

January 30, 2019

2400-4805-32640-02

Stacy Johnson, P. Eng.  
Production Engineer, NEBC  
Canadian Natural Resources  
2100 855 – 2<sup>nd</sup> St. SW  
Calgary, Alberta T2P 4J8

Dear Mr. Johnson,

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL  
CNRL BUICK d-A68-I/94-A-11; WA# 23034  
BUICK CREEK FIELD – LOWER HALFWAY B POOL**

Commission staff have reviewed the application from Canadian Natural Resources Ltd., dated December 4<sup>th</sup>, 2018, for produced water disposal into the subject well, Lower Halfway B pool. The subject well was drilled and completed in the Lower Halfway B in December 2007. The pool was found to be depleted at this location and was unproductive. It was equipped with tubing and a production packer, set above the Halfway B perforations, and suspended.

In October of 2012, high pressure disposal operations south of this field resulted in higher than expected pressures and wellbore damage at approximately 634mSS. Blowdown operations at the disposal well resulted in pressure relief for the southern portions of the Buick Creek field, but were not effective for pressure relief in the vicinity of this well. Therefore, a project has been engineered to create a cross-flow opportunity within this wellbore; flowing water from the over-pressured depth to the depleted Lower Halfway B pool. Cross-flow operation is expected to last for approximately 4 weeks.

Attached please find **Order 19-02-001**, designating an area in the Buick Creek field, Lower Halfway B pool, 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. Disposal hours and volume, based on the proposed methodology are to be reported as per Order item 2 f).

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

Sincerely,

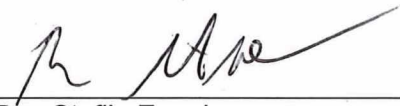


Ron Stefik, Eng. L.  
Supervisor, Reservoir Engineering  
Oil and Gas Commission

Attachment

**ORDER 19-02-001**

- 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, into the Lower Halfway B pool – Buick Creek field as a special project in the following area:  
NTS      94-A-11   Block I   Unit 68.
  
- 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 produced water only into the well CNRL Buick d-A68-I/94-A-11; WA# 23034 – Lower Halfway B pool (1404.0 – 1415.0 mKB).
  - b) Not apply an injection pressure at the wellhead on the subject well.
  - c) Perforate the tubing only at approximately 1,354.5m KB to allow for cross-flow.
  - d) Continually measure and record the wellhead casing and tubing pressures electronically.
  - e) Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
  - f) Include the disposal operating hours, the tubing pressure minimum and the calculated volume transferred on the monthly disposal statement.
  - g) Conduct a final 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.
  - h) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 30<sup>th</sup> day of January, 2019.



**ORDER 19-02-001**

**PAGE 2**

Advisory Guidance for Order 19-02-001

- I. Monthly disposal must be submitted 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.
- II. Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.