



September 14, 2020

8157-2885-32640-02

Trevor Befus
Manager, Environment & Regulatory/Land
Catapult Environmental Inc.
Suite 1620, 700 – 9th Ave S.W.
Calgary, AB T2P 3V4

Dear Mr. Befus,

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT AMENDMENT #4
CATAPULT TOWER 13-26-81-17; WA# 20155
TOWER LAKE FIELD – CADOMIN AND NIKANASSIN FORMATIONS**

Commission staff have reviewed the application from Catapult Environmental Inc., dated August 28, 2020, requesting an amendment to the annual reservoir pressure testing conditions of Approval Order 18-02-006 Amendment #3.

The subject well was approved for disposal into the Cadomin and Nikanassin formations on October 17, 2018, by Order 18-02-006, Amendment #1. As of July 31, 2020, the well has injected a cumulative volume of 201,361 m³ into the Cadomin and Nikanassin formations. There are two reservoir pressure tests on file for the disposal zone, the most recent from December 2019. A comparison of reservoir pressures between the subject well and the nearby disposal well Catapult Tower 9-28-81-17 (WA# 20897), 2.1 km away, indicates the wells are in communication.

Catapult is requesting approval to conduct one reservoir pressure test per year, instead of testing both wells annually. The Commission concurs that the two wells are in communication and a single test will provide adequate data at present. Attached please find **Order 18-02-006 Amendment #4**, designating an area in the Tower Lake field – Cadomin and Nikanassin formations 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. This amendment requires one annual reservoir pressure test in even numbered years for the subject well, with the first to occur this year, before December 31, 2020. It also contains a number of updates to existing conditions to refer to Petrinex, where applicable, and to contact reservoir@bcogc.ca if there is any indication that hydraulic isolation has been lost.

The Commission considers the reservoir pressure testing requirements in the Order to be the minimum testing requirements and recommends that additional tests be scheduled as the reservoir pressure nears the maximum formation pressure approved. It is prudent that tests be scheduled to avoid exceedance of the maximum formation pressure; rather than allowing two calendar years to pass between tests.

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 Kathryn Archibald at (250) 419-4406 or Ron Stefik at (250) 419-4430.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Stefik".

Ron Stefik, EngL
Supervisor, Reservoir Engineering
Oil and Gas Commission

Attachment

ORDER 18-02-006 Amendment #4

- 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 and Nikanassin formations as a special project in the following area:

DLS Twp 81 Rge 17 W6M Section 26 - Lsds 11, 12, 13 and 14

- 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 13-26-81-17; WA# 20155 – Cadomin (perforations 1235.0 to 1263.0 mKB) and Nikanassin (perforations 1287.0 to 1301.0 mKB) formations.
 - b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 13,800 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 at reservoir@bcogc.ca if there are any indications that 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 in the monthly Petrinex volumetric reporting.
 - h) Conduct a reservoir pressure test on the formation in the subject well in all even numbered years, beginning in 2020, 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 13,400 kPaa, measured at 1249.0 mKB TVD.
 - j)
 - 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.
 - k) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.



Ron Stefik, EngL
Supervisor, Reservoir Engineering
Oil and Gas Commission

Advisory Guidance for Order 18-02-006

- 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 via Petrinex not later than the 20th 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.