



November 21, 2014

5420-8600-32640-02

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 #3
SECURE E KOTCHO LAKE c-62-J/94-I-14; WA# 17797
PINE POINT FORMATION**

Approval for disposal of salt water was originally issued for the subject well, Pine Point formation, on September 14, 2005 in Order 05-02-006. On February 8, 2010, the well was approved for NHW disposal into the Pine Point formation under Order 05-02-006 Amendment #2. The Commission is presently amending disposal well approvals to conform to current requirements.

The subject well was open-hole completed into the Pine Point formation in August 2004. Produced water disposal into this formation commenced October 2005, and non-hazardous waste disposal was added in February 2010. Cumulative disposal into the well has been over 300,000 m³ to-date. Due to the large fluid volumes and the age of the well, condition 2j) of the attached order includes testing requirements to ascertain the quality of the casing and ensure hydraulic isolation within the zone of interest. Reservoir pressure tests will also be required every 3 years, as outlined in condition 2i), in order to gain a better understanding of the effect of disposal on the reservoir.

Attached please find **Order 05-02-006 Amendment #3** designating an area in the Kotcho Lake field – Pine Point formation 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 05-02-006, Amendment #3

1. Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Oil and Gas Commission (Commission) designates the operation and use of a storage reservoir for the disposal of produced water and non-hazardous waste, into the Pine Point formation – East Kotcho Lake field as a special project in the following area:

NTS 94-I-14 Block J Unit 52, 53, 62, 63

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 and non-hazardous waste only into the well Secure E Kotcho Lake c-62-J/94-I-14; WA# 17797 – Pine Point formation (open hole 2053m – 2065mKB).
 - b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 4,500 kPag or the pressure required to fracture the formation, whichever is lesser.
 - c) Inject only through tubing with a packer set as near as is practical above the injection interval.
 - 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) Submit the annual packer isolation test report to the Commission within 30 days of the completion of the test.
 - g) Include the disposal operating hours and the maximum injection pressure values on the monthly BC-S18 disposal statement.
 - h) Cease injection upon reaching a maximum formation pressure of 21,600 kPaa.
 - i) Conduct a reservoir pressure test on the formation in the subject well, within 90 days of the date of this Order and every 3 years 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)
 - i) Perform a casing inspection log on the subject well by December 31, 2015, and thereafter at an interval of not more than every 10 years, and submit results to the Commission within 30 days of the completion of logging.
 - ii) Perform a hydraulic isolation log on the subject well by December 31, 2015, and thereafter at an interval of not more than every 5 years, and submit results to the Commission within 30 days of the completion of logging.
 - k) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 21st day of November 2014.

Advisory Guidance for Order 05-02-006, Amendment #3

- I. A production packer must be set above the injection interval and the space between the tubing and casing (including the space between the 3 packers) 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 25th day of the month following the reported month, as per section 75 of the Drilling and Production Regulation.