



Province of
British Columbia

Ministry of
Energy, Mines and
Petroleum Resources

Parliament Buildings
Victoria
British Columbia
V8V 1X4

OFFICE OF THE
MINISTER

November 26, 1991

MO/DM/ADME/PEN/PSA/mef
910873
MAR#1:910873
bcc: D.L. Johnson

Mr. David A. Bramsen
Manager, Engineering
Unocal Canada Management Limited
150 - 6th Avenue S.W.
Box 1180
Calgary, Alberta
T2P 2K9

Dear Mr. Bramsen:

**RE: AITKEN CREEK FIELD - FURTHER MODIFICATION TO
THE MINISTERIAL ORDER APPROVING GAS STORAGE**

*Gas Storage =
Consolidation of
all approvals.
(manual "cut and paste"
of approvals done by PSA).*

This letter refers to the application dated May 13, 1991, wherein you request an amendment to the approval terms for operating the Aitken Creek Gas Recycle and Storage Schemes.

The terms of the original Gas Storage Approval dated July 1984, subsequently modified dated April 29, 1987, and April 29, 1988, ~~grated~~ under section 116 of the Petroleum and Natural Gas Act are hereby revised by deleting item 8(a).

All other conditions of the original approval remain unchanged.

Yours sincerely,

*Original signed
by Minister*

Anne Edwards
Minister

bcc: Mr. D. L. Johnson
Manager
Field Operations
Fort St. John

(1) Aitken Creek Field Definition

"Aitken Creek Field" means the unitized zone defined in the Unit Agreement, Aitken Creek Gas Unit No. 1 effective March 1, 1977, and also the non-unitized oil bearing Gething 'A' formation, all restricted to the area of the Aitken Creek Gas Unit No. 1, as shown on Attachment 1.

In the event Unocal Canada Limited (Unocal) or Hudson Bay Oil and Gas Limited (HBOG) purchase natural gas leases adjacent to the Aitken Creek Gas Unit No. 1, as defined at the date of this Further Modification to the Order, Unocal or HBOG may apply to the Director of Resource Revenue, Ministry of Energy, Mines and Petroleum Resources for approval to include said purchased leases in the area of the Aitken Creek Field, such approval not to be unreasonably withheld where the concurrence of all working interest owners is obtained.

(2) Outside Gas Definition

"Outside Gas" means marketable gas as defined in the Petroleum and Natural Gas Royalty Regulation (B.C. Reg. 200/85, as amended) that is originally from any source other than the Aitken Creek Field.

(3) Native Gas Definition

"Native gas" means any and all unit volumes of natural gas present or produced from the Aitken Creek Field which is in excess of any and all unit volumes of outside gas injected into, produced or disposed of from the Aitken Creek Field.

14. approvals may continue to be granted for the drilling of wells within a corridor two spacing areas wide outside the Unit boundary but with the following requirements:

See

"Approval
to Revoke
Natural
Gas"
April 29, 1988
1988 B.C. Reg. 200/85

- a) a gas well interpreted to be productive from an extension to the unitized (storage) zone will have its total production limited to that portion of the original recoverable reserves estimated to remain under its spacing area at the time of the well completion,
- b) in other wells, the equivalent of the unitized zone, if present, will be cemented off;

~~5.~~ wells may be drilled in the Unit area to explore and develop formations deeper than the unitized (storage) zone providing measures are taken to protect this zone;

(6) Royalty Assessment

- a) Native gas and natural gas by-products disposed of from the Aitken Creek Field shall be assessed royalty as per the Petroleum and Natural Gas Royalty Regulations (B.C. Reg. 200/85, as amended).
- b) Oil disposed of from the Aitken Creek Field shall be assessed royalty as per the Petroleum and Natural Gas Royalty Regulation (B.C. Reg. 200/85, as amended).
- c) Outside gas for injection into the Aitken Creek Field shall be assessed royalty in accordance with the Petroleum and Natural Gas Regulation (B.C. Reg. 200/85, as amended) when first produced prior to injection.

(7) Last-in First-out

Any and all unit volumes of outside gas injected into the Aitken Creek Field (Last-in), shall be any and all unit volumes of residue gas disposed of from the Aitken Creek Field (First-out), until the cumulative volume of residue gas disposed of equals the cumulative volume of outside gas injected. Thereafter, all residue gas shall be from native gas.

(8) Method of Operation

Deleted
26 Nov 1991.

- a) ~~At the commencement of gas storage, outside gas shall be injected into the unitized zone of the Aitken Creek Field through wells located at d-25-L, a-53-L, d-57-L, and a-46-L, all in NTS area 94-A-13.~~
- b) Written notification of intent to change the gas injection scheme must be submitted to the Director of Engineering and Operations, Ministry of Energy, Mines and Petroleum Resources, not less than one month prior to the expected change.
- c) The storage reservoir pressure is not to exceed the discovery pressure of 10736 KPa abs.

(9) Reserves

All oil produced from the Aitken Creek Field up to a cumulative volume of 1097 10³m³ stock tank is subject to old oil royalty rates.

All oil produced from the Aitken Creek Field in excess of the cumulative volume of 1097 10³m³ stock tank is incremental oil and subject to new oil royalty rates.

(10) Volume Reporting

The operator of the storage scheme shall submit appropriate monthly injection and production S-forms and a gas storage report which shall include the following information:

- i) Total volume and cumulative volume of marketable gas from other areas injected.
- ii) Volume of marketable gas from other areas injected and allocated to each injection well.
- iii) Total volume and cumulative volume of marketable gas from other areas disposed of.
- iv) Volume of fuel gas used to inject marketable gas.

(11) Termination of Gas Storage

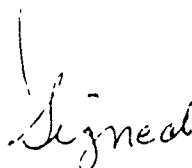
Written notification of intent to terminate gas storage must be submitted by Unocal to the Director of Resource Revenue, Ministry of Energy, Mines and Petroleum Resources not less than three months prior to the expected date of termination.

(12) Assignment

Unocal and HBOG shall not, without prior written consent of the Minister, assign either directly or indirectly, this Approval or any right of Unocal or HBOG under this Approval.

Your application to store natural gas in the unitized zone of the Aitken Creek Field has been advertised in the British Columbia Gazette and no objections were received. Additional reasonable terms and conditions to this approval may be imposed by the Minister.

Yours sincerely,



Honourable Jack Davis
Minister

Attachment

bcc: P. Jarman
J. Allan
B. Drinkwater
B. Phillion
B. Garrison
B. van Oort
D. Dempster
G. German
P. Ostergaard
D. Johnson