



December 11, 2015

9045-7400-32640-02

Lloyd Woychuk, Division Superintendent  
EOG Canada Oil & Gas Inc.  
1300, 700 – 9<sup>th</sup> Avenue S.W.  
Calgary, AB T2P 3V4

Dear Mr. Woychuk,

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL, AMENDMENT #2  
ECOG GOTE C-18-B/94-O-9; WA# 26179  
DEBOLT FORMATION**

Approval for disposal of produced water, Order 10-02-007, was issued for the subject well, Debolt formation, on August 18, 2010. The Commission is presently amending disposal well approvals to conform to current requirements.

The subject well was rig released in March 2010, and has disposed of over 103,330m<sup>3</sup> since it started disposal in December 2010. During the injectivity test performed in June 2010, formation fracture was never achieved. A maximum wellhead injection pressure of 7,000kPa was specified in Order 10-02-007 Amendment #1 issued November 16, 2010. Since disposal began, wellhead pressures have not exceeded 630kPa. Additional information supplied by EOG, such as hydraulic isolation logs, packer isolation testing, and reservoir pressure tests, provide assurance that the well can continue to operate safely and effectively as a disposal well.

Attached please find **Order 10-02-007 Amendment #2** designating an area near the Gote field – Debolt 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 including a maximum wellhead injection pressure, reservoir pressure fill-up limit, and continuous tubing and casing pressure monitoring. Additional general information regarding disposal wells is available on the Commission's website at <http://www.bcogc.ca/industry-zone/documentation/Subsurface-Disposal>.

In certain circumstances, disposal well operation may induce seismicity. The Commission advises that disposal well permit holders monitor seismic events in proximity to the well and be prepared to modify operations to mitigate induced seismicity. Permit holders may monitor seismic events through Natural Resources Canada seismic monitoring network at <http://www.earthquakescanada.nrcan.gc.ca/recent/index-eng.php>.

Should you have any questions, please contact Ron Stefik at (250) 419-4430 or Michelle Harding at (250) 419-4493.

Sincerely,

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

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

Attachment

**ORDER 10-02-007 Amendment #2**

- 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 Debolt formation – near the Gote field as a special project in the following area:  
NTS 94-O-9 Block B Unit 18
- 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 ECOG Gote c-18-B/94-O-9; WA# 7820 – Debolt formation (disposal perforations 650.0 – 720.0 mKB).
  - b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 7,000 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) Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
  - f) Submit the annual packer isolation test report to the Commission within 30 days of the completion of the test.
  - g) Include the disposal operating hours and the maximum injection pressure value on the monthly BC-S18 disposal statement.
  - h) 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.
  - i) Cease injection upon reaching a maximum formation pressure of 5,750 kPaa, measured at MPP.
  - j) Maintain and manage the well head to prevent surface liquids from entering the well bore through the annulus outside or between casing and conductor strings.
  - 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 11 day of December, 2015.

Advisory Guidance for Order 10-02-007 Amendment #2

- 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.