



OIL AND GAS COMMISSION

March 3, 2009

3425-6200-59240-16

Spectra Energy Midstream Corporation
c/o Harvey Heinrichs, P.Eng.
Canadian Chemical Technology Inc.
3740A - 11A St NE
Calgary, AB T2E 6M6

Dear Mr. Heinrichs:

**RE: ACID GAS DISPOSAL APPROVAL
SEMC DOE 15-24-80-15 W6M; WA# 23946; BELLOY FORMATION**

Commission staff have reviewed the application, dated July 9, 2008, requesting approval for acid gas disposal into the Belloy formation of the subject well. The Commission issued a letter on March 19, 2008, following an application pre-submission before the well was drilled, expressing the opinion that this location was prospective for acid gas disposal into the Belloy aquifer. The July 9 application, and supporting submissions, provided information and analysis of well results.

The subject well 15-24 encountered porous water-saturated Belloy, similar to local non-productive penetrations. The Belloy is being successfully used as an acid gas disposal zone at locations to the east, in Alberta. The caprock, Montney formation, is a thick siltstone that is not expected to be of resource quality in this area. The Belloy is bounded below by impermeable zones.

Notice of this application was posted on the OGC website. An objection dated August 14, 2008 was received from Petro-Canada Oil & Gas, the operator of natural gas wells to the north. A further submission was received from Petro-Canada, dated September 29, 2009. An amendment to the subject application, dated October 2, 2008, reduced the requested disposal rates and volume.

The OGC issued a letter dated October 17, 2008 outlining our concerns regarding the proposal and subsequently met with the applicant on November 27, 2008 to further clarify.

The radius of influence of the injected acid gas plume, in the liquid phase, will be dependent on several factors. The modeled area of influence, submitted December 19, 2008 and February 9, 2009 uses a range of variable geological parameters, providing a reasonable confidence level that conditional disposal will not harm present or future hydrocarbon recovery in the area.

This well is a suitable candidate for acid gas disposal in the Belloy formation, at the disposal rate and cumulative volume requested. Any future increase in these limits would be dependent on demonstrated performance to support an application to amend the approval.

Attached please find Approval 09-16-001 for the application granted under Section 100 of the Petroleum and Natural Gas Act.

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RESOURCE CONSERVATION

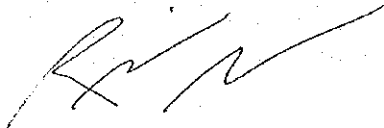
PO Box 9329 Stn Prov Gov't, Victoria BC V8W 9N3 Tel: (250) 952-0302 Fax: (250) 952-0301
Location: 6th Flr 1810 Blanshard St. Victoria BC

Headquarters: #200, 10003 110th Ave, Fort St. John BC V1J 6M7 Tel: (250) 261-5729 Fax: (250) 261-5744 www.ogc.gov.bc.ca

The Commission must be notified, in writing, of the date of commencement of acid gas injection for the subject well as specified in condition 15 of the Approval. Progress Reports are required to monitor performance.

Should you have any questions, please contact Ron Stefik at (250) 952-0310.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Slocomb', written over a light blue horizontal line.

Richard Slocomb, P.Eng.
Supervisor, Reservoir Engineering

cc: Felix Kwan- Petro-Canada Oil & Gas

APPROVAL 09-16-001

THE PROVINCE OF BRITISH COLUMBIA
PETROLEUM AND NATURAL GAS ACT
OIL AND GAS COMMISSION

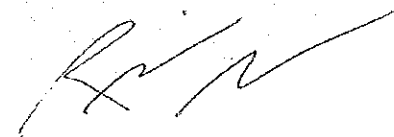
IN THE MATTER of a proposal (the Scheme) by Spectra Energy Midstream Corporation (the Operator) to inject acid gas into the Belloy formation in the well SEMC Doe 15-24-80-15 W6M; WA# 23946 (the well).

NOW THEREFORE, the Commission, pursuant to section 100 of the Petroleum and Natural Gas Act, R.S.B.C. 1996, c.361 hereby orders as follows:

The Scheme of the Operator for the injection of acid gas (hydrogen sulphide and carbon dioxide) into the Belloy formation through the well, as such proposal is described in an application from the Operator to the Commission dated July 9, 2008, and related submissions, is hereby approved, subject to terms and conditions herein contained.

1. Acid gas shall be injected only into the Belloy formation (2178.0 – 2205.0 mKB) through the well.
2. The area of the Scheme shall consist of Section 24 of Township 80 Range 15 West of the 6th Meridian.
3. The wellhead injection pressure must be continually measured and recorded, and must not exceed 13,700 kPag.
4. The injection rate must not exceed $62 \text{ } 10^3 \text{ m}^3/\text{d}$ expressed at 101.325 kPaa and 15 degrees Celsius.
5. The cumulative volume injected must not exceed $339.3 \text{ } 10^6 \text{ m}^3$ expressed at 101.325 kPaa and 15 degrees Celsius.
6. The Operator must monitor the casing-tubing annulus pressure, conduct annual packer isolation tests and implement appropriate corrosion protection measures.
7. The Operator must maintain the hydraulic isolation of the injection zone.
8. The Operator must conduct a reservoir pressure (fall-off) test of the Belloy formation in the subject well, with a shut-in period of not less than 5 days, within 6 months of the date of commencement noted in clause (15). Subsequent reservoir pressure tests must be conducted during scheduled plant shutdowns.
9. An Observation Well must be completed in the Belloy within 6 months of the date of commencement noted in clause (15) and must be used to conduct a program for monitoring reservoir pressure and fluid composition changes in the Belloy formation, with a measurement of initial pressure and at a minimum of annually thereafter.
10. The Wellhead Emergency Shut-Off Device must be linked to H₂S detector heads at the wellhead and a Subsurface Safety Valve or Injection Check Valve must be installed in the tubing string to operate "fail-safe".
11. A barricade must be installed around the wellhead that is capable of withstanding vehicle collision.
12. All injection operations must be immediately suspended if any injection equipment, monitoring equipment or safety devices considered necessary for safe operation should fail.
13. A record of volume of acid gas disposed of through this well must be included on a Monthly Injection/Disposal Statement, in the prescribed form (BC-S18), which must be submitted to the Oil and Gas Commission (Victoria) not later than the 25th day of the month following the reported month

14. The Operator must submit a progress report to the Commission for each six-month period the Scheme is in operation, determined from the first day of injection noted in (15). The requirement may be amended at the request of the operator after the scheme has been in operation for a period of three years. The progress report is due within 60 days after the end of each period and must contain:
- a) details of any workover or treatment program done on the well with reasons for the workover and results of the workovers,
 - b) a discussion of any changes in injection equipment and operations,
 - c) a general review of the operation of the project including identification of problems, remedial action taken and results of the remedial action on project performance,
 - d) a discussion of the overall performance of the scheme,
 - e) an evaluation of all monitoring done during the reporting period including corrosion protection, fluid analyses, logs and any other data collected,
 - f) a table showing monthly volumes of injected fluid, corresponding maximum wellhead injection pressures, maximum daily injection rates, average wellhead temperatures and hours on injection,
 - g) the volume-weighted average composition and formation volume factor for the injected fluid,
 - h) a plot showing monthly injection volume and average pressure versus time on an ongoing basis,
 - i) a table showing tonnes of sulphur and carbon dioxide disposed on a monthly and cumulative basis.
15. The Scheme shall be deemed to have commenced upon initiation of acid gas injection into the well. The Supervisor, Reservoir Engineering, Resource Conservation, must be notified in writing within 72 hours of commencement of injection operations.
16. An Emergency Response Plan procedure must be filed with the Manager, Emergency Response and Safety prior to commencement of the injection operations.
17. The operations of the acid gas injection scheme will be subject to periodic review by the Commission. The Supervisor, Reservoir Engineering, Resource Conservation or the Director, Drilling and Production, may issue general guidelines regarding the operations of the acid gas injection scheme.
18. The approval or any condition of it may be modified or rescinded for non-compliance of the conditions or unsafe operations.



Richard Slocomb
Supervisor, Reservoir Engineering
Resource Conservation

DATED AT the City of Victoria, in the Province of British Columbia, this 4th day of March 2009.