
MADE at the City of Calgary, in the
Province of Alberta, on

February 19, 2015

ALBERTA ENERGY REGULATOR

Effective immediately, pursuant to the *Oil and Gas Conservation Act* and section 11.104 of the *Oil and Gas Conservation Rules*, the Alberta Energy Regulator (AER) orders as follows:

- 1) The Duvernay Zone (zone) within the area outlined in appendix A to this order is subject to Subsurface Order No. 2 (order).
- 2) The licensee of a well with a surface- or bottomhole located in the zone within the area designated in clause 1 (affected well) at which any completion operations that include hydraulic fracturing will be conducted must meet the following requirements:
 - a) Before beginning any completion operations that include hydraulic fracturing at or in connection with drilling and completion of any affected well, the licensee must assess the potential for seismicity that may be induced by or that may occur as a result of or in connection with such activities and establish and be immediately prepared to implement a plan to monitor for, mitigate, and respond to induced seismicity that may occur or result from its completion operations, retain a copy of the plan on site during fracturing operations, and submit the plan to the AER upon request.
 - b) Seismic monitoring conducted by or on behalf of the licensee pursuant to this order must be sufficient to detect a 2.0 local magnitude (M_L) seismic event within 5 kilometres (km) of any affected well.
 - c) During hydraulic fracturing operations on any affected well, the licensee must immediately report to the AER 24-hour telephone number (1-800-222-6514) any seismic event recorded by or on behalf of the licensee or by any other source available to the licensee of 2.0 M_L or greater within 5 km of the affected well.
 - d) Where a licensee detects a seismic event (as contemplated in clause 2(c)), it must implement its induced seismicity plan in a manner that eliminates or reduces further seismic events caused by or resulting from hydraulic fracturing operations.
 - e) During hydraulic fracturing operations on any affected well, the licensee must immediately report to the AER 24-hour telephone number (1-800-222-6514) any seismic event recorded by or on behalf of the licensee or by any other source available to the licensee of 4.0 M_L or greater within 5 km of the affected well; it must also immediately cease hydraulic fracturing operations at the affected well, and return the affected well to a safe state.
 - f) Hydraulic fracturing operations suspended under clause 2(e) of this order may only be recommenced with written consent of the AER.

- g) The AER may permit resumption of hydraulic fracturing operations at an affected well if
 - i) the licensee presents a plan to the AER for modified operations aimed at eliminating or reducing future induced seismicity to below 4.0 M_L,
 - ii) the plan is acceptable to the AER, and
 - iii) the licensee implements the plan as proposed.
- h) The AER may require the submission of any or all seismic assessment and monitoring information generated or collected by or on behalf of a licensee as per this order.

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