



The Oil and Natural Gas  
Conservation Board

Room 309  
Legislative Building  
Winnipeg, Manitoba, CANADA  
R3C 0V8

(204) 945-3130

August 28, 1990

Mr. Dan Barchyn  
Exploration Manager  
Tundra Oil and Gas Ltd.  
1313 Richardson Building  
One Lombard Place  
Winnipeg, Manitoba  
R3B 0X3

Dear Mr. Barchyn:

Re: Retirement of Over-Production  
Tundra Daly 5-13-10-29 (WPM)

On July 3, 1990 the Board advised Tundra Oil and Gas Ltd. that its application for an increase in the maximum permissible production rate for the subject well was denied.

As of June 30, 1990 the subject well had accumulated over-production of 440.8 m<sup>3</sup>. Tundra is hereby requested to commence retiring over-production at a minimum rate of 50 m<sup>3</sup>/month starting in September, 1990.

Yours respectfully,

**ORIGINAL SIGNED BY  
H. CLARE MOSTER**

H. Clare Moster  
Deputy Chairman



## Memorandum

Date August 23, 1990

To The Oil and Natural Gas  
Conservation Board  
Ian Haugh, Chairman  
H. Clare Moster, Deputy Chairman  
WM. McDonald, Member

From John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

Telephone

Subject

Re: Retirement of Over-Production  
Tundra Daly 5-13-10-29 (WPM)

First | Fold

On July 3, 1990 the Board notified Tundra Oil and Gas Ltd. that its application for an MPR increase for the subject well was denied. As of June 30, 1990 the 5-13-10-29 (WPM) well had accumulated over-production of 440.8 m<sup>3</sup>. It is recommended that the Board request Tundra to begin retiring over-production at the rate of 50 m<sup>3</sup>/month starting in September, 1990. A copy of the proposed Board letter is attached.

John N. Fox

Approved by:

L.R. Dubreuil, Director



## Memorandum

Date August 23, 1990

To The Oil and Natural Gas  
Conservation Board  
Ian Haugh, Chairman  
H. Clare Moster, Deputy Chairman  
WM. McDonald, Member

From John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

Telephone

Subject

Re: Retirement of Over-Production  
Tundra Daly 5-13-10-29 (WPM)

On July 3, 1990 the Board notified Tundra Oil and Gas Ltd. that its application for an MPR increase for the subject well was denied. As of June 30, 1990 the 5-13-10-29 (WPM) well had accumulated over-production of 440.8 m<sup>3</sup>. It is recommended that the Board request Tundra to begin retiring over-production at the rate of 50 m<sup>3</sup>/month starting in September, 1990. A copy of the proposed Board letter is attached.

John N. Fox

Approved by:

  
L.R. Dubreuil, Director

First | Fold

July 12, 1990

Mr. J.D. Koop  
20 Resources Ltd.  
P.O. Box 101  
Winnipeg, Manitoba  
R2H 1A9

Dear Sir:

RE: Application for an Increase in the  
Maximum Permissible Production Rate  
Tundra Dely 5-13-10-29 (WPM)

Your objection to Tundra Oil and Gas Ltd.'s application for an increase in the maximum permissible production rate (MPR) for the subject well is hereby acknowledged.

The Board has reviewed Tundra's application and the concerns regarding conservation and equity that may result from an increase in MPR. At this stage of pool development, the Board does not feel there is enough geological evidence available to support the approval of the application. Consequently, Tundra's application has been denied.

Yours respectfully

*original signed  
by Bill  
McDonald*

Mr. McDonald  
Director

bc: Ian Haugh  
Wm. McDonald

July 3, 1990

Mr. Dan Barchyn, P. Eng.  
Exploration Manager  
Tundra Oil and Gas Ltd.  
1313 Richardson Building  
One Lombard Place  
Winnipeg, Manitoba  
R3B 0X3

Dear Mr. Barchyn:

RE: Application for an Increase in the  
Maximum Permissible Production Rate  
Tundra Daly 5-13-10-29 (WPM)

Your application for an increase in the maximum permissible production rate (MPR) for the subject well to 11 m<sup>3</sup> OPD is hereby acknowledged.

Notice of the application was sent to the lessors and lessees in the W/2 of Section 13 and the E/2 of Section 14. A lessor objected to the application with the concern that an increase in the MPR could result in inequitable drainage.

The purpose of MPR's is to prevent waste that may occur as a result of over-production and to protect correlative rights. MPR's are an interim conservation measure that limits production from individual wells until the optimum depletion strategy for a pool can be determined.

Tundra's application does not adequately address conservation or equity concerns in respect of the requested MPR increase. The Board does not believe that at this stage of pool development any strong technical argument regarding the same can be made. Consequently, your application is denied.

The Board has recommended to the Department that the MPR provisions of the Petroleum Drilling and Production Regulation be reviewed with the intent of providing flexibility for new wells to produce in excess of the MPR restrictions for a period of time. This producing flexibility should allow operators to obtain additional reservoir information to support applications of this type.

Yours respectfully,

ORIGINAL SIGNED BY  
H. CLARE MOSTER

H. Clare Moster  
Deputy Chairman

July 3, 1990

The Oil and Natural Gas  
Conservation Board  
Ian Haugh, Chairman  
H. Clare Moster, Deputy Chairman  
Wm. McDonald, Member

John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

**APPLICATION FOR MPR INCREASE  
TUNDRA DALY 5-13-10-29 (WPM)**

Notice of Tundra Oil and Gas Ltd.'s application for an increase in the maximum permissible production rate (MPR) for the subject well was sent to the offsetting lessors and lessees. One objection to the application was received.

**RECOMMENDATION**

It is recommended that the application be denied. A copy of the proposed Board letter denying the application is attached. The letter contains a paragraph outlining the Branch's plan to review the MPR provisions of the regulations to allow some flexibility in producing new wells.

**DISCUSSION**

The lessor in the SW/4 of Section 14-10-29 (WPM) objected to Tundra's application. The lessor contends that increased production at 5-13-10-29 could adversely effect production at 8-14-10-29.

Tundra stated in its application that production from the 5-13 well has not had an impact on offsetting wells. A composite production plot (Figure 1) from the offsetting wells, 12-13-10-29, 8-14-10-29 and 9-14-10-29, indicates a production decline of 66.4% per year prior to 5-13 being placed on production and a production decline of 86.6% per year shortly after 5-13 commenced production. Though this is not conclusive evidence that production at 5-13 has effected the performance of the offsetting wells, it suggests that an increase in the MPR for 5-13 may result in inequitable drainage of offsetting lands.

Tundra in its application for a pilot waterflood in the Daly Bakken D Pool indicated the need for pressure maintenance to reverse the rapid decline in reservoir pressure (from a discovery pressure of 8600 kPa in February, 1987 to 5400 kPa in May, 1989). An increase in reservoir withdrawals at 5-13 will accelerate the pressure decline and possibly result in a loss of ultimate recovery.

Tundra has not adequately addressed conservation and equity concerns in its application and until there is some information available on the performance of the pilot waterflood which is scheduled to commence in July 1990, it is premature to grant an increase in the MPR for the 5-13 well.

Tundra's application is one of a number presently before the Board or expected to be filed in the near future requesting an MPR increase or exemption for wells with high initial productivity. The existing MPR restrictions limit an operator's ability to collect the necessary performance and reservoir data required to technically support an application for an MPR increase or exemption.

The Petroleum Branch is presently preparing a regulatory amendment to allow some MPR flexibility during the early life of a well. It is recommended that Tundra be informed by the Board of this initiative.

John N. Fox

Encl.

Original Signed By

**L. R. DUBREUIL**

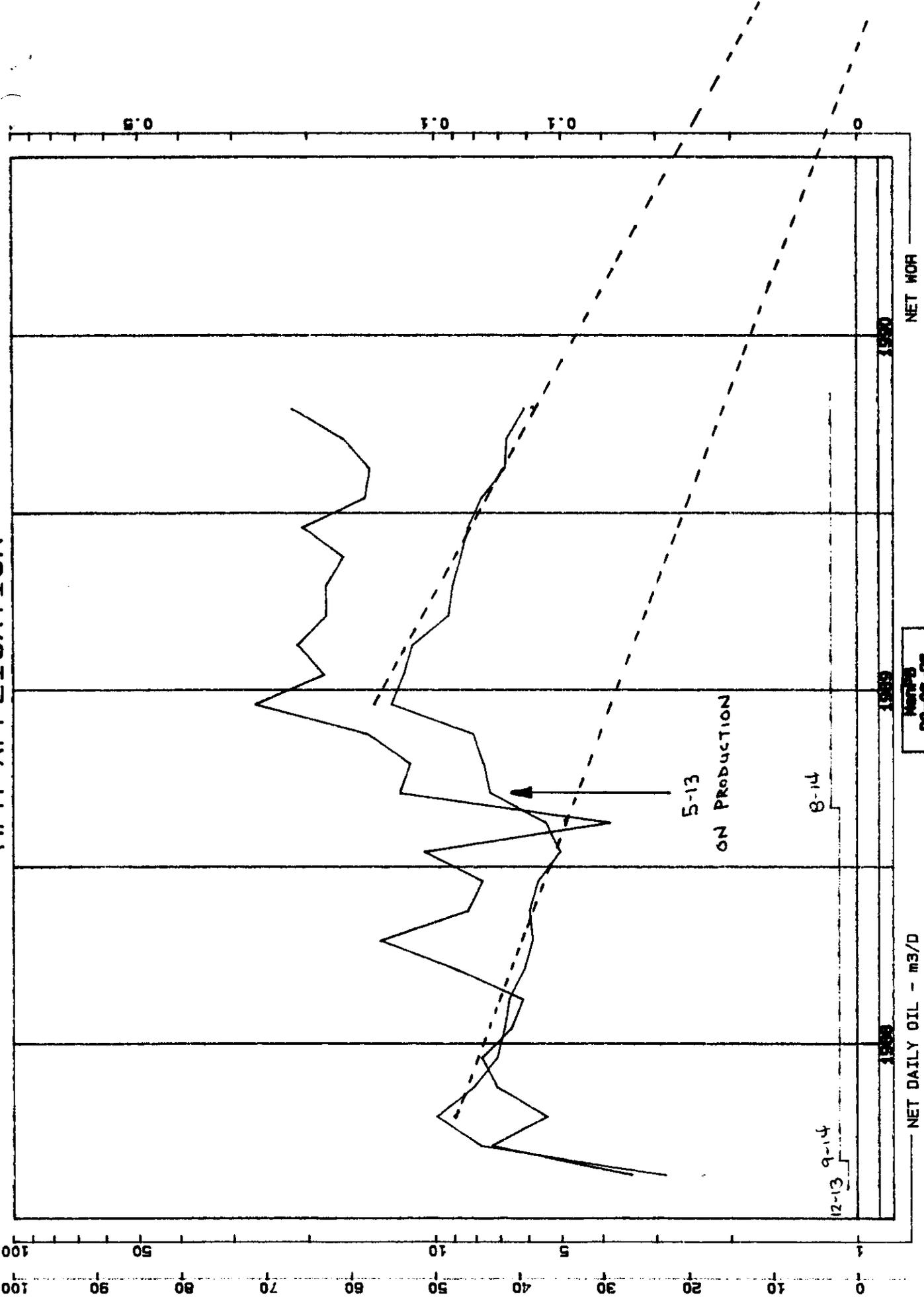
Approved by:

\_\_\_\_\_  
L.R. Dubreuil, Director

OFFSET PRODUCTION

12-13  
8-14  
9-14

# MPR APPLICATION

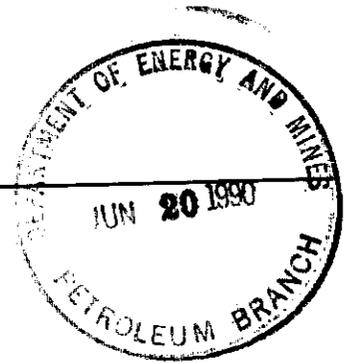


NET WOR

NET DAILY OIL - m3/D  
NET WOR

NET DAILY OIL - m3/D

NET WOR



June 18, 1990

Department of Energy and Mines  
Petroleum Branch  
555 - 330 Graham Avenue  
Winnipeg, Manitoba  
R3C 4A5

Attention: Mr. John Fox

Dear John:

RE: MPR APPLICATION: TUNDRA DALY 5-13-10-29 WEM

In response to your letter of May 31, 1990 concerning the above, enclosed is a composite production plot for the offsetting wells.

The MPR requested for 5-13 represents the approximate rate which the well was produced during its first year of production. The absence of interference with the wells in the proposed unit during this period suggests that there will not be any detrimental impact on the efficacy of the proposed flood if the well is returned to this rate. Another important factor is that the 5-13 well is in a part of the pool with a much lower well density than that of the pilot flood.

A temporary increase in MPR would be acceptable and our intention would be to gather additional reservoir pressure data pending possible expansion of the flood if the pilot flood proves to be successful.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Barchyn".

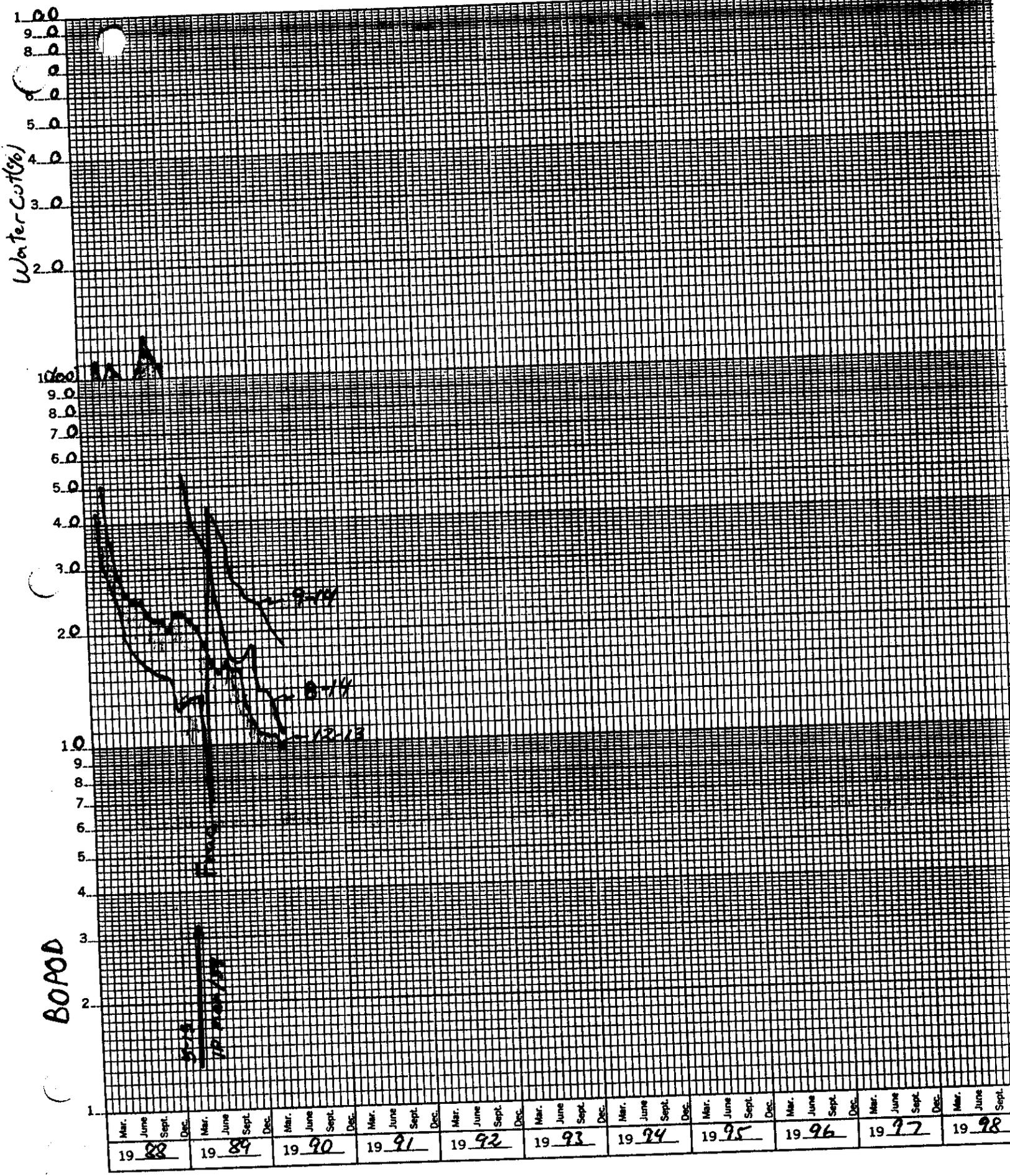
Dan Barchyn, P. Eng.  
Exploration Manager

DB/ck

Enclosure

12-13-10-29WIM (TUNDRA)

WT = 100%



77. B  
June 18/90

Dear Sirs,

I'm writing on behalf of Edith Bolam  
(re: Tundra Oil & Gas Ltd.) Could any  
information or mail in regards to  
Edith, be mailed to her address not  
Box: 754.

Thanks very much!

S. Foster

(grand-daughter)

Address:

Edith H. Bolam

Box: 83

VIRDEN, MAN.

ROM2C0



To The Oil & Natural Gas Conservation Board

Re: Application for an increase in the Maximum Permissible Production Rate under Bally 5-13-10-29 (WPPM)

This letter is to let you know that I object for the increase of this well the reason: It could take production from 8-14-10-29

Yours respectfully,  
A.S. Penner Sr.  
Atta, Man  
pen A.S. Penner

June 1, 1990

The Oil and Natural Gas  
Conservation Board  
Ian Haugh, Chairman  
H. Clare Moster, Deputy Chairman  
Wm. McDonald, Member

John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

RE: Application for an Increase in MPR  
Tundra Daly 5-13-10-29 (WPM)

Tundra Oil and Gas Ltd. has applied pursuant to subsection 51(3) of The Petroleum Drilling and Production Regulation to increase the maximum permissible production rate (MPR) for the well, Tundra Daly 5-13-10-29 (WPM). The company has applied for an MPR of 11 m<sup>3</sup> of clean oil per day and 290 m<sup>3</sup> of clean oil per month.

#### Recommendation

It is recommended that the lessors and lessees in the W/2 of Section 13-10-29 (WPM) and the E/2 of Section 14-10-29 (WPM) be notified of the application directly by the Board. A copy of the proposed letter of notification is attached.

#### Discussion

The well, Tundra Daly 5-13-10-29 (WPM), was put on production in March 1989. A plot of the well's production history is shown in Figure 1. Tundra estimates the well to have the capability of producing 18 m<sup>3</sup> OPD. The company has applied to increase the daily MPR to 11 m<sup>3</sup> OPD and the monthly MPR to 290 m<sup>3</sup> OPM.

The application is as a result of a notice from the Petroleum Branch (April 19, 1990) requesting Tundra to retire the well's over-production. Over-production as of March 1, 1990 was 362.6 m<sup>3</sup>.

Tundra's only technical argument is that the well is capable of high production rates and has not had an adverse effect on the offsetting wells. Tundra has been sent a letter by the Branch (attached) requesting more information to support the application.

Figure 2 shows the lessors and lessees in and within 0.5 km of the 5-13-10-29 (WPM) well. Prior to making a decision on the application, the lessors and lessees should be notified of the application and given 14 days to file an objection to or intervention in the application.

John N. Fox

Att'd.

Approved by:

\_\_\_\_\_  
L.R. Dubreuil, Director

June 1, 1990

Dear Sir/Madam:

RE: Application for an Increase in the  
Maximum Permissible Production Rate  
Tundra Daly 5-13-10-29 (WPM)

This letter is to notify you that Tundra Oil and Gas Ltd. has made application to increase the maximum permissible production rate (MPR) for the well, Tundra Daly 5-13-10-29 (WPM) from 9.5 m<sup>3</sup> of clean oil per day and 240 m<sup>3</sup> of clean oil per month, to 11 m<sup>3</sup> of clean oil per day and 290 m<sup>3</sup> of clean oil per month.

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

Yours respectfully,

H. Clare Moster  
Deputy Chairman

Albert D. Cohen  
1370 Sony Place  
Winnipeg, Manitoba  
R3C 3C3

Harry B. Cohen  
70 Sony Place  
Winnipeg, Manitoba  
R3C 3C3

John C. Cohen  
1370 Sony Place  
Winnipeg, Manitoba  
R3C 3C3

Joseph H. Cohen  
1370 Sony Place  
Winnipeg, Manitoba  
R3C 3C3

Morley M. Cohen  
1370 Sony Place  
Winnipeg, Manitoba  
R3C 3C3

Leasam Holdings Limited  
1370 Sony Place  
Winnipeg, Manitoba  
R3C 3C3

James D. MacDonald  
c/o P.O. Box 278  
Winnipeg, Manitoba  
R3C 2G9

R. Barry Talbot  
98 Shier Drive  
Winnipeg, Manitoba  
R3R 2H8

Louie Tolaini  
486 Henderson Highway  
Winnipeg, Manitoba  
R2K 2H8

Rose Minnie Muir  
273 Church Street  
Comox, B.C.  
V6G 2R8

Ogilvie Enterprises Ltd.  
P.O. Box 66  
Elkhorn, Manitoba  
ROM ONO

Canada Trust  
c/o Montreal Trust  
411 - 8th Avenue S.W.  
Calgary, Alberta  
T2P 1E7

Attention: Oil Royalties  
Edith Hannah Bolam  
c/o P.O. Box 754  
Virden, Manitoba  
ROM 2C0  
Doreen Perron  
c/o P.O. Box 754  
Virden, Manitoba  
ROM 2C0  
K8 Resources Ltd.  
P.O. Box 101  
Kola, Manitoba  
ROM 1B0  
Laura May Day

c/o P.O. Box 754  
Virden, Manitoba  
ROM 2C0

Mervin Roach  
P.O. Box 754  
Virden, Manitoba  
ROM 2C0



Energy and Mines

Petroleum

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

(204) 945-6577

May 31, 1990

Tundra Oil and Gas Ltd.  
1313 One Lombard Place  
WINNIPEG, Manitoba R3B 0X3

Attention: Mr. Dan Barchyn, P. Eng.  
Exploration Manager

Dear Dan:

Re: MPR Application  
Tundra Daly 5-13-10-29 (WPM)

In support of the subject application, please submit a composite plot of daily production versus time for the wells offsetting 5-13-10-29; 12-13-10-29, 8-14-10-29 and 9-14-10-29. Please indicate on the plot the date 5-13-10-29 went on production.

Will increasing production at 5-13-10-29 have any detrimental impact on the efficacy of the proposed pilot waterflood in the Daly Bakken D Pool? Would Tundra be prepared to accept a temporary (6) month increase in the MPR on the condition that additional reservoir pressure data be gathered?

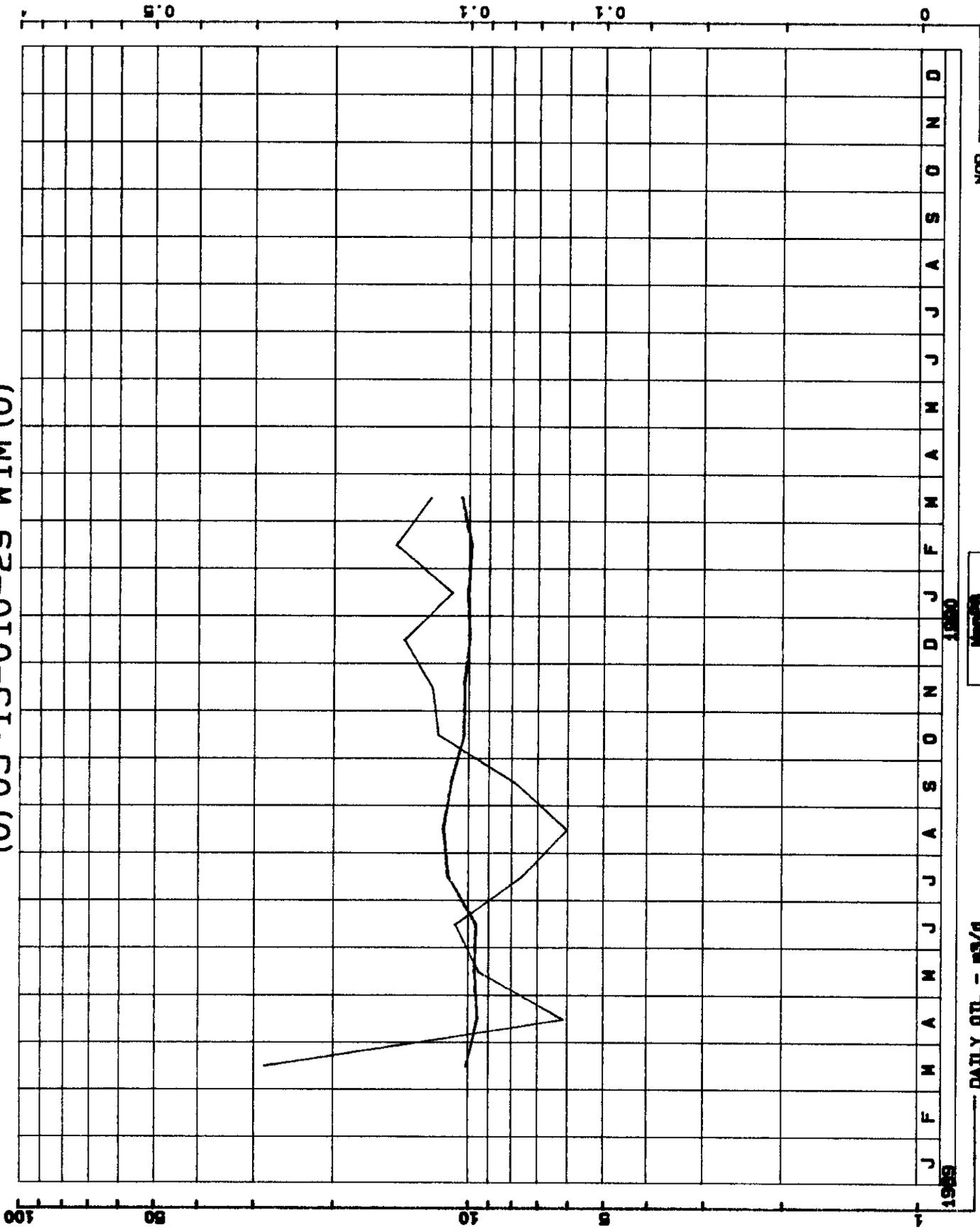
Yours truly,

A handwritten signature in black ink, appearing to read 'John N. Fox'.

John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

JNF:dah

(0) 05-13-010-29 W1M (0)



DAILY OIL - m3/d

NOR

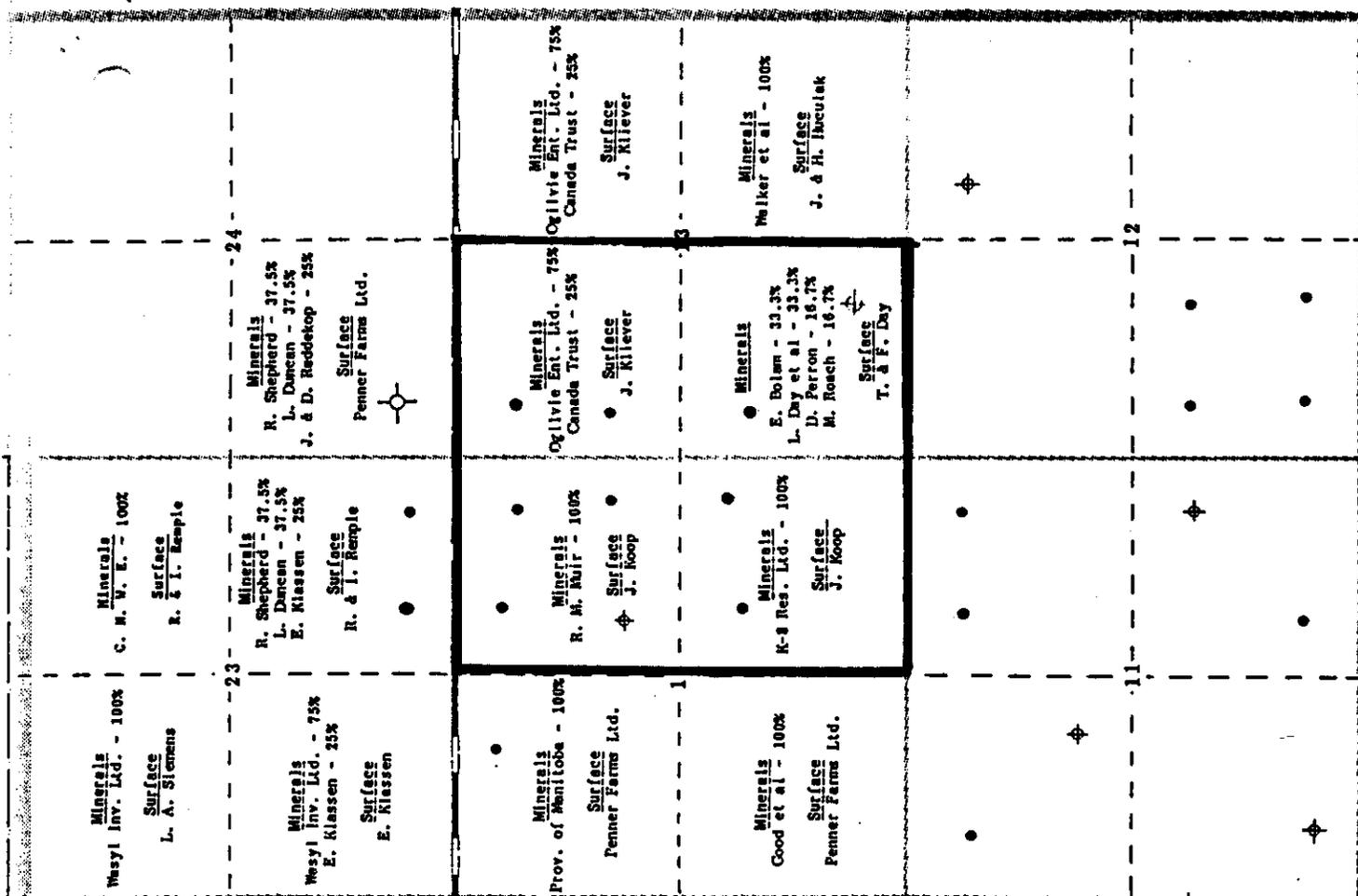
North  
90-08-01  
08:37:08

FIGURE 1

Figure 2:

LESSEES

LANDS	LESSEES
Tract No. 1	Tundra 100.000000
Tract No. 2	A. D. Cohen 2.083334
	H. B. Cohen 2.083333
	J. C. Cohen 2.083333
	J. H. Cohen 2.083333
	M. M. Cohen 2.083333
	Leasam 2.083334
Tract No. 3	MacDonald 4.166667
	Talbot 4.166667
	Toisaini 4.166666
	Tundra 75.000000
Tract No. 4	Tundra 100.000000
Tract No. 5	Tundra 100.000000
Tract No. 6	Tundra 100.000000
Tract No. 7	A. D. Cohen 2.083334
	H. B. Cohen 2.083333
	J. C. Cohen 2.083333
	J. H. Cohen 2.083333
	M. M. Cohen 2.083333
	Leasam 2.083334
	MacDonald 4.166667
	Talbot 4.166667
Toisaini 4.166666	
Tundra 75.000000	
NET 13	Tundra 25.000000
NET 13	Open 75.000000
NET 13	Open 100.000000
NET 13 - LSD's 11 & 14	Tundra 100.000000
NET 14 - LSD 10	Tundra 100.000000
NET 14	Tundra 100.000000
NET 14	Tundra 75.000000
NET 14	Open 25.000000
NET 14	Tundra 100.000000
NET 23	Open 100.000000
NET 23 - LSD's 7 & 8	Tundra 100.000000
NET 23	Tundra 25.000000
NET 23	Open 75.000000
NET 23	Open 100.000000
NET 24	Tundra 100.000000
NET 24	Tundra 100.000000
NET 24	Open 100.000000
NET 24	Open 100.000000





Energy and Mines

Petroleum

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

(204) 945-6577

May 31, 1990

Tundra Oil and Gas Ltd.  
1313 One Lombard Place  
WINNIPEG, Manitoba R3B 0X3

Attention: Mr. Dan Barchyn, P. Eng.  
Exploration Manager

Dear Dan:

Re: MPR Application  
Tundra Daly 5-13-10-29 (WPM)

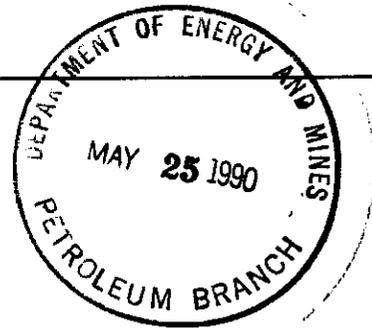
In support of the subject application, please submit a composite plot of daily production versus time for the wells offsetting 5-13-10-29; 12-13-10-29, 8-14-10-29 and 9-14-10-29. Please indicate on the plot the date 5-13-10-29 went on production.

Will increasing production at 5-13-10-29 have any detrimental impact on the efficacy of the proposed pilot waterflood in the Daly Bakken D Pool? Would Tundra be prepared to accept a temporary (6) month increase in the MPR on the condition that additional reservoir pressure data be gathered?

Yours truly,

John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

JNF:dah



May 23, 1990

Chairman  
The Oil and Natural Gas Conservation Board  
c/o Petroleum Branch  
555 - 330 Graham Avenue  
Winnipeg, Manitoba  
R3C 4A5

Dear Sir:

RE: TUNDRA DALY 5-13-10-29 WPM (LIC. #4105)  
MAXIMUM PERMISSIBLE RATE

Tundra Oil and Gas Ltd. hereby makes application pursuant to Section 51 (3) of the Regulations to increase the MPR for the above well to 11.0 m<sup>3</sup>/day and 290 m<sup>3</sup>/month.

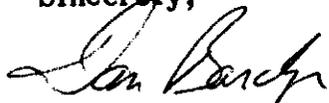
In support of this application is a plat showing the mineral owners and lessees within a one half kilometre of the well and a plot of the production history of the well.

The 5-13 well was placed on production in March of 1989 and has produced at a rate of 9 to 11 m<sup>3</sup>/day since then, with no apparent decline. These rates have been achieved with the well pumping part-time on a schedule of one hour off for every two hours on production. A recent 3-day, full-time production test showed a rate averaging approximately 16 m<sup>3</sup>/day. Using the observed fluid level and assuming a current reservoir pressure of 5000 KPa, we calculate the maximum potential of this well to be approximately 18 m<sup>3</sup>/day.

We feel that producing this well at a rate of 11 m<sup>3</sup>/day or 61% of its potential will in no way have a deleterious effect on the ultimate recovery of the pool, the producing characteristics of this well or the correlative rights of mineral owners and lessees. This view is supported by the absence of any significant interference effects on offsetting producers during the past 12 months of production.

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

Sincerely,



Dan Barchyn, P. Eng.  
Exploration Manager

DB/ck

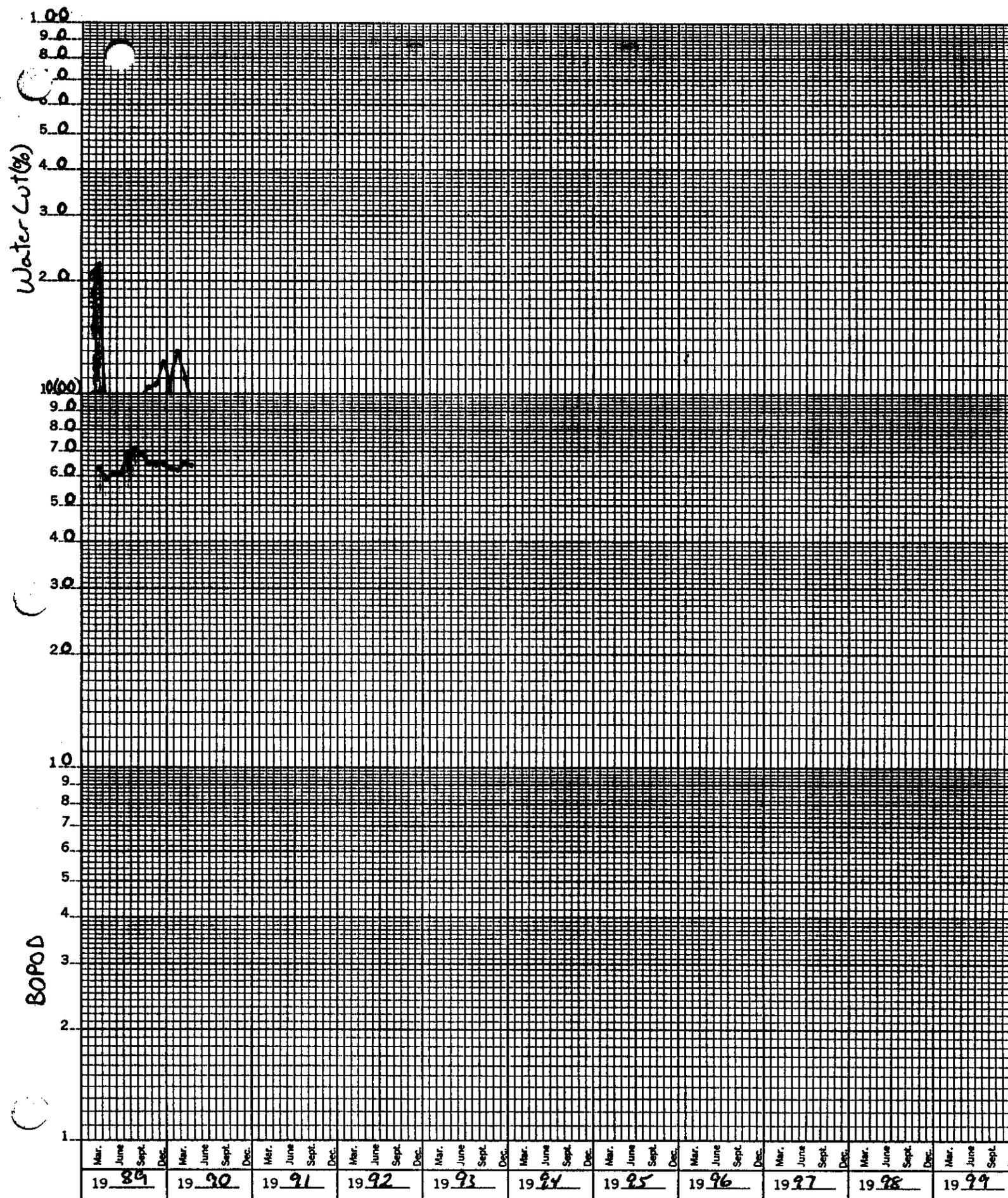


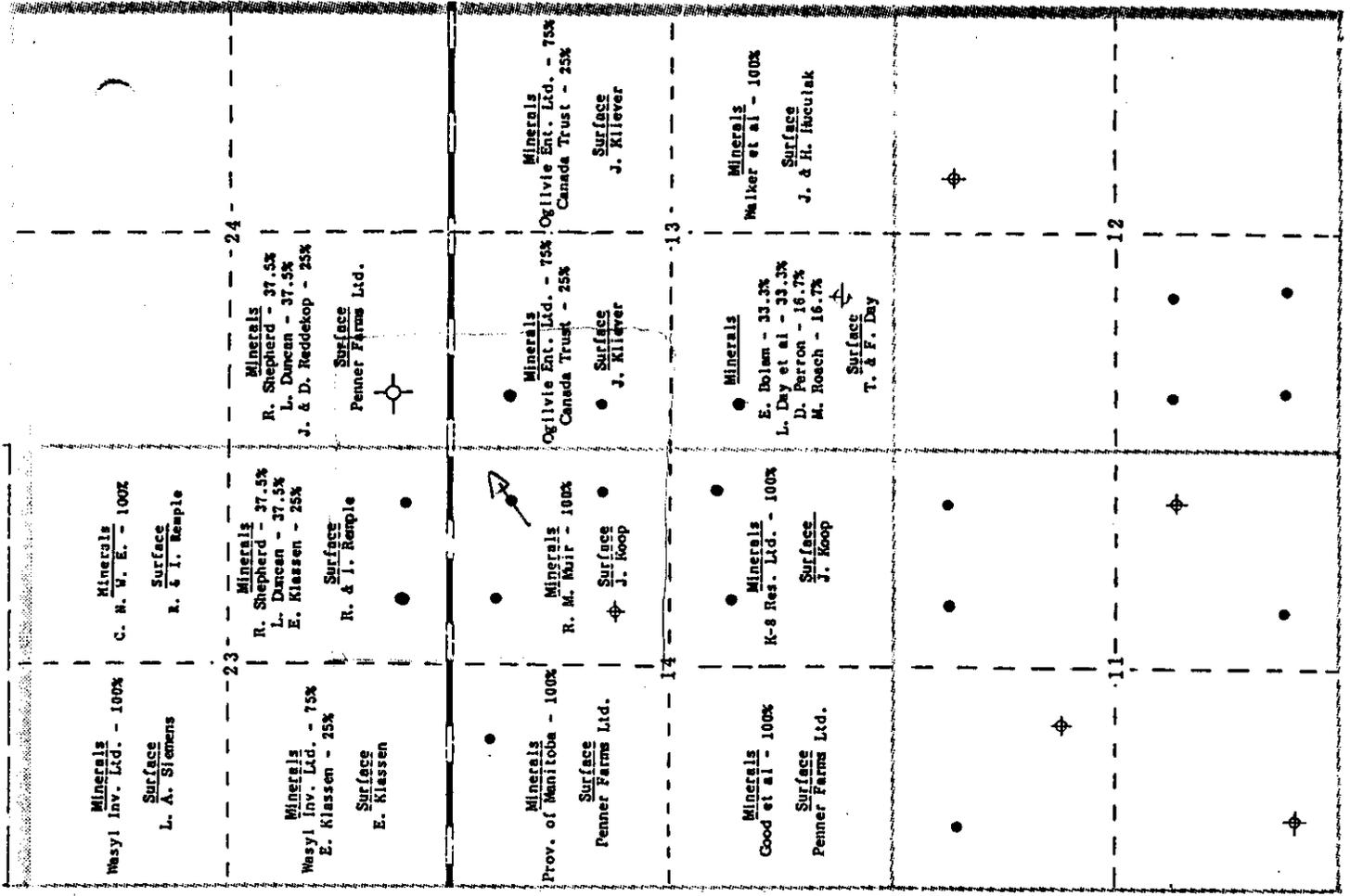
Figure 2:

NORTH EBOR UNIT NO. 1

LESSEES

LANDS

Tract No.	LESSEES	Area
Tract No. 1	Tundra	100.000000
Tract No. 2	A. D. Cohen H. B. Cohen J. C. Cohen J. H. Cohen H. M. Cohen Leasau MacDonald Talbot Tolaini Tundra	2.083334 2.083333 2.083333 2.083333 2.083333 2.083334 4.166667 4.166667 4.166666 75.000000
Tract No. 3	Tundra	100.000000
Tract No. 4	Tundra	100.000000
Tract No. 5	Tundra	100.000000
Tract No. 6	Tundra	100.000000
Tract No. 7	A. D. Cohen H. B. Cohen J. C. Cohen J. H. Cohen H. M. Cohen Leasau MacDonald Talbot Tolaini Tundra	2.083334 2.083333 2.083333 2.083333 2.083333 2.083334 4.166667 4.166667 4.166666 75.000000
NE 1/4 13	Tundra	25.000000
SE 1/4 13	Open	75.000000
SW 1/4 13	Open	100.000000
NW 1/4 13 - LSD's 11 & 14	Tundra	100.000000
NE 1/4 14 - LSD 10	Tundra	100.000000
SE 1/4 14	Tundra	100.000000
SW 1/4 14	Tundra	75.000000
NW 1/4 14	Open	25.000000
NW 1/4 14	Tundra	100.000000
NE 1/4 23	Open	100.000000
SE 1/4 23 - LSD's 7 & 8	Tundra	100.000000
SW 1/4 23	Tundra	25.000000
NW 1/4 23	Open	75.000000
NW 1/4 23	Open	100.000000
NE 1/4 24	Tundra	100.000000
SE 1/4 24	Tundra	100.000000
SW 1/4 24	Open	100.000000
NW 1/4 24	Open	100.000000





Energy and Mines

Petroleum

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

(204) 945-6577

May 31, 1990

Tundra Oil and Gas Ltd.  
1313 One Lombard Place  
WINNIPEG, Manitoba R3B 0X3

Attention: Mr. Dan Barchyn, P. Eng.  
Exploration Manager

Dear Dan:

Re: MPR Application  
Tundra Daly 5-13-10-29 (WPM)

In support of the subject application, please submit a composite plot of daily production versus time for the wells offsetting 5-13-10-29; 12-13-10-29, 8-14-10-29 and 9-14-10-29. Please indicate on the plot the date 5-13-10-29 went on production.

Will increasing production at 5-13-10-29 have any detrimental impact on the efficacy of the proposed pilot waterflood in the Daly Bakken D Pool? Would Tundra be prepared to accept a temporary (6) month increase in the MPR on the condition that additional reservoir pressure data be gathered?

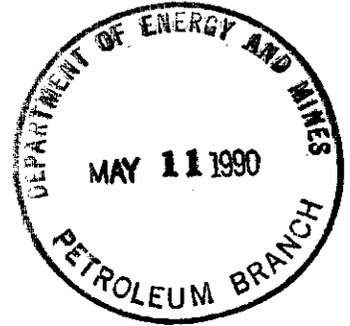
Yours truly,

A handwritten signature in black ink, appearing to read 'John N. Fox', with a long horizontal flourish extending to the right.

John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

JNF:dah

May 8, 1990



Department of Energy and Mines  
Petroleum Branch  
555 - 330 Graham Avenue  
Winnipeg, Manitoba  
R3C 4A5

Attention: Mr. John Fox  
Chief Petroleum Engineer

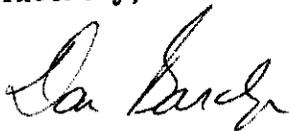
Dear John:

RE: TUNDRA DALY 5-13-10-29 WPM: OVERPRODUCTION

The above well has been and is currently producing only part-time and has had capability of producing significantly in excess of what has been produced during the past twelve months. In view of this, it is our intention to apply for an increase in the MPR, subject to section 51(3) of the Regulations. We are currently gathering the information necessary, including a full-time production test of the 5-13 well. An application will be submitted once the information is available.

In the meantime, I have instructed our operators to ensure that the monthly production for this well does not exceed 240 m<sup>3</sup> in order to avoid any further accumulation of overproduction pending consideration of our application.

Sincerely,



Dan Barchyn, P. Eng.  
Exploration Manager

DB/ck



Energy and Mines

Petroleum

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

(204) 945-6577

April 19, 1990

Tundra Oil and Gas Ltd.  
1313 One Lombard Place  
WINNIPEG, Manitoba R3B 0X3

Attention: Mr. Dan Barchyn

Dear Dan:

Re: Over-Production Tundra Daly 5-13-10-29 (WPM)

The maximum permissible production rate per well for the Daly Bakken D Pool is 240 m<sup>3</sup> of clean oil per month. This letter is to advise you that the well Tundra Daly 5-13-10-29 has accumulated over-production of 362.6 m<sup>3</sup> as of March 1, 1990.

Please submit to the Petroleum Branch by ~~May~~ 8, 1990 your plans to retire the over-production.

Yours truly,

A handwritten signature in black ink, appearing to read 'John N. Fox', with a long horizontal line extending to the right.

John N. Fox  
Chief Petroleum Engineer  
Petroleum Branch

PAGE NO. 1

\*\*\* STORE \*\*\*  
DAILY  
WELL (0)05-13-010-29 WIN(0)

ManPB  
90-06-01  
08:36:27

FIELD 1 PROVINCE MAN. LAND#1 6  
POOL 60 WORKING INTEREST 0.000002 LAND#2 0  
BLDCK 4 ON PRDM 1989-03-15 LAND#3 4105  
ACCTS 0 ON INJN NOT ON YET

MONTH	HOURS	OIL m3/M	WATER m3/M	OIL m3/d	WOR	CUM.OIL m3	CUM.WAT m3	
1989-03	288	121.0	34.3	10.1	0.28	121.0	34.3	
1989-04	264	104.6	6.4	9.5	0.06	225.6	40.7	
1989-05	720	290.6	27.5	9.7	0.09	516.2	68.2	
1989-06	552	220.6	23.6	9.6	0.11	736.8	91.8	
1989-07	600	277.7	21.1	11.1	0.08	1014.5	112.9	31
1989-08	696	329.7	19.8	11.4	0.06	1344.2	132.7	31
1989-09	672	305.3	24.1	10.9	0.08	1649.5	156.8	30
1989-10	720	306.4	35.8	10.2	0.12	1955.9	192.6	31
1989-11	672	286.0	34.5	10.2	0.12	2241.9	227.1	30
1989-12	720	298.3	41.6	9.9	0.14	2540.2	268.7	31
1990-01	720	301.1	32.7	10.0	0.11	2841.3	301.4	31
1990-02	576	236.4	34.4	9.9	0.15	3077.7	335.8	28
1990-03	744	322.3	39.2	10.4	0.12	3400.0	375.0	31

COMPOSITION PRODUCTION REGIME ANALYSIS

12-13-10-29

8-10-10-29

9-14-10-29

TIME LN(m3/d)

Apr/88 - Feb/89

0.083	2.293
0.167	2.092
0.25	1.96
0.333	1.917
0.417	1.887
0.5	1.808
0.583	1.758
0.667	1.775
0.75	1.723
0.833	1.609
0.917	1.686

Regression Output:

Constant	2.196532
Std Err of Y Est	0.074701
R Squared	0.870378
No. of Observations	11
Degrees of Freedom	9

X Coefficient(s) -0.66433 ✓ exp. dec. rate  
Std Err of Coef. 0.085457

Jun/89 - Apr/90

0.083	2.542
0.167	2.468
0.25	2.425
0.333	2.219
0.417	2.197
0.5	2.152
0.583	2.116
0.667	2.041
0.75	1.902
0.833	1.902
0.917	1.808

Regression Output:

Constant	2.594113
Std Err of Y Est	0.042076
R Squared	0.972949
No. of Observations	11
Degrees of Freedom	9

X Coefficient(s) -0.86604 ✓ exp. dec. rate  
Std Err of Coef. 0.048134

MONTH	PRDN	WELL COUNT	HOURS	OIL	OIL	WOR
		INJN P/IN S/AB		m3/M	m3/D	
8-02	1	0 0 0	288	82.3	2.8	0.03
8-03	2	0 0 0	1008	240.3	7.8	0.07
8-04	2	0 0.083 0	1440	297.0	9.9	0.05
8-05	2	0 0.167 0	1464	249.9	8.1	0.07
8-06	2	0 0.25 0	1416	212.3	7.1	0.08
8-07	2	0 0.333 0	1464	210.6	6.8	0.07
8-08	2	0 0.417 0	1488	205.3	6.6	0.06
8-09	2	0 0.5 0	1416	183.0	6.1	0.09
8-10	2	0 0.583 0	1440	180.3	5.8	0.13
8-11	2	0 0.667 0	1440	178.1	5.9	0.08
8-12	2	0 0.75 0	1488	175.0	5.6	0.08
9-01	2	0 0.833 0	1368	155.0	5.0	0.11
9-02	2	0 0.917 0	1296	152.2	5.4	0.04
9-03	3	0 0 0	1632	227.9	7.4	0.12
9-04	3	0 0 0	1560	229.0	7.6	0.11
9-05	3	0 0 0	1416	250.7	8.1	0.14
9-06	3	0 0.083 0	1848	380.1	12.7	0.27
9-07	3	0 0.167 0	2064	366.3	11.8	0.18
9-08	3	0 0.25 0	2100	349.0	11.3	0.21
9-09	3	0 0.333 0	2088	276.7	9.2	0.18
9-10	3	0 0.417 0	2160	279.9	9.0	0.18
9-11	3	0 0.5 0	2064	258.6	8.6	0.16
9-12	3	0 0.583 0	2160	256.5	8.3	0.21
10-01	3	0 0.667 0	2232	237.8	7.7	0.15
10-02	3	0 0.75 0	1848	188.8	6.7	0.14
10-03	3	0 0.833 0	2184	207.1	6.7	0.17
10-04	3	0 0.917 0	2136	182.0	6.1	0.22

LINEAR REGRESSION  
 $X$  TIME - 1 mo = .08333 yrs.  
 $Y$   $\ln(m^3/d)$  @ LN( )

① ~~X = cumulative prod.~~  
~~to daily oil~~

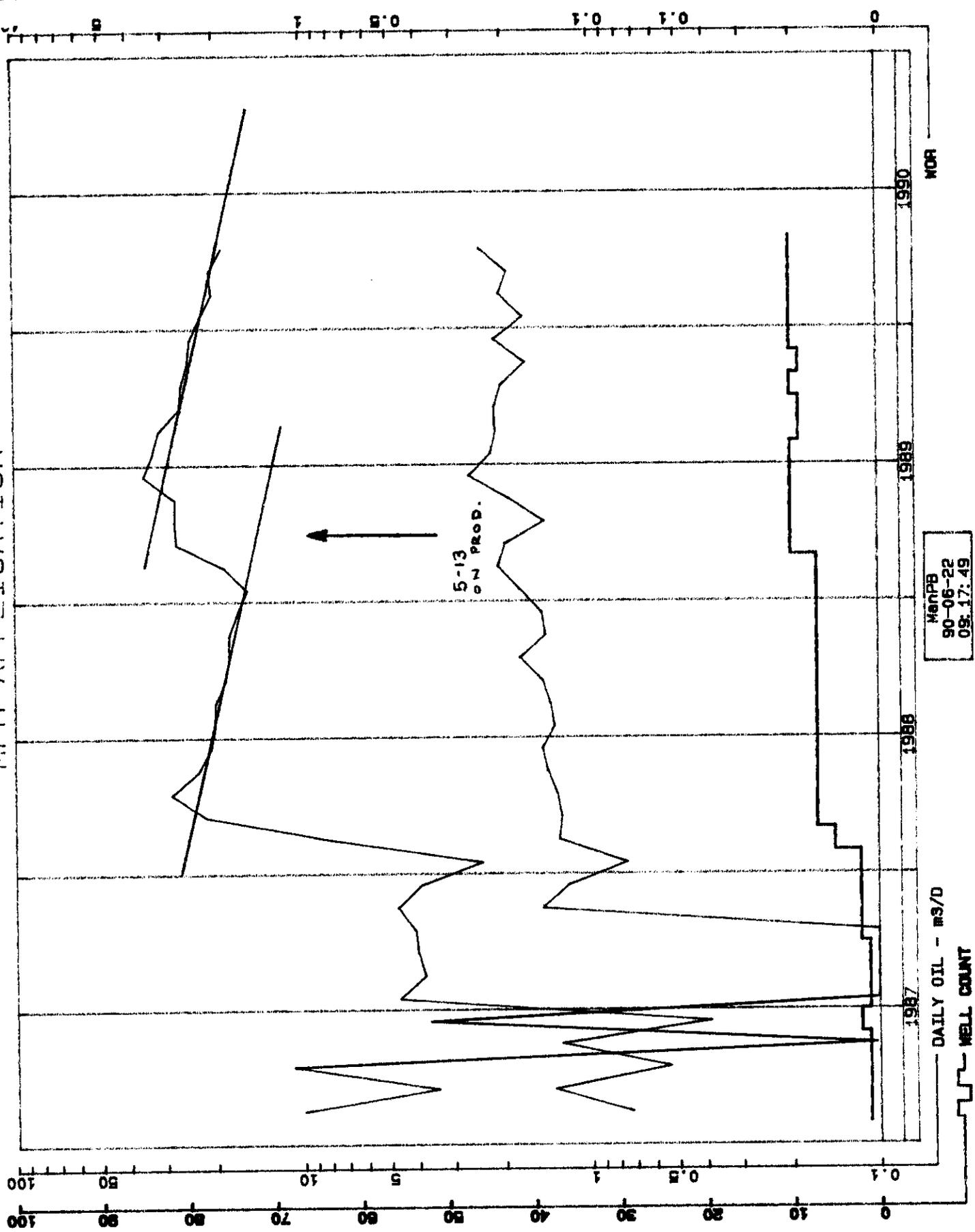
← 9-14 on prod.

2.542  
 2.468  
 2.425  
 2.219  
 2.197  
 2.152  
 2.116  
 2.041  
 1.902  
 1.902  
 1.808

.917

OFFSET PRODUCTION  
 12-13 7-14 15-14  
 13-13 8-14 16-14  
 9-14

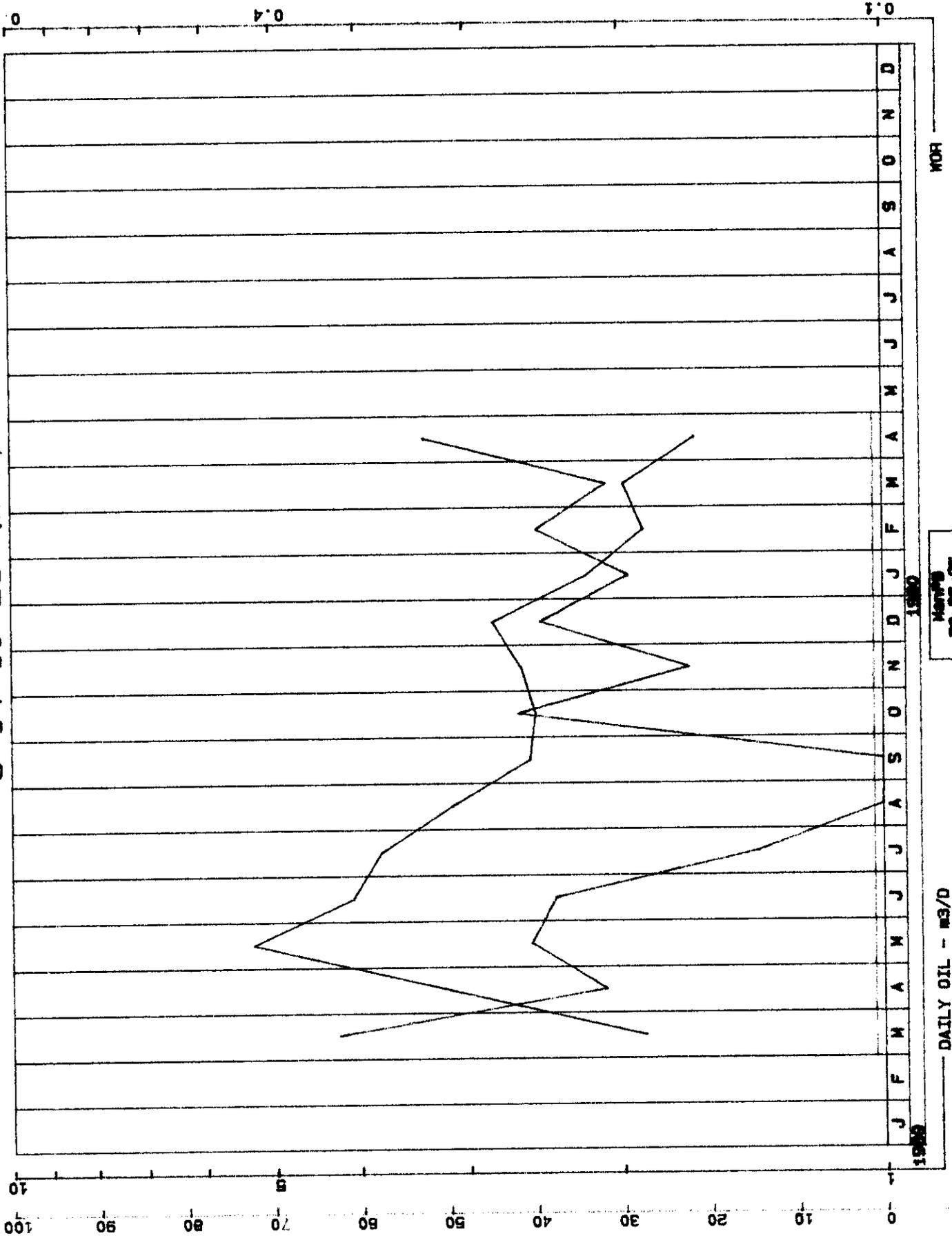
MPR APPLICATION



ManPB  
 90-06-22  
 09:17:49

DAILY OIL - M3/D  
 WELL COUNT

8-14-10-29 (WPM)



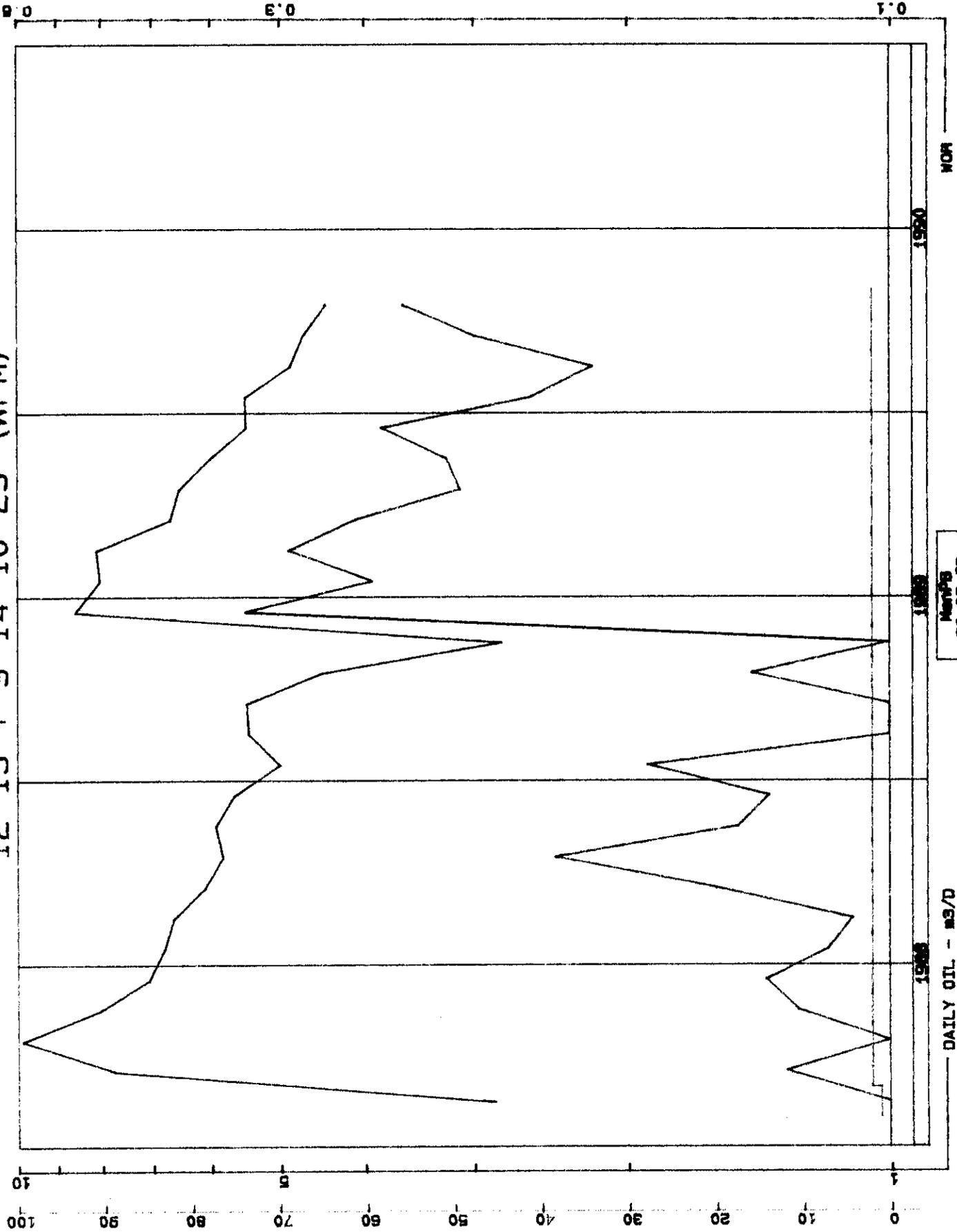
Well's  
90-09-29  
11:48:23

DAILY OIL - M3/D  
WELL COUNT

1989

1990

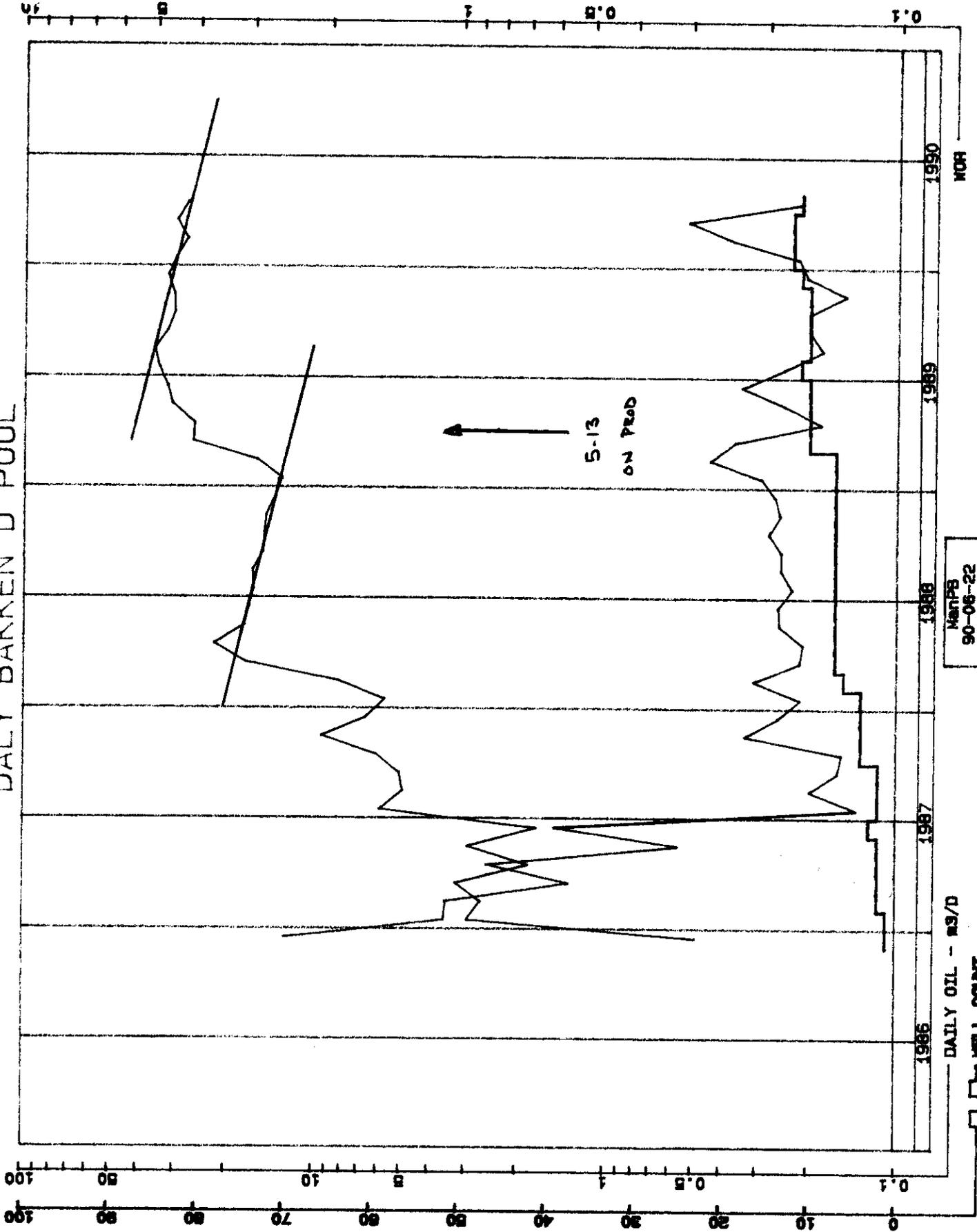
12-13 + 9-14-10-29 (WPM)



Mer/FB  
90-08-28  
12:02:56

DAILY OIL - m3/D  
WELL COUNT

# DALY BAKKEN D POOL



NPR INCREASE S-13-10-29

1/ REVIEW POOL PRESSURE DECLINE (HISTORY S-13)

$$\bar{P}_R = 8600$$

$$P^* = 5400 \text{ KPa.}$$

$$\text{DST S-13 (Feb/89)} \quad p^* = 7426 \text{ KPa}$$

$$\text{discovery well 7-14 DST Feb/87} \quad \bar{P}_R = 8591 \text{ KPa}$$

2/ EFFECT OF INCREASE PRODUCTION  $\rightarrow$  S-13 ON WATERFLOOD PERFORMANCE - pilot WF appl<sup>n</sup> - evaluate after 3 mos.  
90-03-15

3/ REVIEW 8-14 PERFORMANCE

4) OOIP S-13  $\text{OOIP/m}^3 \text{ area} = .12 * 16 * 10000 =$   
Cum PROD (90-04) 3694  $\text{m}^3$   
aver. primary recovery 27.5%

(5) S-13 AVER. PROD 89-07 to 90-03 - 9.7  $\text{m}^3/\text{cal. d}$

(6) NPR EXEMPTION FOR N. EBOR UNIT No. 1 on DALY BAKKEN D POOL

(7) PREMATURE CONSIDERING CONCERNS PRESSURE DEPLETION & PENDING IMPLEMENTATION OF PILOT WATERFLOOD IN BAKKEN D POOL + APPLICATION NOT TECHNICALLY SUPPORTED - INDICATIONS OFFSET PRODUCTION EXPERIENCED SLIGHT INCREASE IN DECLINE