



September 1, 2020

8100-4800-59240-16

Lynn Wood, P.Eng.
Exploitation Engineer, BC North
Canadian Natural Resources Limited
2100, 855 – 2nd St. S.W.
Calgary, AB T2P 4J8

Dear Ms. Wood:

**RE: ACID GAS DISPOSAL APPROVAL 98-16-003 AMENDMENT #4
CNRL W STODDART 7-34-87-21 W6M; WA# 11398
STODDART WEST FIELD – HALFWAY FORMATION**

The subject well is approved for deep disposal of waste by-product acid gas (H₂S & CO₂), approved as Special Project Order Approval under section 75 of the Oil and Gas Activities Act. Due to having reached the maximum permissible reservoir storage pressure, the well is no longer suitable for continuous disposal. In March 2017 the well CNRL HZ W Stoddart 8-29-87-21 (WA 10347) was approved for disposal in the depleted Doig “E” pool, replacing the Halfway formation disposal into the Stoddart West wells 1-33-87-21 (WA 9887) and subject well 7-34.

Temporary approval Order 98-16-003 Amendment #3 was issued to CNRL on April 10, 2020, which expired August 31, 2020, allowing for use of the subject well as a back-up disposal option for up to 24 hours. Reservoir pressure and wellbore integrity testing since Amendment #3 was issued have confirmed the 7-34 well is suitable for back-up disposal. Annual reservoir pressure testing is required to confirm continued dissipation of the fluid pressure.

Attached please find **Order 98-16-003 Amendment #4**, designating an area in the West Stoddart field – Halfway 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 waste gas. This Order includes a number of detailed operational conditions including: continuous tubing and casing pressure measurements, active alarming, 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).

For the inspection requirement of Order condition 2g), please arrange via email to OGCPipelines.Facilities@bcogc.ca.

Should you have any questions, please contact Michelle Gaucher at (250) 419-4482 or Ron Stefik at (250) 419-4430.

Sincerely,

A handwritten signature in blue ink, appearing to read "R Stefik".

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

Attachment

ORDER 98-16-003 AMENDMENT #4

- 1 Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Commission designates the Halfway formation as a special project for the operation and use of a storage reservoir for the disposal of acid gas within the following area:

DLS TWP 87 RNG 21 Sec 34.

- 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:

Well Details

- a) Inject acid gas only into the well CNRL W Stoddart 07-34-087-21; WA 11398 – Halfway formation (1587.5 – 1596.0 mKB).

Operating Limits

- b) Limit the maximum H₂S concentration of the injection fluid stream to 70%.
- c) Not exceed an injection pressure, measured at the wellhead on the subject well, of 10,500 kPag or the pressure required to fracture the formation, whichever is lesser.
- d) i) In the event of an issue preventing alternative disposal, injection may occur for a single consecutive 48 hour period, to a maximum of 3 disposal sessions per year.
ii) If injection occurs, inform the Commission at reservoir@bcogc.ca as soon as practicable.
- e) Inject only through tubing with a packer set as near as is practical above the injection interval.
- f) Continually measure and record the wellhead casing and tubing pressures electronically, including when the disposal well is inactive or suspended.

Monitoring

- g) Complete an inspection, satisfactory to the Commission, within 4 weeks of date of this Amendment.
- h) Conduct and submit an annual Surface Casing Vent Flow test to the Commission 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.

Wellbore Integrity

- j) Ensure a Wellhead Emergency Shut-Off Device is installed to operate “fail-safe” and is linked to H₂S detector heads at the wellhead.
- k) Ensure a Subsurface Safety Valve (SSSV) is installed to operate “fail-safe”.
- l) Annually confirm the Subsurface Safety Valve is capable of activation remote from the wellhead.
- m) Implement appropriate corrosion and freeze protection measures in the casing-tubing annulus.

- n) Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
- o) Maintain a barricade around the wellhead that is capable of withstanding vehicle collision.
- p) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.
- q) Submit a Progress Report to the Commission for each six month period the well status is active. The Progress Report must be filed within 60 days after the end of each period and must contain the information specified in the Acid Gas Progress Report Requirements document found on the OGC website here:
<http://www.bcogc.ca/industry-zone/documentation/Subsurface-Disposal>.
- r) Prior to abandonment of the disposal zone, conduct a reservoir pressure test on the zone 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.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 1st day of September, 2020.

Advisory Guidance for Order 98-16-003 Amendment #4

Advisory Guidance for Order 98-16-003

- I. A production packer must be set above the injection interval and the space between the tubing and casing filled with corrosion 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 20th day of the month following the reported month, as per section 75 of the Drilling and Production Regulation.
- V. All fluid analyses must be submitted with 30 days of tests as per section 34(5)(a) of the Drilling and Production Regulation.
- VI. Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.