

July 18, 2012

1260-4800-32640-02

Jason D. Smith, P. Eng.
Exploitation Engineer
Canadian Natural Resources Limited
Suite 2500, 2nd Street SW
Calgary, AB T2P 4J8

Dear Mr. Smith:

RE: PRODUCED WATER DISPOSAL SPECIAL PROJECTS
CNRL BIRCH B-064-I/094-A-13; WA#3476, Amendment #2
CNRL BIRCH B-066-I/094-A-13; WA#4125, Amendment #2
CNRL ET AL BIRCH D-56-I/94-A-13; WA#12015, Amendment #1
BIRCH FIELD – HALFWAY “A” POOL

BC Oil and Gas Commission and Canadian Natural Resources Limited staff met in Victoria on June 21, 2012 to review technical data associated with disposal of produced water into the subject pool.

Disposal into the wells b-64-I & b-66-I/94-A-13 commenced in 1999, a third well d-56-I was approved on April 26, 2012, at which time the Special Project Orders included maximum wellhead injection pressures of 11,200 kPa.

Attached are Order 12-02-008 (Amendment #1), Order 93-02-004 (Amendment #2) and Order 93-02-006 (Amendment #2) designating the Birch field – Halfway formation 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 salt water. These Orders, which expire December 31, 2012, contain conditions for ongoing reservoir pressure observation in association with a temporary increase in wellhead injection pressure to a value of 12,000 kPa, remaining below formation fracture pressure. It is anticipated that facilities work will be completed to allow injection of source produced water back into the Birch Baldonnel “C” pool waterflood by the date of expiry.

Continuation of disposal at these well locations will be dependent on performance, approvals may be amended or rescinded based on additional information. Continuation of disposal operation beyond December 31, 2012 will require an amendment application supported by data gathered under these temporary Orders, and a summary of progress on locating alternative disposal locations, if required.

Should you have any questions, please contact Ron Stefik at (250) 419-4430 or Curtis Kitchen at (250) 419-4443.

Sincerely,



Richard Stocomb, P.Eng.
Deputy Commissioner, Engineering
Oil and Gas Commission

Attachments

IN THE MATTER of the application from Canadian Natural Resources Limited, to the Oil and Gas Commission (Commission) dated February 3, 2012 for the operation and use of a storage reservoir.

ORDER 12-02-008 (Amendment #1)

- 1 Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Commission designates the temporary operation and use of a storage reservoir for the disposal of salt water or recovered fluids from a well completion, in the Birch – Halfway “A” pool as a special project in the following area:

NTS 094-A-13 Block I - Unit 56

- 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) Produced salt water may be injected only into the Halfway “A” pool through the well CNRL et al Birch d-56-l/94-A-13 (WA 12015).
 - b) The wellhead injection pressure must be continually measured and recorded, and must not exceed 12,000 kPa.
 - c) A reservoir pressure test must be performed each 6-week period on a well completed in the Birch field Halfway “A” pool. The fall-off test must be for a minimum 3 day well shut-in period with recorders on bottom, followed by a static gradient. Initial testing should be alternatively on the wells b-64-l (WA# 3476) and b-66-l/94-A-13 (WA# 4125).
 - d) The test conducted under (c) must be submitted to the Supervisor, Reservoir Engineering, or his delegate, within 7 days of conducting the test, along with a report of the volume of water disposed into each well in the Birch – Halfway “A” pool since the date of the previous reservoir pressure test.
 - e) This Order expires December 31, 2012.



Richard Slocomb, P.Eng.
Deputy Commissioner, Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 20th day of July 2012.

IN THE MATTER of the application from Canadian Natural Resources Limited, to the Oil and Gas Commission (Commission) dated February 3, 2012 for the operation and use of a storage reservoir.

ORDER 93-02-006 Amendment #2

- 1 Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Commission designates the temporary operation and use of a storage reservoir for the disposal of salt water or recovered fluids from a well completion, in the Birch – Halfway “A” pool as a special project in the following area:

NTS 094-A-13 Block I - Unit 66

- 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) Produced salt water may be injected only into the Halfway “A” pool through the well CNRL Birch b-66-I/94-A-13 (WA 4125).
 - b) The wellhead injection pressure must be continually measured and recorded, and must not exceed 12,000 kPa.
 - c) A reservoir pressure test must be performed each 6-week period on a well completed in the Birch field Halfway “A” pool. The fall-off test must be for a minimum 3 day well shut-in period with recorders on bottom, followed by a static gradient. Initial testing should be alternatively on the wells b-64-I (WA# 3476) and b-66-I/94-A-13 (WA# 4125).
 - d) The test conducted under (c) must be submitted to the Supervisor, Reservoir Engineering, or his delegate, within 7 days of conducting the test, along with a report of the volume of water disposed into each well in the Birch – Halfway “A” pool since the date of the previous reservoir pressure test.
 - e) This Order expires December 31, 2012.



Richard Slocumb, P.Eng.
Deputy Commissioner, Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 20th day of July 2012.

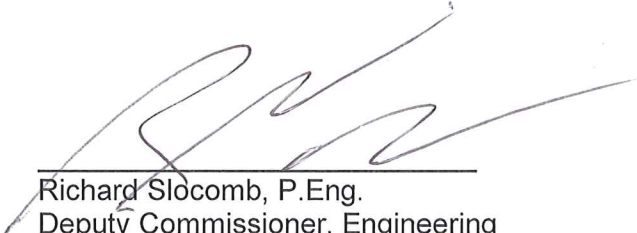
IN THE MATTER of the application from Canadian Natural Resources Limited, to the Oil and Gas Commission (Commission) dated February 3, 2012 for the operation and use of a storage reservoir.

ORDER 93-02-004 Amendment #2

- 1 Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Commission designates the temporary operation and use of a storage reservoir for the disposal of salt water or recovered fluids from a well completion, in the Birch – Halfway “A” pool as a special project in the following area:

NTS 094-A-13 Block I - Unit 64

- 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) Produced salt water may be injected only into the Halfway “A” pool through the well CNRL Birch b-64-I/94-A-13 (WA 3476).
 - b) The wellhead injection pressure must be continually measured and recorded, and must not exceed 12,000 kPa.
 - c) A reservoir pressure test must be performed each 6-week period on a well completed in the Birch field Halfway “A” pool. The fall-off test must be for a minimum 3 day well shut-in period with recorders on bottom, followed by a static gradient. Initial testing should be alternatively on the wells b-64-I (WA# 3476) and b-66-I/94-A-13 (WA# 4125).
 - d) The test conducted under (c) must be submitted to the Supervisor, Reservoir Engineering, or his delegate, within 7 days of conducting the test, along with a report of the volume of water disposed into each well in the Birch – Halfway “A” pool since the date of the previous reservoir pressure test.
 - e) This Order expires December 31, 2012.



Richard Slocomb, P.Eng.
Deputy Commissioner, Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this ~~20~~¹⁴ day of July 2012.