

November 2, 2018

8120-2010-32640-02

Deb Gogol, P.Tech (Eng.)  
Sr. Engineering Technologist  
Encana Corporation  
500 Centre Street SE, PO Box 2850  
Calgary, Alberta T2P 2S5

Dear Ms. Gogol,

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL  
ECA CRP HZ SUNRISE A1-27-78-17W6M; WA# 29739  
SUNRISE FIELD – PADDY-CADOTTE FORMATION**

Commission staff have reviewed the application from Encana Services Company Ltd, on behalf of Encana Corporation, dated September 27<sup>nd</sup>, 2018, for produced water disposal into the subject well, Cadotte formation. Approval was previously granted on October 9<sup>th</sup>, 2018 for an extended injectivity test of 3,500 m<sup>3</sup> under Order 18-02-009. The subject well was horizontally drilled and completed in the Cadotte formation for source water purpose in May 2014. The well is intended as supplemental disposal capacity for Encana's Sunrise water hub.

Attached please find **Order 18-02-009 Amendment #1**, designating an area in the Sunrise field, Paddy-Cadotte formation, as a Special Project under section 75 of the Oil and Gas Activities Act, for the operation and use of a storage reservoir for the disposal of produced water. Note that although this well was completed in the Cadotte formation, the Commission has defined a combined Paddy-Cadotte zone for the purposes of source and disposal due to the areal connectivity of the zones.

Additional general information regarding disposal wells is available on the Commission's website at <http://www.bcogc.ca/industry-zone/documentation/Subsurface-Disposal>.

For the inspection requirement of Order 18-02-007 Amendment #1 condition 2m), please arrange via email to [OGCPipelines.Facilities@bcogc.ca](mailto:OGCPipelines.Facilities@bcogc.ca).

In certain circumstances, disposal well operation may induce seismicity of values that require modification of operations to mitigate.

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

Sincerely,



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

Attachment

**ORDER 18-02-009 Amendment #1**

- 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, including flowback from fracturing operations, into the Paddy-Cadotte formation – Sunrise field as a special project in the following area:

DLS Twp 78 Rge 17 W6M Section 27 – Lsds 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13 and 14

DLS Twp 78 Rge 17 W6M Section 28 – Lsds 9, 10, 11, 12, 13, 14, 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:
- Inject produced water only into the well ECA CRP HZ Sunrise A1-27-78-17; WA# 29739 – Paddy-Cadotte formation (open hole from 1404.0 – 3504.0 mKB MD).
  - Not exceed an injection pressure, measured at the wellhead on the subject well, of 13,425 kPag or the pressure required to fracture the formation, whichever is lesser.
  - Inject only through tubing with a packer set as near as is practical above the injection interval.
  - Continually measure and record the wellhead casing and tubing pressures electronically.
  - Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
  - Submit the annual packer isolation test report to the Commission within 30 days of the completion of the test.
  - Conduct and submit an annual Surface Casing Vent Flow test to the Commission within 30 days of the completion of the test.
  - Include the disposal operating hours and the maximum injection pressure value on the monthly disposal statement.
  - 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.
  - Cease injection upon reaching a maximum formation pressure of 6,900 kPaa, measured at 1008.6 mKB TVD.
  - 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.
    - 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.
  - Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.
  - Complete an inspection, satisfactory to the Commission, within 4 weeks of initial disposal operations under this Order.



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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 2<sup>nd</sup> day of November, 2018.

## Advisory Guidance for Order 18-02-009 Amendment #1

- 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. Monthly disposal must be submitted 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. (Changing to the 20<sup>th</sup> day of month to align with Petrinex).
- V. Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.