

March 13, 2020

7400-2885-32640-02

Floyd Siegle, P. Eng., MBA  
VP Engineering  
Primavera Resources Corp.  
2700, 255 – 5<sup>th</sup> Ave S.W.  
Calgary, AB T2P 3G6

Dear Floyd Siegle:

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT  
PRIMAVERA RES RED D4-10-85-21 (WA #11598)  
RED CREEK FIELD – CADOMIN-NIKANASSIN FORMATION**

The Commission has reviewed the application submitted by Primavera Resources Corp. (Primavera), dated February 6<sup>th</sup>, 2020 requesting approval to dispose of produced water into the Cadomin formation of the subject well. The subject well was drilled with a deviated profile and completed (open hole) into the Bear Flat 'A' pool in December of 1998. The original purpose of the well was gas production, which occurred from December 1998 to August of 2007. The Bear Flat zone was suspended with a bridge plug in January 2020 and the Cadomin formation was subsequently injection tested and then hydraulically fractured for the purpose of produced water disposal. This well requires only a short pipeline tie-in to Primavera's battery facility at 3-10-85-21W6 and will reduce trucking.

Attached please find **Order 20-02-001**, designating an area in the Red Creek 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 disposal of produced water. The Commission 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 conditions including: continuous tubing and casing pressure measurements, a maximum wellhead injection pressure, an ultimate reservoir pressure limit, as well as wellbore integrity monitoring and reporting requirements. 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).

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.

For the inspection requirement of Order condition 2l), please arrange via email to [OGCPipelines.Facilities@bcogc.ca](mailto:OGCPipelines.Facilities@bcogc.ca).

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

Sincerely,



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

Attachment

ORDER 20-02-001

- 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 Red Creek field – Cadomin-Nikanassin formation as a special project in the following area:

DLS Twp 85 Rge 21 W6M Section 10 – LSDs 3, 4, 5 and 6

- 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 Primavera Res Red D4-10-85-21W6; WA# 11598 Cadomin-Nikanassin formation from 978.0 – 1020.0 mKB MD.
- b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 11,425 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) Include the disposal operating hours and the maximum injection pressure value on the monthly Petrinex disposal report.
- f) Cease injection and notify the Commission at Reservoir@BCOGC.ca immediately if there are any indications that hydraulic isolation is lost in the wellbore or formation.
- g) Conduct and submit an annual Surface Casing Vent Flow test to the Commission within 30 days of the completion of the test.
- h) 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.
- i) Cease injection upon reaching a maximum formation pressure of 11,800 kPaa, measured at 997.9 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.
- l) Complete an inspection, satisfactory to the Commission, within 4 weeks of initial disposal operations.

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

DATED AT the City of Victoria, in the Province of British Columbia, this 13<sup>th</sup> day of March 2020.

## Advisory Guidance for Order 20-02-001

- 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 Commission 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 Commission 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.