

June 20, 2023

3425-2885-32640-02

Joel Everitt, P.Tech (Eng.)  
Exploitation/Production Engineering  
Tourmaline Oil Corp.  
2900, 250 - 6<sup>th</sup> Avenue SW  
Calgary, AB T2P 3H7

Dear Mr. Everitt:

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL  
TOURMALINE DOE 1-32-80-15 (WA #22869)  
DOE FIELD – CADOMIN-NIKANASSIN FORMATION**

The Regulator has reviewed the application submitted by VZFOX Canada Ltd. on behalf of Tourmaline Oil Corp. (Tourmaline) dated July 28<sup>th</sup>, 2022 requesting approval for produced water disposal in the Cadomin formation of the subject well.

The subject well was drilled and completed as a gas well in the Basal Kiskatinaw formation in 2007. The well produced approximately  $160.2\text{e}^6\text{m}^3$  of gas,  $36.8\text{m}^3$  of condensate, and  $1.3\text{e}^3\text{m}^3$  of water until October 2015, after which the well was suspended. In March and April of 2022, the Cadomin-Nikanassin formation was perforated, hydraulic stimulated, and injection tested for disposal.

Attached please find **Order 23-02-001**, designating an area in the Doe field, Cadomin-Nikanassin 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 injection of produced water. The Regulator recognizes the Cadomin and Nikanassin formations as a compound, unsegregated zone in this area for disposal use. This Order includes a number of detailed operational, measurement and reporting conditions. Disposal wells are subject to regular field inspection and audit. Contravention of a condition of this Order may be subject to enforcement under section 62 of OGAA, or suspension or cancellation of the Order under section 75(2)(b).

For the inspection requirement of Order condition 2m), please arrange via email to [pipelines.facilities@bc-er.ca](mailto:pipelines.facilities@bc-er.ca).

Disposal of fluid with high total dissolved solids content requires adjustment of the wellhead injection pressure to remain below formation fracture pressure. It is the responsibility of the permit holder make adjustments to wellhead injection pressure.

Should you have any questions, please contact Logan Gray at (250) 419-4465 or the undersigned at (250) 419-4430.

Sincerely,



Ron Stefik, P.L.Eng.  
Supervisor, Reservoir Engineering  
Energy Regulator

Attachment



IN THE MATTER of the application from VZFOX Canada Ltd. on behalf of Tourmaline Oil Corp. to the Energy Regulator dated July 28<sup>th</sup>, 2022 requesting disposal approval:

**ORDER 23-02-001**

1. Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Regulator designates the operation and use of a storage reservoir for produced water, including flowback from fracturing operations, in the Doe field – Cadomin-Nikanassin formation as a special project in the following area:

DLS          Twp 80 Rge 15 W6M   Section 32 – LDSs 1, 2, 7, and 8

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 water into the well Tourmaline Doe 1-32-80-15; WA# 22869 Cadomin-Nikanassin formation from 1,280.5 – 1,340.0 mKB.
  - b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 13,325 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) Alarm the casing-tubing annulus pressure monitoring system to indicate when casing pressure varies outside the normal operating range.
  - f) Include the disposal operating hours and the maximum injection pressure value on the monthly Petrinex disposal report.
  - g) Cease injection and notify the Regulator at Reservoir@bc-er.ca immediately if there are any indications that hydraulic isolation is lost in the wellbore or formation.
  - h) Conduct and submit an annual Surface Casing Vent Flow test to the Regulator within 30 days of the completion of the test.
  - i) 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.
  - j) Cease injection upon reaching a maximum formation pressure of 14,475 kPaa, measured at 1,310.3 mKB.
  - k)
    - i) Perform a casing inspection log on the subject well and submit results to the Regulator 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 Regulator 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 Regulator approval.
  - m) Complete an inspection, satisfactory to the Regulator, within 4 weeks of initial disposal operations.

Ron Stefik, P.L.Eng.  
Supervisor, Reservoir Engineering  
BC Energy Regulator

DATED AT the City of Victoria, in the Province of British Columbia, this 20<sup>th</sup> day of June 2023.



### **Advisory Guidance for Order 23-02-001**

- 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 conducted and the associated report must be submitted to the Regulator within 30 days of test completion, 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 Regulator via Petrinex not later than the 20<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.