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JUL 27 2015

Oral Question 864-17(5) Water Safety and Hydraulic Fracturing

This letter is further to my commitment made in the Legislative Assembly on Tuesday, June 2, 2015, regarding Oral Question 864-17(5) Water Safety and Hydraulic Fracturing.

I committed to providing you with detailed information regarding hydraulic fracturing in the Fort Liard area by Lone Pine Resources Canada Ltd. and also in the 1970s around the Cameron Hills area, and any known incidence of any type of disturbance with the land around the areas where the hydraulic fracturing method had been used.

I offer the following information:

Hydraulic fracturing is a well completion technique that uses the hydraulic pressure of a fluid (a liquid or a gas) to create fractures in a rock formation, allowing oil and gas to flow into the well bore. Hydraulic fracturing can be completed using varying amounts of water or other fluids. Depending on the type of rock formation, proppants, typically fine sands, may be used to hold open the fractures created during the process. In addition, hydraulic fracturing can be applied to vertical or horizontal wells and may be conducted in multiple stages.

The Office of the Regulator of Oil and Gas Operations (OROGO) is aware of two wells that have been hydraulically fractured in the Fort Liard and Cameron Hills areas:

- The S. Pointed Mountain (D-1) L-68 well is a vertical well originally drilled by Amoco in 1982. Lone Pine Resources Canada Ltd. acquired the well and re-entered it in 2011, conducting vertical hydraulic fracturing in six stages using slick water and proppant. The total volume of hydraulic fracturing fluid used was 3,829.5 cubic meters.
- The Cameron 2H-03 well was drilled in 2011 by Paramount Resources Ltd. It was horizontally fractured in nine stages using gaseous nitrogen, 15% hydrochloric acid and slick water (known as "acid fracturing"), but no proppant. The total volume of hydraulic fracturing fluid used was 454.4 cubic meters.

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Both wells are currently suspended and subject to periodic inspection by the well owners, under supervision by OROGO. OROGO is not aware of any disturbance to the land or concerns with the water surrounding these two wells as a result of the hydraulic fracturing used to complete them.

Thank you for your interest in this matter.



David Ramsay
Minister

c. Mr. Peter Vician
Deputy Minister, ITI

Mr. Tim Mercer
Clerk of the Legislative Assembly

Mr. David Hastings
Legislative Coordinator