



NWT OFFICE OF THE REGULATOR OF OIL AND GAS OPERATIONS

Office of the Regulator of Oil and Gas Operations

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John Hawkins, P. Eng.
Director Asset Management
Paramount Resources Ltd.
Suite 2800, 421 – 7TH AVE SW
CALGARY AB T2P 4K9

June 17, 2022

Dear John Hawkins:

Information Request No. 2: Paramount Resources Ltd. Application to Abandon the Arrowhead N-65 Well (ACW-2022-PAR-N-65-WID1833)

On April 29, 2022, the Office of the Regulator of Oil and Gas Operations (OROGO) received a complete application to Alter the Condition of a Well (ACW) from Paramount Resources Ltd. (Paramount) for the abandonment of the Arrowhead N-65 well (WID1833) in the Fort Liard area of the Northwest Territories.

OROGO has reviewed the information provided by Paramount, including the response to the previous Information Request, and requires additional information to complete its review of Paramount's ACW application, as set out in the attached Information Request No. 2.

Please send your written responses and any associated correspondence to OROGO at oro.go@gov.nt.ca or through OROGO's secure file transfer site, on or before 4:00 pm on July 13, 2022. If you are unable to respond within this timeframe or have any questions, please contact OROGO at (867) 767-9097 or by email at oro.go@gov.nt.ca.

Sincerely,

Pauline de Jong
Regulator

Encl. Information Request No. 2

**Information Request No. 2
Arrowhead N-65 Well Abandonment
ACW-2022-PAR-N-65-WID1833**

2.1 Area of Application

Preamble:

On page 3 of its April 29, 2022, application, and June 7, 2022, response to Information Request No. 1, Paramount includes a map of the Area of Application. The map resolution remains poor.

Request:

Please submit an updated application with a map in higher resolution.

2.2 Operator

Preamble:

Page 5 (Requirement for a Well Approval) of the Well Abandonment Program submitted in response to Information Request No. 1 on June 7, 2022, states:

This document is provided in support of MGM's application for a Well Approval for the abandonment of Paramount Berkley Arrowhead N-65.

OROGO's records show Paramount Resources Ltd. is the operator of the Arrowhead N-65 well.

Request:

Please submit an updated Well Abandonment Program that correctly identifies the operator of the Arrowhead N-65 well.

2.3 Shallow Wellbore Plug

Preamble:

Page 15 (Abandonment Program) of the Well Abandonment Program submitted in response to Information Request No. 1 on June 7, 2022, states:

An additional bridge plug was set in 2009 at 50mKB as per prevailing requirements.

Milling out shallow wellbore plugs can pose significant safety risks because the operator cannot properly kill the well with a weighted fluid or assess actual pressures beneath the plug prior to downhole intervention.

OROGO requires operators to adhere to the requirements of OROGO's published *Safety Bulletin: Shallow Wellbore Plugs* (Safety Bulletin).

The Abandonment Program does not reference the requirement to follow the requirements outlined in the Safety Bulletin. The procedural steps do not include the required:

- Completion and recording of an on-site risk assessment and hazard analysis of the task; or
- Reporting to OROGO prior to start of milling operations.

Request:

Please submit an updated Well Abandonment Program that:

- References the requirement to follow the requirements of the Safety Bulletin; and
- Includes procedural steps that satisfy those requirements.

2.4 Remedial Cementing Contingency Steps – Feed Rates

Preamble:

Step 39 of the Supplement – Arrowhead N-65 Cement Squeeze Procedure of the Well Abandonment Program submitted in response to Information Request No. 1 on June 7, 2022, identified a target feed rate of 30 litres/minute or more without exceeding the bottom hole pressure (BHP), identified as 18 kPa/m.

A feed rate of less than 75 litres/minute without exceeding the BHP would be considered a slow rate, low pressure squeeze. Whether a slow rate, low pressure squeeze would be sufficient to inject the necessary volume of cement to provide zonal isolation of the wellbore if a remedial cement squeeze is required is not known.

Request:

Please submit an updated Supplement – Arrowhead N-65 Cement Squeeze Procedure of the Well Abandonment Program that:

- Explains how a minimum feed rate of 30 litres/minute was determined;

- Provides justification for the proposed use of a slow rate (less than 75 litres/minute), low pressure (without exceeding BHP) squeeze for zonal isolation of the wellbore (if a remedial cement squeeze is required); and
- Includes contingency steps for determining an appropriate feed rate.