

April 27, 2015

3425-6200-32640-02

Bob Bissett
Vice President Midstream
Spectra Energy
Suite 2200, 425 1st Street SW
Fifth Avenue Place, East Tower
Calgary, AB T2P 3L8

Dear Mr. Bissett:

**RE: OBJECTION TO APPLICATION FOR ACID GAS DISPOSAL
LEUCROTTA DOE A13-24-80-15; WA# 30630
BELLOY FORMATION**

Oil and Gas Commission (Commission) staff have reviewed the objection, dated April 17, 2015, to Leucrotta Doe Belloy Acid Gas Disposal application. In March, 2009, Spectra was granted approval for an acid gas disposal well into the Belloy formation at SEMC Doe 15-24-80-15 W6M.

On March 24th, 2015 the Commission received an application from Leucrotta Exploration Inc. for deep disposal into the Belloy formation at Doe A13-24-80-15 W6M. A notice of this application was posted to the OGC website on March 25, 2015. An objection to the disposal application was filed with the Commission by Spectra Energy on April 17, 2015, based on the following potential impacts.

Overlapping Operator Responsibilities and Liabilities.

The bottomhole location for Leucrotta Doe A13-24-80-15 is 50m west of the Leucrotta/Spectra lease line. Spectra's observations regarding the potential for acid gas migration outside of Leucrotta's tenure rights and plume overlap are true but do not form the basis for a technical objection to the application. The **Petroleum and Natural Gas Act** section 50 (2) (b), among other rights, grants the holder of a petroleum and natural gas lease the right to store or dispose of natural gas into an underground formation. Furthermore there are no regulations stipulating a target requirement for disposal wells.

Spectra's concerns regarding shared liabilities can be addressed through administrative means within an amended disposal Approval order or through the issuance of a section 49 Order under Oil and Gas Activities Act. As a condition of Spectra's Approval Order 09-16-001, an observation well was required to monitor acid gas plume migration and pressures. The observation well owned and monitored by Spectra will continue under Spectra's purview. In the event of approval of the Leucrotta acid disposal scheme, changes in baseline will be viewed in light of operations at both locations. It is important to note that the observation well was not intended to result in immediate shut-in on arrival of the acid gas plume, but rather to ensure ongoing monitoring to understand reservoir characteristics and acid gas migration and the potential for negatively affecting hydrocarbon recovery in the offsetting Belloy gas pool. Both parties would also be responsible for obtaining regular well reservoir pressure data to support ongoing use of the formation as a disposal zone.

Expanded Emergency Planning Zone

The Emergency Planning Zone (EPZ) is dependent on calculated release rate and reservoir pressure. The EPZ for Spectra should have increased with increasing pressure, as will be the case for the Leucrotta EPZ. The Emergency Management Regulation section 10 states "A permit holder must review and, if necessary, update the information include in a (emergency response) plan at least once a year." The Emergency Response Plan updates include re-visiting the EPZ calculations. EPZ changes will be a reflection of both parties' disposal activities.


Increase In Approved Cumulative Volume and Accelerating Pool Pressure

For disposal and injection wells, the maximum wellhead injection pressure (WHIP) is typically based on formation fracture pressure, as presented in Leucrotta's application and request for 20MPa. However, Spectra's maximum WHIP is based on the maximum operating pressure of the pipeline to the disposal well. Because the MOP was 13.7 MPa, the Spectra maximum WHIP was limited to that value. Despite the fact that this is lower than what Leucrotta has applied for, the pressure of 13.7 MPa was considered adequate for the maximum volume Spectra intended to inject. The Spectra application included modeling of the disposal volume at 95 e3m3/d which according to the application could be accomplished with 10 MPa of wellhead pressure.

The Commission is confident the Belloy aquifer is extensive, with capacity for an additional disposal well. Based on the Commission's current understanding of Belloy reservoir characteristics and regulation of disposal well spacing, the objection to Leucrotta's acid gas disposal application into the well A13-24-80-15 is deemed to be invalid. This objection may be reconsidered should new information be presented that would alter this interpretation.

Should you have any questions, please contact Michelle Gaucher at (250) 419- 4482 or the undersigned at (250) 419-4421.

Sincerely,



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

cc: Peter Cochrane, Leucrotta Exploration Inc.
Logan Dunning, Spectra Energy