

April 30, 2020

6800-4800-59240-09

Brittany Jorgensen
Canadian Natural Resources Limited
2100, 855 – 2nd St SW
Calgary, AB T2P 4J8

Dear Brittany Jorgensen:

**RE: PRESSURE MAINTENANCE WATERFLOOD ORDER 67-09-001 AMENDMENT #9
PEEJAY FIELD – HALFWAY FORMATION CNRL UNIT #3**

The Commission has reviewed the application dated March 24th, 2020 requesting amendment of the waterflood approval for the Peejay field – Halfway formation Unit #3 pool by adding 9 units of land, containing thirteen wells completed into the Halfway formation. These lands and wells were previously a part of the Peejay Halfway CNRL Project approval # 67-09-002, a pressure maintenance waterflood project cancelled March 16, 2020. The additional of the lands and wells will allow Canadian Natural Resources Limited to effectively manage and optimize the pressure maintenance area.

The following Orders are attached;

- 1) Order 67-09-001 Amendment #9 designating Pressure Maintenance Waterflood within the Peejay field – Halfway formation, as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 67-09-001 Amendment #9 - OTN approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject area and formation.

This amended approval includes a maximum wellhead injection pressure (MWHIP), an ultimate pool pressure limit, restriction of injection for the purpose of oil recovery, the submission of annual packer isolation tests, and a requirement for annual reservoir pressure tests on the injectors. Only the five active injectors (WA 1483, WA 1515, WA 2219, WA 2554, and WA 3383) are approved for injection in the Order as all other injectors have been abandoned or have been suspended for several years. The ultimate reservoir pressure has been limited to the initial pool pressure. Order condition 2i) requires a packer isolation test on CNRL et al Peejay d-64-H/94-A-15 (WA 1483) before any injection can occur into the well, as no 2018-2020 tests have been received.

Please note that, as per section 75 of the *Drilling and Production Regulation*, a record of the volume of water injected and the MWHIP 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 Logan Gray at (250) 419-4465 or the undersigned at (250) 419-4430.

Sincerely,



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

Attachments

ORDER 67-09-001 – Amendment #9

1. Under Section 75 (1) (a) of the *Oil and Gas Activities Act*, the Commission designates by Order the development and production of petroleum and natural gas from a pool using pressure maintenance waterflood enhanced recovery scheme within the Peejay field – Halfway CNRL Unit #3 following area;

NTS	94-A-15:	Block H - units 21, 22, 31-34, 41-45, 51-58, 62-68, 73-78, 84-88 and 95-99
	94-A-16:	Block E – unit 50

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:

- a) The project unadjusted daily oil allowable (UDOAA) is 1522.7 m³.
- b) All associated produced gas must be conserved.
- c) Water may be injected into the wells:

CNRL et al Peejay d-64-H/94-A-15	(WA 1483),	interval 1170.4-1173.4 mKB
CNRL et al Peejay d-44-H/94-A-15	(WA 1515),	interval 1179.0-1185.0 mKB
CNRL et al Peejay b-64-H/94-A-15	(WA 2219),	interval 1172.8-1180.2 mKB
CNRL Peejay b-76-H/94-A-15	(WA 2554),	interval 1172.8-1177.7 mKB
CNRL et al Peejay b-52-H/94-A-15	(WA 3383),	interval 1174.0-1180.1 mKB.

- i) Inject only through tubing with a packer set as near as is practical above the injection interval.
 - ii) Not exceed an injection pressure, measured at the wellhead of 10,200 kPa for wells listed in (c), or the pressure required to fracture the formation, whichever is lesser.
- d) An annual reservoir pressure must be obtained from the injectors listed in (c), and submitted to the Commission within 60 days via e-submission.
 - e) Not exceed an average pool pressure of 9,550 kPa measured at 457.0 meters subsea.
 - f) Cease injection for the well listed in (c) and notify the Commission at Reservoir@BCOGC.ca immediately if hydraulic isolation is lost in the wellbore or formation
 - g) Include the monthly injected volume, injection hours and the maximum injection pressure value for the well listed in (c) via Petrinex.
 - h) Injection must cease upon termination of production from the pool.
 - i) Water injection may not commence into the well CNRL et al Peejay d-64-H/94-A-15 (WA 1483) until a new packer isolation test is passed and submitted to the Commission.

Advisory Guidance for 67-09-001 – Amendment #9

- 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 completed and 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 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 injection operations suspended as per section 21.1 of the Drilling and Production Regulation.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 30th day of April 2020.

