, cement/bridge plug, or permanent bridge plug capped with cement (the depth of the cement cap varies depending on the risk classification of the well). The cement retainers or plugs are to be placed as close as possible to each perforated zone while avoiding casing collars. In the case of the South Pointed Mountain L-68 well, complying with the Guidelines would require pulling the frac string from the wellbore.

In the program approved on January 11, 2022, PPR received an exemption from the requirement to pull the frac string from the South Pointed Mountain L-68 well. However, the approved program included the following steps to independently isolate each perforated zone:

- Setting a cement retainer between the Muskwa and Exshaw zones.
- Squeezing cement into the Muskwa perforations.
- Capping the cement retainer between the Muskwa and Exshaw zones with 30 meters of circulated cement.
- Setting a cement retainer above the Exshaw perforations.
- Squeezing cement into the Exshaw perforations.
- Capping the cement retainer above the Exshaw zone with 30 meters of circulated cement.

PPR's first variation request, received on April 28, 2023, and modified in its response to Information Request No. 1, received on June 2, 2023, included:

- A single cement squeeze into the perforations for the Upper and Lower Muskwa formation and the Exshaw formation at the same time.
- No permanent barrier between the Muskwa and Exshaw formations in the wellbore.
- Continued exemption from the Guidelines to allow the existing frac string to remain in place and then be plugged and cemented.

PPR's first variation request was denied on July 6, 2023, because it proposed a single cement squeeze for both the Muskwa and Exshaw zones. I concluded that a single cement squeeze resulted in a lower level of confidence in the isolation of the oil and gas bearing zones in this well compared to the two independent squeezes in the program approved on January 11, 2022.

PPR's variation request received on July 18, 2023, proposes the same abandonment program as the April 28, 2023, variation request with one addition: placing additional cement on top of the retainer inside the frac string to just below the liner top packer at 3240 mKB. Therefore, this decision will focus on the impact of the additional cement inside the frac string on the isolation of the oil and gas bearing zones in the well.

Consideration of PPR's arguments

PPR's request for variation received on July 18, 2023, acknowledges that the proposed single squeeze program leaves "no physical way to determine if both zones will have taken cement", in contrast with the program approved on January 11, 2022.

PPR states that placing additional cement inside the frac string would "create an independent isolation of the inside of the frac string". PPR does not suggest that placing additional cement inside the frac string will isolate the Exshaw and Muskwa formations as required under section 56 of the OGDPR. Therefore, it is not reasonable to suggest that the program proposed by PPR on July 18, 2023, is as likely or more likely to meet the objective of isolation of oil and gas bearing zones than the program approved on January 11, 2022.

Decision

Based on my consideration of PPR's arguments, I find that PPR has not made a reasonable case for its proposed variation to the abandonment program for the South Pointed Mountain L-68 well.

Therefore, PPR's request for a variation is denied.

Sincerely,



Pauline de Jong
Regulator

- c. Jeremy Sadleir, Completions Engineer, Yellowstone Resources
Shawn Tivadar, Yellowstone Resources