BRITISH COLUMBIA

January 13, 1998

Ref.: 980027
File: 7660-7400-59240-16

Mr. Gilbert Cordell
District Reservoir Engineer
Canadian Hunter Exploration Ltd.
2800, 605 - 5th Avenue SW
Calgary, AB T2P 3H5

Dear Mr. Cordell:

**Re: Application For Acid Gas Injection**
**Canhunter et al Ring d-49-B/94-H-16; WA# 10503**
**Debolt Formation**

This refers to your Application wherein you requested approval of acid gas injection in the subject well.

Please find attached Approval 97-16-003 for the Application, granted under section 100 of the Petroleum and Natural Gas Act.

It should be noted that the Ministry must be notified in writing, of the date of commencement of acid gas injection in the well.

Yours sincerely,

B. van Oort, P. Eng.
Director
Engineering and Operations Branch

Attachment

Copies for Approval Letter to Industry (11)
RE: GEP, Salt Water Disposals, etc.

- [ ] G. Miltenberger
- [ ] Data Management
- [x] R. Stefik
- [ ] D. Richardson
- [ ] P. Attariwala
- [ ] G. Farr
- [ ] S. Chicorelli
- [ ] Resource Revenue
- [ ] 59240
- [ ] Wellfiles (originals)
- [ ] Daily

**Ministry of Employment and Investment**

Energy and Minerals Division
Engineering and Operations Branch

Mailing Address:
PO Box 9326 Stn Prov Govt
Victoria BC V8W 9N3

Location:
Sixth Floor
1810 Blanshard Street
Victoria

**APPROVAL 97-16-003**

**THE PROVINCE OF BRITISH COLUMBIA**
**PETROLEUM AND NATURAL GAS ACT**
**MINISTRY OF EMPLOYMENT AND INVESTMENT**
**ENERGY AND MINERALS DIVISION**

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IN THE MATTER of a proposal (the Project) by Canadian Hunter Exploration Ltd. (the Operator) to inject acid gas into the Debolt Formation in the well Canhunter et al Ring d-49-B/94-H-16 (the well).

The Deputy Minister of Employment and Investment pursuant to section 100 of the Petroleum and Natural Gas Act, R.S.B.C. 1996, c.361 hereby orders as follows:

The Project of the Operator for the injection of acid gas (hydrogen sulphide and carbon dioxide) into the Debolt Formation in the well, as such proposal is described in :

a) an application from the Operator to the Ministry dated April 30, 1997

b) supplementary information filed in support thereof

is hereby approved, subject to terms and conditions herein contained:

1. Acid gas shall be injected only in the well.

2. The wellhead injection pressure must not exceed 8, 000 kilopascals gauge.

3. The sandface injection pressure must not exceed 8, 200 kilopascals gauge.

4. The injection rate must not exceed 22.5 $10^3m^3/d$ expressed at 101.325 kilopascals absolute and 15 degrees Celsius.

5. The cumulative volume injected must not exceed 82.0 $10^6m^3$ expressed at 101.325 kilopascals absolute and 15 degrees Celsius.

6. 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.

7. The Operator must monitor the acid gas concentration in the offsetting wells for increases in the acid gas content.

8. The Wellhead Emergency Shut-Off Device and Subsurface Safety Valve must be installed to operate "fail-safe". The Wellhead Emergency Shut-Off Device must be linked to hydrogen sulphide detectors at the wellhead.

9. A barricade, satisfactory to the Manager, Regional Oil and Gas Operations, must be installed around the wellhead to withstand vehicle collision.

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10. All injection operations must be immediately suspended if any injection equipment, monitoring equipment or safety devices considered necessary for safe operation should fail.

11. The Operator must submit a progress report to the Energy and Minerals Division for each 6 month period the Project is in operation, determined from the first day of injection. This requirement may be amended at the request of the operator after the Project has been in operation for a period of 3 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 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 Project shall be deemed to have commenced with the initial injection of acid gas into the well. The Manager, Regional Oil and Gas Operations at Charlie Lake must be notified in writing 72 hours prior to the commencement of injection operations. Feb. 1998

13. An emergency response plan must be filed with the Manager, Regional Oil and Gas Operations prior to the commencement of injection operations.

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14. The operations of the Project will be subject to periodic review by the Ministry. The Director of Engineering and Operations Branch or the Manager, Regional Oil and Gas Operations, may issue general guidelines regarding the operations of the Project.

15. This approval may be modified or rescinded for noncompliance of the conditions or unsafe operations.

Charles Kang
Deputy Minister
Minister of Employment and Investment

DATED AT the City of Victoria, in the Province of British Columbia, this 12th day of January, 1998.