

September 14, 2020

8157-2800-32640-02

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 #2
CATAPULT TOWER 9-28-81-17; WA# 20897
TOWER LAKE FIELD – CADOMIN FORMATION**

Commission staff have reviewed the application from Catapult Environmental Inc., dated August 28, 2020, requesting an amendment to the annual reservoir pressure testing condition of Approval Order 18-02-008 Amendment #1.

The subject well was approved for disposal into the Cadomin formation on November 1, 2018. As of July 31, 2020, the well has injected a cumulative volume of 75,803 m³ into the Cadomin formation. A May 2020 reservoir pressure test confirmed the well remains below the maximum approved formation pressure, by approximately 1.3 MPa. A comparison of reservoir pressures between the subject well and the nearby disposal well Catapult Tower 13-26-81-17 (WA# 20155), 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 18-02-008 Amendment #2**, designating an area in the Tower Lake field, Cadomin formation, as a Special Project under section 75 of the Oil and Gas Activities Act. This amendment requires one annual reservoir pressure test in odd numbered years for the subject well, with the first test to occur in 2021. 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 reservoir pressure 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,



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

Attachment

ORDER 18-02-008 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, 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.
- b) 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.
- 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@bcog.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 odd numbered years, beginning in 2021, 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 12,800 kPaa, measured at 1189.9 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, Eng. L.
Supervisor, Reservoir Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 14th day of September, 2020.

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. 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. Seismic events must be reported and disposal operations suspended as per section 21.1 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.