

March 8, 2017

OROGO
Department of Industry, Tourism and Investment
Government of the Northwest Territories
P.O. Box 1320
Yellowknife NT
X1A 2L9
Canada

Attn: Chief Conservation Officer

**Re: Modification to the Approved AACW Application for Abandonment of Liard F-36
ACW-2016-003**

The producing zones in the above well were abandoned in February 2017 and two squeezes were made in an attempt to shut off a Surface Casing Vent (SCV) Flow, as previously approved and reported.

There has been a substantial decrease in the rate of flow from the SCV, from flow rates of 4 – 8 m³/day prior to the cement squeezes to flow rates under 0.01 m³/day subsequently. The flow rates between March 4 and March 7 have decreased to rates equivalent to 10 bubbles per minute or less, with intervals of the SCV being on vacuum. Paramount interprets these results as likely indicating that the source of gas flow has been shut off, but zones and/or voids in the wellbore and near wellbore area are still somewhat charged up with gas. Accordingly, Paramount proposes the following:

1. Cut & cap

Do not cut and cap the well at this time as per step 19 in the approved program.
Current observations of the SCV do not support cutting and capping the well at this time.

2. Monitoring the Surface Casine Vent for flow

During a suitable period (e.g. the summer of 2017) Paramount will install a flow monitoring device such as the "Vent Nanny" on the well and monitor the flow for a minimum of 48 hours to confirm that any gas present has dispersed and the well is in a suitable condition for cut and cap operations. Paramount will report the results of the monitoring to OROGO.

If the monitoring indicates no SCV flow as defined in the OROGO regulations and guidelines, the well will be considered suitable for cut and cap operations to finalize abandonment. If there is still indication of SCV flow, the well will be left open for a further season and monitoring

repeated as needed to determine the success (or lack thereof) of mitigation efforts and to plan further actions.

3. Gas Migration

Consideration will be given to monitoring for Gas Migration (GM) outside of the casing during the summer for 2017. Further investigation is required to determine if this is practical under the current conditions, or if the known hydrocarbon contamination in the vicinity of the wellhead may cause false positive readings, in which case GM testing may not be useful until the surface reclamation efforts are completed.

4. Final Cut & Cap – Surface Abandonment

Due to the difficult access to this well (requiring approximately 25 km of winter road to be built for access), Paramount intends to combine final cut and cap (or other remedial operations) on the Liard F-36 well with other reclamation work on F-36 and other wellsites in the area. A firm schedule for this has not been established at this time, but in any case, operations will occur within the timelines specified by the applicable regulation.

Please contact Patrick Kelly at 403 290-3642 or Dick Heenan at 403 818 4408 or dickheenan@shaw.ca if you have any questions regarding this project and application.

Regards,



Patrick Kelly
Area Operations Manager
Paramount Resources Ltd