



The Oil and Natural Gas
Conservation Board

555 — 330 Graham Avenue
Winnipeg MB R3C 4E3
CANADA

(204) 945-1111
FAX: (204) 945-0586

June 13, 1994

Mr. G.C.K. Johnson, Co-ordinator
Oil Division
Home Oil Company Limited
1600 Home Oil Tower
324 - 8th Avenue SW
Calgary AB T2P 2Z5

Dear Mr. Johnson:

Re: Modification of Board Order No. SU 9

The Board is in receipt of your application to modify the 32 spacing area approved under Board Order No. SU 9. In accordance with Clause 3 of Board Order No. SU 9, Schedule A is modified as attached, to exclude LSD's 9 and 16 of Section 16-2-29 WPM.

If you have any questions please contact John N. Fox, Chief Petroleum Engineer at (204) 945-6574.

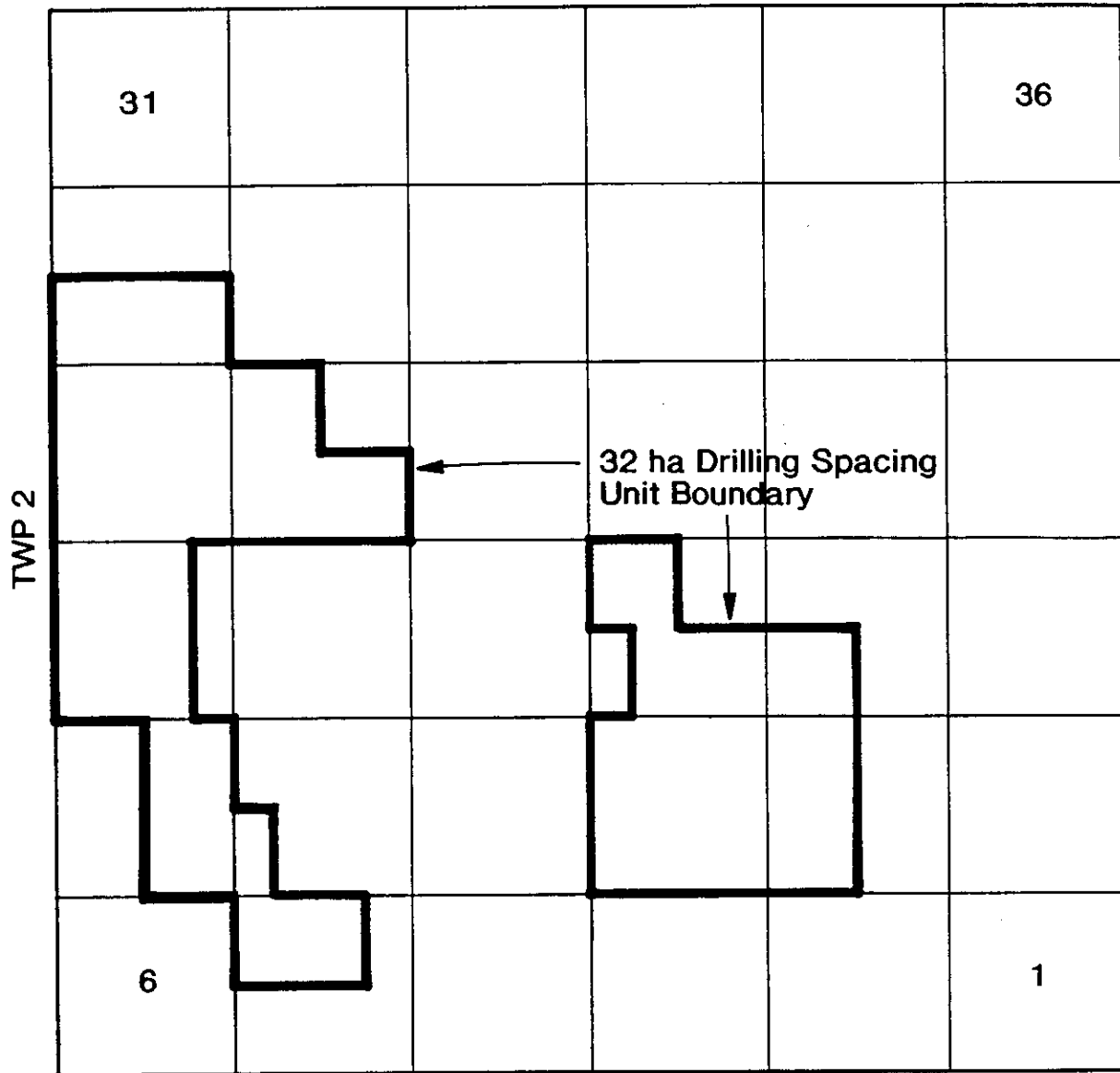
Yours respectfully,

A handwritten signature in black ink, appearing to read "H. Clare Moster". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

H. Clare Moster
Deputy Chairman

BOARD ORDER NO. SU 9
SCHEDULE A - REVISED

PIERSON AREA
32 ha DRILLING SPACING UNITS
LOWER AMARANTH AND MISSION CANYON FORMATIONS



RGE 29 (WPM)

EFFECTIVE DATE: June 13, 1994

APPROVED: *Robert M. Foster*
The Oil and Natural Gas Conservation Board

DATE: June 13/94



June 6, 1994

Memorandum

To The Oil and Natural Gas
Conservation Board
- Clare Moster, Deputy Chairman

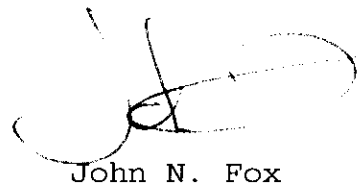
From John N. Fox
Chief Petroleum Engineer

Subject **Application to Modify 32 ha Spacing Area - Pierson Field**

Home Oil has applied to modify the 32 ha spacing area approved under Board Order No. SU 9. Clause 3 of the order provides for the spacing area to be modified by the Board from time to time to meet changing circumstances.

The reason Home wishes to return to 16 ha spacing is to exploit the Mission Canyon pool underlying parts of Sections 15 and 16. Under the new Oil and Gas Act, the Branch will be asking Home to comment on the continued appropriateness of 32 ha spacing in the Pierson area.

It is recommended that the spacing area be modified as outlined in the attached letter and shown on Schedule A.



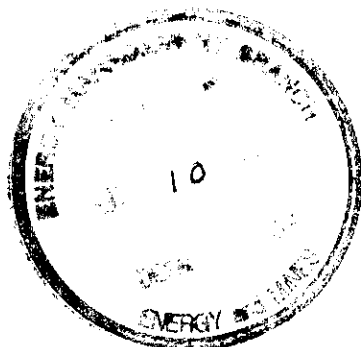
John N. Fox

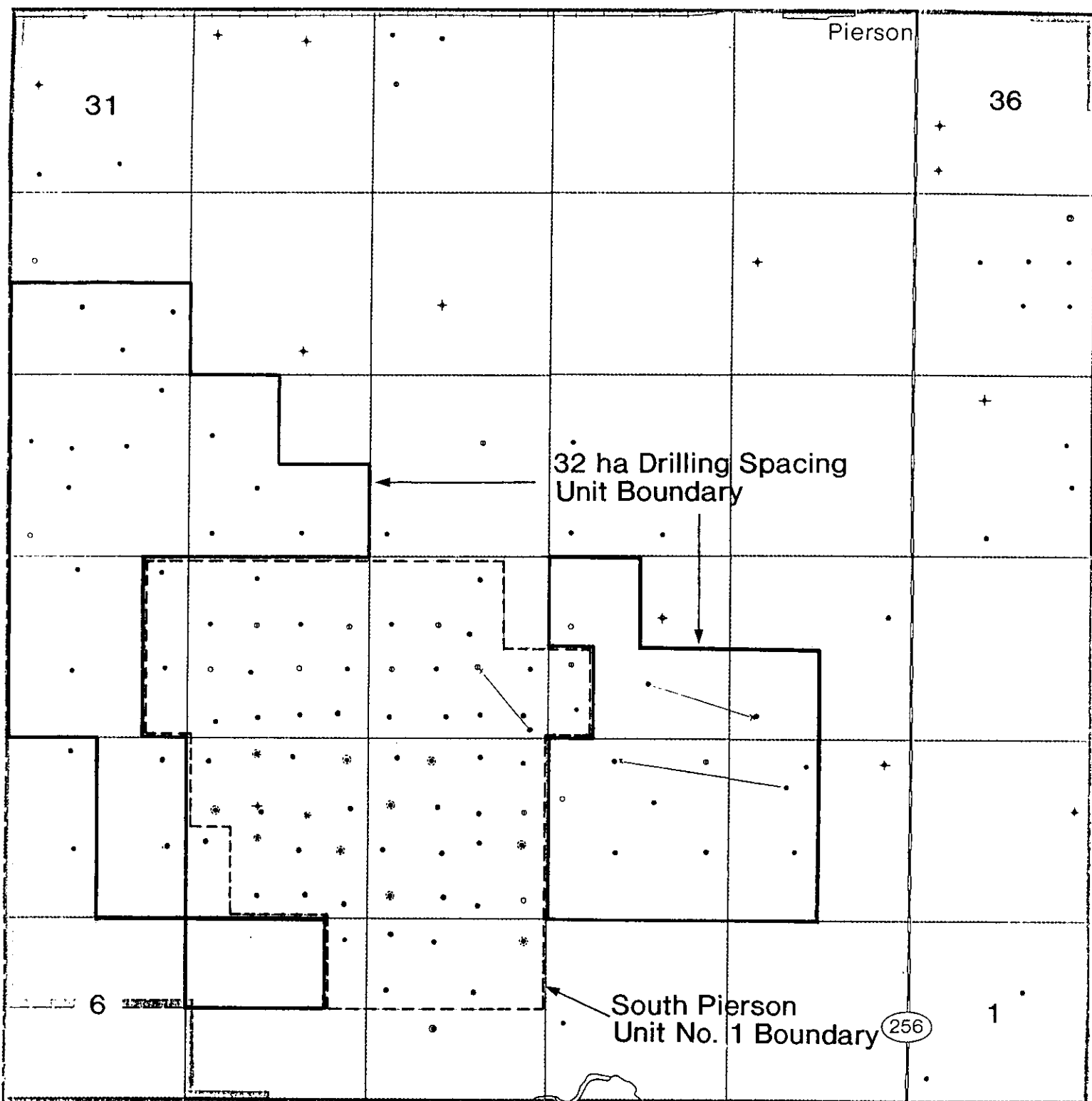
Recommended for Approved:



L.R. Dubreuil, Director

JNF/hw





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



1994-06-02

Department of Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba

ATTENTION : Mr. L.R.Dubreuil
Director, Petroleum Branch

RE: Application For Reduced Spacing - South Pierson 09-16-002-29 W1M


Home Oil Company Limited, as Operator of the South Pierson field request that the location at 09-16-002-29 W1M be granted a licence to drill. Under Board Order SU No.9, Home Oil is making an application to change the spacing to 16 ha for L.S.D.'s 16-16 and 09-16-002-29 W1M so that the location at 09-16 may be drilled.

Recent development drilling within the Unit area has increased our understanding of the complex geology of the South Pierson field. It is now known that oil bearing Mississippian extends further north into section 16 than previously thought. Logs from the unit well at 15-16 indicated limited Mississippian oil pay and post completion production has since confirmed the log response. Home Oil recently drilled and completed the well at 05-15-002-29 W1M. A similar log response as well as early production data suggests that the Mississippian is oil bearing in this area of the field as well. Home Oil has since attained a license to drill a step-out well at 12-15-002-29 W1M.

Although log and production response at 15-16 and 05-15 indicate Mississippian oil pay, the quality and quantity of pay is diminishing with the permeability and porosity pinching out to anhydrite. The net pay in the Lower Amaranth also decreases to the north and east of the Unit. Home Oil proposes to drill the well at 09-16 to further delineate the field. Depending on the log and production response of the well, a decision will be made to drill the other spacing unit at 16-16. A Tundra well at 04-22-002-29 W1M produces marginal volumes of oil and is not considered by us to be economical. A well at 09-14-002-29 W1M was also recently drilled by Cyn-Tech Ventures and is also considered to be a poor location. Home Oil believes that this proposal is a logical approach to delineating the field boundaries.

Please contact me at (403) 232-7370 or E.L.Doherty at (403) 232-7376 if you have any questions.

Yours truly,
HOME OIL COMPANY LIMITED



G.C.K. Johnson, Co-ordinator
Oil Division

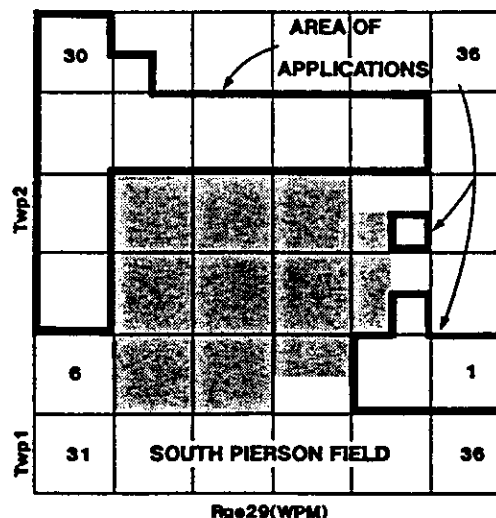
GCKJ/ed
cc: G.C.K. Johnson
E.L.Doherty
D.W.White
Pierson Corr



NOTICE

Under The Mines Act South Pierson Oil Field

Home Oil Company Limited and Tundra Oil and Gas Ltd. have made application separately under subsection 20(1) of the Petroleum Drilling and Production Regulation for approval of special drilling spacing units in a portion of the South Pierson Oil Field and surrounding area. The area of application is outlined below. The area of application adjoins the area covered by Board Order SU 5 (October 4, 1989) which established temporary special 32 hectare drilling spacing within the shaded area in the South Pierson Field.

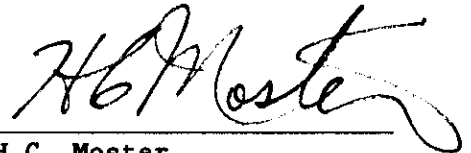


It is proposed that drilling spacing units be increased in size from 16 hectares (40 acres) to 32 hectares (80 acres) for production from the Lower Amaranth Formation in the area of application. Individual drilling spacing units would consist of a north-south pair of Legal Subdivisions (e.g. Lsd's 1 and 8, Lsd's 2 and 7, etc). Proposed target area for the 32 hectare drilling spacing units would be located in the even numbered Legal Subdivisions and would be of the same size and location as if that Legal Subdivision was a 16 hectare drilling spacing unit.

If no valid intervention or objection in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8 within 14 days of the publication of this notice, the Board may approve the application.

Copies of the applications can be obtained from Home Oil Company Limited, 1700 Home Oil Tower, 324 Eighth Avenue S.W., Calgary, Alberta, T2P 2Z5 [phone: (403) 232-7100] and Tundra Oil and Gas Ltd., 1313 - One Lombard Place, Winnipeg, Manitoba, R3B 0X3 [phone: (204) 949-1195], or can be viewed at the offices of the Petroleum Branch, 555-330 Graham Avenue, Winnipeg, Manitoba, R3C 4E3 [phone: (204) 945-1195].

Dated at Winnipeg, this 25th day of MAY, 1990.

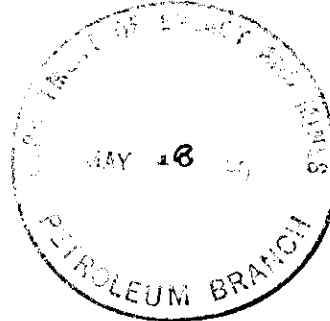
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H.C. Moster
Deputy Chairman



1990-05-17

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



Attention: Mr. L.R. Dubreuil
Director, Petroleum Branch

Dear Mr. Dubreuil:

Re: Application for Special Drilling Spacing Units
South Pierson Field, Lower Amaranth B Pool

Home Oil Company Limited hereby applies under the drilling and production regulations Part IV Section 20 and Part XIII Section 115 for the designation of special drilling spacing units in the South Pierson Field. The following information is provided:

- 1) This application requests approval for special drilling spacing units for production from the Lower Amaranth Formation in the expanded area indicated in Attachment 1. Also outlined in Attachment 1 is the current area for 32 hectare drilling spacing units as approved by the Manitoba Energy and Mines in your letter dated 1989-10-05. A list of the mineral rights owners within the area of application and a 0.8 km radius of the area of application will be forwarded as soon as it is available.
- 2) Within the area of application, drilling spacing units of 32 hectares comprising LSD's 1 and 8, 2 and 7, 3 and 6, etc. are requested with the target area being within the even numbered LSD's. Central targets as specified in Part IV Section 21(1) of the petroleum regulations are requested. It is further requested that any wells drilled within the area of application on pre-existing spacing (16 ha) be deemed on target under the approval.

- 3) Pursuant to the petroleum regulations Part XIII Section 115, this application is based on the ability of the wells within the application area to adequately drain 32 hectares within a reasonable timeframe of 14 years. Contained in Attachment 2 is a discussion of the expected reserves from both the volumetric and decline curve analyses.
- 4) A summary of the economic assumptions and results for 16 and 32 hectare spacing are shown in Attachment 3. With the limited reserves available under drilling spacing units of 16 hectares, Home Oil feels this scenario is not economic.
- 5) Thirty-two hectare spacing is required within the expanded area of application to protect the correlative rights of the offset royalty and working interest owners, by providing consistent spacing with the areas surrounding the application area.

Home Oil Company Limited submits the above arguments and attachments to justify enlarging the drilling spacing units to 32 hectares in the expanded application area. If you require further information or have any questions, please contact Mr. Allan Willms at (403) 232-7362.

Yours truly,

HOME OIL COMPANY LIMITED



for

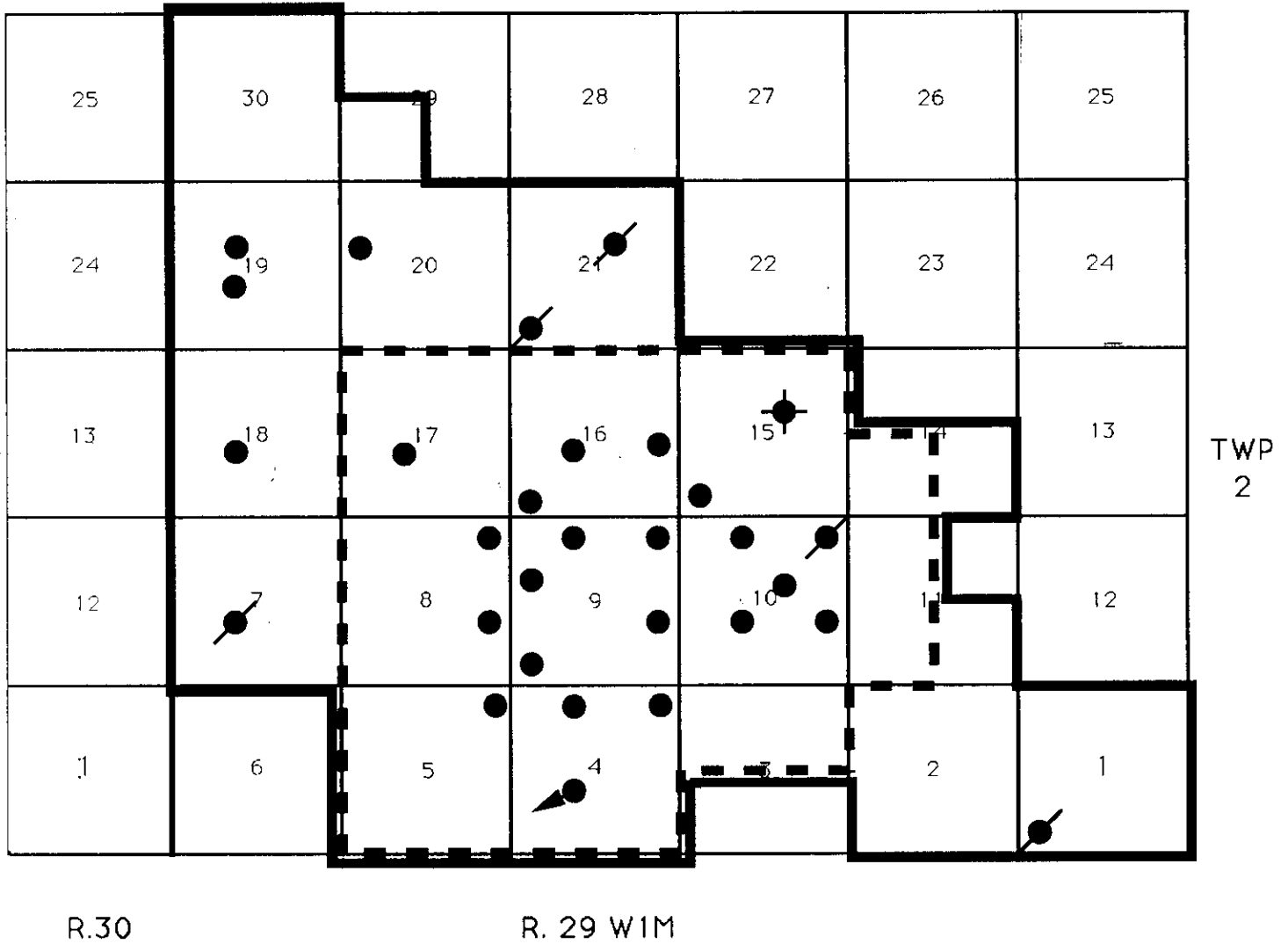
K.R. Brown, P Eng.
Manager, Reservoir Engineering

Attachment

cc: G.B. Harrison
D.A. Bertram
W.C. Tersmette
R.A. Bennett
J.R. Brook
A.R. Willms
File: 13-PIER-0
Day File

ATTACHMENT 1

SOUTH PIERSON AREA



AREA OF 32 HA SPACING:

- CURRENT
- EXPANDED

Attachment 2

South Pierson

Reserves and Depletion

Within the currently approved area and expanded area of application, estimates of recoverable reserves by decline analysis were performed on six wells. These six wells were the only wells with sufficient history to perform an acceptable decline analysis. Contained in this attachment are the rate vs. time and rate vs. cumulative production plots for all pool wells for which production data is available. Summarized below is a comparison between the decline curve and volumetric estimate of reserves for the six wells:

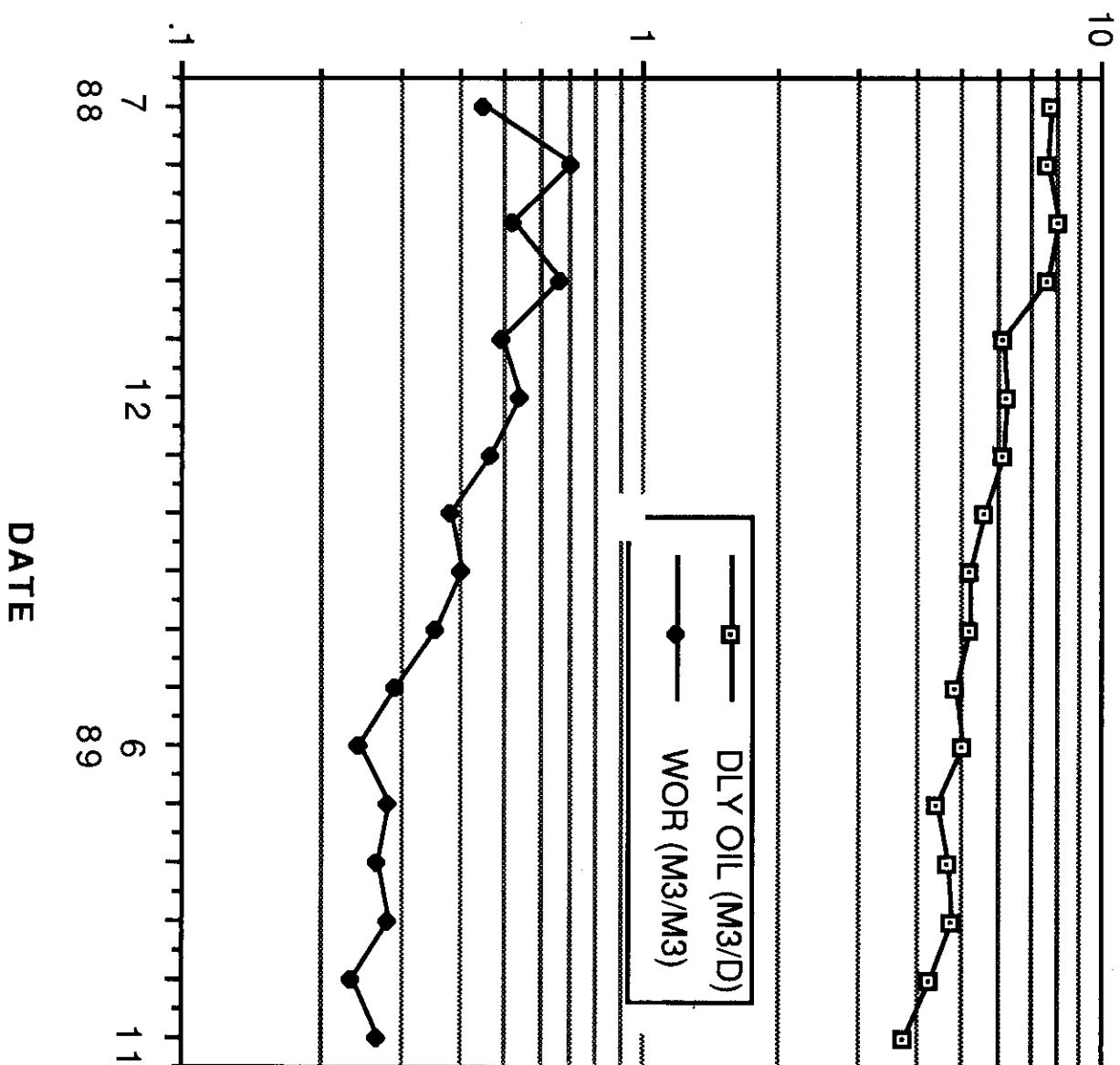
<u>Well</u>	<u>Decline Curve Reserves (m3)</u>	<u>Volumetric Reserves (12% RF, 32 ha, m3)</u>
16-05-002-29 W1M	17 712	13 719
16-08-002-29 W1M	15 590	12 472
16-09-002-29 W1M	9 718	7 774
04-15-002-29 W1M	17 606	14 085
06-19-002-29 W1M	17 948	14 385
08-10-002-29 W1M	<u>4 379</u>	<u>17 835</u>
Total	82 953	80 270

As indicated above, the projected total recovery from the six wells by decline analysis is greater than the volumetric estimate using a estimated 12% recovery factor. Primary recovery from similar fields on 16 ha spacing have been estimated at 9.1% to 12.2%. Five of the six wells indicate higher reserves by decline analysis than by volumetric estimates.

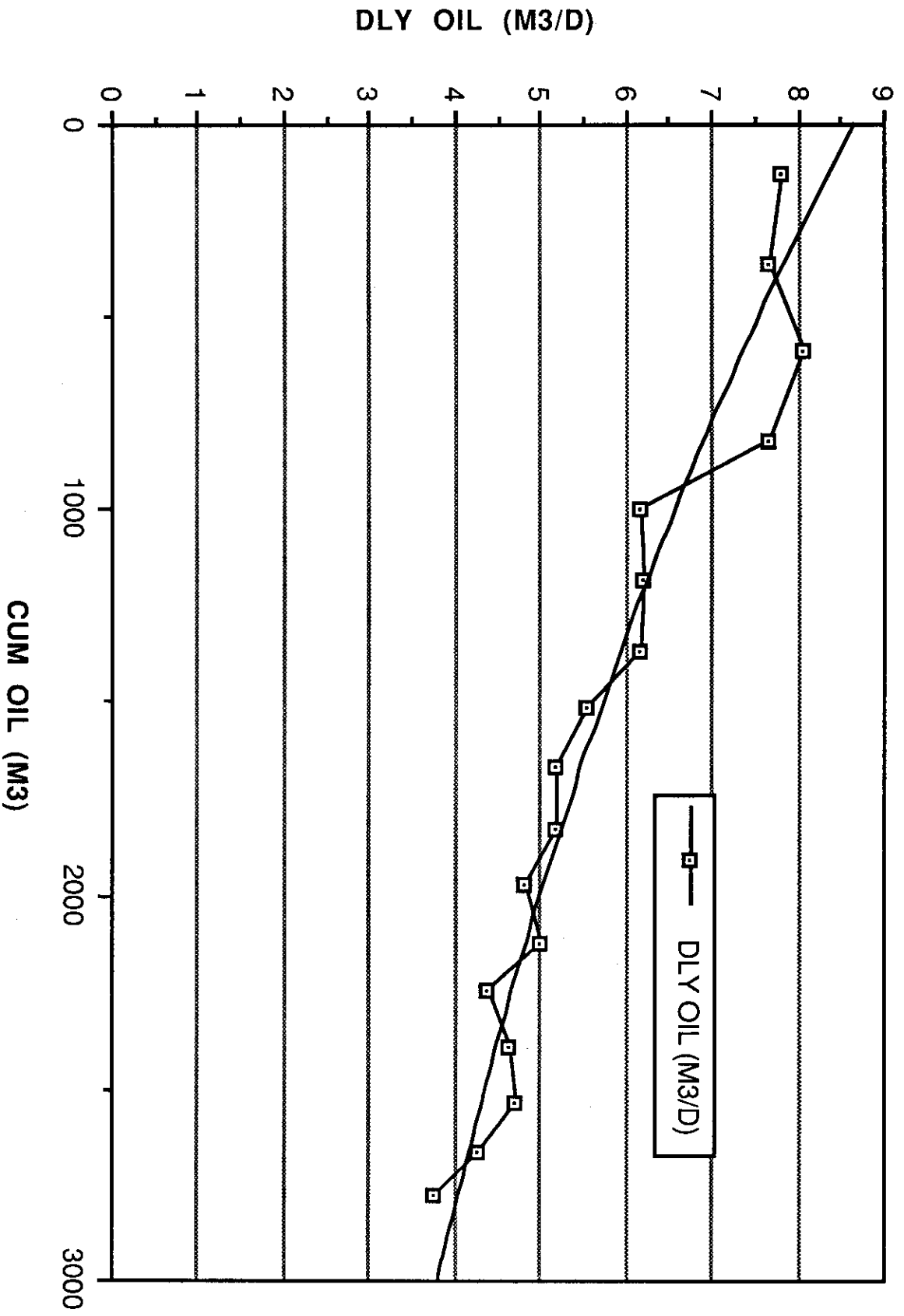
To approximate the average well life, a forecast was generated using the average volumetric estimate of reserves shown in Attachment 3A, assuming 32 ha drainage units. The resulting forecast is included in Attachment 3D, indicating a 14.42 year life.

14-04-02-29 W1

RATE VS TIME

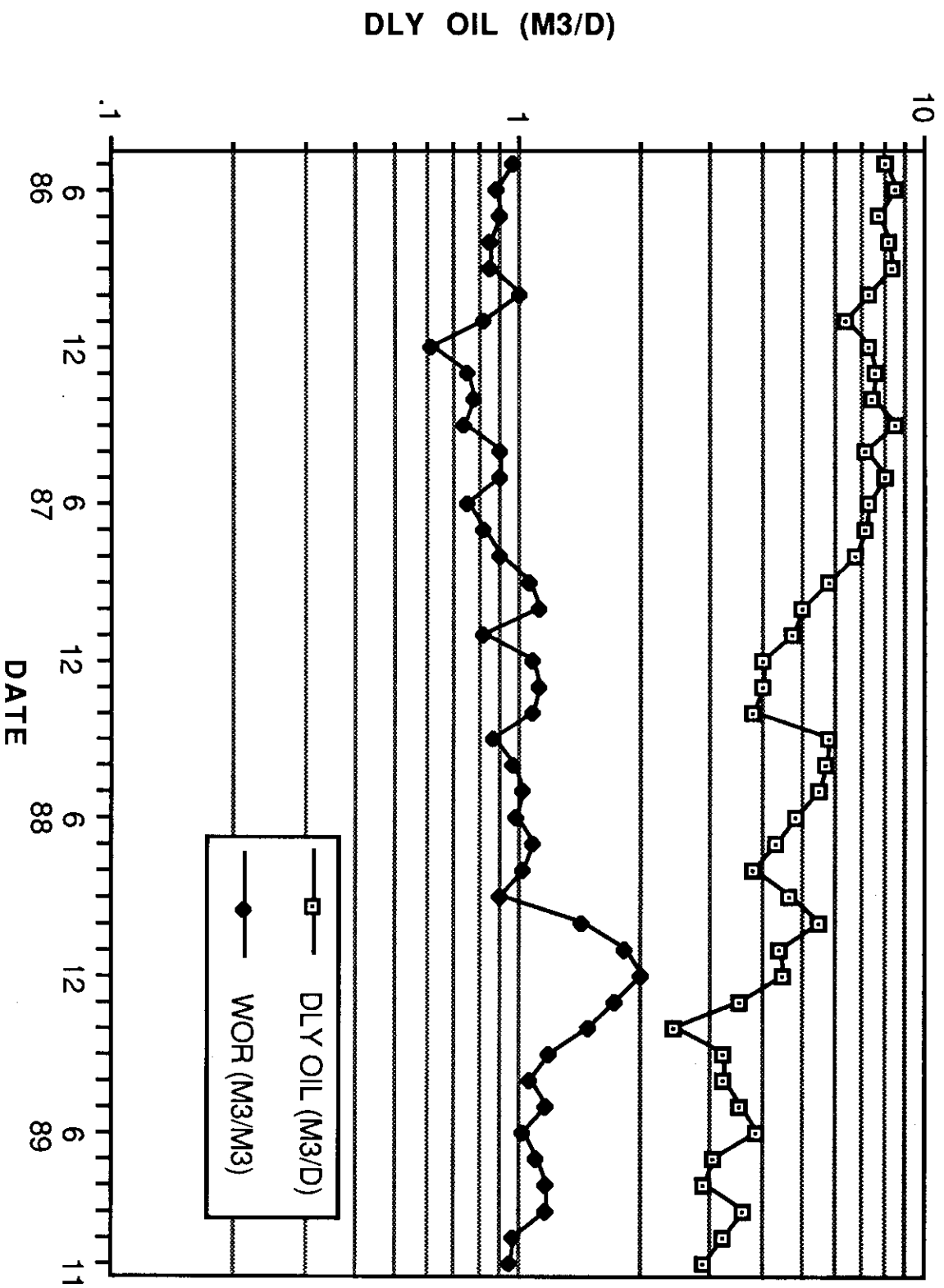


14-04-02-29W1
RATE VS CUM PROD



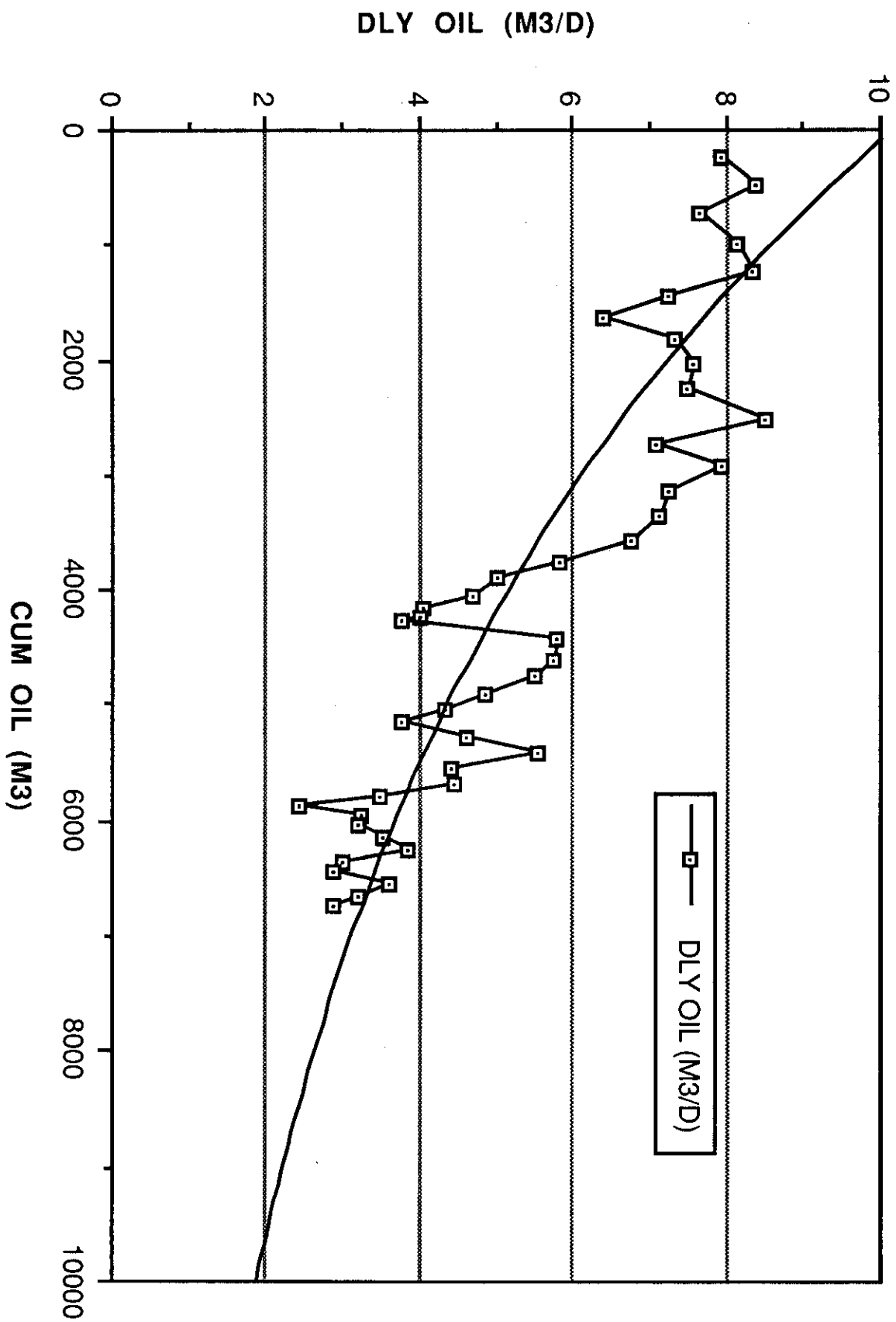
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RATE VS TIME



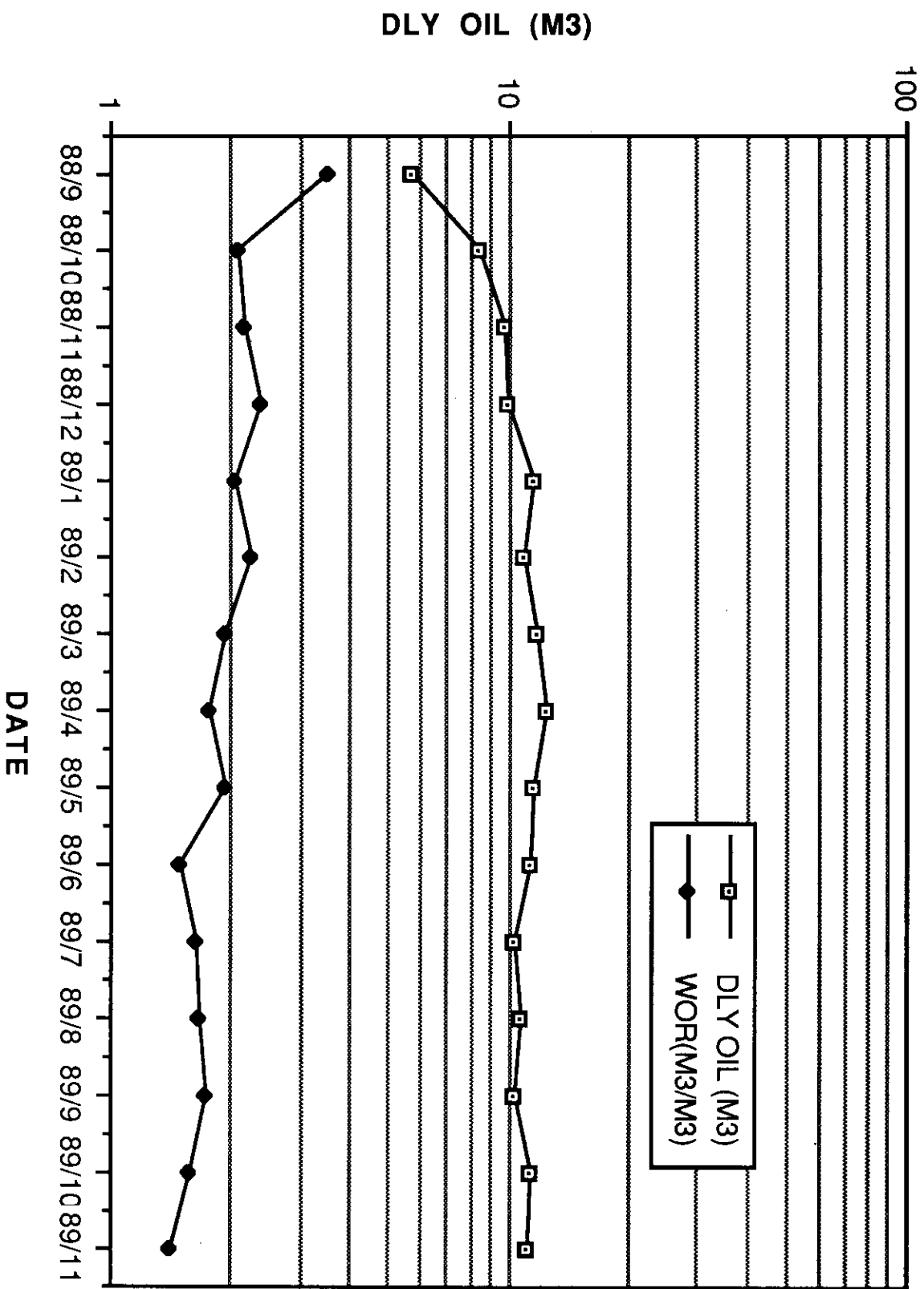
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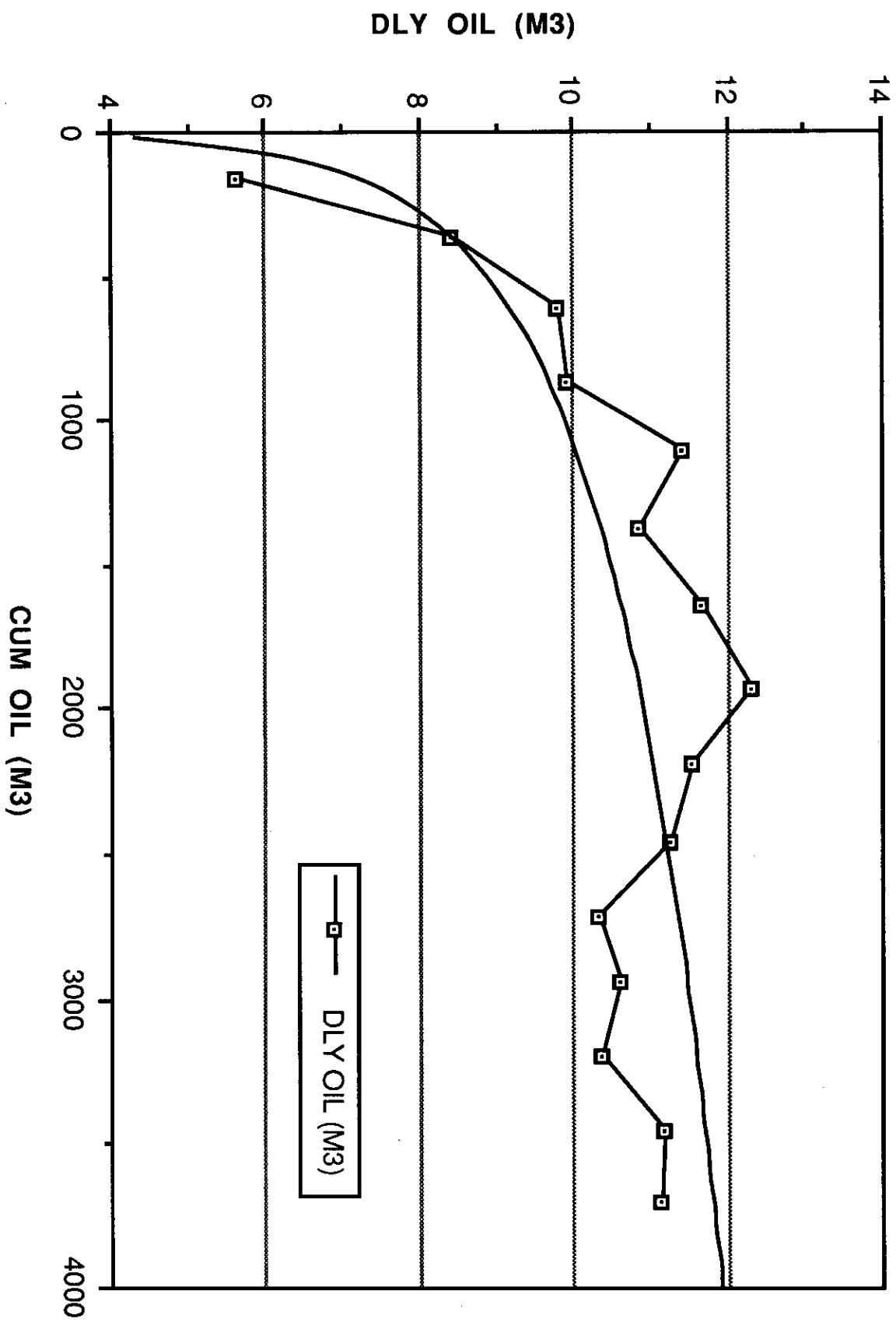


08-08-02-29W1

RATE VS TIME

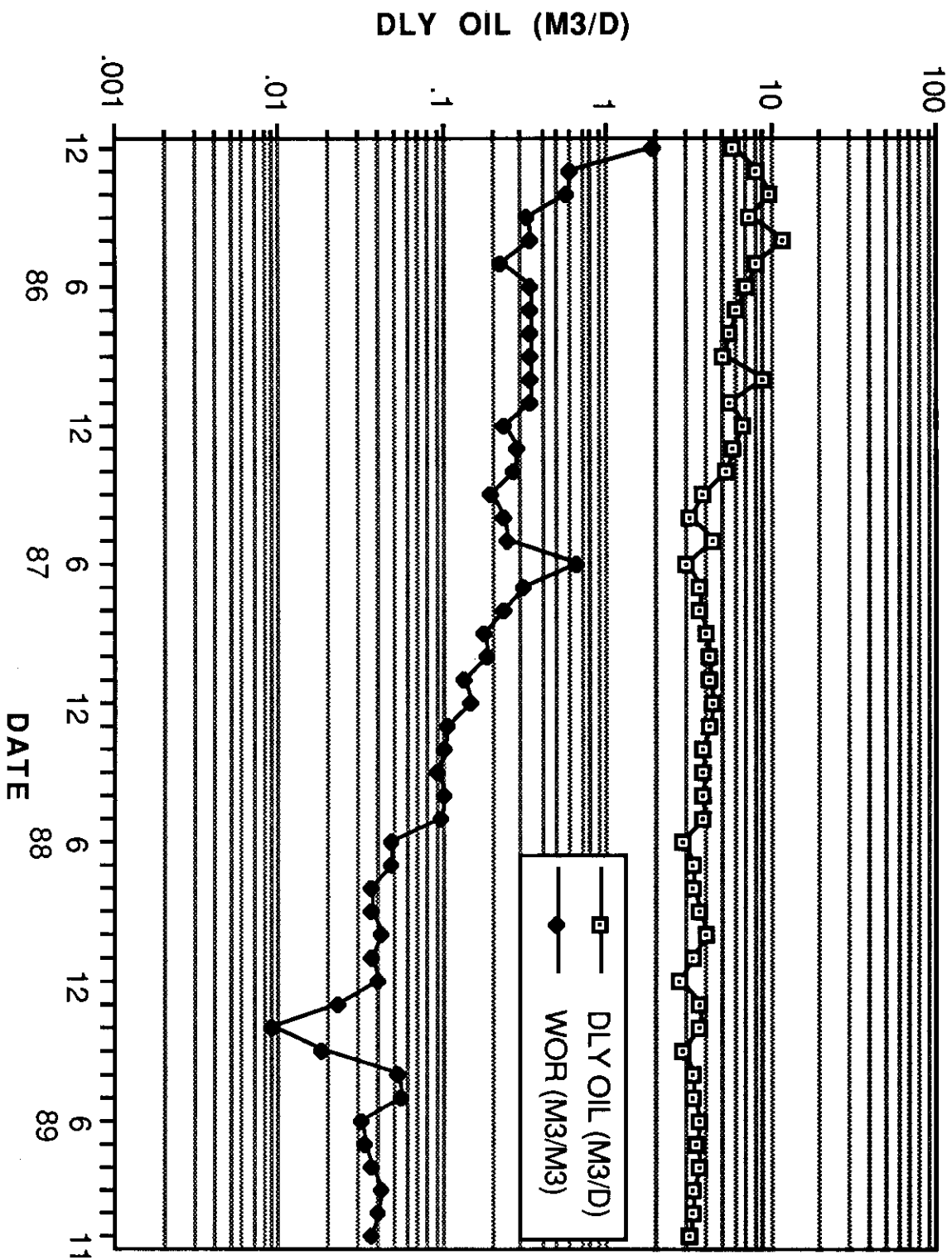


08-08-02-29W1
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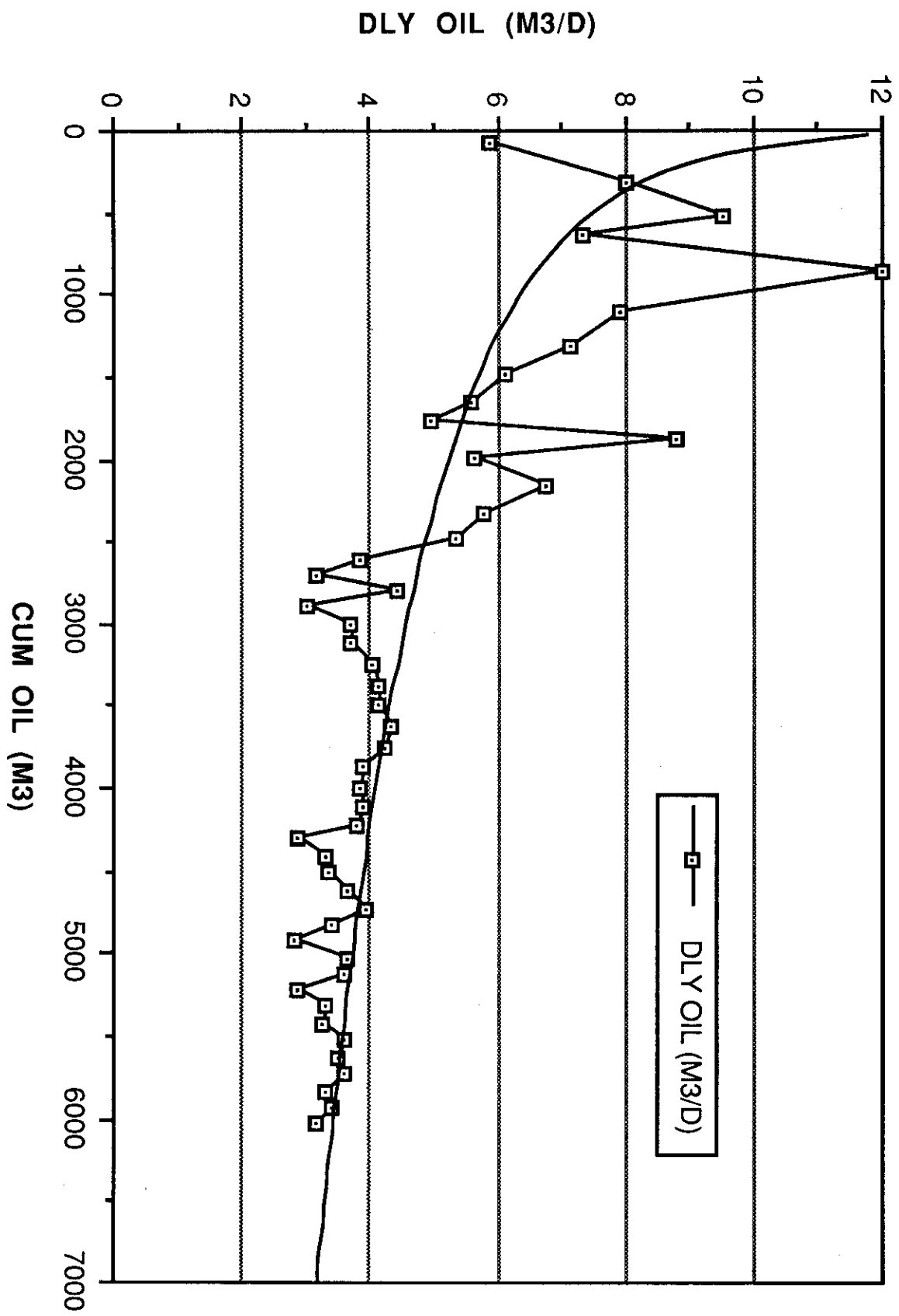


16-08-02-29W1

RATE VS TIME

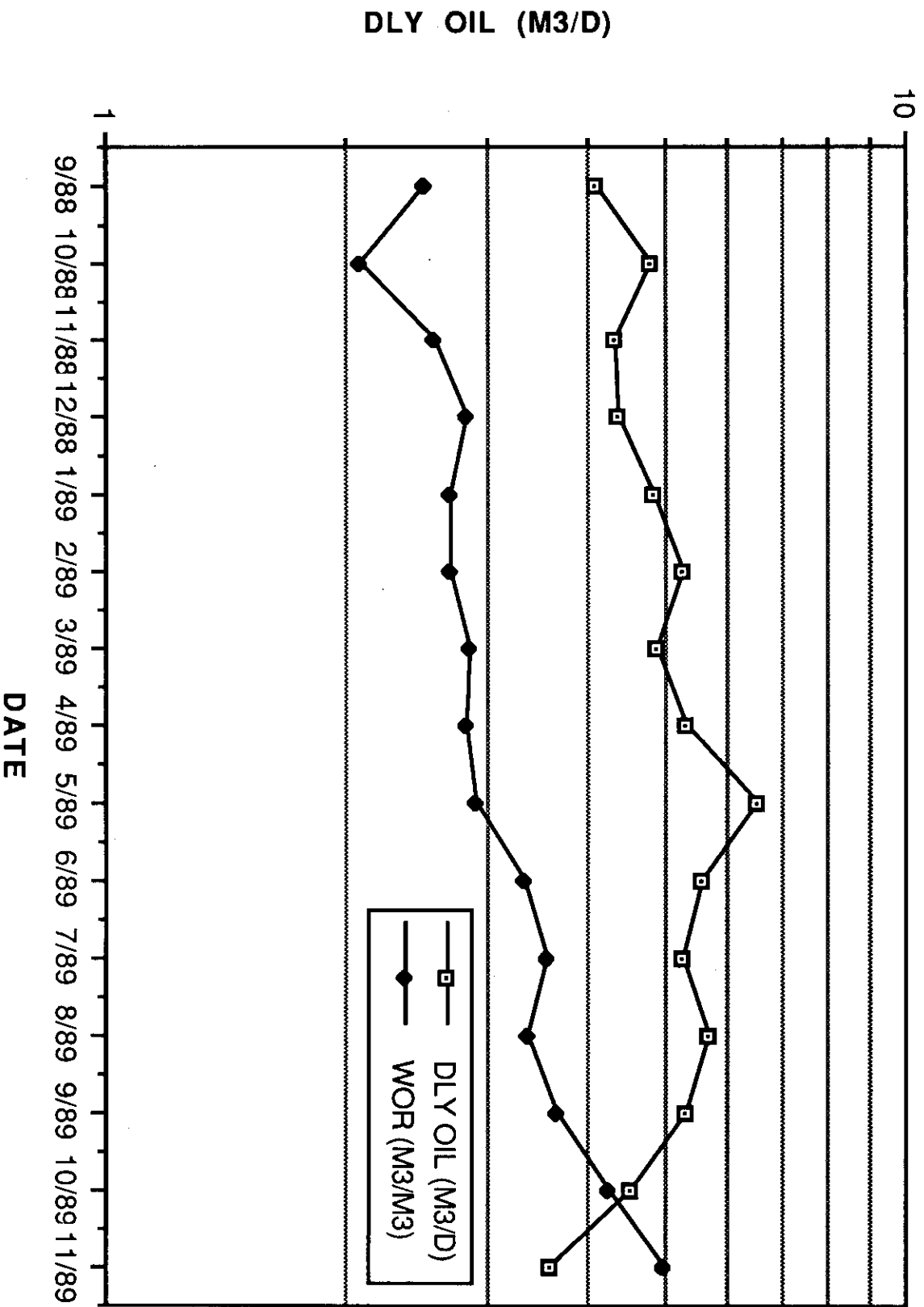


16-08-02-29W1
RATE VS CUM PROD



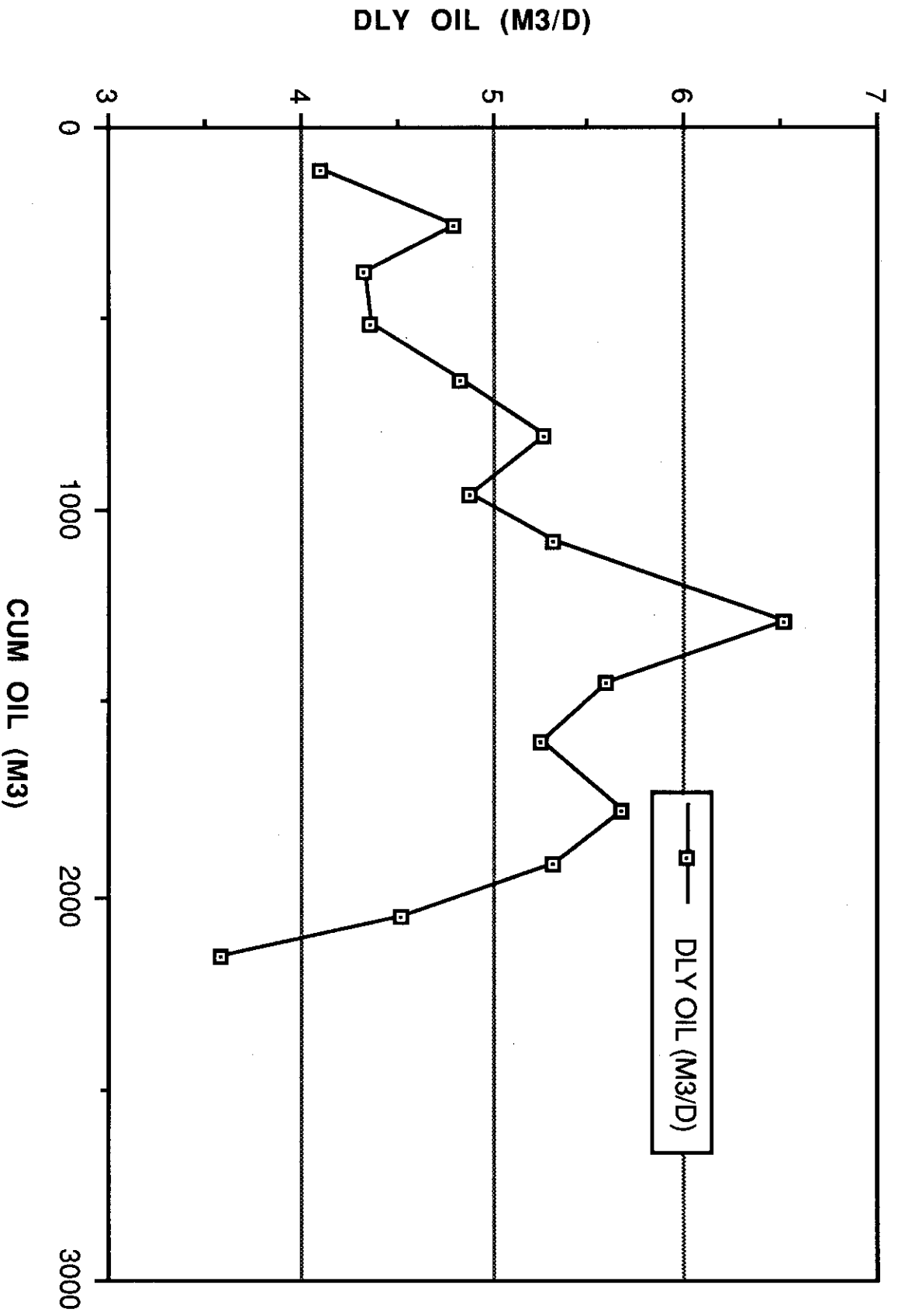
04-09-02-29W1

RATE VS TIME



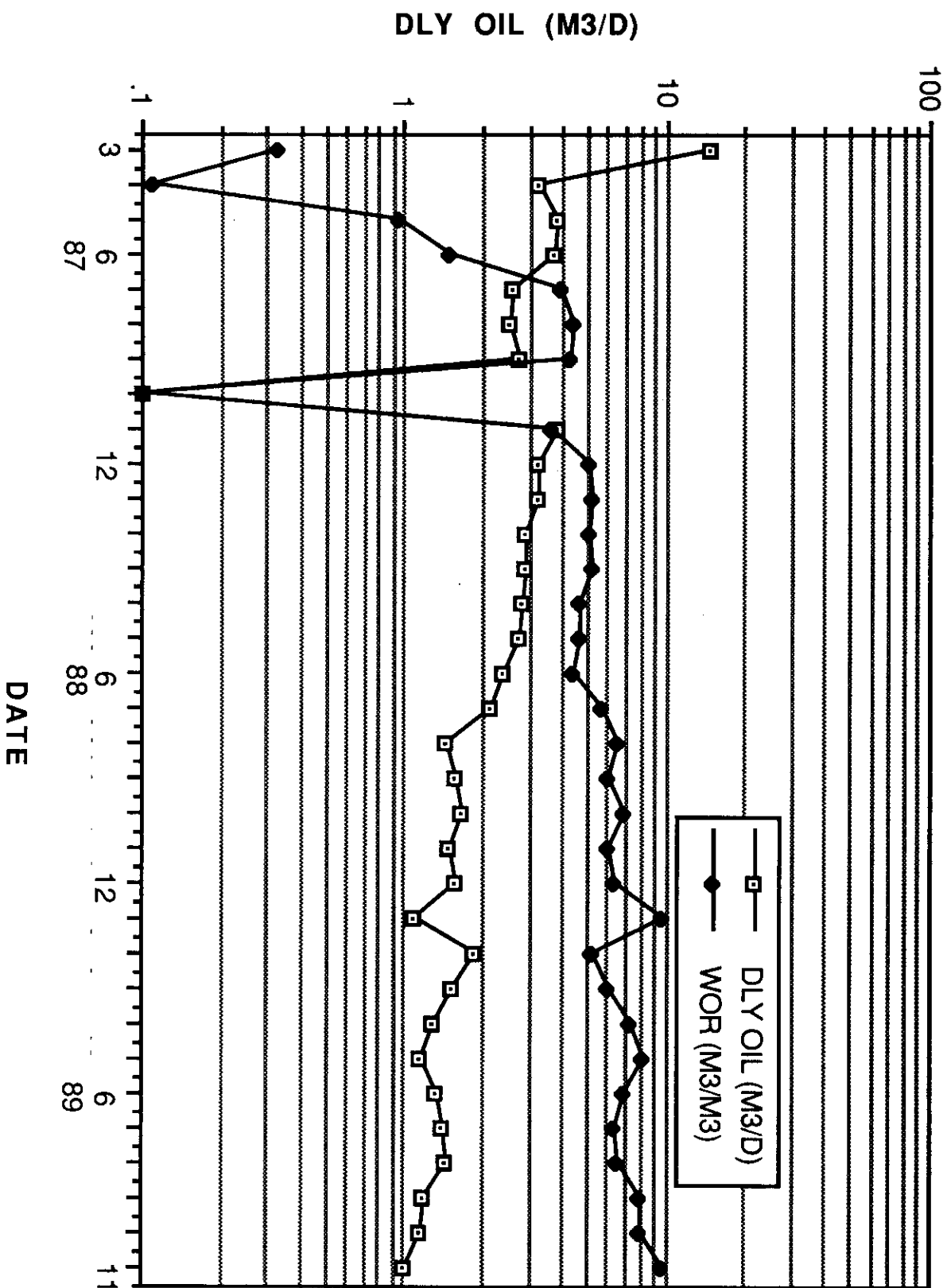
04-09-02-29W1

RATE VS CUM PROD

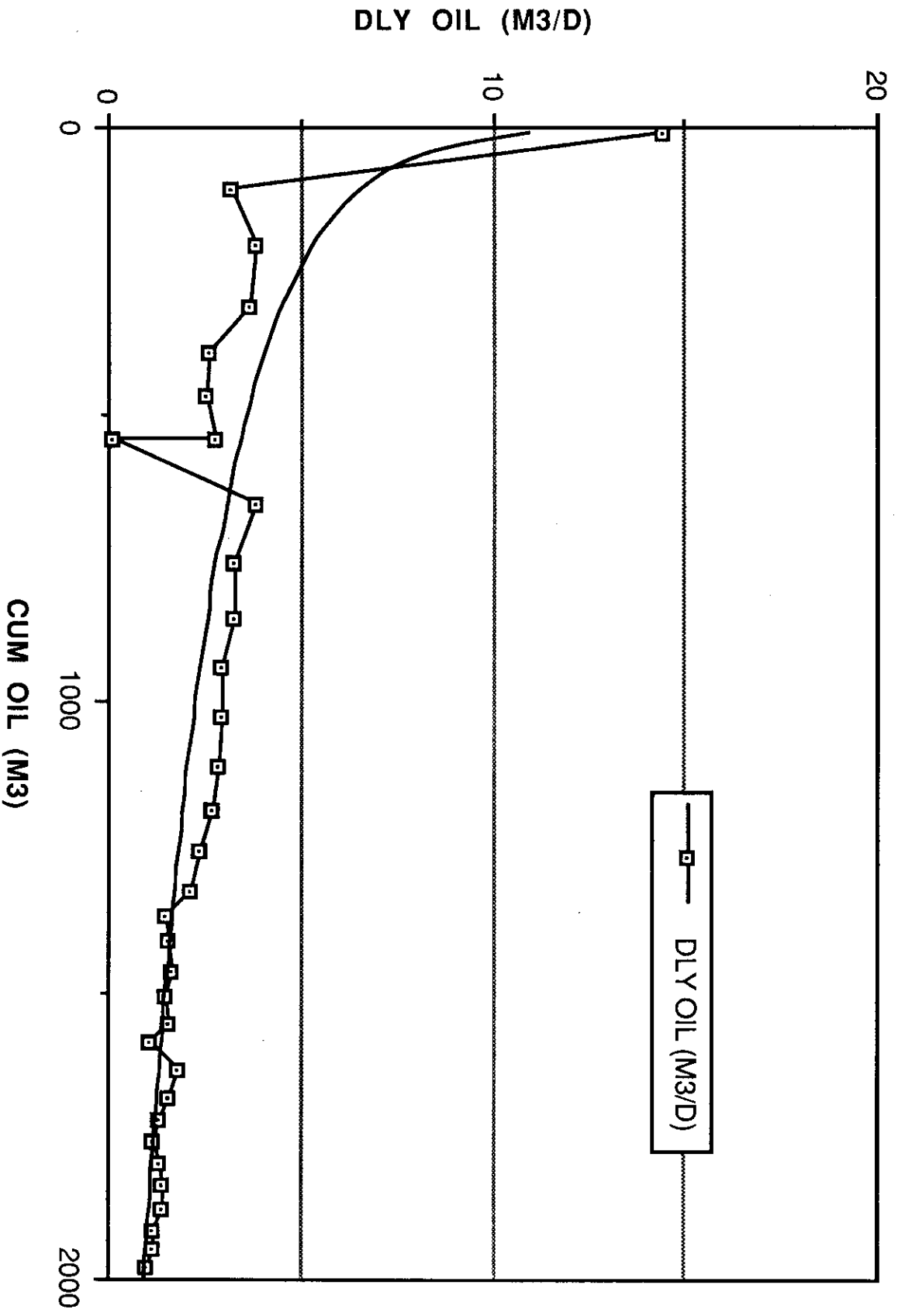


08-09-02-29W1

RATE VS TIME

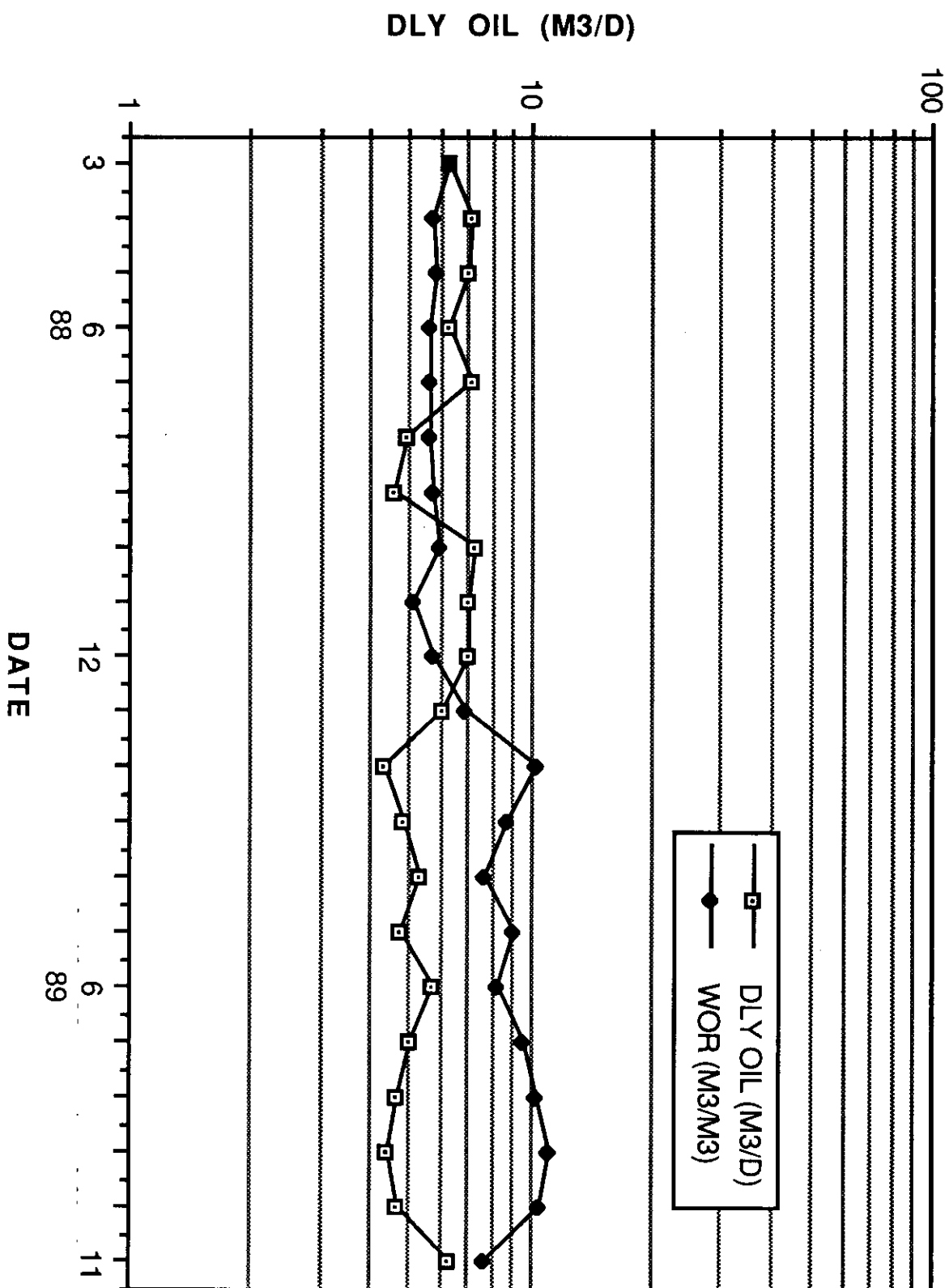


08-09-02-29W1
RATE VS CUM PROD



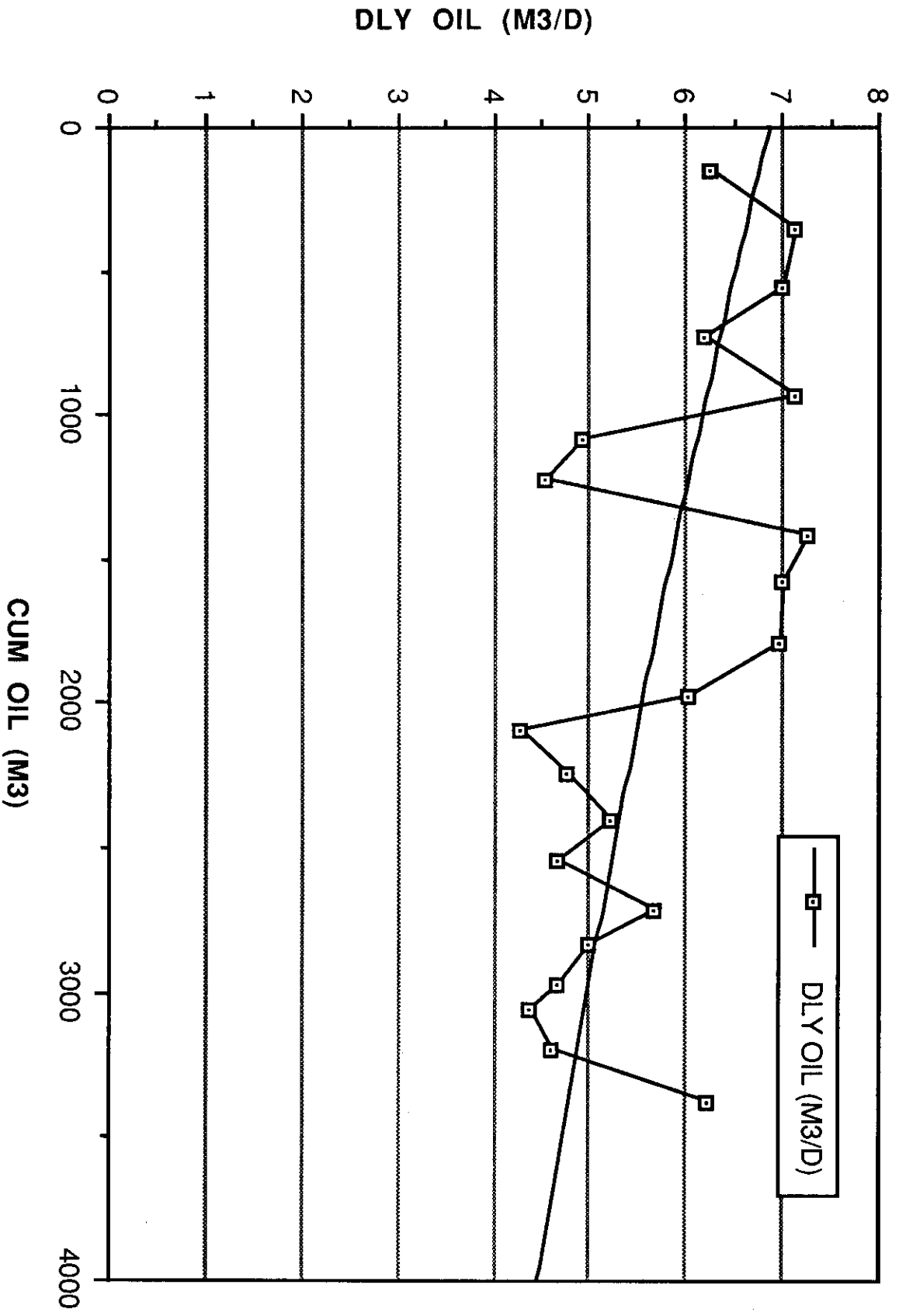
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RATE VS TIME



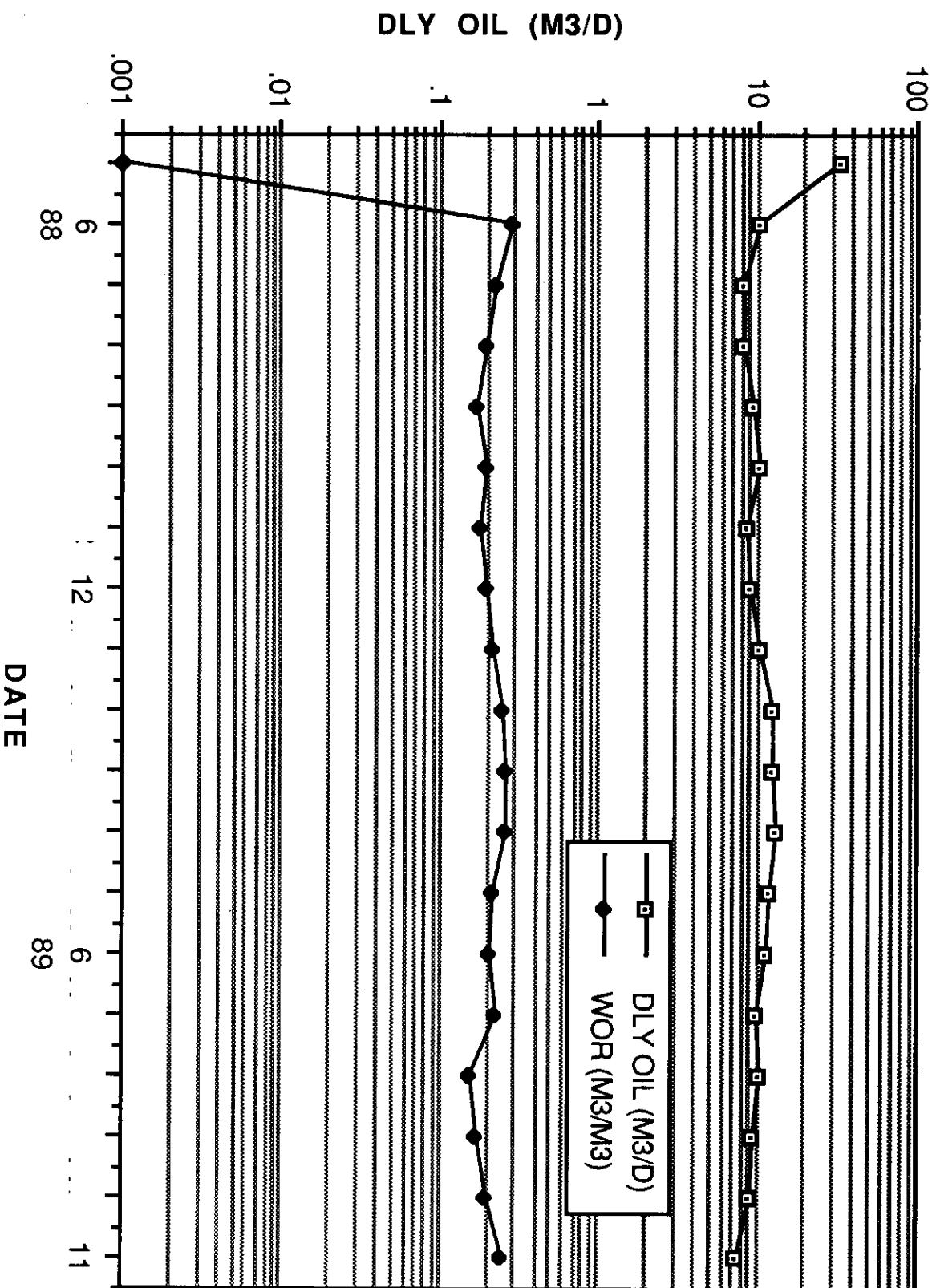
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RATE VS CUM PROD

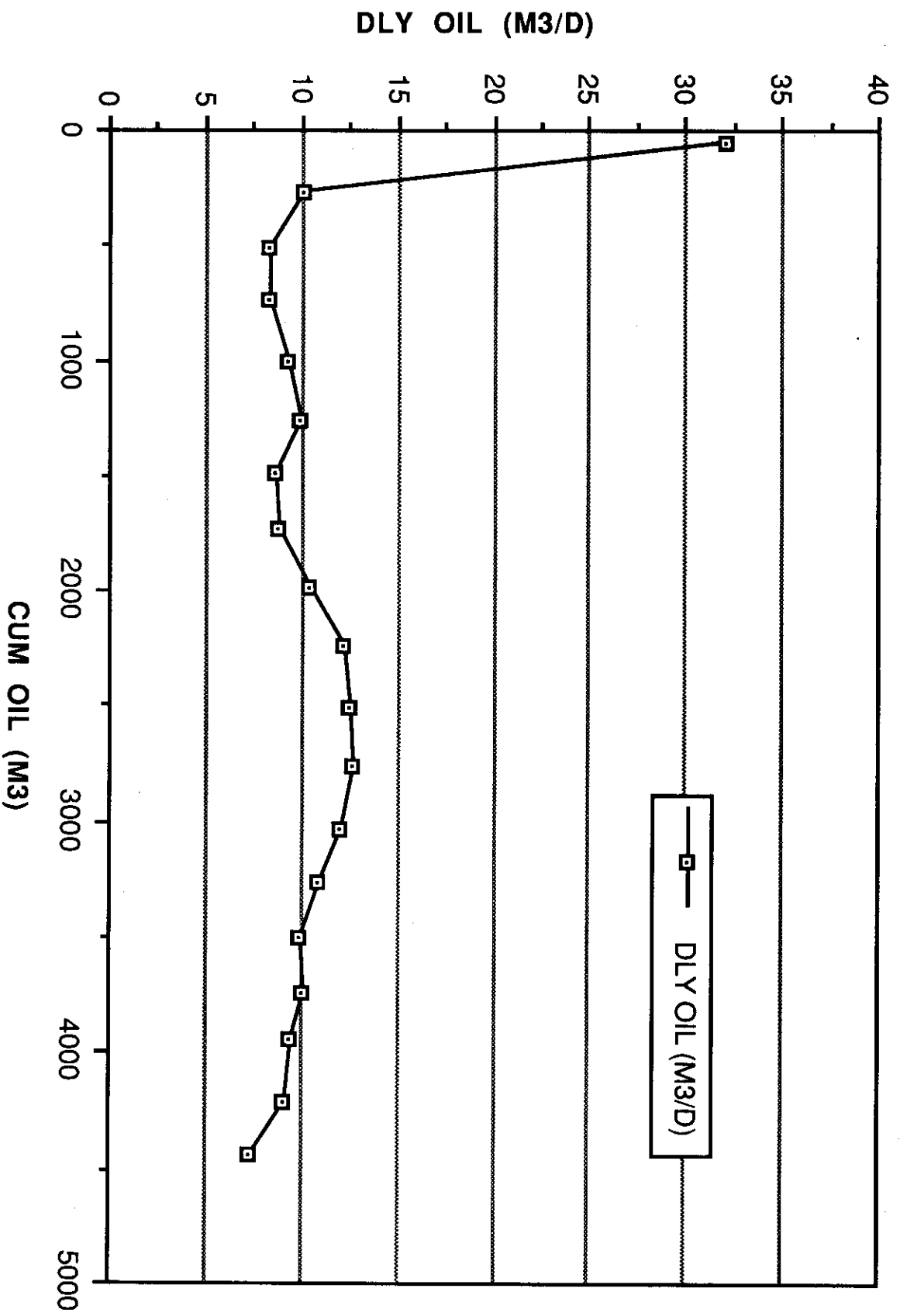


12-09-02-29W1

RATE VS TIME

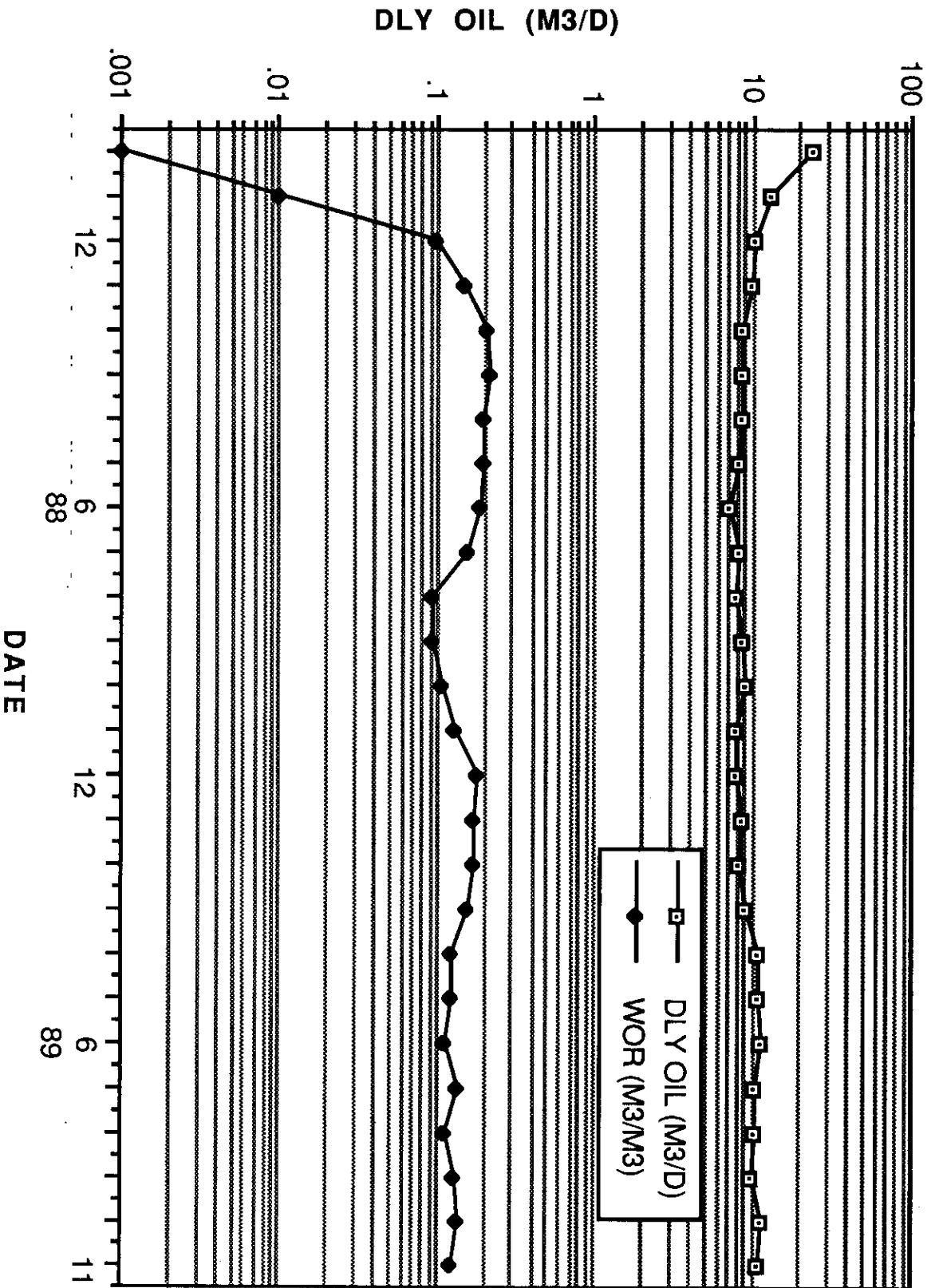


12-09-02-29W1
RATE VS CUM PROD



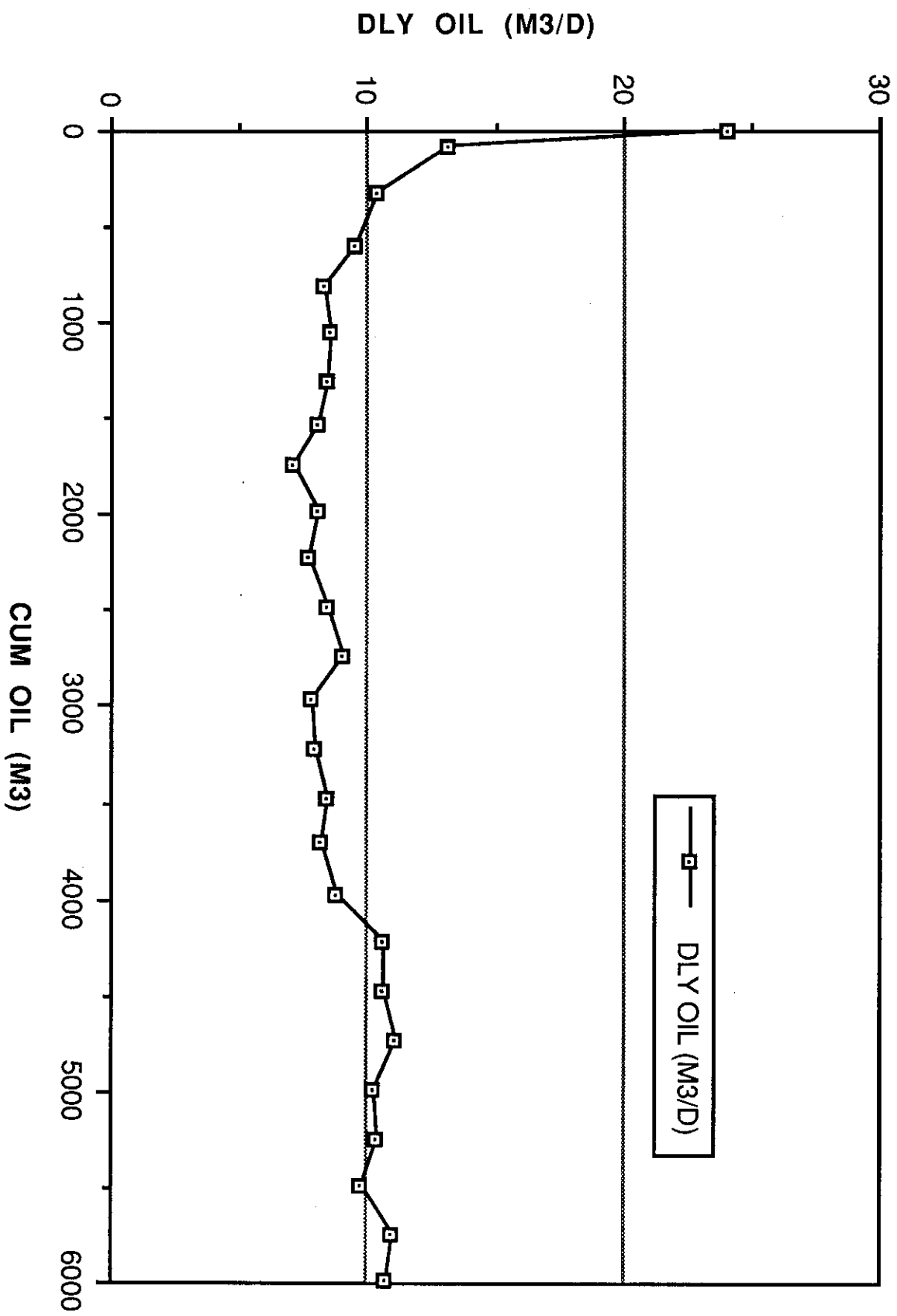
16-09-02-29W1

RATE VS TIME



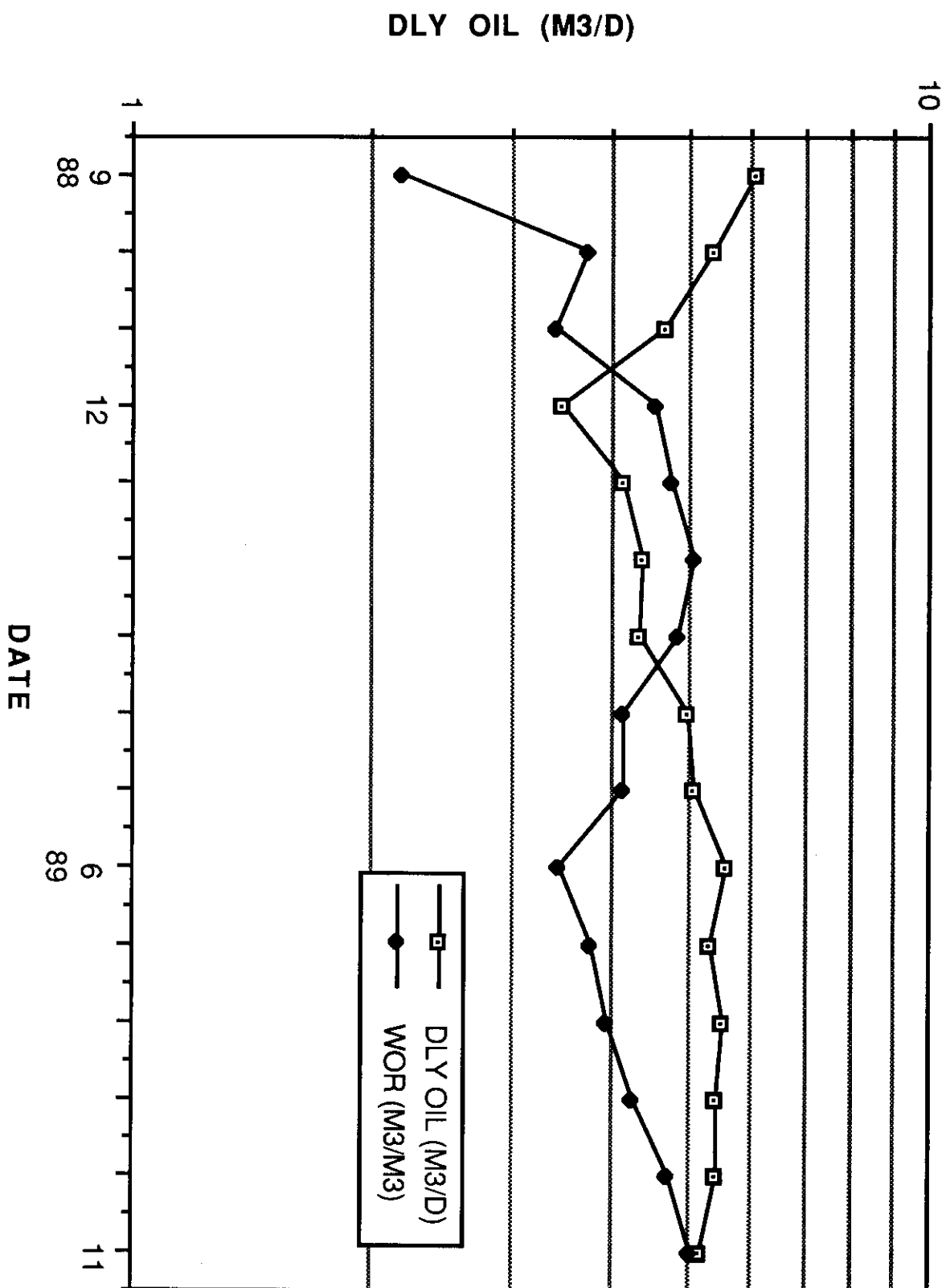
16-09-02-29W1

RATE VS CUM PROD



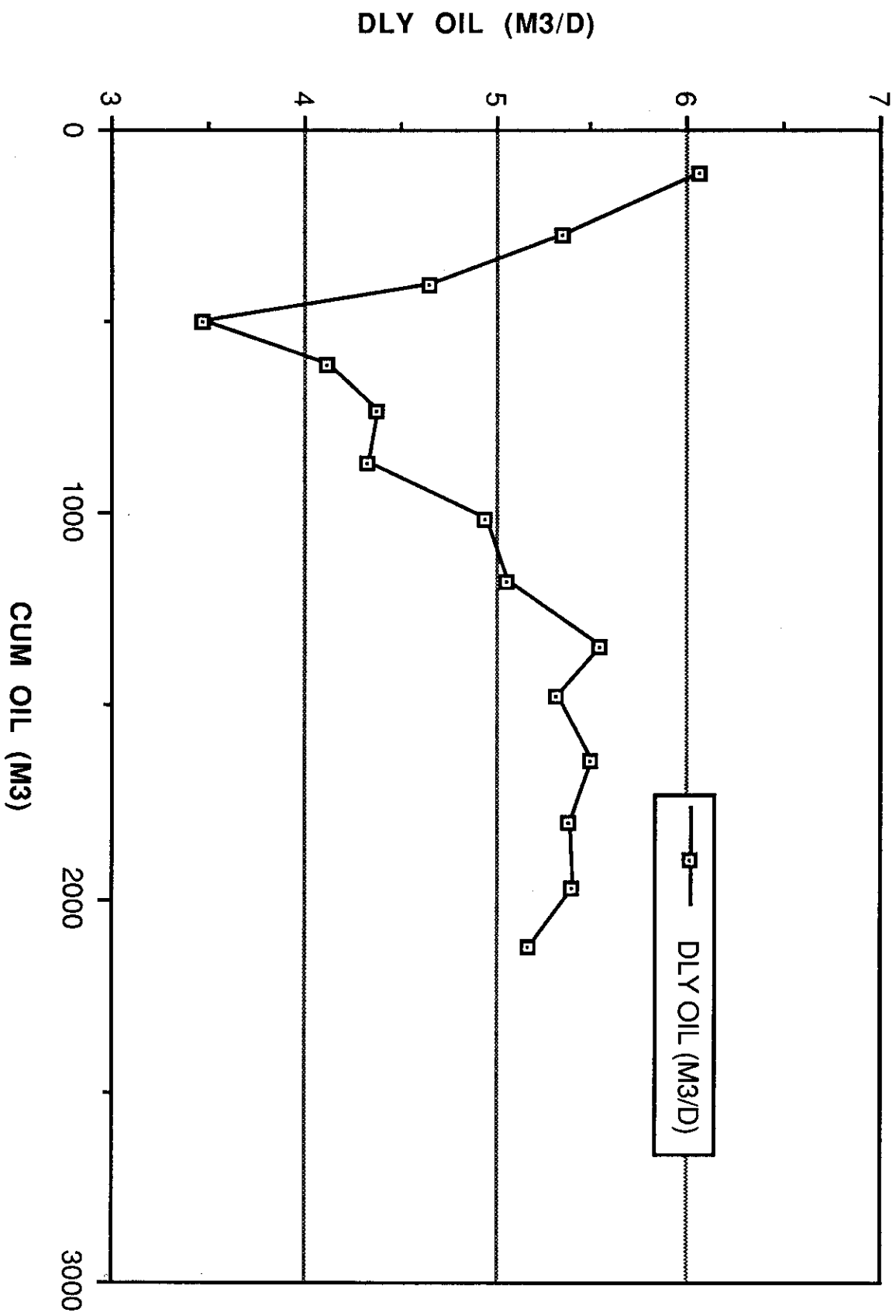
06-10-02-29W1

RATE VS TIME



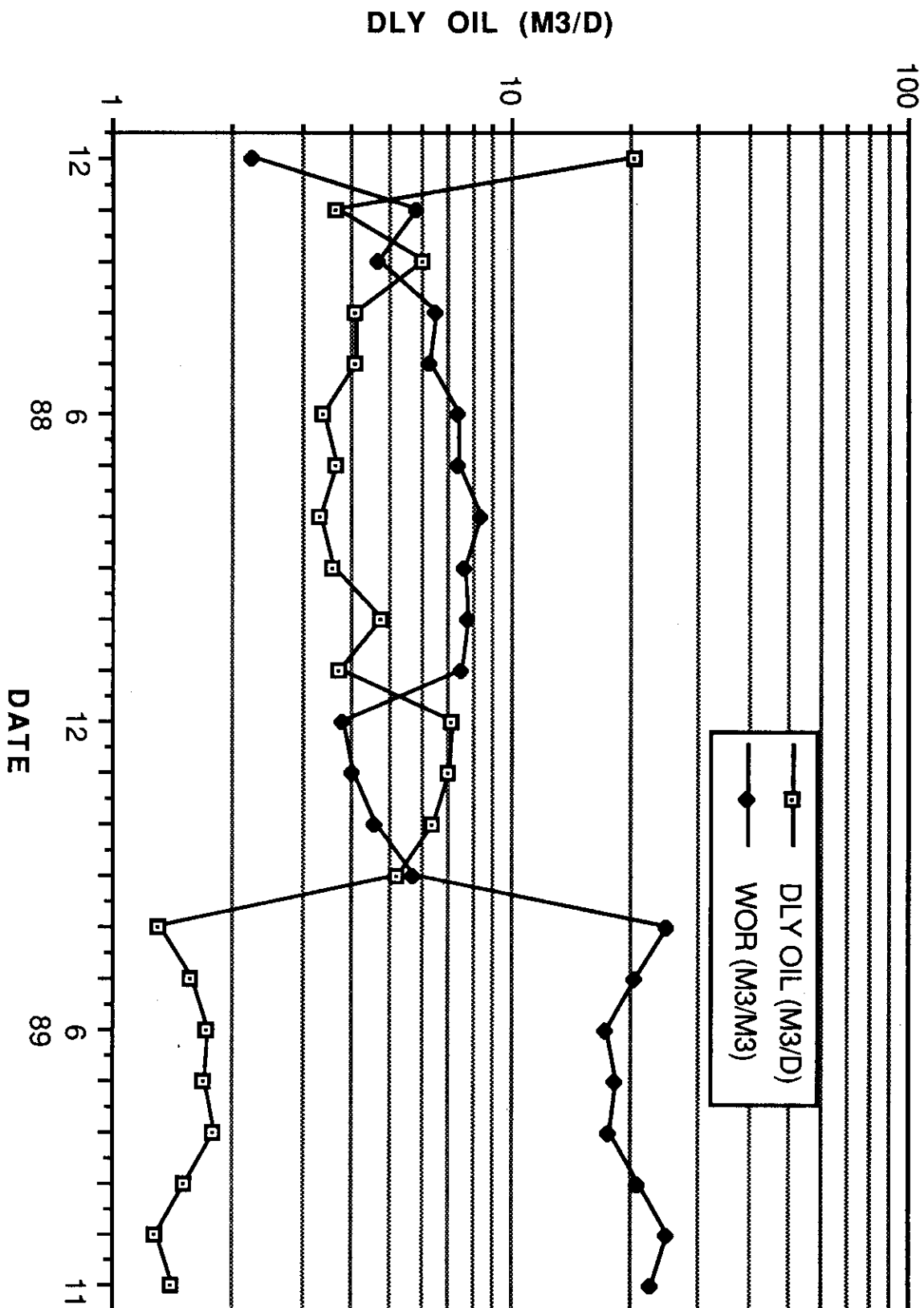
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RATE VS CUM PROD



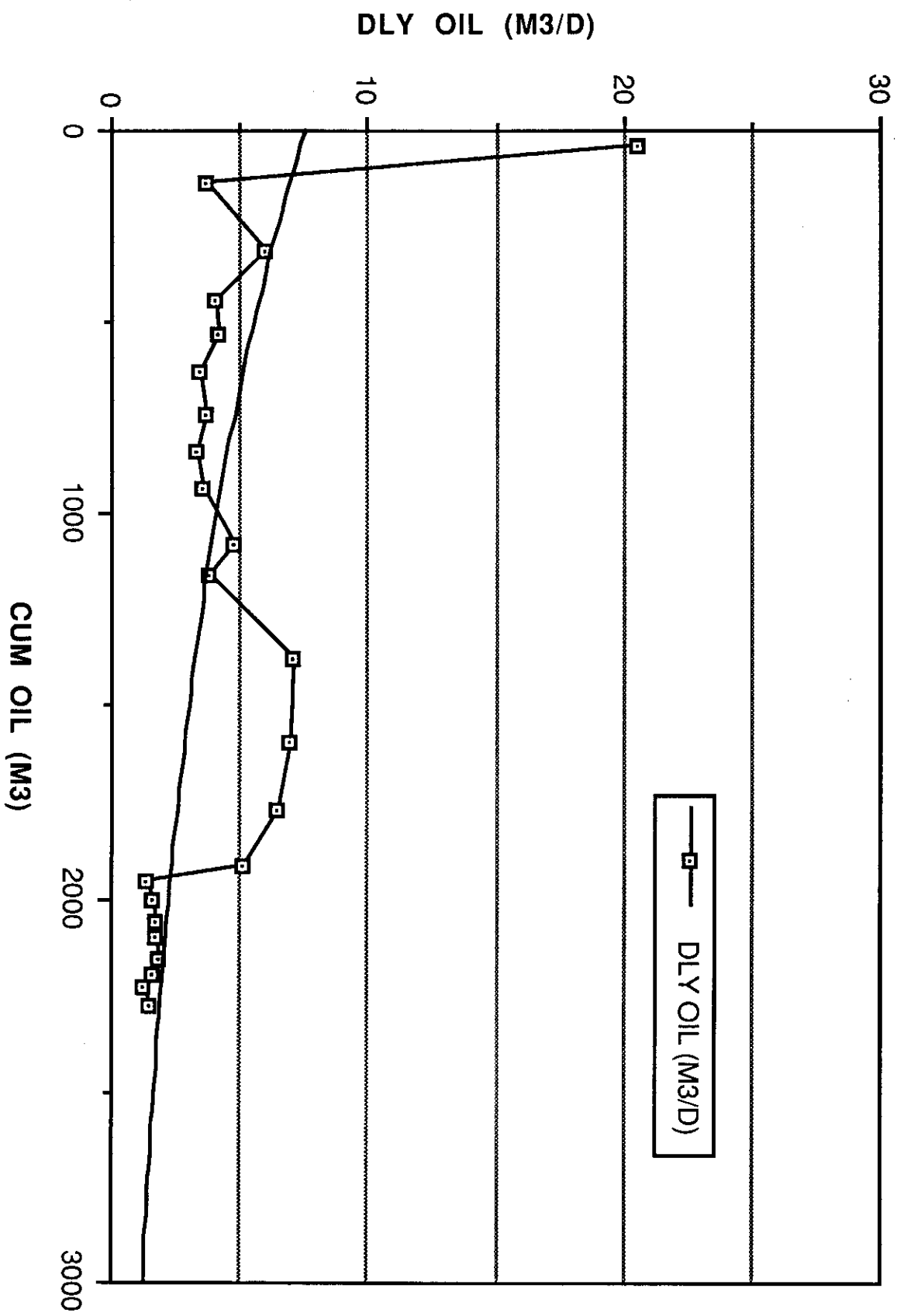
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RATE VS TIME



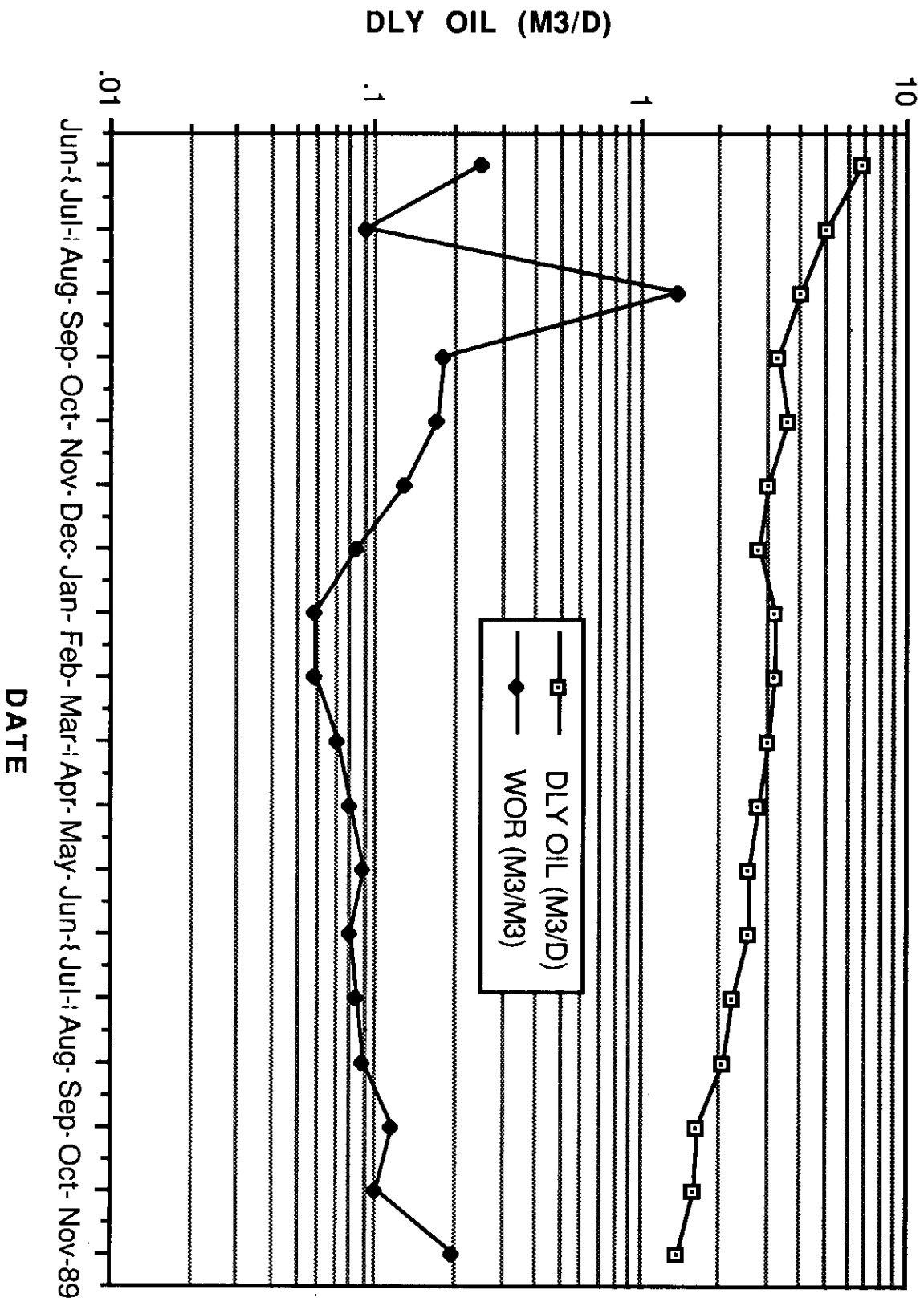
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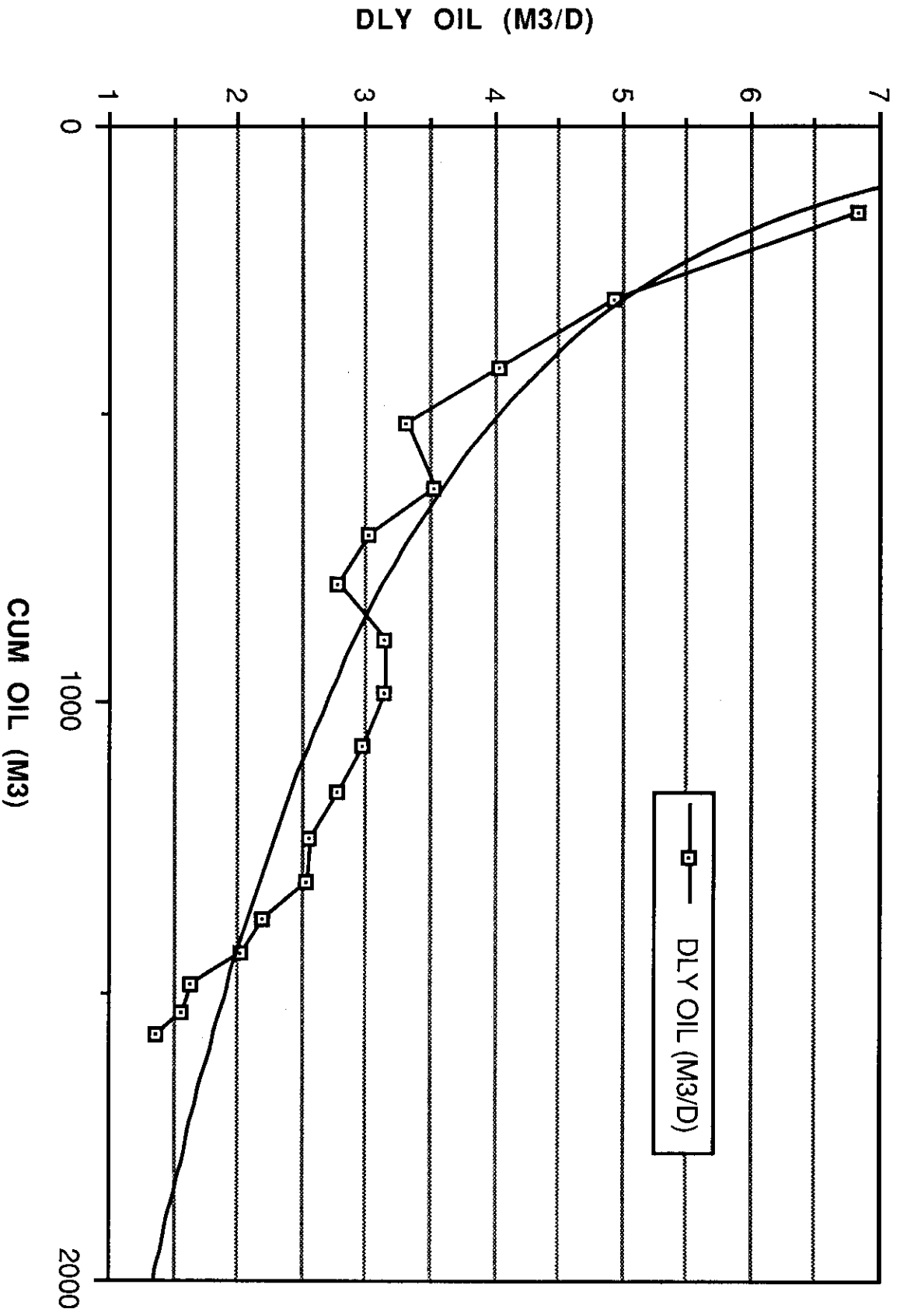


14-10-02-29W1

RATE VS TIME

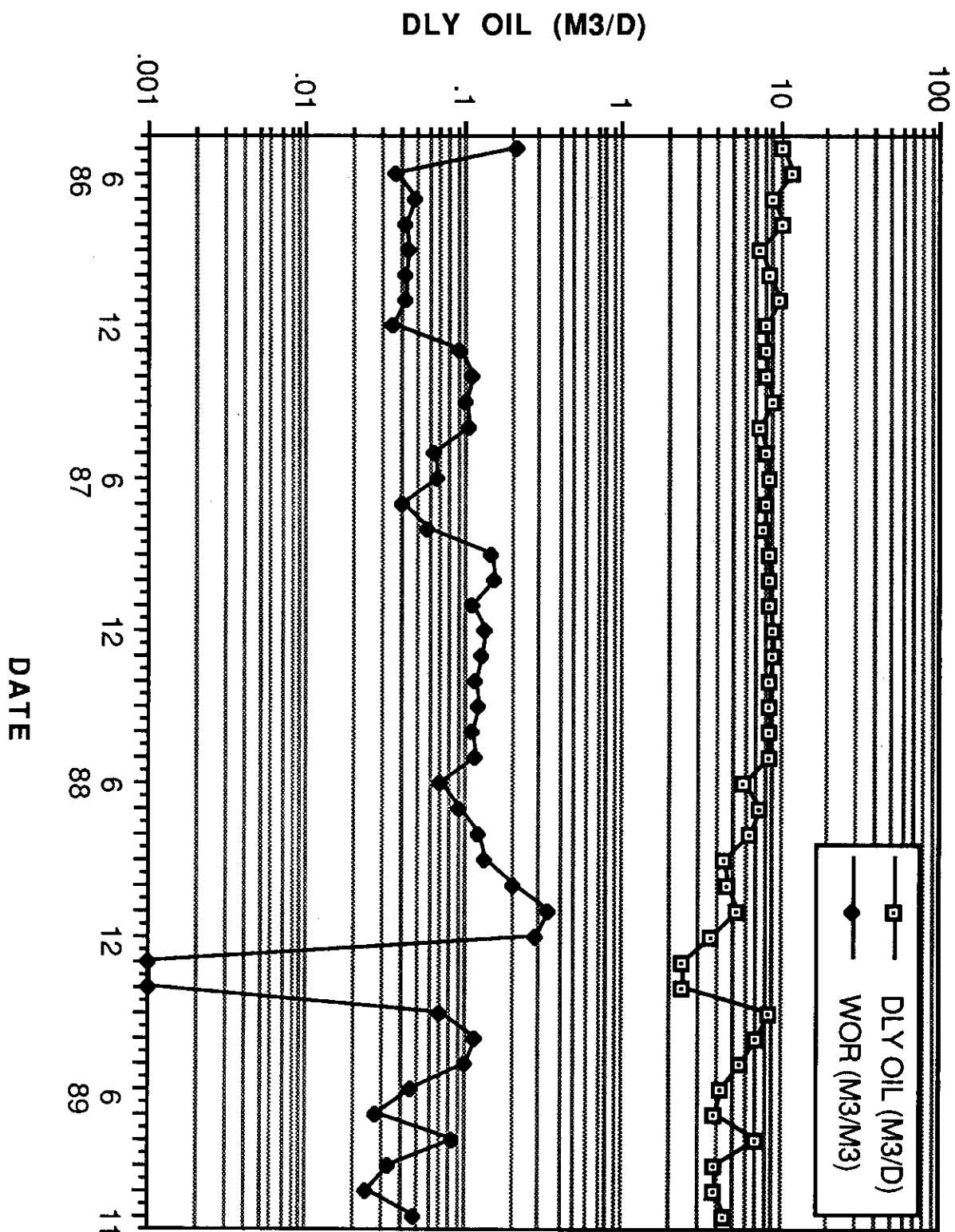


14-10-02-29W1
RATE VS CUM PROD

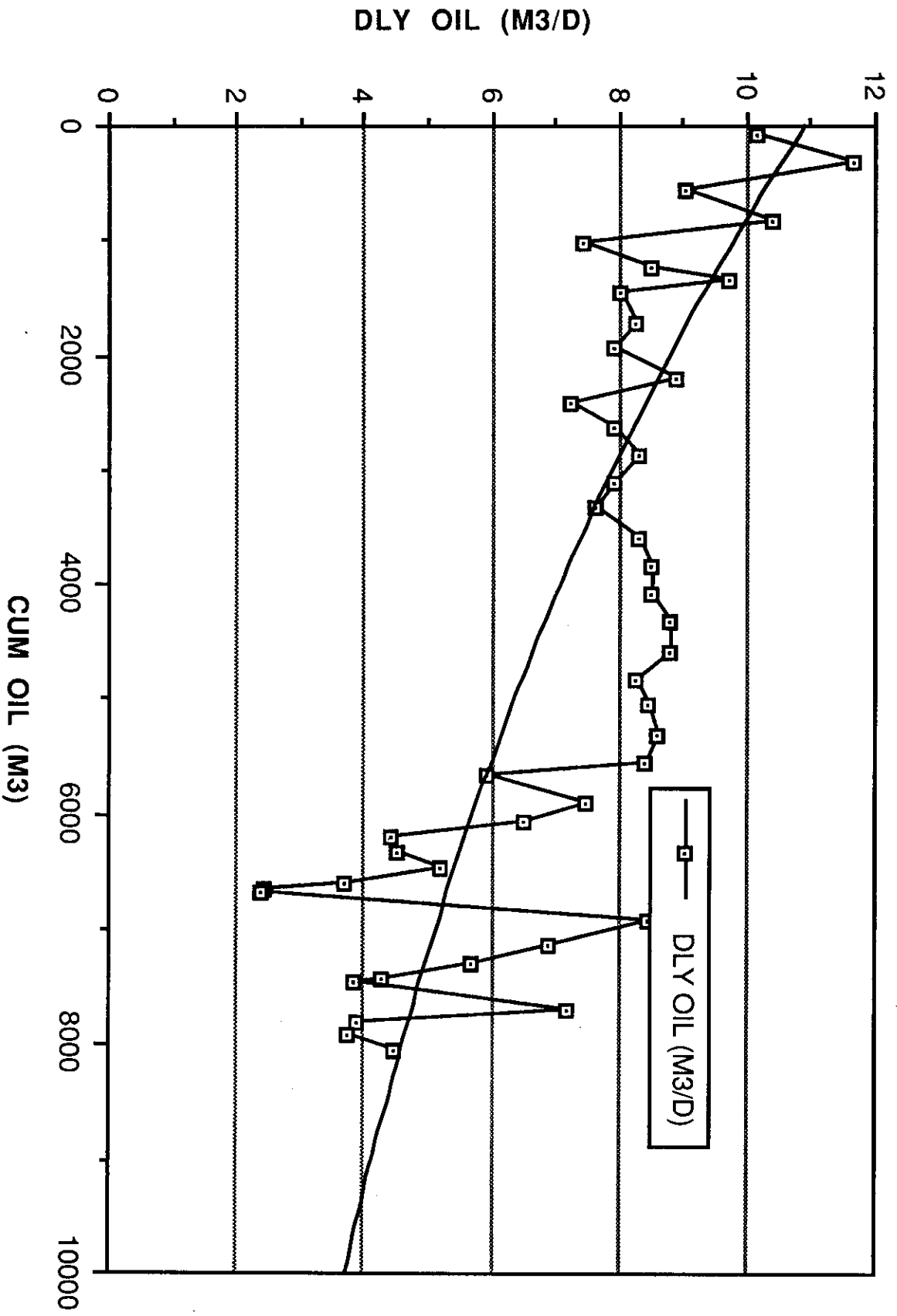


04-15-02-29W1

RATE VS TIME

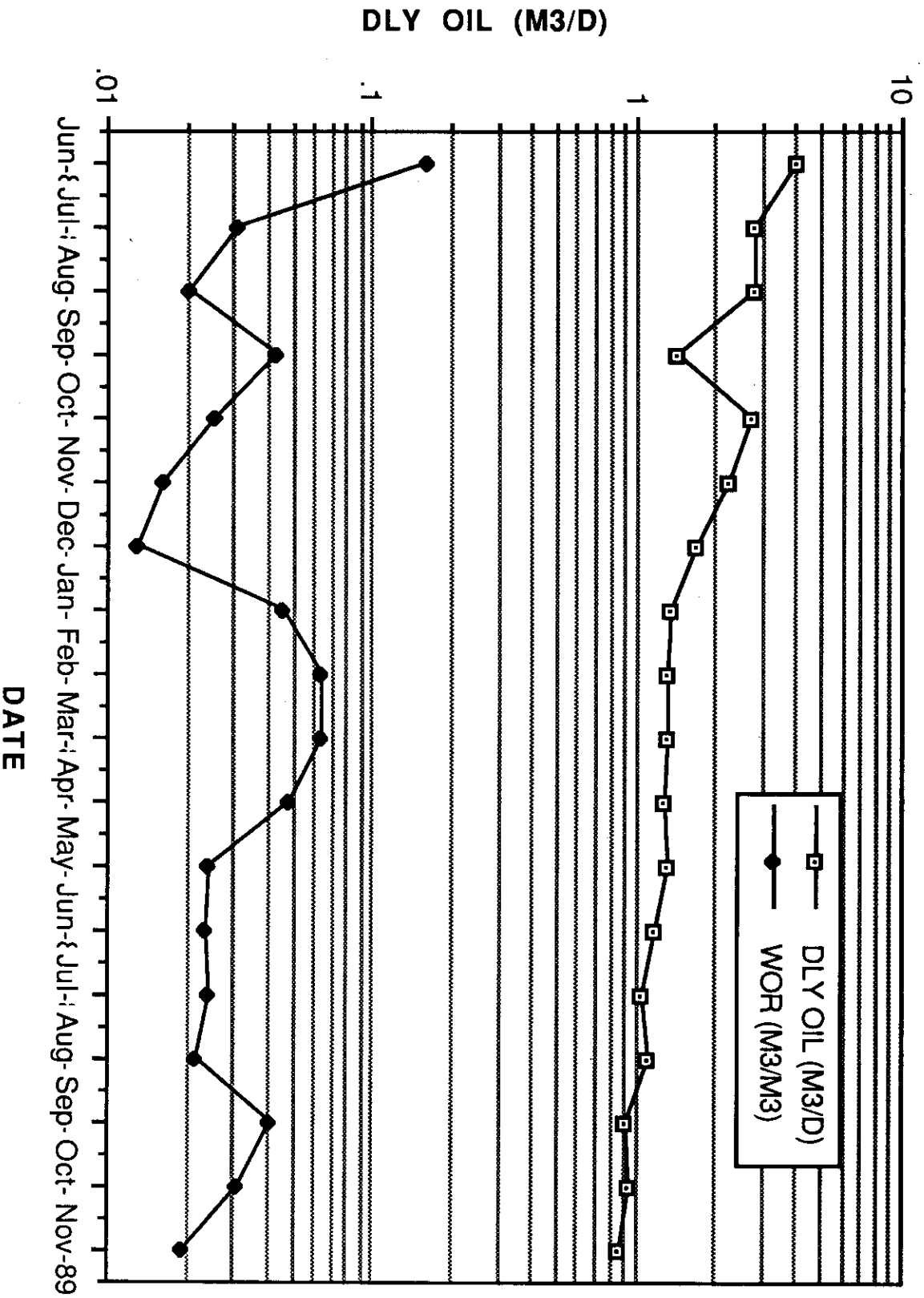


04-15-02-29W1
RATE VS CUM PROD

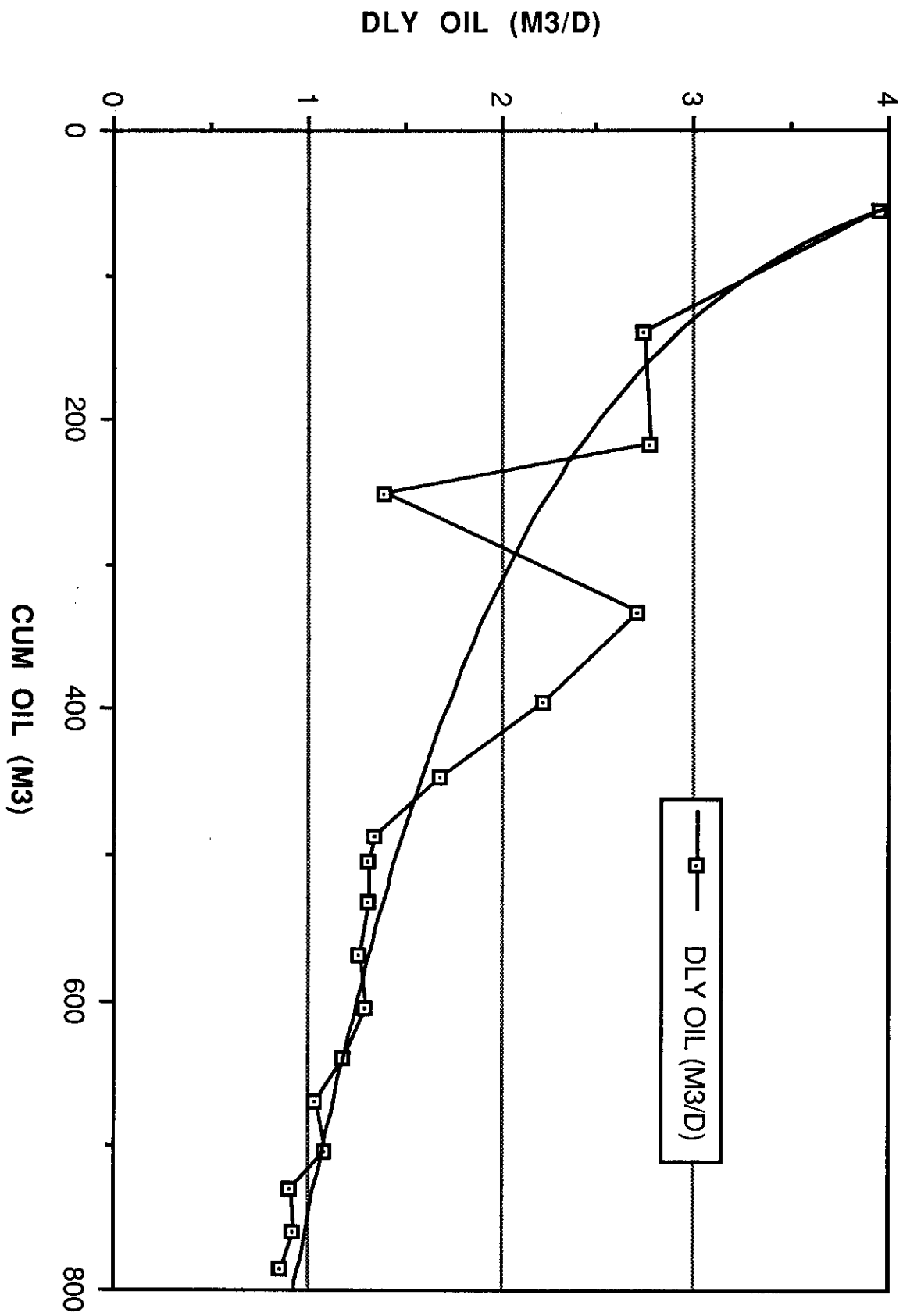


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RATE VS TIME



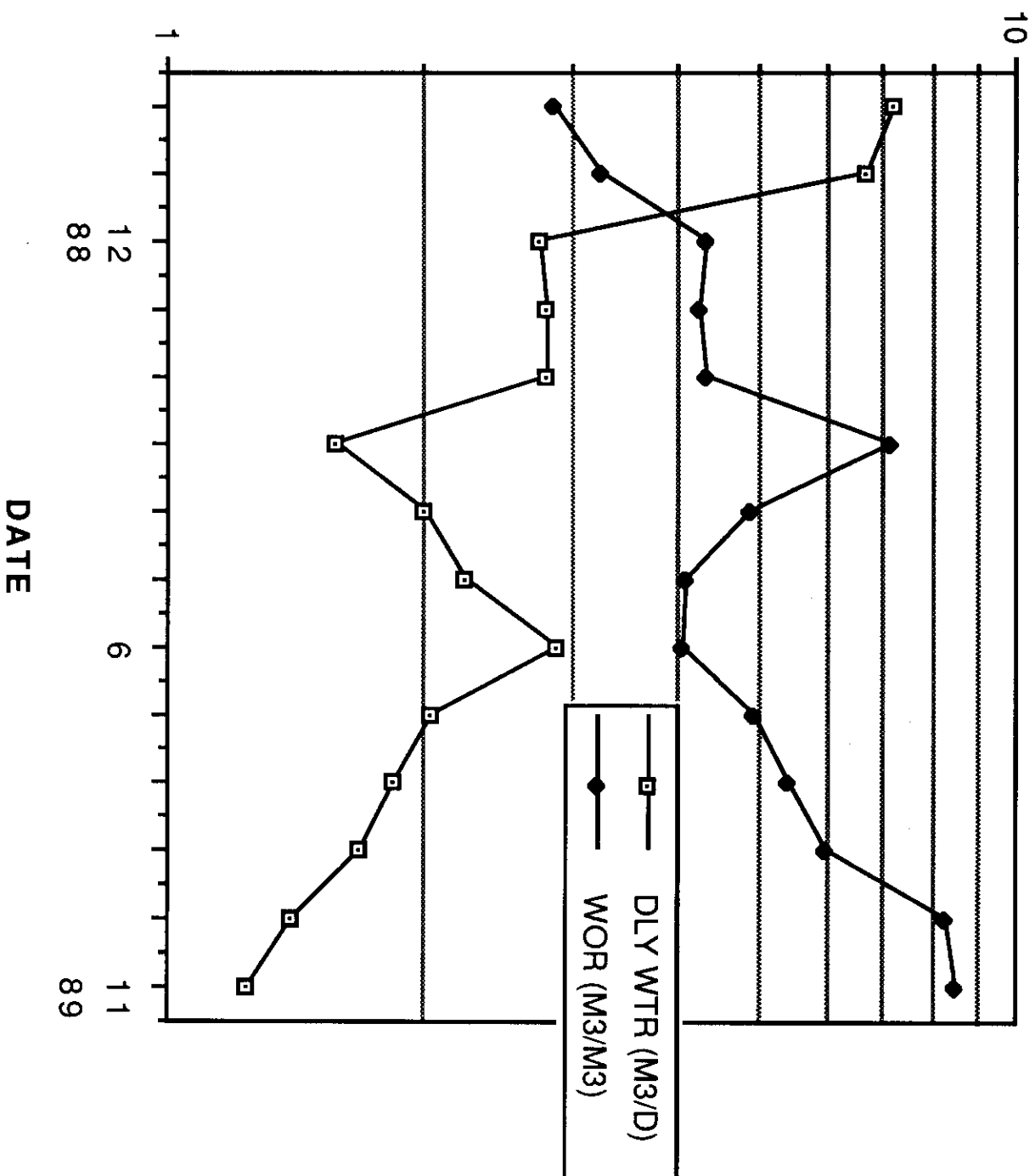
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RATE VS CUM PROD



06-17-02-29 W1

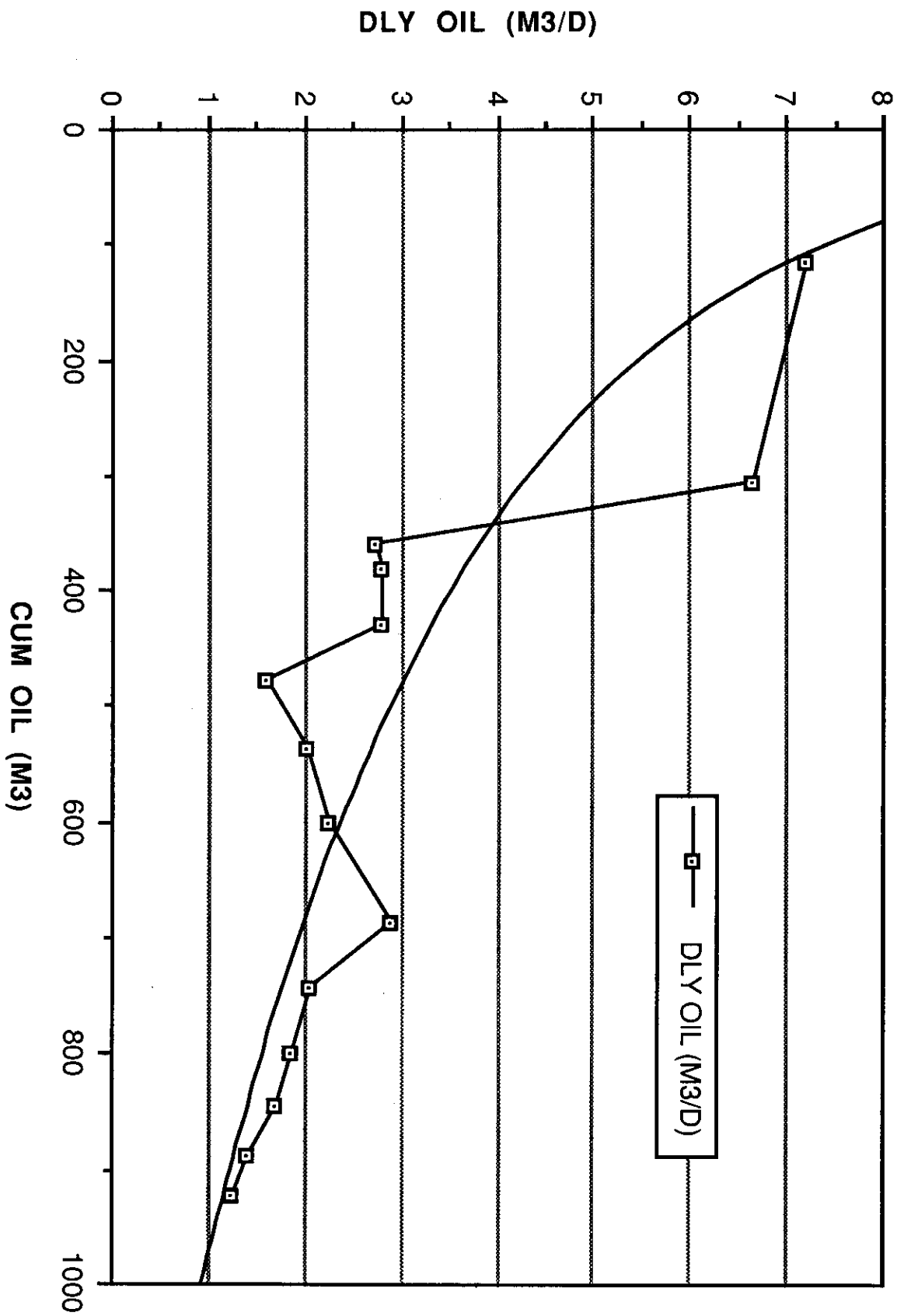
RATE VS TIME

DLY WTR (M3/D)



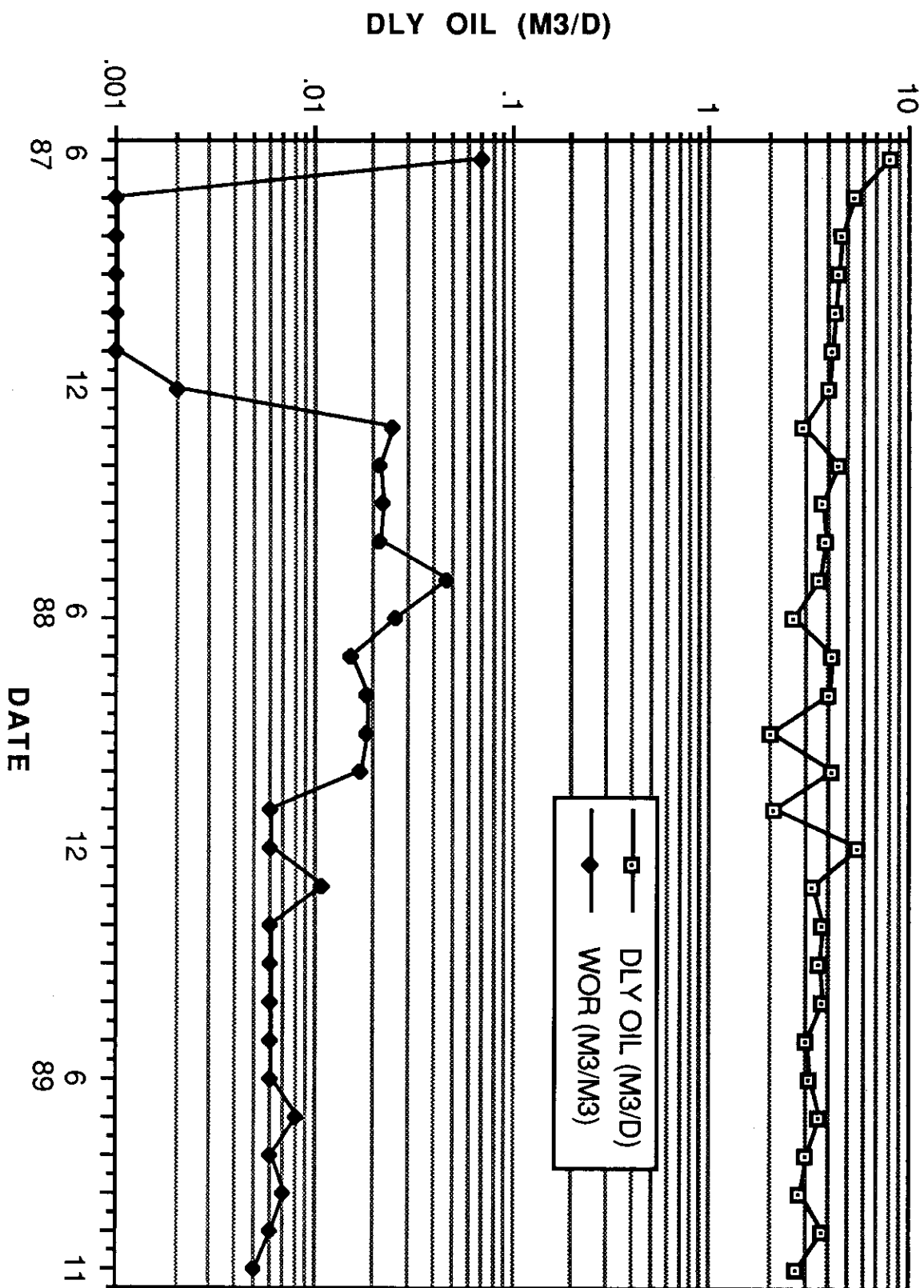
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RATE VS CUM PROD



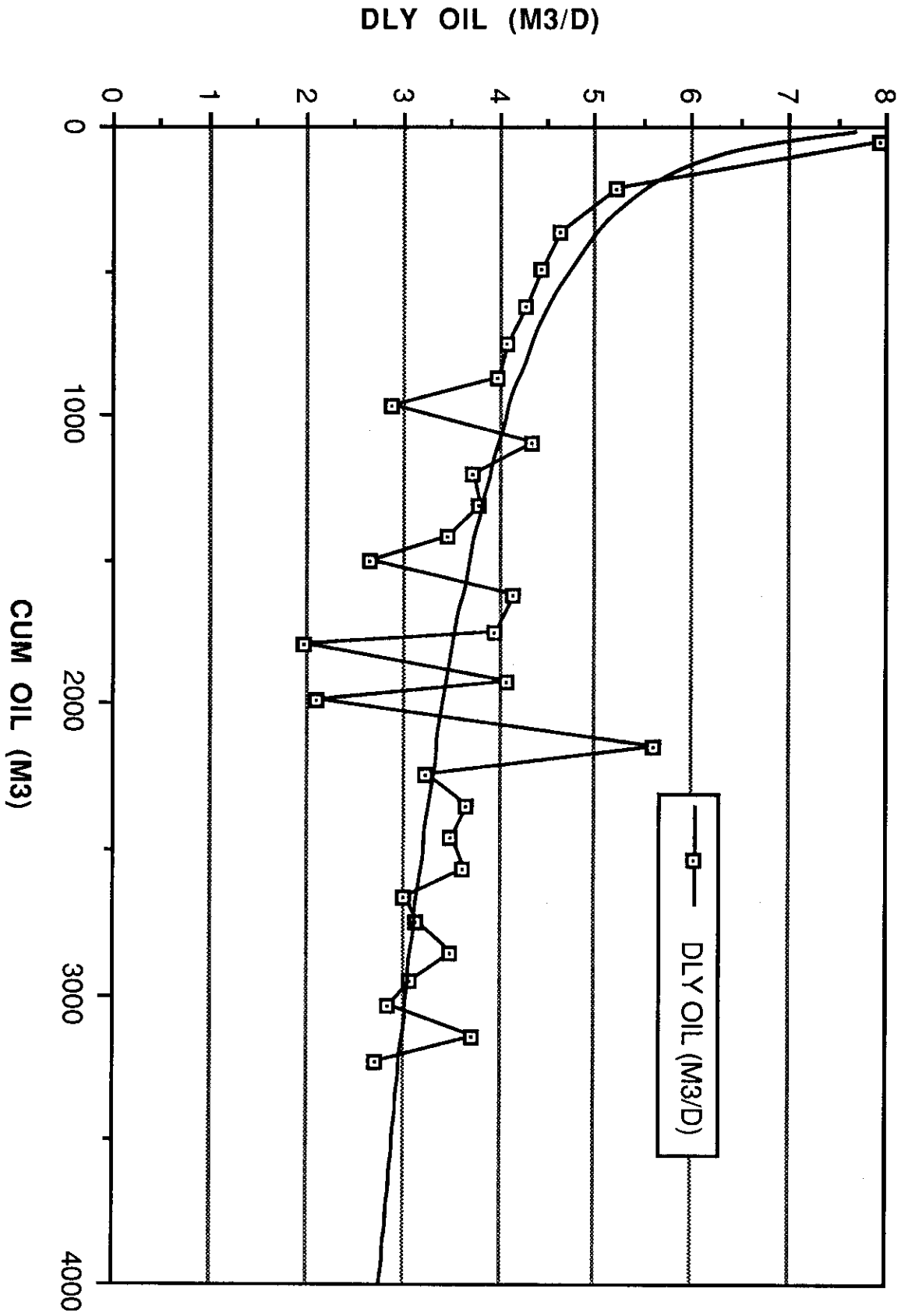
06-19-02-29W1

RATE VS TIME



06-19-02-29W1

RATE VS CUM PROD



Attachment 3

South Pierson

16 vs. 32 Hectare Spacing Economics

Average reservoir parameters were used to calculate proven reserves for 16 and 32 ha with a 12% recovery factor as indicated in Attachment 3A. Using these parameters and costs outlined in Attachment 3B, the economics of 16 and 32 ha spacing were evaluated. Sixteen hectare spacing economics are shown in Attachment 3C. In summary, the net present value is negative at a discount factor of 12%, which in Home Oil's opinion reflects the need for larger spacing. A reserves life of only 7.25 years for an average well under 16 ha spacing is noted.

The economics for 32 ha spacing (unrisked) are shown in Attachment 3D. At a discount factor of 12% the net present value is positive (\$M 176.6) with a 33.1% rate of return (unrisked). The reserves life has increased to 14.42 years for a 12% recovery of the original oil in place. Home Oil feels this recovery under 32 ha spacing is adequate drainage and justifies the request for larger spacing units in the area of application.

12%
33.1%

Attachment 3A

South Pierson

Lower Amaranth Average Reservoir Properties

Net Pay	4.0 meters
Porosity	15.0 %
Water Saturation	45.0 %
Formation Volume Factor	1.169 Rm ³ /m ³
Area	32.4 hectares
Primary Recovery	12.0 %
Recoverable Oil	10 976 m ³

Attachment 3B
South Pierson
Economic Summary

Economic Assumptions

Capital Expenditures

Drill & Case	180 M\$
Complete	75 M\$
Artificial Lift	30 M\$
Tie-in	<u>35 M\$</u>
Total	320 M\$

Operating Expenditures

Fixed	\$1 500/well/month
Variable	\$15/m ³ oil

Economic Results (AIT, 12% DCF, 81% COS)

	<u>16 hectares</u>	<u>32 hectares</u>
NPV (M\$)	-6.3	176.6
Investment (M\$)	320.0	320.0
Rate of Return (%)	10.7	33.1
Discounted Payout (years)	---	3.49
EMV (M\$)	-31.7	116.4
Risked ROR (%)	5.0	27.1
Risked Capital (M\$)	140.3	140.3

Attachment 3C

 * POGO *
 * AN OIL AND GAS LEASE *
 * ECONOMIC EVALUATOR *

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 40 ACRES - RECOVERABLE RESERVES = 5500 M3
 INITIAL PRODUCTION RATE = 7 M3OPD
 FINAL PRODUCTION RATE = 0.5 M3OPD

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
1990	0.58	2555	1872	1278	0	1278	1278
1991	1.58	1872	1165	1483	0	1483	2760
1992	2.58	1165	770	950	0	950	3710
1993	3.58	770	532	642	0	642	4352
1994	4.58	532	382	452	0	452	4803
1995	5.58	382	282	329	0	329	5132
1996	6.58	282	214	246	0	246	5378
.....	7.20	214	183	122	0	122	5500

Attachment 3C (con't)

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 40 ACRES - RECOVERABLE RESERVES = 5500 M3

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

DATE BEGIN	GROSS PRODN. m3	WORKING INTERST PRODN. m3	ROYALTY RECD. m3	** CROWN ** ROYALTY m3	%	FREEHOLD ROYALTY m3	%	NPI AND/OR OVERRIDING ROYALTY m3	%	NET PRODN. m3
1990	1278	1278	0	0	0.0	192	15.0	51	4.0	1035
1991	1483	1483	0	0	0.0	222	15.0	59	4.0	1201
1992	950	950	0	0	0.0	142	15.0	38	4.0	769
1993	642	642	0	0	0.0	96	15.0	26	4.0	520
1994	452	452	0	0	0.0	68	15.0	18	4.0	366
1995	329	329	0	0	0.0	49	15.0	13	4.0	266
1996	246	246	0	0	0.0	37	15.0	10	4.0	199
1997	122	122	0	0	0.0	18	15.0	5	4.0	99
TOTAL	5500	5500	0	0	0.0	825	15.0	220	4.0	4455

Attachment 3C (con't)

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 40 ACRES - RECOVERABLE RESERVES = 5500 M3

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

DATE BEGIN	REVENUE BEFORE DEDUCT.	CROWN ROYALTY BF. PEP	ALBERTA PEP ALLOW.	CROWN ROYALTY AF. PEP	MINERAL TAXES	INCOME TAXES	TOTAL GOVERNMENT BURDEN	REVENUE AFTER DEDUCT.
	\$	\$	\$	\$	\$	\$	%	\$
1990	166684	0	0	0	0	-4615	0.0	171300
1991	204871	0	0	0	24413	8907	33320	171551
1992	138051	0	0	0	12743	2713	15455	122595
1993	98977	0	0	0	4143	50	4193	94784
1994	78024	0	0	0	427	-316	111	77912
1995	63089	0	0	0	0	-981	0.0	63081
1996	50881	0	0	0	0	-1541	0.0	52423
1997	27455	0	0	0	0	-2851	0.0	30306
TOTAL	827041	0	0	0	41726	1364	43091	783951

Attachment 3C (con't)

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 40 ACRES - RECOVERABLE RESERVES = 5500 M3

***** SUMMARY *****

INTERESTS *

INTL ROYALTY INT (PCT) = 18.99999
 AVG. ROYALTY INT (PCT) = 19.00000
 INTL WORKING INT (PCT) = 100.00000
 INTL CAPITAL INT (PCT) = 100.00000

RESERVES + PROJECT LIFE *

LIFE (YRS) = 7.25
 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	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WI REM RES	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET REM RES	4.5	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	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NET PRESENT VALUE *

NET PROFIT INDICATORS *

	*** BEFORE INCOME TAX ***	*** AFTER INCOME TAX ***	RATE OF RETURN (PCT)	* BIT *	* AIT *
DISC. RATE	OP. INC (E3 \$)	OP. INC (E3 \$)			
0.00	390.2	388.8	11.28		10.74
5.00	355.1	352.9	3.72		3.93
10.00	326.5	323.8	0.00		0.00
15.00	302.8	299.9	0.98		0.97
20.00	283.0	280.0	0.22		0.22
30.00	251.6	248.7	-0.01		-0.02
12.00	316.5	313.7	-0.01		-0.02
			DIS C FLOW/UNDIS INV		140.25
			CAPITAL EXPOSURE (E3 \$)		255.00
			UNDIS C FLOW/CAP EXPOS		0.28
			DIS C FLOW/CAP EXPOS		-0.01
			SUCCESS CAPACITY		0.99
			FINDING COST (\$/m3)		57.24
			FIND+DEV COST (\$/m3)		71.83
			OIL (E3 m3)		4.45
					4.45

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 40 ACRES - RECOVERABLE RESERVES = 5500 M3
 INITIAL PRODUCTION RATE = 7 M3OPD
 FINAL PRODUCTION RATE = 0.5 M3OPD

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
 EXPOSURE
 (E3 \$)

140.3

CASE	PROBABILITY OF SUCCESS PCT	AIT 12% PV PROFIT E3 \$	AIT PAYOUT VRS	AIT ROR PCT	AIT PVI	AIT UNDIS CF/ UNDIS INV
1	0.0	-140.3	0.00	0.0	0.00	-1.00
2	20.0	-113.5	0.00	0.0	0.36	-0.56
3	30.0	-100.1	0.00	0.0	0.48	-0.40
4	40.0	-86.7	0.00	0.0	0.59	-0.27
5	50.0	-73.3	0.00	0.0	0.68	-0.16
6	60.0	-59.9	0.00	0.0	0.76	-0.06
7	70.0	-46.5	6.48	1.1	0.83	0.02
8	81.0	-31.7	5.02	5.0	0.89	0.10
9	100.0	-6.3	3.93	10.7	0.98	0.22

```

**      **      **      **      **      **      **      **
**                                POGO                                **
**                                **                                **
**      AN OIL AND GAS LEASE    **                                **
**      ECONOMIC EVALUATOR      **                                **
**                                **                                **
**      **      **      **      **      **      **      **      **

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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
1990	0.58	2555	2179	1377	0	1377	1377
1991	1.58	2179	1686	1919	0	1919	3296
1992	2.58	1686	1329	1498	0	1498	4794
1993	3.58	1329	1064	1190	0	1190	5985
1994	4.58	1064	864	960	0	960	6944
1995	5.58	864	710	784	0	784	7728
1996	6.58	710	590	648	0	648	8376
1997	7.58	590	495	541	0	541	8917
1998	8.58	495	419	456	0	456	9373
1999	9.58	419	358	387	0	387	9761
2000	10.58	358	307	332	0	332	10093
2001	11.58	307	266	286	0	286	10379
2002	12.58	266	232	248	0	248	10627
2003	13.58	232	203	217	0	217	10844
.....	14.40	203	183	156	0	156	11000

Attachment 3D (con't)

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 80 ACRES - RECOVERABLE RESERVES = 11000 M3

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

DATE BEGIN	GROSS PRODN. m3	WORKING INTERST PRODN. m3	ROYALTY PRODN. RECD. m3	** CROWN ROYALTY m3 %	FREEHOLD ROYALTY m3 %	NPI AND/OR OVERRIDING ROYALTY m3 %	NET PRODN. m3
1990	1377	1377	0	0 0.0	207 15.0	55 4.0	1115
1991	1919	1919	0	0 0.0	288 15.0	77 4.0	1554
1992	1498	1498	0	0 0.0	225 15.0	60 4.0	1214
1993	1190	1190	0	0 0.0	179 15.0	48 4.0	964
1994	960	960	0	0 0.0	144 15.0	38 4.0	777
1995	784	784	0	0 0.0	118 15.0	31 4.0	635
1996	648	648	0	0 0.0	97 15.0	26 4.0	525
1997	541	541	0	0 0.0	81 15.0	22 4.0	438
1998	456	456	0	0 0.0	68 15.0	18 4.0	369
1999	387	387	0	0 0.0	58 15.0	15 4.0	314
2000	332	332	0	0 0.0	50 15.0	13 4.0	269
2001	286	286	0	0 0.0	43 15.0	11 4.0	232
2002	248	248	0	0 0.0	37 15.0	10 4.0	201
2003	217	217	0	0 0.0	32 15.0	9 4.0	175
2004	156	156	0	0 0.0	23 15.0	6 4.0	127
TOTAL	11000	11000	0	0 0.0	1650 15.0	440 4.0	8910

Attachment 3D (con't)

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 80 ACRES - RECOVERABLE RESERVES = 11000 M3

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

DATE BEGIN	REVENUE BEFORE DEDUCT. E3 \$	CROWN ROYALTY BF. PEP E3 \$	ALBERTA PEP ALLOW. E3 \$	CROWN ROYALTY AF. PEP E3 \$	MINERAL TAXES E3 \$	INCOME TAXES E3 \$	TOTAL GOVERNMENT BURDEN E3 \$	REVENUE AFTER DEDUCT. E3 \$
1990	180	0	0	0	0	-2	-2 0.0	181
1991	265	0	0	0	35	22	57 21.6	208
1992	218	0	0	0	28	20	49 22.3	169
1993	184	0	0	0	21	19	39 21.5	144
1994	166	0	0	0	15	19	35 20.9	131
1995	148	0	0	0	10	18	29 19.4	119
1996	134	0	0	0	6	17	23 17.1	111
1997	122	0	0	0	3	16	19 15.3	103
1998	109	0	0	0	1	14	15 13.3	95
1999	99	0	0	0	0	12	12 12.1	87
2000	90	0	0	0	0	10	10 11.2	80
2001	82	0	0	0	0	8	8 10.2	74
2002	75	0	0	0	0	7	7 9.0	69
2003	70	0	0	0	0	5	5 7.7	64
2004	53	0	0	0	0	3	3 5.8	50
TOTAL	1994	0	0	0	120	189	309 15.5	1686

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 80 ACRES - RECOVERABLE RESERVES = 11000 M3

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RESERVES + PROJECT LIFE *
-----
LIFE (YRS) = 14.42
PROJECT START MONTH = JUNE
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LIFE (YRS) = 14.42
PROJECT START MONTH = JUNE
OIL SOLN GAS RESID
(E3 m3) (E3 m3) (E3

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	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	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WI REM RES	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET REM RES	8.9	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	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NET PROFIT INDICATORS *

NET PRESENT VALUE *					NET PROFIT INDICATORS *					* BIT *	* AIT *
					RATE OF RETURN (PCT)					43.39	33.12
					PAYOUT (VRS)					2.29	2.73
					DISCOUNTED PAYOUT (VRS)					2.75	3.48
					PRESENT WORTH INDEX					2.34	1.85
					UNDIS C FLOW/UNDIS INV					1.99	0.55
					DIS C FLOW/UNDIS INV					0.88	0.55
					DIS C FLOW/UNDIS INV					0.88	0.55
					CAPITAL EXPOSURE (E3 \$)					255.00	140.25
					UNDIS C FLOW/CAP EXPOS					2.50	3.18
					DIS C FLOW/CAP EXPOS					1.10	1.26
					SUCCESS CAPACITY					2.10	2.26
					FINDING COST (\$/m3)					28.62	15.74
					FIND+DEV COST (\$/m3)					35.91	19.79
					OIL (E3 m3)					8.91	8.91

** SOUTH PIERSON MANITOBA **
 LOWER AMARANTH SPACING APPLICATION
 80 ACRES - RECOVERABLE RESERVES = 11000 M3
 INITIAL PRODUCTION RATE = 7 M3OPD
 FINAL PRODUCTION RATE = 0.5 M3OPD

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
 EXPOSURE
 (E3 \$)

140.3

CASE	PROBABILITY OF SUCCESS PCT	AIT PV 12% PROFIT E3 \$	AIT PAYOUT VRS	AIT ROR PCT	AIT PVI	AIT UNDIS CF/ UNDIS INV
1	0.0	-140.3	0.00	0.0	0.00	-1.00
2	20.0	-76.9	0.00	0.0	0.56	-0.13
3	30.0	-45.2	8.96	4.1	0.77	0.19
4	40.0	-13.5	6.24	9.8	0.94	0.45
5	50.0	18.2	4.92	14.8	1.08	0.67
6	60.0	49.8	4.13	19.2	1.20	0.86
7	70.0	81.5	3.60	23.2	1.31	1.02
8	81.0	116.4	3.20	27.1	1.41	1.18
9	100.0	176.6	2.73	33.1	1.55	1.40

April 3, 1990

Chairman
The Oil and Natural Gas Conservation Board
Department of Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4A5

Dear Sir:

RE: APPLICATION FOR SPECIAL DRILLING SPACING UNITS
SOUTH PIERSON FIELD, LOWER AMARANTH B POOL

Tundra Oil and Gas Ltd. hereby applies for the designation of special drilling spacing units in the South Pierson Field pursuant to Part IV, Section 20 and Part XIII, Section 115 of the Regulations. In support of this application, we submit the following:

1. The area of application is outlined in Figure 1. It is an expansion of the area previously designated for 32 ha spacing by Board Order No. SU 5 dated October 4, 1989.
2. Within this area, we request spacing units of 32 ha to conform with the current designation in the remainder of the Lower Amaranth B Pool to the south.
3. The attached cross-section (Figure 2) shows the continuity of the Lower Amaranth B Pool and its extension onto the application lands.
4. The following summarizes our production expectations from wells on both 16 ha and 32 ha spacing:

	<u>16 ha</u>	<u>32 ha</u>
IP (BOPD)	25	25
Decline/yr	-40%	-25%
Recoverable Reserves (Ebls)	15,548	24,192

Economic analysis for both cases were performed and are attached. The results can be summarized as follows:

. . . /2

Chairman
April 3, 1990
Page 2

	<u>16 ha</u>	<u>32 ha</u>
AT NPV @ 20% DCF (M\$)	-18.0	+30.0
AT IRR	9.4%	34%

Although 16 ha spacing would recover approximately 28% more reserves per 32 ha area, it is clearly uneconomic due to overcapitalization.

5. The correlative rights of offset royalty and working interest holders will not be adversely affected as the well density and withdrawal rate per unit reservoir volume will decrease.
6. A list of the royalty and working interest owners within one kilometre of the area of application will follow.

If you require any further information pending approval of this application, please contact the undersigned.

Sincerely,



Dan Barchyn, P. Eng.
Exploration Manager

DE/ck

Attachments

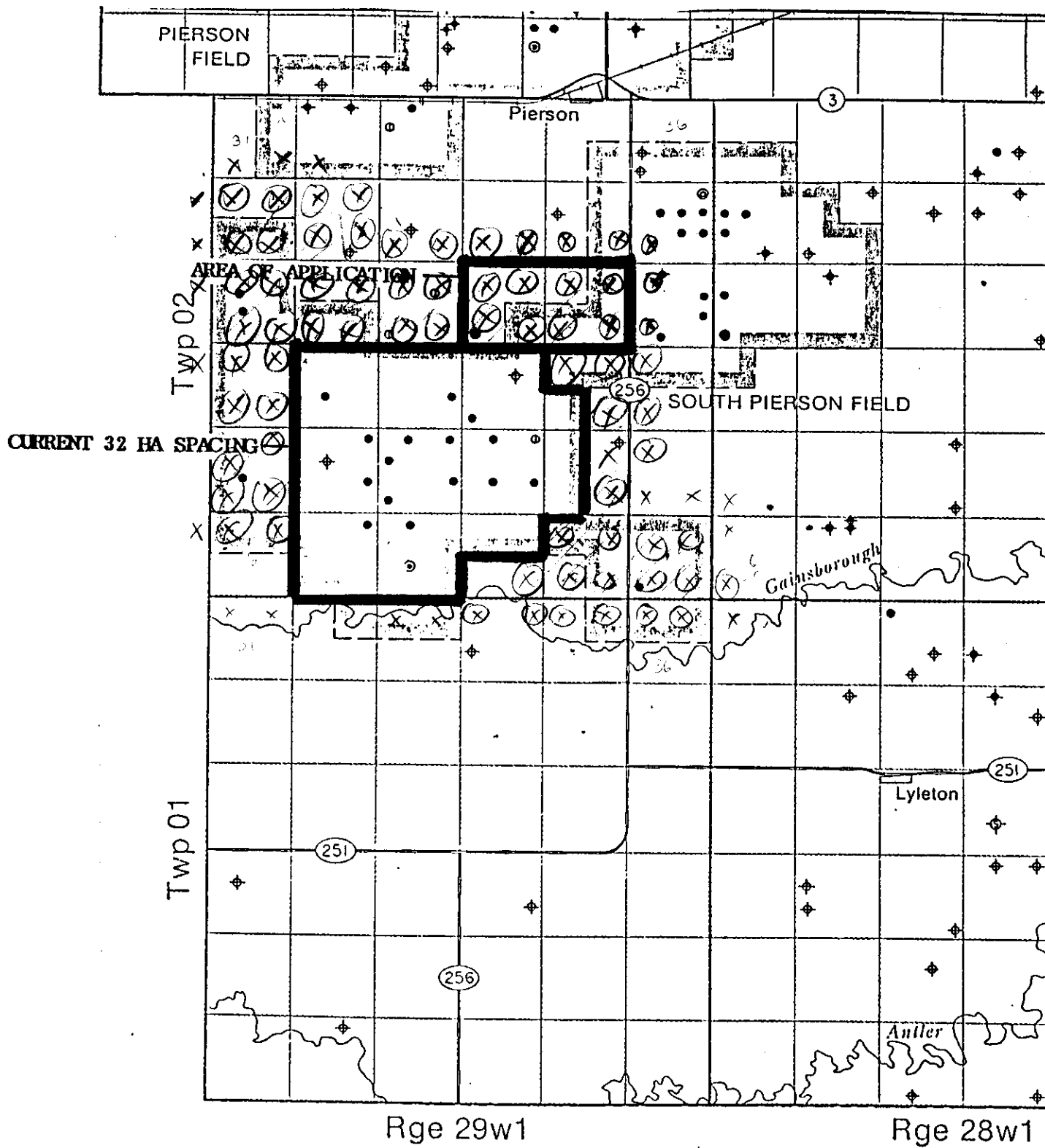
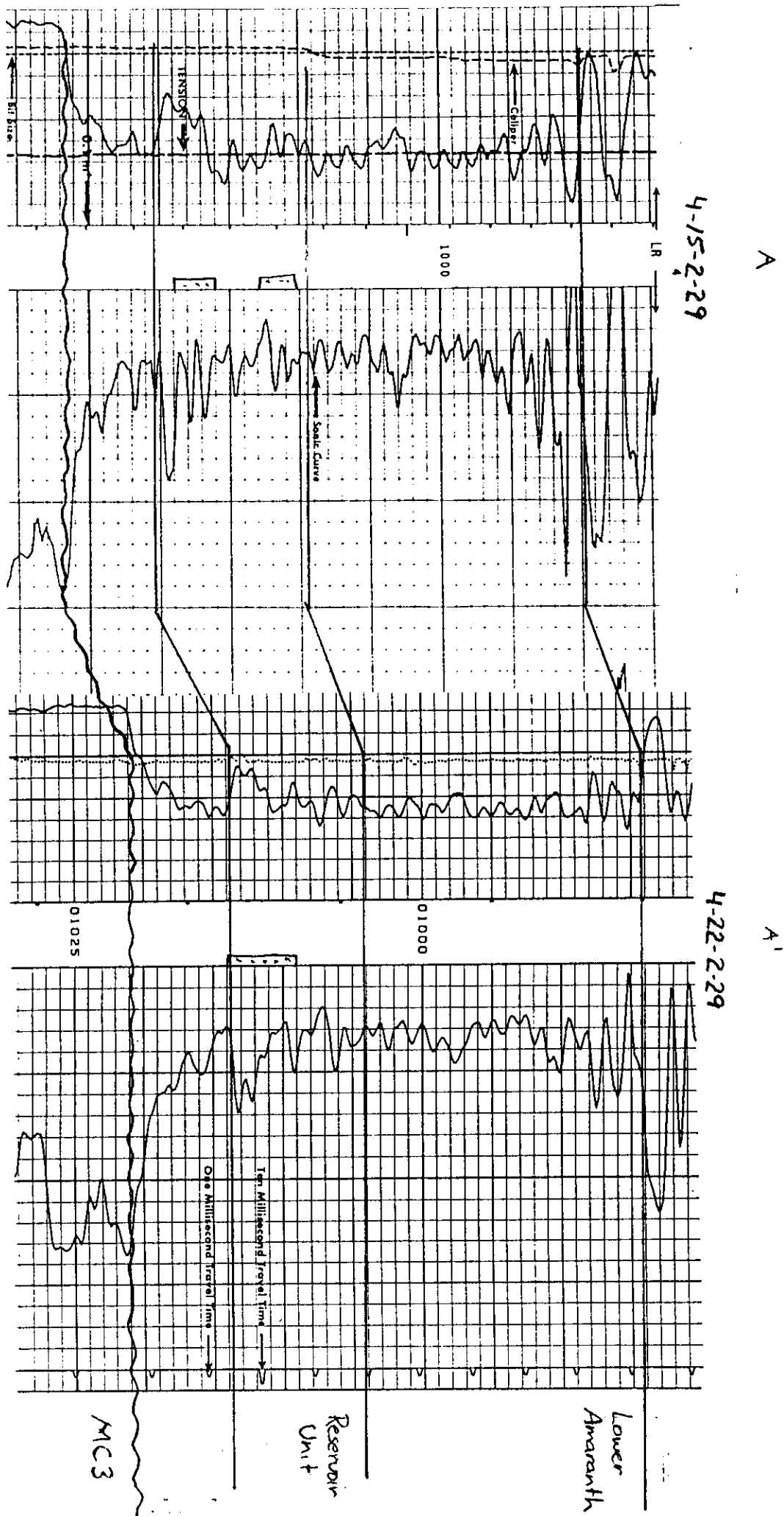


FIGURE 1

Figure 2



----- CASE DESCRIPTION -----
TUNDRA DRILLING ECONOMICS (1990):
SOUTH PIERSON: 4-22-2-29W1M
16 ha Spacing

DISC RATE (%)	NET PRESENT VALUES (M\$)					
	0.0	12.0	15.0	20.0	22.0	24.0
B.T. OPER INC	235	205	199	190	186	183
B.T. CAP INV.	210	210	210	210	210	210
B.T. CASH FLOW	25	-5	-11	-20	-24	-27

Royalty Regime: MANITOBA Gas Holiday: NO
Reserve type: Probable Oil Holiday: NO
Royalty Type: Crown Eval/Prod Start: 90- 1/90- 1
Sensitivity: NO Proj/Econ Life: 4.1/ 4.0 yrs

A.T. OPER INC	231	205	200	192	189	186
A.T. CAP INV.	210	210	210	210	210	210
A.T. CASH FLOW	21	-5	-10	-18	-21	-24

----- ECONOMIC INDICATORS -----

		B.TAX	A.TAX
ROR	- PCT	9.7	9.4
PAYOUT PERIOD	- EVAL	2.7	2.7
	- CAPIL	2.7	2.7
UNDISC PIR	- \$/\$	0.12	0.10
15.0 PCT PIR	- \$/\$	-0.05	-0.05
22.0 PCT PIR	- \$/\$	-0.11	-0.10
NPV @ 15.0	- \$/Bbl	-0.72	-0.65
NPV @ 22.0	- \$/Bbl	-1.54	-1.36

----- PRODUCTS RECOVERY -----

		CRUSS	WI	ROY	NET
OIL	STB	15548	15548	401	15148
GAS-RAM	MSCF	0	0		
GAS-SALES	MSCF	0	0	0	0
ETHANE	STB	0	0	0	0
PROPANE	STB	0	0	0	0
BUTANE	STB	0	0	0	0
CONDENS.	STB	0	0	0	0
SULPHUR	LT	0	0	0	0
OTHER	STB	0	0	0	0

----- COMPANY W.I. -----

	Init%	Avr%	Rev%
REVENUE	100.0	100.0	
FIELD CAP	100.0	0.0	
PLANT CAP			
GATH CAP			
URR-GAS			
URR-OIL			
ROYALTY	0.0	2.6	

----- W.I. CASH FLOW SUMMARY -----

YEAR	-----OIL PRODUCTION-----	TOTAL	---ROYALTY---	---OPERATING---	OPER	NETBACK	CAPIL	B.TAX	TOTAL	-----AFTER TAX-----	
	RATE VOL. PRICE	REV.	\$MINTAX	EXPENSE	INC.	B.TAX	INV.	CASH	TAX	CASH	CUM
	Bbl/D STB \$/Bbl	\$	\$	\$	\$ \$/Bbl	\$	\$	\$	\$	\$	\$
ZERO							210000	-210000	0	-210000	-210000
1990	20 7145	21.00 150051	0	0 27760	3.89 122291	17.11	0	122291	-25141	147432	137481
1991	12 4297	21.00 90031	3465	4 22743	5.39 63822	14.89	0	63822	17869	45953	37262
1992	7 2572	22.95 56719	3819	7 19858	7.72 33042	12.85	0	33042	8725	24318	17147
1993	4 1543	23.15 35733	1443	4 18347	11.89 15944	10.33	0	15944	3016	12927	7926
SUBT	15548	332534	8727	88708	235099		210000	25099	4469	20630	-10184
REM.	0	0	0	0	-0		0	0	0	0	0
TOTL	15548	332534	8727	88708	235099		210000	25099	4469	20630	-10184
15.0% DISC		274830	6387	69580	198863		210000	-11137	-953	-10184	
% OF REV.		100	2	25	72		76	-4	-0	-4	

Scenario: TUNDRA DRILLING ECONOMICS (1990):

----- ECONOMIC INDICATORS AT PUS = 100.0 -----

ROR - PCNI 9.7 9.4

Net capital exposure = 190 M\$
BREAK EVEN PROBABILITY OF SUCCESS

B.T.

PAYOUT PERIOD - YEARS 2.7 2.7
 - CAL YEAR 1992.7 1992.7
 UNDISC PIR - \$/\$ 11.95 9.82
 15.0 PCT PIR - \$/\$ -5.39 -4.65
 22.0 PCT PIR - \$/\$ -11.37 -10.09

Disc Rate [%] 15.0 22.0
 B.Tax BECUS [%] 106.2 114.4
 A.Tax BECUS [%] 110.3 123.5

===== RISK ANALYSIS =====

Prob of Success %	BEFORE TAX						AFTER TAX					
	ROR %	15% DCF M\$	22% DCF M\$	Payout Yrs	15% Payout Yrs	15% PIR %	ROR %	15% DCF M\$	22% DCF M\$	Payout Yrs	15% Payout Yrs	15% PIR %
0	0.0	-190	-190	0.00	0.00	-100	0.0	-109	-111	0.00	0.00	-57
10	0.0	-172	-173	0.00	0.00	-90	0.0	-99	-102	0.00	0.00	-52
20	0.0	-154	-157	0.00	0.00	-79	0.0	-89	-93	0.00	0.00	-46
30	0.0	-136	-140	0.00	0.00	-70	0.0	-79	-84	0.00	0.00	-40
40	0.0	-118	-124	0.00	0.00	-60	0.0	-69	-75	0.00	0.00	-35
50	0.0	-101	-107	0.00	0.00	-50	0.0	-59	-66	0.00	0.00	-30
60	0.0	-83	-90	0.00	0.00	-41	0.0	-50	-57	0.00	0.00	-25
70	0.0	-65	-74	0.00	0.00	-32	0.0	-40	-48	0.00	0.00	-19
80	0.0	-47	-57	0.00	0.00	-23	0.0	-30	-39	0.00	0.00	-15
90	1.4	-29	-40	3.75	0.00	-14	3.8	-20	-30	3.29	0.00	-10
100	9.7	-11	-24	2.72	0.00	-5	9.4	-10	-21	2.68	0.00	-5

----- CASE DESCRIPTION -----
TUNDRA DRILLING ECONOMICS (1990):
SOUTH PIERSON:4-22-2-29W1M

32 ha Spacing

Royalty Regime: MANITOBA Gas Holiday: NU
Reserve type: Producible Oil Holiday: NU
Royalty type: Crude Eval/Prod Start: 90- 1/90- 1
Sensitivity: NU Proj/Econ Life: 7.2/ 3.0 yrs

DISC RATE (%)	NET PRESENT VALUES (M\$)					
	0.0	12.0	15.0	20.0	22.0	24.0
B.T. OPER INC	368	302	289	270	264	257
B.T. CAP INV.	210	210	210	210	210	210
B.T. CASH FLOW	158	92	79	60	54	47
A.T. OPER INC	311	269	254	240	235	231
A.T. CAP INV.	210	210	210	210	210	210
A.T. CASH FLOW	101	59	44	30	25	21

----- ECONOMIC INDICATORS -----				----- PRODUCTS RECOVERY -----				----- COMPANY W.I. -----			
		B.TAX	A.TAX			GRUSS	WI			Init%	Rev%
ROR	- PCT	43.5	34.1	OIL	STB	24192	24192	1569	22623	100.0	100.0
PAYOUT PERIOD	- EVAL	1.8	1.9	GAS-WAX	MSCF	0	0	0	0	100.0	0.0
	- CAPX	1.8	1.9	GAS-SALES	MSCF	0	0	0	0		
UNDISC PIR	- \$/\$	0.15	0.43	ETHANE	STB	0	0	0	0		
15.0 PCT PIR	- \$/\$	0.38	0.21	PROPANE	STB	0	0	0	0		
22.0 PCT PIR	- \$/\$	0.26	0.12	BUTANE	STB	0	0	0	0		
NPV @ 15.0	- \$/Bbl	3.27	1.92	CONDENS.	STB	0	0	0	0		
NPV @ 22.0	- \$/Bbl	2.22	1.04	SULPHUR	LT	0	0	0	0		
				OTHER	STB	0	0	0	0	ROYALTY	0.0 6.6

----- W.I. CASH FLOW SUMMARY -----												----- AFTER TAX -----		
YEAR	OIL PRODUCTION	TOTAL	ROYALTY	OPERATING	OPER	NETBACK	CAPTL	B.TAX	TOTAL			CASH	15.0%	CUM
	RATE	VOL.	PRICE	REV.	EXPENSE	INC.	INV.	CASH	TAX					
	Bbl/D	STB	\$/Bbl	\$	\$/Bbl	\$	\$/Bbl	\$	\$	\$	\$	\$	\$	\$
ZERO										210000	-210000	0	-210000	-210000
1990	22	7930	21.00	166525	0	0	29490	3.72	137035	17.28	0	137035	-20072	157106
1991	16	5947	21.00	124494	12120	10	26625	4.48	86149	14.49	0	86149	28520	57629
1992	12	4460	22.05	98354	11784	12	24538	5.50	62032	13.91	0	62032	21430	40603
1993	9	3445	23.15	77454	6779	9	23080	6.70	47594	14.23	0	47594	15732	31862
1994	7	2509	24.31	60995	4002	7	22136	8.82	34856	13.89	0	34856	11139	23718
SUBT		24192		528221	34685		125870		367666		210000	157666	56749	100917
REM.		0		0	0		0		0		0	0	0	-0
TOTL		24192		528221	34685		125870		367666		210000	157666	56749	100917
15.0% DISC				405918	24427		92345		289146		210000	79146	35104	44042
% OF REV.				100	6		23		71		52	19	9	11

Current: TUNDRA DRILLING ECONOMICS (1990):

----- ECONOMIC INDICATORS AT PUS = 100.0 -----
ROR - PCNT 43.5 34.1

Net capital exposure = 190 M\$
BREAK-EVEN PROBABILITY OF SUCCESS

B.T. A

PAYOUT PERIOD - YEARS 1.8 1.9
- CAL YEAR 1991.8 1991.9
UNDISC PIR - \$/S 75.00 88.06
15.0 PCT PIR - \$/S 37.69 29.97
22.0 PCT PIR - \$/S 25.57 12.94

Disc Rate L11 15.0 22.0
B-tax BECOS L11 70.6 78.0
A-tax BECOS L11 71.2 81.5

===== RISK ANALYSIS =====

Prob of Success %	BEFORE TAX						AFTER TAX					
	ROR %	15% DCF M\$	22% DCF M\$	Payout Yrs	Payout Yrs	PIR %	ROR %	15% DCF M\$	22% DCF M\$	Payout Yrs	Payout Yrs	PIR %
0	0.0	-190	-190	0.00	0.00	-100	0.0	-109	-111	0.00	0.00	-57
10	0.0	-163	-166	0.00	0.00	-85	0.0	-94	-98	0.00	0.00	-49
20	0.0	-136	-141	0.00	0.00	-70	0.0	-78	-84	0.00	0.00	-40
30	0.0	-109	-117	0.00	0.00	-56	0.0	-63	-70	0.00	0.00	-32
40	0.0	-82	-93	0.00	0.00	-42	0.0	-48	-57	0.00	0.00	-24
50	0.0	-55	-68	0.00	0.00	-28	0.0	-32	-43	0.00	0.00	-16
60	5.0	-29	-44	4.11	0.00	-14	7.1	-17	-29	3.73	0.00	-8
70	14.4	-2	-19	3.13	0.00	-1	14.2	-2	-16	2.97	0.00	-1
80	23.9	25	5	2.55	3.55	12	21.0	13	-2	2.52	3.78	7
90	33.6	52	29	2.13	2.77	25	27.6	29	12	2.16	3.01	14
100	43.5	79	54	1.85	2.28	38	34.1	44	25	1.92	2.59	21

April 3, 1990

Chairman
The Oil and Natural Gas Conservation Board
Department of Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4A5

Dear Sir:

RE: APPLICATION FOR SPECIAL DRILLING SPACING UNITS
SOUTH PIERSON FIELD, LOWER AMARANTH B POOL

Tundra Oil and Gas Ltd. hereby applies for the designation of special drilling spacing units in the South Pierson Field pursuant to Part IV, Section 20 and Part XIII, Section 115 of the Regulations. In support of this application, we submit the following:

1. The area of application is outlined in Figure 1. It is an expansion of the area previously designated for 32 ha spacing by Board Order No. SU 5 dated October 4, 1989.
2. Within this area, we request spacing units of 32 ha to conform with the current designation in the remainder of the Lower Amaranth B Pool to the south.
3. The attached cross-section (Figure 2) shows the continuity of the Lower Amaranth B Pool and its extension onto the application lands.
4. The following summarizes our production expectations from wells on both 16 ha and 32 ha spacing:

	<u>16 ha</u>	<u>32 ha</u>
IP (EOPD)	25	25
Decline/yr	-40%	-25%
Recoverable Reserves (Bbls)	15,548	24,192

Economic analysis for both cases were performed and are attached. The results can be summarized as follows:

. . . /2

Chairman
April 3, 1990
Page 2

	<u>16 ha</u>	<u>32 ha</u>
AT NPV @ 20% DCF (M\$)	-18.0	+30.0
AT IRR	9.4%	34%

Although 16 ha spacing would recover approximately 28% more reserves per 32 ha area, it is clearly uneconomic due to overcapitalization.

5. The correlative rights of offset royalty and working interest holders will not be adversely affected as the well density and withdrawal rate per unit reservoir volume will decrease.
6. A list of the royalty and working interest owners within one kilometre of the area of application will follow.

If you require any further information pending approval of this application, please contact the undersigned.

Sincerely,



Dan Barchyn, P. Eng.
Exploration Manager

DE/ck

Attachments

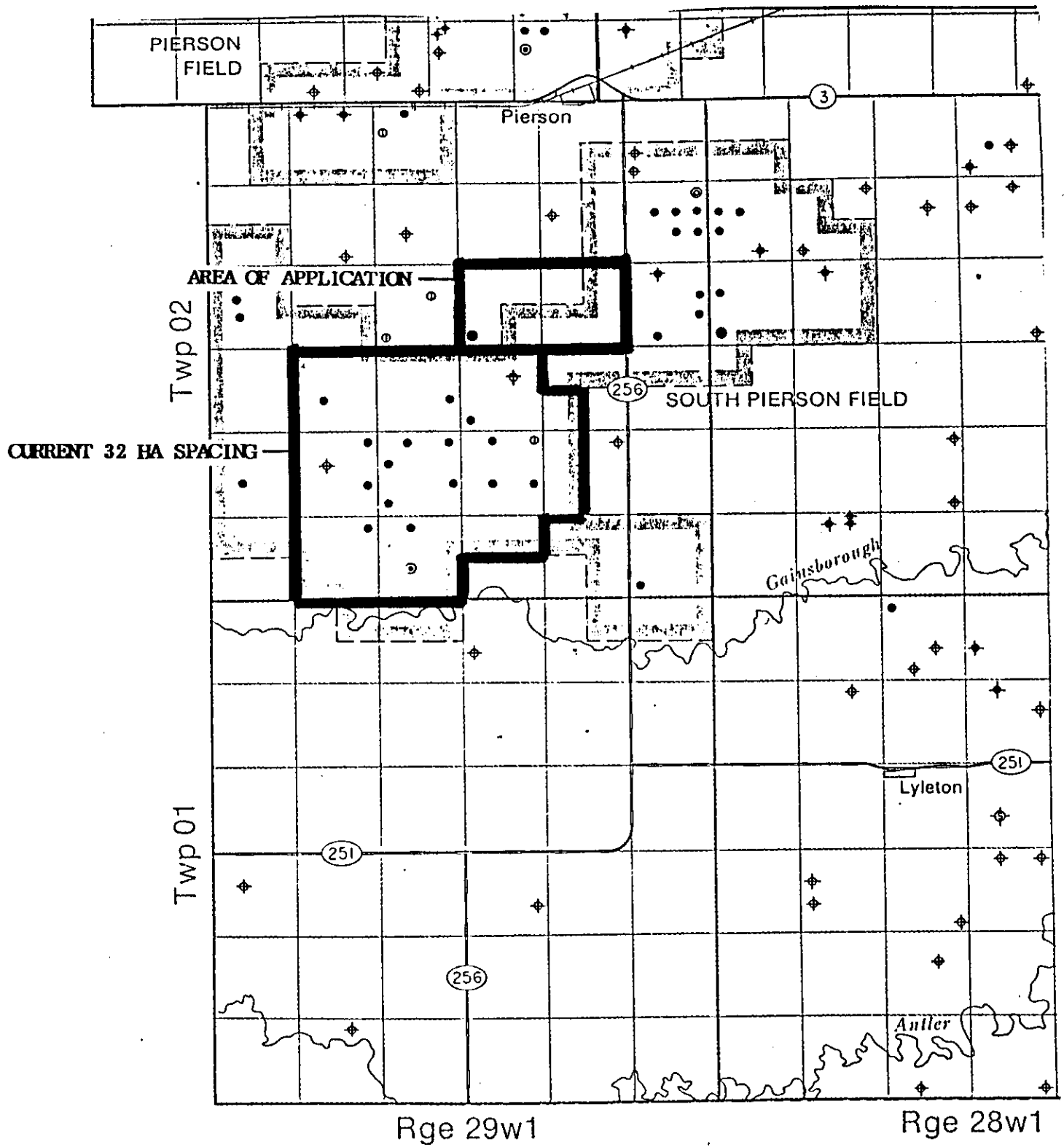


FIGURE 1

----- CASE DESCRIPTION -----
TUNDRA DRILLING ECONOMICS (1990):
SOUTH PIERSON: 4-22-2-29W1M
16 ha Spacing

Royalty Regime: MANITOBA Gas Holiday: NO
Reserve type: Probable Oil Holiday: NO
Royalty Type: Crown Eval/Prod Start: 90- 1/90- 1
Sensitivity: NO Proj/Econ Life: 4.1/ 4.0 yrs

DISC RATE (%)	NET PRESENT VALUES (M\$)					
	0.0	12.0	15.0	20.0	22.0	24.0
B.T. OPER INC	235	205	199	190	186	183
B.T. CAP INV.	210	210	210	210	210	210
B.T. CASH FLOW	25	-5	-11	-20	-24	-27
A.T. OPER INC	231	205	200	192	189	186
A.T. CAP INV.	210	210	210	210	210	210
A.T. CASH FLOW	21	-5	-10	-18	-21	-24

ECONOMIC INDICATORS				PRODUCTS RECOVERY				COMPANY W.I.			
		B.TAX	A.TAX		GROSS	WI	ROY	NET	Init%	Avr%	Rev%
ROR	- PONT	9.7	9.4	OIL	STR	15548	15548	401	15148	100.0	100.0
PAYOUT PERIOD	- EVAL	2.7	2.7	GAS-RAW	MSCF	0	0	0	0	100.0	0.0
	- CAPIL	2.7	2.7	GAS-SALES	MSCF	0	0	0	0		
UNDISC PIR	- \$/\$	0.12	0.10	ETHANE	STR	0	0	0	0		
15.0 PCT PIR	- \$/\$	-0.05	-0.05	PROPANE	STR	0	0	0	0		
22.0 PCT PIR	- \$/\$	-0.11	-0.10	BUTANE	STR	0	0	0	0		
NPV @ 15.0	- \$/Bbl	-0.72	-0.65	CONDENS.	STR	0	0	0	0		
NPV @ 22.0	- \$/Bbl	-1.54	-1.36	SULPHUR	LI	0	0	0	0		
				OTHER	STR	0	0	0	0		
									REVENUE	0.0	2.6
									FIELD CAP		
									PLANT CAP		
									GATH CAP		
									URR-GAS		
									URR-OIL		
									ROYALTY		

WI CASH FLOW SUMMARY													
YEAR	OIL PRODUCTION			TOTAL	ROYALTY		OPERATING		OPER	NEIBACK	CAPITL	B.TAX	TOTAL
	RATE	VOL.	PRICE	REV.	\$	%	EXPENSE		INC.	B.TAX	INV.	CASH	TAX
	Bbl/D	STR	\$/Bbl	\$	\$	%	\$	\$/Bbl	\$	\$/Bbl	\$	\$	\$
ZERO											210000	-210000	0
1990	20	7145	21.00	150051	0	0	27760	3.89	122291	17.11	0	122291	-25141
1991	12	4297	21.00	90031	3465	4	22743	5.30	63822	14.89	0	63822	17869
1992	7	2572	22.05	56719	3819	7	19858	7.72	33042	12.85	0	33042	8725
1993	4	1543	23.15	35733	1443	4	18347	11.87	15744	10.33	0	15744	3016
SUBT		15548		332534	8727		58703		235099		210000	25099	4469
REM		0		0	0		0		-0		0	0	0
TOTL		15548		332534	8727		58703		235099		210000	25099	4469
15.0% DISC				274830	6387		69580		198863		210000	-11137	-953
% OF REV.				100	2		25		72		76	-4	-4

Comment: TUNDRA DRILLING ECONOMICS (1990):

----- ECONOMIC INDICATORS AT PUS = 100.0 -----
ROR - PCNT 9.7 9.4
PAYOUT PERIOD - YEARS 2.7 2.7
- CAL YEAR 1992.7 1992.7
UNDISC PIR - \$/\$ 11.95 9.82
15.0 PCT PIR - \$/\$ -5.39 -4.85
22.0 PCT PIR - \$/\$ -11.37 -10.09

Net capital exposure = 190 M\$
BREAK EVEN PROBABILITY OF SUCCESS

B.T.

Disc Rate (%) 15.0 22.0
B.Tax BECOS (%) 106.2 114.4
A.Tax BECOS (%) 110.3 123.5

===== RISK ANALYSIS =====

Prob of Success %	BEFORE TAX						AFTER TAX					
	ROR %	15% DCF M\$	22% DCF M\$	Payout Yrs	Payout Yrs	15% PIR %	ROR %	15% DCF M\$	22% DCF M\$	Payout Yrs	Payout Yrs	15% PIR %
0	0.0	-190	-190	0.00	0.00	-100	0.0	-109	-111	0.00	0.00	-57
10	0.0	-172	-173	0.00	0.00	-90	0.0	-99	-102	0.00	0.00	-52
20	0.0	-154	-157	0.00	0.00	-79	0.0	-89	-93	0.00	0.00	-46
30	0.0	-136	-140	0.00	0.00	-70	0.0	-79	-84	0.00	0.00	-40
40	0.0	-118	-124	0.00	0.00	-60	0.0	-69	-75	0.00	0.00	-35
50	0.0	-101	-107	0.00	0.00	-50	0.0	-59	-66	0.00	0.00	-30
60	0.0	-83	-90	0.00	0.00	-41	0.0	-50	-57	0.00	0.00	-25
70	0.0	-65	-74	0.00	0.00	-32	0.0	-40	-48	0.00	0.00	-19
80	0.0	-47	-57	0.00	0.00	-23	0.0	-30	-39	0.00	0.00	-15
90	1.4	-29	-40	3.75	0.00	-14	3.8	-20	-30	3.29	0.00	-10
100	9.7	-11	-24	2.72	0.00	-5	9.4	-10	-21	2.68	0.00	-5

Current: TUNDRA DRILLING ECONOMICS (1990):

----- ECONOMIC INDICATORS AT PUS = 100.0 -----
ROR - PCT 43.5 34.1
PAYOUT PERIOD - YEARS 1.8 1.9
- CAL YEAR 1991.8 1991.9
UNDISC PIR - \$/s 15.08 48.06
15.0 PCT PIR - \$/s 37.69 29.97
22.0 PCT PIR - \$/s 25.57 12.04

Net capital exposure = 190 M\$
BREakeven PROBABILITY OF SUCCESS

B.T.

Disc Rate (%) 15.0 22.0
B.tax BECUS (%) 70.6 78.0
A.tax BECUS (%) 71.2 81.5

===== RISK ANALYSIS =====

Prob of Success %	BEFORE TAX						AFTER TAX					
	ROR %	DCF M\$	DCF M\$	Payout Yrs	Payout Yrs	PIR %	ROR %	DCF M\$	DCF M\$	Payout Yrs	Payout Yrs	PIR %
0	0.0	-190	-190	0.00	0.00	-100	0.0	-109	-111	0.00	0.00	-57
10	0.0	-163	-166	0.00	0.00	-85	0.0	-94	-98	0.00	0.00	-49
20	0.0	-136	-141	0.00	0.00	-70	0.0	-78	-84	0.00	0.00	-40
30	0.0	-109	-117	0.00	0.00	-56	0.0	-63	-70	0.00	0.00	-32
40	0.0	-82	-93	0.00	0.00	-42	0.0	-48	-57	0.00	0.00	-24
50	0.0	-55	-68	0.00	0.00	-28	0.0	-32	-43	0.00	0.00	-16
60	5.0	-29	-44	4.11	0.00	-14	7.1	-17	-29	3.73	0.00	-8
70	14.4	-2	-19	3.13	0.00	-1	14.2	-2	-16	2.97	0.00	-1
80	23.9	25	5	2.55	3.55	12	21.0	13	-2	2.52	3.78	7
90	33.6	52	29	2.13	2.77	25	27.6	29	12	2.16	3.01	14
100	43.5	79	54	1.85	2.28	38	34.1	44	25	1.92	2.59	21

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



1989-06-27

Kenneth James Lee
Box 35
Pierson, Manitoba
ROM 1S0



Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

This information package is being distributed to all freehold Mineral Owners within and adjacent to the area of application. It discusses the effects of the proposed spacing on the Mineral Owners and addresses the concerns expressed by some.

If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED

G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

Charles Nicoll, William
Nicoll & Mary MacLeod
Box 275
Treherne, Manitoba
R0G 2V0

Dear Sirs/Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

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HOME OIL COMPANY LIMITED



G. Harrison

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1564e/1

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Attn: Mr. John Fox
File

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1989-06-27

Wayne Gordon Tingey
Box 95
Lyleton, Manitoba
R0M 1G0

Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

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1564e/1

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Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

Sarah Ruby Caney
Box 1013
Virden, Manitoba
R0M 2C0

Dear Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

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Yours truly,

HOME OIL COMPANY LIMITED



G. Harrison

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1564e/1

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D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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



1989-06-27

South West Oil Limited
Box 855
Melita, Manitoba
R0M 1L0

Dear Sir/Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

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Yours truly,

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1564e/1

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D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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324 Eighth Avenue S.W.
Calgary, Alberta T2P 2Z5
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Fax (403) 232-7678



1989-06-27

Prairie Leaseholds Ltd.
c/o Petro-Canada Inc.
Box 2844
Calgary, Alberta
T2P 3E3

Dear Sir/Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

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If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED

G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

Campbell Oil Properties Ltd.
Box 84
Pierson, Manitoba
R0M 1S0

Dear Sir/Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

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If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED



G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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



1989-06-27

Royal Trust Corporation of Canada
Estate of L.G. Steens
Box 149
Winnipeg, Manitoba
R3C 2M2

Dear Sir/Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

This information package is being distributed to all freehold Mineral Owners within and adjacent to the area of application. It discusses the effects of the proposed spacing on the Mineral Owners and addresses the concerns expressed by some.

If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED

G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

John Murray
Box 3
Pierson, Manitoba
R0M 1S0

Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

This information package is being distributed to all freehold Mineral Owners within and adjacent to the area of application. It discusses the effects of the proposed spacing on the Mineral Owners and addresses the concerns expressed by some.

If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED



G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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



1989-06-27

Crossman Petroleums Ltd.
Box 149
Pierson, Manitoba
R0M 1S0

Dear Sir/Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

This information package is being distributed to all freehold Mineral Owners within and adjacent to the area of application. It discusses the effects of the proposed spacing on the Mineral Owners and addresses the concerns expressed by some.

If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED

G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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



1989-06-27

Isabelle Boyd
Box 248
Pierson, Manitoba
R0M 1S0

Dear Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

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This information package is being distributed to all freehold Mineral Owners within and adjacent to the area of application. It discusses the effects of the proposed spacing on the Mineral Owners and addresses the concerns expressed by some.

If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED

G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

Canada Permanent Trust Company
311 - 6th Avenue S.W.
Calgary, Alberta
T2P 0R6

Dear Sir/Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

This information package is being distributed to all freehold Mineral Owners within and adjacent to the area of application. It discusses the effects of the proposed spacing on the Mineral Owners and addresses the concerns expressed by some.

If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED



G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

Robert Henry Kielhorn
171 - 32691 Garibaldi Drive
Abbotsford, B.C.
V2S 6W8

Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines.

This information package is being distributed to all freehold Mineral Owners within and adjacent to the area of application. It discusses the effects of the proposed spacing on the Mineral Owners and addresses the concerns expressed by some.

If you have any further questions please contact Ruth Bennett of Home Oil at (403) 232-7508.

Yours truly,

HOME OIL COMPANY LIMITED



G. Harrison

GBH/jlc
1564e/1

cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

Kevin Paul Kielhorn
111 Youville Street
Winnipeg, Manitoba
R2H 2R9

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Fax (403) 232-7678

1989-06-27

The Canada Trust Company
311 - 6th Avenue S.W.
Calgary, Alberta
T2P 3H2

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Calgary, Alberta T2P 2Z5
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Fax (403) 232-7678

1989-06-27

George Douglas Hart
331 Wainwright Road S.E.
Calgary, Alberta
T2J 1H9

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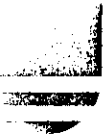
G. Harrison

GBH/jlc
1564e/1

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Manitoba Energy & Mines
Attn: Mr. John Fox
File

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



1989-06-27

Doris Amanda Smith
General Delivery
Pierson, Manitoba
ROM 1S0

Dear Madam:

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Attn: Mr. John Fox
File

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

1989-06-27

John Hammell
Box 102
Pierson, Manitoba
R0m 1S0

Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

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G. Harrison

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1564e/1

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D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

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

1989-06-27

74800 Manitoba Ltd.
Box 102
Pierson, Manitoba
R0M 1S0

Dear Sir/Madam:

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G. Harrison

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1564e/1

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Attn: Mr. John Fox
File

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



1989-06-27

Ethel Veazie
5438 E. Baltimore
Mesa, Arizona
85205
U.S.A.

Dear Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
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File

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1989-06-27

John Graham Kielhorn
13619 Klamath Falls Drive
Houston, Texas
77041
U.S.A.

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G. Harrison

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cc: R.A. Bennett
D.A. Bertram
Manitoba Energy & Mines
Attn: Mr. John Fox
File

Information Package
South Pierson 32 ha Spacing Application

Introduction

Objections to the subject spacing application have been based on the following concerns.

1. Home's development plans in the area
2. Effect of enlarged spacing on oil recovery
3. Effect of enlarged spacing on royalty income
4. Choice of area of application and effect on holdings immediately offsetting the area of application

These concerns are addressed below.

1. Development Plans

Home intends to develop its leased acreage on 32 ha spacing initially. Drilling will be done according to economics prevailing at the time and depending on the success of previous locations. Waterflood studies will begin in 1989. Spacing will be reviewed periodically with regard to the effect on both primary recovery and waterflood recovery.

2. Effect of Spacing

As outlined in the submission to Manitoba Energy and Mines, initial indications are that 12% primary recovery will be attainable with 32 ha spacing. The prediction of 12% recovery is based on well performance to date. The best comparison to South Pierson is the Waskada field which also produces from the Lower Amaranth formation. Estimates of primary recovery in the field range from approximately 5% to a high of 12%. Recoveries estimated for South Pierson are therefore equivalent to other comparable pools. Secondary recovery (waterflood) in the Waskada field has been estimated to recover an additional 13% of the oil initially in place over a period of 20 years. Home has not evaluated waterflood recoveries in South Pierson to date because of the limited amount of development and limited production on which to base a waterflood prediction. Preliminary work will begin this year on waterflood feasibility.

Other fields in Manitoba such as Virden cannot be compared directly to South Pierson because the reservoir is different in character i.e. Virden production is from the Lodgepole formation which is a limestone vs. S. Pierson's sandstone and would behave much differently.

Producing well performance indicates that primary recovery on 32 ha spacing will be equivalent to primary recovery on 16 ha spacing.

3. Effect on Royalty Income

The major difference between 16 and 32 ha spacing is the rate of depletion. Home predicts recovery of primary reserves over a period of eleven years under 32 ha spacing. The same recovery of oil on 16 ha spacing would take five and one-half years or approximately twice the rate for half the producing life. Home's economics show that it is not economic to accelerate production by drilling on each 16 ha spacing unit even if prices and recoveries are significantly greater than our current predictions. The cost of drilling and producing the additional wells required is too high to justify accelerating the cash flow. Royalty income under 16 ha spacing would therefore be approximately twice the value for about half the life of 32 ha spacing with the same recoveries, assuming each 16 ha spacing unit was drilled.

4. Area of Application

Home's choice of the area of application (attached) was based on the following considerations:

a. Mineral Ownership

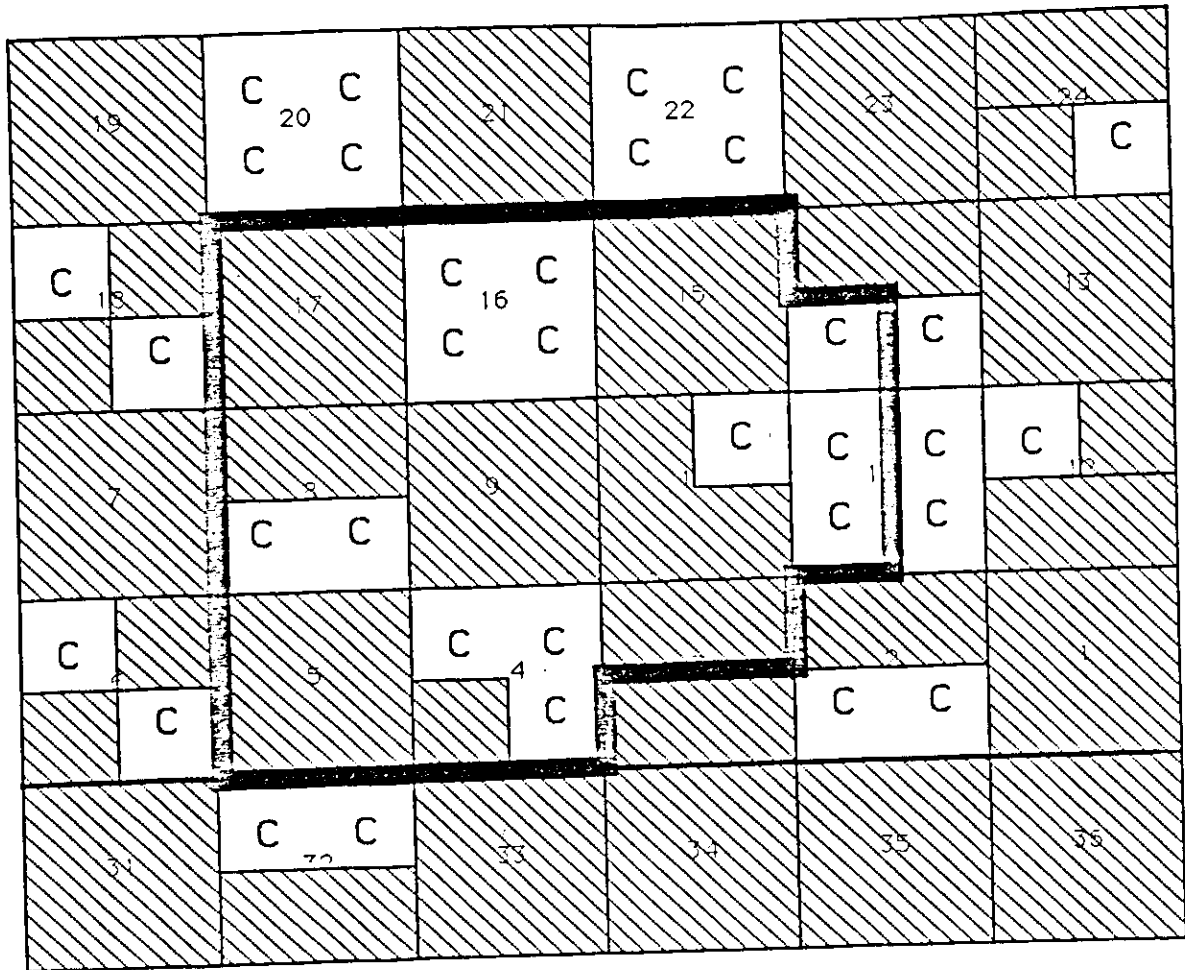
Home's application includes only land in which it holds working interests in the petroleum leases.

b. Drilling Density

The area of application includes only lands where drilling has been most active. A distance of approximately one-half mile from the nearest well to the boundary has been included for future drilling. At the time of application only one producing well 06-19-002-29 WIM was located outside the boundary. It was not included because it is over one mile away from the nearest producing well at LSD 06-17-002-29 WIM and is classified as a separate pool by the Manitoba Government. Additional drilling may show the pool is continuous between these locations or between other locations and the current area of application. In such a case Home may apply to extend the 32 ha spacing area to include all such wells to preserve equity, providing similar well and reservoir characteristics to the area of application are encountered.

The ability to call offsets is maintained under enlarged spacing in that each 32 ha spacing unit would be required to be offset. Under full development eight wells will be drilled per section where sixteen would be required under 16 ha spacing however each drilling spacing unit drilled would create an offset requirement as under normal 16 ha spacing.

SOUTH PIERSON LESSORS MAP



RGE 29W1M

AREA OF
APPLICATION

C CROWN LAND

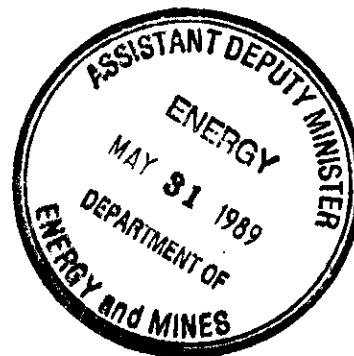
 FREEHOLD LAND



1989-05-19

Manitoba Oil and Natural Gas
Conservation Board
Room 309
Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: H.C. Moster
Deputy Chairman



Dear Madam:

Re: South Pierson Field
Application for Special Drilling Spacing Units

As per your request of April 11, 1989 a discussion of the concerns of the Board follows.

1. Potential Incremental Recovery

Based on uniform primary pressure depletion and assuming a common abandonment pressure, there would be no additional oil recovery on 16 ha vs 32 ha spacing units. This is assuming a homogeneous blanket sand reservoir under solution gas drive.

While the Lower Amaranth is a finely interbedded siltstone/shale the properties appear to be uniform over the areal extent of the area of application. No barriers to lateral flow are anticipated nor have any been discovered to date. Additional well and production history in combination with special fluid and core analysis results may confirm the expected recoveries under 32 ha spacing. However, the lack of decline in producing wells to date is an excellent indication that each well is capable of at least 32 ha drainage.

2. Potential Need for Pressure Maintenance

Waterflood preliminary studies will commence in 1989 beginning with special core studies. The core studies are expected to include:

1. Gas/Oil Relative Permeability
2. Oil/Water Relative Permeability
3. Core Waterflood Tests
4. Capillary Pressure
5. Recombination PVT Analysis

Home has some concerns regarding the suitability of the reservoir for waterflooding. These include:

a) Limited Injectivity

Oil production rates indicate it may be difficult to inject water into the lower Amaranth at rates sufficient to replace voidage.

b) Fractured Wells

To provide adequate water injectivity it will be necessary to hydraulically fracture the injection wells in the same manner that it is necessary to fracture the producing wells. Many of the producing wells have had fractures propagate into the underlying Mississippian formation due to the lack of a sufficient barrier to fracture propagation between zones. Such a situation in a water injection well would result in the injection of much of the water into the Mission Canyon zone where it would provide no waterflood benefit. Further, sweep efficiency will be adversely affected by fractures extending from both injectors and producing wells.

c) Possible Natural Aquifer Support

A water bearing Lower Amaranth has been identified in the downdip southwestern portion of the pool. It is not yet known to what extent this water leg provides pressure support to the reservoir. Additional production and pressure history will be required to assess the degree of support provided by the aquifer.

d) Swelling and Migrating Clays

X-ray diffraction indicates the presence of small amounts of swelling clays. Core floods will be required to determine if sufficient amounts exist to restrict water injection.

3. Economic Justification

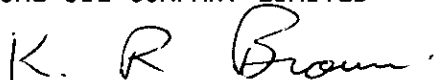
The attached economic summary shows the results of both a high price forecast and 17% recovery on 16 ha spacing. Risked at an 81% chance of success the risked Rate of Return is 14.0% and the expected monetary value is \$13.9 k. These results are marginally positive but are based on assumptions that Home believes to be unrealistic in terms of both prices and recoveries.

Recent price increases have resulted in an upward adjustment of Home's base price forecast. A critical review of costs has resulted

in an estimated savings of \$84 k to drill, complete and tie-in a well. Incorporating these changes results in the economics summarized in Attachment 1. Detailed Economics are provided in Attachment 2. As shown in Attachment 1 Home's revised estimates while improved from the past submission remain negative for 16 ha spacing under Home's forecast of prices and performance.

Yours truly,

HOME OIL COMPANY LIMITED

A handwritten signature in dark ink, appearing to read "K. R. Brown". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

K.R. Brown, P. Eng.
Manager, Reservoir Engineering

GBH/jlc
1514e

cc: FILE: 13-PIER-0
Day File

Attachment 1

Economic Summary 16 ha Spacing

	Previous	Revised	High Price + High Recovery
Drill & Case	224	159	224
Complete	130	111	130
Artificial Lift	47	47	47
Tie-In	<u>43</u>	<u>43</u>	<u>43</u>
	444	360	444

Economic Results (AIT, 12% DCF, 81% COS)

	Previous	Revised	High Price + High Recovery
NPV	(115.4)	(40.4)	64.5
Inc. \$k	444.0	360.0	444.0
ROR %	--	3.06	20.7
Payout (yrs.)	--	--	4.27
EMV	(131.3)	(62.0)	13.9
Riskd ROR	--	--	14.0
Riskd Capital	198.9	153.9	198.9

Attachment 2
Detailed Economic Models

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

DATE BEGIN	GROSS PRODN.		WORKING ROYALTY		** CROWN **		FREEHOLD		NPI AND/OR		NET PRODN.
	m3		PRODN.	REC'D.	ROYALTY	%	ROYALTY	%	ROYALTY	%	
	m3		m3	m3	m3	%	m3	%	m3	%	m3
1989	1477	1477	0	0	0	0.0	0	0.0	0	0.0	1477
1990	1715	1715	0	0	271	15.8	0	0.0	0	0.0	1445
1991	1040	1040	0	0	171	16.5	0	0.0	0	0.0	869
1992	630	630	0	0	70	11.1	0	0.0	0	0.0	561
1993	382	382	0	0	25	6.6	0	0.0	0	0.0	357
1994	223	223	0	0	9	3.9	0	0.0	0	0.0	215
TOTAL	5468	5468	0	0	545	9.0	0	0.0	0	0.0	4923

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

DATE BEGIN	REVENUE BEFORE DEDUCT.	CROWN ROYALTY BF. PEP	ALBERTA PEP ALLOW.	CROWN ROYALTY AF. PEP	MINERAL TAXES	INCOME TAXES	TOTAL GOVERNMENT BURDEN	REVENUE AFTER DEDUCT.
	\$	\$	\$	\$	\$	\$	\$ %	\$
1989	158942	0	0	0	0	-8546	-8546 0.0	167488
1990	184577	29121	0	29121	0	6849	35970 19.5	148607
1991	119158	19606	0	19606	0	-301	19305 16.2	99853
1992	78908	8730	0	8730	0	-3709	5020 6.4	73887
1993	52872	3493	0	3493	0	-5558	-2064 0.0	54936
1994	35095	1356	0	1356	0	-6788	-5432 0.0	40527
TOTAL	629551	62306	0	62306	0	-18053	44252 7.0	585299

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

PAGE 04
 ** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=5468 M3

DATE BEGIN	TOTAL PROD. WELLS	GROSS DAILY OIL m3	GROSS OIL m3	WORK- INTRST OIL m3	NET OIL m3	OIL SELLING PRICE \$/m3
1989	1	7	1477	1477	1477	107.60
1990	1	5	1715	1715	1445	107.60
1991	1	3	1040	1040	869	114.60
1992	1	2	630	630	561	125.20
1993	1	1	382	382	357	138.40
1994	1	1	223	223	215	157.10
TOTAL	1	3	5468	5468	4923	115.23

DATE BEGIN	NET REVNU BEFORE ROYLTY \$	NET CROWN ROYLTY \$	FRHOLD AND ORR ROYLTY \$	NET REVNU AFTER ROYLTY \$	OTHER INCOME \$	NET OPER. EXPENSE \$	NET MINRAL TAX \$	OTHER EXPENSE \$	NET OPER. INCOME \$	CAPITL INVEST GRANTS \$	*** D+E \$	CAPITAL PLANT \$	INVESTMENTS TANG \$	*** TOTAL \$	NET CASH FLOW \$	DISC. CASH FLOW \$
1989	158942	0	0	158942	0	32657	0	0	126285	0	352000	0	92000	444000	-317716	-321822
1990	184577	29121	0	155456	0	45043	0	0	110413	0	0	0	0	0	110413	97656
1991	119158	19606	0	99552	0	35989	0	0	63563	0	0	0	0	0	63563	50196
1992	78908	8730	0	70178	0	30585	0	0	39593	0	0	0	0	0	39593	27917
1993	52872	3493	0	49379	0	27494	0	0	21884	0	0	0	0	0	21884	13777
1994	35095	1356	0	33739	0	25727	0	0	8012	0	0	0	0	0	8012	4504
TOTAL	629551	62306	0	567245	0	197495	0	0	369751	0	352000	0	92000	444000	-74249	-127771

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

PAGE 06
** S. PIERSON MANITOBA **
SPEARFISH SPACING APPLICATION
RECOVERABLE RESERVES=5468 M3

DATE BEGIN	TOTAL FIELD REVENUE	GATHER SYSTEM REVENUE	PROD. ROYLTY DEDUCT	NET OPER. EXPENSE	FIELD PROCES FEE	NET CAPITL	INCEN -TIVE	BAL. DEDUCT	NET CAPITL	INCEN -TIVE	BAL. DEDUCT	DEPR. DEDUCT	TOTAL DEPR.	INCOME FOR RESOR. ALLOW.	RESOR. ROYLTY DEDUCT	OTHER WRITE -OFF
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1989	158942	0	0	32657	0	92000	0	92000	11500	0	0	0	11500	114785	28696	0
1990	184577	0	0	45043	0	0	0	80500	20125	0	0	0	20125	119409	29852	0
1991	119158	0	0	35989	0	0	0	60375	15094	0	0	0	15094	68076	17019	0
1992	78908	0	0	30585	0	0	0	45281	11320	0	0	0	11320	37002	9251	0
1993	52872	0	0	27494	0	0	0	33961	8490	0	0	0	8490	16888	4222	0
1994	35095	0	0	25727	0	0	0	25471	6368	0	0	0	6368	3000	750	0
TOTAL	629551	0	0	197495	0	92000	0	19103	72897	0	0	0	72897	359159	89790	0

DATE	DEVELOP BAL.	DEVELOP COST	EXPLOR COST	EXPLOR WRITE OFF	EXPLORE COST	EXPLORE WRITE OFF	NET PROFIT	NET PROFIT	FEDERAL INCOME TAX	FEDERAL TAXABLE INCOME	TAXABLE Deduct	NON- DEDUCT	PROV. INCOME TAX	PROV. INCOME TAX	PROCES REBATE	INVEST CREDIT	INCOME TAX	CASH FLOW	CASH FLOW	DISC.
BEGIN	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1989	352000	105600	0	0	0	0	-19512	0	-19512	-5619	0	0	-19512	-2927	0	0	-8546	-309169	-313553	
1990	246400	73920	0	0	0	0	15637	0	15637	4503	0	0	15637	2345	0	0	6849	103564	91599	
1991	172480	51744	0	0	0	0	-687	0	-687	-198	0	0	-687	-103	0	0	-301	63864	50434	
1992	120736	36221	0	0	0	0	-8469	0	-8469	-2439	0	0	-8469	-1270	0	0	-3709	43303	30532	
1993	84515	25355	0	0	0	0	-12689	0	-12689	-3654	0	0	-12689	-1903	0	0	-5558	27442	17276	
1994	59161	17748	0	0	0	0	-15498	0	-15498	-4463	0	0	-15498	-2325	0	0	-6788	14800	8319	
TOTAL	41412	310587	0	0	0	0	-41218	0	-41218	-11871	0	0	-41218	-6183	0	0	-18053	-56196	-115393	

***** SUMMARY *****

RESERVES + PROJECT LIFE *									

LIFE (YRS) = 5.58									
PROJECT START MONTH = JUNE									

** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=5468 M3
 INIT. PROD RATE=8 M3
 FINAL PROD RATE=0.5 M3

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
 EXPOSURE
 (E3 \$)

354.0

CASE	PROBABILITY OF SUCCESS PCT	BIT 12% PV		BIT PAYOUT VRS		BIT ROR PCT		BIT PVI	
		PROFIT E3 \$							
1	0.0	-354.0		0.00		0.0		0.00	
2	20.0	-308.8		0.00		0.0		0.17	
3	30.0	-286.1		0.00		0.0		0.25	
4	40.0	-263.5		0.00		0.0		0.32	
5	50.0	-240.9		0.00		0.0		0.40	
6	60.0	-218.3		0.00		0.0		0.47	
7	70.0	-195.6		0.00		0.0		0.53	
8	81.0	-170.8		0.00		0.0		0.60	
9	100.0	-127.8		0.00		0.0		0.71	

** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=5468 M3
 INIT. PROD RATE=8 M3
 FINAL PROD RATE=0.5 M3

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
 EXPOSURE
 (E3 \$)

198.9

CASE	PROBABILITY OF SUCCESS PCT	AIT 12% PV			AIT PAYOUT VRS		AIT ROR PCT		AIT PVI	
		PROFIT E3 \$	PROFIT E3 \$	PROFIT E3 \$	PAYOUT VRS	PAYOUT VRS	ROR PCT	ROR PCT	PVI	PVI
1	0.0	-198.9	-198.9	-198.9	0.00	0.00	0.0	0.0	0.00	0.00
2	20.0	-182.2	-182.2	-182.2	0.00	0.00	0.0	0.0	0.27	0.27
3	30.0	-173.9	-173.9	-173.9	0.00	0.00	0.0	0.0	0.36	0.36
4	40.0	-165.5	-165.5	-165.5	0.00	0.00	0.0	0.0	0.44	0.44
5	50.0	-157.2	-157.2	-157.2	0.00	0.00	0.0	0.0	0.51	0.51
6	60.0	-148.8	-148.8	-148.8	0.00	0.00	0.0	0.0	0.57	0.57
7	70.0	-140.5	-140.5	-140.5	0.00	0.00	0.0	0.0	0.62	0.62
8	81.0	-131.3	-131.3	-131.3	0.00	0.00	0.0	0.0	0.67	0.67
9	100.0	-115.4	-115.4	-115.4	0.00	0.00	0.0	0.0	0.74	0.74

DATE	GROSS OIL + COND. m3	NET OIL + COND. m3	GROSS RES. + SL GAS m3	NET RES. + SL GAS m3	NET REVENUE BEFORE ROYLTY E3 \$	NET OTHER INCOME E3 \$	NET EXP Op E3 \$	NET OTHER EXPENSE E3 \$	NET OPER. INCOME E3 \$	TOTAL NET CAPITAL E3 \$	CASH FLOW B. TAX E3 \$	DISC. CASH FLOW B. TAX E3 \$	INCOME TAX E3 \$	CASH FLOW A. TAX E3 \$	DISC. CASH FLOW A. TAX E3 \$
BEGIN															
1989	1540	1540	0	0	198	0	34	0	164	444	-280	-285	4	-284	-289
1990	2004	1676	0	0	275	0	50	0	181	0	181	160	35	146	129
1991	1409	1147	0	0	207	0	42	0	127	0	127	100	26	101	79
1992	991	832	0	0	161	0	37	0	98	0	98	69	21	77	55
1993	697	611	0	0	122	0	33	0	74	0	74	47	15	59	37
1994	490	449	0	0	94	0	31	0	55	0	55	31	11	45	25
1995	345	324	0	0	72	0	29	0	39	0	39	19	7	32	16
1996	242	232	0	0	55	0	28	0	25	0	25	11	4	21	9
1997	56	54	0	0	14	0	9	0	25	0	4	2	-2	6	3
TOTAL	7775	6865	0	0	1198	0	292	0	767	444	323	154	120	203	65

SUMMARY

RESERVES + PROJECT LIFE *																					
LIFE (YRS) = 7.92																					
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		7.8		0.0		0.0		0.0		0.0		0.0		0.0		0.0					
WORKING INT.		7.8		0.0		0.0		0.0		0.0		0.0		0.0		0.0					
NET		6.9		0.0		0.0		0.0		0.0		0.0		0.0		0.0					
NET PRESENT VALUE *										NET PROFIT INDICATORS *											
										RATE OF RETURN (PCT)											
										PAYOUT (YRS)											
										DISCOUNTED PAYOUT (YRS)											
										PRESENT WORTH INDEX											
										UNDIS C FLOW/UNDIS INV											
										DIS C FLOW/OIS INV											
										DIS C FLOW/UNDIS INV											
										CAPITAL EXPOSURE (E3 \$)											
										UNDIS C FLOW/CAP EXPOS											
										DIS C FLOW/CAP EXPOS											
										SUCCESS CAPACITY											
										FINDING COST (\$/m3)											
										FIND+DEV COST (\$/m3)											
										OIL (E3 m3)											
										BIT *											
										AIT *											
										32.45										20.68	
										2.37										3.06	
										2.95										4.27	
										1.54										1.22	
										0.73										0.46	
										0.35										0.15	
										0.35										0.15	
										354.00										201.78	
										0.91										1.01	
										0.44										0.32	
										1.44										1.32	
										51.56										29.39	
										64.67										36.86	
										6.87										6.87	

INTERESTS *									
INTL ROYALTY INT (PCT) = 0.00000									
AVG. ROYALTY INT (PCT) = 11.64639									
INTL WORKING INT (PCT) = 100.00000									
INTL CAPITAL INT (PCT) = 100.00000									
GROSS									
WORKING INT.									
NET									
NET PRESENT VALUE *									
*** BEFORE INCOME TAX ***									
DISC. RATE		OP. INC (E3 \$)		INV. (E3 \$)		*** AFTER INCOME TAX ***		C FLOW (E3 \$)	
0.00		767.1		444.0		647.0		203.0	
5.00		685.4		444.0		580.0		136.0	
10.00		620.4		444.0		526.8		82.8	
15.00		567.8		444.0		483.7		39.7	
20.00		524.4		444.0		448.3		4.3	
30.00		457.4		444.0		393.7		-50.3	
12.00		598.1		444.0		508.5		64.5	

HIGH PRICE AND 17% RECOVERY 40 ACRES

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
EXPOSURE
(E3 \$)

354.0

CASE	PROBABILITY OF SUCCESS PCT	BIT 12% PV PROFIT E3 \$	BIT PAYOUT VRS	BIT ROR PCT	BIT PVI
1	0.0	-354.0	0.00	0.0	0.00
2	30.0	-201.6	0.00	0.0	0.47
3	40.0	-150.8	0.00	0.0	0.61
4	50.0	-100.0	0.00	0.0	0.75
5	60.0	-49.2	5.24	5.4	0.88
6	70.0	1.7	3.93	12.2	1.00
7	81.0	57.5	3.15	19.7	1.13
8	90.0	103.3	2.70	25.7	1.24
9	100.0	154.1	2.37	32.5	1.35

HIGH PRICE AND 17% RECOVERY 40 ACRES

RISK ANALYSIS
RISK ADJUSTED CASH FLOW

NET CAPITAL
EXPOSURE
(E3 \$)

201.8

CASE	PROBABILITY OF SUCCESS PCT	AIT 12% PV PROFIT E3 \$	AIT PAYOUT VRS	AIT ROR PCT	AIT PVI
1	0.0	-201.8	0.00	0.0	0.00
2	30.0	-121.9	0.00	0.0	0.56
3	40.0	-95.3	0.00	0.0	0.68
4	50.0	-68.6	7.85	0.1	0.79
5	60.0	-42.0	5.37	5.1	0.88
6	70.0	-15.4	4.36	9.6	0.96
7	81.0	13.9	3.70	14.0	1.03
8	90.0	37.9	3.35	17.3	1.09
9	100.0	64.5	3.06	20.7	1.15

** S. PIERSON MANITOBA **
SPEARFISH SPACING APPLICATION
RECOVERABLE RESERVES=5468 M3
1989-04 PRICING
REVISED COSTS

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

DATE BEGIN	TOTAL PROD. WELLS	GROSS DAILY OIL m3	GROSS OIL m3	WORK. INSTR OIL m3	NET OIL m3	OIL SELLING PRICE \$/m3
1989	1	7	1477	1477	1477	111.09
1990	1	5	1715	1715	1445	118.54
1991	1	3	1040	1040	869	125.41
1992	1	2	630	630	561	135.14
1993	1	1	382	382	357	142.01
1994	1	1	223	223	215	152.32
TOTAL	1	3	5468	5468	4923	122.58

DATE BEGIN	NET REVUE BEFORE ROVLTY \$	NET CROWN ROVLTY \$	FRHOLD AND ORR ROVLTY \$	NET REVUE AFTER ROVLTY \$	OTHER INCOME \$	NET OPER. EXPENSE \$	NET MINRAL TAX \$	OTHER EXPENSE \$	NET OPER. INCOME \$	CAPITL INVEST GRANTS \$	*** D+E \$	CAPITAL PLANT \$	INVESTMENTS TANG \$	TOTAL \$	NET CASH FLOW \$	DISC. CASH FLOW \$
1989	164101	0	0	164101	0	32657	0	0	131444	0	256500	0	103500	360000	-228556	-232830
1990	203337	32081	0	171257	0	45043	0	0	126214	0	0	0	0	0	126214	111632
1991	130395	21455	0	108940	0	35989	0	0	72952	0	0	0	0	0	72952	57610
1992	85175	9423	0	75752	0	30585	0	0	45167	0	0	0	0	0	45167	31847
1993	54253	3585	0	50668	0	27494	0	0	23174	0	0	0	0	0	23174	14589
1994	34028	1315	0	32713	0	25727	0	0	6987	0	0	0	0	0	6987	3927
TOTAL	671289	67858	0	603432	0	197495	0	0	405937	0	256500	0	103500	360000	45937	-13225

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

PAGE 03
** S. PIERSON MANITOBA **
SPEARFISH SPACING APPLICATION
RECOVERABLE RESERVES=5468 M3

DATE	TOTAL	GATHER	PROD.	NET	FIELD	FIELD	NET	FIELD	DEPRECIATION	****	NET	GATHERING	SYSTEM	DEPR.	*	TOTAL	RESOR.	RESOR.	ALLOW.	RESOR.	ROYLTY	DEDUCT	OTHER
BEGIN	REVENUE	REVENUE	REVENUE	EXPENSE	PROCES	FEE	CAPITL	NET	BAL.	DEDUCT	CAPITL	-TIVE	BAL.	DEDUCT		DEPR.	ALLOW.	ALLOW.	ALLOW.	DEDUCT			WRITE
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1989	164101	0	0	32657	0	103500	0	103500	0	12938	0	0	0	0	0	12938	118506	29627		0	0	0	0
1990	203337	0	0	45043	0	0	0	90563	0	22641	0	0	0	0	0	22641	135654	33913		0	0	0	0
1991	130395	0	0	35989	0	0	0	67922	0	16980	0	0	0	0	0	16980	77426	19356		0	0	0	0
1992	85175	0	0	30585	0	0	0	50941	0	12735	0	0	0	0	0	12735	41855	10464		0	0	0	0
1993	54253	0	0	27494	0	0	0	38206	0	9552	0	0	0	0	0	9552	17207	4302		0	0	0	0
1994	34028	0	0	25727	0	0	0	28655	0	7164	0	0	0	0	0	7164	1138	284		0	0	0	0
TOTAL	671289	0	0	197495	0	103500	0	103500	0	82009	0	0	0	0	0	82009	391786	97946		0	0	0	0

DATE	DEVELOP COST BAL.	DEVELOP COST WRITE OFF	EXPLOR COST BAL.	EXPLOR COST WRITE OFF	EXPLOR EARNED DEPL.	NET RESOR. PROFIT	NET PROCES PROFIT	FEDRAL TAXABLE INCOME	FEDRAL INCOME TAX	TAXABLE CROWN PAYMENTS	NON- DEDUCT RESOR.	PROV. TAXABLE INCOME	PROV. INCOME TAX	PROCES PROFIT REBATE	INVEST MENT CREDIT	INCOME TAX	CASH FLOW A.TAX	DISC. CASH FLOW A.TAX
BEGIN	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1989	256500	76950	0	0	0	11930	0	11930	3340	0	0	11930	1789	0	0	5130	233686	237793
1990	179550	53865	0	0	0	47875	0	47875	13405	0	0	47875	7181	0	0	20586	105627	93424
1991	125685	37705	0	0	0	20364	0	20364	5702	0	0	20364	3055	0	0	8757	64195	50695
1992	87979	26394	0	0	0	4997	0	4997	1399	0	0	4997	750	0	0	2149	43018	30332
1993	61586	18476	0	0	0	-5570	0	-5570	-1560	0	0	-5570	-836	0	0	-2395	25569	16097
1994	43110	12933	0	0	0	-12080	0	-12080	-3382	0	0	-12080	-1812	0	0	-5194	12181	6847
TOTAL	30177	226323	0	0	0	67516	0	67516	18905	0	0	67516	10127	0	0	29032	16905	-40399

***** SUMMARY *****

RESERVES + PROJECT LIFE *									

LIFE (VRS) = 5.58									
PROJECT START MONTH = JUNE									
OIL SOLN GAS RESIDUE ETHANE COND. PROPANE BUTANE SULPHUR									
(E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 TNE)									

GROSS 5.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0									
WORKING INT. 5.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0									
NET 4.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0									

NET PRESENT VALUE *									

NET PROFIT INDICATORS *									

RATE OF RETURN (PCT) 8.90									
PAYOUT (VRS) 3.23									
DISCOUNTED PAYOUT (VRS) 0.00									
PRESENT WORTH INDEX 0.94									
UNDIS C FLOW/UNDIS INV 0.13									
DIS C FLOW/DIS INV -0.04									
DIS C FLOW/UNDIS INV -0.04									
CAPITAL EXPOSURE (E3 \$) 270.00									
UNDIS C FLOW/CAP EXPOS 0.17									
DIS C FLOW/CAP EXPOS -0.05									
SUCCESS CAPACITY 0.95									
FINDING COST (\$/m3) 54.85									
FIND+DEV COST (\$/m3) 73.13									
OIL (E3 m3) 41.68									
4.92									

INTERESTS *			

INTL ROYALTY INT (PCT) =	0.00000		
AVG. ROYALTY INT (PCT) =	10.10859		
INTL WORKING INT (PCT) =	100.00000		
INTL CAPITAL INT (PCT) =	100.00000		

DISC. RATE	0.00	405.9	360.0
	5.00	378.5	360.0
	10.00	355.2	360.0
	15.00	335.1	360.0
	20.00	317.6	360.0
	25.00	288.9	360.0
	30.00	266.8	360.0
	35.00	249.9	360.0
	40.00	232.6	360.0
	45.00	215.2	360.0
	50.00	197.8	360.0
	55.00	180.4	360.0
	60.00	163.0	360.0
	65.00	145.6	360.0
	70.00	128.2	360.0
	75.00	110.8	360.0
	80.00	93.4	360.0
	85.00	76.0	360.0
	90.00	58.6	360.0
	95.00	41.2	360.0
	100.00	23.8	360.0
	105.00	6.4	360.0
	110.00	-11.0	360.0
	115.00	-28.6	360.0
	120.00	-46.2	360.0
	125.00	-63.8	360.0
	130.00	-81.4	360.0
	135.00	-99.0	360.0
	140.00	-116.6	360.0
	145.00	-134.2	360.0
	150.00	-151.8	360.0
	155.00	-169.4	360.0
	160.00	-187.0	360.0
	165.00	-204.6	360.0
	170.00	-222.2	360.0
	175.00	-239.8	360.0
	180.00	-257.4	360.0
	185.00	-275.0	360.0
	190.00	-292.6	360.0
	195.00	-310.2	360.0
	200.00	-327.8	360.0
	205.00	-345.4	360.0
	210.00	-363.0	360.0
	215.00	-380.6	360.0
	220.00	-398.2	360.0
	225.00	-415.8	360.0
	230.00	-433.4	360.0
	235.00	-451.0	360.0
	240.00	-468.6	360.0
	245.00	-486.2	360.0
	250.00	-503.8	360.0
	255.00	-521.4	360.0
	260.00	-539.0	360.0
	265.00	-556.6	360.0
	270.00	-574.2	360.0
	275.00	-591.8	360.0
	280.00	-609.4	360.0
	285.00	-627.0	360.0
	290.00	-644.6	360.0
	295.00	-662.2	360.0
	300.00	-679.8	360.0
	305.00	-697.4	360.0
	310.00	-715.0	360.0
	315.00	-732.6	360.0
	320.00	-750.2	360.0
	325.00	-767.8	360.0
	330.00	-785.4	360.0
	335.00	-803.0	360.0
	340.00	-820.6	360.0
	345.00	-838.2	360.0
	350.00	-855.8	360.0
	355.00	-873.4	360.0
	360.00	-891.0	360.0
	365.00	-908.6	360.0
	370.00	-926.2	360.0
	375.00	-943.8	360.0
	380.00	-961.4	360.0
	385.00	-979.0	360.0
	390.00	-996.6	360.0
	395.00	-1014.2	360.0
	400.00	-1031.8	360.0
	405.00	-1049.4	360.0
	410.00	-1067.0	360.0
	415.00	-1084.6	360.0
	420.00	-1102.2	360.0
	425.00	-1119.8	360.0
	430.00	-1137.4	360.0
	435.00	-1155.0	360.0
	440.00	-1172.6	360.0
	445.00	-1190.2	360.0
	450.00	-1207.8	360.0
	455.00	-1225.4	360.0
	460.00	-1243.0	360.0
	465.00	-1260.6	360.0
	470.00	-1278.2	360.0
	475.00	-1295.8	360.0
	480.00	-1313.4	360.0
	485.00	-1331.0	360.0
	490.00	-1348.6	360.0
	495.00	-1366.2	360.0
	500.00	-1383.8	360.0
	505.00	-1401.4	360.0
	510.00	-1419.0	360.0
	515.00	-1436.6	360.0
	520.00	-1454.2	360.0
	525.00	-1471.8	360.0
	530.00	-1489.4	360.0
	535.00	-1507.0	360.0
	540.00	-1524.6	360.0
	545.00	-1542.2	360.0
	550.00	-1559.8	360.0
	555.00	-1577.4	360.0
	560.00	-1595.0	360.0
	565.00	-1612.6	360.0
	570.00	-1630.2	360.0
	575.00	-1647.8	360.0
	580.00	-1665.4	360.0
	585.00	-1683.0	360.0
	590.00	-1700.6	360.0
	595.00	-1718.2	360.0
	600.00	-1735.8	360.0
	605.00	-1753.4	360.0
	610.00	-1771.0	360.0
	615.00	-1788.6	360.0
	620.00	-1806.2	360.0
	625.00	-1823.8	360.0
	630.00	-1841.4	360.0
	635.00	-1859.0	360.0
	640.00	-1876.6	360.0
	645.00	-1894.2	360.0
	650.00	-1911.8	360.0
	655.00	-1929.4	360.0
	660.00	-1947.0	360.0
	665.00	-1964.6	360.0
	670.00	-1982.2	360.0
	675.00	-2000.8	360.0
	680.00	-2018.4	360.0
	685.00	-2036.0	360.0
	690.00	-2053.6	360.0
	695.00	-2071.2	360.0
	700.00	-2088.8	360.0
	705.00	-2106.4	360.0
	710.00	-2124.0	360.0
	715.00	-2141.6	360.0
	720.00	-2159.2	360.0
	725.00	-2176.8	360.0
	730.00	-2194.4	360.0
	735.00	-2212.0	360.0
	740.00	-2229.6	360.0
	745.00	-2247.2	360.0
	750.00	-2264.8	360.0
	755.00	-2282.4	360.0
	760.00	-2300.0	360.0
	765.00	-2317.6	360.0
	770.00	-2335.2	360.0
	775.00	-2352.8	360.0
	780.00	-2370.4	360.0
	785.00	-2388.0	360.0
	790.00	-2405.6	360.0
	795.00	-2423.2	360.0
	800.00	-2440.8	360.0
	805.00	-2458.4	360.0
	810.00	-2476.0	360.0
	815.00	-2493.6	360.0
	820.00	-2511.2	360.0
	825.00	-2528.8	360.0
	830.00	-2546.4	360.0
	835.00	-2564.0	360.0
	840.00	-2581.6	360.0
	845.00	-2599.2	360.0
	850.00	-2616.8	360.0
	855.00	-2634.4	360.0
	860.00	-2652.0	360.0
	865.00	-2669.6	360.0
	870.00	-2687.2	360.0
	875.00	-2704.8	360.0
	880.00	-2722.4	360.0
	885.00	-2740.0	360.0
	890.00	-2757.6	360.0
	895.00	-2775.2	360.0
	900.00	-2792.8	360.0
	905.00	-2810.4	360.0
	910.00	-2828.0	360.0
	915.00	-2845.6	360.0
	920.00	-2863.2	360.0
	925.00	-2880.8	360.0
	930.00	-2898.4	360.0
	935.00	-2916.0	360.0
	940.00	-2933.6	360.0
	945.00	-2951.2	360.0
	950.00	-2968.8	360.0
	955.00	-2986.4	360.0
	960.00	-3004.0	360.0
	965.00	-3021.6	360.0
	970.00	-3039.2	360.0
	975.00	-3056.8	360.0
	980.00	-3074.4	360.0
	985.00	-3092.0	360.0
	990.00	-3109.6	360.0
	995.00	-3127.2	360.0
	1000.00	-3144.8	360.0

** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=5468 M3
 1989-04 PRICING
 REVISED COSTS

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
 EXPOSURE
 (E3 \$)

270.0

CASE	PROBABILITY OF SUCCESS PCT	BIT 12% PV		BIT PAYOUT YRS	BIT ROR PCT	BIT PVI
		PROFIT E3 \$	PROFIT E3 \$			
1	0.0	-270.0	-270.0	0.00	0.0	0.00
2	20.0	-218.6	-218.6	0.00	0.0	0.24
3	30.0	-193.0	-193.0	0.00	0.0	0.35
4	40.0	-167.3	-167.3	0.00	0.0	0.45
5	50.0	-141.6	-141.6	0.00	0.0	0.55
6	60.0	-115.9	-115.9	0.00	0.0	0.64
7	70.0	-90.3	-90.3	0.00	0.0	0.73
8	81.0	-62.0	-62.0	0.00	0.0	0.82
9	100.0	-13.2	-13.2	3.23	8.9	0.96

** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=\$468 M3
 1989-04 PRICING
 REVISED COSTS

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
 EXPOSURE
 (E3 \$)

153.9

CASE	PROBABILITY OF SUCCESS PCT	AIT 12% PV PROFIT E3 \$	AIT PAYOUT VRS	AIT ROR PCT	AIT PVI
1	0.0	-153.9	0.00	0.0	0.00
2	20.0	-131.2	0.00	0.0	0.33
3	30.0	-119.8	0.00	0.0	0.44
4	40.0	-108.5	0.00	0.0	0.54
5	50.0	-97.1	0.00	0.0	0.62
6	60.0	-85.8	0.00	0.0	0.69
7	70.0	-74.4	0.00	0.0	0.75
8	81.0	-62.0	0.00	0.0	0.81
9	100.0	-40.4	4.40	3.1	0.89

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



1989-05-23

Manitoba Oil and Natural Gas
Conservation Board
Room 309
Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: H.C. Moster
Deputy Chairman

Dear Madam:

Re: South Pierson Field
Application for Special Drilling Spacing Units

As per your request of April 11, 1989 a copy of the information package that has been forwarded to the referenced freehold mineral owners is attached. Also attached is a copy of the covering letters addressed to each of the parties.

As stated in the covering letters, Home will be contacting each of the freehold mineral owners to solicit support for the application.

Yours truly,

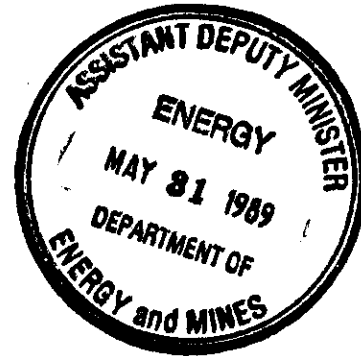
HOME OIL COMPANY LIMITED

K. R. Brown.

K.R. Brown, P. Eng.
Manager, Reservoir Engineering

GBH/jlc
1521e

c.c. FILE: 13-PIER-0
Day File



Information Package
South Pierson 32 ha Spacing Application

Introduction

Objections to the subject spacing application have been based on the following concerns.

1. Home's development plans in the area
2. Effect of enlarged spacing on oil recovery
3. Effect of enlarged spacing on royalty income
4. Choice of area of application and effect on holdings immediately offsetting the area of application

These concerns are addressed below.

1. Development Plans

Home intends to develop its leased acreage on 32 ha spacing initially. Drilling will be done according to economics prevailing at the time and depending on the success of previous locations. Waterflood studies will begin in 1989. Spacing will be reviewed periodically with regard to the effect on both primary recovery and waterflood recovery.

2. Effect of Spacing

As outlined in the submission to Manitoba Energy and Mines, initial indications are that 12% primary recovery will be attainable with 32 ha spacing. The prediction of 12% recovery is based on well performance to date. The best comparison to South Pierson is the Waskada field which also produces from the Lower Amaranth formation. Estimates of primary recovery in the field range from approximately 5% to a high of 12%. Recoveries estimated for South Pierson are therefore equivalent to other comparable pools. Secondary recovery (waterflood) in the Waskada field has been estimated to recover an additional 13% of the oil initially in place over a period of 20 years. Home has not evaluated waterflood recoveries in South Pierson to date because of the limited amount of development and limited production on which to base a waterflood prediction. Preliminary work will begin this year on waterflood feasibility.

Other fields in Manitoba such as Virden cannot be compared directly to South Pierson because the reservoir is different in character i.e. Virden production is from the Lodgepole formation which is a limestone vs. S. Pierson's sandstone and would behave much differently.

Producing well performance indicates that primary recovery on 32 ha spacing will be equivalent to primary recovery on 16 ha spacing.

3. Effect on Royalty Income

The major difference between 16 and 32 ha spacing is the rate of depletion. Home predicts recovery of primary reserves over a period of eleven years under 32 ha spacing. The same recovery of oil on 16 ha spacing would take five and one-half years or approximately twice the rate for half the producing life. Home's economics show that it is not economic to accelerate production by drilling on each 16 ha spacing unit even if prices and recoveries are significantly greater than our current predictions. The cost of drilling and producing the additional wells required is too high to justify accelerating the cash flow. Royalty income under 16 ha spacing would therefore be approximately twice the value for about half the life of 32 ha spacing with the same recoveries, assuming each 16 ha spacing unit was drilled.

4. Area of Application

Home's choice of the area of application (attached) was based on the following considerations:

a. Mineral Ownership

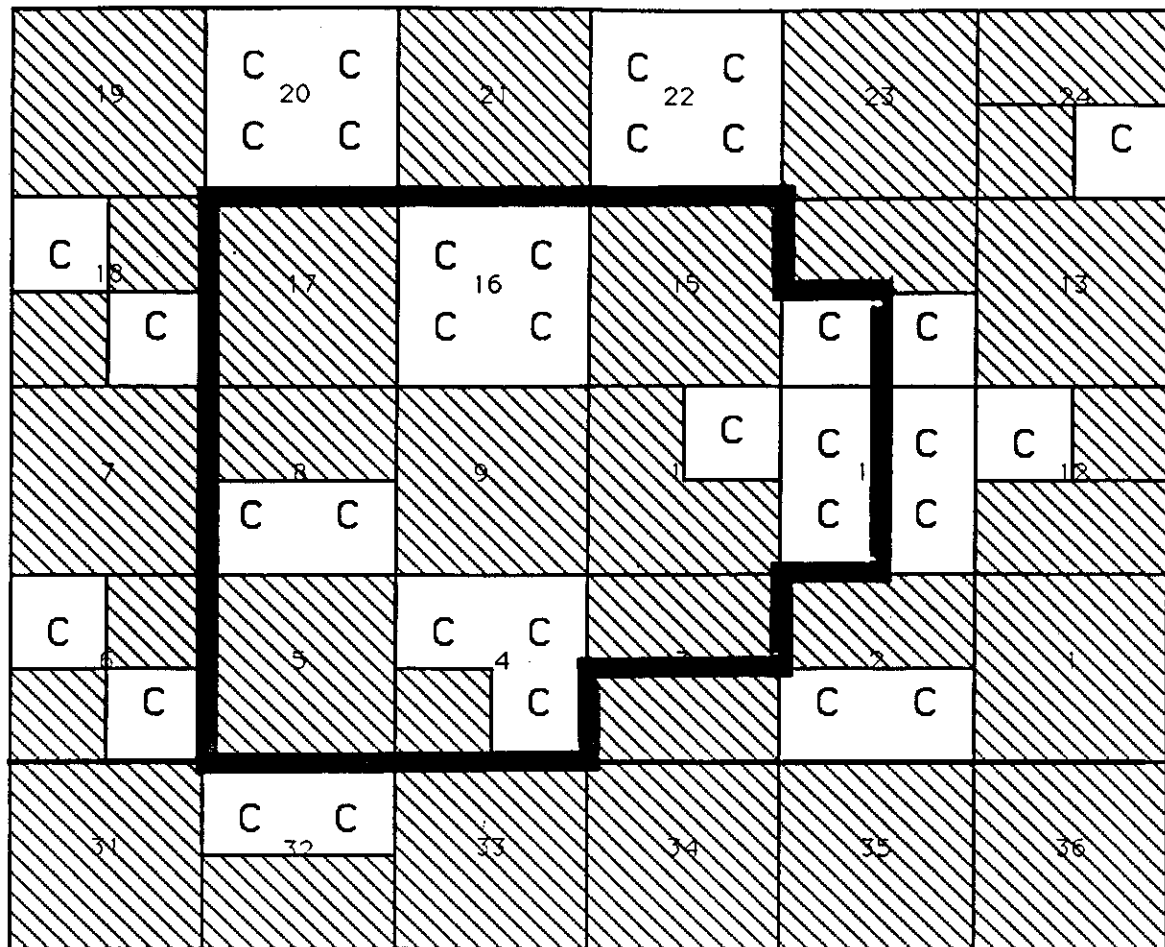
Home's application includes only land in which it holds working interests in the petroleum leases.

b. Drilling Density

The area of application includes only lands where drilling has been most active. A distance of approximately one-half mile from the nearest well to the boundary has been included for future drilling. At the time of application only one producing well 06-19-002-29 W1M was located outside the boundary. It was not included because it is over one mile away from the nearest producing well at LSD 06-17-002-29 W1M and is classified as a separate pool by the Manitoba Government. Additional drilling may show the pool is continuous between these locations or between other locations and the current area of application. In such a case Home may apply to extend the 32 ha spacing area to include all such wells to preserve equity, providing similar well and reservoir characteristics to the area of application are encountered.

The ability to call offsets is maintained under enlarged spacing in that each 32 ha spacing unit would be required to be offset. Under full development eight wells will be drilled per section where sixteen would be required under 16 ha spacing however each drilling spacing unit drilled would create an offset requirement as under normal 16 ha spacing.

SOUTH PIERSON LESSORS MAP



RGE 29W1M



AREA OF APPLICATION

C CROWN LAND



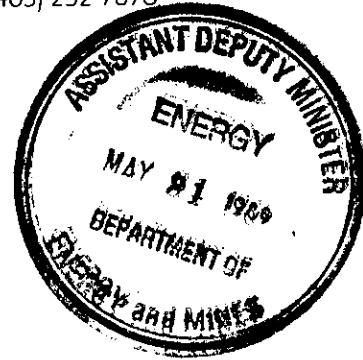
FREEHOLD LAND

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

1989-05-15

Douglas David Southam
Box 234
Melita, Manitoba
R0M 1L0



Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines. The application is currently being held by the Manitoba Government while Home Oil addresses the concerns raised by various freehold mineral owners and pending submission of additional information requested by the Oil and Natural Gas Conservation Board.

The original application was written for the review of the Petroleum Branch of the Manitoba Department of Energy and Mines. As such it assumes an Engineering knowledge of the South Pierson Oil Field and the Petroleum Regulations, as well as a familiarity with Petroleum Economics. Implications of the proposed spacing on the Mineral Owners within and adjacent to the area of application are discussed in the attached information package for your review.

A representative of Home Oil will be in contact with each of the Freehold Mineral Owners that have submitted interventions to the application to discuss any concerns and will be requesting support of the application. If you have any questions please call me collect at (403) 232-7107.

Yours truly,

HOME OIL COMPANY LIMITED

G.B. Harrison

G.B. Harrison, P. Eng.
Sr. Reservoir Engineer

GBH/jlc
1509e/5

cc: Manitoba Energy and Mines

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

1989-05-15

Carolyn Beth Allison
Box 96
Elkhorn, Manitoba
ROM ONO

Dear Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

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Yours truly,

HOME OIL COMPANY LIMITED

G.B. Harrison

G.B. Harrison, P. Eng.
Sr. Reservoir Engineer

GBH/jlc
1509e/l

cc: Manitoba Energy and Mines

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

1989-05-15

Patricia Ann Boyd
2520 Renzoni Road
Mississauga, Ontario
L5K 1W9

Dear Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

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Yours truly,

HOME OIL COMPANY LIMITED

G.B. Harrison

G.B. Harrison, P. Eng.
Sr. Reservoir Engineer

GBH/jlc
1509e/2

cc: Manitoba Energy and Mines

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

1989-05-15

Amoco Canada Petroleum Company Ltd.
Box 200, Station M
Calgary, Alberta
T2P 2H8

Attention: L.G. Cyca
Manager Engineering Division

Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines. The application is currently being held by the Manitoba Government while Home Oil addresses the concerns raised by various freehold mineral owners and pending submission of additional information requested by the Oil and Natural Gas Conservation Board.

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Yours truly,

HOME OIL COMPANY LIMITED

G.B. Harrison

G.B. Harrison, P. Eng.
Sr. Reservoir Engineer

GBH/jlc
1509e/3

cc: Manitoba Energy and Mines

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

1989-05-15

Kohaly and Elash
Barristers & Solicitors
1312 Fourth Street
Estevan, Saskatchewan
S4A 2A5
Drawer 580

Attention: Mr. Paul Elash, B.A., LL.B.

Dear Sir:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines. The application is currently being held by the Manitoba Government while Home Oil addresses the concerns raised by various freehold mineral owners and pending submission of additional information requested by the Oil and Natural Gas Conservation Board.

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Yours truly,

HOME OIL COMPANY LIMITED

G.B. Harrison

G.B. Harrison, P. Eng.
Sr. Reservoir Engineer

GBH/jlc
1509e/4

cc: Manitoba Energy and Mines

An Interhome Energy Company

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

1989-05-15

Ms. Marie Eikanger
Box 252
Pierson, Manitoba
R0M 1S0

Dear Madam:

Re: 32 ha Spacing Application by Home Oil Company Limited,
South Pierson Area

Attached is a discussion of the need for 32 ha spacing as requested in our application to Manitoba Energy and Mines. The application is currently being held by the Manitoba Government while Home Oil addresses the concerns raised by various freehold mineral owners and pending submission of additional information requested by the Oil and Natural Gas Conservation Board.

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Yours truly,

HOME OIL COMPANY LIMITED



G.B. Harrison, P. Eng.
Sr. Reservoir Engineer

GBH/jlc
1509e/5

cc: Manitoba Energy and Mines

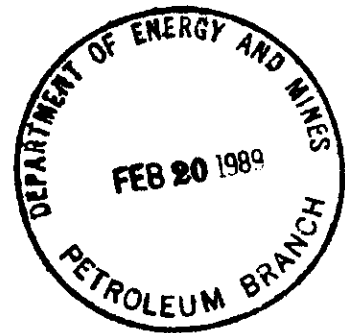
Home Oil Company Limited

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



1989-02-08

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



Attention: Mr. L.R. Dubreuil, Director
Petroleum Branch

Dear Sir:

Re: Supplement to Application for Special Drilling Spacing Unit,
South Pierson Field

Home Oil Company Limited submits the following changes and additional information as requested by the Petroleum Branch. The original application was dated 1989-01-04.

- 1) A list of freehold mineral rights owners within the area of application and within a 0.8 km radius of the area of application is provided as attachment 1.
- 2) Economic sensitivities to increased prices and increased reserves for 16 ha spacing are provided in Attachment 2 and are summarized below

	NPV ¹ \$K	ROR %	EMV ² \$K	RROR ² %
Base Case	(115.4)	0.0	(131.3)	0.0
Higher Prices	(40.9)	4.9	(71.5)	0.0
Higher Reserves	(37.6)	7.0	(68.8)	1.9

1 12% DCF, AIT

2 81% COS

The increased reserves case assumes a 17% recovery of OOIP on 16 ha spacing.

3. Home's request to double the 16 ha allowable is hereby withdrawn. The issue of an increased allowable will be dealt with in a separate application should there be sufficient well productivity to justify the higher allowable rate.

- 2 -

If there are any further questions please contact Mr. Gary Harrison at (403) 232-7107.

Yours truly,

HOME OIL COMPANY LIMITED

A handwritten signature in cursive script that reads "K. R. Brown".

K.R. Brown, P. Eng.
Manager, Reservoir Engineering

GBH/jlc
1417e

c.c. G.O. Raham
R.S. Bachynski
G.B. Harrison
D.A. Bertram
FILE: 13-PIER-0
Day File

Attachment 1

P&NG Mineral Owners

Attachment 2

16 HA Economic Sensitivities

- 1) Higher Prices
- 2) Increased Reserves

P & NG MINERAL OWNERS
SOUTH PIERSON AREA, MANITOBA

Following is an outline of the mineral owners of lands within Home Oil Company Limited Area of Application for Special Drilling Spacing Units.

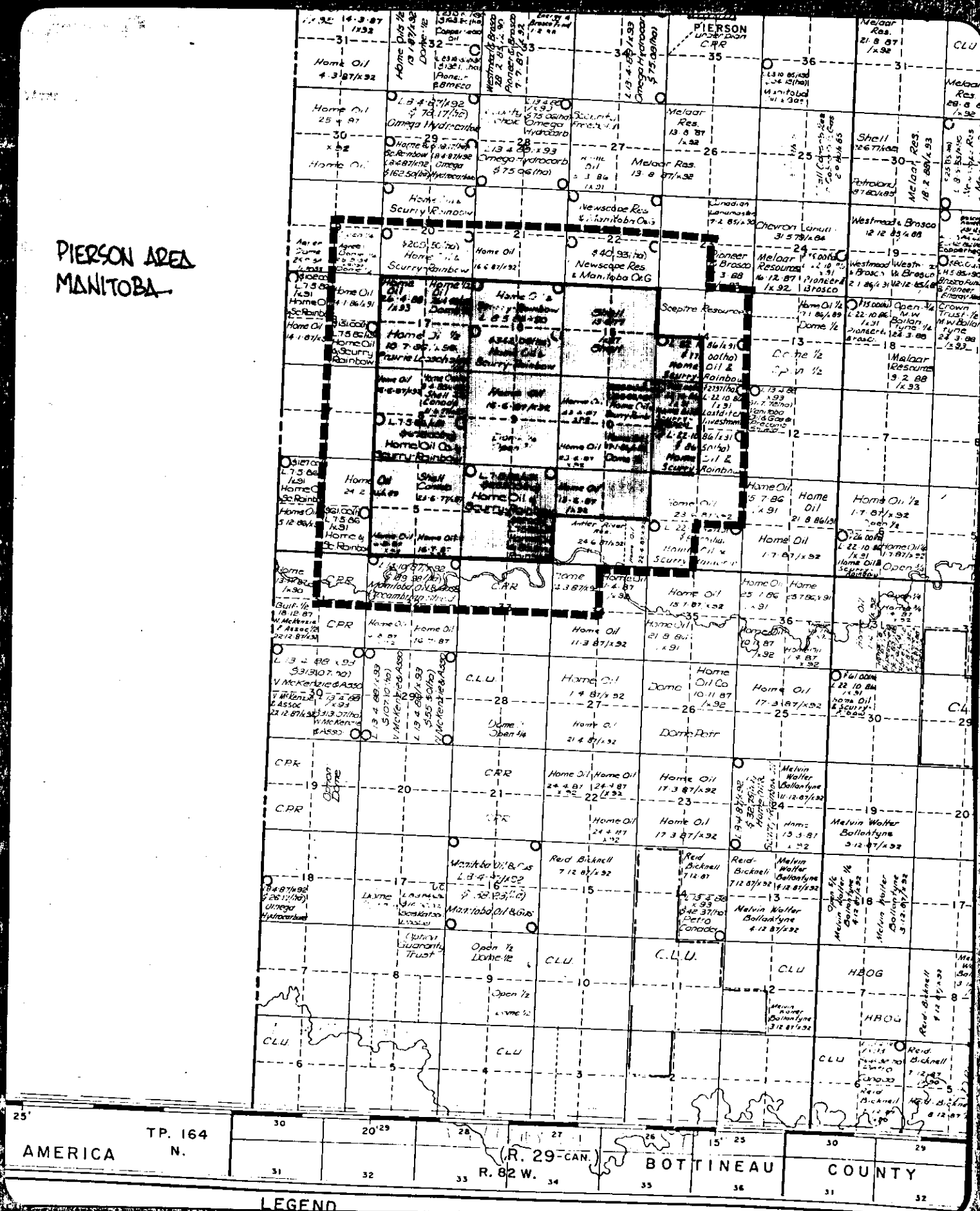
Unless otherwise described all lands are held by Home Oil Company Limited and Scurry-Rainbow Oil Limited by lease.

<u>LANDS</u>	<u>P & NG MINERAL OWNERS</u>	<u>ADDRESS</u>
NE 1/4 3-2-29 W1M	Ethel Veazie ✓	5438 E. Baltimore Mesa, Arizona 85205
NW 1/4 3-2-29 W1M	74800 Manitoba Ltd. ✓	Box 102 Pierson, Manitoba R0M 1S0
N 1/2 & SE 4-2-29 W1M	Manitoba Energy and Mines ✓	
SW 1/4 4-2-29 W1M	John Hammell * not leased ✓	Box 102 Pierson, Manitoba R0M 1S0
NE 1/4 5-2-29 W1M	Doris Amanda Smith ✓	General Delivery Pierson, Manitoba R0M 1S0
NW 1/4 5-2-29 W1M (U 1/2 I)	George Douglas Hart ✓	331 Wainwright Rd S.E. Calgary, Alberta T2J 1H9
NW 1/4 5-2-29 W1M (U 1/2 I)	The Canada Trust Company ✓	311 - 6 Avenue S.W. Calgary, Alberta T2P 3H2
SE 1/4 5-2-29 W1M	Kevin Paul Kielhorn ✓	111 Youville Street Winnipeg, Manitoba R2H 2R9
SW 1/4 5-2-29 W1M	Robert Henry Kielhorn ✓	171 - 32691 Garibaldi Drive Abbotsford B.C. V2S 6W8
NE 1/4 8-2-29 W1M (U 1/4 I)	Canada Permanent Trust Company ✓	311 - 6 Avenue S.W. Calgary, Alberta T2P 0R6
NE 1/4 8-2-29 W1M (U 3/4 I)	Isabelle Boyd ✓	Box 248 Pierson, Manitoba R0M 1S0

<u>LANDS</u>	<u>P & NG MINERAL OWNERS</u>	<u>ADDRESS</u>
NW 1/4 8-2-29 W1M (U 1/2 I)	Patricia Ann Boyd ✓	2520 Renzoni Road Mississauga, Ontario L5K 1W9
NW 1/4 8-2-29 W1M (U 1/2 I)	Carolyn Beth Allison ✓	Box 96 Elkhorn, Manitoba R0M 0N0
S 1/2 8-2-29 W1M	Manitoba Energy and Mines ✓	
N 1/2 9-2-29 W1M	John Graham Kielhorn ✓	13619 Klamath Falls Drive Houston, Texas 77041
S 1/2 9-2-29 W1M (U 3/4 I)	Robert Henry Kielhorn ✓	171 - 32691 Garabaldi Drive, RR # 10 Abbotsford, B.C. V2S 6W8
S 1/2 9-2-29 W1M (U 1/4 I)	Amoco Canada Petroleum ✓ Company Ltd. (Dome Petroleum)	Box 200 333 - 7 Avenue S.W. Calgary, Alberta T2P 2H8
NE 1/4 10-2-29 W1M	Manitoba Energy and Mines ✓	
NW 1/4 10-2-29 W1M	Crossman Petroleums Ltd. ✓	Box 149 Pierson, Manitoba R0M 1S0
SE 1/4 10-2-29 W1M (U 1/4 I)	John Murray ✓	Box 3 Pierson, Manitoba R0M 1S0
SE 1/4 10-2-29 W1M (U 1/2 I)	Amoco Canada Petroleum ✓ Company Limited (Dome Petroleum)	Box 200 333 - 7 Avenue S.W. Calgary, Alberta T2P 2H8
SW 1/4 10-2-29 W1M	Crossman Petroleums Ltd. ✓	Box 149 Pierson, Manitoba R0M 1S0
W 1/2 11-2-29 W1M	Manitoba Energy and Mines ✓	
SE 1/4 2-29 W1M	Manitoba Energy and Mines ✓	
15-2-29 W1M (U 1/2 I) (Ptn)	Royal Trust Corporation ✓ of Canada Estate of L.G. Stevens	Box 149 Winnipeg, Manitoba R3C 2M2

<u>LANDS</u>	<u>P & NG MINERAL OWNERS</u>	<u>ADDRESS</u>
(Ptn) SW 1/4 15-2-29 W1M	Crossman Petroleums Ltd. ✓	Box 149 Pierson, Manitoba R0M 1S0
16-2-29 W1M	Manitoba Energy and Mines ✓	
NE 1/4 17-2-29 W1M (U 1/2 I)	Amoco Canada Petroleum ✓ Company Ltd. (Dome Petroleum)	Box 200 333 - 7 Avenue S.W. Calgary, Alberta T2P 2H8
NE 1/4 17-2-29 W1M (U 1/2 I)	Campbell Oil Properties ✓ Ltd.	Box 84 Pierson, Manitoba R0M 1S0
NW 1/4 17-2-29 W1M	Campbell Oil Properties ✓ Ltd.	Box 84 Pierson, Manitoba R0M 1S0
S 1/2 17-2-29 W1M (U 1/2 I)	Douglas David Southam ✓	Box 234 Melita, Manitoba R0M 1L0
S 1/2 17-2-29 W1M	Prairie Leaseholds Ltd. c/o Petro-Canada Inc.	Box 2844 Calgary, Alberta T2P 3E3

PIERSON AREA
MANITOBA



P & NG FREEHOLD MINERAL OWNERS
SOUTH PIERSON AREA, MANITOBA

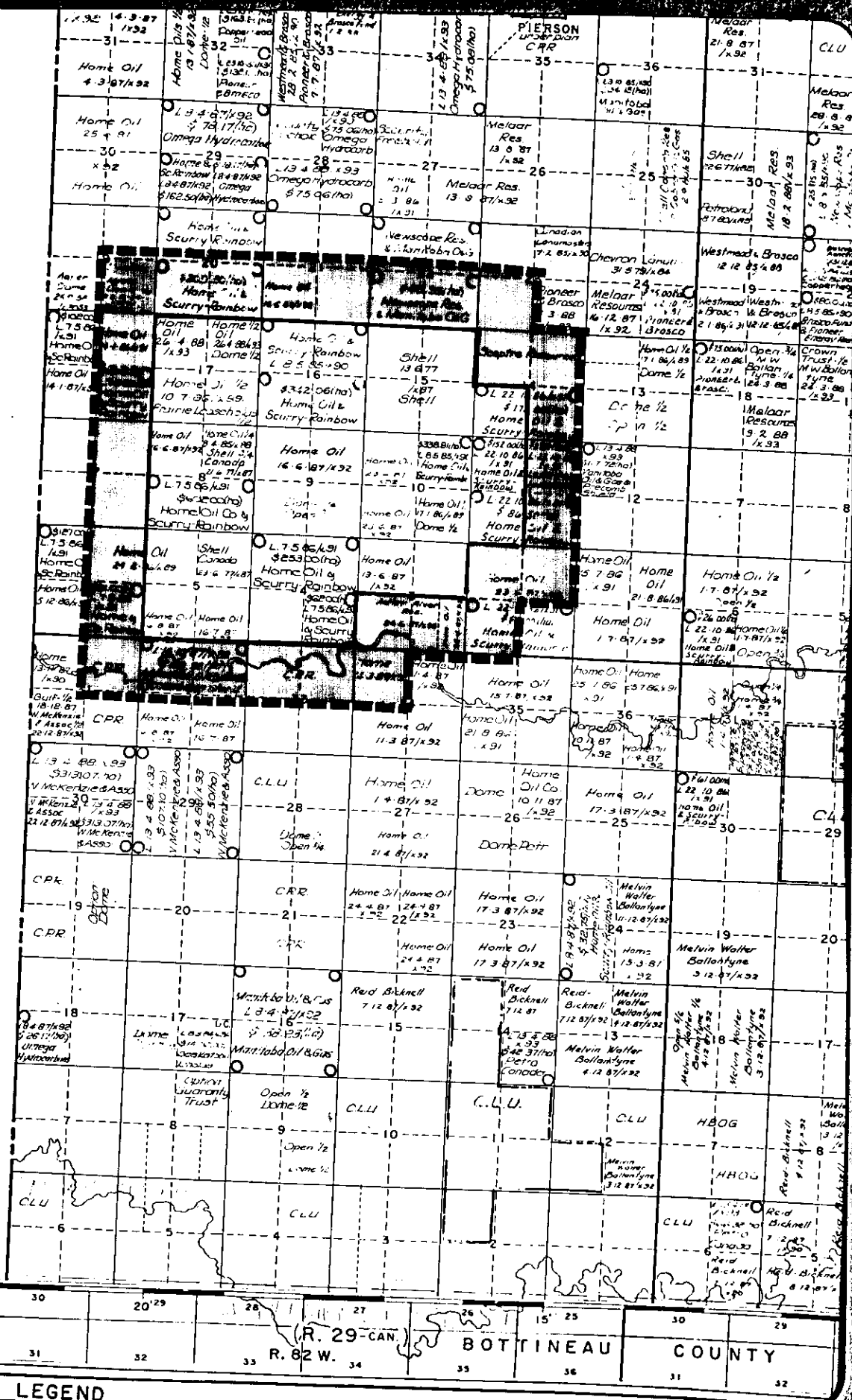
Following is an outline of lands within one half (1/2) mile corridor of Home Oil Company Limited Area of Application for Special Drilling Spacing Units.

Unless otherwise described all lands are held by Home Oil Company Limited and Scurry-Rainbow Oil Limited by lease.

<u>LANDS</u>	<u>P & NG MINERAL OWNERS</u>	<u>ADDRESS</u>
NE 1/4 2-2-29 W1M	Glen Howard Crossman ✓	Box 149 Pierson, Manitoba R0M 1S0
NW 1/4 2-2-29 W1M	Crossman Petroleums Ltd. ✓	Box 149 Pierson, Manitoba R0M 1S0
SW 1/4 2-2-29 W1M	Manitoba Energy and Mines ✓	
LSD 1 & 8 of 3-2-29 W1M	Ethel Veazie ✓	5438 E. Baltimore Mesa, Arizona 85205
SW & LSD 2 & 7 of 3-2-29 W1M	<hr/> * leased by Antler River Resources	<hr/>
NW 1/4 34-1-29 W1M (U 1/2 I)	South West Oil Limited	Box 855 Melita, Manitoba R0M 1L0
NW 1/4 34-1-29 W1M (U 1/4 I)	Sarah Ruby Caney	Box 1013 Virden, Manitoba R0M 2C0
NW 1/4 34-1-29 W1M (U 1/4 I)	Wayne Gordon Tingey	Box 95 Lyleton, Manitoba R0M 1G0
N 1/2 33-1-29 W1M	CPR, c/o PanCanadian Petroleum Ltd. * not leased	150 - 9 Avenue S.W. Calgary, Alberta T2P 2S5
N 1/2 32-1-29 W1M	Manitoba Energy and Mines ✓ * leased by Mantioba Oil & Gas and Precabrian Shield	
NE 1/4 31-1-29 W1M	CPR, c/o PanCanadian Petroleum Ltd. * not leased	150 - 9 Avenue S.W. Calgary, Alberta T2P 2S5

<u>LANDS</u>	<u>P & NG MINERAL OWNERS</u>	<u>ADDRESS</u>
SE 1/4 6-2-29 W1M	Manitoba Energy & Mines ✓	
NE 1/4 6-2-29 W1M (U 1/2 I)	George Douglas Hart ✓	331 Wainwright Rd S.E. Calgary, Alberta T2J 1H9
NE 1/4 6-2-29 W1M (U 37.5% I)	The Canada Trust Company ✓	311 - 6 Avenue S.W. Calgary, Alberta T2P 3H2
E 1/2 7-2-29 W1M	Charles Nicoll, William Nicoll & Mary MacLeod * not leased	Box 275 Treherne, Manitoba R0G 2V0
SE 1/4 18-2-29 W1M	Manitoba Energy & Mines ✓	
NE 1/4 18-2-29 W1M	Marie Elkanger ✓	Box 252 Pierson, Manitoba R0M 1S0
SE 1/4 19-2-29 W1M	Amoco Canada Petroleum Company Ltd. (Dome Petroleum Limited) ✓	Box 200 333 - 7 Avenue S.W. Calgary, Alberta T2P 2H8
S 1/2 20-2-29 W1M	Manitoba Energy and Mines ✓	
SW 1/4 21-2-29 W1M	Kenneth James Lee ✓	Box 35 Pierson, Manitoba R0M 1S0
SE 1/4 21-2-29 W1M	_____ * not leased	_____ _____
S 1/2 22-2-29 W1M	Manitoba Energy & Mines ✓ * leased by Newscope Resources / Manitoba Oil & Gas	_____ _____
SW 1/4 23-2-29 W1M	_____ * not leased	_____ _____
N 1/2 14-2-29 W1M	_____ * leased to Sceptre Resources Ltd. ✓	_____ _____ _____
SE 1/4 14-2-29 W1M	Manitoba Energy & Mines ✓	
NE 1/4 11-2-29 W1M	Manitoba Energy & Mines ✓ * leased to Last Ditch Investments 862776	
SE 1/4 11-2-29 W1M	Manitoba Energy & Mines ✓	

PIERSON AREA
MANITOBA



AMERICA

TP. 164
N.

(R. 29-CAN.)
R. 62 W.

BOTTINEAU

COUNTY

LEGEND

```

** S. PIERSON MANITOBA **
SPEARFISH SPACING APPLICATION
RECOVERABLE RESERVES=5468 M3
  INIT. PROD RATE=8 M3
  FINAL PROD RATE=0.5 M3
  HIGH PRICE SENSITIVITY

```

***** BEFORE AND AFTER INCOME TAX *****

DATE BEGIN	GROSS OIL + COND. m3	NET OIL + COND. m3	GROSS RES. + SL GAS m3	NET RES. + SL GAS m3	NET REVENUE BEFORE ROYLTY \$	NET REVENUE AFTER ROYLTY \$	NET OTHER INCOME \$	NET EXP \$	NET OTHER EXPENSE \$	NET OPER. INCOME \$	TOTAL NET CAPITL \$	CASH FLOW TAX B. \$	DISC. CASH FLOW TAX \$	CASH FLOW TAX A. \$	DISC. CASH FLOW TAX \$	
1989	1477	1477	0	0	189480	189480	0	32657	0	156823	444000	-287178	-292276	1459	-288636	-293688
1990	1715	1445	0	0	235760	198564	0	45043	0	153521	0	153521	135784	23230	130291	115237
1991	1040	869	0	0	153028	127849	0	35989	0	91861	0	91861	72542	10628	81233	64150
1992	630	561	0	0	102140	90840	0	30585	0	60255	0	60255	42485	3851	56404	39770
1993	382	357	0	0	66942	62519	0	27494	0	35024	0	35024	22049	-919	35943	22628
1994	223	215	0	0	42727	41076	0	25727	0	15349	0	15349	8628	-4203	19552	10990
TOTAL	5468	4923	0	0	790076	710327	0	197495	0	512833	444000	68833	-107888	34046	34787	-40912

** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=5468 M3

***** SUMMARY *****

RESERVES + PROJECT LIFE *									

LIFE (YRS) = 5.58									
PROJECT START MONTH = JUNE									

OIL		SOLN GAS		RESIDUE		ETHANE		COND.	
(E3 m3)		(E3 m3)		(E3 m3)		(E3 m3)		(E3 m3)	
-----		-----		-----		-----		-----	
5.5		0.0		0.0		0.0		0.0	
5.5		0.0		0.0		0.0		0.0	
4.9		0.0		0.0		0.0		0.0	
-----		-----		-----		-----		-----	
GROSS									
WORKING INT.									
NET									

NET PRESENT VALUE *									

NET PROFIT INDICATORS *									

RATE OF RETURN (PCT)									
PAYOUT (VRS)									
DISCOUNTED PAYOUT (VRS)									
PRESENT WORTH INDEX									
UNDIS C FLOW/UNDIS INV									
DIS C FLOW/DIS INV									
DIS C FLOW/UNDIS INV									
CAPITAL EXPOSURE (E3 \$)									
UNDIS C FLOW/CAP EXPOS									
DIS C FLOW/CAP EXPOS									
SUCCESS CAPACITY									
FINDING COST (\$/m3)									
FIND+DEV COST (\$/m3)									
OIL (E3 m3)									

4.92									
51.41									
40.99									
0.80									
-0.20									
0.17									
201.78									
-0.09									
-0.09									
0.08									
0.86									
0.00									
4.16									
4.90									

INTERESTS *									

INTL ROYALTY INT (PCT) = 0.00000									
AVG. ROYALTY INT (PCT) = 10.09381									
INTL WORKING INT (PCT) = 100.00000									
INTL CAPITAL INT (PCT) = 100.00000									

*** BEFORE INCOME TAX ***									

DISC. RATE		OP. INC (E3 \$)		INCOME INV. (E3 \$)		TAX C FLOW (E3 \$)		*** AFTER INCOME TAX C FLOW (E3 \$)	
-----		-----		-----		-----		-----	
0.00		512.8		444.0		68.8		34.8	
5.00		475.7		444.0		31.7		-0.6	
10.00		444.4		444.0		0.4		-30.3	
15.00		417.7		444.0		-26.3		-55.6	
20.00		394.6		444.0		-49.4		-77.2	
30.00		356.9		444.0		-87.1		-112.4	
12.00		433.2		444.0		-10.8		-40.9	
		403.1		444.0					
				444.0					
						</			

** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=5468 M3
 INIT. PROD RATE=8 M3
 FINAL PROD RATE=0.5 M3
 HIGH PRICE SENSITIVITY

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
 EXPOSURE
 (E3 \$)

201.8

CASE	PROBABILITY OF SUCCESS PCT	AIT 12% PV			AIT ROR PCT			AIT PVI		
		PROFIT E3 \$	PAVOUT VRS	AIT PCT	PROFIT E3 \$	PAVOUT VRS	AIT PCT	PROFIT E3 \$	PAVOUT VRS	AIT PCT
1	0.0	-201.8	0.00	0.0	0.0	0.00	0.0	0.00	0.00	0.00
2	30.0	-153.5	0.00	0.0	0.0	0.44	0.0	0.44	0.44	0.44
3	40.0	-137.4	0.00	0.0	0.0	0.54	0.0	0.54	0.54	0.54
4	50.0	-121.3	0.00	0.0	0.0	0.62	0.0	0.62	0.62	0.62
5	60.0	-105.3	0.00	0.0	0.0	0.70	0.0	0.70	0.70	0.70
6	70.0	-89.2	0.00	0.0	0.0	0.76	0.0	0.76	0.76	0.76
7	81.0	-71.5	0.00	0.0	0.0	0.82	0.0	0.82	0.82	0.82
8	90.0	-57.0	4.95	1.6	1.6	0.86	1.6	0.86	0.86	0.86
9	100.0	-40.9	4.16	4.9	4.9	0.91	4.9	0.91	0.91	0.91

***** SUMMARY *****

INTERESTS *				RESERVES + PROJECT LIFE *									
INTL ROYALTY INT (PCT) = 0.00000				LIFE (VRS) = 7.92									
AVG. ROYALTY INT (PCT) = 11.42575				PROJECT START MONTH = JUNE									
INTL WORKING INT (PCT) = 100.00000													
INTL CAPITAL INT (PCT) = 100.00000													

@ 17% RECOVERY SENSITIVITY

RISK ANALYSIS

RISK ADJUSTED CASH FLOW

NET CAPITAL
EXPOSURE
(E3 \$)

201.8

CASE	PROBABILITY OF SUCCESS PCT	AIT 12% PV PROFIT E3 \$	AIT PAYOUT YRS	AIT ROR PCT	AIT PVI
1	0.0	-201.8	0.00	0.0	0.00
2	30.0	-152.5	0.00	0.0	0.44
3	40.0	-136.1	0.00	0.0	0.54
4	50.0	-119.7	0.00	0.0	0.63
5	60.0	-103.3	0.00	0.0	0.70
6	70.0	-86.9	0.00	0.0	0.77
7	81.0	-68.8	6.53	1.9	0.83
8	90.0	-54.0	5.54	4.5	0.87
9	100.0	-37.6	4.89	7.0	0.92

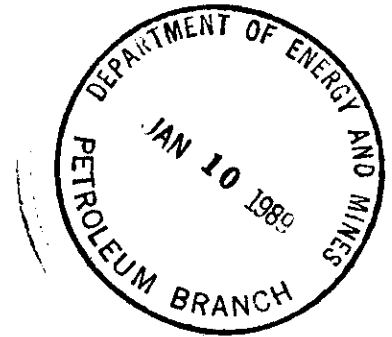
Home Oil Company Limited

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



1989-01-04

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



Attention: Mr. L.R. Dubreuil, Director
Petroleum Branch

Dear Sir:

An application for the designation of special drilling spacing units in the South Pierson Lower Amaranth B Pool area is enclosed. Home Oil Company Limited would like the opportunity to discuss with your department the spacing application and Home's plans for 1989 as requested in your letter of 1988-12-16.

Home's Reservoir Engineering department will be contacting you the week of January 9 to arrange a mutually acceptable date and time. A tentative agenda is attached to this letter for your review.

If there are any questions or additional agenda items please contact Mr. Gary Harrison at (403) 232-7107.

Yours truly,

HOME OIL COMPANY LIMITED

K.R. Brown, P. Eng.
Manager, Reservoir Engineering

GBH/jlc
1345e

c.c. G.O. Raham
R.S. Bachynski
G. Harrison
D.A. Bertram
Amoco Canada Petroleum Company Limited
FILE: 13-PIER-0
Reading File

Tentative Agenda

Home Oil - South Pierson

1. Application for Special Drilling Spacing Units
2. Offset Obligations
3. 1989 Development Plans
4. Commingling of Lower Amaranth and Mission Canyon Production
5. Other Business



1989-01-04

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

Attention: L.R. Dubreuil, Director
Petroleum Branch

Dear Sir/Madam:

Re: Application for Special Drilling Spacing Units
South Pierson Field, Lower Amaranth B Pool

Home Oil Company Limited hereby applies for the designation of special drilling spacing units in the South Pierson Field. Pursuant to the drilling and production regulations Part IV Section 20 and Part XIII Section 115 the following information is provided:

1. The area of application is outlined in Attachment 1. Formations to be included in the application are the Lower Amaranth and Mission Canyon formations. Lessees and lessors are shown in Attachments 2 and 3 and specified in Attachments 4 and 5.
2. Within the area of application, drilling spacing units of 32 hectares comprising LSD's 1 and 8, 2 and 7, 3 and 6, etc. are requested with the target area being within the even numbered LSD's. Central targets as specified in Section 21(1) of the regulations are requested.
3. As per Section 115 of the petroleum regulations this application is based on the ability of the wells located within the area of application to adequately drain 32 hectares within a reasonable timeframe of approximately ten years. Attachment 6 contains a discussion of expected production and recoveries over time based on decline rates where available and on exponential decline from initial production rates to recover volumetric reserves estimates where history is too short for decline analysis.
4. Attachment 7 contains a summary of the economic assumptions and results for 16 and 32 ha spacing. DSU's of 16 ha are not economic to drill and produce based on the limited reserves available.
5. The correlative rights of the offset royalty and working interest holders will not be adversely affected by this proposal. By enlarging the drilling spacing units the well density within the area of application is reduced. The withdrawal rate per unit reservoir volume will be equal to or less than the equivalent 16 ha spacing since most wells are not capable of producing at double the 16 ha maximum permissible production rate.

6. An increased maximum permissible production rate of twice the 16 ha limit is requested to reflect the larger spacing units within the area of application.
7. In the area of application it is necessary to fracture stimulate the Lower Amaranth in order to produce at an economic rate. In some locations fracture propagation from the Lower Amaranth into the Mission Canyon formations destroys segregation between zones. In such cases it is uncertain whether oil production is entirely from the Lower Amaranth or if there is a contribution from the Mission Canyon. Home Oil submits that the two formations should therefore be treated in the same manner with regard to spacing.

Home Oil Company Limited submits that the above arguments and attachments are sufficient to justify enlarging the spacing units to 32 ha in the application area. If you require further information please contact Mr. Gary Harrison at (403) 232-7107.

Yours truly,

HOME OIL COMPANY LIMITED

K. R. Brown

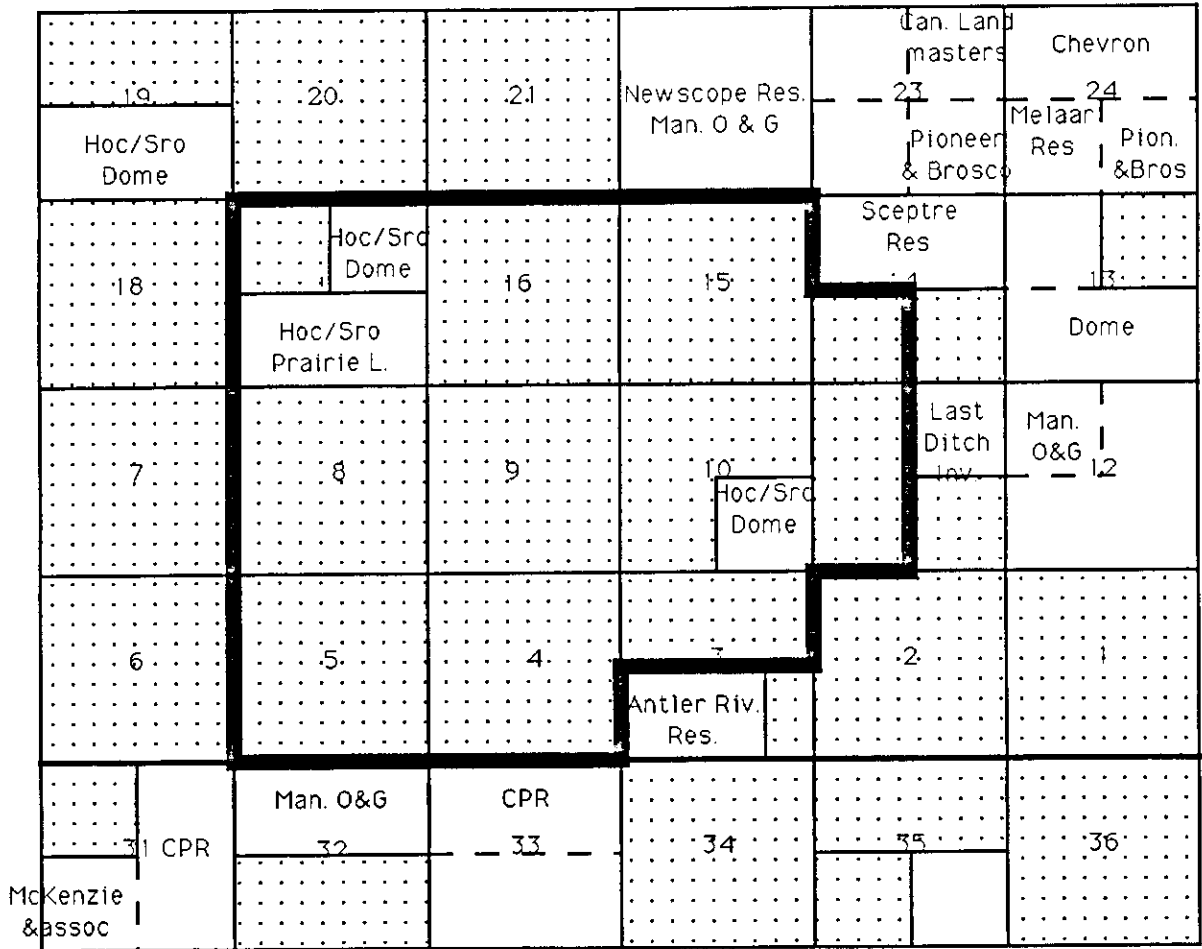
K.R. Brown, P. Eng.
Manager, Reservoir Engineering

GBH/jlc
1345e

c.c. Amoco Canada Petroleum Company Limited
G.O. Raham
R.S. Bachynski
G.B. Harrison
D.A. Bertram
FILE: 13-PIER-0
Day File



SOUTH PIERSON LESSEES MAP

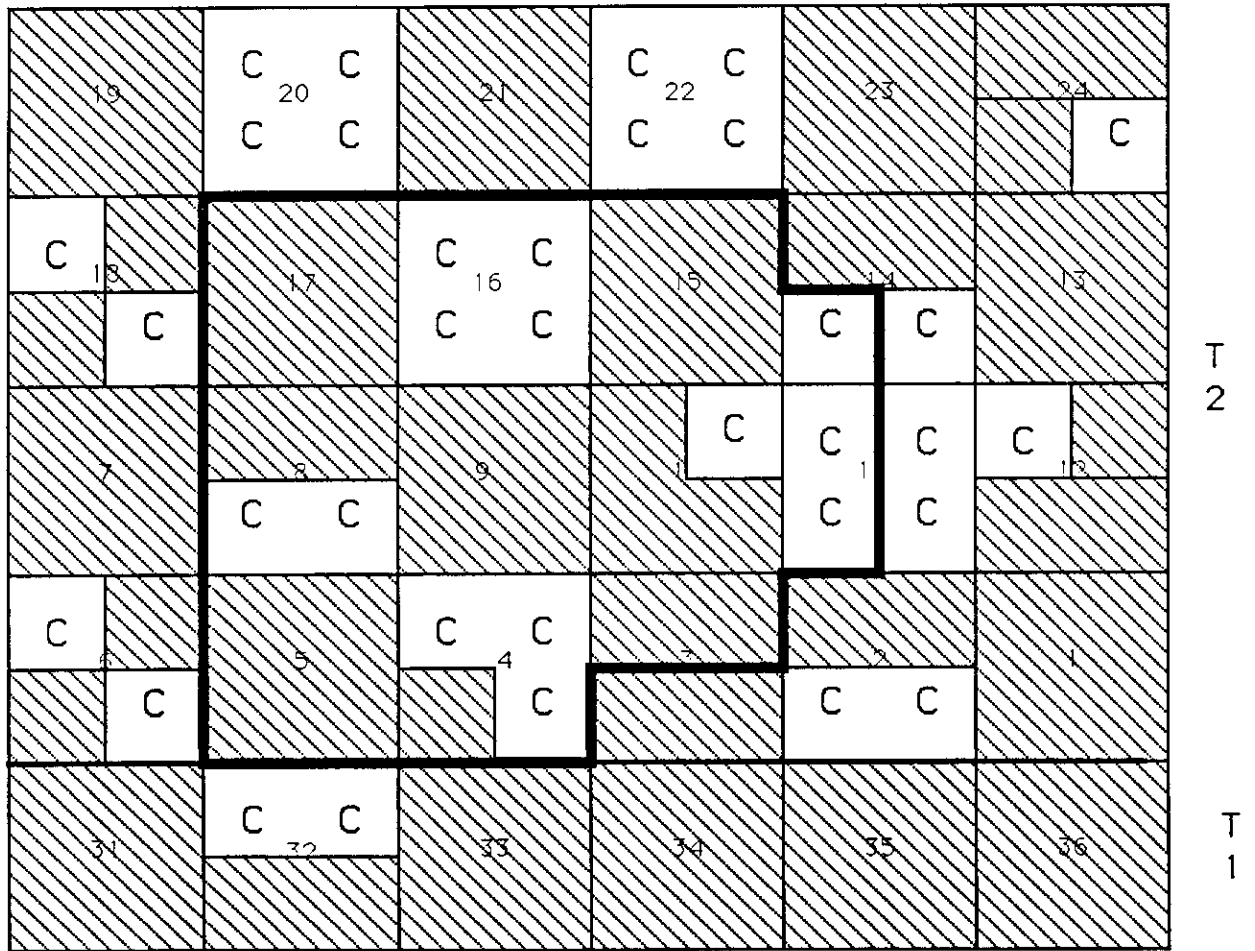


HOC/SRO
W.I. 100%



AREA OF APPLICATION

SOUTH PIERSON LESSORS MAP



C CROWN LAND

 FREEHOLD LAND

 AREA OF APPLICATION

Attachment 4

SOUTH PIERSON, MANITOBA

	<u>Lessee</u>
SW/4-31-01-29 W1	N. McKenzie & Assoc.
NW/4-31-01-29 W1	HOC/SRO
E/2 -31-01-29 W1	CPR
S/2 -32-01-29 W1	HOC/SRO
N/2 -32-01-29 W1	Manitoba O+G, Pre Cambrian Shield
SEC. 33-01-29 W1	CPR
SEC. 34-01-29 W1	HOC/SRO
SE/4-35-01-29 W1	Unleased
SW/4, N/2-35-01-29 W1	HOC/SRO
SEC. 36-01-29 W1	HOC/SRO
SEC. 01-02-29 W1	HOC/SRO
SEC. 02-02-29 W1	HOC/SRO
LSD 2+7, SW/4-03-02-29 W1	Antler River Res.
LSD 1+8, N/2 -03-02-29 W1	HOC/SRO
SEC. 04-02-29 W1	HOC/SRO
SEC. 05-02-29 W1	HOC/SRO
SEC. 06-02-29 W1	HOC/SRO
SEC. 06-02-29 W1	HOC/SRO
SEC. 07-02-29 W1	HOC/SRO
SEC. 08-02-29 W1	HOC/SRO
SEC. 09-02-29 W1	HOC/SRO
SW/4, N/2-10-02-29 W1	HOC/SRO
SE/4-10-02-29 W1	HOC/SRO, Dome
E/2, SE/4 11-02-29 W1	HOC/SRO
NE/4 11-02-29 W1	Last Ditch Inv.
S/2, NE/4 12-02-29 W1	Unleased
NW/4-12-02-29 W1	Manitoba O+G, PreCambrian Shield

S/2, LSD 11+12-13-02-29 W1	Dome
NE/4-13-02-29 W1	HOC/SRO
S/2 -14-02-29 W2	HOC/SRO
N/2 -14-02-29 W1	Sceptre Res.
SEC. 15-02-29 W1	HOC/SRO
SEC. 16-02-29 W1	HOC/SRO
S/2 -17-02-29 W1	HOC/SRO, Prairie Leaseholds
NW/4-17-02-29 W1	HOC/SRO
NE/4-17-02-29 W1	HOC/SRO, Dome
SEC. 18-02-29 W1	HOC/SRO
S/2 -19-02-29 W1	HOC/SRO, Dome
N/2 -19-02-29 W1	HOC/SRO
SEC. 20-02-29 W1	HOC/SRO
SEC. 21-02-29 W1	HOC/SRO
SEC. 22-02-29 W1	Newscope Res., Manitoba O+G
W/2 -23-02-29 W1	Unleased
SW/4-23-02-29 W1	Pioneer + Brosco
NE -23-02-29 W1	Canadian Landmasters
SW/4-24-02-29 W1	Melcor Res.
SE/4-24-02-29 W1	Pioneer + Brosco
N/2 -24-02-29 W1	Chevron

Attachment 5

SOUTH PIERSON, MANITOBALessor

Sec. 31-01-29 W1	Freehold
S/2 -32-01-29 W1	Freehold
N/2 -32-01-29 W1	Crown
Sec. 33-01-29 W1	Freehold
Sec. 34-01-29 W1	Freehold
Sec. 35-01-29 W1	Freehold
Sec. 36-01-29 W1	Freehold
Sec. 01-02-29 W1	Freehold
S/2 -02-02-29 W1	Crown
N/2 -02-02-29 W1	Freehold
Sec. 03-02-29 W1	Freehold
SW/4-04-02-29 W1	Freehold
SE/4-04-02-29 W1	Crown
N/2 -04-02-29 W1	Crown
Sec. 05-02-29 W1	Freehold
SW/4-06-02-29 W1	Freehold
SE/4-06-02-29 W1	Crown
NW/4-06-02-29 W1	Crown
NE/4-06-02-29 W1	Freehold
Sec. 07-02-29 W1	Freehold
S/2 -08-02-29 W1	Crown
N/2 -08-02-29 W1	Freehold
Sec. 09-02-29 W1	Freehold
S/2 -10-02-29 W1	Freehold
NW/4-10-02-29 W1	Freehold
NE/4-10-02-29 W1	Crown
Sec. 11-02-29 W1	Crown
S/2 -12-02-29 W1	Freehold
NW/4-12-02-29 W1	Crown
NE/4-12-02-29 W1	Freehold
Sec. 13-02-29 W1	Freehold
S/2 -14-02-29 W1	Crown
N/2 -14-02-29 W1	Freehold
Sec. 15-02-29 W1	Freehold
Sec. 16-02-29 W1	Crown
Sec. 17-02-29 W1	Freehold
SW/4-18-02-29 W1	Freehold
SE/4-18-02-29 W1	Crown
NW/4-18-02-29 W1	Crown
NE/4-18-02-29 W1	Freehold
Sec. 19-02-29 W1	Freehold
Sec. 20-02-29 W1	Crown
Sec. 21-02-29 W1	Freehold
Sec. 22-02-29 W1	Crown
Sec. 23-02-29 W1	Freehold
SW/4-24-02-29 W1	Freehold
SE/4-24-02-29 W1	Crown
N/2 -24-02-29 W1	Freehold

Attachment 6 32 hectare Reserves and Depletion

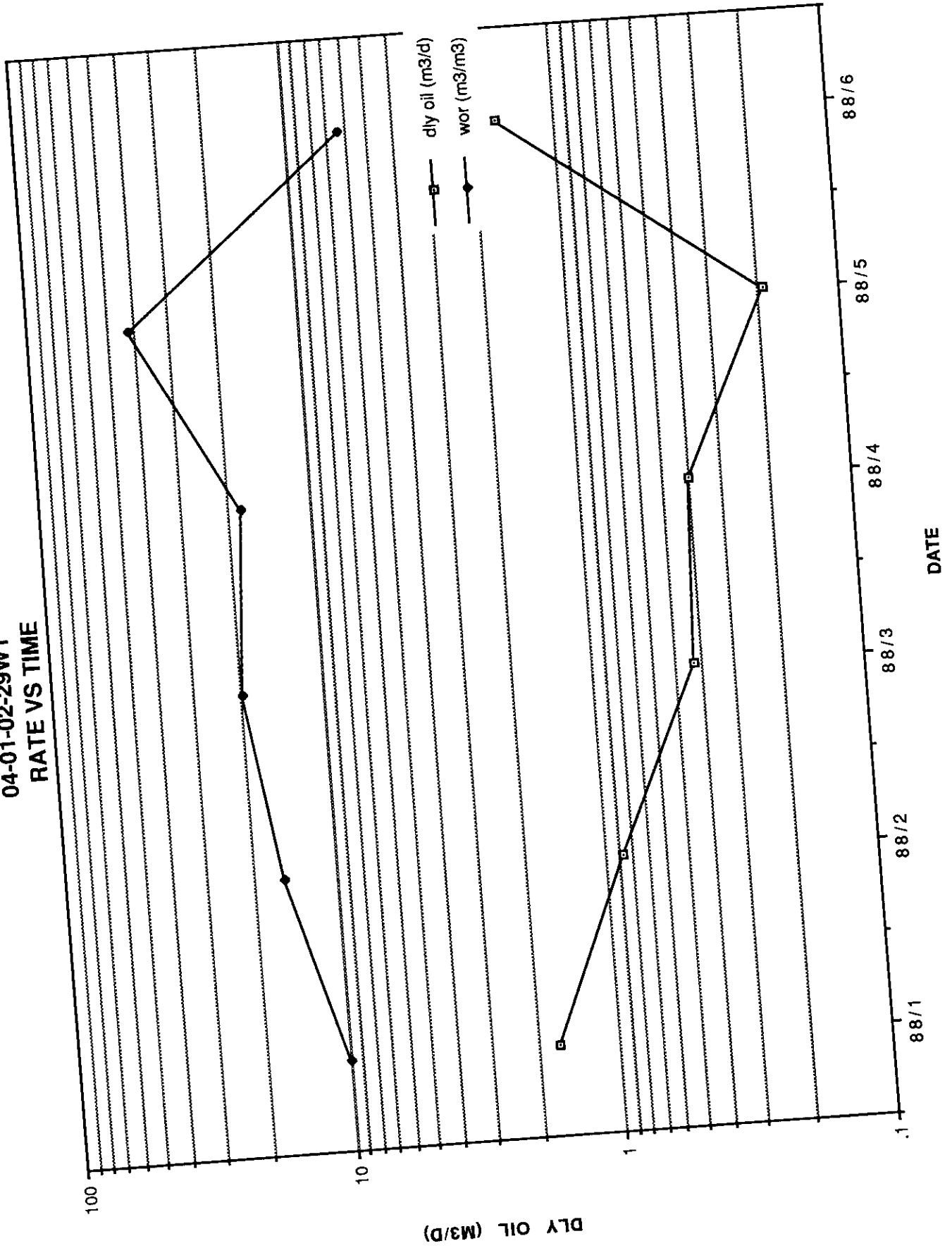
To determine the area that may be adequately drained an estimate of recoverable reserves and production life was generated. Estimates of recovery by decline rate analysis were performed on four wells in the area of application. These four wells were the only ones with sufficient history to allow for a meaningful decline curve analysis. Attachment 6 contains the rate vs time and rate vs cumulative production plots for all of the pool wells for which production data is available. A reserves comparison between decline curve and volumetric estimates of reserves for the four wells are as follows:

LSD	Decline Curve Reserves (m ³)	Volumetric Estimate (12% RF, 32 ha, m ³)
16-05-002-29 W1M	10,600	13,719
16-08-002-29 W1M	9,000	12,472
16-09-002-29 W1M	19,071	7,774
04-15-002-29 W1M	<u>16,700</u>	<u>14,085</u>
Total	55,371	48,050

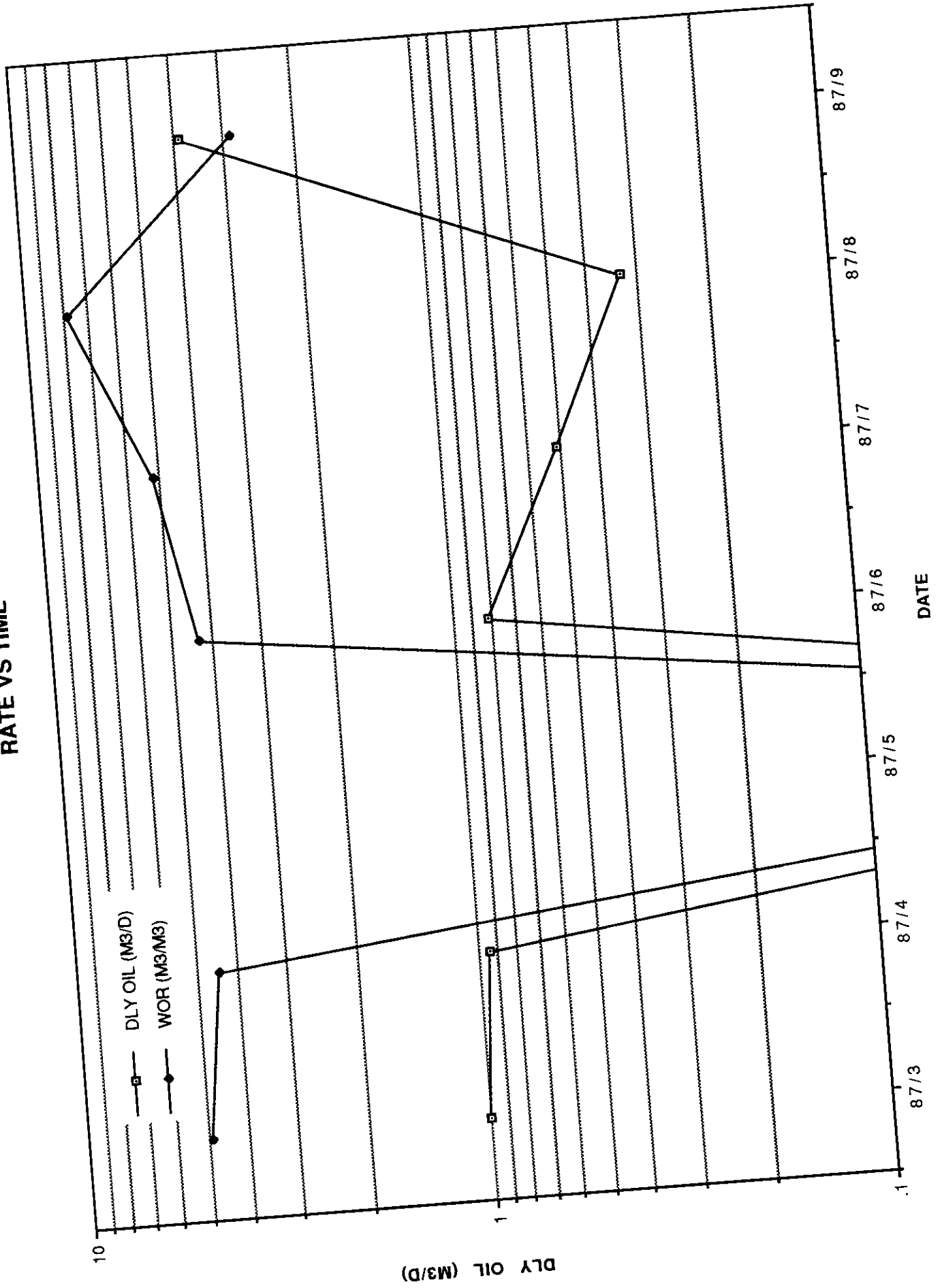
As can be seen, the projected recovery by decline analysis is greater than the volumetric estimate with a 12% estimated recovery factor. Primary recovery estimates from similar fields on 16 ha spacing have been estimated at 9.1% to 12.2%.

To estimate total pool life a forecast was generated using current production rates declined to produce the combined volumetric estimate of reserves for all producing wells assuming 32 ha drainage units. the resulting forecast is included and results in a 10.8 year life, comparable with the economic forecast using average reservoir parameters in attachment 7.

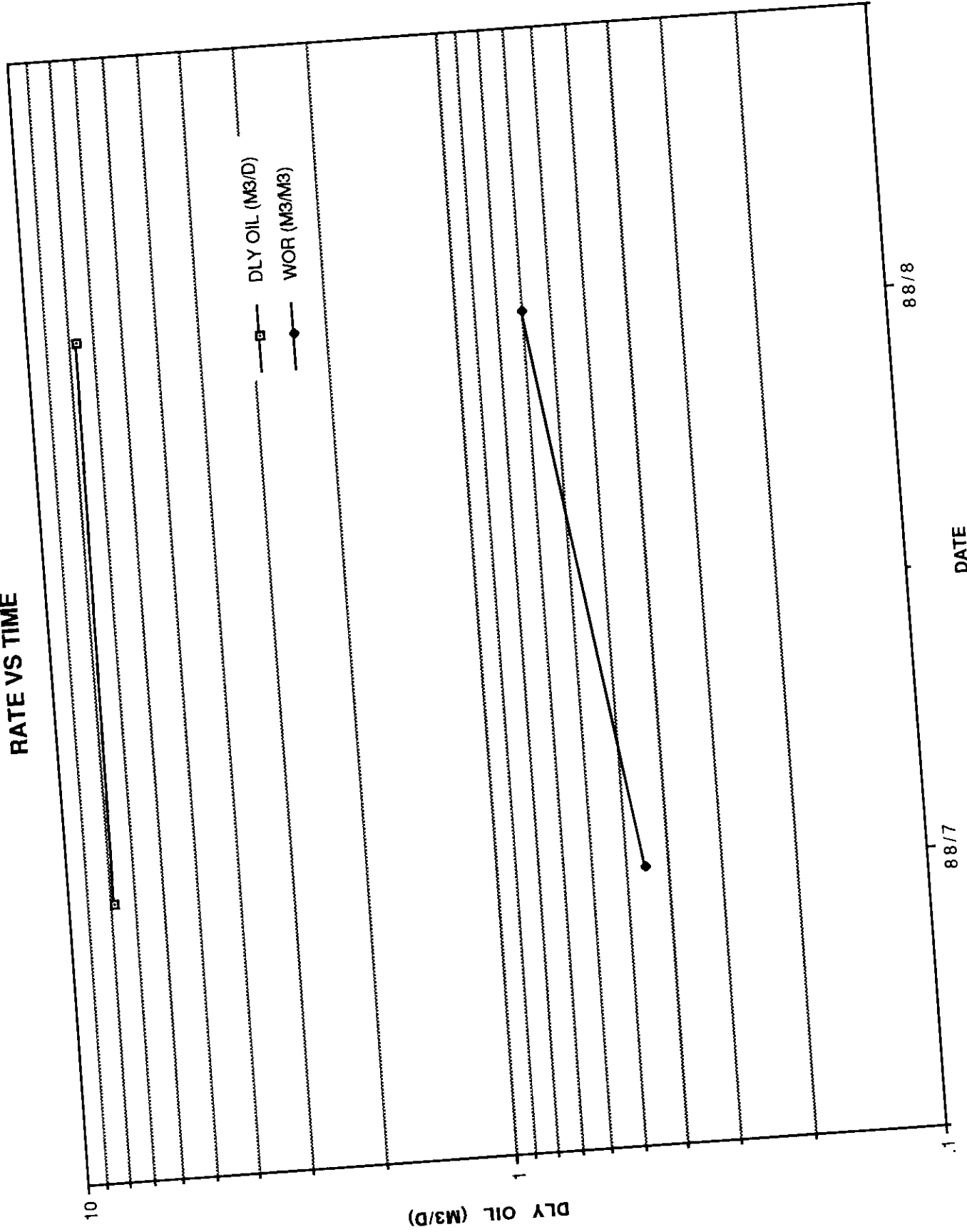
04-01-02-29W1
RATE VS TIME



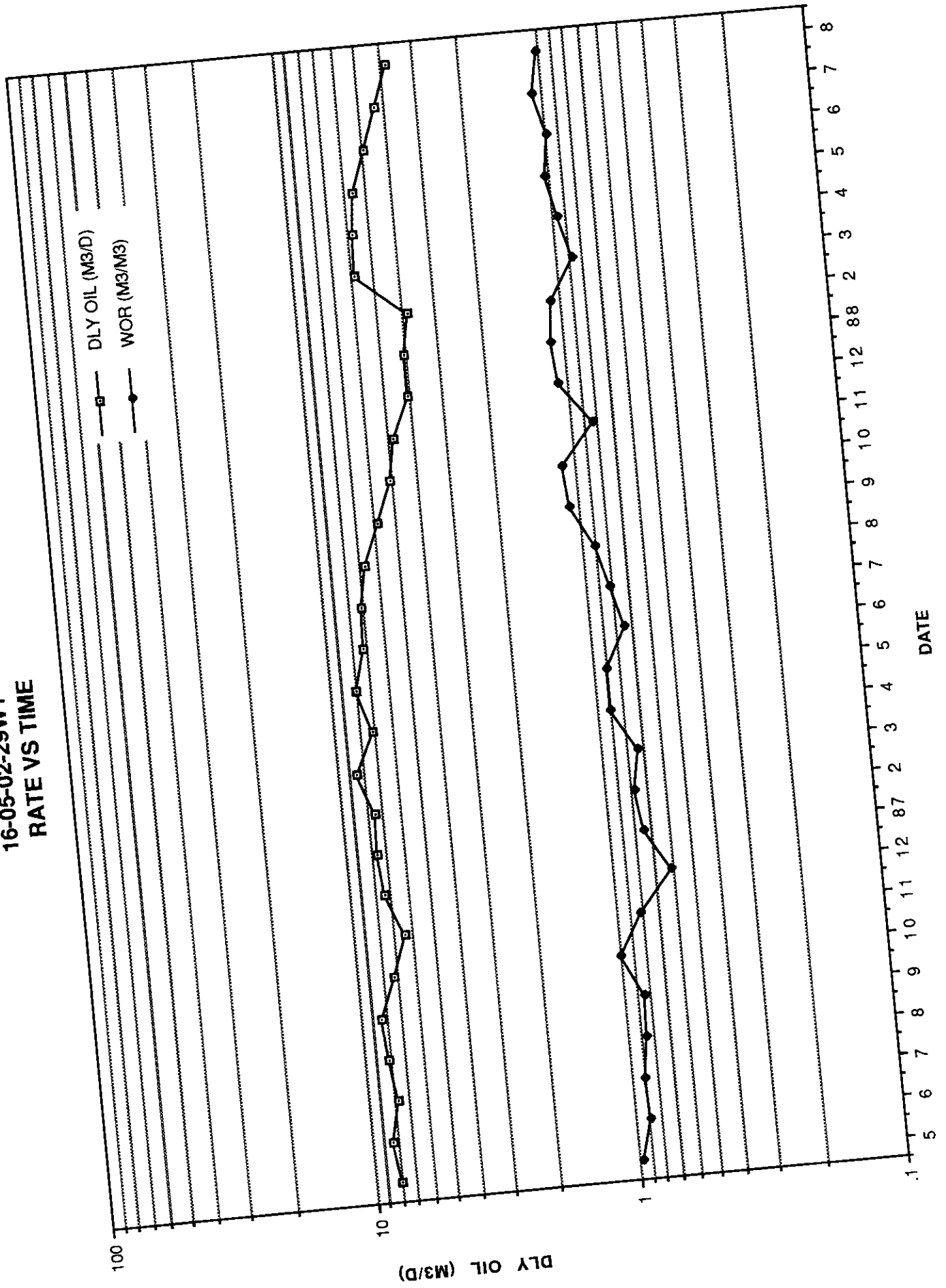
06-04-02-29W1
RATE VS TIME



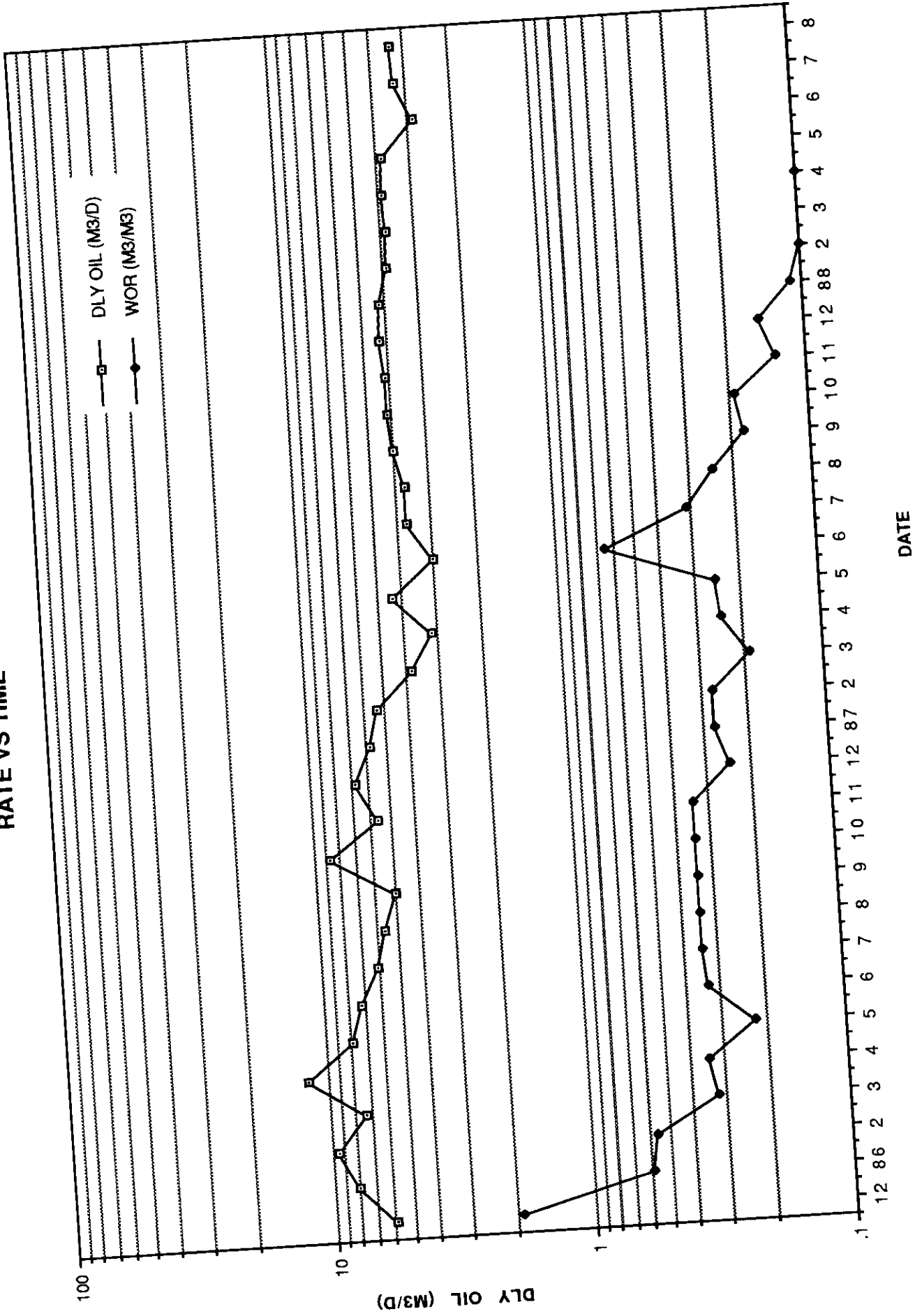
14-04-02-29W1 RATE VS TIME



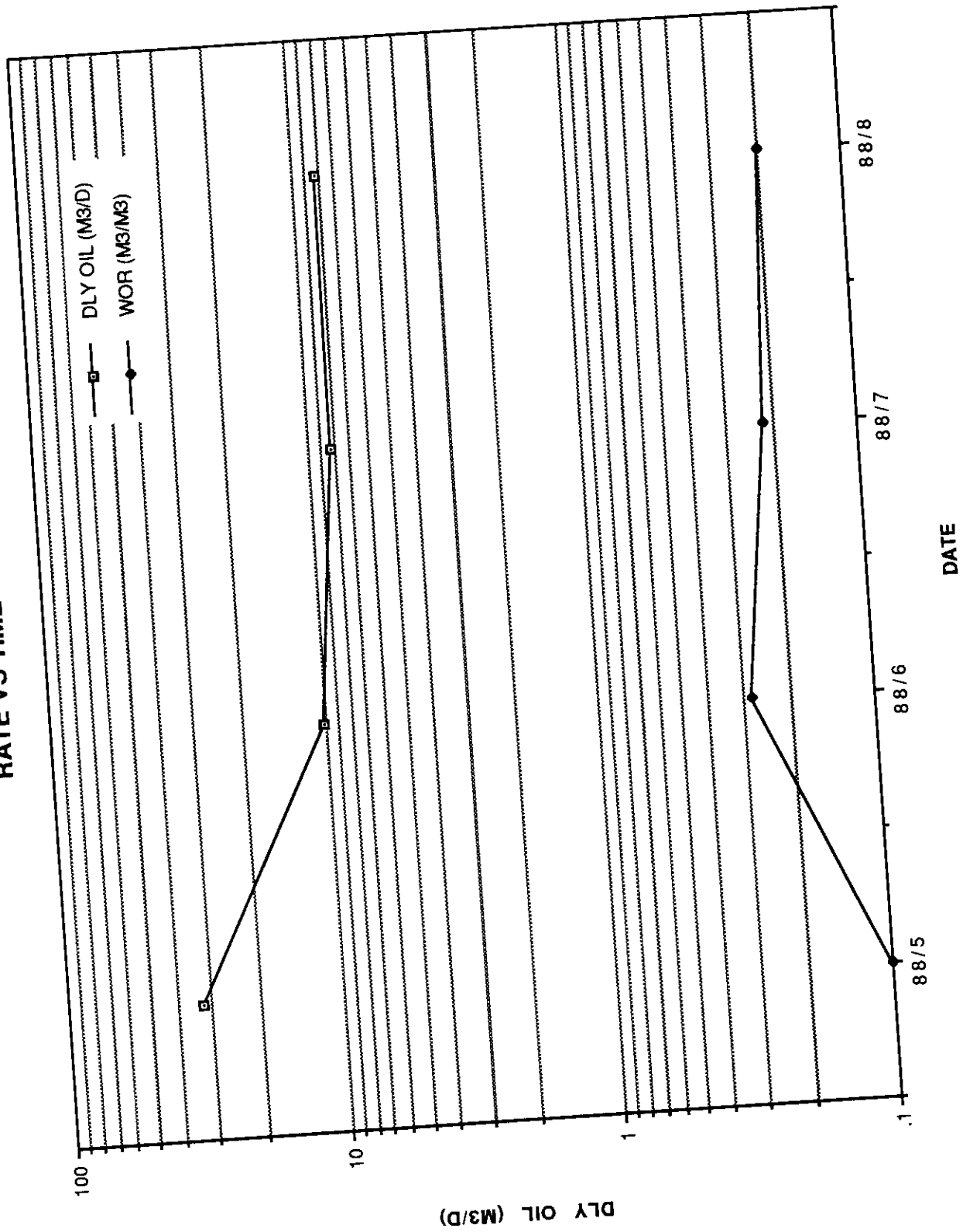
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RATE VS TIME



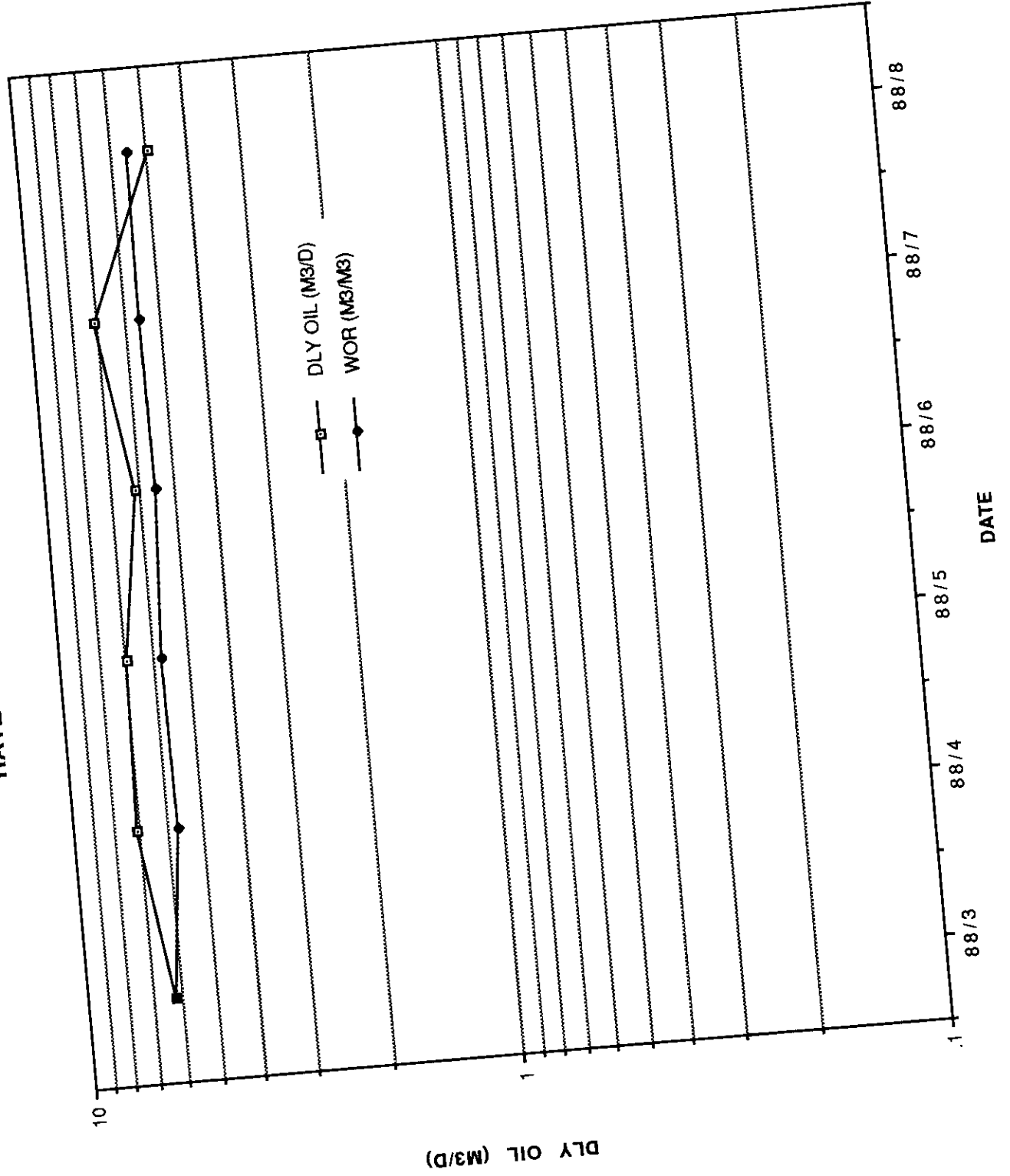
16-08-02-29W1 RATE VS TIME



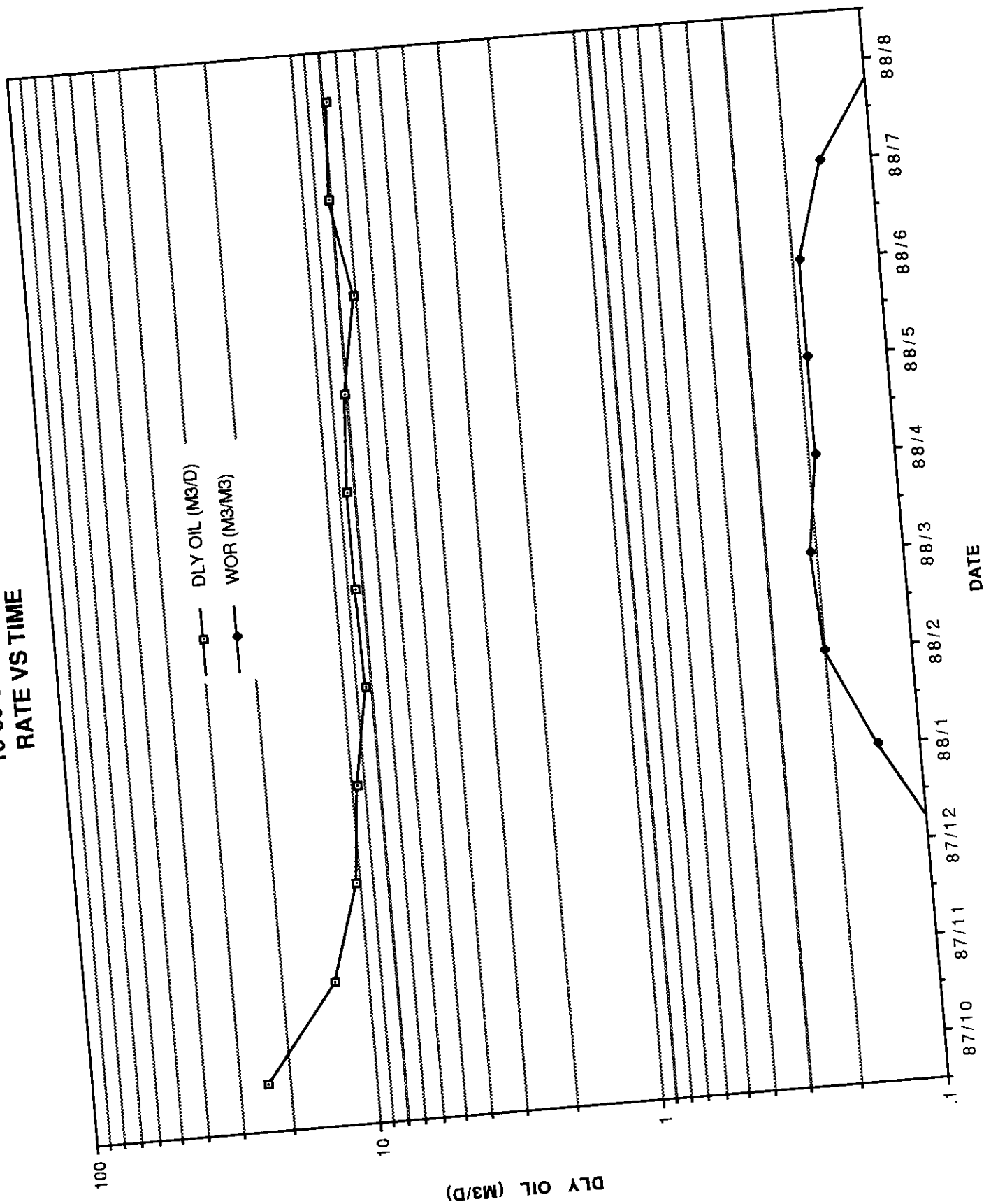
12-09-02-29W1
RATE VS TIME



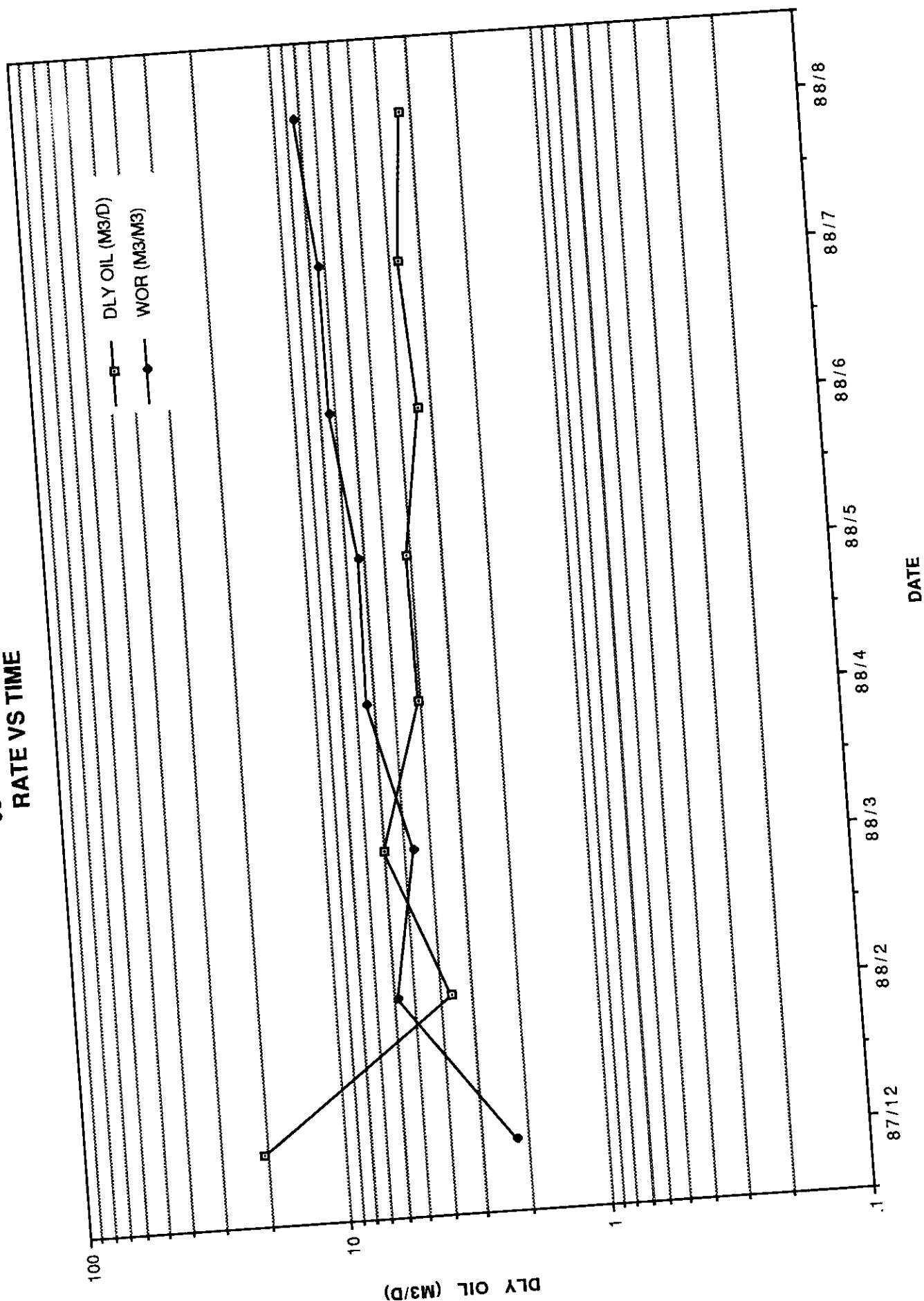
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RATE VS TIME



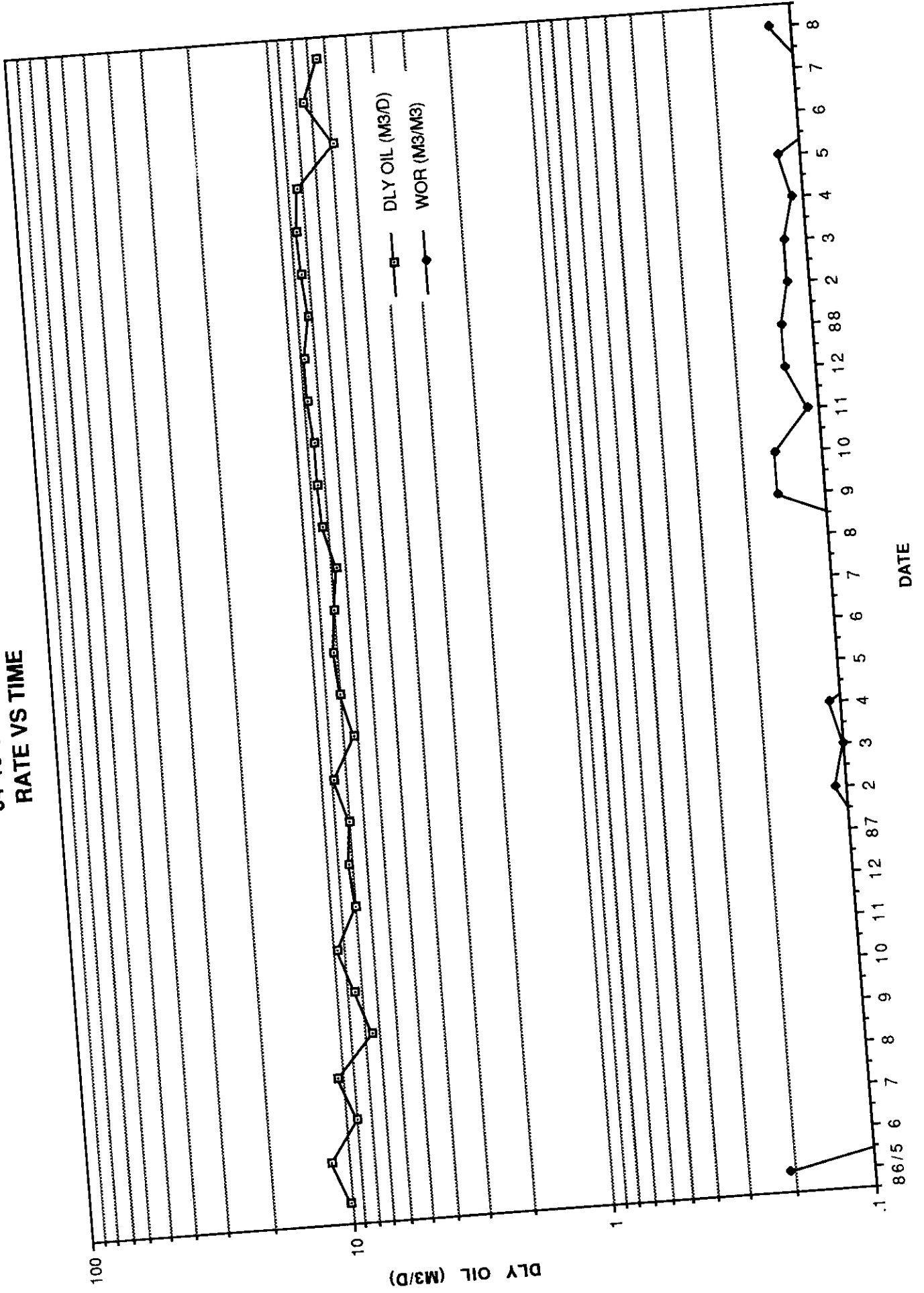
16-09-02-29W1
RATE VS TIME



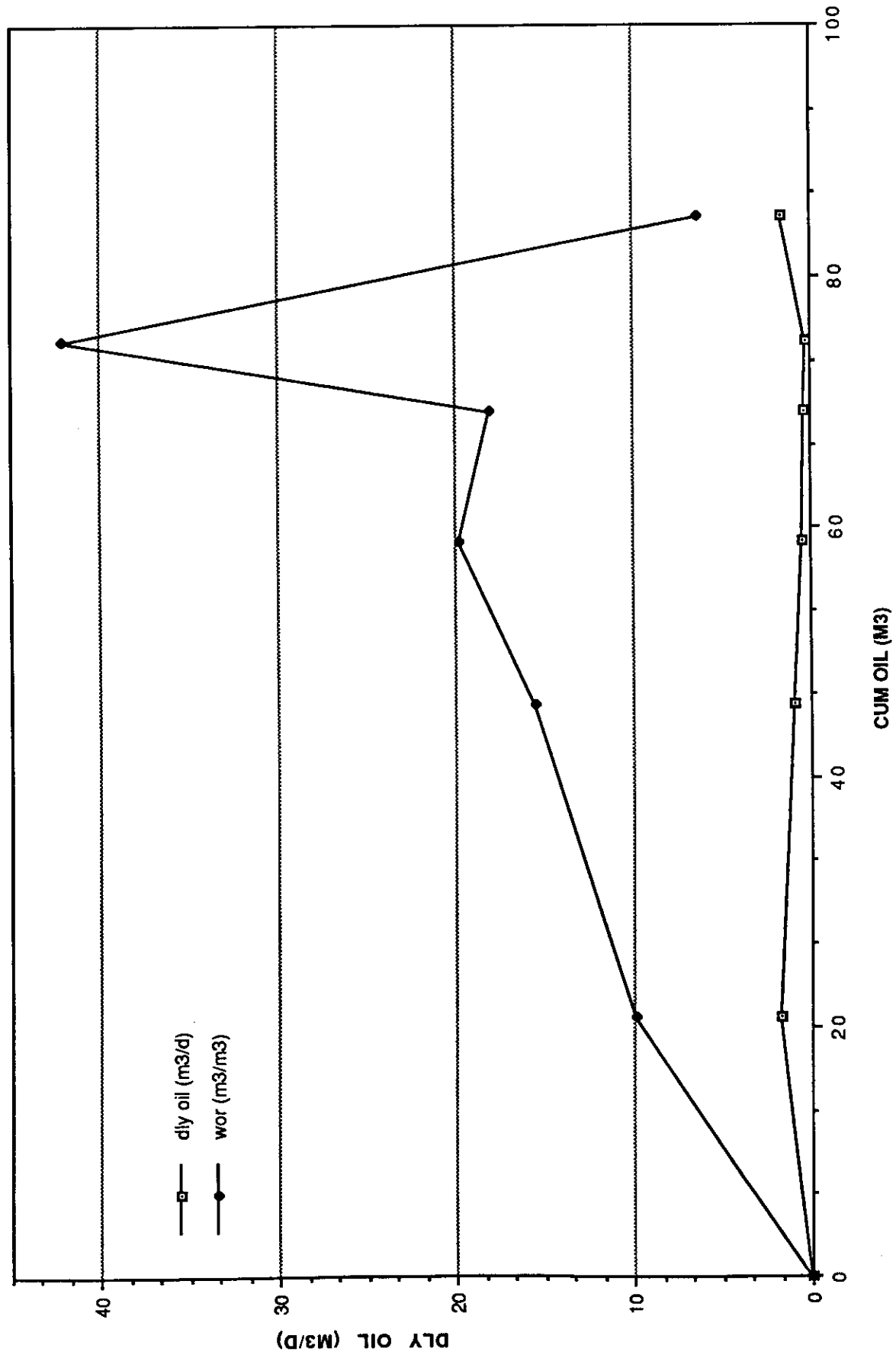
08-10-02-29W1 RATE VS TIME



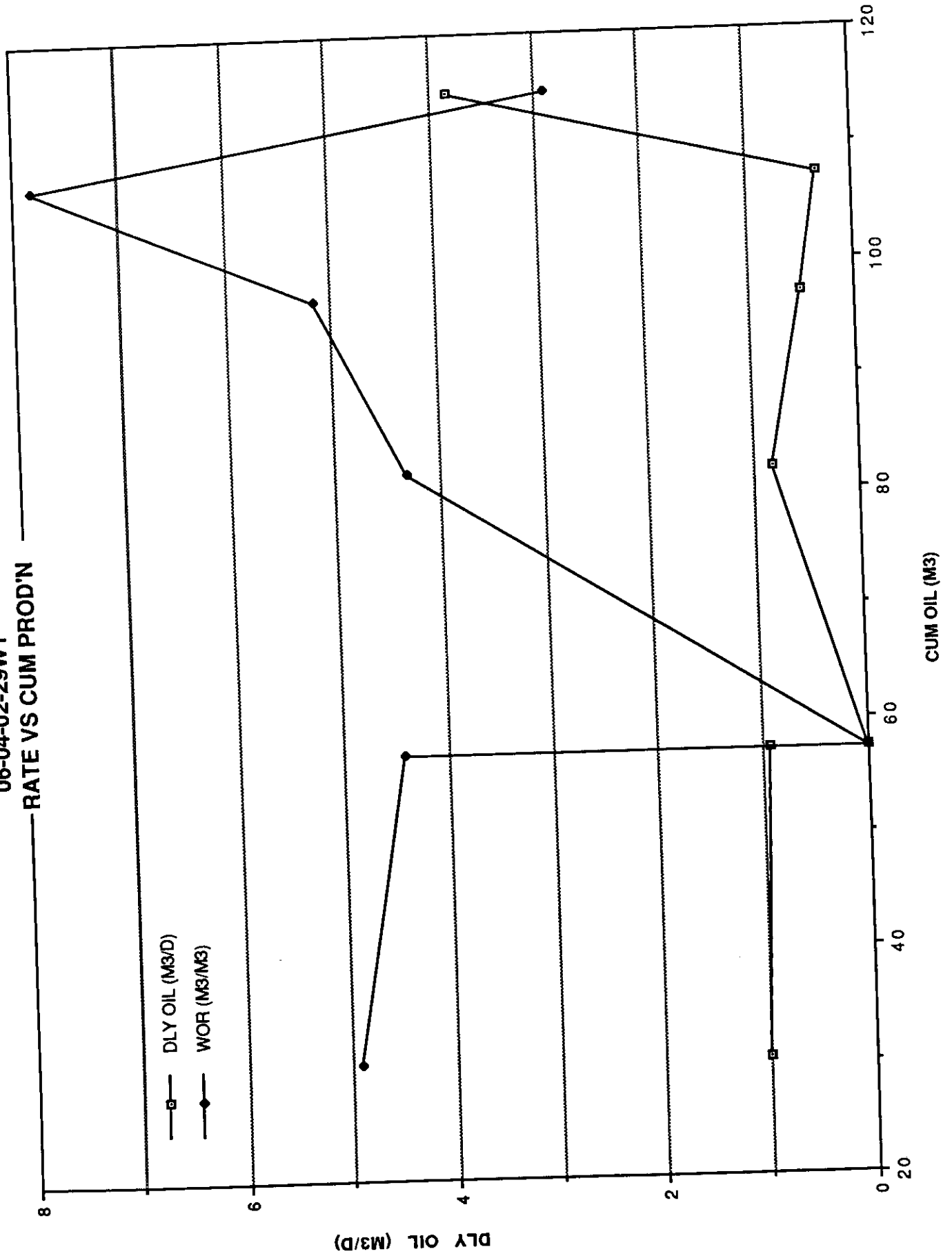
04-15-02-29W1
RATE VS TIME



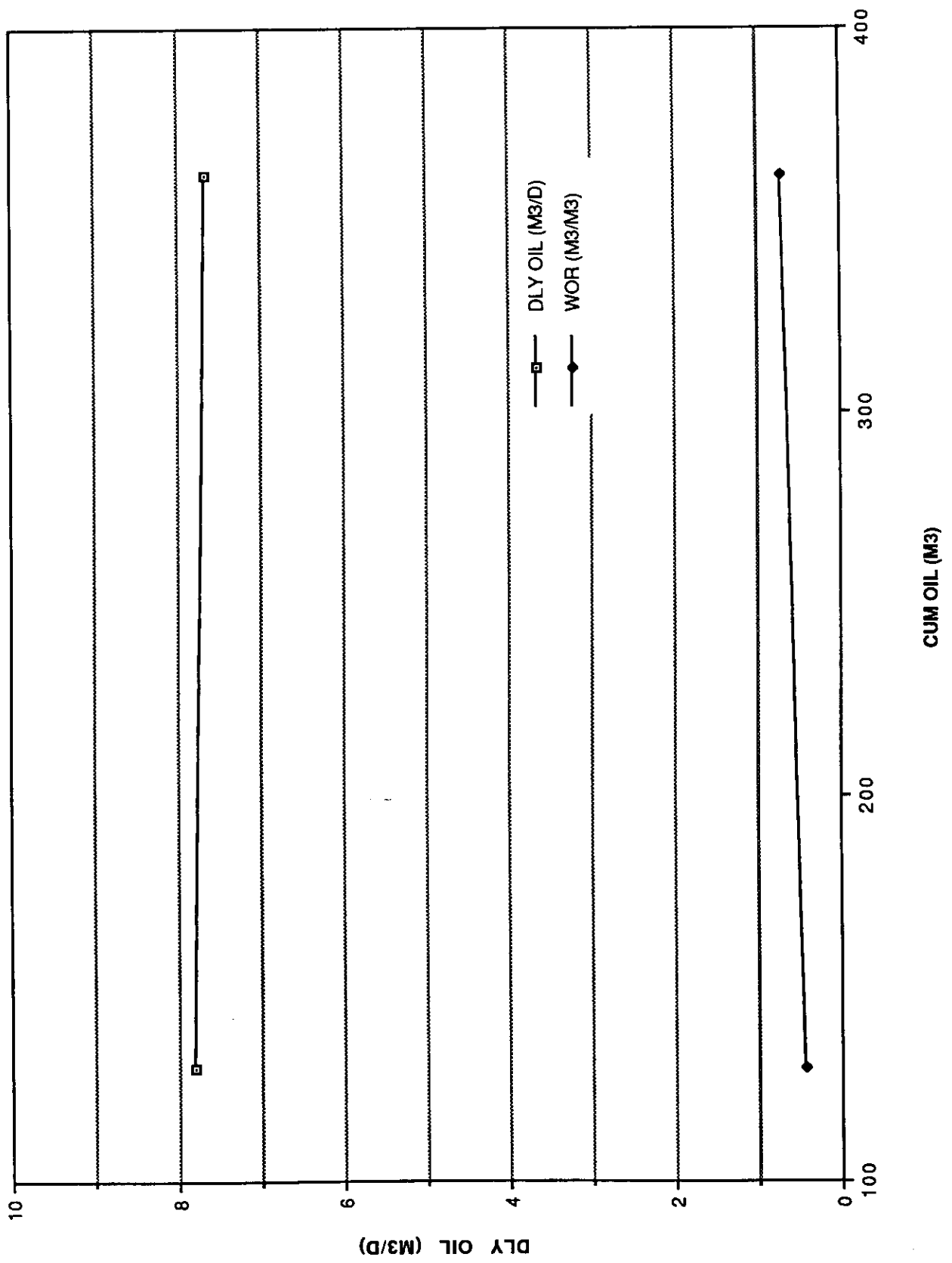
04-01-02-29w1
RATE VS CUM PROD'N



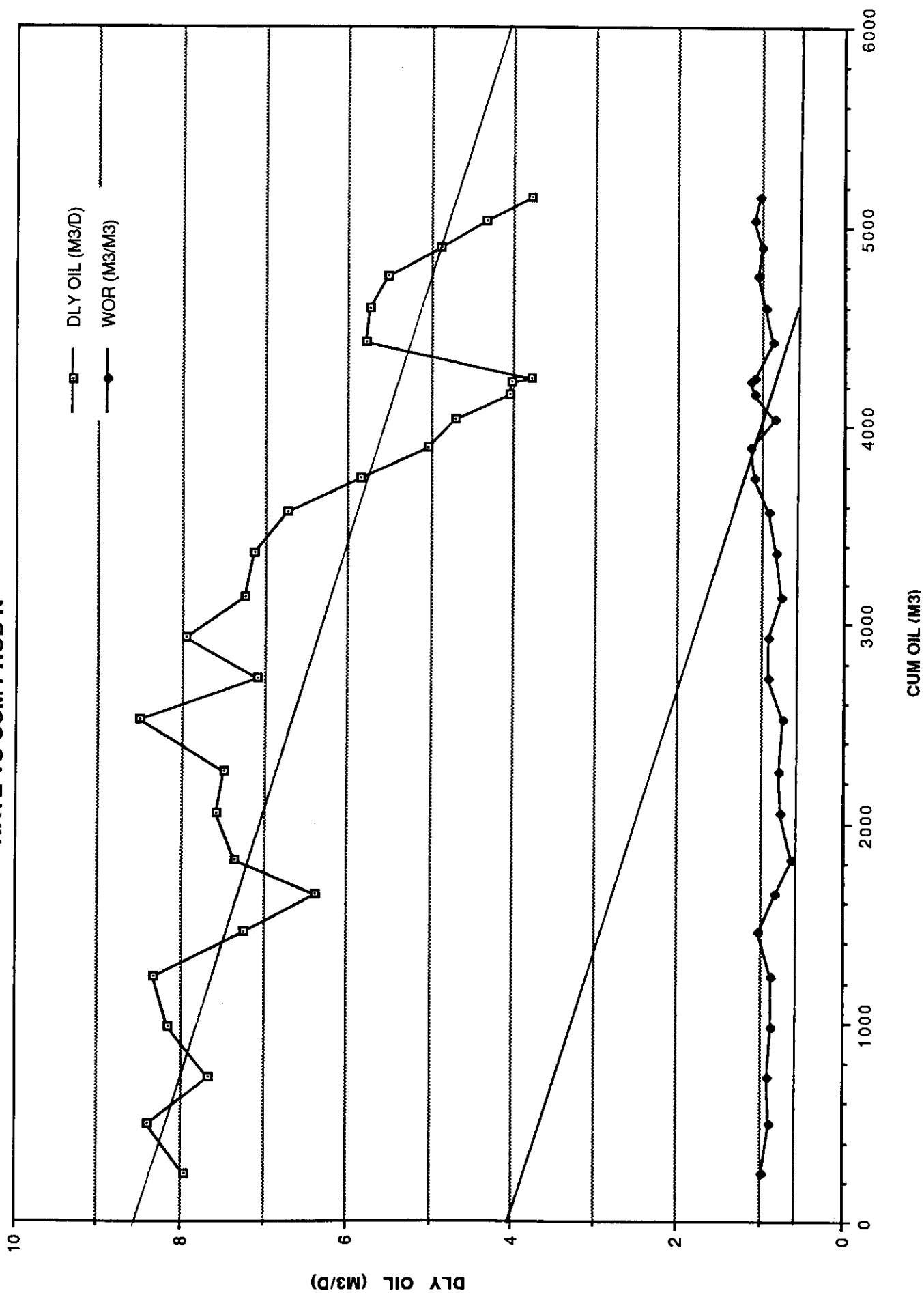
06-04-02-29W1
RATE VS CUM PROD'N



14-04-02-29W1
RATE VS CUM PROD'N

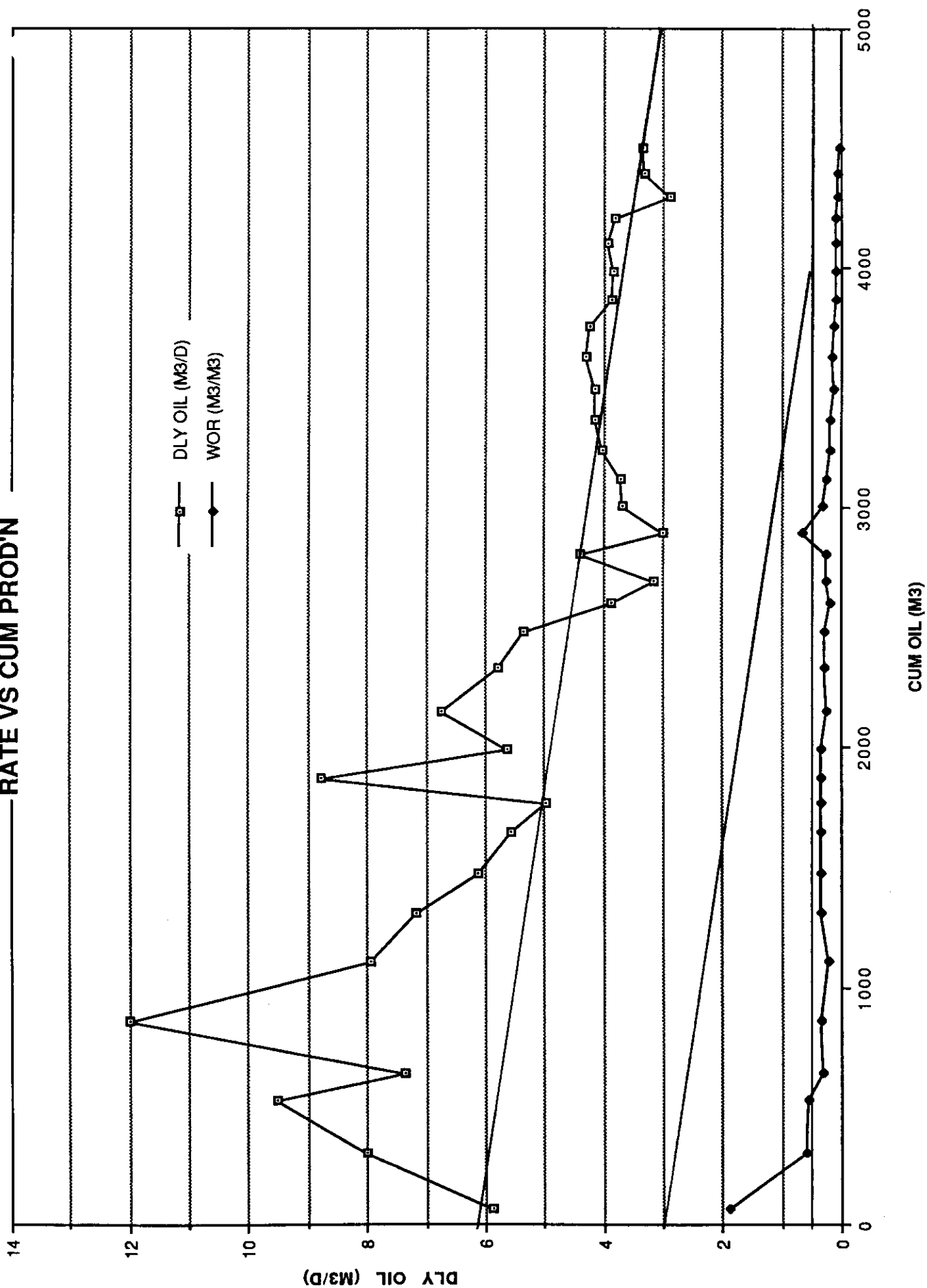


16-05-02-29W1
RATE VS CUM PROD'N

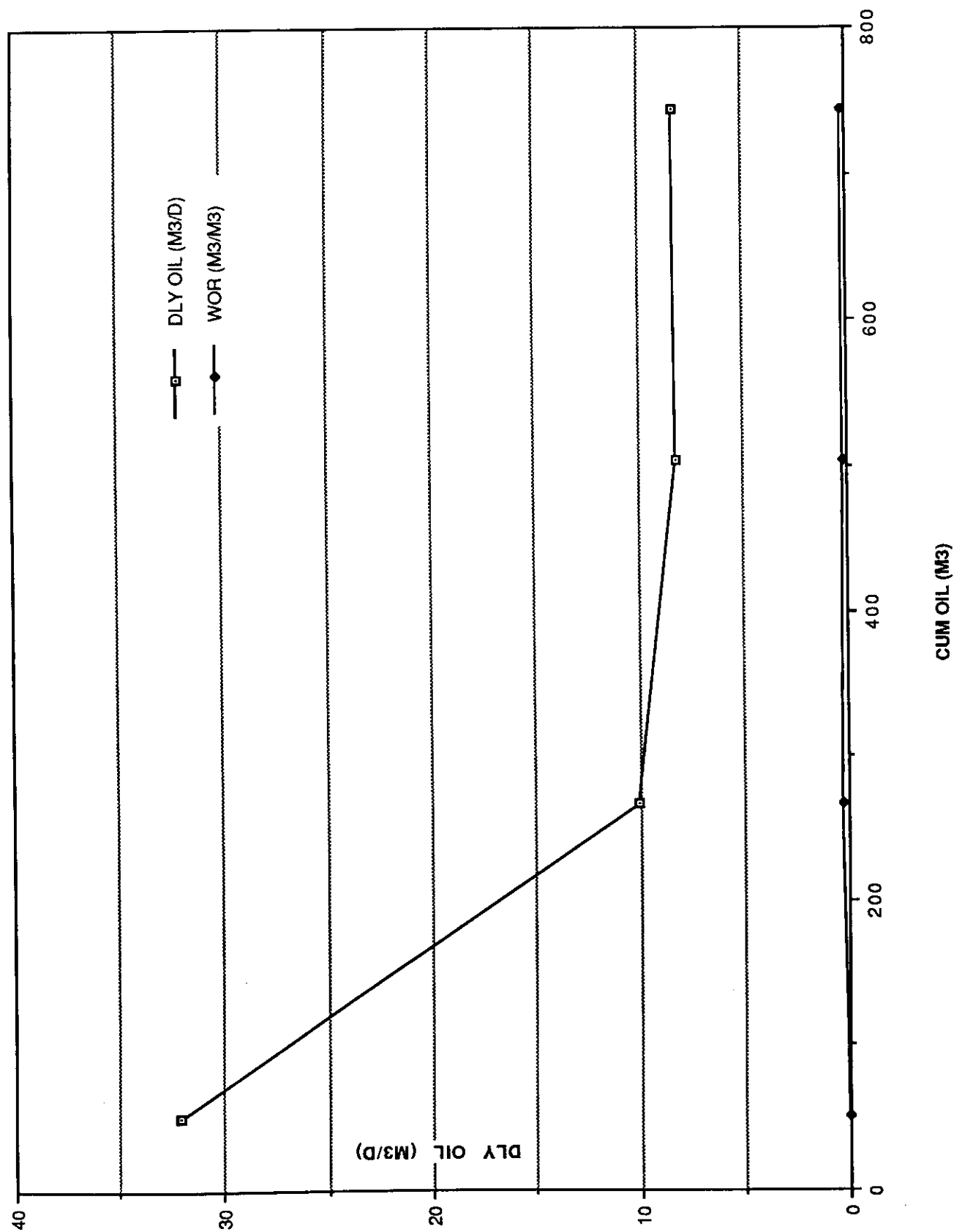


16-08-02-29W1

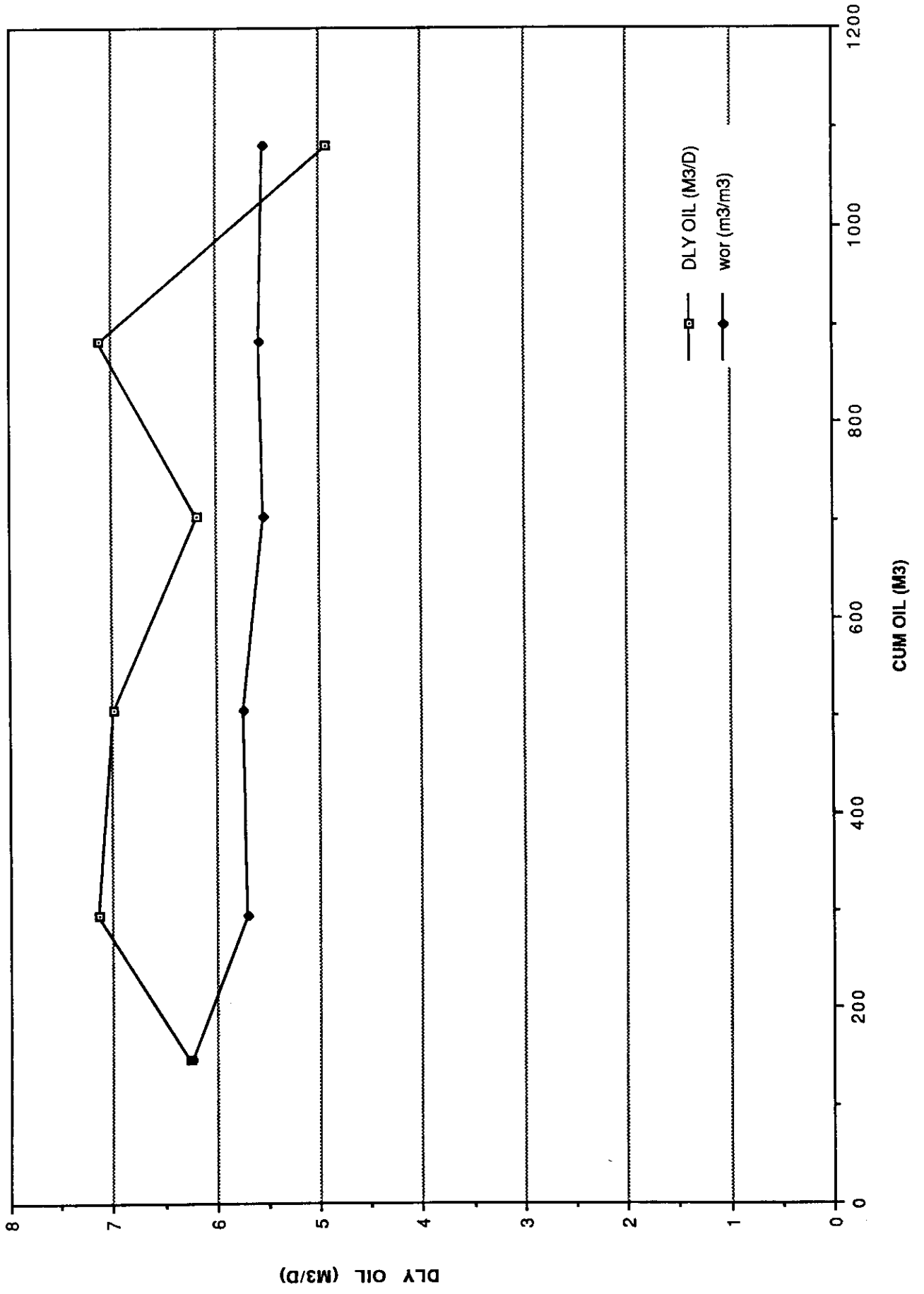
RATE VS CUM PROD'N



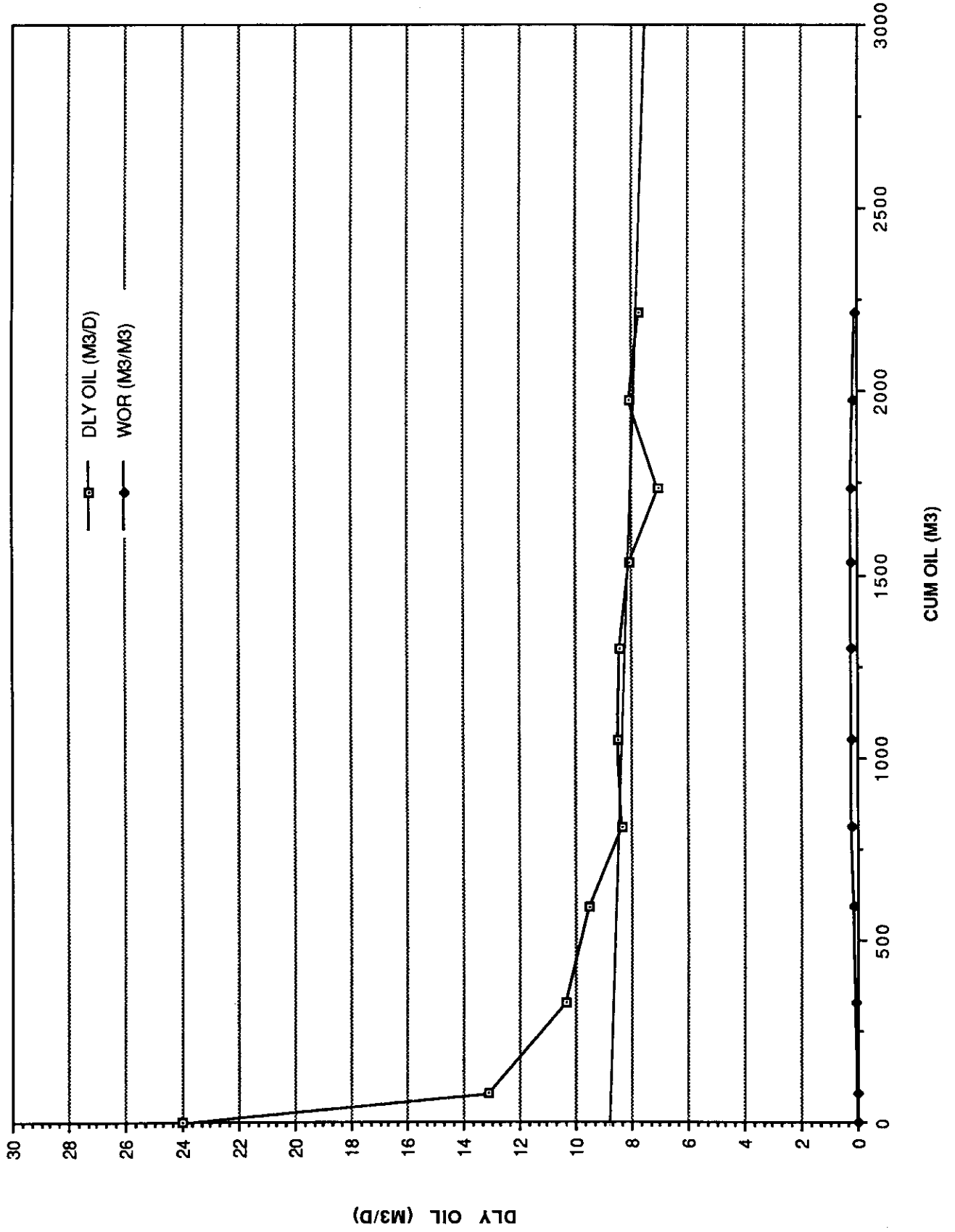
12-09-02-29W1
RATE VS CUM PROD'N



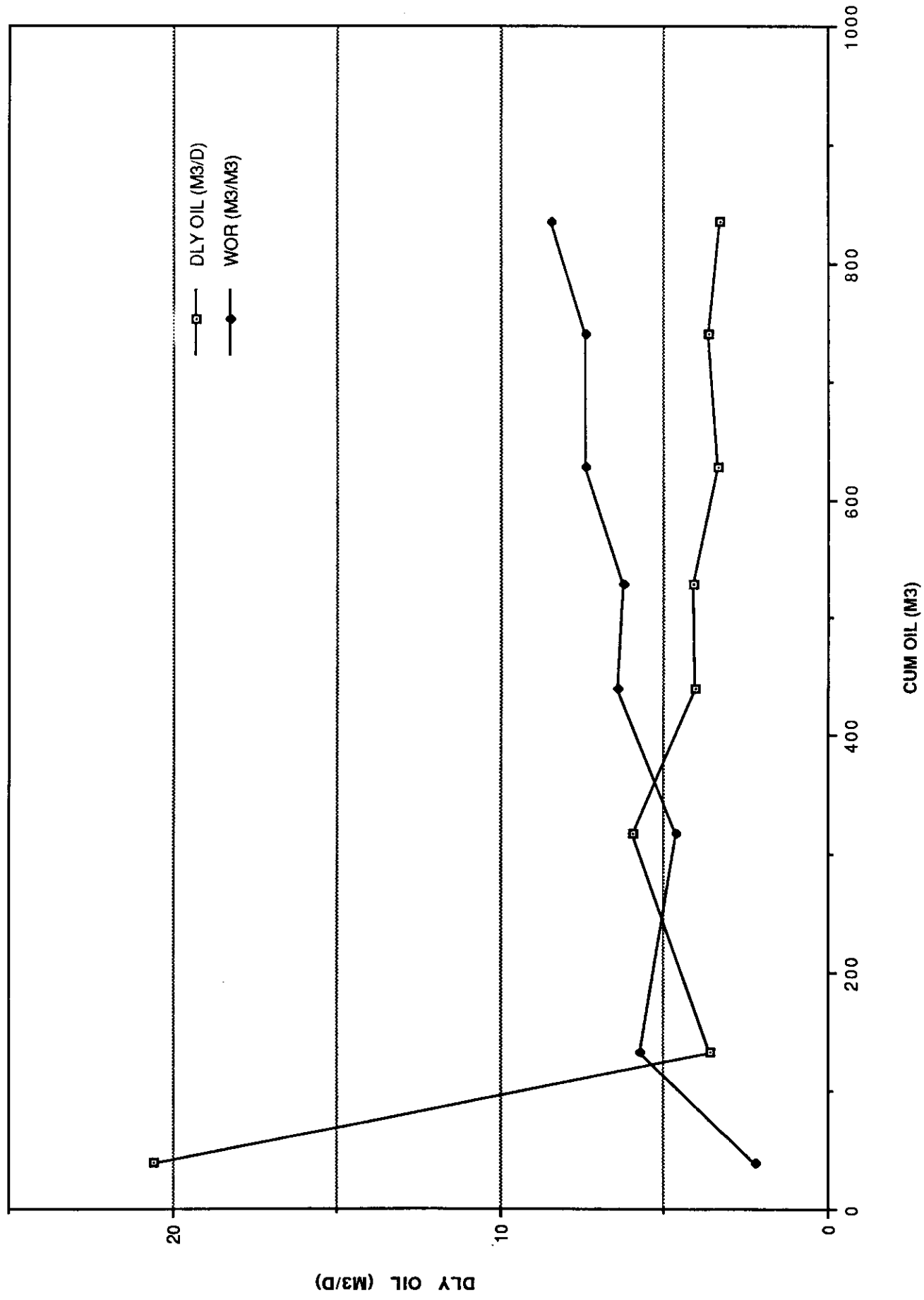
14-09-02-29W1
RATE VS CUM PROD'N



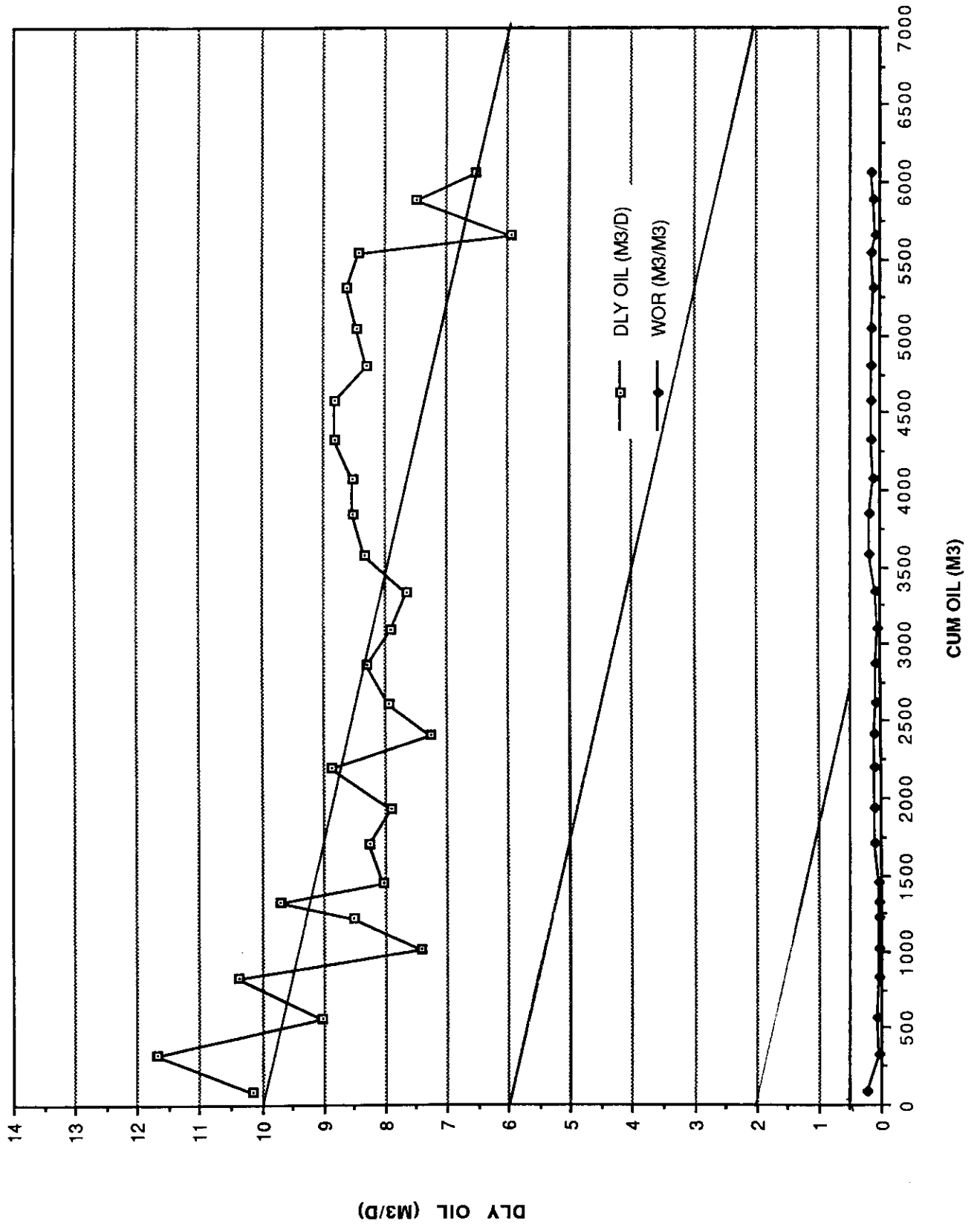
16-09-02-29W1
RATE VS CUM PROD'N



08-10-02-29W1
RATE VS CUM PROD'N



04-15-02-29W1
RATE VS CUM PROD'N



Attachment 7

32 vs 16 Hectare Spacing Economics

Average reservoir parameters were used to calculate proven reserves for 16 and 32 ha spacing with a 12% recovery factor as shown in Attachment 7a. Using these parameters and the costs outlined in Attachment 7b the economics of 16 and 32 ha spacing were evaluated. The results are summarized in Attachment 7b. Sixteen ha spacing economics are shown in Attachments 7c through 7f. As shown in the summary on Attachment 7F the cash flow is negative for all discount rates, reflecting the need for larger spacing. Also note the reserve life of only 5.54 years under 16 ha spacing.

The economics of 32 ha spacing (unrisked) are shown in Attachments 7g through 7j. The discounted cash flow is marginally positive (\$K 32.1) at a 15% discount factor for an 18.5% Rate of Return (unrisked). The reserve life is increased to 11.08 years for an average well on 32 ha spacing. The recovery of 12% of the Original Oil in Place in 32 hectares over eleven years is felt to be adequate drainage of 32 hectares and justifies the larger spacing units.

Attachment 7A

South Pierson

Lower Amaranth Average Reservoir Properties

Net Pay	4.0 m
Porosity	15.0%
Water Saturation	45.0%
Shrinkage	0.86
Area	32.4 ha
OOIP	91.463 m ³
Primary Recovery	12.0%
Recoverable Oil	10,976 m ³

Attachment 7B

Economic Summary

Economic Assumptions

Capital Expenditures		Operating Expenses
Drill & Case	224 M\$	Fixed \$1500/well-month
Complete	130 M\$	Variable \$15/m ³ oil
Artificial Lift	47 M\$	
Tie-In	<u>43 M\$</u>	
	444 M\$	

Economic Results (AIT, 12% DCF, 81% COS)

	16 ha	32 ha
NPV \$M	<115.4>	64.4
Inv. \$M	444.0	444.0
ROR %	---	18.51
Payout (yrs)	---	5.80
EMV \$M	<131.3>	14.3
Riskd ROR %	---	13.6
Riskd Capital \$M	198.9	198.9

```

      *      *      *      *      *      *      *      *      *
    POGO
      *      *      *      *      *      *      *      *      *
AN OIL AND GAS LEASE
ECONOMIC EVALUATOR
      *      *      *      *      *      *      *      *      *
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PAGE 01

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
1989	0.58	2920	2180	1477	0	1477	1477
1990	1.58	2180	1322	1715	0	1715	3193
1991	2.58	1322	801	1040	0	1040	4232
1992	3.58	801	486	630	0	630	4863
1993	4.58	486	294	486	0	382	5245
.....	5.54	294	183	223	0	223	5468

ATTACHMENT 7D

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

DATE BEGIN	GROSS PRODN. m3	WORKING INTERST. PRODN. m3	ROYALTY RECD. m3	** CROWN ROYALTY m3	%	FREEHOLD ROYALTY m3	%	NPI AND/OR OVERRIDING ROYALTY m3	%	NET PRODN. m3
1989	1477	1477	0	0	0.0	0	0.0	0	0.0	1477
1990	1715	1715	0	271	15.8	0	0.0	0	0.0	1445
1991	1040	1040	0	171	16.5	0	0.0	0	0.0	869
1992	630	630	0	70	11.1	0	0.0	0	0.0	561
1993	382	382	0	25	6.6	0	0.0	0	0.0	357
1994	223	223	0	9	3.9	0	0.0	0	0.0	215
TOTAL	5468	5468	0	545	9.0	0	0.0	0	0.0	4923

ATTACHMENT 7E

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

DATE BEGIN	REVENUE BEFORE DEDUCT.	CROWN ROYALTY	ALBERTA PEP ALLOW.	CROWN ROYALTY	MINERAL TAXES	INCOME TAXES	GOVERNMENT BURDEN	TOTAL GOVERNMENT BURDEN	REVENUE AFTER DEDUCT.
	\$	\$	\$	\$	\$	\$	\$	%	\$
1989	158942	0	0	0	0	-8546	-8546	0.0	167488
1990	184577	29121	0	29121	0	6849	35970	19.5	148607
1991	119158	19606	0	19606	0	-301	19305	16.2	99853
1992	78908	8730	0	8730	0	-3709	5020	6.4	73887
1993	52872	3493	0	3493	0	-5558	-2064	0.0	54936
1994	35095	1356	0	1356	0	-6788	-5432	0.0	40527
TOTAL	629551	62306	0	62306	0	-18053	44252	7.0	585299

SUMMARY

INTERESTS *					RESERVES + PROJECT LIFE *							
INTL ROYALTY INT (PCT) = 0.00000					LIFE (YRS) = 5.58							
AVG. ROYALTY INT (PCT) = 9.89686					PROJECT START MONTH = JUNE							
INTL WORKING INT (PCT) = 100.00000												
INTL CAPITAL INT (PCT) = 100.00000												
					OIL	SOLN GAS	RESIDUE	ETHANE	COND.	PROPANE	BUTANE	SULPHUR
					(E3 m3)	(E3 m3)	(E3 m3)	(E3 m3)	(E3 m3)	(E3 m3)	(E3 m3)	(E3 TNE)
GROSS					5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WORKING INT.					5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET					4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PRESENT VALUE *												

*** BEFORE INCOME TAX ***												
DISC. RATE	OP. INC (E3 \$)	C FLOW (E3 \$)	*** AFTER INCOME TAX ***	C FLOW (E3 \$)								
0.00	369.8	444.0	387.8	444.0	-56.2							
5.00	344.9	444.0	360.1	444.0	-83.9							
10.00	323.8	444.0	336.9	444.0	-107.1							
15.00	305.7	444.0	317.1	444.0	-126.9							
20.00	290.0	444.0	300.1	444.0	-143.9							
30.00	264.1	444.0	272.4	444.0	-171.6							
12.00	316.2	444.0	328.6	444.0	-115.4							
NET PROFIT INDICATORS *												

RATE OF RETURN (PCT)												
PAVOUT (YRS)												
DISCOUNTED PAYOUT (YRS)												
PRESENT WORTH INDEX												
UNDIS C FLOW/UNDIS INV												
DIS C FLOW/DIS INV												
DIS C FLOW/UNDIS INV												
CAPITAL EXPOSURE (E3 \$)												
UNDIS C FLOW/CAP EXPOS												
DIS C FLOW/CAP EXPOS												
SUCCESS CAPACITY												
FINDING COST (\$/m3)												
FIND+DEV COST (\$/m3)												
OIL (E3 m3)												
BIT * AIT *												

0.00 0.00												
0.00 0.00												
0.00 0.00												
0.60 0.63												
-0.17 -0.13												
-0.26 -0.26												
-0.29 -0.26												
354.00 198.95												
-0.21 -0.28												
-0.36 -0.58												
0.64 0.42												
71.91 40.41												
90.19 50.69												
4.92 4.92												

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**      **      **      **      **      **      **      **
**      **      **      **      **      **      **      **
**      **      **      **      **      **      **      **
          POGO
**      **      **      **      **      **      **      **
AN OIL AND GAS LEASE
ECONOMIC EVALUATOR
**      **      **      **      **      **      **      **

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PAGE 01

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
1989	0.58	2920	2523	1585	0	1585	1585
1990	1.58	2523	1964	2232	0	2232	3817
1991	2.58	1964	1529	1738	0	1738	5555
1992	3.58	1529	1191	1353	0	1353	6908
1993	4.58	1191	927	1053	0	1053	7961
1994	5.58	927	722	820	0	820	8781
1995	6.58	722	562	638	0	638	9420
1996	7.58	562	437	497	0	497	9917
1997	8.58	437	341	387	0	387	10304
1998	9.58	341	265	301	0	301	10605
1999	10.58	265	206	235	0	235	10839
.....	11.08	206	183	96	0	96	10935

ATTACHMENT 7H

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

DATE BEGIN	GROSS PRODN. m3	WORKING INTERST PRODN. m3	ROYALTY PRODN. RECD. m3	** CROWN ROYALTY m3	** CROWN ROYALTY %	FREEHOLD ROYALTY m3	FREEHOLD ROYALTY %	NPI AND/OR OVERRIDING ROYALTY m3	NPI AND/OR OVERRIDING ROYALTY %	NET PRODN. m3
1989	1585	1585	0	0	0.0	0	0.0	0	0.0	1585
1990	2232	2232	0	373	16.7	0	0.0	0	0.0	1859
1991	1738	1738	0	344	19.8	0	0.0	0	0.0	1394
1992	1353	1353	0	249	18.4	0	0.0	0	0.0	1104
1993	1053	1053	0	174	16.6	0	0.0	0	0.0	879
1994	820	820	0	117	14.2	0	0.0	0	0.0	703
1995	638	638	0	72	11.2	0	0.0	0	0.0	567
1996	497	497	0	43	8.6	0	0.0	0	0.0	454
1997	387	387	0	26	6.7	0	0.0	0	0.0	361
1998	301	301	0	16	5.2	0	0.0	0	0.0	286
1999	235	235	0	10	4.1	0	0.0	0	0.0	225
2000	96	96	0	3	3.3	0	0.0	0	0.0	92
TOTAL	10935	10935	0	1425	10.4	0	0.0	0	0.0	9510

ATTACHMENT 71

PAGE 03
 ** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=10,935 M3

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

DATE BEGIN	REVENUE BEFORE DEDUCT. E3 \$	CROWN ROYALTY BF. PEP E3 \$	ALBERTA PEP ALLOW. E3 \$	CROWN ROYALTY AF. PEP E3 \$	MINERAL TAXES E3 \$	INCOME TAXES E3 \$	TOTAL GOVERNMENT BURDEN E3 \$	%	REVENUE AFTER DEDUCT. E3 \$
1989	171	0	0	0	0	-5	-5	0.0	176
1990	240	40	0	40	0	22	63	26.1	178
1991	199	39	0	39	0	22	62	31.0	137
1992	169	31	0	31	0	22	53	31.4	116
1993	146	24	0	24	0	21	45	31.1	101
1994	129	18	0	18	0	20	39	30.1	90
1995	113	13	0	13	0	19	31	27.8	81
1996	96	8	0	8	0	16	24	24.9	72
1997	82	5	0	5	0	13	18	22.2	64
1998	70	4	0	4	0	10	14	19.4	56
1999	57	2	0	2	0	7	9	15.7	48
2000	25	1	0	1	0	2	2	9.9	22
TOTAL	1496	186	0	186	0	168	355	23.7	1141

ATTACHMENT 7J

PAGE 08
 ** S. PIERSON MANITOBA **
 SPEARFISH SPACING APPLICATION
 RECOVERABLE RESERVES=10.935 M3

***** SUMMARY *****

RESERVES + PROJECT LIFE *												

LIFE (YRS) = 11.08												
PROJECT START MONTH = JUNE												
OIL SOLN GAS RESIDUE ETHANE COND. PROPANE BUTANE SULPHUR												
(E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 m3) (E3 TNE)												

10.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0												
10.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0												
9.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0												

GROSS												
WORKING INT.												
NET												

NET PRESENT VALUE *												

NET PROFIT INDICATORS *												

RATE OF RETURN (PCT)												
PAYOUT (YRS)												
DISCOUNTED PAYOUT (YRS)												
PRESENT WORTH INDEX												
UNDIS C FLOW/UNDIS INV												
DIS C FLOW/DIS INV												
DIS C FLOW/UNDIS INV												
CAPITAL EXPOSURE (E3 \$)												
UNDIS C FLOW/CAP EXPOS												
DIS C FLOW/CAP EXPOS												
SUCCESS CAPACITY												
FINDING COST (\$/m3)												
FIND+DEV COST (\$/m3)												
OIL (E3 m3)												

DISC. RATE	OP. INC (E3 \$)	BEFORE INCOME TAX INV. (E3 \$)	C FLOW (E3 \$)	OP. INC (E3 \$)	AFTER INCOME TAX INV. (E3 \$)	C FLOW (E3 \$)						
0.00	877.9	444.0	433.9	709.4	444.0	265.4						
5.00	741.2	444.0	297.2	607.7	444.0	163.7						
10.00	641.3	444.0	197.3	532.9	444.0	88.9						
15.00	566.1	444.0	122.1	476.1	444.0	32.1						
20.00	507.9	444.0	63.9	431.9	444.0	-12.1						
30.00	424.7	444.0	-19.3	368.1	444.0	-75.9						
12.00	608.7	444.0	164.7	508.4	444.0	64.4						
							18.51					
							3.81					
							4.08					
							1.53					
							0.98					
							0.37					
							0.14					
							0.14					
							198.95					
							1.33					
							0.32					
							1.32					
							37.23					
							26.24					
							9.51					