



November 1, 2018

8157-2800-32640-02

Trevor Befus  
Environment and Regulatory Planner  
Catapult Environmental Inc.  
Suite 1620, 700 – 9<sup>th</sup> Ave S.W.  
Calgary, AB T2P 3V4

Dear Mr. Befus,

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL  
CATAPULT TOWER 9-28-81-17; WA# 20897  
TOWER LAKE FIELD – CADOMIN FORMATION**

Commission staff have reviewed the application from Catapult Environmental Inc., dated September 27, 2018, requesting produced water disposal approval into the Cadomin and Nikanassin formations of the subject well.

The subject well was approved for disposal into the Bluesky formation on December 11, 2017. However injectivity into the Bluesky zone declined quickly after disposal activity started and soon reached uneconomic rates. Catapult requested and received an extended injectivity test approval, Order 18-02-008, for the Cadomin and Nikanassin zones to determine the injection potential. The test results indicate a viable disposal opportunity and therefore, suitable for long-term disposal approval.

Attached please find **Order 18-02-008 Amendment #1**, designating an area in the Tower Lake field, Cadomin formation, as a Special Project under section 75 of the Oil and Gas Activities Act. Evaluation of the completed portion of the well and porous intervals expected to accept fluid have resulted in the Commission designating the disposal formation as the single Cadomin formation for the purpose of completion event UWI and volumetric reporting.

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 condition 2k), please arrange via email to [OGCPipelines.Facilities@bcogc.ca](mailto:OGCPipelines.Facilities@bcogc.ca).

**Order 17-02-016** approved disposal into the Bluesky formation of this well. As this completion event now abandoned, Order 17-02-016 is hereby terminated.

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

Sincerely,

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

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

Attachment

**ORDER 18-02-008 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, in the Tower Lake field – Cadomin formation as a special project in the following area:

DLS Twp 81 Rge 17 W6M Section 28 - 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 Catapult Tower 9-28-81-17; WA# 20897 – Cadomin (perforations 1156.0 to 1235.0 mKB) formation.
- a) Not exceed an injection pressure, measured at the wellhead on the subject well, of 16,500 kPag or the pressure required to fracture the formation, whichever is lesser.
- b) Inject only through tubing with a packer set as near as is practical above the injection interval.
- c) Continually measure and record the wellhead casing and tubing pressures electronically.
- d) Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
- e) Submit the annual packer isolation test report to the Commission within 30 days of the completion of the test.
- f) Include the disposal operating hours and the maximum injection pressure value on the monthly BC-S18 disposal statement.
- g) 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.
- h) Cease injection upon reaching a maximum formation pressure of 12,800 kPaa, measured at 1189.9 mKB TVD.
- i) 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.
- j) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.
- k) Complete an inspection, satisfactory to the Commission, within 4 weeks of initial disposal operations.



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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 1<sup>st</sup> day of November, 2018.

Advisory Guidance for Order 18-02-008

- 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).
  - b) Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.