



January 22, 2016

0320-4100-32640-02

Lisa Telang, P. Eng.  
Consulting Reservoir Engineer  
Canbriam Energy Inc.  
3500, 450 – 1<sup>st</sup> Street SW  
Calgary, AB T2P 5H1

Dear Ms. Telang,

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL  
CANBRIAM ALTARES B15-01-85-26 W6M; WA# 27473  
BALDONNEL FORMATION**

Oil and Gas Commission staff have reviewed the application, dated November 23, 2015, requesting approval to dispose of produced water into the Baldonnel formation at the well Canbriam Altares B15-01-85-26 W6M (WA 27473).

The subject well was drilled in February 2015 specifically for the purpose of disposal. Subsequent testing for hydrocarbon potential, formation injectivity, wellbore integrity and reservoir pressure confirm this well and formation are suitable for disposal operation.

Attached please find **Order 16-02-001** designating an area near the Altares field – Baldonnel formation as a Special Project under section 75 of the *Oil and Gas Activities Act*, for the use of a storage reservoir for the disposal of produced water. This Order contains a number of detailed operational conditions.

As this well is located in an area noted to be susceptible to seismic activity, the Order includes a condition for continual seismic monitoring, which may be achieved with the existing instrument array operated by Canbriam Energy Inc. Seismicity events of concern attributed to this well may result in an amendment to this Order to alter disposal operations or termination of this Order.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Ron Stefik", is written over a horizontal line.

Ron Stefik, Eng. L.  
Supervisor, Reservoir Engineering  
Oil and Gas Commission

Attachment

**ORDER 16-02-001**

- 1 Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Commission designates the operation and use of a storage reservoir for the disposal of produced water, into the Baldonnel formation – near the Altares field as a special project in the following area:

DLS Twp 85 Rge 26 W6M Section 01 - Lsds 9, 10, 15, and 16.

- 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 only into the well Canbriam Altares B15-01-85-26 W6M; WA# 27473 – Baldonnel formation (disposal perforations 1529.0 to 1539.0 mKB).
  - b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 14,100 kPag or the pressure required to fracture the formation, whichever is lesser.
  - c) Inject only through tubing with a packer set as near as is practical above the injection interval.
  - d) Continually measure and record the wellhead casing and tubing pressures electronically.
  - e) Continually monitor seismicity using currently installed passive seismic monitoring array and provide recorded information with interpretation upon request.
  - f) Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
  - g) Submit the annual packer isolation test report to the Commission within 30 days of the completion of the test.
  - h) Include the disposal operating hours and the maximum injection pressure value on the monthly BC-S18 disposal statement.
  - i) Conduct an annual reservoir pressure test on the formation in the subject well, with a shut-in period of sufficient length to provide data for calculation of the reservoir pressure, and submit a report of the test within 60 days of the end of the test.
  - j) Cease injection upon reaching a maximum formation pressure of 18,360 kPaa, measured at MPP.
  - k) i) Perform a casing inspection log on the subject well and submit results to the Commission within 30 days of the completion of logging, at an interval of not more than every 10 years, commencing from the date of initial disposal.  
ii) Perform a hydraulic isolation temperature log on the subject well and submit results to the Commission within 30 days of the completion of logging, at an interval of not more than every 5 years, commencing from the date of initial disposal.
  - l) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.



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Ron Stefik, Eng.L.  
Supervisor, Reservoir Engineering  
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 22<sup>nd</sup> day of January, 2016.

Advisory Guidance for Order 16-02-001

- I. A production packer must be set above the injection interval and the space between the tubing and casing filled with corrosion and frost inhibiting fluids, as per section 16(2) of the Drilling and Production Regulation.
- II. Annual packer isolation tests are required to be submitted, as per section 16(3) of the Drilling and Production Regulation.
- III. Injected fluids must be metered and the injection pressure measured at the wellhead, 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.
- V. Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.