

September 19, 1983

Tundra Oil and Gas
Box 160
Virden, Manitoba
R0M 2C0

Attention: Mr. B. K. Kinmaird

Dear Barry:

Re: Commingling of Production - Pierson Field

Your application for commingling of production in the Pierson area is approved subject to the well testing frequency requirements outlined in Section 715 of the Draft Petroleum Drilling and Production Regulations 1983. Further to this, we request that you provide details of the well testing facilities that will be installed.

Yours sincerely,

Original Signed by H. C. Moster

H. Clare Moster, P. Eng.
Director, Petroleum Branch

LRD/1k

New File

Pierson Field

Commingling of
Production - Tundra

(in Field/Pool files)

Date _____

To :

Clare:

- 1) All production in the area falls into the D253 block although two pools (Pierson MC3bB and MC3aB) are involved
- 2) Tundra seems to be the only one who are concerned about commingling. I think that as long as production measurement is satisfactory, applications like this are unnecessary

B87

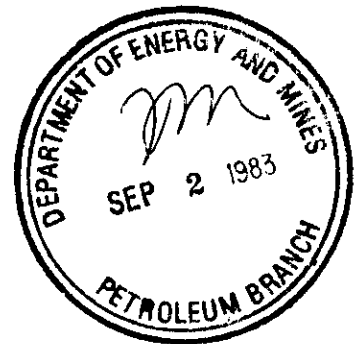
THINK POSITIVE

→ Bob

- process
- oil qualities?
- measurement?

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0
1983 08 31

Mr. H. Clare Moster, P. Eng.
Director
Manitoba Department of Energy and Mines
Mineral Resources Division
Petroleum Branch
975 Century Street
Winnipeg, Manitoba
R3H 0W4



Dear Sir:

Re: Application to Commingle Production - Pierson Area

Tundra Oil and Gas, as operator of a Battery located at LSD 13-17-3-28 W1M hereby make application to commingle production from the E $\frac{1}{2}$ Section 18-3-28 W1M and the NE $\frac{1}{4}$ Section 7-3-28 W1M with production from the NW $\frac{1}{4}$ Section 17-3-28 W1M.

The proposed agreement would allow our existing and future production in the East Pierson field to be efficiently and economically treated through our existing facility.

Immediate plans would have the new well at 16-18-3-28 W1M produced to the 13-17-3-28 Battery. Future possibilities include the commingling of existing production at 1-18-3-28 Battery, 2-18-3-28 Well and future wells on E $\frac{1}{2}$ Section 18-3-28 W1M and Section 7-3-28 W1M into a central battery facility at 13-17-3-28.

Additional treating and storage facilities will be installed at the central battery when required. A sketch is attached illustrating the existing and proposed facilities.

The wells located on the proposed commingled lands to date are:

Tundra Pierson 15-7-3-28 W1M
Tundra Pierson 13-17-3-28 W1M
Tundra Pierson Prov. 1-18-3-28 W1M
Tundra et al Pierson Prov. 2-18-3-28 W1M
Cairns E. Pierson 9-18-3-28 W1M (Possible SWD)
Tundra et al Pierson 16-18-3-28 W1M

Mr. H. Clare Moster
Application to Commingle Production - Pierson Area
1983 08 31 - Page 2

Attached in support of this application are ratifications from
concerned parties from E $\frac{1}{2}$ Section 18-3-28 W1M, NW $\frac{1}{4}$ Section 17-3-28 W1M,
and NE $\frac{1}{4}$ Section 7-3-28 W1M.

Yours truly,





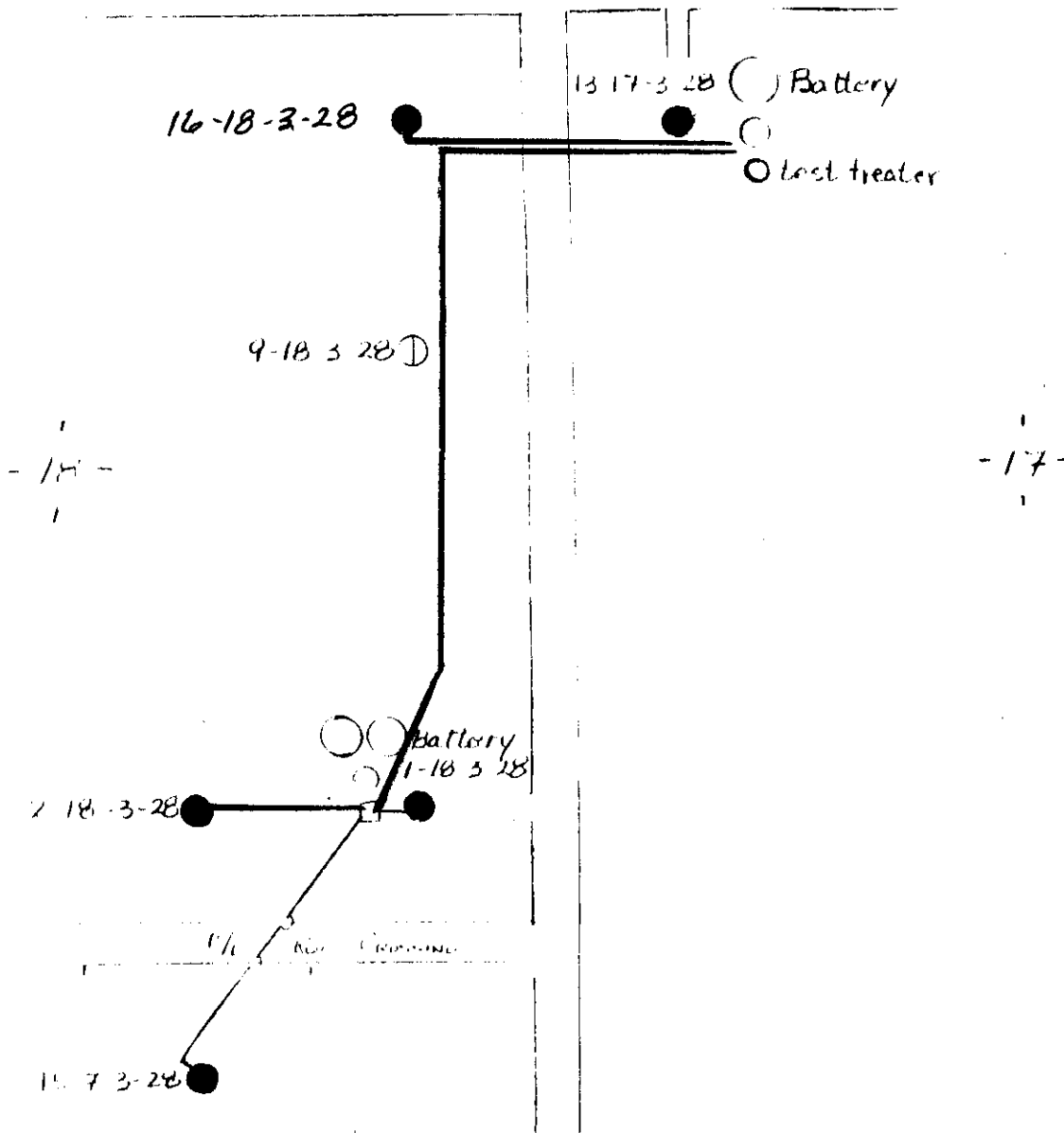
Barry K. Kinnaird
Field Operations Manager
Tundra Oil and Gas, Virden

attach.
BKK/dk

Copy to R.G. Puchniak, Tundra Oil and Gas, Winnipeg

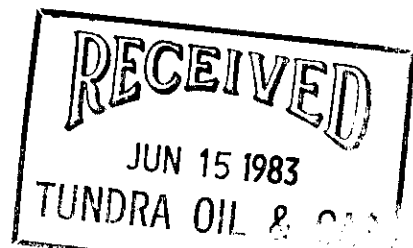
TUNDRA FACILITIES EAST PIERSON AREA

EXISTING 
PROPOSED 



EXISTING _____
PROPOSED _____





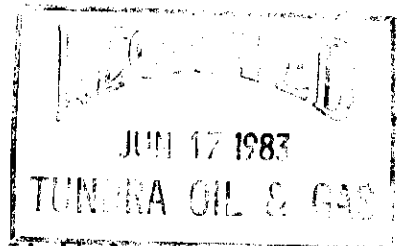
Chevron Canada Resources Limited
500 - 5th Avenue S.W.
Calgary, Alberta
T2P 0L7

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from the SE $\frac{1}{4}$ Section 18-3-28 W1M with production from the NW $\frac{1}{4}$ Section 17-3-28 W1M, the NE $\frac{1}{4}$ Section 7-3-28 W1M, and the NE $\frac{1}{4}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

E. J. Mann for Chevron Canada Resources Limited

June 13, 1983
Dated



Milestone Petroleum Limited
P.O. Box 1027
Virden, Manitoba
ROM 2C0

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from the NE $\frac{1}{4}$ Section 7-3-28 W1M with production from the NW $\frac{1}{4}$ Section 17-3-28 W1M and the E $\frac{1}{2}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of the existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

June 13, 1983
Dated

Mr. Edward R. Lowdon
P.O. Box 1505
Virden, Manitoba
ROM 2C0

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from the NE $\frac{1}{4}$ Section 7-3-28 W1M, the NW $\frac{1}{4}$ Section 17-3-28 W1M, and the SE $\frac{1}{4}$ Section 18-3-28 W1M with production from the NE $\frac{1}{4}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of the existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

E. R. Lowdon

MAY 13 1983
Dated



Thomas J. Cuthbert
Suite 1102, Princess Towers
Brandon, Manitoba
R7A 6B6

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from the NE $\frac{1}{4}$ Section 7-3-28 W1M with production from the NW $\frac{1}{4}$ Section 17-3-28 W1M and the E $\frac{1}{2}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

Thomas J. Cuthbert

May 13 1983
Dated



Mr. Patrick T. Cairns
P.O. Box 54
Tilston, Manitoba
ROM 2B0

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

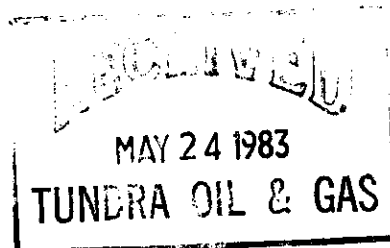
The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from the NE $\frac{1}{4}$ Section 7-3-28 W1M, the NW $\frac{1}{4}$ Section 17-3-28 W1M, and the SE $\frac{1}{4}$ Section 18-3-28 W1M with production from the NE $\frac{1}{4}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of the existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

Pat Cairns


May 12 / 83
Dated

Ethel A. Hembt and Mildred M. Hembt
103 East 37th Street
New York, New York 10016
U.S.A.

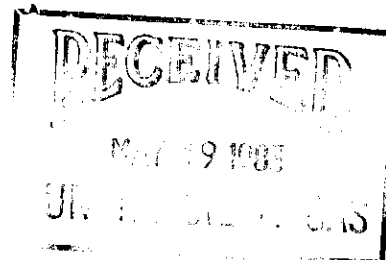
Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0
Canada



The undersigned hereby grant permission to Tundra Oil and Gas to comingle production from NW $\frac{1}{4}$ Section 17-3-28 W1M with production from NE $\frac{1}{4}$ Section 7-3-28 W1M and the E $\frac{1}{2}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.


Trustee; MM Hembt & EA Hembt, et al.

16 May 1983
Dated



Emma Grace Reid
P.O. Box ~~153~~ 153
Pierson, Manitoba
ROM 1S0

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from NW $\frac{1}{4}$ Section 17-3-28 W1M with production from NE $\frac{1}{4}$ Section 7-3-28 W1M and the E $\frac{1}{2}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

Mrs Emma Grace Reid

May 17th 1983
Dated

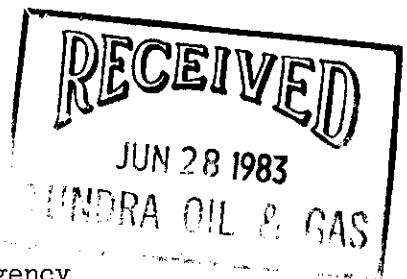
Mr. Kenneth W. Jacobson
Pierson, Manitoba
ROM 1S0

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from the NE $\frac{1}{4}$ Section 7-3-28 W1M, the NW $\frac{1}{4}$ Section 17-3-28 W1M, and the SE $\frac{1}{4}$ Section 18-3-28 W1M with production from the NE $\frac{1}{4}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of the existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

Ken Jacobson

May 30, 1983
Dated



Account of J.W. Clark Agency
The Permanent
Oil Royalty Department
311 - 6th Avenue S.W.
Calgary, Alberta
T2P 0R6

Tundra Oil and Gas
P.O. Box 1960
Virden, Manitoba
ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from NW $\frac{1}{4}$ Section 17-3-28 W1M with production from NE $\frac{1}{4}$ Section 7-3-28 W1M and the E $\frac{1}{2}$ Section 18-3-28 W1M. The comingling will allow the efficient production of wells and the efficient use of existing treating facilities. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.

J W Clarke

June 15, 1983
Dated

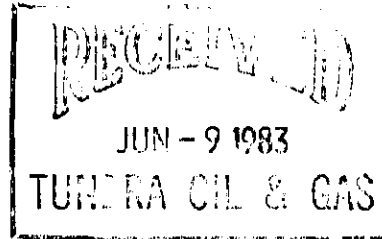
DOME PETROLEUM LIMITED

BOX 200
CALGARY, ALBERTA, CANADA
T2P 2H8

(403) 260-5100

June 3, 1983

Barry K. Kinnaird
Tundra Oil & Gas Limited
P.O. Box 1960
VIRDEN, Manitoba
ROM 2C0



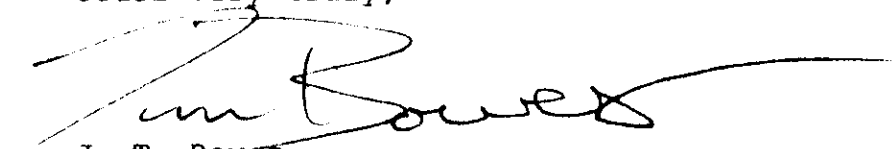
Dear Sir:

Net Profits Interest
3-28 WLM: SE18
Pierson Area, Manitoba

Dome Petroleum Limited and Provo Gas Producers hereby authorize Tundra Oil & Gas Limited to comingle production associated with 3-28 WLM: SE18 with 3-28 WLM: N17, subject to the condition that all production comingled be of the same price block.


We trust this condition will allow for the efficient use of existing installation.

Yours very truly,



J. T. Bowes
Landman

JTB/01/sp



Dome Petroleum Limited

P.O. Box 200

Calgary, Alberta

T2P 2H8

Tundra Oil and Gas

P.O. Box 1960

Virden, Manitoba

ROM 2C0

The undersigned hereby grants permission to Tundra Oil and Gas to comingle production from SE $\frac{1}{4}$ Section 18-3-28 W1M with production from NW $\frac{1}{4}$ Section 17-3-28 W1M and NE $\frac{1}{4}$ Section 18-3-28 W1M. The comingling will allow the efficient use of existing installations and the economic advantage of consolidation. Production from wells to be comingled will be measured by a method approved by the Director of the Petroleum Branch, Manitoba Department of Energy and Mines.



Subject to the
condition established
in the cover letter
dated June 3, 1983

June 3, 1983

Dated

TB.

Home Oil Company Limited

1600 Home Oil Tower
324 Eighth Avenue S.W.
Calgary, Alberta T2P 2Z5
Telephone (403) 232-7100
Fax (403) 232-7678



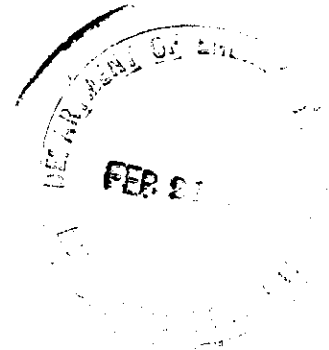
1990-02-21

Manitoba Energy & Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. John Fox

Dear Sir:

Re: Application for Abandonment of the Mississippian and
Recompletion in the Lower Amaranth (Spearfish)
Home SRO S. Pierson 8-16-002-29 W1M



On August 17, 1989 Home Oil Company Limited applied for commingling of Mississippian and Amaranth production. Based on information obtained since then Home Oil wishes to revise its application for abandonment of Mississippian and recompletion in the Lower Amaranth.

The reasoning behind this change is as follows:

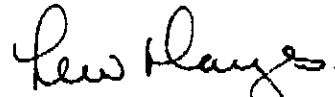
1. Production from the Mississippian has declined to 0.7 m3/day of basically water free oil;
2. The recent completion success of Pierson 11-19-002-29 W2M in the Spearfish has emphasized excellent potential production rates in a significantly larger reservoir;
3. The extra cost of a more complicated workover program including recorders, extra trips, and utilization of retrievable packer equipment, as well as costs associated by the required 7 day production test and segregation testing, cannot be economically justified by the 0.7 m3/day incremental production from the Mississippian.

- 2 -

The workover potential to increase oil production in the Mississippian is considered low due to the nearby prolific water leg and recompletion techniques will result in excessive water production. Home Oil realizes that potential oil reserves will be by-passed, however, the potential in the Spearfish is considered very good with expected production rates and recovery to be substantially higher.

If there are any questions concerning this application please contact Lew Hayes (403) 232-7766 or Jik Chan (403) 232-7352.

Yours truly,



L.A. (Lew) Hayes
Senior Production Engineer

LAH:sc

cc J.C. Chan
G.B. Harrison
J.M. Feenstra
W.C. Tersmette
D.A. Wilmot



Energy and Mines

Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

September 6, 1989

Home Oil Company Limited
1700 Home Oil Tower
324 - 8th Avenue S.W.
CALGARY, Alberta T2P 2Z5

Attention: Mr. D.A. Bertram
Chief Reservoir Engineer, Southern District

Re: Commingled Production Approval
Home SRO S. Pierson Prov. 8-16-2-29 (WPM)

Dear Sir:

Your application for approval to commingle production from the South Pierson Mission Canyon 3b D Pool and the South Pierson Lower Amaranth B Pool in the well, Home SRO S. Pierson Prov. 8-16-2-29 (WPM) is hereby acknowledged and approved.

At this point in time due to the limited production history of the subject well, it is the Branch's opinion that it is impossible to accurately forecast production from the MC 3b D Pool. Therefore, your request for a waiver of the requirement for production testing of the individual producing zones is denied.

As previously discussed, the production testing requirements and the approved method of allocating production to the individual producing zones in the subject well are outlined in Attachment 1.

Crown royalty liabilities for the subject well are to be calculated on the total volume of oil produced from the well, not separately for each zone.

The approval to commingle production in the wellbore is subject to the following conditions:

1. Home Oil notify the district office of the Branch prior to commencing the recompletion.
2. Prior to commingling, the Lower Amaranth is to remain isolated and production tested until stabilized rates have been obtained (minimum 7 days).
3. To minimize the possibility of cross-flow between the producing zones, pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.
4. Home Oil is to submit a quarterly report, listing the monthly production for each zone, the results of fluid level measurements in (2) above, any remedial work done on the well and the results of any production testing of individual zones.

Home Oil indicated that during the stimulation of the Lower Amaranth there is a possibility that the fracture may go out of zone and establish communication between the Lower Amaranth and Mission Canyon zones. The Branch views this situation as undesirable and expects Home Oil to do as much as possible to prevent this situation from occurring. To this end, the Branch supports Home's plans to monitor the pressure in the Mission Canyon during the completion of the Lower Amaranth and requests the results of the pressure monitoring be submitted to the Branch.

If you have any comments or questions with respect to this approval please contact John Fox at (204) 945-6574.

Yours sincerely,

L.R. Dubreuil
Director of Petroleum

JNF/LRD/dah/sml

Attachment

ATTACHMENT 1

Home SRO S. Pierson 8-16-2-29 (WPM)

Production Testing Requirements
and
Production Allocation

1. After completing the Lower Amaranth, production test the zone to determine a stabilized production rate and submit the results in accordance with Section 51 of the Petroleum Drilling and Production Regulation.
2. After commingling the two zones, production test the well and submit the results as in (1) above.
3. Production test the well monthly.
4. Allocate production to the MC 3b zone at a rate equivalent to the well's average daily production for the six (6) months preceding the completion of the Lower Amaranth. Allocate production to the Lower Amaranth based on the difference between the total measured production and the allocated MC 3b zone production.
5. Annually isolate one of the zones and production test the other zone to determine a stabilized production rate to be used to allocate production in accordance with (4) above.

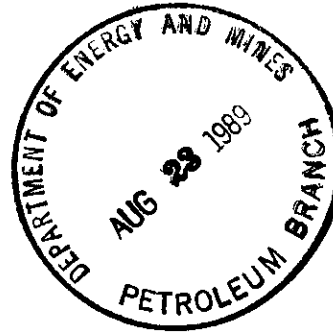
Home Oil Company Limited

1700 Home Oil Tower
324 Eighth Avenue S.W.
Calgary, Alberta T2P 2Z5
Telephone (403) 232-7100
Fax (403) 232-7678



1989-08-17

Manitoba Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3



Dear Sir/Madam:

Re: Application to Commingle Oil Production From
Home SRO S. Pierson 08-16-002-29 WIM

1. Home Oil Company Limited hereby applies under Section 120 of the Manitoba PETROLEUM DRILLING AND PRODUCTION REGULATIONS - 1984 for approval to commingle production from the Spearfish and Mission Canyon formations within the wellbore Home SRO S. Pierson 08-16-002-29 WIM (License #4043). The 8-16 well is presently completed in and producing only from the MC3. Home is proposing to complete the upstructure Spearfish formation and produce both intervals simultaneously via the 8-16 wellbore.
2. In support of this application the following are attached:
 - Well Status Map
 - Structure Maps - Mississippian, Mission Canyon
 - Well Logs: 08-16-002-29 WIM
 - Present and Proposed Completion Sketch
 - Table of Reservoir Parameters
 - Production Summary: 08-16-002-29 WIM
 - Economic Run - MC3 Reserves
3. The 8-16 well is located within the South Pierson field in which the primary producing zone is the Spearfish. This formation directly overlies the Mississippian unconformity and is enveloped in the "Red Beds" sequence. The Spearfish is a fine grained sandstone interpreted to be part of an arid tidal flat environment. The reservoir is limited to the NE by anhydritization and as it dips to the South-West becomes tight and wet.

The MC3 or Alida Beds of the Mississippian is a secondary, lesser reservoir in this area. It is a porous permeable limestone unit which is water bearing throughout most of the field. There are however several low rate oil producers completed in this interval. Generally the MC3 is a very thin target in this area and Home's experience shows that the primary importance of the MC3 is in its affect on the successful completion of the Spearfish.

4. Home SRO S. Pierson 08-16-02-29 WIM was drilled in February of 1988 and was cased as a potential oil well. Two prospective intervals were encountered - the Spearfish and MC3. Reservoir parameters and calculated reserves for each zone are included as Attachment # 6 and show 3032 m³ of recoverable oil in the Mission Canyon and 10244 m³ for the Spearfish.

Home completed the MC3 formation in June of 1988. To July 1, 1989 640 m³ of oil has been produced at an average rate of 1.9 m³/operated day or 1.7 m³/calendar day.

5. Home's primary reason for requesting commingled production is that such approval will provide the economic conditions whereby maximum oil recovery is ensured from both zones at 8-16. Home performed an evaluation on the worth of MC3 reserves and production and this has been included as Attachment 8. This evaluation demonstrates that on its own the Mission Canyon cannot generate a positive cash flow at 8-16. This makes solo Mission Canyon production economically unattractive.

uneconomic to produce @ 1.7 - 3 OPD

6. As noted, Home proposes to complete and produce both zones simultaneously into the 8-16 wellbore. The Mission Canyon has been produced for over a year and its capability is well documented. Therefore Home requests that separate production testing of the Spearfish and MC3 be waived. In all other respects measurement of well production would be conducted according to those regulations as presently required by the Manitoba government.

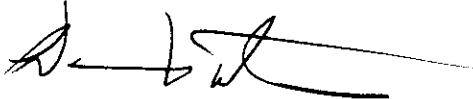
7. The P&NG rights in Section 16-002-29 WIM are Crown property. Home Oil maintains a 100% working interest throughout this entire section. Therefore it is suggested that correlative rights and equity will not be impacted by approval of this application.

Sec. 15 W10420.

If there are any questions concerning this application please contact Mr. Gary Harrison at (403)232-7107 or Mr. Tom Coburn at (403)232-7728.

Yours truly,

HOME OIL COMPANY LIMITED

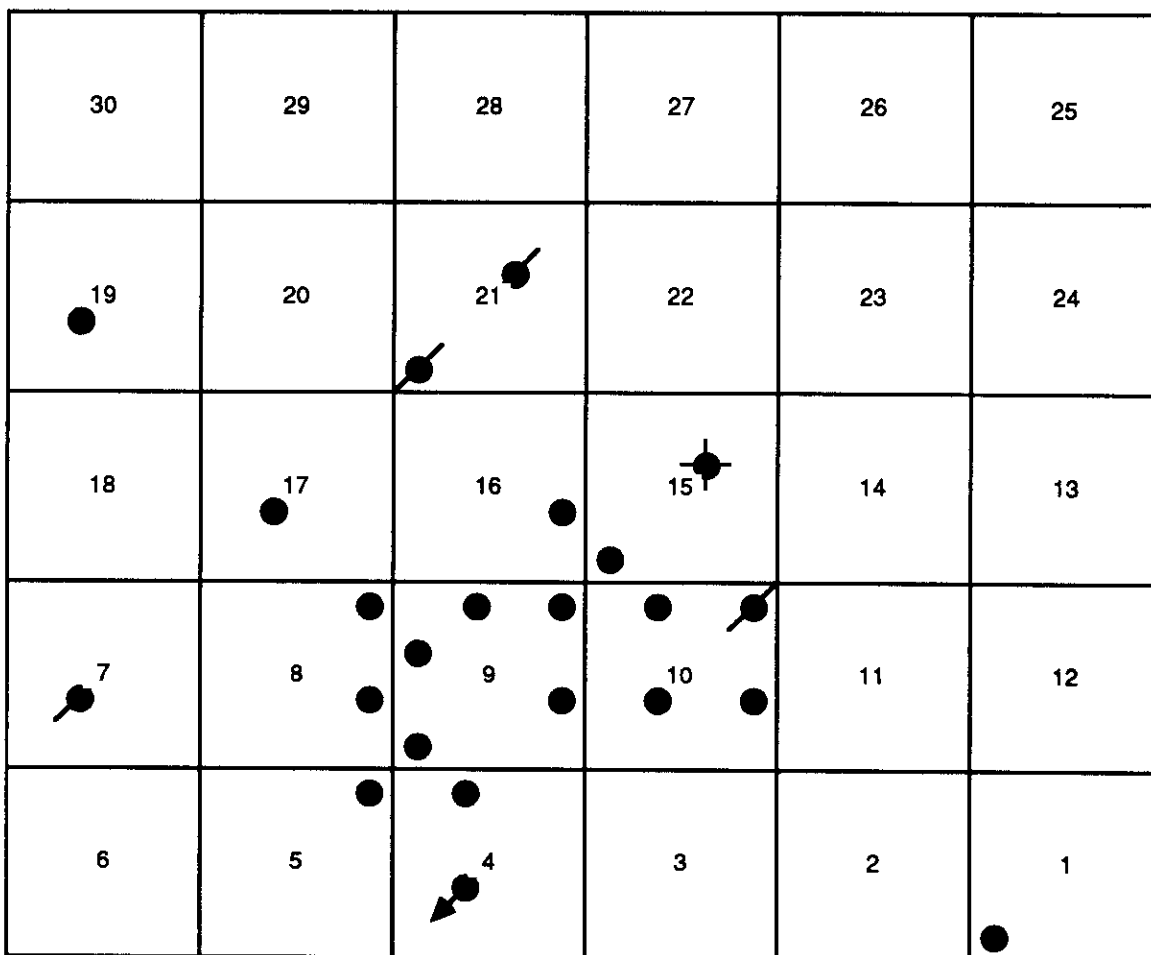
A handwritten signature in black ink, appearing to be 'D.A. Bertram', with a long horizontal stroke extending to the right.

D.A. Bertram, P. Eng.
Chief Reservoir Engineer, Southern District

TAC/jlc
1604e

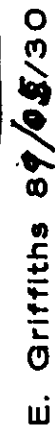
c.c. B.E. Smith
W.C. Tersmette
D. Cairns
Well File
Day File

SOUTH PIERSON AREA REVIEW



TWP. 2 RGE. 29 W1M

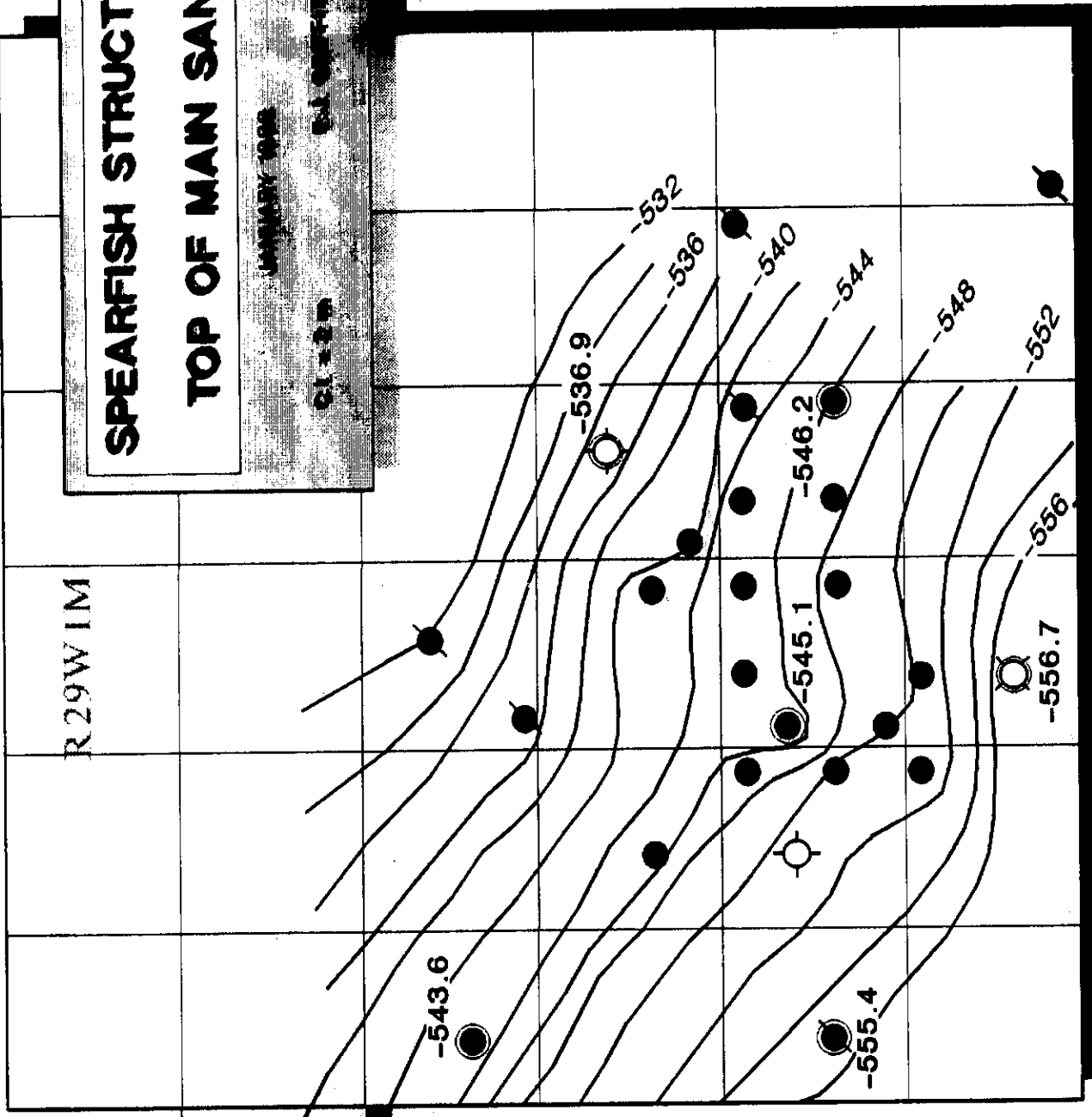
C.L. 4M S. PIERSON - TWP. 2 RGE. 29 W1M



SPEARFISH STRUCTURE
TOP OF MAIN SAND

JANUARY 1968

CL = 2 m



R 29W 1M

-540.3

TWP 2

WELL

HOME SRO S. PIERSON 8-16

FIELD

S. PIERSON

SECT.
8-16

TWP.
2

RANGE
29W1M

Elev. K.B. 474.1 M

D.F. 473.8 M

G.L. 469.7 M

1000

0.1 m'

1 m'

Dual Axis
Caliper

Bit Size

Density
Caliper

OR

1050

0.1 m'

1 m'

CNL Porosity

Density Porosity

$\Delta\rho$

CALI (MM)

150.00 400.00

TENS (LB)

20000. 0.0

C2 (MM)

150.00 400.00

GR (GAPI)

0.0 150.00

DRHO (K/M3)

-50.00 450.00

DPHI

.45000

-.151

WELL
FIELD

HOME SRO S. PIERSON 8-16

S. PIERSON

SECT.
8-16

TWP.
2

RANGE
29W1M

Elev. K.B. 474.1 M

D.F. 473.8 M

G.L. 469.7 M

1000

1050

Caliper

Gamma Ray

CALS (MM)

150.00 400.00

BS (MM)

150.00 400.00

TENS (LB)

20000. 0.0

GR (GAPI)

0.0 -10+ 150.00

SP (MV)

IMPH (QHMM)

.20000

2000

IDPH (QHMM)

.20000

2000

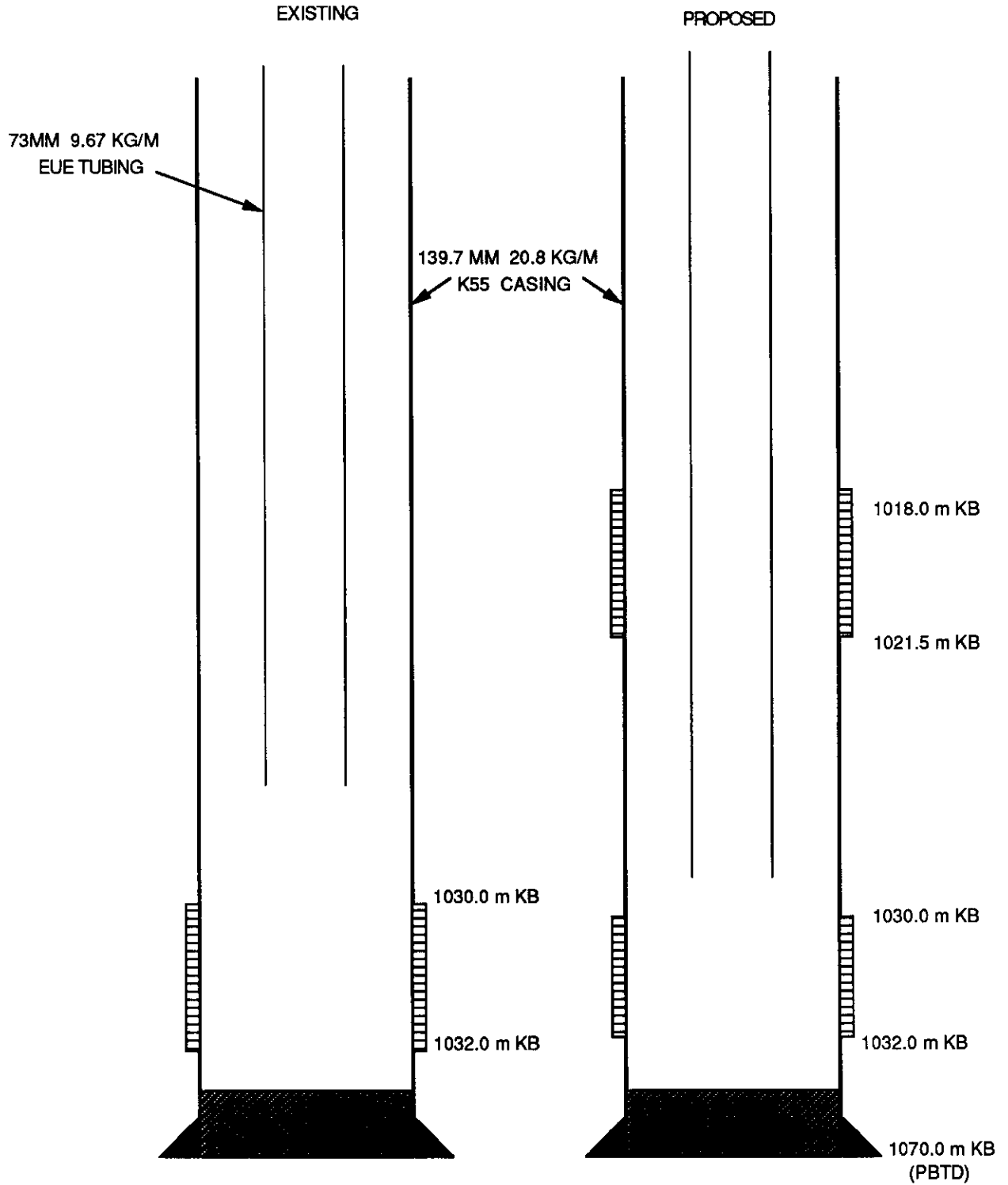
MSFL (QHMM)

.20000

2000

MSFL

HOME SCURRY S. PIERSON
8-16-2-29w1M



S. PIERSON 08-16-002-29 W1M

RESERVOIR PARAMETERS

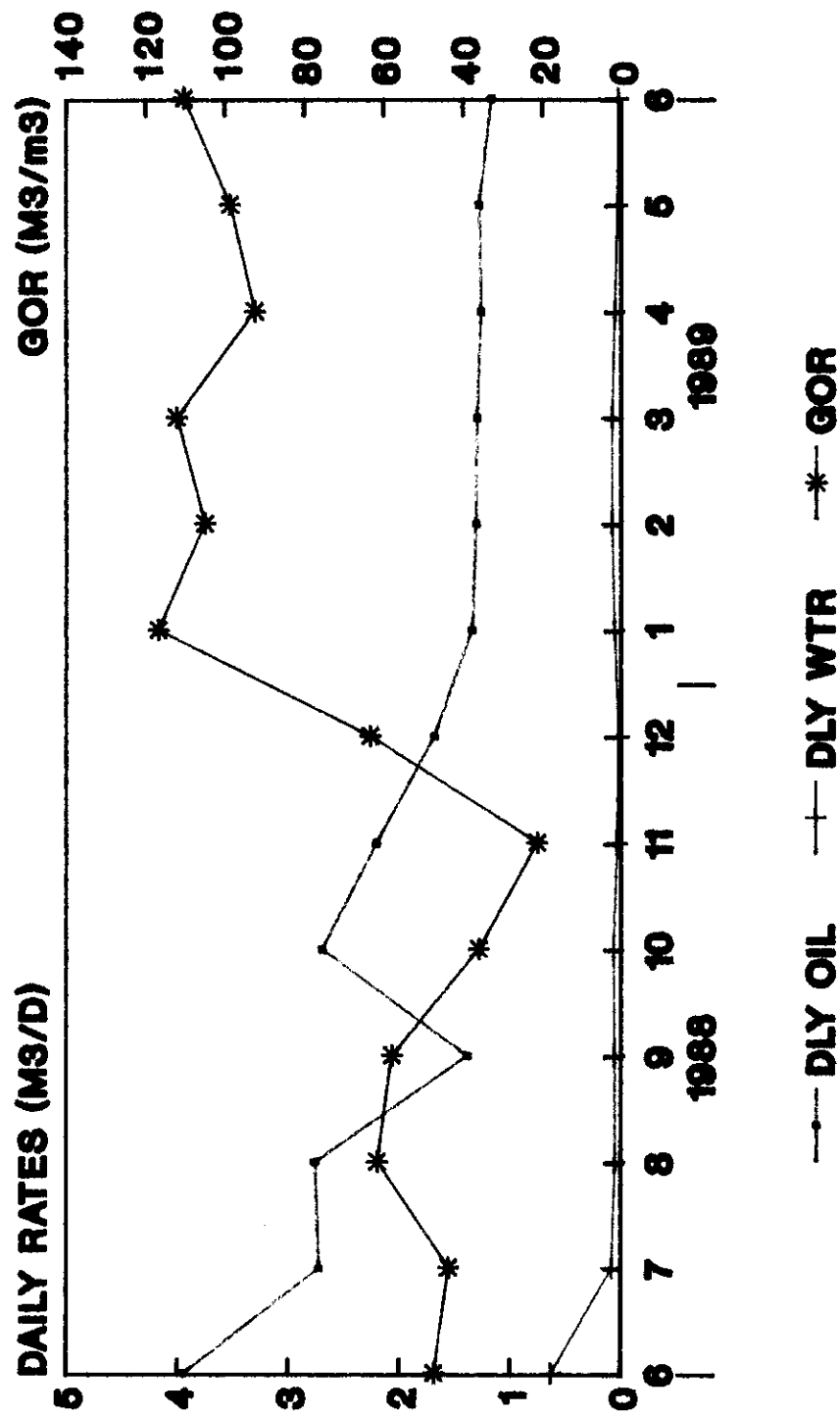
	<u>Mission Canyon</u>	<u>Spearfish</u>
Perf. Interval	1030.0-1032.0 m KB	1018-1021.5 m KB
Area (ha)	32.4	32.4
Net Pay (m)	1.6	4.0
Porosity (%)	14.0	14.0
Water Saturation (%)	60.0	45.0
Formation Volume Factor	1.149	1.169
OOIP (m ³)	25266	85365
Recovery Factor (%)	12.0	12.0
Recoverable Oil (m ³)	3032	10244

PRODUCTION SUMMARY
08-16-002-29W1M

	MONTHLY PRODUCTION					DAILY RATES		PROD N
	<u>OIL</u>	<u>GAS</u>	<u>WTR</u>	<u>GOR</u>	<u>WOR</u>	<u>OIL</u>	<u>WTR</u>	HRS
	M3	E3M3	M3	M3/M3	M3/M3	M3/D	M3/D	-----
JUN/88	54.9	2.6	8.8	47.4	0.16	4.0	0.63	333
JUL	84.6	3.7	2.6	43.7	0.03	2.7	0.08	744
AUG	76.2	4.7	1.5	61.7	0.02	2.8	0.05	661
SEP	34.5	2.0	1.5	58.0	0.04	1.4	0.06	594
OCT	83.0	3.0	2.1	36.1	0.03	2.7	0.07	738
NOV	60.8	1.3	1.0	21.4	0.02	2.2	0.04	660
DEC	52.0	3.3	0.7	63.5	0.01	1.7	0.02	738
JAN/89	41.9	4.9	1.9	116.9	0.05	1.4	0.06	744
FEB	17.1	1.8	1.1	105.3	0.06	1.3	0.08	312
MAR	26.7	3.0	1.7	112.4	0.06	1.3	0.08	490
APR	35.6	3.3	1.7	92.7	0.05	1.3	0.06	672
MAY	37.4	3.7	0.9	98.9	0.02	1.3	0.03	696
JUN	35.3	3.9	0.8	110.5	0.02	1.2	0.03	720

SOUTH PIERSON

08-16-002-29W1M



** S. PIERSON MANITOBA **
 8-16-002-29W1
 MISSION CANYON OIL RES= 3032 M3

DECLINE CURVE PRODUCTION SCHEDULING

DATE BEGIN	CUM. TIME YEARS	INITIAL YEARLY RATE m3	FINAL YEARLY RATE m3	PROD. DUE TO DECLINE m3	PROD. DUE TO ALLOWABLE m3	ACTUAL PROD. m3	CUM. ACTUAL PROD. m3
1988	0.58	0	0	0	0	441	441
1989	1.58	511	485	498	0	498	939
1990	2.58	485	461	473	0	473	1412
1991	3.58	461	438	450	0	450	1862
1992	4.58	438	416	427	0	427	2289
1993	5.58	416	395	406	0	406	2694
.....	6.46	395	378	338	0	338	3032

```

..... -TREND 1 STARTED AT 0.58 VRS.

```

FILE COC

CASE 1

RUN TIME 89-AUG-14 7:46

PAGE 02
 ** S. PIERSON MANITOBA **
 8-16-002-29W1
 MISSION CANYON OIL RES= 3032 M3

***** PRODUCT ROYALTY AND RESERVE SUMMARY *****
 (OIL)

DATE BEGIN	GROSS PRODN. m3	WORKING ROYALTY INTERST. PRODN. PRODN. RECD. m3	** CROWN ** ROYALTY m3	%	FREEHOLD ROYALTY m3	%	NPI AND/OR OVERRIDING ROYALTY m3	%	NET PRODN. m3
1988	441	441	0	0.0	0	0.0	0	0.0	441
1989	498	498	0	0.0	0	0.0	0	0.0	498
1990	473	473	0	0.0	0	0.0	0	0.0	473
1991	450	450	0	0.0	0	0.0	0	0.0	450
1992	427	427	0	0.0	0	0.0	0	0.0	403
1993	406	406	28	7.0	0	0.0	0	0.0	377
1994	338	338	22	6.4	0	0.0	0	0.0	316
TOTAL	3032	3032	74	2.4	0	0.0	0	0.0	2958

PAGE 03
 ** S. PIERSON MANITOBA **
 8-16-002-29W1
 MISSION CANYON OIL RES= 3032 M3

***** SUMMARY OF GOVERNMENT TAKE *****

DATE BEGIN	REVENUE BEFORE DEDUCT.	CROWN ROYALTY	ALBERTA PEP ALLOW.	CROWN ROYALTY	MINERAL TAXES	INCOME TAXES	TOTAL GOVERNMENT BURDEN	REVENUE AFTER DEDUCT.
	\$	\$	\$	\$	\$	\$	%	\$
1988	49200	0	0	0	0	-30870	-30870 0.0	80070
1989	55605	0	0	0	0	-20796	-20796 0.0	76401
1990	59644	0	0	0	0	-10493	-10493 0.0	70136
1991	61044	0	0	0	0	-3814	-3814 0.0	64858
1992	60960	3377	0	3377	0	491	3868 6.3	57093
1993	61998	4351	0	4351	0	3878	8228 13.3	53770
1994	58289	3713	0	3713	0	5541	9254 15.9	49035
TOTAL	406739	11440	0	11440	0	-56064	-44623-11.0	451362

FILE COC

CASE 1

RUN TIME 89-AUG-14 7:46

***** BEFORE INCOME TAX *****

PAGE 04
 ** S. PIERSON MANITOBA **
 8-16-002-29W1
 MISSION CANYON OIL RES= 3032 M3

DATE BEGIN	TOTAL PROD. WELLS	GROSS DAILY OIL m3	GROSS OIL m3	WORK. INTRST OIL m3	NET OIL m3	OIL SELLING PRICE \$/m3
1988	1	2	441	441	441	111.63
1989	1	1	498	498	498	111.63
1990	1	1	473	473	473	126.04
1991	1	1	450	450	450	135.79
1992	1	1	427	427	403	142.74
1993	1	1	406	406	377	152.81
1994	1	1	338	338	316	172.66
TOTAL	1	1	3032	3032	2958	133.62

PAGE 05
 ** S. PIERSON MANITOBA **
 8-16-002-29W1
 MISSION CANYON OIL RES= 3032 M3

DATE BEGIN	NET REVNU BEFORE ROYLTY \$	NET CROWN ROYLTY \$	FRHOLD AND ORR ROYLTY \$	NET REVNU AFTER ROYLTY \$	OTHER INCOME \$	NET OPER. EXPENSE \$	G+A OPER. EXPENSE \$	NET MINRAL TAX \$	OTHER EXPENSE \$	NET OPER. INCOME \$	CAPITL INVEST GRANTS \$	*** D+E \$	CAPITAL INVESTMENTS PLANT \$	TANG \$	TOTAL \$	NET CASH FLOW \$	CUM CASH FLOW \$	DISC. CASH FLOW \$
1988	49200	0	0	49200	0	15789	0	0	0	33411	0	286000	0	70000	356000	-322589	-323924	
1989	55605	0	0	55605	0	23977	0	0	0	31627	0	0	0	0	0	31827	-290962	27183
1990	59644	0	0	59644	0	24389	0	0	0	35255	0	0	0	0	0	35255	-255708	26349
1991	61044	0	0	61044	0	25060	0	0	0	35984	0	0	0	0	0	35984	-219724	23386
1992	60960	3377	0	57583	0	25762	0	0	0	31821	0	0	0	0	0	31821	-187903	17983
1993	61998	4351	0	57648	0	26496	0	0	0	31152	0	0	0	0	0	31152	-156751	15309
1994	58289	3713	0	54576	0	24763	0	0	0	29813	0	0	0	0	0	29813	-126938	12814
TOTAL	406739	11440	0	395298	0	166236	0	0	0	229062	0	286000	0	70000	356000	-126938	-126938	-200900

***** AFTER INCOME TAX *****
(NET)

PAGE 06

** S. PIERSON MANITOBA **
8-16-002-29W1
MISSION CANYON OIL RES= 3032 M3

DATE BEGIN	TOTAL GATHER		PROD. ROYLTY DEDUCT	NET OPER. EXPENSE	G+A		FIELD PROCES FEE	*** FIELD DEPRECIATION		**** ** GATHERING SYSTEM DEPR **		NET INCEN		TOTAL RESOR.		RESOR. ROYLT		ALLOWD	
	FIELD REVENUE	SYSTEM REVENUE			EXPENSE	EXPENSE		BAL.	DEDUCT	BAL.	DEDUCT	INCEN -TIVE	INCEN -TIVE	DEPR.	ALLOW.	ALLOW.	DEDUCT		
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1988	49200	0	0	15789	0	0	67900	8487	0	0	0	0	0	8487	24923	6231	0	0	0
1989	55605	0	0	23977	0	0	59412	14853	0	0	0	0	0	14853	16774	4194	0	0	0
1990	59644	0	0	24389	0	0	44559	11140	0	0	0	0	0	11140	24115	6029	0	0	0
1991	61044	0	0	25060	0	0	33420	8355	0	0	0	0	0	8355	27629	6907	0	0	0
1992	60960	0	0	25762	0	0	25065	6266	0	0	0	0	0	6266	28932	7233	0	0	0
1993	61998	0	0	26496	0	0	18798	4700	0	0	0	0	0	4700	30803	7701	0	0	0
1994	58289	0	0	24763	0	0	14099	3525	0	0	0	0	0	3525	30001	7500	0	0	0
TOTAL	406739	0	0	166236	0	0	10574	57326	0	0	0	0	0	57326	183176	45794	0	0	0

** S. PIERSON MANITOBA **

8-16-002-29W1

MISSION CANYON OIL RES= 3032 M3

DATE BEGIN	DEVELOP COST BAL.	DEVELOP COST WRITE -OFF	EXPLORE COST WRITE -OFF	NET RESOR. PROFIT	NET PROCES PROFIT	FEDERAL TAXABLE INCOME	FEDERAL INCOME TAX	TAXBLE INCOME	PROV. INCOME TAX	PROCES PROFIT REBATE	INVEST -MENT CREDIT	INCOME TAX	CASH FLOW A.TAX	DISC. CASH FLOW A.TAX
1988	286000	85800	0	0	0	-67108	-18704	0	-67108	-10066	0	2100	-30870	-294287
1989	200200	60060	0	0	0	-47479	-13674	0	-47479	-7122	0	0	-20796	52423
1990	140140	42042	0	0	0	-23956	-6899	0	-23956	-3593	0	0	-10493	45747
1991	98098	29429	0	0	0	-8708	-2508	0	-8708	-1306	0	0	-3814	39798
1992	68669	20601	0	0	0	1098	326	0	1098	165	0	0	491	31330
1993	48068	14420	0	0	0	8682	2575	0	8682	1302	0	0	3878	27274
1994	33648	10094	0	0	0	12406	3680	0	12406	1861	0	0	5541	24272
TOTAL	23553	262447	0	0	0	0-125064	-35204	0	0-125064	-18760	0	2100	-56064	-70875-147633

SUMMARY

RESERVES + PROJECT LIFE *

LIFE (VRS) = 6.50
PROJECT START MONTH = JUNE

	OIL (E3 m3)	SOLN GAS (E3 m3)	RESIDUE (E3 m3)	ETHANE (E3 m3)	COND. (E3 m3)	PROPANE (E3 m3)	BUTANE (E3 m3)	SULPHUR (E3 TNE)
GROSS REM RES	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WI REM RES	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET REM RES	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CUM HIST PROD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ULTIMATE RES	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NET PRESENT VALUE *			NET PROFIT INDICATORS *			* BIT *	* AIT *
-----			-----			-----	-----
DISC. RATE	*** BEFORE INCOME TAX *** OP. INC (E3 \$)	*** AFTER INCOME TAX *** OP. INC (E3 \$)	C FLOW INV. (E3 \$)	C FLOW (E3 \$)	RATE OF RETURN (PCT)		
	-----	-----	-----	-----			
0.00	229.1	285.1	356.0	-126.9	PAYOUT (VRS)	0.00	0.00
5.00	198.3	253.7	356.0	-157.7	DISCOUNTED PAYOUT (VRS)	0.00	0.00
10.00	174.3	228.6	356.0	-181.7	PRESENT WORTH INDEX	0.00	0.00
15.00	155.1	208.4	356.0	-200.9	UNDIS C FLOW/UNDIS INV	0.38	0.50
20.00	139.6	191.7	356.0	-216.4	DIS C FLOW/DIS INV	-0.36	-0.20
25.00	116.4	166.1	356.0	-239.6	DIS C FLOW/UNDIS INV	-0.56	-0.41
30.00	100.0	144.4	356.0	-266.6	CAPITAL EXPOSURE (E3 \$)	-0.56	-0.41
35.00	85.1	125.1	356.0	-300.9	UNDIS C FLOW/CAP EXPOS	0.00	0.00
40.00	72.1	108.6	356.0	-342.4	DIS C FLOW/CAP EXPOS	0.00	0.00
45.00	60.6	94.6	356.0	-391.6	SUCCESS CAPACITY	0.00	0.00
50.00	50.3	82.6	356.0	-448.3	FIND+DEV COST (\$/m3)	120.34	67.63
55.00	41.1	72.1	356.0	-512.4	OIL (E3 m3)	2.96	2.96
60.00	32.9	63.1	356.0	-583.9			
65.00	25.7	55.7	356.0	-662.4			
70.00	19.3	49.3	356.0	-748.3			
75.00	13.6	43.6	356.0	-841.6			
80.00	8.6	38.6	356.0	-942.4			
85.00	4.3	34.3	356.0	-1050.9			
90.00	0.7	30.7	356.0	-1166.4			
95.00	-0.7	27.3	356.0	-1289.9			
100.00	-1.9	24.1	356.0	-1421.6			

8-16-2-29

- commingling situation similar to Omega-Waskada

NC 3b D Pool

- 8-16 single well pool
- support Home's contention the NC is a secondary target
- reservoir development patchy & well productivity considerably lower than LAm $< 2.0 \text{ m}^3/\text{D}$ in 3 producers 8-16, 8-9 & 6-10
- support Home's position NC reserves will not recover capital investment
- production history 8-16 not established decline HOC indicates decline = $5.2\% / \text{yr.}$ (note: HOC economic limit $> 1.2 \text{ m}^3/\text{D}$)
- given HOC assumption $\text{RoiP} = 3032 \text{ m}^3$ + present production $1.3 \text{ m}^3/\text{D}$, decline rate = 12.2%
- no support for HOC's position that the performance of the NC 3b is well documented & predictable

8-16-2-29 Conningling

- Pressure DATA LAH
DC 3
- no proposal to test LAH only
- Geology DC productivity spotty - thin porous streak in Upper Alida
- LAH potential is well - Conningling extend reservoir limits in Sec 16-2-29
- application of conditions similar to Omega's commingled wells
- production plot 8-16 rate vs Time

ROIP: 3032 m³

cumulative production 640 m³
or production June/88

Decline rate

$$Q = \frac{q_i - q_o}{d_{ec}} \quad d_{ec} = \frac{(1.3 - 0) \times 365}{(3032 - 640)}$$

$$d_{ec} = 20\% / \text{yr.} \quad \left(\text{economic limit} = 0.5 \times 3032 \right. \\ \left. d_{ec} = 12.2\% \right)$$

Home analysis

$$q = q_i e^{-dt}$$

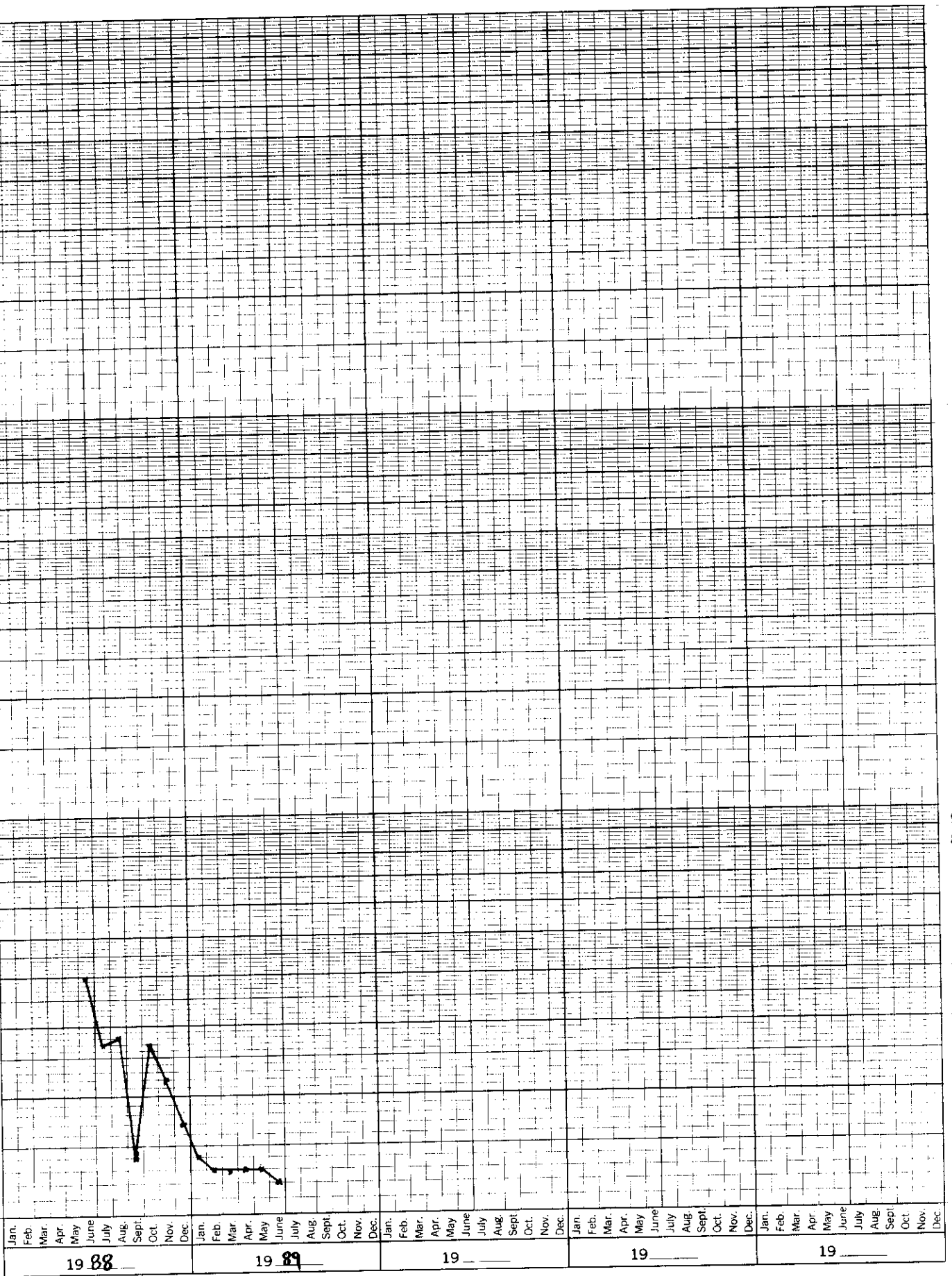
$$d = -0.2 \ln \left(\frac{q_o}{q_i} \right) = -0.20 \times \ln \left(\frac{1.08}{1.40} \right) = 0.052$$

note: HOC's economic limit > 1.0 m³ OPD

8-16-2-29

46 6690

5 YEARS BY MONTHS x 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.



HOC price forecast	1989	111.63
	90	126.04
	91	135.29
	92	142.74
	93	152.81
	94	172.66

- agree the 8-16 well will not pay-out as a NC 36 producer
- net operating income

$$\begin{aligned}
 &\text{net revenue} - \text{royalty} - \text{oper. expense} \quad (\$k) \\
 &\$406.7 - \$11.4 - \$166.2 = \$229.1 \quad (\text{BIT}) \\
 &\text{- discounted @ } 15\% \quad \$155.1k
 \end{aligned}$$

- anticipated LA productivity 5-8 m³ OPD

- HOC assumption from 32 La spacing application-

$$\text{ROIP/well} = 10,976 \text{ m}^3$$

$$\text{run-in life index} = 10.8 \text{ yrs}$$

$$\text{IP} = 8 \text{ m}^3 \text{ OPD}, \text{ decline } 20\%^{25\%}/\text{yr}$$

- completion costs \$130k, Ops cost \$1500/well-month + 0.15/m³ variable

- how do we handle holiday volumes

- stand alone recompletion would not qualify as offset, as part of a 4-5 well program we may accept LA recompletion as an offset

LAm.

- aver. productivity = $6.6 \text{ m}^3 \text{ OPD}$
- main pool underlying lands - primary target
- recompletion economics including annual mod. test
(conservative)

$$IP = 8 \text{ m}^3 \text{ OPD}$$

$$ROI P = 10,200 \text{ m}^3$$

$$\text{completion costs} = \$130,000$$

$$\text{o.p. costs} = \$15/\text{m}^3 + \$1500/\text{well/month} + \$5000/\text{yr} \text{ annual mod. test}$$

$$\text{DCF} = 12\%$$

$$\text{ROR} = 126\%$$

$$\text{Payout} = 1.2 \text{ yrs (AIT)}$$

$$\text{NPV} = \$197 \text{ k}$$

- HOC concerns establishing communication with NC 3b when fracturing LAm. - will monitor pressure in NC 3b during completion - hang bomb below BP

• No concerns competitive rights both zones non-unitized
if HOC operates all properties surrounding well
therefore no need to notify offsetting well owners

- requested 89-08-29 pressure data on S. Pierson to
complete our files

- royalty ownership N/2 - 16-29 & W/2 - 15-29
- agree MC 3b secondary objective - low productivity, low reserves \rightarrow limited reservoir information
- recompletion economics attractive
- MC 3b no established decline rate - limited production history (12 months) - jump in GOR
 $< 60 \text{ - } 3/4$ to over 100 - $3/4$
- HOC is application decline rate 5%, calculated decline rate using production rate = 1.3 - $3/4$ PD & remaining ROIP = 2400 decline rate = 12%
- merit in accelerating the depletion of both reservoirs & agree it will ensure oil recovery maximized
- impact of commingled production on spacing appⁿ
 Ltr 32 Lr. MC 16 Lr.
- direction to approve - limited to single well on two pools
- proposed methods of measuring production - frequency, method of testing each producing zone in well
- effects on conservation, rights of owners which may result under all possible circumstances from pools being in communication in wellbore

Rqk 29

TWP 2

2.1

- 16 -

1.3
 \triangle
 $\frac{0.6}{<0.1}$

6.7

3.4
 \bullet
 $\frac{5.4}{1.4}$

4.7
 \bullet
 $\frac{2.5}{16.5}$

10.5
 \bullet
 $\frac{4.5}{0.7}$

2.6
 \triangle
 $\frac{1.2}{0.3}$

\oplus
 - 8 -

13.2
 \bullet
 $\frac{3.0}{0.6}$

1.2
 \triangle
 $\frac{1.8}{7.9}$

nc 3 wet 5.2
 $\frac{1.2}{4.8}$

10.7
 \bullet
 $\frac{2.2}{4.7}$

8.4
 \bullet
 $\frac{1.3}{3.4}$

3.5
 \bullet
 $\frac{6.1}{6.0}$

5.0
 \bullet
 $\frac{2.0}{1.0}$

\triangle nc 3 producers

cumulative production $\frac{\text{oil } 10^3 \text{ m}^3}{\text{oh } 10^3 \text{ m}^3}$

aver daily prod. m^3/d

in & within 0.5 miles of area of appli-
appi- requirement - wells in 1 km.

-20-

Crown

-21-

Crown

HOC

Amoco
HOC

-16-

Robust
minerals
HOC

Southern
HOC

Crown
HOC

1/2 mile

B.4 8605
9619
(9260)?

HOC

Boyd
Allison
HOC

HOC

-9-

HOC

Crown
HOC

Amoco
HOC

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
 08/30/89 09:19:42
 FILE: com2

CASE DESCRIPTION		NET PRESENT VALUES (M\$)					
		DISC RATE (%)	0.0	12.0	15.0	18.0	20.0 22.0
S. PIERSON - COMMINGLING APPLICATION							
8-16-2-29 (WPM)							
LAm Recumpletion Economic		B.T. OPER INC	762	561	527	497	478 461
including \$5000/yr. for prod. test		B.T. CAP INV.	130	128	127	126	126 126
		B.T. CASH FLOW	632	434	400	370	352 336

Royalty Regime: MANITOBA Gas Holiday: NO
 Reserve type: Probable Oil Holiday: NO
 Royalty Type: Crown Eval/Prod Start: 89- 9/89- 9
 Sensitivity: NO Proj/Econ Life: 10.3/ 9.3 yrs
 Note: uneconomic to conduct prod. test in 1999

ECONOMIC INDICATORS				PRODUCTS RECOVERY				COMPANY W.I.		
								Init%	Avr%	Rev%
		B.TAX	A.TAX		GROSS	WI	ROY	NET		
ROR	- PCNT	396.9	126.0	OIL	E3m3	10	10	2	8	REVENUE 100.0
PAYOUT PERIOD	- EVAL	0.7	1.2	GAS-RAW	E6m3	0	0	0	0	FIELD CAP 100.0
	- CAPTL	0.6	1.1	GAS-SALES	E6m3	0	0	0	0	PLANT CAP
UNDISC PIR	- \$/\$	4.86	2.36	ETHANE	E3m3	0	0	0	0	BATH CAP
12.0 PCT PIR	- \$/\$	3.40	1.54	PROPANE	E3m3	0	0	0	0	DRR-GAS
15.0 PCT PIR	- \$/\$	3.15	1.40	BUTANE	E3m3	0	0	0	0	DRR-OIL
NPV @ 12.0	- \$/M3	43.42	19.67	CONDENS.	E3m3	0	0	0	0	
NPV @ 15.0	- \$/M3	40.02	17.78	SULPHUR	E3t	0	0	0	0	
				OTHER	E3m3	0	0	0	0	ROYALTY 21.7 16.4

WI CASH FLOW SUMMARY																
YEAR	OIL PRODUCTION			TOTAL	ROYALTY		OPERATING		OPERAT	NETBACK	CAPTL	B.TAX	TOTAL	AFTER TAX		
	RATE	VOL.	PRICE	REV.	%MINTAX	%	EXPENSE	INCOME	B.TAX	B.TAX	INV.	CASH	TAX	CASH	12.0%	CUM
	M3/D	E3m3	\$/M3	M\$	M\$		M\$ \$/M3	M\$		\$/M3	M\$	M\$	M\$	M\$	M\$	M\$
ZERO											0	0	0	0	0	0
1989	8	1	111.63	104	23	22	22 23.23	60	64.21	130	-70	15	-86	-84	-84	
1990	6	2	126.04	295	62	21	62 26.31	171	73.18	0	171	76	96	87	3	
1991	5	2	135.79	243	48	20	56 31.29	139	77.44	0	139	62	77	62	65	
1992	4	1	142.74	195	36	18	52 37.87	108	78.53	0	108	48	59	43	108	
1993	3	1	152.81	160	26	17	49 46.67	85	80.91	0	85	38	47	30	138	
1994	2	1	172.66	138	19	14	47 58.53	72	90.01	0	72	32	40	23	162	
1995	2	1	183.02	112	12	11	46 74.59	54	88.93	0	54	23	31	16	178	
1996	1	0	194.00	91	7	8	45 96.46	38	81.84	0	38	16	22	10	188	
1997	1	0	205.64	74	5	6	45 126.36	24	66.56	0	24	10	14	6	194	
1998	1	0	217.98	60	3	5	46 167.37	11	40.29	0	11	5	7	2	197	
SUBT		10		1472	242		469	762		130	632	324	307	197		
REM.		0		0	0		0	-0		0	0	0	0	-0		
TOTL		10		1472	242		469	762		130	632	324	307	197		
12.0% DISC				1061	185		314	561		128	434	237	196			
% OF REV.				100	17		30	53		12	41	22	19			

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:19:49
FILE: com2

Case Notes

=====

Evaluation Begins in 1989 9

Production Begins in 1989 9

Parameter File:

MANITOBA ENERGY AND MINES

Discount Method: ANNUAL MID PERIOD

Default Escalation Rates

Revenue	Year	Rate	Oper Costs	Year	Rate	Capital	Year	Rate
	1988	5.00		1988	5.00		1988	5.00
	1990	6.00		1990	6.00		1990	6.00
	1995	6.00		1995	6.00		1995	6.00
	2000	6.00		2000	6.00		2000	6.00

Case Parameters:

Probable

Production:

Oil Exponential Decline --- Starting in 1989 : Ini Rate 8.0 : Final Rate 0.5 : Total Volume 10.2 : Decline Pcnt 23.54

Royalties:

Alberta par price files used

Oil price file: Gas price file

Capital:

Tax Data:

Oil production is Resource.

Federal surtax of 3.0 % used.

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:19:51
FILE: com2
REPORT: peepogip

===== INPUT DATA SUMMARY =====

O I L										G A S									
Year	Prod. Wells	Prod Rate	Prod Vol	WI Vol	New %	Oil Price	Oper Cost	Trans Cost	DRR	Prod Rate	Prod Vol	WI Vol	Shr %	New %	Price \$/E3m	Oper Cost \$/E3m	Plant/ Bath	Plant/ Bath	DRR
	m3/d	E3m3	E3m3	\$/m3		\$/m3	\$/m3	%	E3m3/d	E6m3	E6m3	OpCost \$/E3m3					OpCost M\$/Yr	%	
1989	1.0	8	0.9	0.9	100	111.6	15.00	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1990	1.0	6	2.3	2.3	100	126.0	15.90	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1991	1.0	5	1.8	1.8	100	135.8	16.85	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1992	1.0	4	1.4	1.4	100	142.7	17.87	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1993	1.0	3	1.0	1.0	100	152.8	18.94	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1994	1.0	2	0.8	0.8	100	172.7	20.07	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1995	1.0	2	0.6	0.6	100	183.0	21.28	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1996	1.0	1	0.5	0.5	100	194.0	22.55	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1997	1.0	1	0.4	0.4	100	205.6	23.91	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1998	1.0	1	0.3	0.3	100	218.0	25.34	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00

9.3	10.0	10.0	0.0	0.0	0
0.0	0.0	0.0	0.0	0.0	0
9.3	10.0	10.0	0.0	0.0	0

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:19:58
FILE: com2
REPORT: peepoper

===== WORKING INTEREST OPERATING COST REPORT =====

Year	\$/BBL OIL OPER COST M\$	OIL TRUCK COSTS M\$	OIL/GAS PER WELL OP COST M\$	\$/MCF GAS OPER COST M\$	OIL/GAS OPER COST M\$	OTHER PROD OPER COST M\$	\$/MCF PL/GATH OPER COST M\$	PL/GATH OPER COSTS M\$	JPF + SCA OPER COST M\$	TOTAL OPER COSTS M\$
1989	14.0	0.0	6.0	0.0	5.0	0.0	0.0	0.0	0.0	21.6
1990	37.2	0.0	19.1	0.0	5.3	0.0	0.0	0.0	0.0	61.6
1991	30.2	0.0	20.2	0.0	5.6	0.0	0.0	0.0	0.0	56.0
1992	24.5	0.0	21.4	0.0	6.0	0.0	0.0	0.0	0.0	51.9
1993	19.8	0.0	22.7	0.0	6.3	0.0	0.0	0.0	0.0	48.9
1994	16.1	0.0	24.1	0.0	6.7	0.0	0.0	0.0	0.0	46.8
1995	13.0	0.0	25.5	0.0	7.1	0.0	0.0	0.0	0.0	45.6
1996	10.6	0.0	27.1	0.0	7.5	0.0	0.0	0.0	0.0	45.1
1997	8.6	0.0	28.7	0.0	8.0	0.0	0.0	0.0	0.0	45.2
1998	6.9	0.0	30.4	0.0	8.4	0.0	0.0	0.0	0.0	45.8
=====										
9.3	180.8	0.0	225.3	0.0	65.9	0.0	0.0	0.0	0.0	468.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
=====										
9.3	180.8	0.0	225.3	0.0	65.9	0.0	0.0	0.0	0.0	468.6

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:20:20
FILE: com2
REPORT: peepcap

===== WORKING INTEREST TANGIBLE AND INTANGIBLE INVESTMENT DETAIL =====

Year	TANGIBL FIELD CAPITAL M\$	FIELD CAPITAL CCA AFT ITC M\$	TANG BATH CAPITAL M\$	BATH CAPITAL CCA AFT ITC M\$	TANG PLANT CAPITAL M\$	PLANT CAPITAL CCA AFT ITC M\$	TANG OTHER CAPITAL M\$	OTHER CAPITAL CCA AFT ITC M\$	CAN O&G PROP. EXPENSE (COGPE) M\$	COGPE WRITE- OFF M\$	CAN DEVEL EXPENSE (CDE) M\$	CDE WRITE- OFF M\$	CAN EXPLOR EXPENSE (CEE) M\$	CEE WRITE- OFF M\$
	0.0		0.0		0.0		0.0		0.0		0.0		0.0	
1989	40.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	27.0	0.0	0.0
1990	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	0.0	0.0
1991	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0
1992	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0
1993	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0
1994	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0
1995	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0
1996	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0
1997	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0
1998	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
9.3	40.0	38.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	87.5	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.3	40.0	38.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	87.5	0.0	0.0

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:20:56
FILE: com2
REPORT: newbtax

===== WORKING INTEREST BEFORE TAX REPORT =====														
Year	Oil Oper Cost \$/m3	INITIAL CROWN/ MANUAL ROYALTY M\$	FINAL CROWN/ MANUAL ROYALTY M\$	QRR/ FRHLD ROYALTY M\$	REVENUE AFTER ROYALTY	OTHER INC & ARTC M\$	TOTAL OPER COST M\$	MINERAL TAX M\$	OTHER EXP & NPI M\$	OPER INCOME M\$	TOTAL INTANG CAPITAL M\$	TOTAL TANG. CAPITAL M\$	TOTAL CAPITAL M\$	CASH FLOW BEFORE TAX M\$
											0	0	0	
1989	15.00	23	23	0	81	0	22	0	0	60	90	40	130	-70
1990	15.90	62	62	0	233	0	62	0	0	171	0	0	0	171
1991	16.85	48	48	0	195	0	56	0	0	139	0	0	0	139
1992	17.87	36	36	0	159	0	52	0	0	108	0	0	0	108
1993	18.94	26	26	0	134	0	49	0	0	85	0	0	0	85
1994	20.07	19	19	0	119	0	47	0	0	72	0	0	0	72
1995	21.28	12	12	0	100	0	46	0	0	54	0	0	0	54
1996	22.55	7	7	0	83	0	45	0	0	38	0	0	0	38
1997	23.91	5	5	0	69	0	45	0	0	24	0	0	0	24
1998	25.34	3	3	0	57	0	46	0	0	11	0	0	0	11
9.3		242	242	0	1230	0	469	0	0	762	90	40	130	632
0.0		0	0	0	0	0	0	0	0	0	0	0	0	0
9.3		242	242	0	1230	0	469	0	0	762	90	40	130	632

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:21:27
FILE: com2
REPORT: peepat

===== WORKING INTEREST AFTER TAX DATA =====																	
Year	Resorc Income M\$	Resorc Allow M\$	Land& Dev Bal M\$	Land& Dev Depr M\$	Expl Bal M\$	Expl Depr M\$	Tang Bal M\$	Tang Depr M\$	Plant &Gath Bal M\$	Plant &Gath Depr M\$	Fed Taxbl Income M\$	Fed Tax M\$	Prov Taxbl Income M\$	Prov Tax M\$	Inv Credit M\$	Total Tax M\$	Cash Flow M\$
1989	76	19	90	27	0	0	40	6	0	0	30	10	30	5	0	15	-86
1990	223	56	63	19	0	0	34	10	0	0	149	51	149	25	0	76	96
1991	180	45	44	13	0	0	24	7	0	0	122	41	122	21	0	62	77
1992	139	35	31	9	0	0	17	5	0	0	95	32	95	16	0	48	59
1993	108	27	22	6	0	0	12	3	0	0	74	25	74	13	0	38	47
1994	89	22	15	5	0	0	8	2	0	0	62	21	62	11	0	32	40
1995	65	16	11	3	0	0	6	2	0	0	45	15	45	8	0	23	31
1996	44	11	7	2	0	0	4	1	0	0	31	11	31	5	0	16	22
1997	28	7	5	2	0	0	3	1	0	0	19	6	19	3	0	10	14
1998	13	3	4	1	0	0	2	1	0	0	9	3	9	2	0	5	7
9.3	965	241		87		0		39		0	636	216	636	108	0	324	307
0.0	0	0		0		0		0		0	0	0	0	0	0	0	0
9.3	965	241		87		0		39		0	636	216	636	108	0	324	307

Version 88-11-18
08/30/89 09:21:56
FILE: com2
REPORT: peeprcy

[illegible]

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:22:28
FILE: com2
REPORT: peepdcf

Year	ANNUAL DISCOUNTED						B.T. AND A.T. CASH FLOW					
	0%	10%	12%	15%	18%	20%	0%	10%	12%	15%	18%	20%
	BT Cash Flow M\$	BT Cash Flow M\$	BT Cash Flow M\$	BT Cash Flow M\$	BT Cash Flow M\$	BT Cash Flow M\$	AT Cash Flow M\$	AT Cash Flow M\$	AT Cash Flow M\$	AT Cash Flow M\$	AT Cash Flow M\$	AT Cash Flow M\$
1989	-70.2	-69.1	-68.9	-68.6	-68.3	-68.1	-85.6	-84.3	-84.0	-83.7	-83.3	-83.1
1990	171.4	158.3	155.9	152.5	149.3	147.2	95.6	88.3	87.0	85.1	83.3	82.1
1991	138.7	116.4	112.6	107.3	102.4	99.3	76.6	64.3	62.2	59.3	56.5	54.8
1992	107.5	82.1	78.0	72.4	67.3	64.1	59.2	45.2	43.0	39.9	37.1	35.3
1993	84.7	58.8	54.9	49.6	44.9	42.1	46.9	32.5	30.3	27.4	24.8	23.3
1994	72.0	45.5	41.7	36.7	32.4	29.8	40.4	25.5	23.3	20.5	18.1	16.7
1995	54.4	31.2	28.1	24.1	20.7	18.8	31.3	18.0	16.2	13.9	11.9	10.8
1996	38.3	20.0	17.7	14.7	12.4	11.0	22.4	11.7	10.3	8.6	7.2	6.5
1997	23.8	11.3	9.8	8.0	6.5	5.7	14.1	6.7	5.8	4.7	3.9	3.4
1998	11.0	4.7	4.1	3.2	2.6	2.2	6.5	2.8	2.4	1.9	1.5	1.3
9.3	631.6	459.1	433.8	399.8	370.1	352.2	307.3	210.7	196.5	177.6	161.1	151.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.3	631.6	459.1	433.8	399.8	370.1	352.2	307.3	210.7	196.5	177.6	161.1	151.2

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:08:57
FILE: COM

----- CASE DESCRIPTION -----
S. PIERSON - COMMINGLING APPLICATION
8-16-2-29 (NPM)

NET PRESENT VALUES (M\$)		0.0	12.0	15.0	18.0	20.0	22.0
DISC RATE (X)							
B.T. OPER INC	833	601	562	528	508	489	
B.T. CAP INV.	130	128	127	126	126	126	
B.T. CASH FLOW	703	473	435	402	381	363	
A.T. OPER INC	481	349	326	307	295	285	
A.T. CAP INV.	130	128	127	126	126	126	
A.T. CASH FLOW	351	221	199	180	169	159	

LAm Recompletion Economics

Royalty Regime: MANITOBA Gas Holiday: NO
Reserve type: Probable Oil Holiday: NO
Royalty Type: Crwn Eval/Prod Start: 89- 9/89- 9
Sensitivity: NO Proj/Econ Life: 10.3/10.3 yrs

ECONOMIC INDICATORS				PRODUCTS RECOVERY				COMPANY W.I.			
		B.TAX	A.TAX		GROSS	WI	ROY	NET	Init%	Avr%	Rev%
ROR	- PCNT	430.9	136.2	OIL	E3m3	10	10	2	8	REVENUE	100.0
PAYOUT PERIOD	- EVAL	0.7	1.2	GAS-RAM	E6m3	0	0			FIELD CAP	100.0
	- CAPTL	0.6	1.0	GAS-SALES	E6m3	0	0	0	0	PLANT CAP	
UNDISC PIR	- \$/\$	5.41	2.70	ETHANE	E3m3	0	0	0	0	GATH CAP	
12.0 PCT PIR	- \$/\$	3.71	1.73	PROPANE	E3m3	0	0	0	0		
15.0 PCT PIR	- \$/\$	3.43	1.57	BUTANE	E3m3	0	0	0	0	ORR-GAS	
NPV @ 12.0	- \$/M3	46.42	21.66	CONDENS.	E3m3	0	0	0	0	ORR-OIL	
NPV @ 15.0	- \$/M3	42.65	19.54	SULPHUR	E3t	0	0	0	0		
				OTHER	E3m3	0	0	0	0	ROYALTY	21.7
											16.0

WI CASH FLOW SUMMARY																
YEAR	OIL PRODUCTION			TOTAL	ROYALTY		OPERATING		OPERAT	NETBACK	CAPTL	B.TAX	TOTAL	AFTER TAX		
	RATE	VOL.	PRICE	REV.	%	MINTAX	EXPENSE		INCOME	B.TAX	INV.	CASH	TAX	CASH	12.0%	CUM
	M3/D	E3m3	\$/M3	M\$		%	M\$	\$/M3	M\$	\$/M3	M\$	M\$	M\$	M\$	M\$	M\$
ZERO						No Holiday	415 /m3 + \$1500/man					0	0	0	0	0
1989	8	1	111.63	104	23	22	20	21.44	61	66.00	130	-69	16	-85	-83	-83
1990	6	2	126.04	295	62	21	56	24.05	177	75.44	0	177	78	99	90	7
1991	5	2	135.79	243	48	20	50	28.15	144	80.57	0	144	64	80	65	72
1992	4	1	142.74	195	36	18	46	33.52	113	82.88	0	113	51	63	46	118
1993	3	1	152.81	160	26	17	43	40.64	91	86.94	0	91	40	51	33	150
1994	2	1	172.66	138	19	14	40	50.17	79	98.37	0	79	34	44	26	176
1995	2	1	183.02	112	12	11	39	63.00	62	100.52	0	62	26	36	18	195
1996	1	0	194.00	91	7	8	38	80.39	46	97.91	0	46	19	27	12	207
1997	1	0	205.64	74	5	6	37	104.09	32	88.83	0	32	13	19	8	215
1998	1	0	217.98	60	3	5	37	136.50	19	71.17	0	19	8	12	4	219
1999	1	0	231.06	48	2	4	38	180.91	9	41.79	0	9	3	5	2	221
SUBT		10		1520			444		833		130	703	352	351	221	
REM.		0		0		0	0		0		0	0	0	0	0	
TOTL		10		1520			444		833		130	703	352	351	221	
12.0% DISC				1061			275		601		128	473	252	221		
% OF REV.				100			26		57		12	45	24	21		

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:09:04
FILE: COM

Case Notes

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Evaluation Begins in 1989 9
Production Begins in 1989 9

Parameter File:

MANITOBA ENERGY AND MINES

Discount Method: ANNUAL MID PERIOD

Default Escalation Rates

Revenue	Year	Rate	Oper Costs	Year	Rate	Capital	Year	Rate
	1988	5.00		1988	5.00		1988	5.00
	1990	6.00		1990	6.00		1990	6.00
	1995	6.00		1995	6.00		1995	6.00
	2000	6.00		2000	6.00		2000	6.00

Case Parameters:

Probable

Production:

Oil Exponential Decline --- Starting in 1989 : Ini Rate 8.0 : Final Rate 0.5 : Total Volume 10.2 : Decline Pcnt 23.54

Royalties:

Alberta par price files used

Oil price file: Gas price file

Capital:

Tax Data:

Oil production is Resource.
Federal surtax of 3.0 % used.

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

Version 88-11-18
08/30/89 09:09:05
FILE: COM
REPORT: peepogip

===== INPUT DATA SUMMARY =====

O I L										G A S									
Year	Prod.	Prod	Prod	WI	New	Oil	Oper	Trans	DRR	Prod	Prod	WI	Shr	New	Price	Plant/ Plant/			
	Wells	Rate	Vol	Vol		Price	Cost	Cost		Rate	Vol	Vol				Oper	Bath	Bath	DRR
	m3/d	E3m3	E3m3	%		\$/m3	\$/m3	\$/m3	%	E3m3/d	E6m3	E6m3	%	%	\$/E3m	\$/E3m	\$/E3m3	M\$/Yr	%
1989	1.0	8	0.9	0.9	100	111.6	15.00	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1990	1.0	6	2.3	2.3	100	126.0	15.90	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1991	1.0	5	1.8	1.8	100	135.8	16.85	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1992	1.0	4	1.4	1.4	100	142.7	17.87	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1993	1.0	3	1.0	1.0	100	152.8	18.94	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1994	1.0	2	0.8	0.8	100	172.7	20.07	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1995	1.0	2	0.6	0.6	100	183.0	21.28	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1996	1.0	1	0.5	0.5	100	194.0	22.55	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1997	1.0	1	0.4	0.4	100	205.6	23.91	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1998	1.0	1	0.3	0.3	100	218.0	25.34	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
1999	1.0	1	0.2	0.2	100	231.1	26.86	0.00	0.00	0.000	0.0	0.0	0.0	100	0.00	0.00	0.00	0	0.00
=====										=====									
10.3			10.2	10.2								0.0	0.0					0	
0.0			0.0	0.0								0.0	0.0					0	
=====										=====									
10.3			10.2	10.2								0.0	0.0					0	

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

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REPORT: peepoer

===== WORKING INTEREST OPERATING COST REPORT =====

Year	\$/BBL OIL OPER COST M\$	OIL TRUCK COSTS M\$	OIL/GAS PER WELL OP COST M\$	\$/MCF GAS OPER COST M\$	OIL/GAS OPER COST M\$	OTHER PROD OPER COST M\$	\$/MCF PL/GATH OPER COST M\$	PL/GATH OPER COSTS M\$	JPF + GCA OPER COST M\$	TOTAL OPER COSTS M\$
1989	14.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0
1990	37.2	0.0	19.1	0.0	0.0	0.0	0.0	0.0	0.0	56.3
1991	30.2	0.0	20.2	0.0	0.0	0.0	0.0	0.0	0.0	50.4
1992	24.5	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0	45.9
1993	19.8	0.0	22.7	0.0	0.0	0.0	0.0	0.0	0.0	42.5
1994	16.1	0.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0	40.2
1995	13.0	0.0	25.5	0.0	0.0	0.0	0.0	0.0	0.0	38.6
1996	10.6	0.0	27.1	0.0	0.0	0.0	0.0	0.0	0.0	37.6
1997	8.6	0.0	28.7	0.0	0.0	0.0	0.0	0.0	0.0	37.2
1998	6.9	0.0	30.4	0.0	0.0	0.0	0.0	0.0	0.0	37.3
1999	5.6	0.0	32.2	0.0	0.0	0.0	0.0	0.0	0.0	37.8
10.3	186.4	0.0	257.4	0.0	0.0	0.0	0.0	0.0	0.0	443.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.3	186.4	0.0	257.4	0.0	0.0	0.0	0.0	0.0	0.0	443.8

PETROLEUM ECONOMICS EVALUATION PROGRAM
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===== WORKING INTEREST TANGIBLE AND INTANGIBLE INVESTMENT DETAIL =====

Year	TANGIBL FIELD CAPITAL M\$	FIELD CAPITAL CCA AFT ITC M\$	TANG BATH CAPITAL M\$	GATH CAPITAL CCA AFT ITC M\$	TANG PLANT CAPITAL M\$	PLANT CAPITAL CCA AFT ITC M\$	TANG OTHER CAPITAL M\$	OTHER CAPITAL CCA AFT ITC M\$	CAN O&G PROP. EXPENSE (COGPE) M\$	COGPE WRITE- OFF M\$	CAN DEVEL EXPENSE (CDE) M\$	CDE WRITE- OFF M\$	CAN EXPLOR EXPENSE (CEE) M\$	CEE WRITE- OFF M\$
	0.0		0.0		0.0		0.0		0.0		0.0		0.0	
1989	40.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	27.0	0.0	0.0
1990	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	0.0	0.0
1991	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0
1992	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0
1993	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0
1994	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0
1995	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0
1996	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0
1997	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0
1998	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
1999	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
10.3	40.0	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	88.2	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.3	40.0	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	88.2	0.0	0.0

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

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FILE: COM
REPORT: newbtax

===== WORKING INTEREST BEFORE TAX REPORT =====														
Year	Oil Oper Cost \$/m3	INITIAL CROWN/ MANUAL ROYALTY M\$	FINAL CROWN/ MANUAL ROYALTY M\$	DRR/ FRHLD ROYALTY M\$	REVENUE AFTER ROYALTY	OTHER INC & ARTC M\$	TOTAL OPER COST M\$	MINERAL TAX M\$	OTHER EXP & NPI M\$	OPER INCOME M\$	TOTAL INTANG CAPITAL M\$	TOTAL TANG. CAPITAL M\$	TOTAL CAPITAL M\$	CASH FLOW BEFORE TAX M\$
											0	0	0	
1989	15.00	23	23	0	81	0	20	0	0	61	90	40	130	-69
1990	15.90	62	62	0	233	0	56	0	0	177	0	0	0	177
1991	16.85	48	48	0	195	0	50	0	0	144	0	0	0	144
1992	17.87	36	36	0	159	0	46	0	0	113	0	0	0	113
1993	18.94	26	26	0	134	0	43	0	0	91	0	0	0	91
1994	20.07	19	19	0	119	0	40	0	0	79	0	0	0	79
1995	21.28	12	12	0	100	0	39	0	0	62	0	0	0	62
1996	22.55	7	7	0	83	0	38	0	0	46	0	0	0	46
1997	23.91	5	5	0	69	0	37	0	0	32	0	0	0	32
1998	25.34	3	3	0	57	0	37	0	0	19	0	0	0	19
1999	26.86	2	2	0	46	0	38	0	0	9	0	0	0	9
=====														
10.3		243	243	0	1277	0	444	0	0	833	90	40	130	703
0.0		0	0	0	0	0	0	0	0	0	0	0	0	0
=====														
10.3		243	243	0	1277	0	444	0	0	833	90	40	130	703

PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

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REPORT: peepat

===== WORKING INTEREST AFTER TAX DATA =====																	
Year	Resorc Income M\$	Resorc Allow M\$	Land& Dev Bal M\$	Land& Dev Depr M\$	Expi Bal M\$	Expi Depr M\$	Tang Bal M\$	Tang Depr M\$	Plant &Gath Bal M\$	Plant &Gath Depr M\$	Fed Taxbl Income M\$	Fed Tax M\$	Prov Taxbl Income M\$	Prov Tax M\$	Inv Credit M\$	Total Tax M\$	Cash Flow M\$
1989	78	19	90	27	0	0	40	6	0	0	31	11	31	5	0	16	-85
1990	229	57	63	19	0	0	34	10	0	0	153	52	153	26	0	78	99
1991	186	46	44	13	0	0	24	7	0	0	126	43	126	21	0	64	80
1992	145	36	31	9	0	0	17	5	0	0	99	34	99	17	0	51	63
1993	114	28	22	6	0	0	12	3	0	0	79	27	79	13	0	40	51
1994	96	24	15	5	0	0	8	2	0	0	67	23	67	11	0	34	44
1995	72	18	11	3	0	0	6	2	0	0	51	17	51	9	0	26	36
1996	52	13	7	2	0	0	4	1	0	0	37	12	37	6	0	19	27
1997	35	9	5	2	0	0	3	1	0	0	25	9	25	4	0	13	19
1998	22	5	4	1	0	0	2	1	0	0	15	5	15	3	0	8	12
1999	10	3	3	1	0	0	1	0	0	0	7	2	7	1	0	3	5
=====																	
10.3	1037	259		88		0		39		0	690	234	690	117	0	352	351
0.0	0	0		0		0		0		0	0	0	0	0	0	0	0
=====																	
10.3	1037	259		88		0		39		0	690	234	690	117	0	352	351

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PETROLEUM ECONOMICS EVALUATION PROGRAM
XI Consultants Ltd.

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FILE: COM
REPORT: peepdcf

Year	ANNUAL DISCOUNTED					B.T. AND A.T. CASH FLOW						
	0% BT Cash Flow M\$	10% BT Cash Flow M\$	12% BT Cash Flow M\$	15% BT Cash Flow M\$	18% BT Cash Flow M\$	20% BT Cash Flow M\$	0% AT Cash Flow M\$	10% AT Cash Flow M\$	12% AT Cash Flow M\$	15% AT Cash Flow M\$	18% AT Cash Flow M\$	20% AT Cash Flow M\$
1989	-68.5	-67.5	-67.3	-67.0	-66.7	-66.5	-84.6	-83.3	-83.0	-82.6	-82.3	-82.1
1990	176.7	163.2	160.7	157.2	153.9	151.8	98.9	91.3	90.0	88.0	86.1	84.9
1991	144.3	121.1	117.2	111.7	106.5	103.3	80.0	67.2	65.0	62.0	59.1	57.3
1992	113.5	86.6	82.3	76.4	71.0	67.7	62.9	48.0	45.6	42.3	39.4	37.5
1993	91.0	63.2	58.9	53.3	48.3	45.2	50.7	35.2	32.9	29.7	26.9	25.2
1994	78.7	49.7	45.5	40.1	35.4	32.6	44.5	28.1	25.7	22.6	20.0	18.4
1995	61.5	35.3	31.8	27.2	23.4	21.2	35.7	20.5	18.4	15.8	13.6	12.3
1996	45.8	23.9	21.1	17.6	14.8	13.2	27.1	14.1	12.5	10.4	8.7	7.8
1997	31.8	15.1	13.1	10.6	8.7	7.6	19.0	9.0	7.8	6.4	5.2	4.6
1998	19.5	8.4	7.2	5.7	4.5	3.9	11.7	5.1	4.3	3.4	2.7	2.3
1999	8.7	3.4	2.9	2.2	1.7	1.5	5.3	2.1	1.7	1.3	1.0	0.9
10.3	702.9	502.4	473.5	435.0	401.5	381.5	351.3	237.3	221.0	199.3	180.5	169.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.3	702.9	502.4	473.5	435.0	401.5	381.5	351.3	237.3	221.0	199.3	180.5	169.3