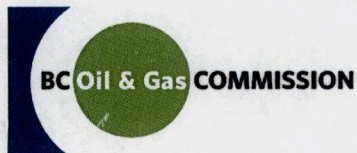


APPROVAL

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2010

November 26, 2014

3400-2000/2200-32640-02

Greg Dickie  
Director Regulatory Affairs and Corporate Safety  
Secure Energy Services  
#3600, 205 5th Avenue SW  
Calgary, AB  
T2P 2V7

Dear Mr. Dickie,

**RE: NON-HAZARDOUS WASTE AND PRODUCED WATER DISPOSAL  
SPECIAL PROJECT; AMENDMENT #1  
SECURE DAWSON 4-36-78-15; WA# 26920  
PADDY AND CADOTTE FORMATIONS**

Approval for disposal of non-hazardous waste and produced water, Order 12-02-015, was issued for the subject well, Paddy and Cadotte formations, on May 24, 2012. The Commission is presently amending disposal well approvals to conform to current requirements.

The amended approval includes a wellhead injection pressure limit based on current calculation methodology and a reasonable fracture gradient, corroborated by other Paddy/Cadotte disposal wells in the area. Reservoir pressure tests on the subject well will aid in determination of the effective extent of the reservoir. The reservoir pressure condition (j) in this order is based on 120% of the initial Paddy/Cadotte reservoir pressure. As stated, this value is a control for potential approval review, upon application, to consider an appropriate value for reservoir pressure limit.

Attached please find **Order 12-02-015 Amendment #1** designating an area in the Dawson Creek field – Paddy & Cadotte formations as a Special Project under section 75 of the *Oil and Gas Activities Act*, for the use of a storage reservoir for the disposal of non-hazardous waste and produced water. This Order contains a number of detailed operational conditions. Additional general information regarding disposal wells is available on the Commission's website at <http://www.bcogc.ca/industry-zone/documentation/Subsurface-Disposal>.

The Ministry of Environment identifies the type of effluent approved for injection in the separate Waste Discharge Permit, granted under the Environmental Management Act.

In certain circumstances, disposal well operation may induce seismicity. The Commission advises that disposal well permit holders monitor seismic events in proximity to the well and be prepared to modify operations to mitigate induced seismicity. Permit holders may monitor seismic events through the Natural Resources Canada seismic monitoring network at <http://www.earthquakescanada.nrcan.gc.ca/recent/index-eng.php>.

Should you have any questions, please contact the undersigned at (250) 419-4430 or Michelle Harding at (250) 419-4493.

Sincerely,

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

Attachment




## ORDER 12-02-015 Amendment #1

- 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 non-hazardous waste and produced water, into the Paddy and Cadotte formations – Dawson Creek field as a special project in the following area:

DLS Twp 78 Rge 15 W6M Section 36 - Lsds 3, 4, 5, and 6

- 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, including completions flowback fluid, and non-hazardous waste only into the well Secure Dawson 4-36-78-15; WA# 26920 – Paddy and Cadotte formations (perforations from 875 mKB to 882 mKB).
  - b) Hold a valid Permit under the *Environmental Management Act* for the disposal of non-hazardous waste.
  - c) Not exceed an injection pressure, measured at the wellhead on the subject well, of 13,230 kPag or the pressure required to fracture the formation, whichever is lesser.
  - d) Inject only through tubing with a packer set as near as is practical above the injection interval.
  - e) Continually measure and record the wellhead casing and tubing pressures electronically.
  - f) Cease injection and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation.
  - g) Submit the annual packer isolation test report to the Commission within 30 days of the completion of the test.
  - h) Include the disposal operating hours and the maximum injection pressure value on the monthly BC-S18 disposal statement. Report monthly disposal volumes 50% to the Paddy and 50% to the Cadotte.
  - i) Conduct a reservoir pressure test on the formation in the subject well, within 90 days of the date of this order and annually thereafter, 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.
  - j) Prior to reaching a formation pressure of 5,965 kPaa, measured at MPP, submit to the Commission an application for amendment of this Order to include an appropriate maximum reservoir pressure limit, with reservoir modeling based on the performance data obtained.
  - k) i) Perform a casing inspection log on the subject well and submit results to the Commission within 30 days of the completion of logging, at an interval of not more than every 10 years commencing from the date of initial disposal operations.  
ii) Perform a hydraulic isolation temperature log on the subject well and submit results to the Commission within 30 days of the completion of logging, at an interval of not more than every 5 years commencing from the date of initial disposal operations.
  - l) 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 26<sup>th</sup> day of November 2014.



Advisory Guidance for Order 12-02-015 Amendment #1

- 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, as per section 16(3) of the Drilling and Production Regulation.
- III. Injected fluids must be metered, as per section 74 of the Drilling and Production Regulation.
- IV. A monthly disposal statement must be submitted to the Commission not later than the 25<sup>th</sup> day of the month following the reported month, as per section 75 of the Drilling and Production Regulation.