Alberta Energy Regulator

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April 4, 2016

BY E-MAIL ONLY

Kevin Mageau, P. Geol.
Team Lead – NAOS Duvernay
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Resumption of Hydraulic Fracturing Operations

Subsurface Order No. 2 – Duvernay Zone, Fox Creek Area

WELL 00/15-25-062-23W5/0

Dear Mr. Mageau,

On January 12, 2016, a 4.8 local magnitude (M_L) seismic event was recorded within 5 kilometres of hydraulic fracturing operations being conducted at Repsol Oil & Gas Canada Inc.'s (Repsol's) subject well. Repsol reported the event in accordance with Alberta Energy Regulator (AER) Subsurface Order No. 2, and AER staff has been in communication with Repsol since that time. It is our understanding that Repsol ceased hydraulic fracturing operations at the subject well as required by the order, and wants to proceed to flowing back the well in advance of placing it on production.

On March 24, 2016, Repsol replied to the AER regarding the seismic event with a flow back plan (modified hydraulic fracturing operations) aimed at the elimination or reduction of future induced seismicity to below 4.0 M_L during flow back operations. This was in addition to other information provided by Repsol to the AER following the January 12, 2016 event.

The AER finds Repsol's plan to flow back well 00/15-25-062-23W5/0 acceptable and therefore the hydraulic fracturing (flow back) operation can resume, in accordance with the modified operations as set out in the submitted flow back plan. Repsol must continue to manage the risks associated with inducing seismicity throughout the duration of the operation and at all times operate in compliance with applicable requirements, including the provisions of AER Subsurface Order No. 2.

Repsol is required to advise the AER Edmonton Field Centre (780- 642-9310) of the commencement of flow back operations at least 5 days prior to the commencement of the operations.

Also, Repsol is required to contact AER Industry Operations (contact given below) within 5 business days of completing flow back operations at the subject well to schedule a meeting with the AER to present and discuss the lessons learned from this event including:

- Seismicity during and following the long shut-in prior to flow back at the well.
- The effectiveness of controls (modified operations) used during flow back to prevent additional seismic events. This will include the details of actual flow back operations.
- The significance of the two seismic events greater than 4.0 M_L associated with your wells in the area, and any subsurface geological conditions that might have made these wells more susceptible to induced seismicity.

Questions and further communications on this matter should be directed to Tom Byrnes, Industry Operations at 403-287-8479 or tom.byrnes@aer.ca.

Sincerely,

<Originally signed>

Kirk Bailey, P.Eng.
Executive Vice President
Operations Division