

March 29, 2010

7660-7400-59240-16

Neil Rubeniuk Engineering Manager Sub-Surface Regulatory & Royalty Optimization ConocoPhillips Canada Resources Corp. 2100, 205 6th Avenue SW Calgary AB T2P 3H7

Dear Mr. Rubeniuk:

Re: Acid Gas and Water Injection Approval COPOL et al Ring d-A49-B/94-H-16; WA 25926

Commission staff have reviewed your application dated February 23, 2010 requesting approval to operated the subject well for produced water and acid gas disposal, into the Debolt formation.

This proposed and licensed well is intended as a replacement for the well COPL et al Ring d-49-B/94-H-14 (WA# 10503), which operated under Approval 97-16-003 as a disposal well into this same zone from February 1998 to June 2009, abandoned October 2009 due to loss of wellbore integrity. This well had consistently operated without issue prior to this event. This application requests that similar conditions be approved for operating the new well d-A49-B, located approximately 60 m NW of the previous disposal well.

Please find attached Approval 10-16-001 for the application, granted under section 100 of the <u>Petroleum and Natural Gas Act</u>.

The request to substitute a wellbore check valve, seated below the packer, in place of the previously required subsurface safely value is agreed to serve the same function. As per amendment #2 to Approval 97-16-003, progress reporting frequency for the subject scheme shall be on an annual basis.

Approval 97-16-003, for the original wellbore d-49-B/94-H-14, is hereby rescinded.

Sincerely.

Richard Slocomb, P. Eng.

Supervisor, Reservoir Engineering

Resource Conservation

Attachment

APPROVAL 10-16-001

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

IN THE MATTER of a proposal (the Scheme) by ConocoPhillips Canada Resources Corp. (the Operator) to inject acid gas and water into the Debolt Formation in the well COPL et al Ring d-A49-B/94-H-16; WA# 25926 (the well).

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

The Scheme of the Operator for injection of acid gas into the Debolt Formation in the well, as such proposal is described in an application dated Feruary 23, 2010, to concurrently dispose of acid gas and water is hereby approved, subject to terms and conditions herein contained:

- 1. Acid gas and water shall be injected only into the Debolt formation through the well.
- 2. The area of the Scheme shall consist of units 38, 39, 48, 49 of Block B/94-H-16.
- 3. The wellhead injection pressure must not exceed 8,000 kilopascals gauge.
- 4. The sandface injection pressure must not exceed 9,000 kilopascals gauge.
- 5. The injection rate must not exceed 22.5 10³m³/d expressed at 101.325 kilopascals absolute and 15 degrees Celsius.
- 6. The cumulative volume injected must not exceed 82.0 10⁶m³ expressed at 101.325 kilopascals absolute and 15 degrees Celsius.
- 7. Water injection rate must not exceed 250 m³/d.
- 8. The Operator must monitor the casing, conduct annular packer isolation tests and implement appropriate corrosion protection measures to maintain the hydraulic isolation of the injection zone.
- 9. The Operator must monitor the acid gas concentration in the offsetting wells for increases in the acid gas content.
- A Wellhead Emergency Shut-Off Device and Subsurface Check Valve must be installed. The Wellhead Emergency Shut-Off Device must be linked to hydrogen sulphide detectors at the wellhead.
- 11. A barricade, satisfactory to the Director, Drilling and Production, must be installed around the wellhead to withstand 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 annually. 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 Project,
 - 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 acid gas, 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 acid gas,
 - h) a plot showing monthly injection volume and average pressure versus time on an on-going basis, and
 - i) a table showing tonnes of sulphur and carbon dioxide disposed on a monthly and cumulative basis.
- 12. The operations of the Scheme will be subject to periodic review by the Commission. The Director, Drilling and Production or the Supervisor, Reservoir Engineering, may issue general guidelines regarding the operations of the Scheme.
- 13. This approval or any condition of it may be modified or rescinded for noncompliance of the conditions or unsafe operations.

Richard Slocomb

Supervisor, Reservoir Engineering

Resource Conservation