



December 14, 2018

7400-4900-59240-09

Floyd Siegle, P.Eng., MBA
Vice President Engineering
Primavera Resources Corp.
2700, 255 – 5th Ave S.W.
Calgary, AB T2P 3G6

Dear Mr. Siegle:

**RE: PRESSURE MAINTENANCE WATERFLOOD SPECIAL PROJECT – AMENDMENT #5
OTHER THAN NORMAL SPACING ORDER – AMENDMENT #5
RED CREEK FIELD – DOIG “C” POOL**

The Commission has reviewed your application dated October 15th, 2018, requesting the conversion of well Primavera Res HZ Red C04-10-085-21, WA 11389, from producer to water injector within the Red Creek – Doig ‘C’ pool pressure maintenance waterflood project.

The conversion of well C04-10 was approved in Amendment #2 of Order 00-09-003 but this amendment was not implemented. Prior to starting injection services, part of the tubing and the packer were replaced, and the well was pressure tested confirming that the well was suitable for injection services. Well C04-10 conversion to injector service will offset the noted pressure decline in the northern area of the pool, increase sweep efficiency, and ultimately increase oil recovery. Primavera is targeting a monthly VRR greater than 1.00 to increase the reservoir pressure in this area but the MWHIP and average pool pressure, condition 2e) and 2f), specified in this Order cannot be exceeded.

The following Orders are attached;

- 1) Order 00-09-003 Amendment #5 designating Pressure Maintenance Waterflood within the Red Creek field – Doig “C” pool, as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 00-09-003 OTN - Amendment #5 approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject area and formation.

The above Order includes a maximum wellhead injection pressure (MWHIP), an ultimate pool pressure limit, and restriction of injection to the purpose of oil recovery,

Please note that, as per section 75 of the *Drilling and Production Regulation*, a record of the volume of water injected must be included on a Monthly Injection statement to the Commission via Petrinex not later than 20th day of the month following the reported month.

Should you have any questions, please contact Petra Kriescher-Trudgeon at (250) 419-4415 or the undersigned at (250) 419-4430.

Sincerely,

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

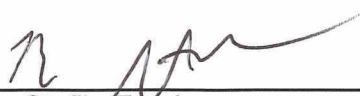
ORDER 00-09-003 Amendment #5

- 1 Under section 75(1)(a) of the *Oil and Gas Activities Act*, the Red Creek field – Doig“C” pool is designated as a Special Project for the recovery of oil utilizing pressure maintenance waterflood within the following area;

DLS Twp. 85 Rge 21 W6M W/2 Section 3, E/2 Section 4, NW/4 and E/2 Section 9, W/2 Section 10

- 2 Under section 75(2) of the *Oil and Gas Activities Act*, I specify the following:

- a) The project daily oil allowable is 418.4 m³
- b) All associated produced gas must be conserved.
- c) Water may be injected into the well Primavera Res HZ Red A13-03-085-21 (WA # 11563), and Primavera Res HZ Red C04-10-085-21 (WA 11389).
- d) Inject only through tubing with a packer set as near as is practical above the injection interval.
- e) Not exceed an injection pressure, measured at the wellhead, of
 - i. 18,000 kPa for wells A13-03-085-21 and C04-10-085-21, or
 - ii. the pressure required to fracture the formation, whichever is lesser.
- f) Not to exceed an average pool pressure of 17,995 kPaa measured at 877 mSS.
- g) Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
- h) Prior to re-activation, and annually thereafter, a packer isolation test report must be submitted to the Commission within 30 days of the completion of the test.
- i) Include the injection hours and the maximum injection pressure value in the monthly Petrinex reporting.
- j) Injection must cease upon termination of production from the pool.
- k) The permit holder must submit a Progress Report to the Commission for each 12 month period the project is in operation, filed by March 31st the following year, and must contain the information specified in Pressure Maintenance Progress Report Requirements.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 14th day December 2018.

Advisory Guidance for Order 00-09-003 Amendment #5

- 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 injection 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.

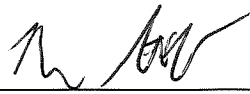
ORDER 00-09-003 - OTN - Amendment #5

Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing within the Red
1 Creek – Doig “C” pool is hereby approved within the following area;

DLS Twp. 85 Rge 21 W6M W/2 Section 3, E/2 Section 4, NW/4 and E/2 Section 9, W/2 Section 10

2 Under section 65.1(3) of the *Petroleum and Natural Gas Act*, I specify the following:

- a) the target area for an oil well completed within the project area is not nearer than 100 m to the sides of the Other Than Normal Spacing area,
- b) an oil well completed outside the specified target area may be subject to an off-target production penalty,
- c) oil wells drilled within the specified project area are not subject to spacing requirements.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 14th day of December 2018.