



April 28, 2015

9045-7400/7450-32640-02

Chris Sieben, P.Eng  
Conventional Reservoir and Subsurface Engineering Supervisor  
Imperial Oil Resources Limited  
8095, 237 – 4<sup>th</sup> Avenue SW  
Calgary AB T2P 0H4

Dear Mr. Sieben,

**RE: PRODUCED WATER EXTENDED INJECTION TEST  
IMP MCADAM c-24-I/094-O-02; WA# 27668  
DEBOLT FORMATION**

Commission staff have reviewed your submission dated April 22, 2015 seeking approval for an extended injection test on a deep disposal well located in the McAdam field – Debolt formation. Deep disposal approval was issued for this location on May 24, 2012 through order 12-02-014. Imperial is now seeking approval to conduct an extended injection testing to confirm formation parting pressure (FPP).


The approval for disposal at c-24-I included a maximum wellhead injection pressure of 2,500 kPa based on a step-rate test conducted on this well. However, there was ambiguity regarding the test inflection point. Additionally, an Encana Debolt step rate test on a well 20 km to the northeast indicated a formation parting pressure almost two times the Imperial test. Imperial would like an opportunity to re-evaluate the FPP through a new step-rate test. The total volume for the injection test will not exceed 1000 m<sup>3</sup> of water.

Attached please find Order 12-02-014 Amendment #1, designating areas in the McAdam field, Debolt formation a Special Project under section 75 of the Oil and Gas Activities Act, for the temporary operation and use of a storage reservoir for the disposal of salt water. Please note that wellbore integrity logging and a reservoir pressure test are required with a full application before an amended approval with a higher maximum injection pressure will be issued.

This is a temporary approval. The Commission cannot guarantee that an future approval amendment will be issued. Additional general information regarding disposal wells is available on the Commission's website at <http://www.bcogc.ca/industry-zone/documentation/Subsurface-Disposal>.

Should you have any questions, please contact Michelle Gaucher at (250) 419-4482 or Ron Stefik at (250) 419-4430.

Sincerely,



Richard Slocomb, P.Eng.  
Deputy Commissioner, Engineering  
Oil and Gas Commission

Attachments

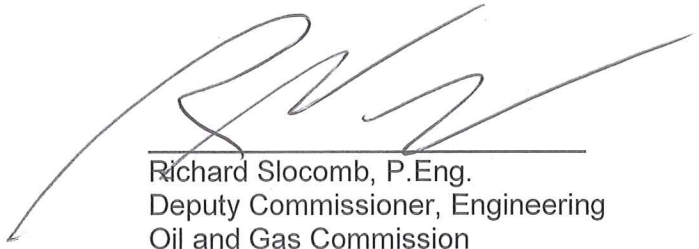
IN THE MATTER of a submission from Imperial Oil Resource Limited, to the Oil and Gas Commission (Commission) dated April 22, 2015 for the temporary operation and use of a storage reservoir.

**ORDER 12-02-014 Amendment #1**

- 1 Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Commission designates the temporary operation and use of a storage reservoir for the disposal of produced salt water or recovered fluids from well completions in the McAdam field – Debolt formation as a special project in the following area:

NTS 94-O-02 Block I Unit 24.

- 2 Under section 75(2) of the *Oil and Gas Activities Act*, the special project designation in this Order is subject to the following conditions. The Permit Holder shall:
- a) Inject produced water, including well flowback completion fluids, only into the well Imperial McAdam c-24-1/94-O-2; WA# 27668 Debolt formation, 461.0 – 572.0 mKB.
  - b) The total volume of injected water must not exceed 1,000 m<sup>3</sup>.
  - c) Inject only through tubing with a packer set as near as is practical above the injection interval.
  - d) The injection test should be designed with an attempt to establish the fracture gradient or maximum injection pressure for final disposal operations.



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Richard Slocomb, P.Eng.  
Deputy Commissioner, Engineering  
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 28<sup>th</sup> day of April, 2015.

Advisory Guidance for Order 12-02-014 Amendment #1

- I. A production packer must be set above the injection interval and the space between the tubing and casing filled with corrosion inhibiting fluids, as per section 16(2) of the Drilling and Production Regulation.
- II. Annual packer isolation tests are required, as per section 16(3) of the Drilling and Production Regulation.
- III. Injected fluids must be metered, as per section 74 of the Drilling and Production Regulation.
- IV. A monthly disposal statement must be submitted to the Commission not later than the 25<sup>th</sup> day of the month following the reported month, as per section 75 of the Drilling and Production Regulation.