


14-28-9-25

Imperial Routledge


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



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404

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Winnipeg, Manitoba
R3C 4E3



Round Table - Calgary
06/2/96

ENRON - M22

14-16-2-21

OTHER
PLANS
LORDS
WPP
APPLICATION

From: Bob Dubreuil
To: mfine@leg
Date: 12/19/96 4:40pm
Subject: Application by Enron Oil Canada - Increased MPR

Enron Oil Canada Ltd has applied under The Oil and Gas Act for an increased maximum production rate or MPR for a well recently drilled in the Mountainside area. The well is capable of rates of up to 900 cubic metres per month but is currently restricted to 300 cm/month by the regulations.

Upon receipt of the application, notice was given to offsetting royalty owners, two of whom objected to the application with the fear that increased production at the well might result in premature watering out of the pool and might cause drainage from their land the spacing unit where the well is located.

Technical review of the pool indicates ultimate recovery is not sensitive to rate of production and therefore the first concern is likely without merit. With regards to the second concern, reservoir calculations indicate the rate of drainage from the surrounding lands over a six month period of production at the higher rates would be negligible.

I propose to issue a Ministerial Order (under delegated authority in the Drilling and Production Regulation) to establish a pool MPR which would be determined by multiplying the number of producing wells by 300 cubic metres per month. This oil would be produced out of any well in the pool. The Order will provide this pool MPR for a 6 month period, in which time Enron will be expected to collect reservoir and production information to allow for a more rigorous determination of appropriate production rates. The pool MPR approach also provides flexibility to Enron who has already spent \$1.5 million developing the pool and has plans to drill up to 2 additional wells.

One of the parties that objected is Don Ransom, brother of a former PC MLA and Minister from the area (Brian Ransom). Mr. Ransom (Don) has also been quite vocal regarding development in the area. While we will write Mr. Ransom advising him why we are authorizing increased MPR's I would not be at all surprised if he might try to bend the Minister's ear with his concerns.

I wanted to advise you of this potential concern. Unless I hear otherwise from you, I plan to proceed with the approval tomorrow.

MESSAGE DELIVERED & OPENED



23-DEC-96

Mr. R. V. Coles
Project Reservoir Engineer
Enron Oil Canada Ltd.
1300,700-9th Avenue SW
Calgary AB T2P 3V4

Dear Mr. Coles:

Re: Other Areas Lodgepole WL E Pool - Pool MPR Approval

The Branch has completed its review of your application for an increase in MPR for the 14-16 well, from 300 m³/month to 900 m³/month. Notice of the application was sent to the offsetting royalty owners. Royalty owners in the NE/4 of Section 16 and the SW/4 of Section 21 intervened in the application. A copy of the letters of intervention are attached for your reference. The royalty owners expressed two concerns in their letters and in conversations with Branch staff:

- 1) increased production at 14-16 may adversely effect production from wells on their lands; and
- 2) increased production may result in the well prematurely watering out.

The Branch shares the royalty owners concerns and is of the opinion that the technical information currently available does not conclusively demonstrate that increased production at 14-16 will not have an adverse effect on ultimate recovery from the well and on correlative rights of offsetting owners. An examination of the production history of the 13-16 well shows a linear trend (log water-cut vs cumulative production) indicating the water-cut at 13-16 has not been sensitive to production rate. Enron is however proposing to produce the 14-16 well at higher rates than 13-16 and confirmation of water-cut rate insensitivity is required. The Branch believes the structural position of the 14-16 well and pressure support received from the strong water drive combine to reduce the probability of inequitable drainage. However additional supporting information is required to confirm these assumptions.

The Branch has approved Enron's application in part by establishing an interim Pool MPR for a six month period, 01-JAN-97 to 30-JUN-97. Attached is MPR Order No. 1 which establishes a Pool MPR to be determined by multiplying the number of wells in the pool capable of oil production by the individual well maximum production rate of 300 m³ per month of clean oil. Production of the Pool MPR is subject to the restriction that no well in the pool may produce more than 900 m³ per month of clean oil.

The Branch believes the interim Pool MPR will allow Enron the flexibility to produce the 14-16 well and any other high productivity wells drilled in the pool at rates up to 900 m³/month. The interim Pool MPR will also allow Enron an opportunity to collect the production and reservoir data needed to fully evaluate the effect of increased production rates on ultimate recovery and on correlative rights.

The Branch would like the following questions answered, upon expiry of the Pool MPR approval, prior to making any decision on a permanent MPR increase:

- (1) Does the 14-16 well show any water-cut rate sensitivity? If yes, is there a critical production rate and will producing the well at rates above 300 m³/month have an adverse impact on ultimate recovery from the well?
- (2) As a result of increased production at 14-16 has there been any indication of interference with production at the offsetting wells? What is the effective drainage area of the 14-16 well?
- (3) What is the optimum depletion strategy for the pool from both an ultimate recovery and economic perspective?

If you have any questions in respect of this approval please contact the undersigned at (204) 945-6574.

Yours truly,

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

John N. Fox, P.Eng.
Chief Petroleum Engineer

cc. Eric Ekin
D. E. Ransom

THE OIL AND GAS ACT

MINISTERIAL ORDER

MAXIMUM PRODUCTION RATE ORDER NO. 1 (Interim)

Other Areas Lodgepole WL E Pool

In accordance with Section 105 of The Oil and Gas Act, the maximum production rate for wells producing from the Other Areas Lodgepole WL E Pool ("the Pool") is determined under this order, as follows:

1. The maximum production rate for the Other Areas Lodgepole WL E Pool ("the Pool MPR") is to be determined by multiplying the number of wells in the pool capable of oil production by the individual well maximum production rate of 300 m³ per month of clean oil.
2. Production of the Pool MPR is subject to the following restrictions:
 - (a) The total monthly production from all wells in the Pool is not to exceed the Pool MPR;
 - (b) Production in excess of the Pool MPR in any month is to be deducted from the succeeding month's Pool MPR; and
 - (c) No well in the Pool may produce more than 900 m³ per month of clean oil.
3. This Order shall take effect on January 1, 1997 and shall expire on June 30, 1997 unless otherwise extended or rescinded by the Director of Petroleum.

DEC. 23, 1996

Date



Director of Petroleum for
Minister of Energy and Mines

PETROLEUM DOCUMENT REGISTRY

Document No. 96-580

Registered: DECEMBER 24, 1996

A. D. Martin

Petroleum Registrar



Date December 20, 1996

Memorandum

To Bob Dubreuil
Director
Petroleum & Energy Branch

From John Fox
Chief Petroleum Engineer
Petroleum & Energy Branch

Telephone

Subject **Application for Increase in MPR - Enron Mountainside 14-16-2-21(WPM)**

Enron Oil Canada Ltd. has applied to increase the MPR on the 14-16-2-21 well in the Other Areas Lodgepole WL E Pool from 300 m³/mon to 900 m³/mon. Notice of the application was sent to offsetting royalty owners. The royalty owners in the NE/4 of Section 16 and the SW/4 of Section 21 intervened in the application expressing concerns that the MPR increase may have a adverse impact on wells situated on their lands.

Recommendation

It is recommended that the Director, on behalf of the Minister, approve a Pool MPR for the Other Areas Lodgepole WL E Pool for an interim six month period, 01-JAN-97 to 30-JUN-97. The Pool MPR would be determined monthly by multiplying the number of wells capable of production by an individual well MPR of 300 m³/month. Production of the Pool MPR would be subject to the restriction that no well in the pool may produce more than 900 m³/ month. Proposed Ministerial MPR Order No. 1 is attached. Before executing the order on behalf of the Minister, the Deputy Minister should be advised of the nature of the interventions.

Discussion

The 14-16 well was drilled in July 1996. Enron subsequently ran 3D seismic over the Other Areas Lodgepole WL E Pool in August 1996. The seismic identified a number of development locations. In addition to the 14-16 well, Enron has drilled 3 wells and licensed two other locations (see Fig. 1). This development represents a \$1.5 MM investment in the pool.

Based on seismic and well data, Enron's estimate of OOIP in the pool has more than doubled to 548.7 10³m³ (see Table 1 & Fig. 2). Pool production has increased from 13.2 m³OPD (Jun/96) to 28.6 m³OPD (Oct/96). Further production increases will be realized as the newly drilled wells go on production (A11-16, IP - 3.7 m³OPD at 84% water-cut; 12-16, IP - 7.6 m³OPD at 62% water-cut).

Enron has applied to increase the MPR on the 14-16 well from 300 m³/mon to 900 m³/mon. The two primary concerns that must be addressed when considering an increase in MPR are the effect of increased production on ultimate recovery and on correlative rights of offsetting owners. Enron is the sole working interest owner in the pool and the two offsetting royalty owners in the NE/4 of Section 16 and the SW/4 of Section 21 have intervened in the application.

First | Fold

Effect of Production Rate on Ultimate Recovery

Enron has provided production data and bottomhole pressure data for the 14-16 well. The well has been produced at 20 m³OPD at a water-cut of 10-20% at a stabilized bottomhole producing pressure of 4800 kPa, since going on production 31-JUL-96. The Branch has constructed an IPR curve for the 14-16 well assuming the water-cut is not rate sensitive (see Fig. 3). The IPR curve indicates the proposed MPR of 900 m³/mon can be produced at a bottomhole producing pressure of 3450 kPa (48% drawdown).

In order to determine whether the water-cut at 14-16 may be rate sensitive, the historical performance of the 13-16 well was reviewed. In December 1988, Canadian Roxy, the operator at the time, increased reservoir withdrawals at 13-16 from 28.8 m³/d to 53 m³/d. During the six months immediately prior to the rate increase the average daily production was 6.3 m³OPD at a 78.1% water-cut. Between December 1988 and February 1990, daily production averaged 11.2 m³OPD at a 78.9% water-cut. An examination of the water-cut performance (see Fig. 4) shows a linear trend (log water-cut vs cumulative production) indicating the water-cut at 13-16 is not sensitive to production rate.

The Other Areas Lodgepole WL E Pool is a small paleotopographic high within the Upper Whitewater Lake subcrop belt. The pool has a strong water drive. The current average reservoir pressure is 7190 kPa (AWS, March 1996), 7% less than the original reservoir pressure of 7755 kPa (13-16 DST, July 1982). Wells in the E Pool produce water immediately. The pool water-cut has continually increased from 56% to 91.6% since production began in 1982. Fig. 5 is a plot of the pool production history. The plot shows pool oil production has paralleled total fluid production and the water-cut trend shows a linear increase versus cumulative production. These trends are indicative of a water drive reservoir and suggest the water-cut is insensitive to increased drawdown. In this type of pool, recovery can be accelerated with no reduction in ultimate recovery, by maximizing total fluid production.

Cumulative production from the pool is 42.3 10³m³ or 7.7% OOIP based on Enron's mapping. To date 13-16 has produced 66% of the cumulative pool production (see Fig. 6). Structural position and gross thickness of the UWWL Member appear to correlate well with production (see Fig.'s 7 & 8). It is difficult to determine an oil/water contact for the pool. The transitional o/w contact appears to be dependent on reservoir facies and varies between -303 and -305 m subsea.

Based on these observations the 13-16 and 14-16 wells are expected to recover the most oil from the pool. Wells on the flanks of the pool, where the reservoir thins and is structurally lower, are more susceptible to water influx and to date have proven to be poor producers. The only way to evaluate the effect of higher producing rates on recovery at 14-16 is to allow an increase in MPR. A temporary MPR increase would allow Enron the flexibility to test the well at higher rates and monitor the water-cut. There is no evidence to suggest that in the short term recovery from the pool will be adversely effected by higher reservoir withdrawals.

The E Pool is under active development. In order to avoid granting MPR increases to individual wells as they come on production, it is suggested that a Pool MPR be established. The Pool MPR would be determined monthly by multiplying the number of wells in the pool capable of production by an individual well MPR of $300 \text{ m}^3/\text{month}$. Establishment of a Pool MPR as proposed would allow underproduction from low productivity wells in the pool to be produced by 14-16 and any other high productivity wells that go on production. Production of the Pool MPR would be subject to the following restrictions:

- (a) the total monthly production from all wells in the Pool is not to exceed the Pool MPR;
- (b) production in excess of the Pool MPR in any month is to be deducted from the succeeding month's Pool MPR; and
- (c) no well in the Pool may produce more than 900 m^3 per month of clean oil.

Based on the 4 wells producing in October 1996, the Pool MPR would be $1200 \text{ m}^3/\text{month}$ and the 14-16 well could have been produced at the maximum rate of 900 m^3 .

It is proposed to grant interim Pool MPR approval for a six month period from 01-JAN-97 to 30-JUN-97. During the approval period Enron would be requested to collect the production and reservoir data needed to fully evaluate the impact of increased production rates on ultimate recovery from the pool and on correlative rights. A copy of proposed Ministerial MPR Order No. 1 is attached. A copy of the order should be sent to the Deputy with a brief memo outlining the interventions and the reasons for our decision.

Effect of Production Rate on Correlative Rights

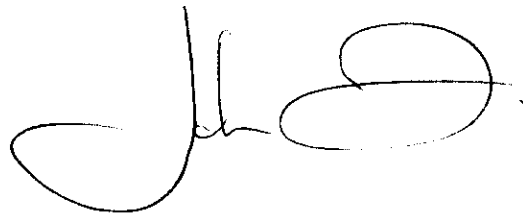
The royalty owners in the NE/4 of Section 16 and the SW/4 of Section 21 intervened in the application (see attached letters of intervention) expressing concerns that increased production at 14-16 may effect production from wells on their lands and may result in the well prematurely watering out.

The effect of increased reservoir withdrawals at 13-16 on the offsetting wells, 16-17 and 4-21 was reviewed. Production plots for the two wells (see Fig.'s 9 & 10) shows no evidence that increased production at 13-16 had any adverse impacts on the offsetting wells.

The effective drainage area of the 13-16 well was also reviewed. The 13-16 well has recovered $27.7 \times 10^3 \text{ m}^3$ to date or 30.5% OOIP based on a 16 ha drainage area. Ultimate recovery from the well is estimated at 38% OOIP, more than is typical for a water drive reservoir. Assuming a representative water drive recovery of 25-30%, the 13-16 well may be draining as much as 20-25 ha.

To evaluate the effect of increasing production at 14-16 on the NE/4 of Section 16 and the SW/4 of Section 21, the following worst case scenario was developed. It was assumed that the effect of increasing the pressure drawdown at 14-16 was immediately observed at the spacing unit boundary resulting in an instantaneous flow across the boundary. At the proposed maximum production rate of 900 m³/month, a pressure drawdown of 145 kPa or 2% of the average reservoir pressure was calculated at the spacing unit boundary (see Fig. 11). This drawdown results in an estimated flow of 0.3 m³OPD across the spacing unit boundary between 15-16 and 3-21.

The drainage calculation indicates in the short term the effect of increasing production at 14-16 on correlative rights is negligible. The Branch's letter of approval, to accompany the order, will request Enron address the impact of increased production rates on ultimate recovery from the pool and on correlative rights before any permanent MPR increase is approved. A copy of the letter of approval and the MPR Order will be sent to the intervenors.

A handwritten signature in black ink, consisting of a large, stylized 'J' followed by a series of loops and a horizontal stroke.

THE OIL AND GAS ACT

MINISTERIAL ORDER

MAXIMUM PRODUCTION RATE ORDER NO. 1 (Interim)

Other Areas Lodgepole WL E Pool

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3. This Order shall take effect on January 1, 1997 and shall expire on June 30, 1997 unless otherwise extended or rescinded by the Director of Petroleum.

DEC. 23, 1996

Date



Director of Petroleum for
Minister of Energy and Mines

PETROLEUM DOCUMENT REGISTRY

Document No. 96-580

Registered: DECEMBER 24, 1996

A. D. Martin

Petroleum Registrar

DEC 11 1996

December 9, 1996,
Box 44,
Boissevain, Man.,
ROK-OEO

Dear Sir:

I received your letter of November 25 regarding
Application for Increase in Maximum Production Rate,
Enron Mountainside 14-16-2-21 (WPM)

My personal feeling is that if the flow is increased
by three times and by what I am told, that water is
forcing the oil up, would it not be better to keep
on with 100 barrel a day production than risk spoiling
the entire well.

There is a natural spring on my land close by (NE 16-2-
21) that has run all my life and it runs year round
and has never stopped and flows from west to east.

I spoke to Mr. John Fox by telephone, on December 4,
regarding this matter.

Yours truly,

Eric Ekin.

A handwritten signature in cursive script, reading "Eric Ekin", with a long horizontal flourish underneath.



December 9, 1996,
Box 44,
Boissevain, Man.,
ROK-OEO

Dear Sir:

I received your letter of November 25 regarding
Application for Increase in Maximum Production Rate,
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and has never stopped and flows from west to east.

I spoke to Mr. John Fox by telephone, on December 4,
regarding this matter.

Yours truly,

Eric Ekin.

A handwritten signature of Eric Ekin, written in cursive script.

Petroleum and Energy Branch

Winnipeg man

Copy to Enron oil

Calgary Alberta
atten Robert V Cole

Boissvain man

12-13-96 Box 608
R0K-0E0

FAX - 204-534-2545

Tel - 204-534-6644

Dear Sirs

Re 14-16-2-21

as a landowner and mineral holder on ag
lands I have some concerns about the requested
production increase on above well they are.

as a landowner, the damage has been done on 16-2
21 so I would prefer to see this well produce for say 30
years rather than 10 years as a land and mineral owner
on SW-21-2-21 I have the same concerns re
the land and ask if increased production on 14-16
2-21 would in anyway effect 3-21-2-21.

Please understand I'm asking these questions as
a lay person and certainly not pretending to be any
sort of expert on petroleum matters

Respectfully

D.E. RANSOM


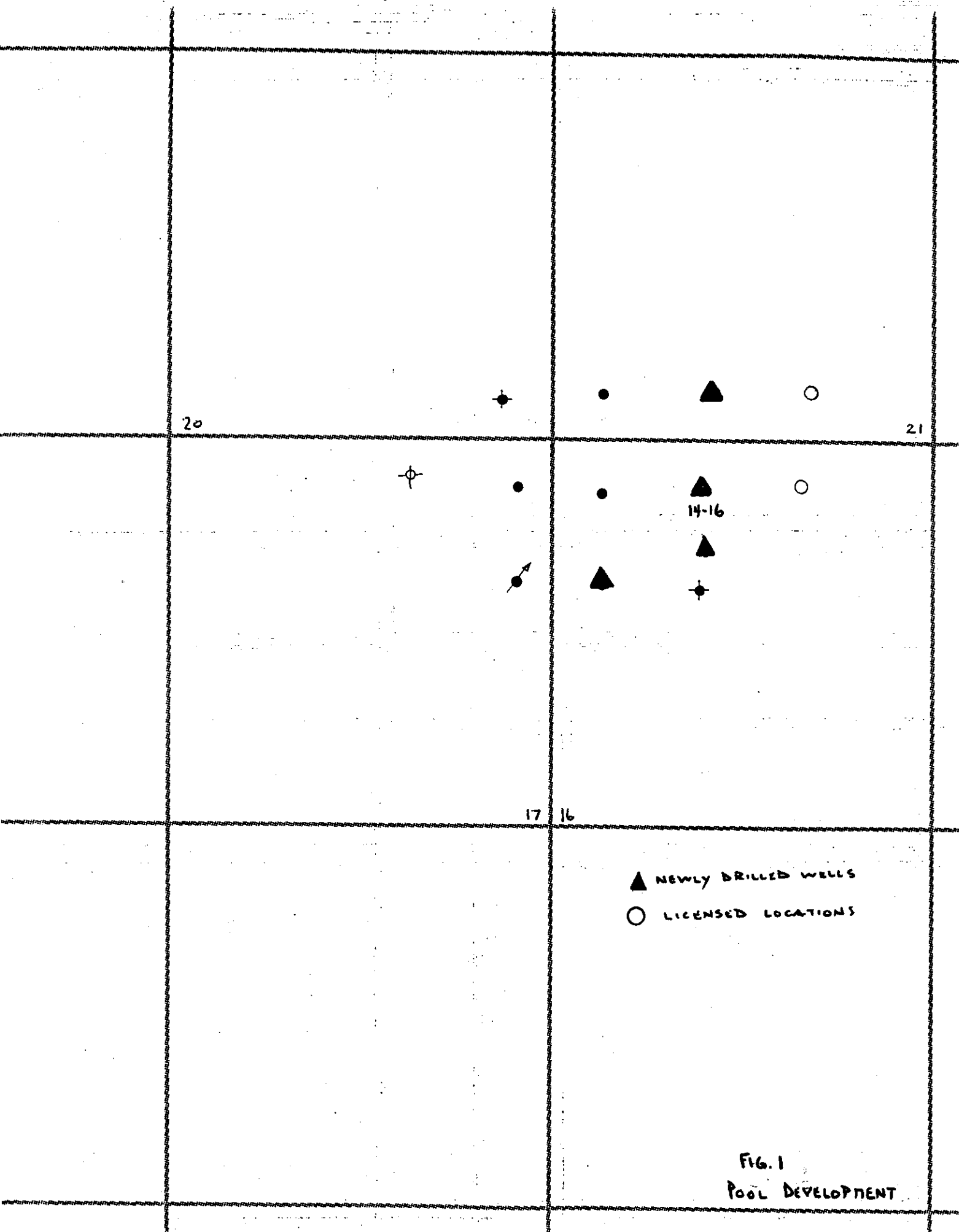


TABLE 1

**RESERVOIR PARAMETERS
MOUNTAINSIDE LODGEPOLE WL E POOL**

Area:	180 hectares
Net Pay:	6.7 m
Porosity:	11%
Water Saturation:	56%
Shrinkage:	0.94
Initial Reservoir Pressure:	7755 kPag
Original Oil-in-place:	548.7 10^3m^3
Cumulative Production to July 31, 1996:	42.6 10^3m^3
Recovery Factor to July 31, 1996:	8%
Remaining Recoverable Reserves:	94.6 10^3m^3
Ultimate Recovery Factor:	25%



MOUNTAINSIDE POOL

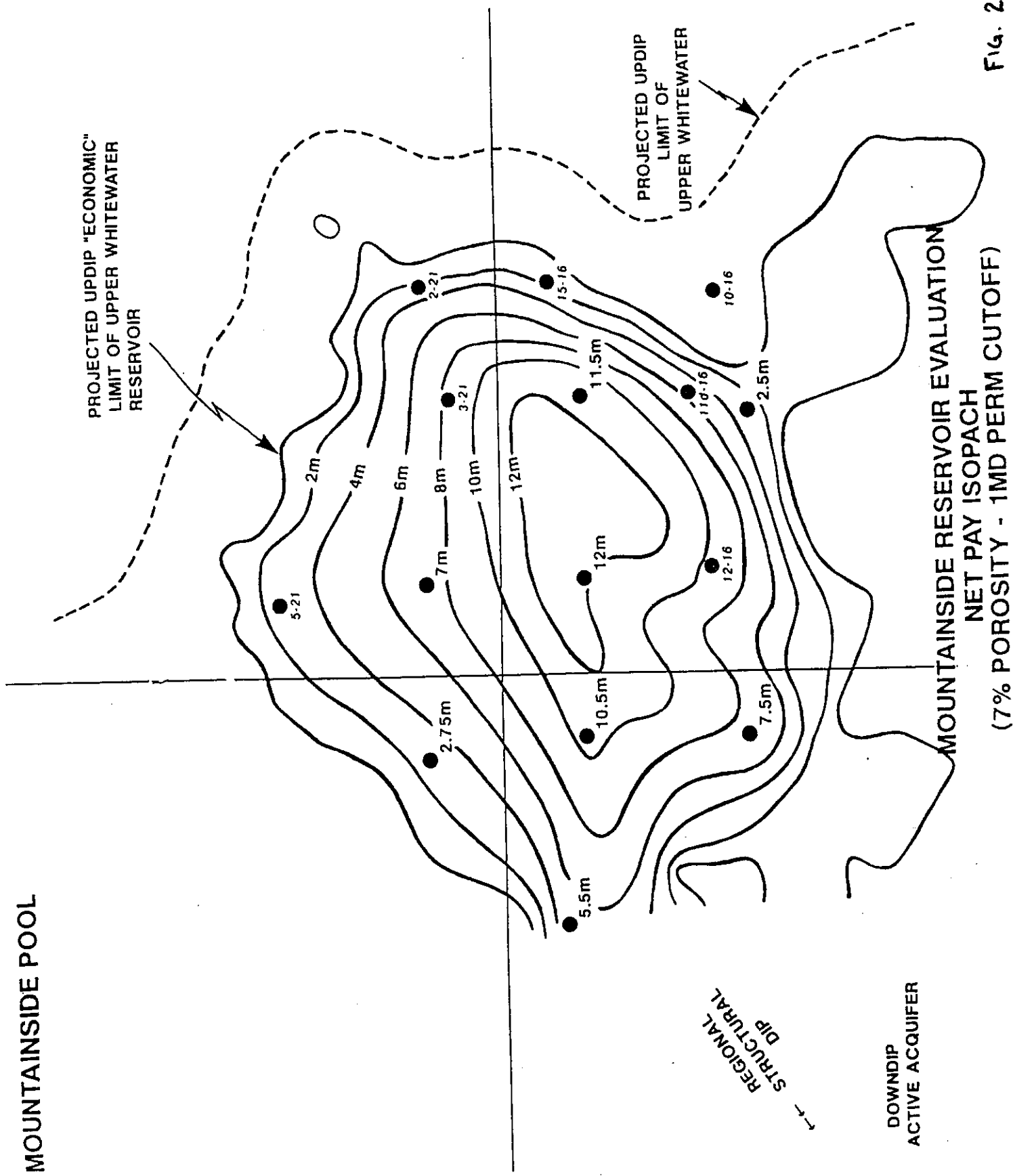
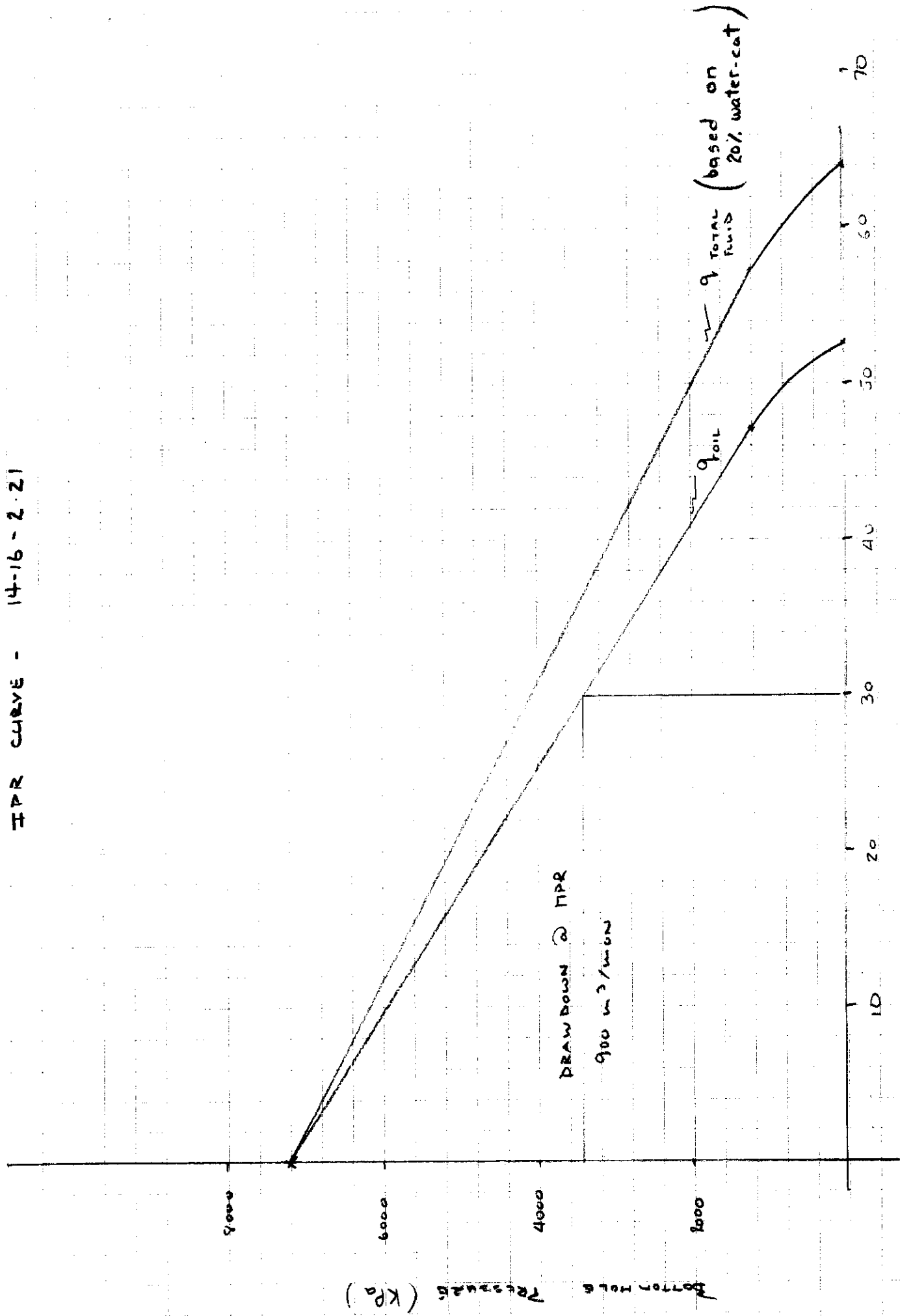


Fig. 2

IPR CURVE - 14-16 - 2.21



Flow Rate
m³/d

Fig. 3

Enron Mountinside 13-16-02-21W1 (00113-16-002-21W1/0) Data 07/82-06/96

Operator:

Field: 99

Zone: 52E

Type: Unknown

Group: Other Areas 52E

Production Cums

Oil: 27726.5 m3

Gas: 0 E6m3

Water: 156107 m3

Cond: 0 m3

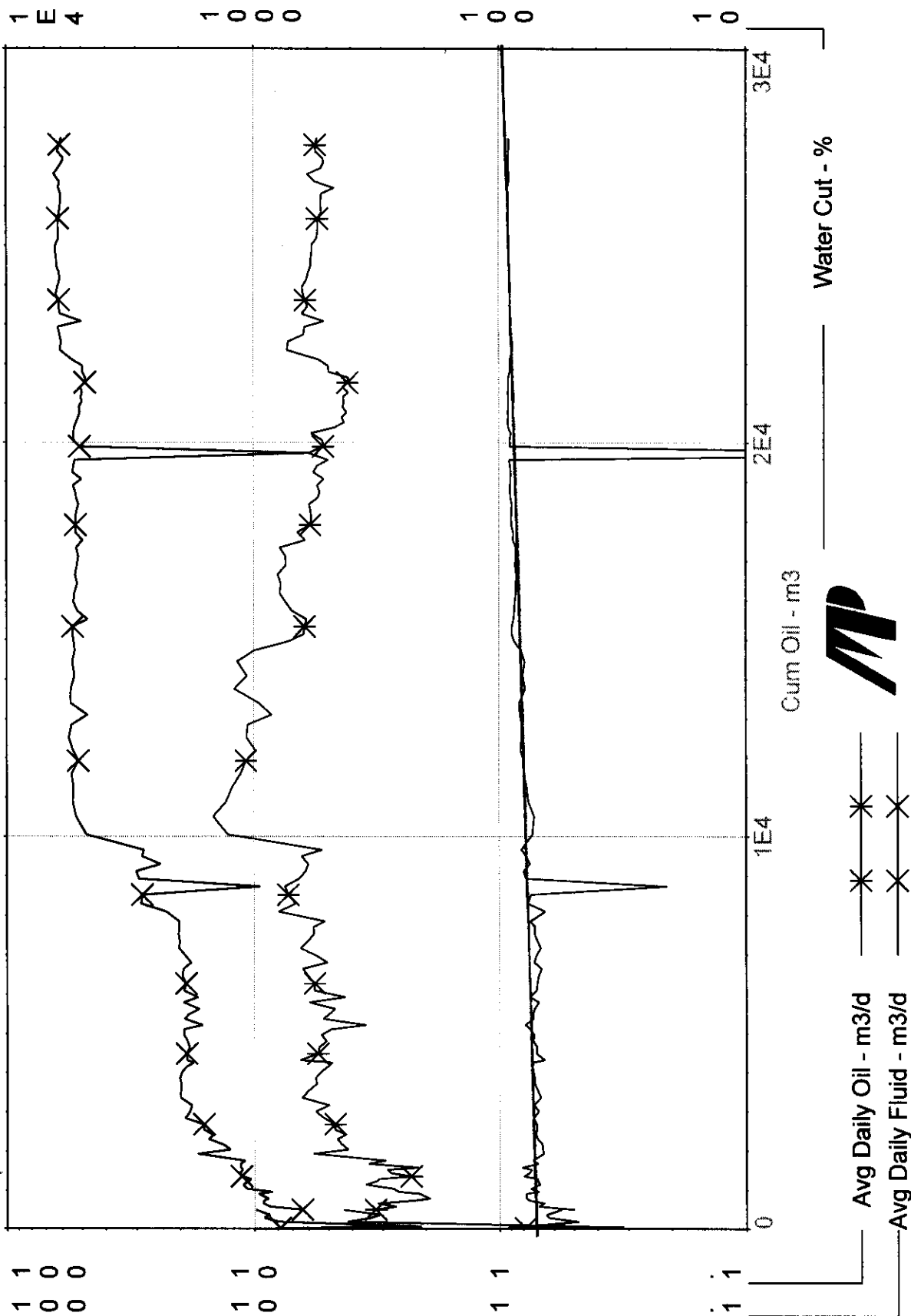


Fig. 4

Other Files: [Project W](#) [For Data 07.02.08.09](#)

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 96.

Zone:

Type: Unknown

Group: Other Areas 52E

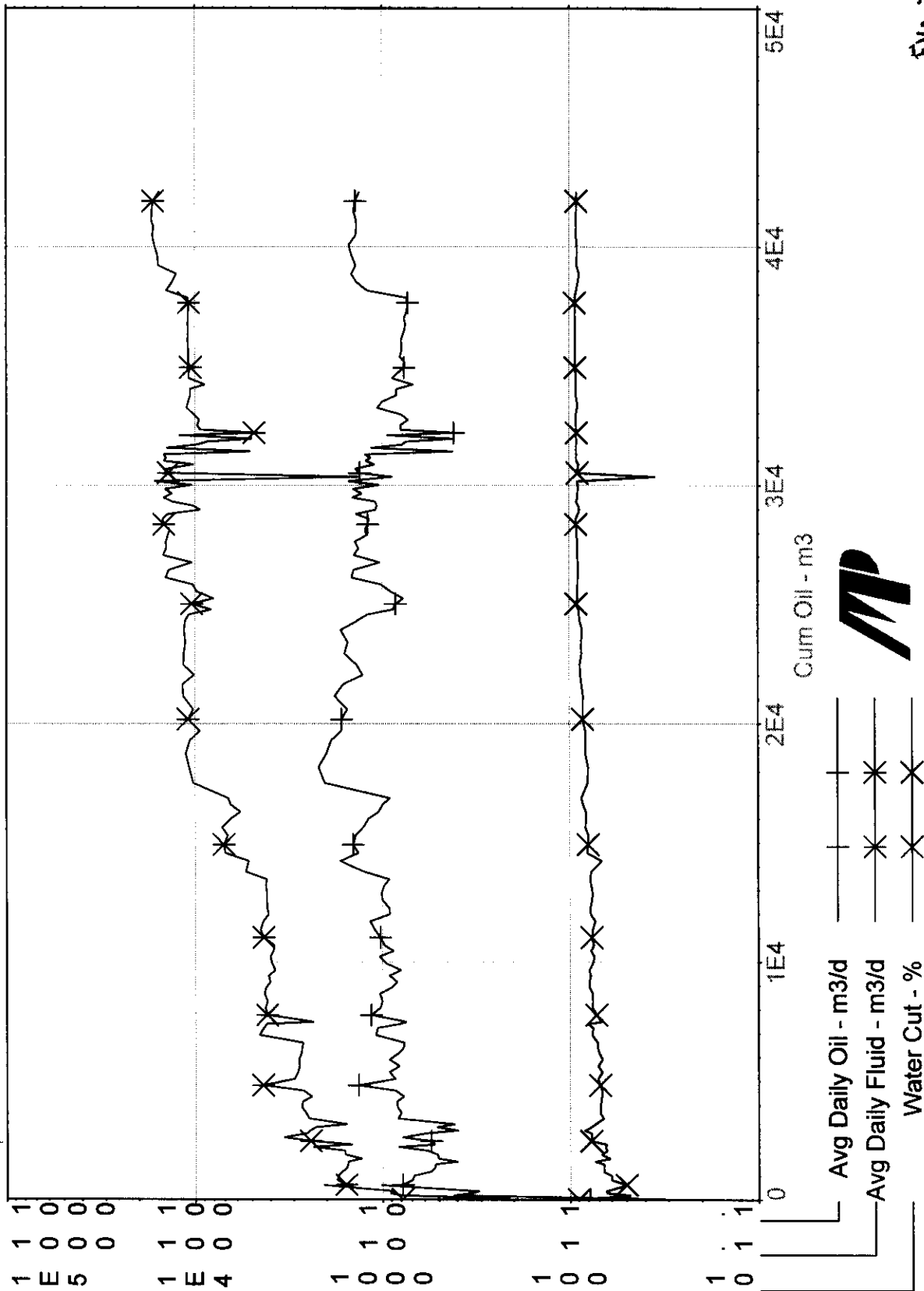
2025 Edition of the Code

Oil: 42293.6 m3

Gas: 0.006m3

Water: 282629 m3

Condi: 0 m3



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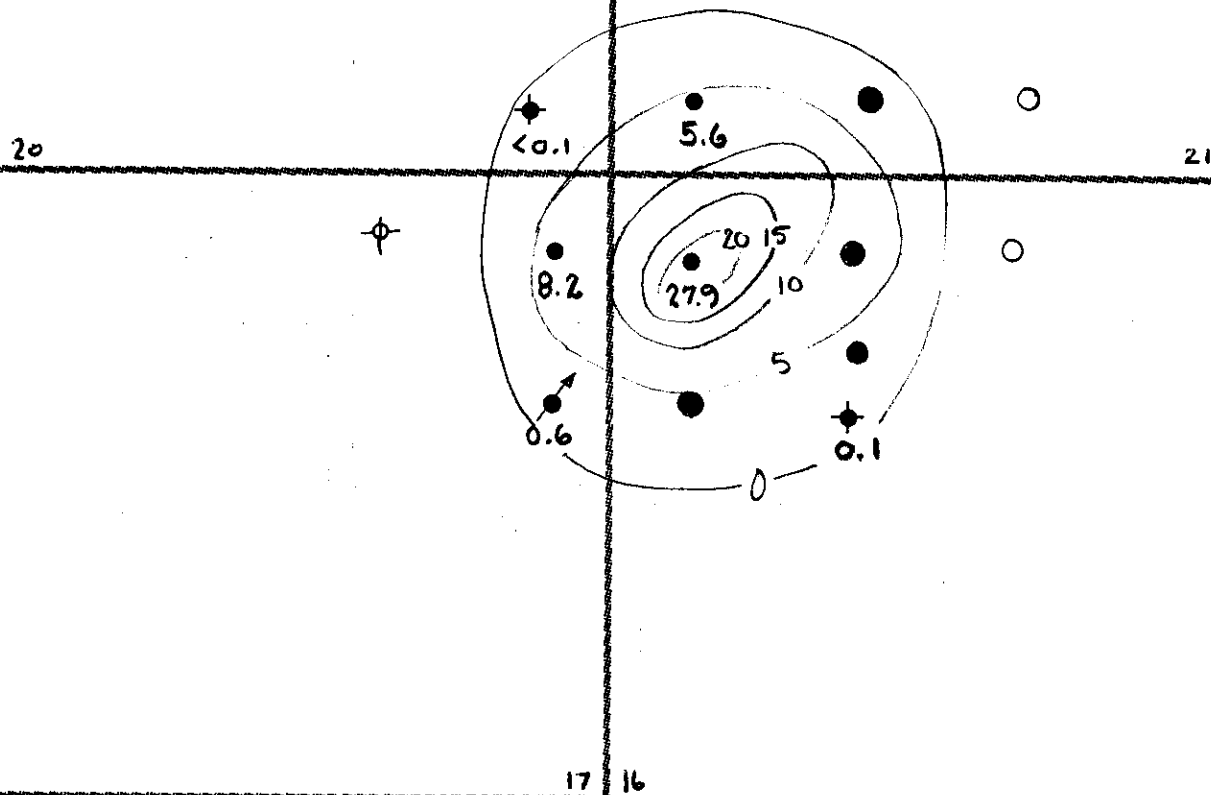


FIG. 6

CUMULATIVE
PRODUCTION
(10^3 m^3)

CI = 5000 m^3

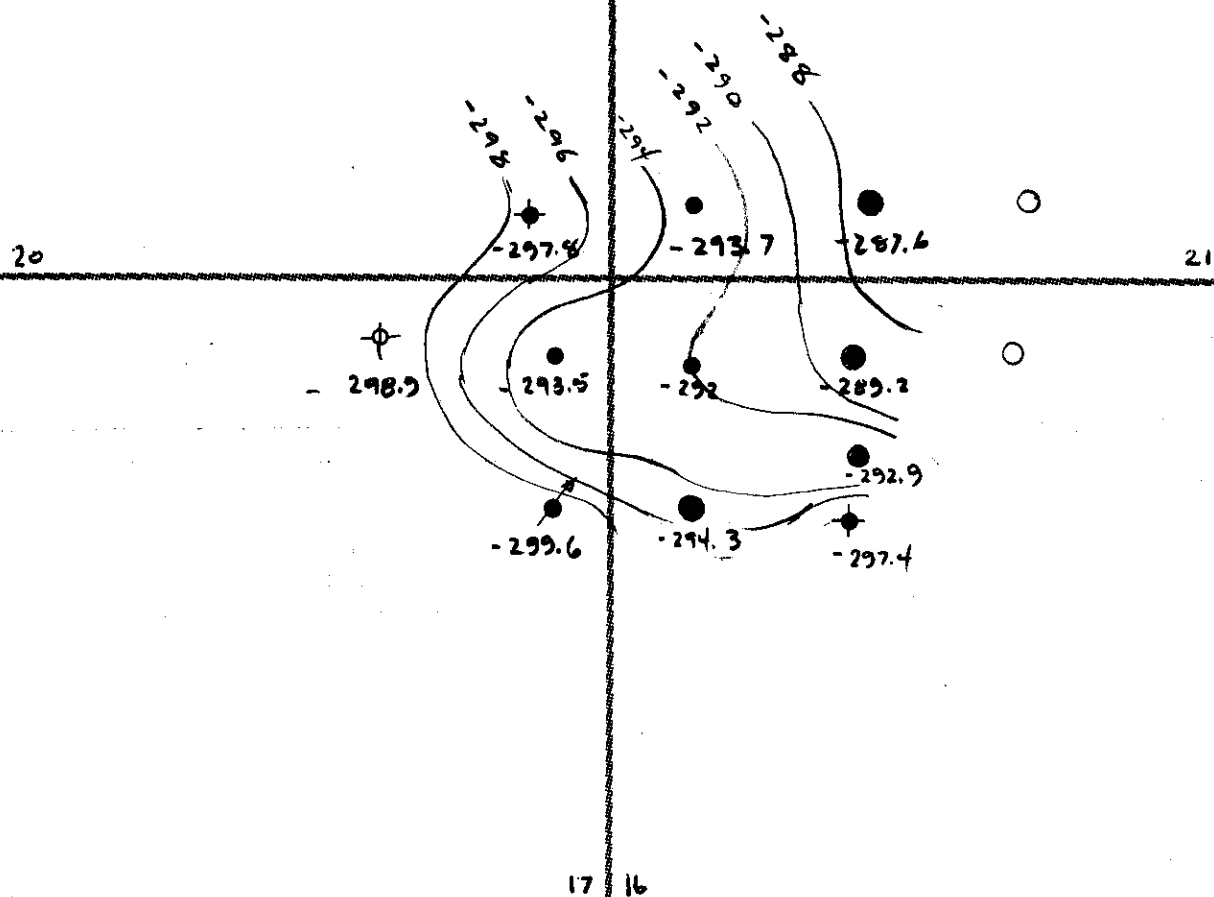


FIG. 7

STRUCTURE TOP
OF UWWL NBR.

CI = 2 m.

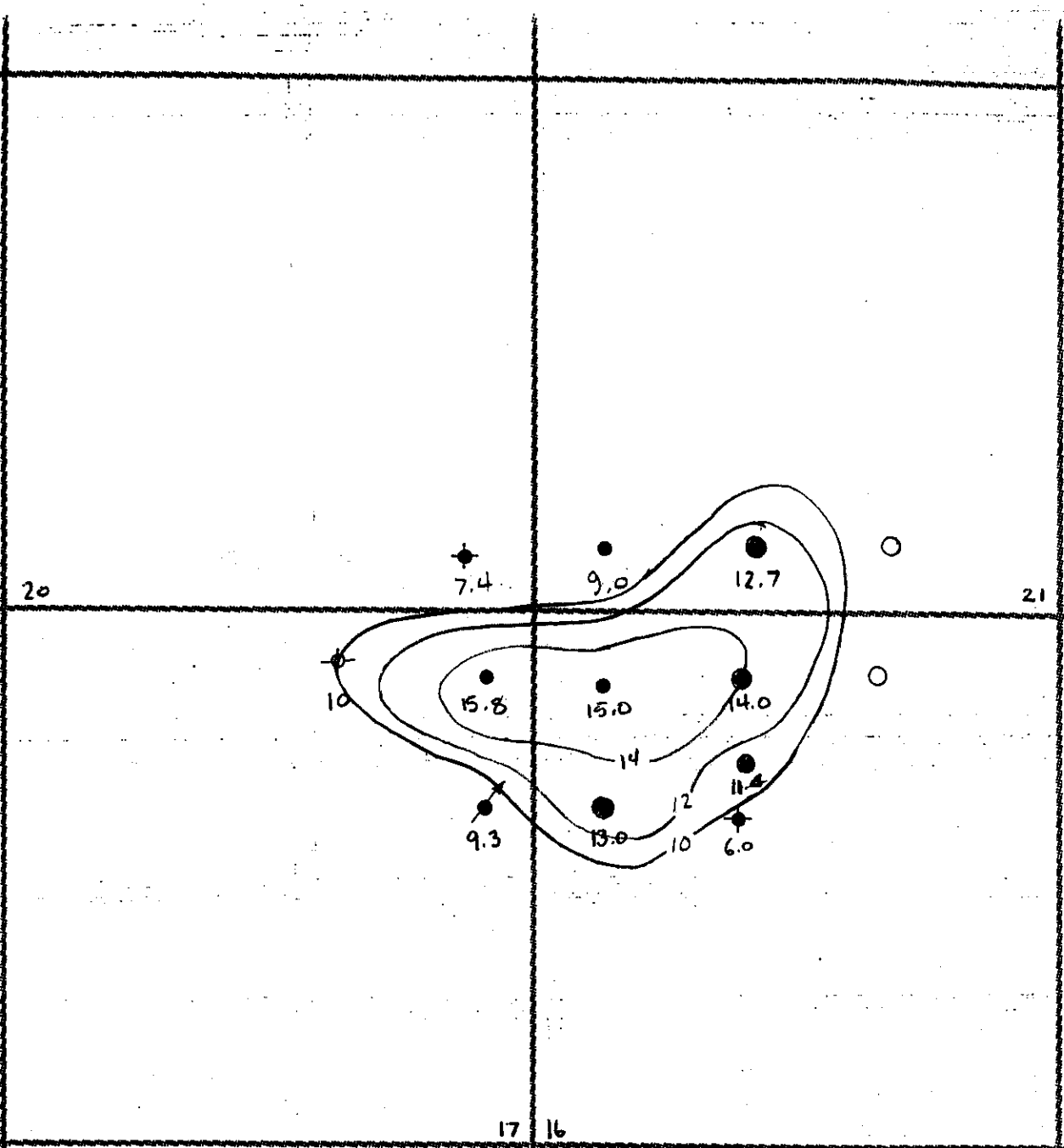


FIG. 8

UWWL NBR
Gross Pay (m)

CI = 2 m

Enyon Mountainside 16-17-02-21W1 (0016-17-002-21W1/0) Data 01/86-06/96

Operator: Field: 99 Zone: 52E Type: Unknown Group: Other Areas 52E
 Production Cums
 Oil: 8152.3 m3
 Gas: 0 E6m3
 Water: 107103 m3
 Cond: 0 m3

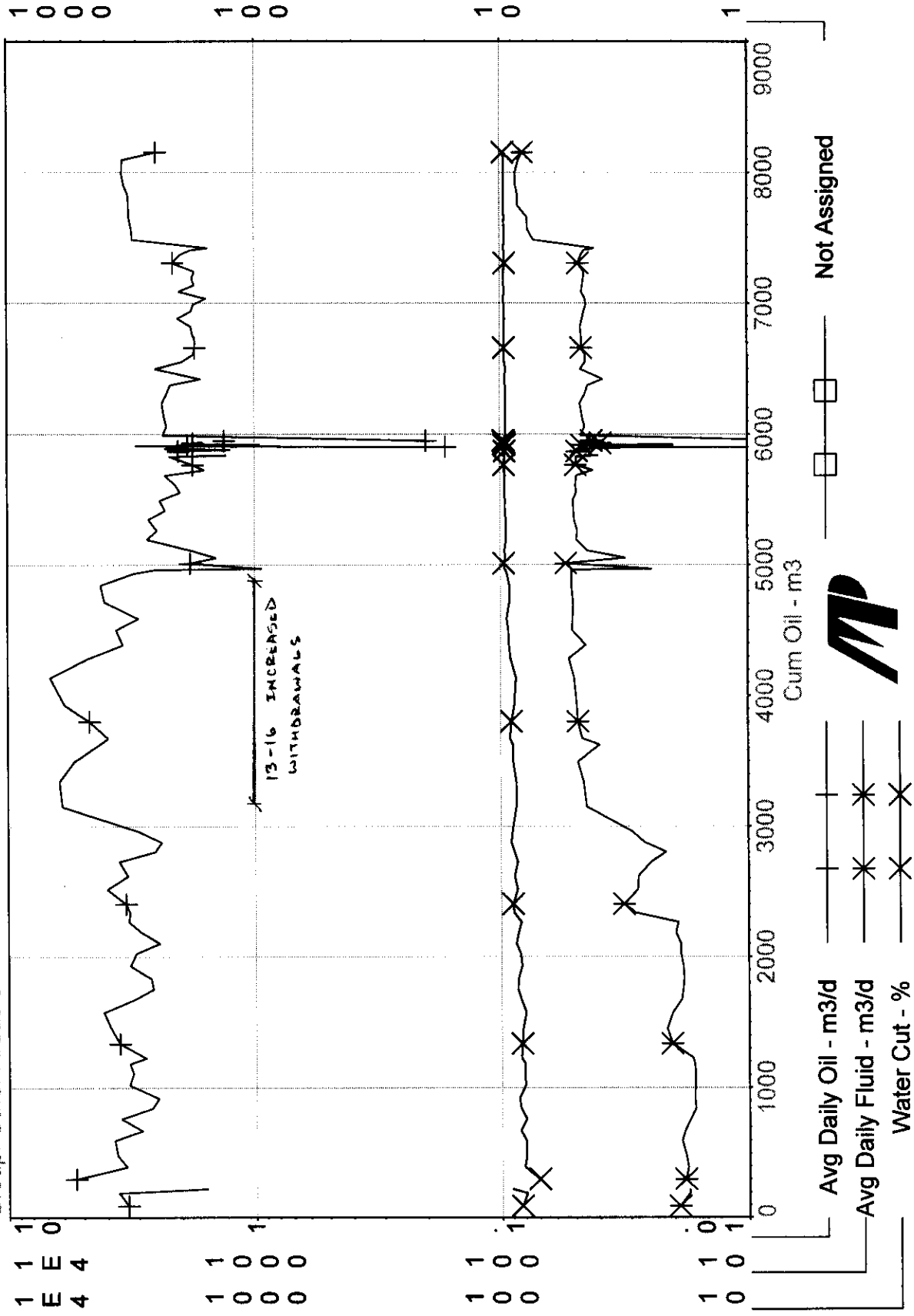


Fig. 9

From Nontariffs (5-7) (2-3) (4) (2004-2) (12-2) (10) 2003-03-03 (856

Lowes

99
70
10

Zone: 52E

Type: Unknown

Group: Other Areas 52E

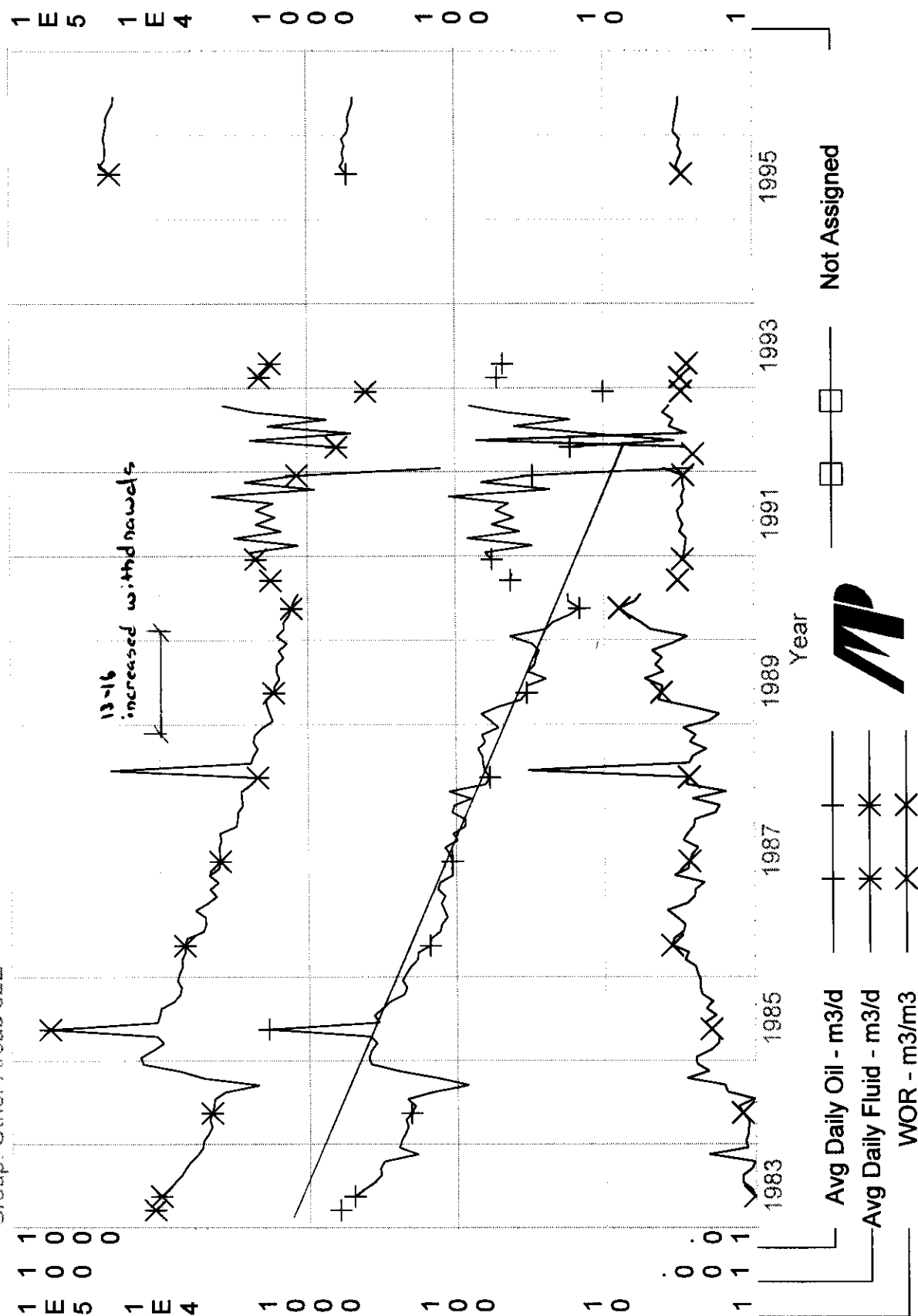
SECRET

Oil: 5726.6 m3

Gas: 0.6m3

Water: 14104.3 m3

Cond: 0 m3



MAXIMUM PRODUCTION RATE 14-16-2-21

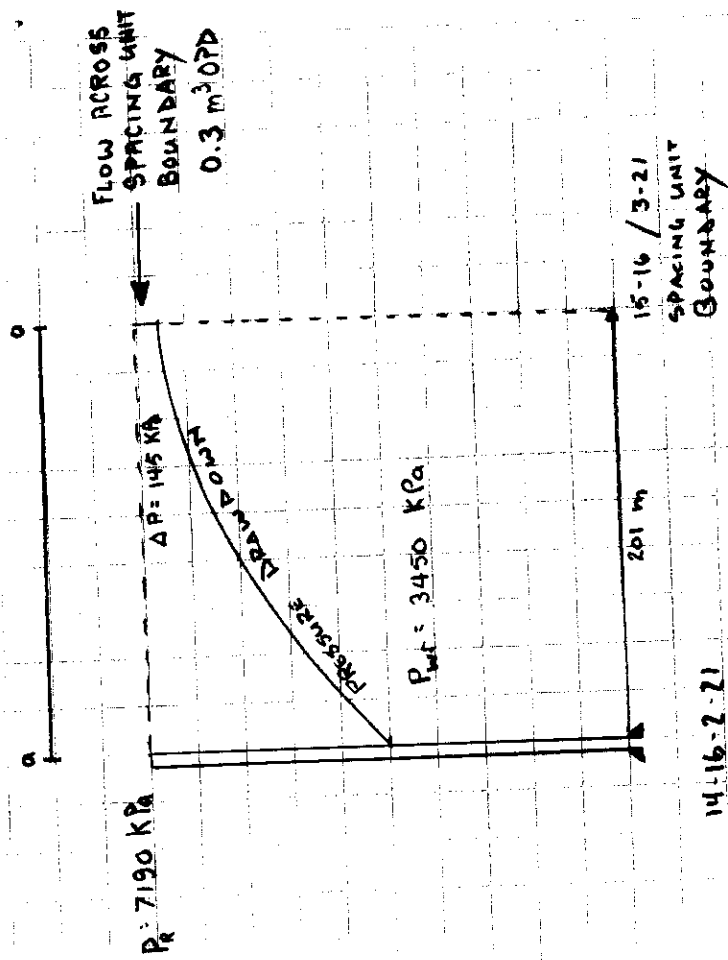
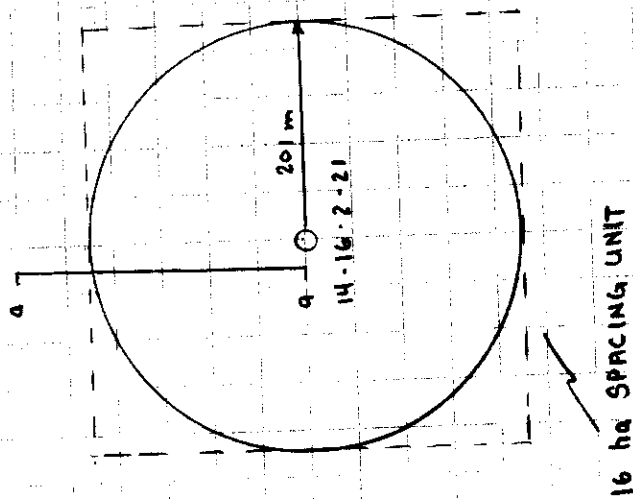


Fig. 11



Date November 25, 1996

Memorandum

To Bob Dubreuil
Director
Petroleum & Energy Branch

From John Fox
Chief Petroleum Engineer
Petroleum & Energy Branch

Telephone

Subject **Application for Increase in MPR - Enron Mountainside 14-16-2-21(WPM)**

Enron Oil Canada has applied to increase the MPR on the 14-16-2-21 well in the Other Areas Lodgepole WL E Pool from 300 m³/mon to 900 m³/mon.

Recommendation

It is recommended that notice of the application be send directly to the offsetting mineral owners in the N/2 of Section 16, NE/4 of Section 17, SE/4 of Section 20 and S/2 of Section 21. Enron should be given permission to continue to produce the well at current rates (600 m³/mon) until the application has been disposed of, on the condition that any over-production will have to be retired.

Discussion

Enron has recently drilled 4 development wells in the Other Areas Lodgepole WL E Pool and has licensed 2 other locations (see fig. 1). The 14-16 well encountered 11.5 m of pay near the top of the structure. The well went on production on July 30, 1996 and has been produced at 20 m³ OPD at a 10-20% water-cut over the months of August through October with minimal drawdown (see fig. 2). Cumulative production to October 31, 1996 is 1817.7 m³. In accordance with Subsection 62(3) of the regulations the well can produce a total of 2500 m³ during the first 6 months. At current production rates 14-16 will be over-produced sometime in early December.

The technical review of the application is underway. It is recommended that notice of the application be sent to offsetting royalty owners (Enron is the sole working interest owner). In order to avoid shutting in the well unnecessarily, it is also recommended that Enron be given approval to produce 600 m³ from the 14-16 well during November and December. The company would be advised that if the application is not approved any over-production would have to be retired in accordance with Subsections 62(4) & (5) of the regulations.

John Fox

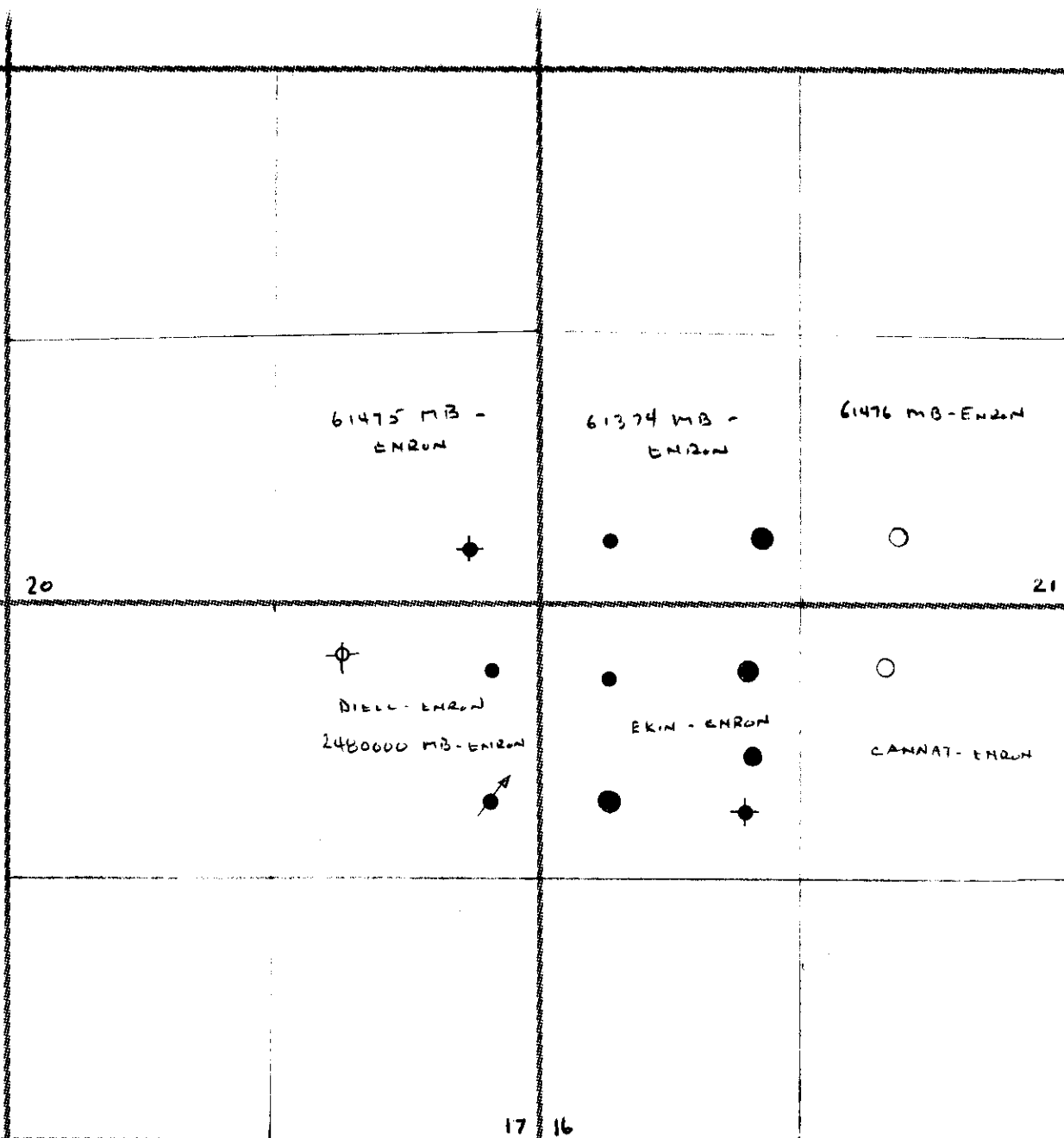


FIGURE 1

ROYALTY & WORKING

INTEREST OWNERS

ENRON MOUNTAINSIDE 14-16-2-21 WPM

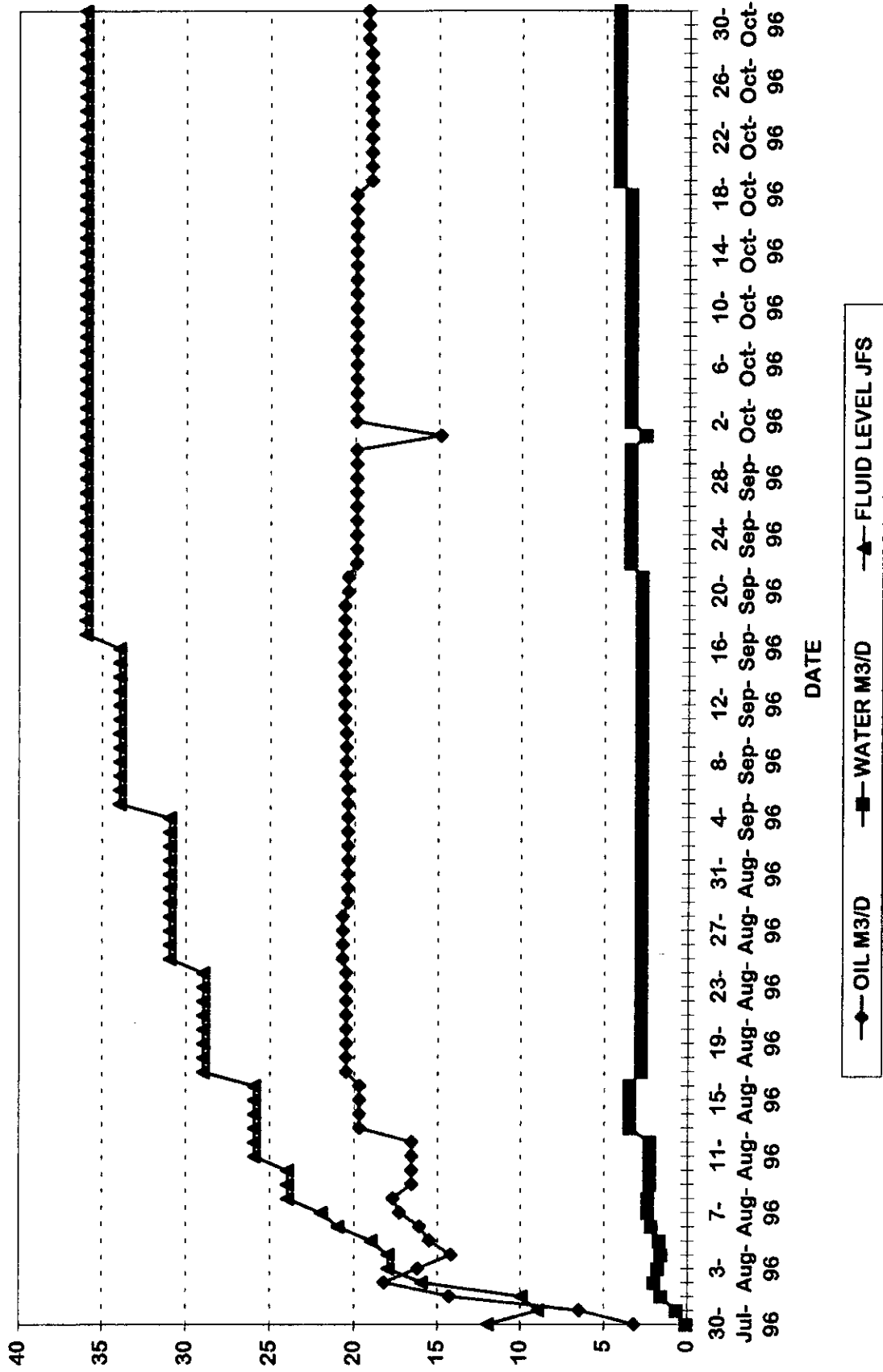


Figure 2



November 25, 1996

Mr. Robert V. Coles
Project Reservoir Engineer
Enron Oil Canada Ltd.
1300, 700-9th Avenue SW
Calgary AB T2P 3V4

Dear Mr. Coles:

**Re: Application for Increase in MPR
Enron Mountainside 14-16-2-21 (WPM)**

The Branch is in receipt of your application for an increase in MPR for the subject well. Attached is a copy of the notice of the application sent to offsetting royalty owners. The deadline for objections to or interventions in the application is December 16, 1996.

In order to avoid restricting production while the application is under review, temporary approval to produce the well at an MPR of 600 m³/mon is granted until December 31, 1996. If the application is not approved any over-production will have to be retired in accordance with Subsections 62(4) & (5).

The Branch has commenced its technical review of the application and if any additional information is required to complete the review, Enron will be advised in writing. If you have any questions regarding this matter please contact John N. Fox, Chief Petroleum Engineer at (204) 945-6574.

Yours truly,



L.R. Dubreuil
Director of Petroleum and Energy



November 25, 1996

Notice under The Oil and Gas Act

**Re: Application for Increase in Maximum Production Rate
Enron Mountainside 14-16-2-21 (WPM)**

Enron Oil Canada Ltd. has made application under The Oil and Gas Act to increase the maximum production rate for the well, Enron Mountainside 14-16-2-21 (WPM), from 300 to 900 cubic metres of oil per month.

If you have any questions or require any further information regarding the application, you may contact the Petroleum and Energy Branch or the company at:

Robert V. Coles
Project Reservoir Engineer
Enron Oil Canada Ltd.
1300, 700-9th Avenue SW
Calgary AB T2P 3V4
Phone: (403) 297-9133

If no valid objections or interventions are received by the Director of Petroleum in writing by December 16, 1996, the application may be approved. You may contact the Petroleum and Energy Branch at:

Petroleum and Energy Branch
1395 Ellice Avenue, Suite 360
Winnipeg MB R3G 3P2
Phone: (204) 945-6574
Fax: (204) 945-0586
e-mail: jfox@em.gov.mb.ca



L. R. Dubreuil
Director of Petroleum

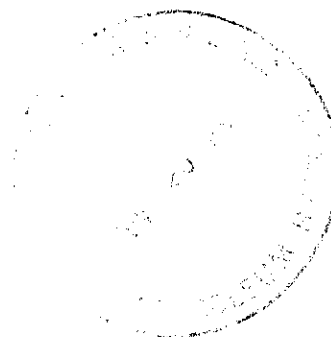
✓ Rec'd 11/1

ENRON Oil Canada Ltd.

Tel: (403) 297-9100

18 November 1996

Manitoba Energy and Mines
Petroleum Branch
Attention: Mr. L.R. Dubreuil
1395 Ellice Avenue, Suite 360
Winnipeg, Manitoba
R3G 3P2



Dear Mr. Dubreuil:

**Subject: Application for Increase in Maximum Production Rate
 Enron Mountainside 14-16-2-21 W1M**

Enron Oil Canada Ltd. hereby applies for an increase in the Maximum Production Rate (MPR) applicable to the subject well pursuant to Section 64 of the Petroleum Drilling and Production Regulation. We request that the MPR for this well be set at 900 m³ per month effective December 1, 1996.

Enron Mountainside 14-16-2-21 W1M was drilled in July 1996 to develop the Lodgepole WL E Pool in the Mountainside field. Enron is 100% working interest owner in all of the wells in this pool. The following table lists the location, status, and production rate for each well in this pool.

Well Location	Status	Current Production	
		m ³ /d oil	Water Cut, %
11-16-2-21 W1M	Abandoned	—	—
13-16-2-21 W1M	Producing	4.3	93
14-16-2-21 W1M	Producing	19.2	18
9-17-2-21 W1M	Water Disposal	—	—
15-17-2-21 W1M	Abandoned	—	—
16-17-2-21 W1M	Producing	2.0	98
1-20-2-21 W1M	Abandoned	—	—
4-21-2-21 W1M	Producing	3.5	80

Enron is the mineral lessee (100% WI) in all of the Lodgepole WL E Pool. Mineral lessors in the pool are listed in the attached Table No. 1.

BACKGROUND:

The Lodgepole WL E Pool was discovered in 1982 and has produced primarily from three wells (13-16, 16-17 and 4-21) prior to the drilling of the 14-16 well. Attached are graphs showing the production history of the four wells currently on production. Data for the 14-16 well is shown on a daily basis from start-up until October 31, 1996. Cumulative pool production to July 31, 1996 is 42.6 10³m³ oil and 284.9 10³m³ water.

Manitoba Energy and Mines
Application to Increase MPR
18 November 1996
Page 2

Table No. 2 (attached) shows reservoir properties and the reserve estimate for the Lodgepole WL E Pool. As indicated on the attached maps, seven additional development drilling locations have been identified at 3-21, 102/11-16, 12-16, 10-16, 15-16, 2-21 and 5-21-2-21 W1M. The first three of these locations have been drilled in October-November 1996 and have encountered structure and oil pay as predicted by our mapping. Completions are underway on these three wells.

GEOLOGICAL DISCUSSION:

Subcropping Lodgepole cycles on the northeast flank of the Williston Basin and the resultant trapping of hydrocarbons at structural noses on the Mississippian unconformity surface has led to the development of a series of productive pools along this Mississippian trend in Manitoba. The Mountainside Lodgepole WL E Pool (Upper Whitewater Lake Member) behaves as a 'typical' Mississippian subcropping Lodgepole reservoir where the excellent reservoir quality facies (peloidal-bioclastic grainstones) are connected to an active downdip aquifer system resulting in high water cuts in the producing wells.

The prolific oil production at the 14-16 wells reflects the combination of encountering the best reservoir quality (11.5 metres of 13% porosity, with maximum porosity of 18%) at the structurally highest position within the pool. This reservoir quality is well above the pool average of 11% permitting optimum inflow of oil into the wellbore.

Enclosed is a net pay map (Figure 1) showing distribution of reservoir development and a structure map (Figure 2) on the base of the perforated Whitewater zone. This structure map essentially mimics the structure at top of Whitewater porosity and additionally enables us to see how structural elevation of perms relates from well to well. The base of the perforated zone at 14-16 is 2.5 m higher than the base of perms in any other location. Figure 3 attached is a copy of the 14-16 well log.

It is this essential combination of structural position and structurally high location of producing perms along with the excellent reservoir quality that enables the 14-16 wellbore to produce anomalously higher oil rates at low water cuts.

14-16-2-21 PRODUCING CHARACTERISTICS:

The subject well was completed and stimulated with a selective acid squeeze on July 27, 1996. During subsequent swab testing operations, the well produced 2.6 m³ oil per hour (62 m³/d) with an unchanging fluid level of 480 m, equivalent to 50 joints from surface (JFS). Pumping production commenced July 30. As shown on the daily production plot attached, the well has been produced at approximately 20 m³/d oil with water cuts of 10-20%. The fluid level

**ENRON
Oil Canada Ltd.**

**Manitoba Energy and Mines
Application to Increase MPR
18 November 1996
Page 3**

in the casing, measured in JFS with acoustic fluid shots, has stabilized for the past two months at 36 JFS. Casing pressure is 100 kPag. The estimated bottom hole producing pressure based on this fluid level is 4800 kPag.

In March 1996 a pressure build-up survey using surface pressure measurements and acoustic fluid shots was carried out on the three existing WL E Pool producers. Data was collected over a shut-in period of six days, and extrapolated reservoir pressure at the three wells ranged from 7138 to 7291 kPag, with the average being 7190 kPag. This represents a 7% decline from the assumed initial reservoir pressure of 7755 kPag (based on 13-16-2-21 DST #1, July 6, 1982). This small amount of pressure depletion over the life of the pool to date indicates that this reservoir is subject to a strong active water drive, and this bodes well for oil recovery from updip located producers such as 14-16.

CONCLUSION:

In summary, the 14-16 well exhibits prolific oil inflow capability with low pressure drawdown due to its excellent reservoir quality and structurally high position. Because of this, we believe that producing this well at rates of up to 30 m³/d oil will take advantage of its demonstrated capability without detriment to ultimate oil recovery from the Lodgepole WL E Pool.

All other wells are producing at their practical capacity, and as such, an MPR increase at 14-16 will have no impact on the correlative rights of other mineral owners in the pool.

Should you have any questions or require further information regarding this application, please contact the undersigned at (403) 297-9133.

Yours very truly,

ENRON OIL CANADA LTD.



**R.V. Coles,
Project Reservoir Engineer**

RVC:pd
attach

Table 1

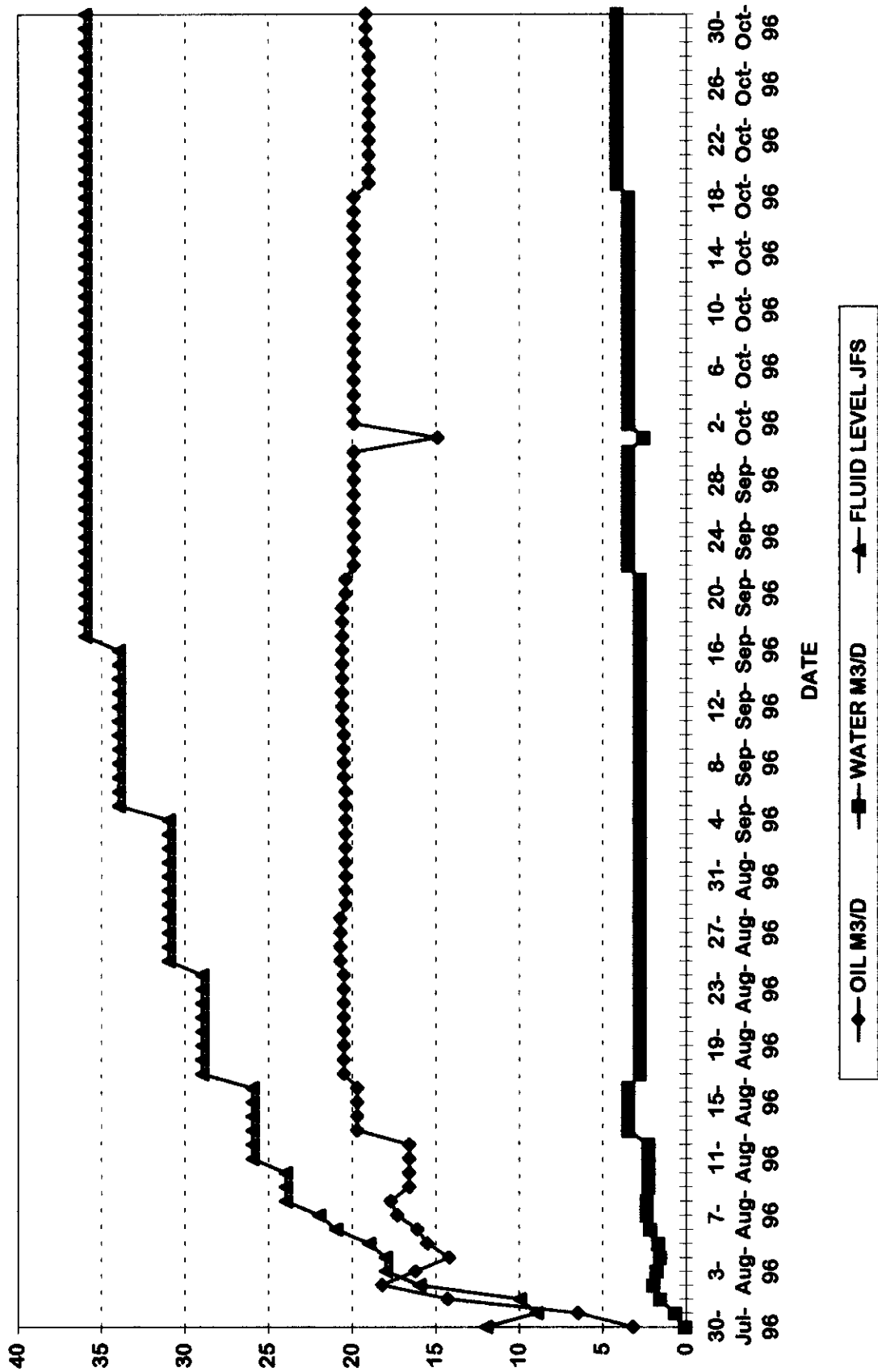
Mountainside Mineral Lessors

NE16-2-21W1M	Eric Lyle Ekin Box 44 Boissevain, MB R0K 0E0	- 100% Int.
NW16-2-21W1M	Cannat Resources Inc. #2000, 425 - 1 Street S.W. Calgary, AB T2P 3L8	- 100% Int.
NE17-2-21W1M	Ruby Eleanor Diell Box 549 Taylor, B.C. V0C 2K0	- 1/2 Int.
	2480000 Manitoba Ltd. c/o Jerry Steven Martens 120 - 15 Street Winkler, MB R6W 1T7	- 1/2 Int.
SW21-2-21W1M	61374 Manitoba Limited Box 608 Boissevain, MB R0K 0E0	- 100% Int.
SE21-2-21W1M	61476 Manitoba Ltd. Box 1000 Boissevain, MB R0K 0E0	- 100% Int.
N20-2-21W1M	Charles Wilson Ransom P.O. Box 1000 Boissevain, MB T0K 0E0	- 100% Int.
S20-2-21W1M	61475 Manitoba Limited R.R. 1 Deloraine, MB R0M 0M0	- 100% Int.

TABLE 2
RESERVOIR PARAMETERS
MOUNTAINSIDE LODGEPOLE WL E POOL

Area:	180 hectares
Net Pay:	6.7 m
Porosity:	11%
Water Saturation:	56%
Shrinkage:	0.94
Initial Reservoir Pressure:	7755 kPag
Original Oil-in-place:	548.7 10 ³ m ³
Cumulative Production to July 31, 1996:	42.6 10 ³ m ³
Recovery Factor to July 31, 1996:	8%
Remaining Recoverable Reserves:	94.6 10 ³ m ³
Ultimate Recovery Factor:	25%

ENRON MOUNTAINSIDE 14-16-2-21 WPM



00/13-16-002-21W1/0 (Enron Mountainside R/E13-16-02-21W1) Data 07/82-07/96

Operator:

Field: 99

Zone: 52E

Type: Unknown

Group: ENRON Mountainside

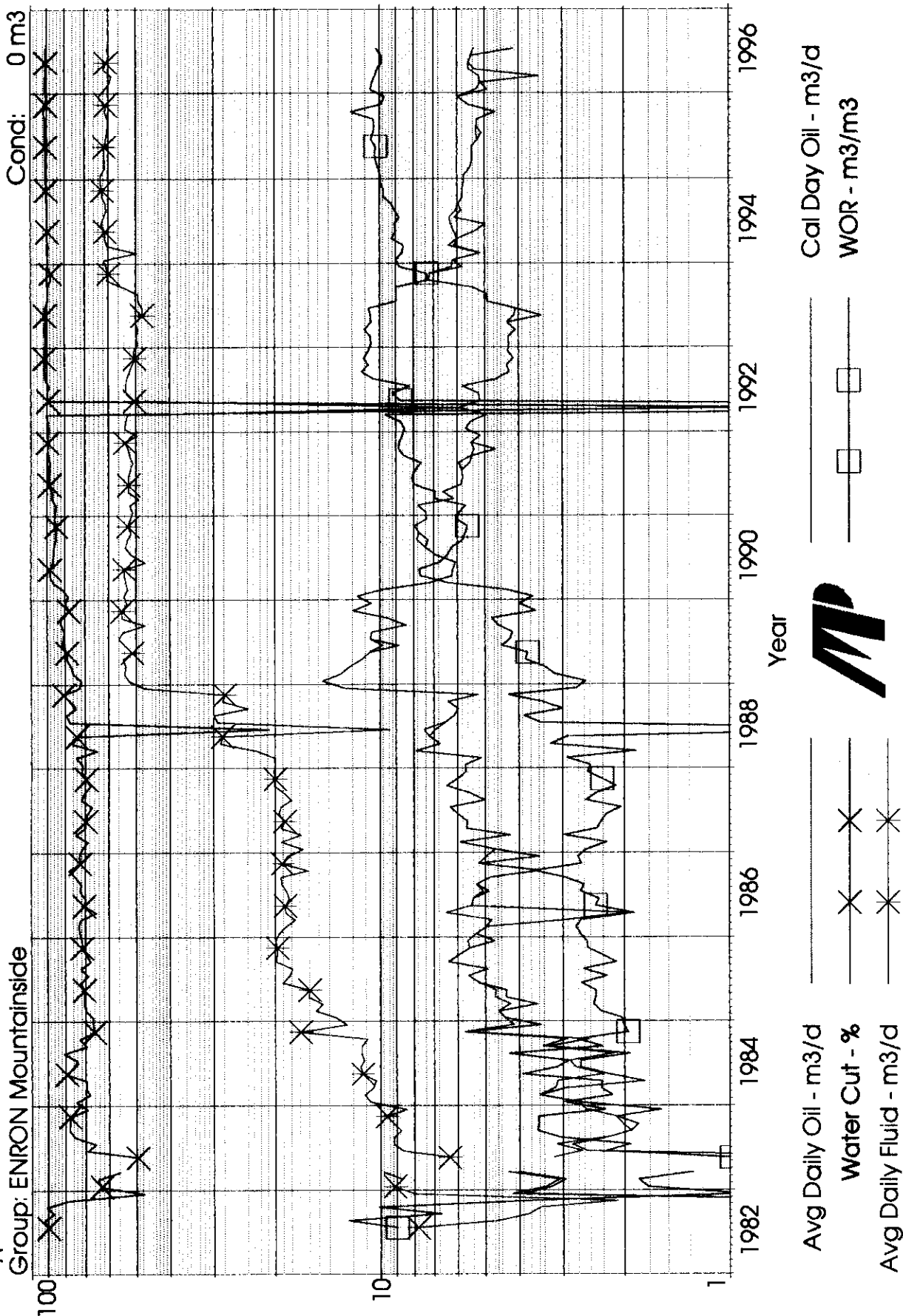
Production Cums

Oil: 27855.9 m3

Gas: 0 E6m3

Water: 157434 m3

Cond: 0 m3



Avg Daily Oil - m3/d

Water Cut - %

Avg Daily Fluid - m3/d

Cal Day Oil - m3/d

WOR - m3/m3

00/16-17-002-21W1/0 (Enron Mountainside R/E16-17-02-21W1) Data 01/86-07/96

Operator:

Field: 99

Zone: 52E

Type: Unknown

Group: ENRON Mountainside

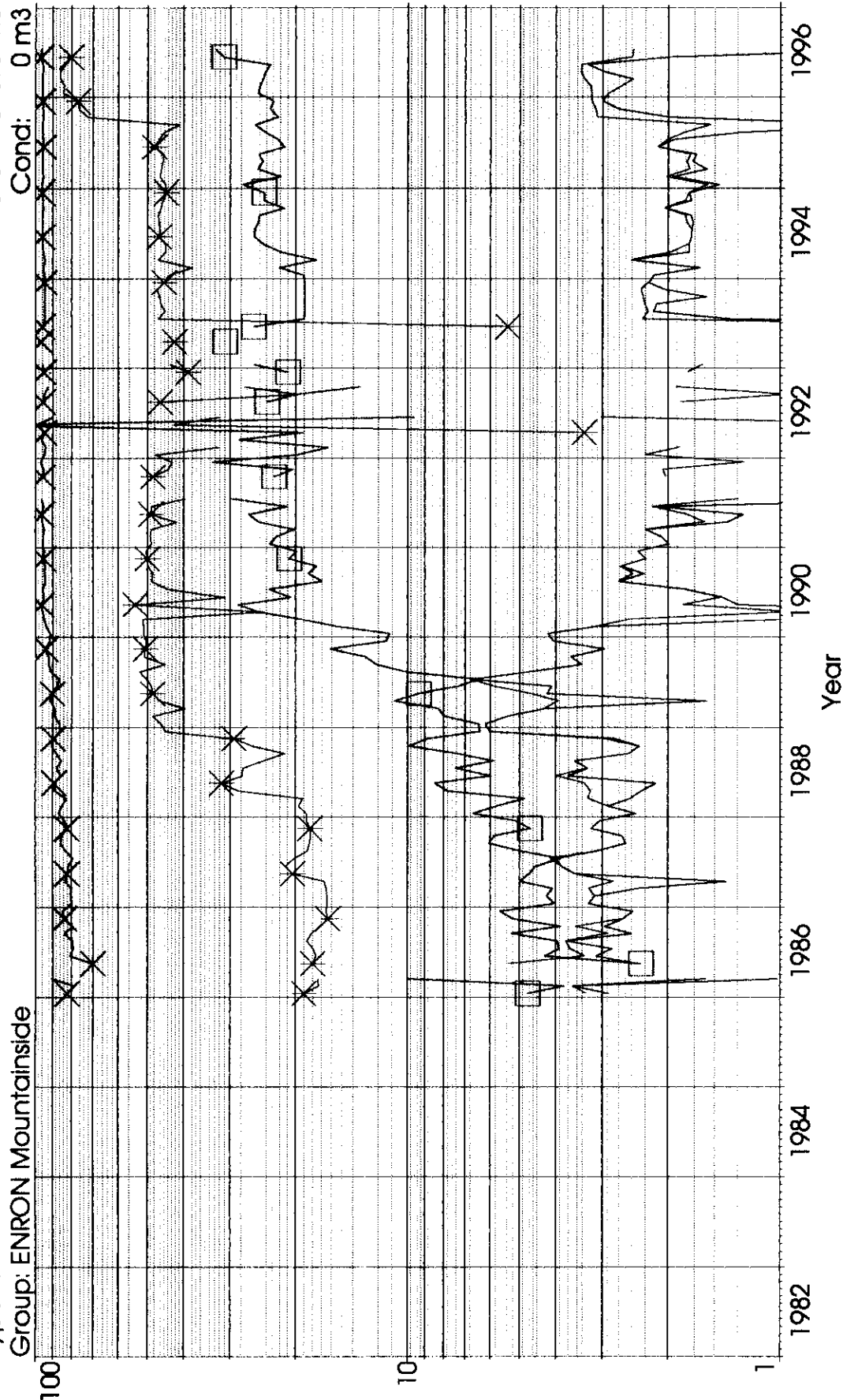
Production Cums

Oil: 8167.2 m3

Gas: 0 E6m3

Water: 107593 m3

Cond: 0 m3



Avg Daily Oil - m3/d

Water Cut - %

Avg Daily Fluid - m3/d

Cal Day Oil - m3/d

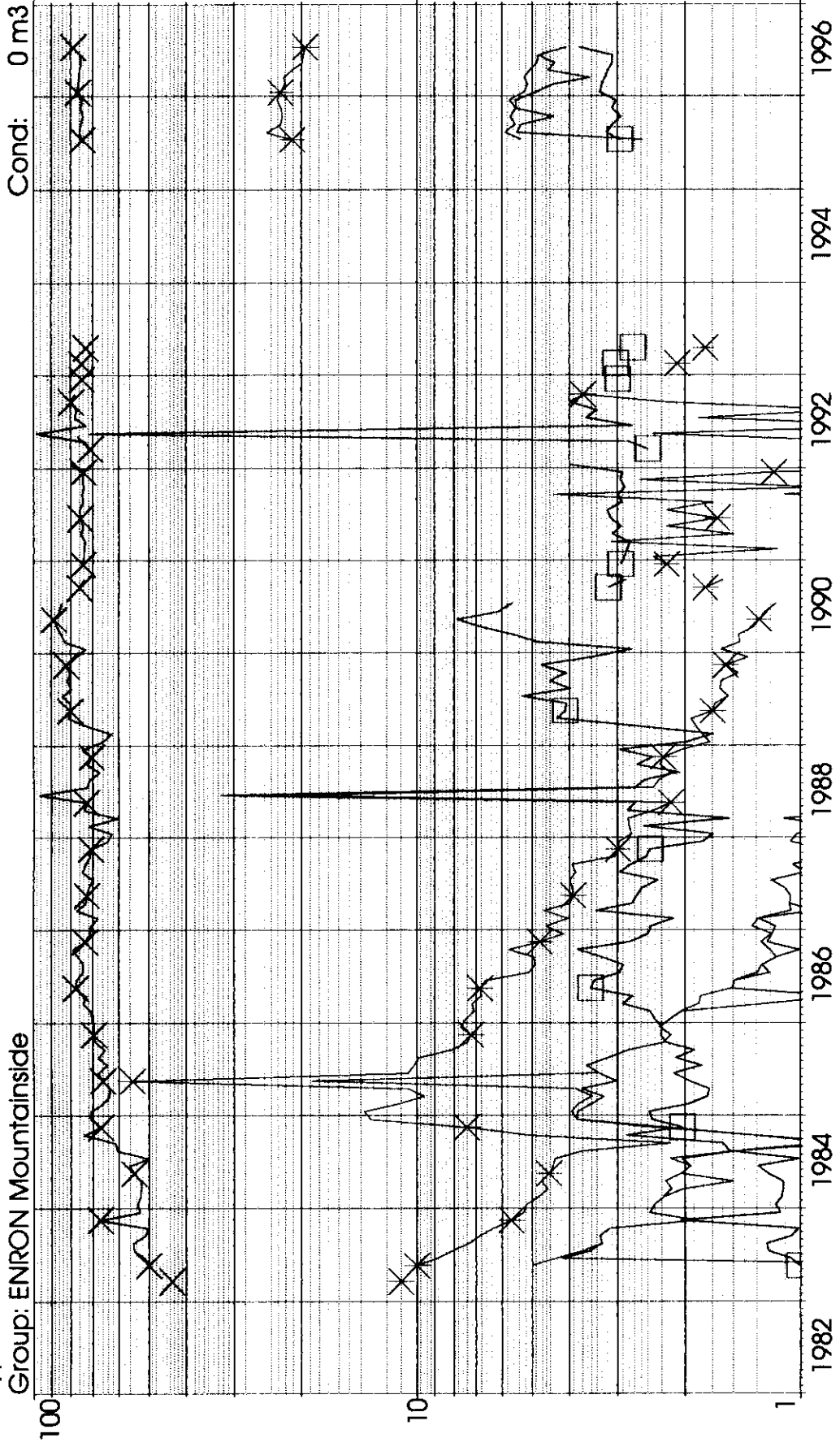
WOR - m3/m3



00/04-21-002-21W1/0 (Enron Mountainside R//E04-21-02-21W1) Data 03/83-07/96

Operator:
Field: 99
Zone: 52E
Type: Unknown
Group: ENRON Mountainside

Production Cums
Oil: 5854 m3
Gas: 0 E6m3
Water: 14585 m3
Cond: 0 m3



Avg Daily Oil - m3/d
Water Cut - %
Avg Daily Fluid - m3/d

Cal Day Oil - m3/d
WOR - m3/m3



Figure 1

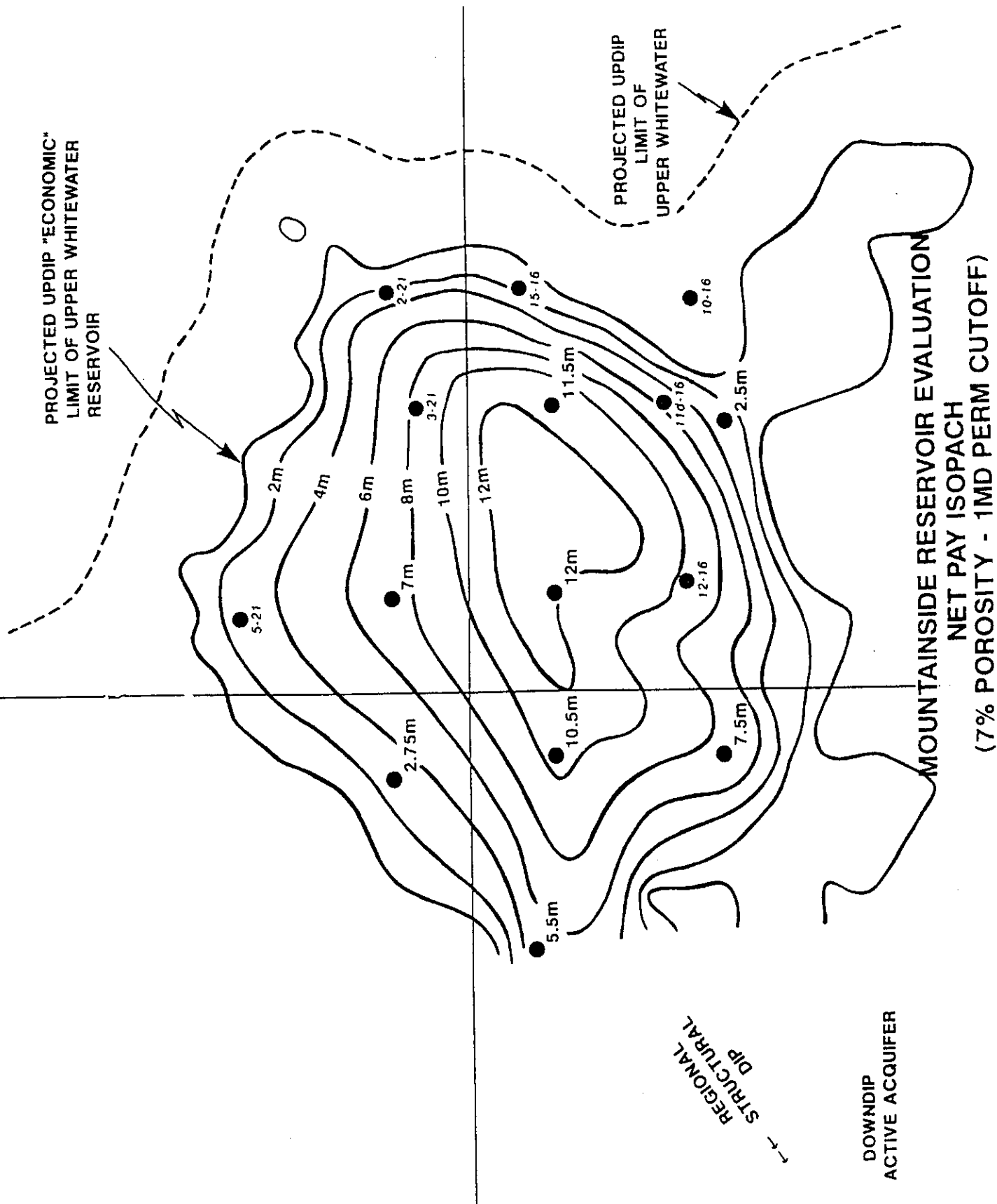
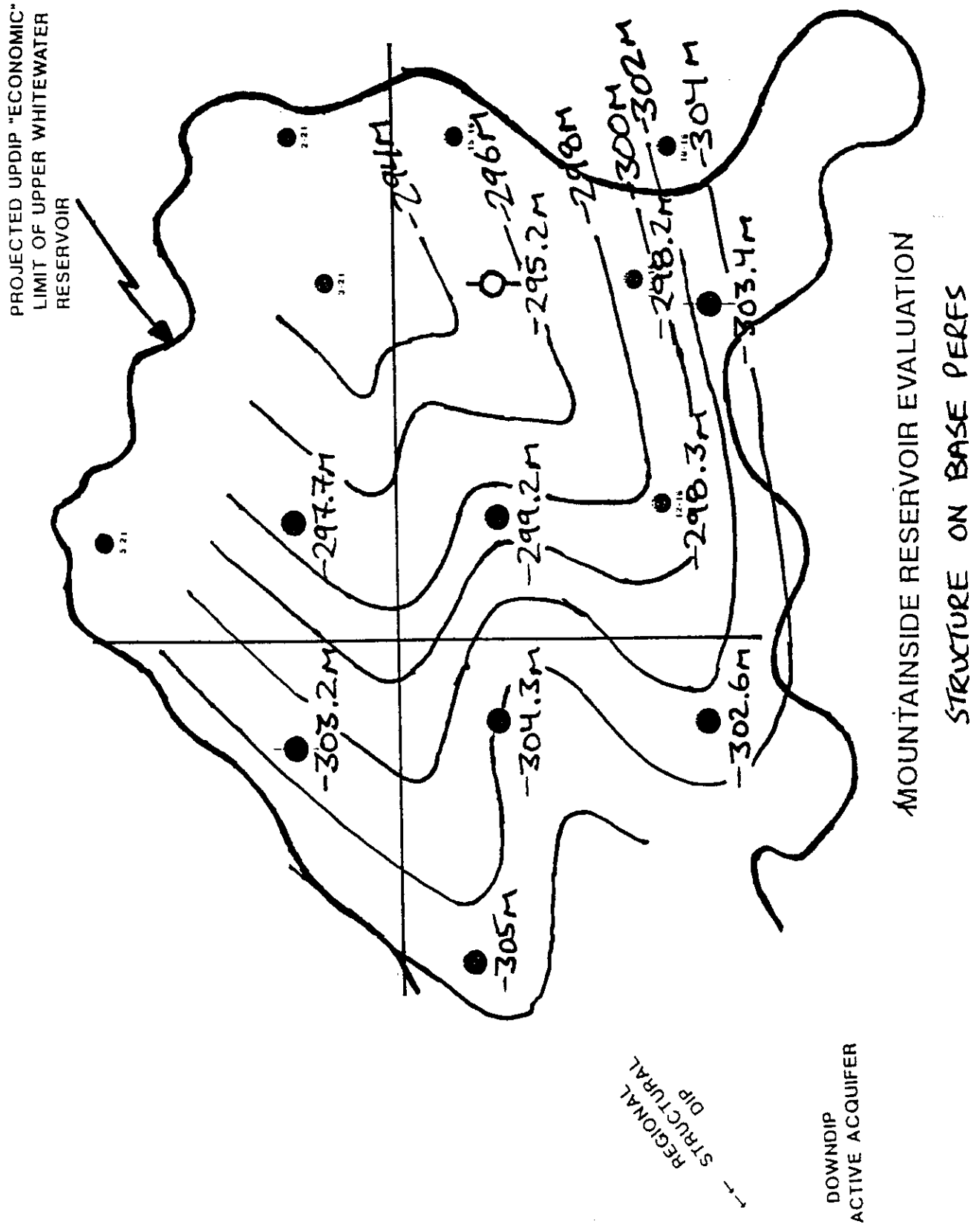
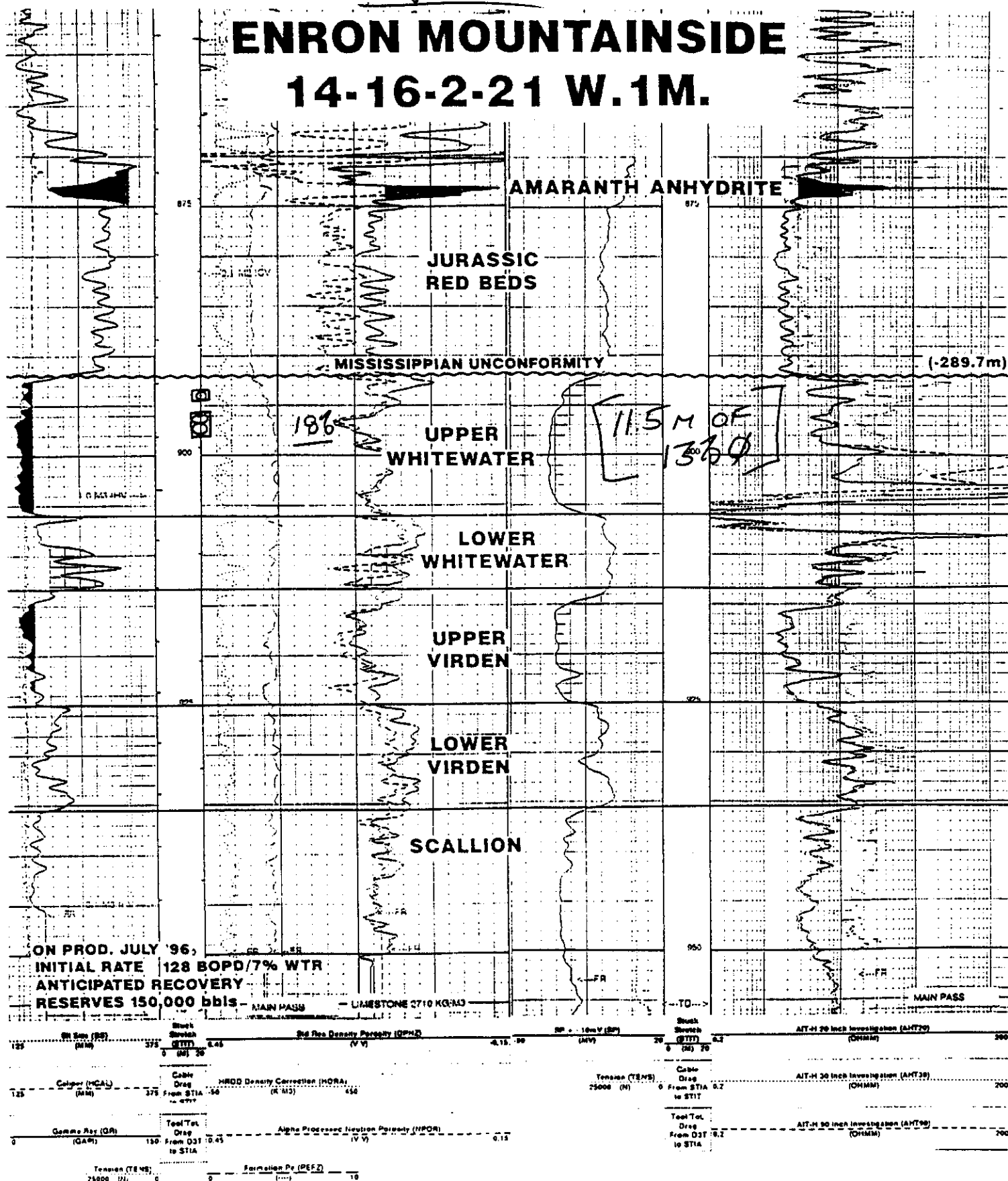


Figure 2

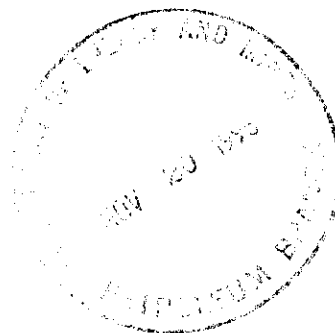


ENRON MOUNTAINSIDE
14-16-2-21 W.1M.



18 November 1996

Manitoba Energy and Mines
Petroleum Branch
Attention: Mr. L.R. Dubreuil
1395 Ellice Avenue, Suite 360
Winnipeg, Manitoba
R3G 3P2



Dear Mr. Dubreuil:

Subject: Application for Increase in Maximum Production Rate
Enron Mountainside 14-16-2-21 W1M

Enron Oil Canada Ltd. hereby applies for an increase in the Maximum Production Rate (MPR) applicable to the subject well pursuant to Section 64 of the Petroleum Drilling and Production Regulation. We request that the MPR for this well be set at 900 m³ per month effective December 1, 1996.

Enron Mountainside 14-16-2-21 W1M was drilled in July 1996 to develop the Lodgepole WL E Pool in the Mountainside field. Enron is 100% working interest owner in all of the wells in this pool. The following table lists the location, status, and production rate for each well in this pool.

Well Location	Status	Current Production	
		m ³ /d oil	Water Cut, %
11-16-2-21 W1M	Abandoned	—	—
13-16-2-21 W1M	Producing	4.3	93
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16-17-2-21 W1M	Producing	2.0	98
1-20-2-21 W1M	Abandoned	—	—
4-21-2-21 W1M	Producing	3.5	80

Enron is the mineral lessee (100% WI) in all of the Lodgepole WL E Pool. Mineral lessors in the pool are listed in the attached Table No. 1.

BACKGROUND:

The Lodgepole WL E Pool was discovered in 1982 and has produced primarily from three wells (13-16, 16-17 and 4-21) prior to the drilling of the 14-16 well. Attached are graphs showing the production history of the four wells currently on production. Data for the 14-16 well is shown on a daily basis from start-up until October 31, 1996. Cumulative pool production to July 31, 1996 is 42.6 10³m³ oil and 284.9 10³m³ water.

Manitoba Energy and Mines
Application to Increase MPR
18 November 1996
Page 2

Table No. 2 (attached) shows reservoir properties and the reserve estimate for the Lodgepole WL E Pool. As indicated on the attached maps, seven additional development drilling locations have been identified at 3-21, 102/11-16, 12-16, 10-16, 15-16, 2-21 and 5-21-2-21 W1M. The first three of these locations have been drilled in October-November 1996 and have encountered structure and oil pay as predicted by our mapping. Completions are underway on these three wells.

GEOLOGICAL DISCUSSION:

Subcropping Lodgepole cycles on the northeast flank of the Williston Basin and the resultant trapping of hydrocarbons at structural noses on the Mississippian unconformity surface has led to the development of a series of productive pools along this Mississippian trend in Manitoba. The Mountainside Lodgepole WL E Pool (Upper Whitewater Lake Member) behaves as a 'typical' Mississippian subcropping Lodgepole reservoir where the excellent reservoir quality facies (peloidal-bioclastic grainstones) are connected to an active downdip aquifer system resulting in high water cuts in the producing wells.

The prolific oil production at the 14-16 wells reflects the combination of encountering the best reservoir quality (11.5 metres of 13% porosity, with maximum porosity of 18%) at the structurally highest position within the pool. This reservoir quality is well above the pool average of 11% permitting optimum inflow of oil into the wellbore.

Enclosed is a net pay map (Figure 1) showing distribution of reservoir development and a structure map (Figure 2) on the base of the perforated Whitewater zone. This structure map essentially mimics the structure at top of Whitewater porosity and additionally enables us to see how structural elevation of perms relates from well to well. The base of the perforated zone at 14-16 is 2.5 m higher than the base of perms in any other location. Figure 3 attached is a copy of the 14-16 well log.

It is this essential combination of structural position and structurally high location of producing perms along with the excellent reservoir quality that enables the 14-16 wellbore to produce anomalously higher oil rates at low water cuts.

14-16-2-21 PRODUCING CHARACTERISTICS:

The subject well was completed and stimulated with a selective acid squeeze on July 27, 1996. During subsequent swab testing operations, the well produced 2.6 m³ oil per hour (62 m³/d) with an unchanging fluid level of 480 m, equivalent to 50 joints from surface (JFS). Pumping production commenced July 30. As shown on the daily production plot attached, the well has been produced at approximately 20 m³/d oil with water cuts of 10-20%. The fluid level

**ENRON
Oil Canada Ltd.**

**Manitoba Energy and Mines
Application to Increase MPR
18 November 1996
Page 3**

in the casing, measured in JFS with acoustic fluid shots, has stabilized for the past two months at 36 JFS. Casing pressure is 100 kPag. The estimated bottom hole producing pressure based on this fluid level is 4800 kPag.

In March 1996 a pressure build-up survey using surface pressure measurements and acoustic fluid shots was carried out on the three existing WL E Pool producers. Data was collected over a shut-in period of six days, and extrapolated reservoir pressure at the three wells ranged from 7138 to 7291 kPag, with the average being 7190 kPag. This represents a 7% decline from the assumed initial reservoir pressure of 7755 kPag (based on 13-16-2-21 DST #1, July 6, 1982). This small amount of pressure depletion over the life of the pool to date indicates that this reservoir is subject to a strong active water drive, and this bodes well for oil recovery from updip located producers such as 14-16.

CONCLUSION:

In summary, the 14-16 well exhibits prolific oil inflow capability with low pressure drawdown due to its excellent reservoir quality and structurally high position. Because of this, we believe that producing this well at rates of up to 30 m³/d oil will take advantage of its demonstrated capability without detriment to ultimate oil recovery from the Lodgepole WL E Pool.

All other wells are producing at their practical capacity, and as such, an MPR increase at 14-16 will have no impact on the correlative rights of other mineral owners in the pool.

Should you have any questions or require further information regarding this application, please contact the undersigned at (403) 297-9133.

Yours very truly,

ENRON OIL CANADA LTD.



R.V. Coles,
Project Reservoir Engineer

RVC:pd
attach

Table 1

Mountainside Mineral Lessors

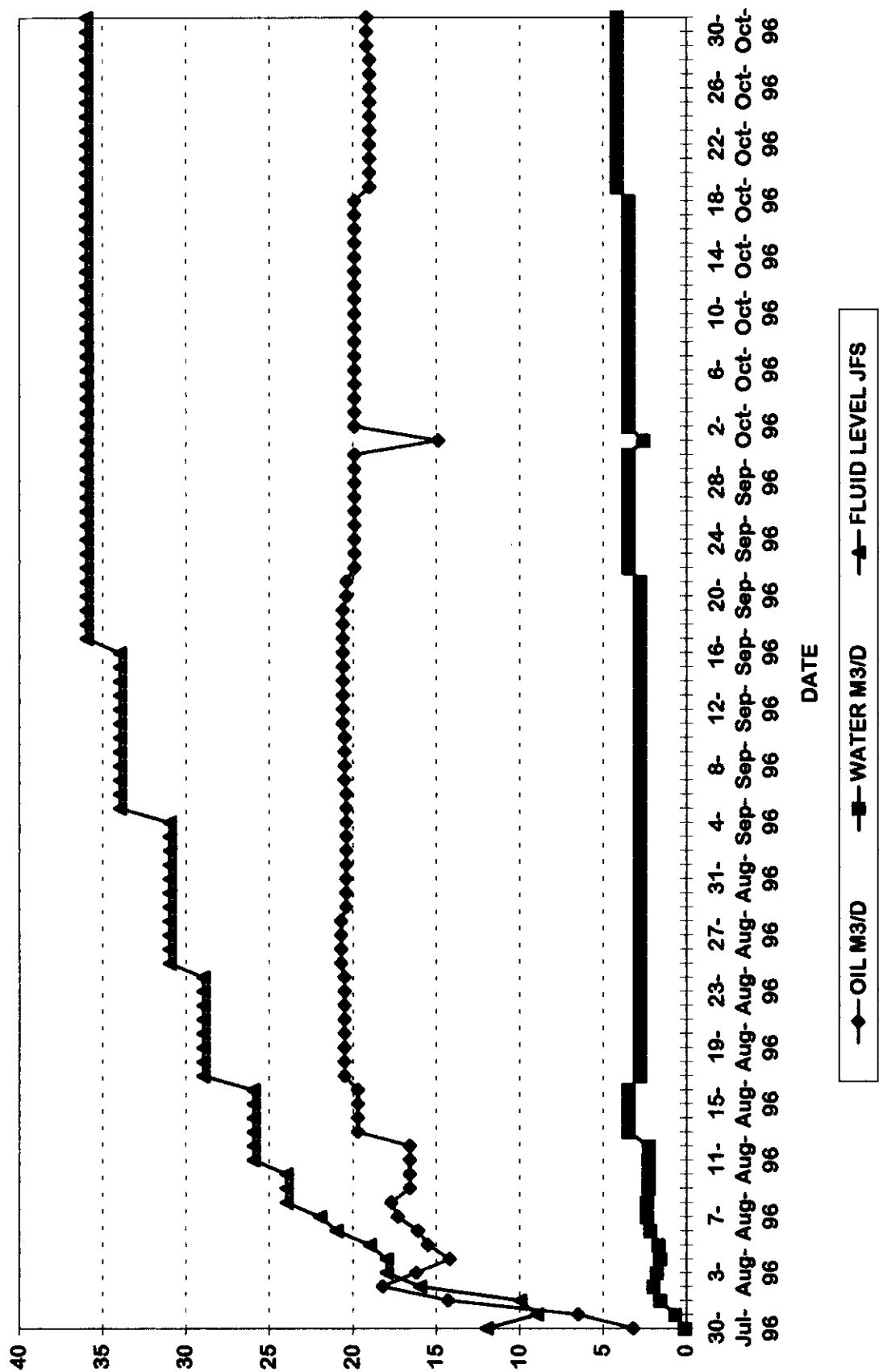
NE16-2-21W1M	Eric Lyle Ekin Box 44 Boissevain, MB R0K 0E0	- 100% Int.
NW16-2-21W1M	Cannat Resources Inc. #2000, 425 - 1 Street S.W. Calgary, AB T2P 3L8	- 100% Int.
NE17-2-21W1M	Ruby Eleanor Diell Box 549 Taylor, B.C. V0C 2K0	- 1/2 Int.
	2480000 Manitoba Ltd. c/o Jerry Steven Martens 120 - 15 Street Winkler, MB R6W 1T7	- 1/2 Int.
SW21-2-21W1M	61374 Manitoba Limited Box 608 Boissevain, MB R0K 0E0	- 100% Int.
SE21-2-21W1M	61476 Manitoba Ltd. Box 1000 Boissevain, MB R0K 0E0	- 100% Int.
N20-2-21W1M	Charles Wilson Ransom P.O. Box 1000 Boissevain, MB T0K 0E0	- 100% Int.
S20-2-21W1M	61475 Manitoba Limited R.R. 1 Deloraine, MB R0M 0M0	- 100% Int.

TABLE 2

**RESERVOIR PARAMETERS
MOUNTAINSIDE LODGEPOLE WL E POOL**

Area:	180 hectares
Net Pay:	6.7 m
Porosity:	11%
Water Saturation:	56%
Shrinkage:	0.94
Initial Reservoir Pressure:	7755 kPag
Original Oil-in-place:	548.7 10 ³ m ³
Cumulative Production to July 31, 1996:	42.6 10 ³ m ³
Recovery Factor to July 31, 1996:	8%
Remaining Recoverable Reserves:	94.6 10 ³ m ³
Ultimate Recovery Factor:	25%

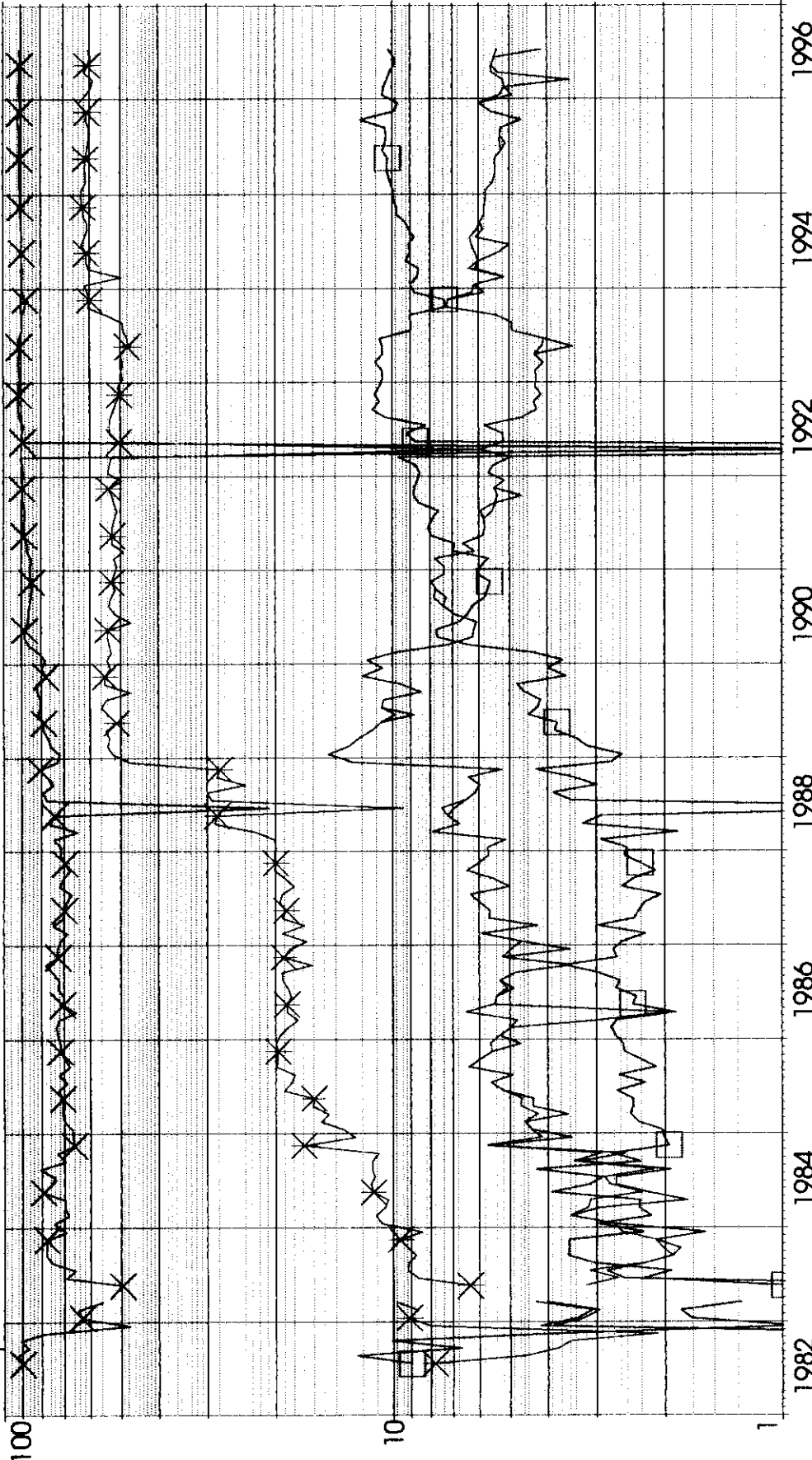
ENRON MOUNTAINSIDE 14-16-2-21 WPM



00/13-16-002-21W1/0 (Enron Mountainside R//E13-16-02-21W1) Data 07/82-07/96

Operator: ENRON Mountainside
 Field: 99
 Zone: 52E
 Type: Unknown
 Group: ENRON Mountainside

Production Cums
 Oil: 27855.9 m3
 Gas: 0 E6m3
 Water: 157434 m3
 Cond: 0 m3



Year

Avg Daily Oil - m3/d

Water Cut - %

Avg Daily Fluid - m3/d

Cal Day Oil - m3/d

WOR - m3/m3



00/16-17-002-21W1/0 (Enron Mountainside R/E16-17-02-21W1) Data 01/86-07/96

Operator:

Field: 99

Zone: 52E

Type: Unknown

Group: ENRON Mountainside

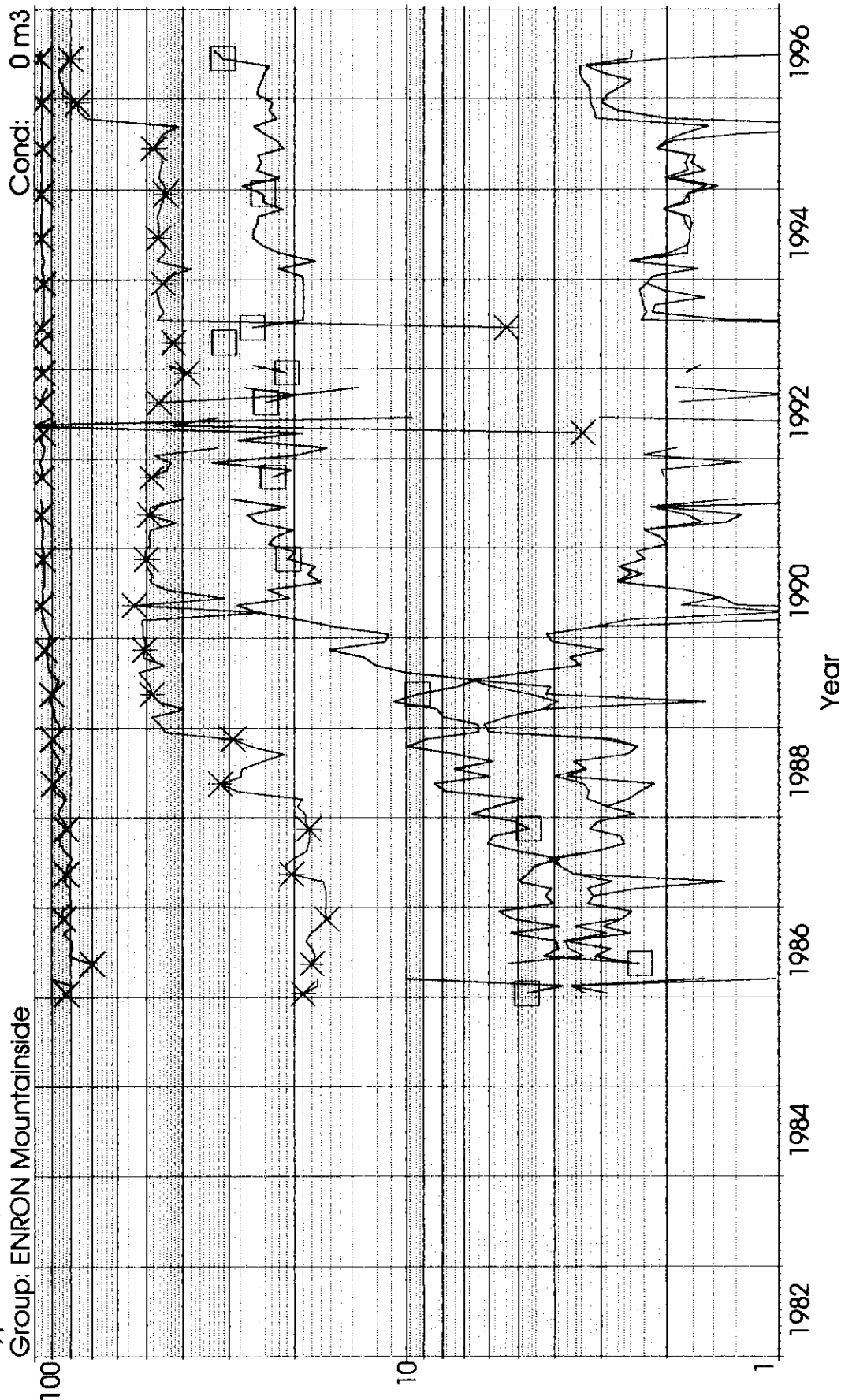
Production Cums

Oil: 8167.2 m3

Gas: 0 E6m3

Water: 107593 m3

Cond: 0 m3



Avg Daily Oil - m3/d

Water Cut - %

Avg Daily Fluid - m3/d

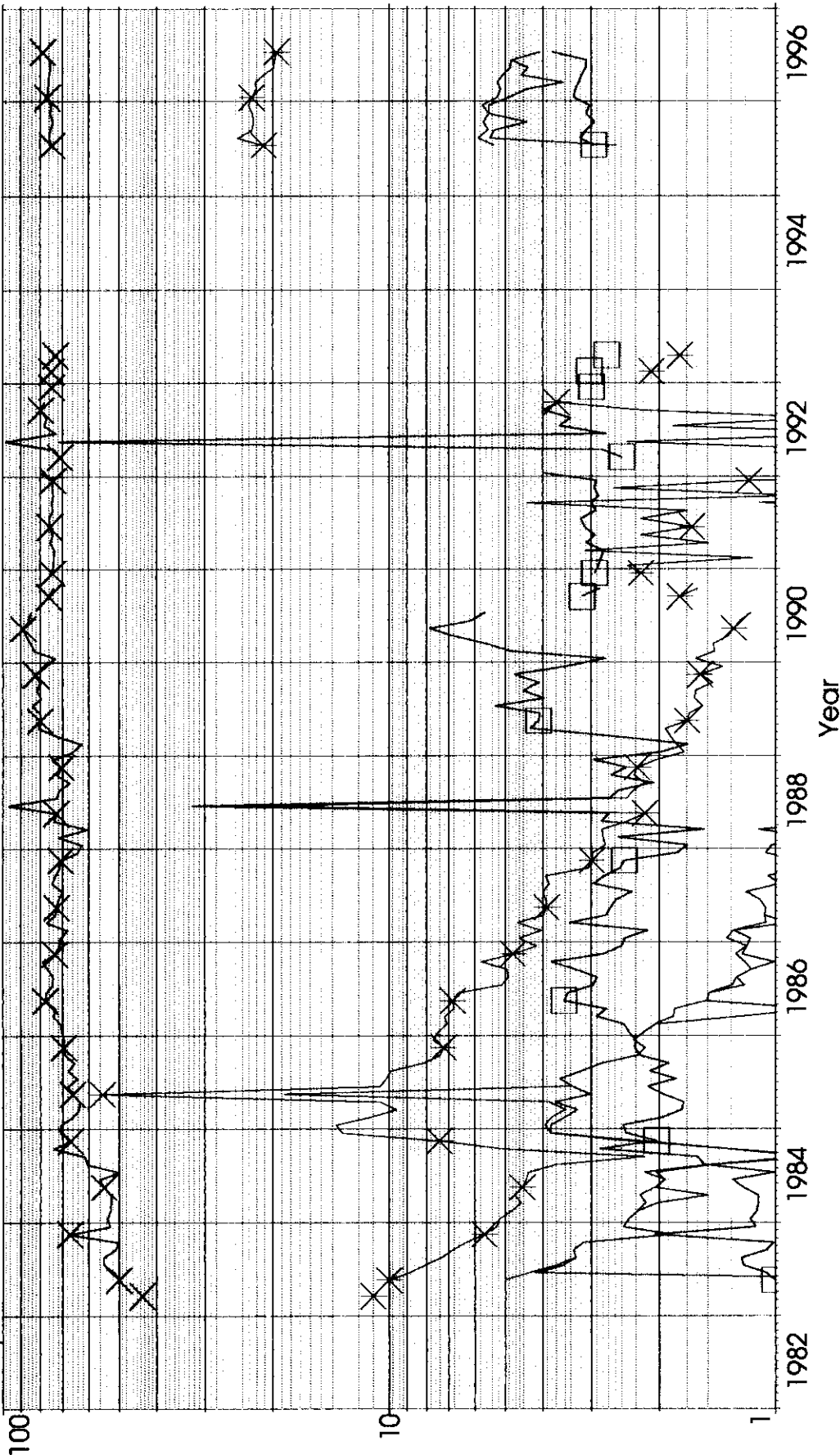
Cal Day Oil - m3/d

WOR - m3/m3



00/04-21-002-21W1/0 (Enron Mountainside R//E04-21-02-21W1) Data 03/83-07/96

Operator: Production Cums
 Field: 99 Oil: 5854 m3
 Zone: 52E Gas: 0 E6m3
 Type: Unknown Water: 14585 m3
 Group: ENRON Mountainside Cond: 0 m3



Avg Daily Oil - m3/d

Water Cut - %

Avg Daily Fluid - m3/d

Cal Day Oil - m3/d

WOR - m3/m3



Figure 1

MOUNTAINSIDE POOL

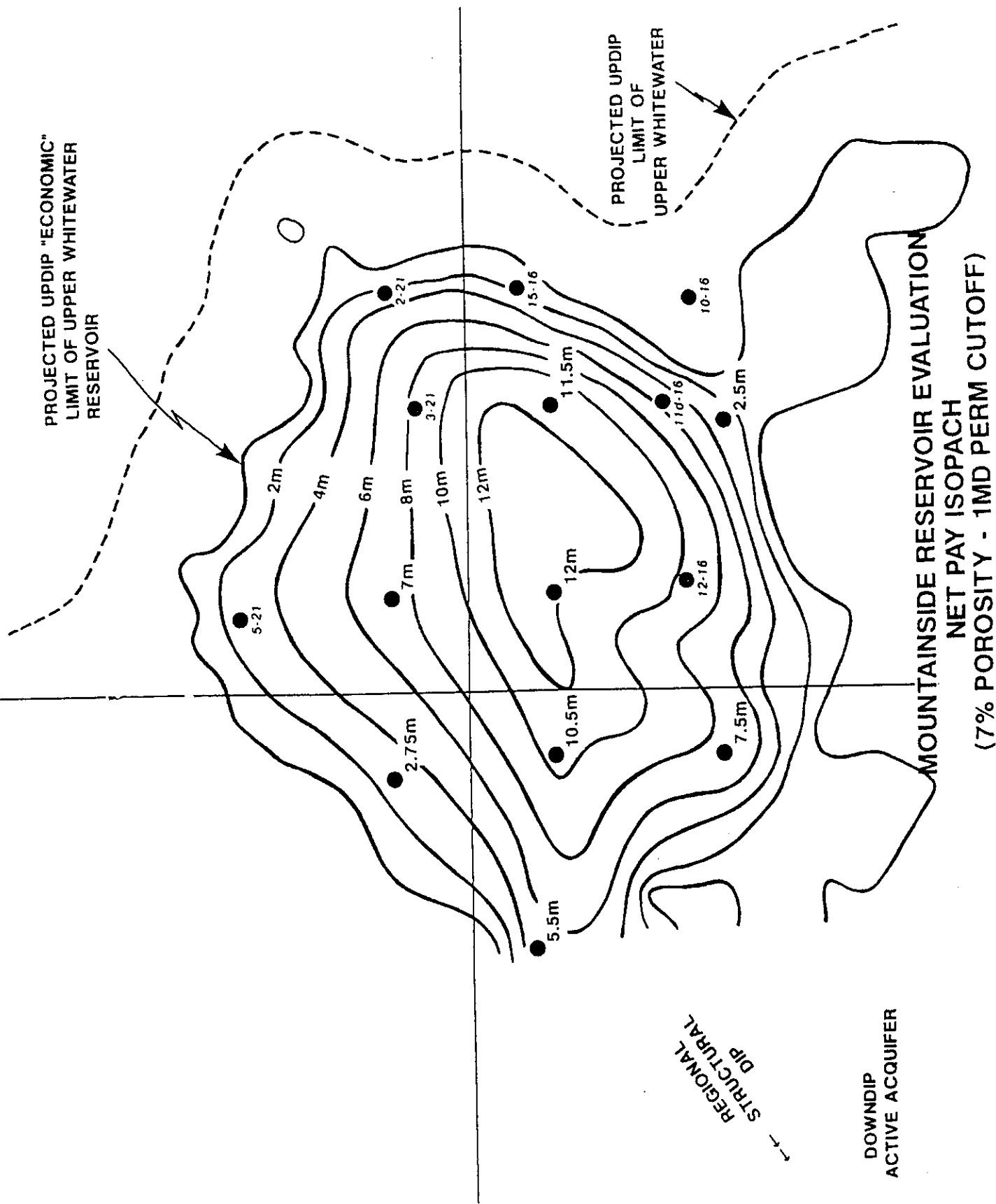
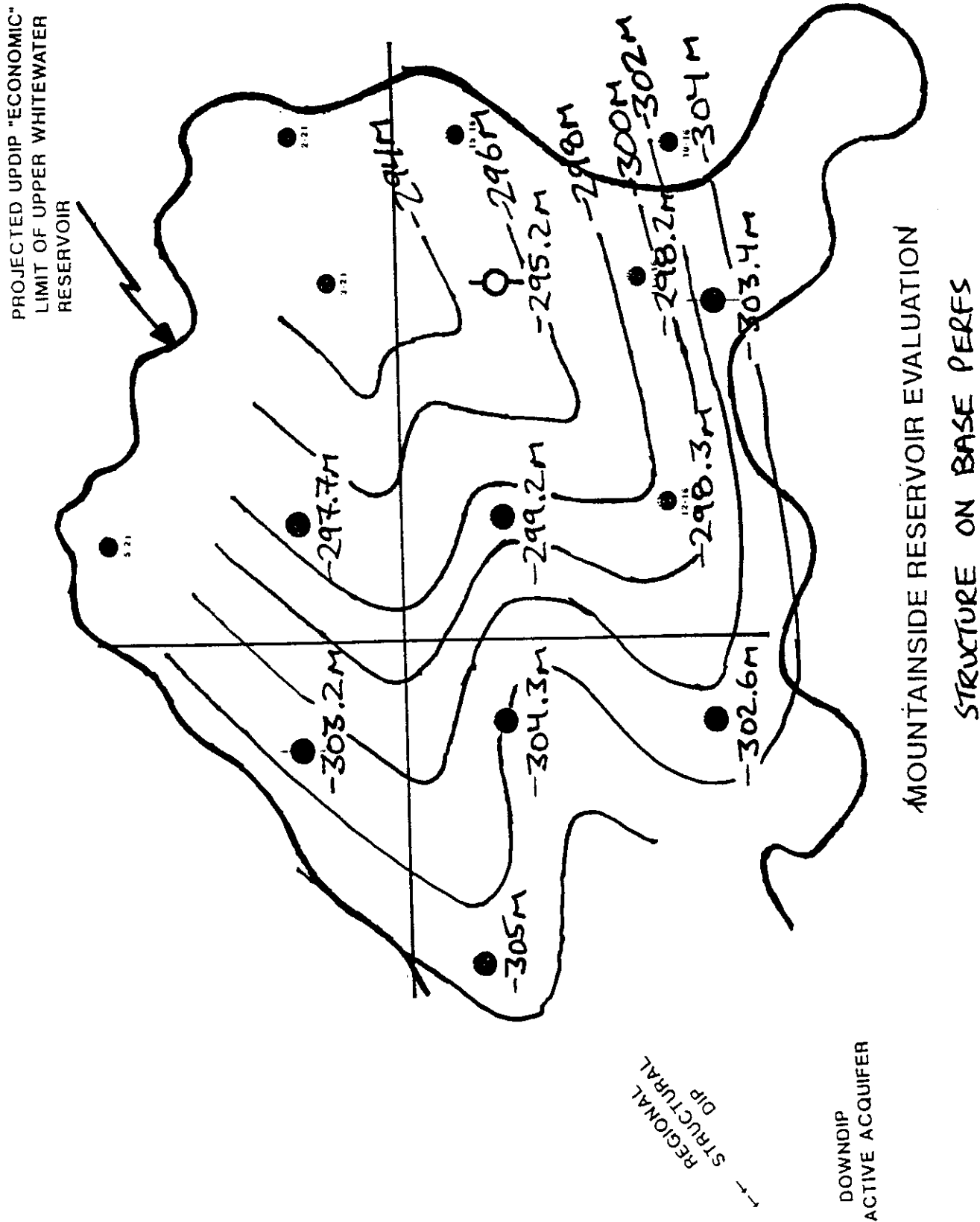
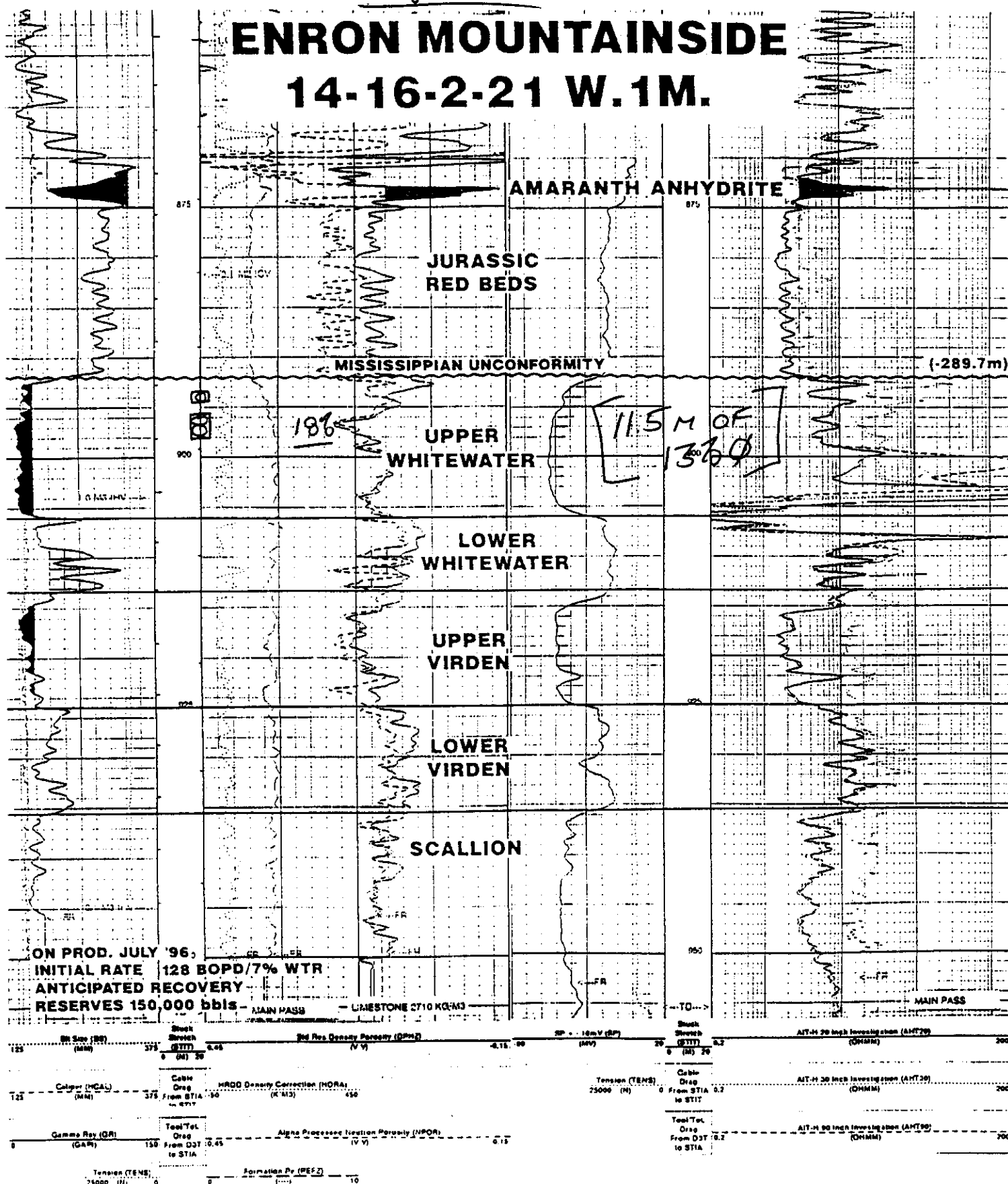


Figure 2



ENRON MOUNTAINSIDE
14-16-2-21 W.1M.



- ENRON has applied to increase the allowable on the 14-16 well from 300 m³/d to 900 m³/d.

- the 14-16 well has been produced at 20 m³/d (600 m³/d) at a bc of 10-20% since going on production - Jul. 31. At a producing rate of _____ m³/d total fluid, the fluid level has stabilized at 330 m from surface (4800 kPa bottom hole pressure).

- IPR curve for the 14-16 indicating the well, assuming production is not rate sensitive, (determined by the Brand

(VOGEL)
$$\frac{q}{q_{max}} = 1 - 0.2 \left(\frac{P_{wf}}{P_r} \right) - 0.8 \left(\frac{P_{wf}}{P_r} \right)^2$$

AT BUBBLE PT.

ABOVE BUBBLE PT

$$\frac{q_b}{q_c} = 1.8 \left(\frac{P_s - P_b}{P_b} \right)$$

$$PI = \frac{q}{P_s - P_{wf}}$$

BELOW BUBBLE PT

$$\frac{q}{q_c} = 1.8 \left(\frac{P_s}{P_b} \right) - 0.8 - 0.2 \left(\frac{P_{wf}}{P_b} \right) - 0.8 \left(\frac{P_{wf}}{P_b} \right)^2$$

$$q_{max} = q_b + q_c$$

$$q_o = 19 \text{ m}^3/\text{d}$$

$$q_w = 4 \text{ m}^3/\text{d}$$

$$P_R = 7190$$

$$P_{wf} = 4800 \text{ kPa}$$

$$P_b = 1193 \text{ kPa (white water well B Pool)}$$

ABOVE BUBBLE PT

$$PI_{oil} = \frac{19}{7190 - 4800} = .0079 \text{ m}^3/\text{d}/\text{kPa}$$

$$PI_{total} = \frac{23}{7190 - 4800} = .0096 \text{ m}^3/\text{d}/\text{kPa}$$

AT BUBBLE PT

$$q_b = .0079 (7190 - 1193) = 47.4 \text{ m}^3/\text{d}$$

$$q_{bt} = .0096 (7190 - 1193) = 57.6 \text{ m}^3/\text{d}$$

BELOW BUBBLE PT.

$$\frac{q_b}{q_c} = 1.8 \frac{P_s - P_b}{P_b}$$

$$\frac{47.4}{q_{c0}} = 1.8 \frac{(7190 - 1193)}{1193}$$

$$q_{c0} = 5.2 \text{ m}^3/\text{d}$$

$$q_{ct} = 6.4 \text{ m}^3/\text{d}$$

$$q_{imax_0} = 52.6 \text{ m}^3/\text{d}$$

$$q_{imax_T} = 64 \text{ m}^3/\text{d}$$

RADIAL FLOW EQUATION 14-16-2-21

$$q_{sc} = \frac{7.08 kh (P_e - P_w)}{\mu B_o \ln(r_e/r_w)}$$

FOR FLOW ACROSS AN
EXTERNAL BOUNDARY

rearrange $\frac{q_{sc}}{(P_e - P_w)} = \frac{7.08 kh}{\mu B_o \ln(r_e/r_w)}$

WHERE

$$P_e = 7196 \text{ kPa} = 1042 \text{ psi}$$

$$P_w = 4800 \text{ kPa} = 696 \text{ psi}$$

$$q_{sc} = 23 \text{ m}^3/\text{d} = 144.7 \text{ b/d (total fluid)}$$

$$\left. \begin{array}{l} \mu = 5.8 \text{ cp} \\ B_o = 1.064 \end{array} \right\} \text{ WVA B B}_o$$

$$r_e = 660' \text{ (16 ha spacing)}$$

$$r_w = 0.26'$$

Solve for Kh

$$\frac{144.7}{1042 - 696} = \frac{7.08 kh}{5.8 * 1.064 * \ln\left(\frac{660}{0.26}\right)}$$

$$kh = 2.86 \text{ d.ft}$$

ASSUME NO FLOW BOUNDARY AT THE EDGE OF THE
SPACING UNIT

$$q_{sc} = \frac{7.08 kh (P_e - P_w)}{\mu_o B_o (\ln(r_e/r_w))^{-1/2}}$$

$$q_{isc} = 37 \text{ m}^3/\text{d} \text{ total fluid (900 m}^3 \text{ clean oil)} = 233 \text{ b/d}$$

$$P_w = 3450 \text{ kPa} = 500 \text{ psi}$$

Solve for P_e

$$233 = \frac{7.08 \times 2.86 (P_e - 500)}{5.8 \times 1.064 \times \left(\ln\left(\frac{660}{0.26}\right) - 1.2 \right)}$$

$$P_e - 500 = 521$$

$$P_e = 1021 \text{ psi}$$

∴ DRAWDOWN > SPRING UNIT BOUNDARY

$$\Delta P = 1042 - 1021 = 21 \text{ psi}$$

$$\% \text{ drawdown} = \frac{1042 - 1021}{1042} \times 100 = 2\%$$

ESTIMATE FLOW ACROSS SU BOUNDARY

$$(P_R - P_e) = 21 \text{ psi}$$

$$PI = \frac{q}{P_R - R_w} = \frac{144.7}{1042 - 696} \text{ b/d/psi} = 0.418 \text{ b/d/psi}$$

$$q_{su \text{ BOUND}} = PI (P_E - P_{su \text{ BOUND}}) = 0.418 (1042 - 1021) = 8.8 \text{ b/d}$$

total fluid!
or. 7 b/d oil
assuming 20% wc.

DAILY OIL VOLUME FLOWING ACROSS su BOUNDARY

7 b/d

OVER 6 MON = 1278 bbls (203 m³)

DRAINAGE FROM NE/4 SECTION 16 & SW/4
SECTION 21

$$\frac{203}{4} = 51 \text{ m}^3$$

ROYALTY VALUE $51 * \$190 / \text{m}^3 * .12 = \1163

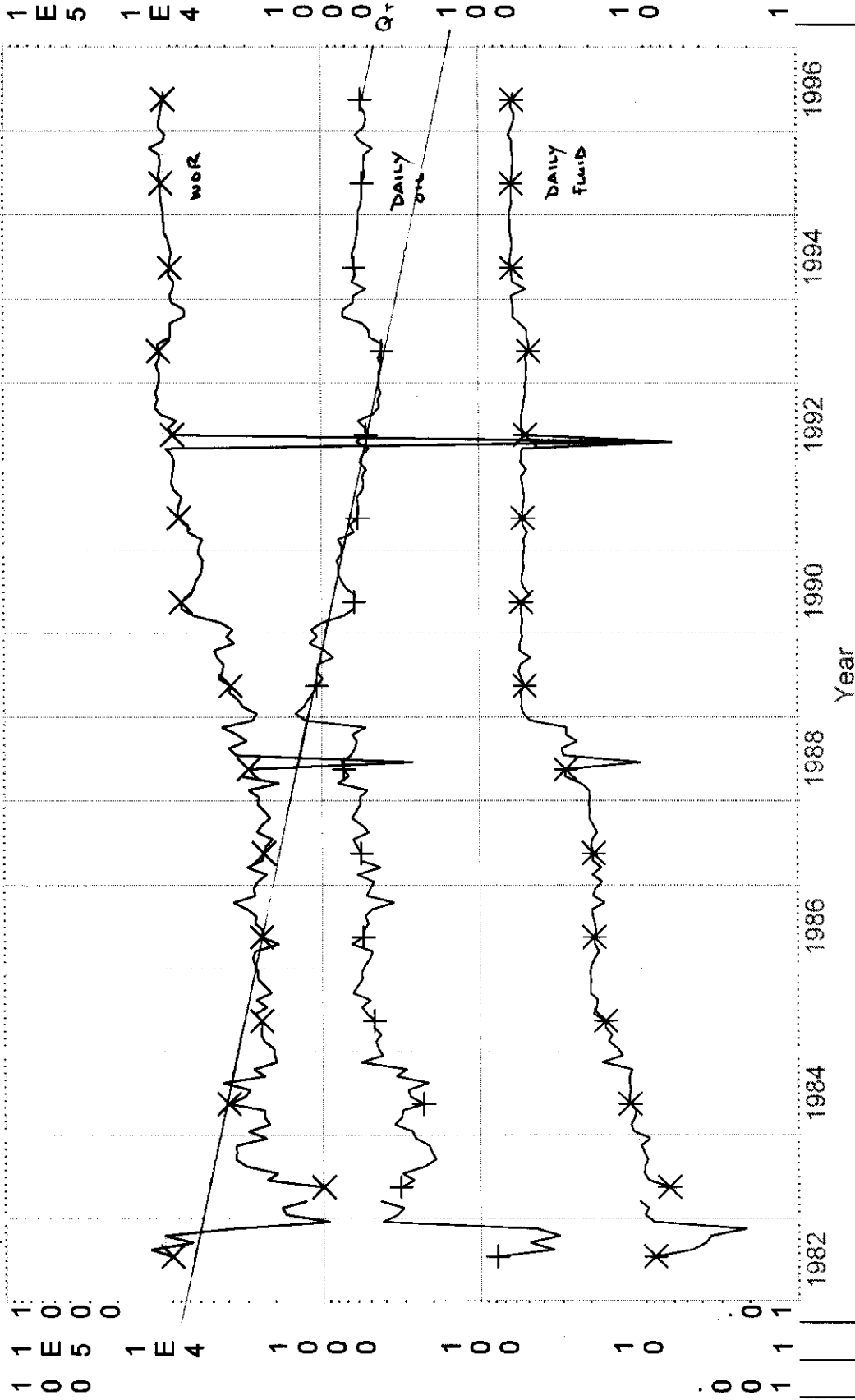
TABLE 2.

WELL	Top UWNL	Base UWNL	Gross Day Thickness	δ Top UWNL
11-16	-292.4	-303.4	6.0	-300.7
11-16	-292.9	-304.3	11.4	-293.8
12-16	-294.3	-307.3	13.0	-294.5
13-16	-292	-307	15.0	-294.9
14-16	-289.2	-303.2	14.0	-290.2
9-17	-299.6	-308.9	9.3	-300.1
15-17	-298.9	-308.9	10	-302.0
16-17	-293.5	-309.3	15.8	-296.8
1-20	-297.8	-305.2	7.4	-301.4
3-21	-287.6	-300.3	12.7	-289.6
4-21	-293.7	-302.7	9.0	-294.6

Error: Mountainside 13-16-02-21W1 (00/13-16-002-21W1/D) Data 17/82-06/96

Operator:
Field: 99
Zone: 52E
Type: Unknown
Group: Other Areas 52E

Production Cums
Oil: 27726.5 m3
Gas: 0 E6m3
Water: 156107 m3
Cond: 0 m3



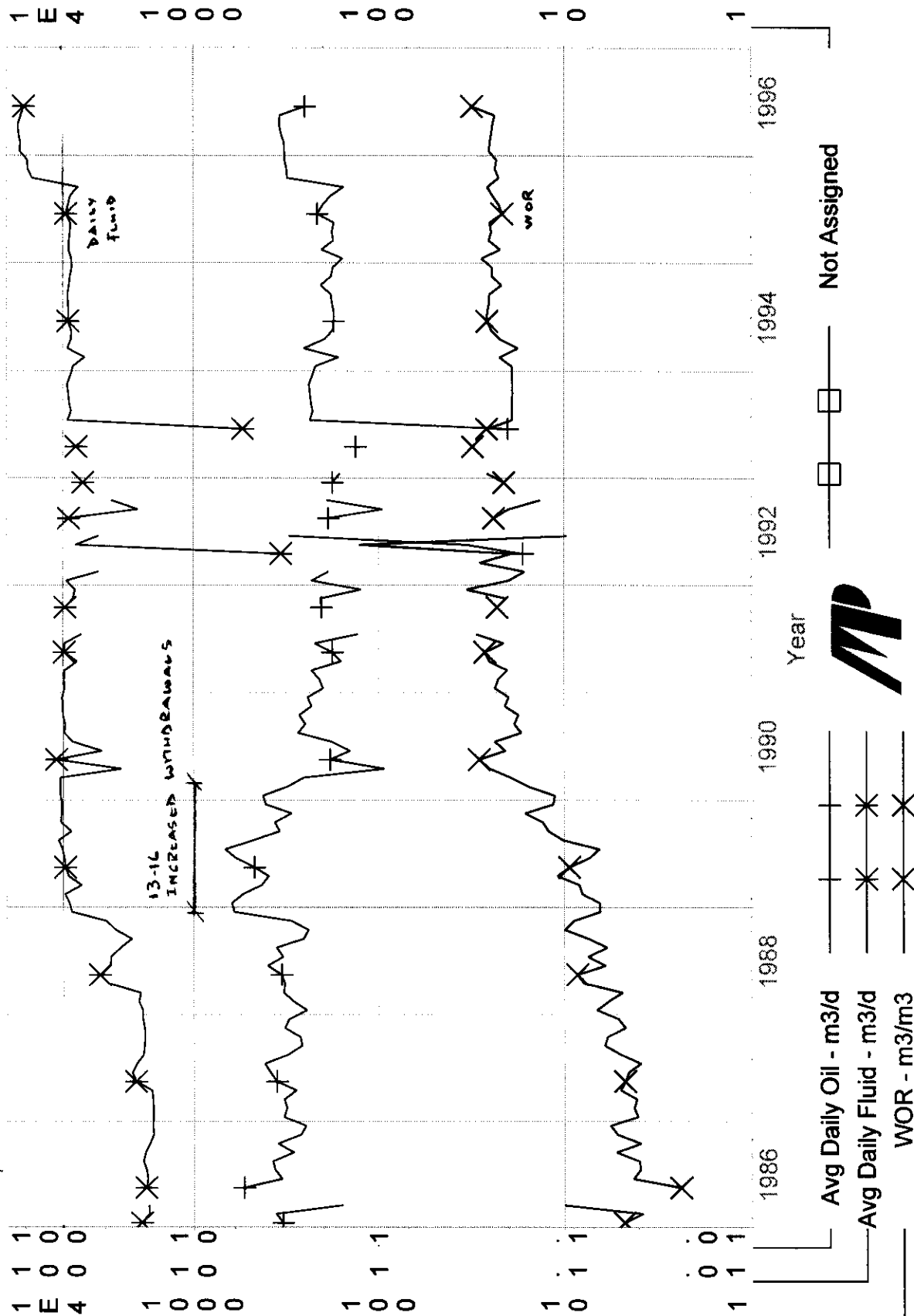
Not Assigned

Avg Daily Oil - m3/d
Avg Daily Fluid - m3/d
WOR - m3/m3

Enron Mountinside 16-17 01-21W1 (00/16-17-002-21W1/0) Data 01/06/06/96

Operator:
Field: 99
Zone: 52E
Type: Unknown
Group: Other Areas 52E

Production Cums
Oil: 8152.3 m3
Gas: 0 E6m3
Water: 107103 m3
Cond: 0 m3



[illegible]

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Zone:

Type: Unknown

Group: Other Areas 52E

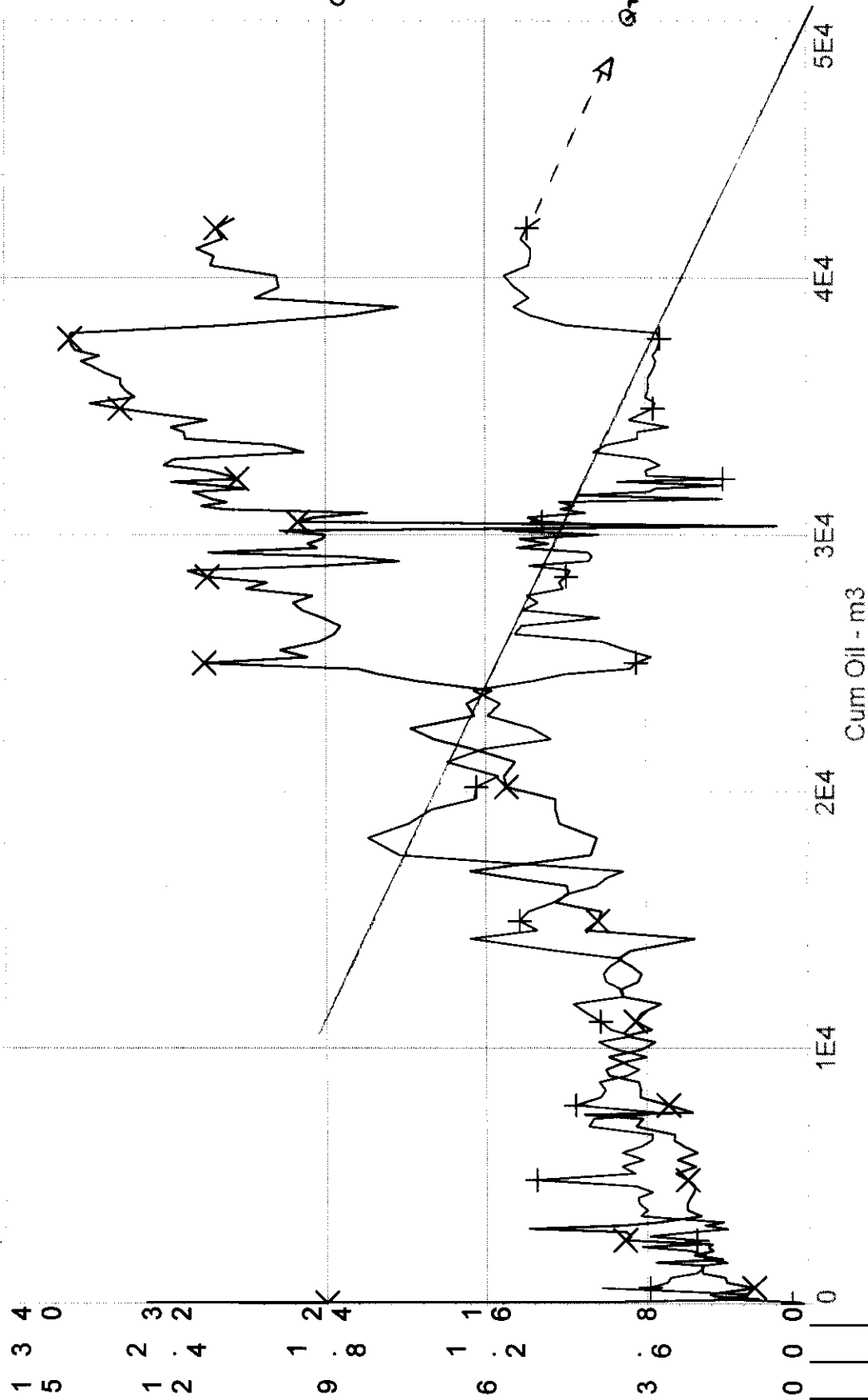
Production Cums

42293.6 m3

Gas: 0.6m3

Water: 282629 m3

Cond: 0 m3



Avg Daily Oil - m3/d

Not Assigned

WOR - m3/m3

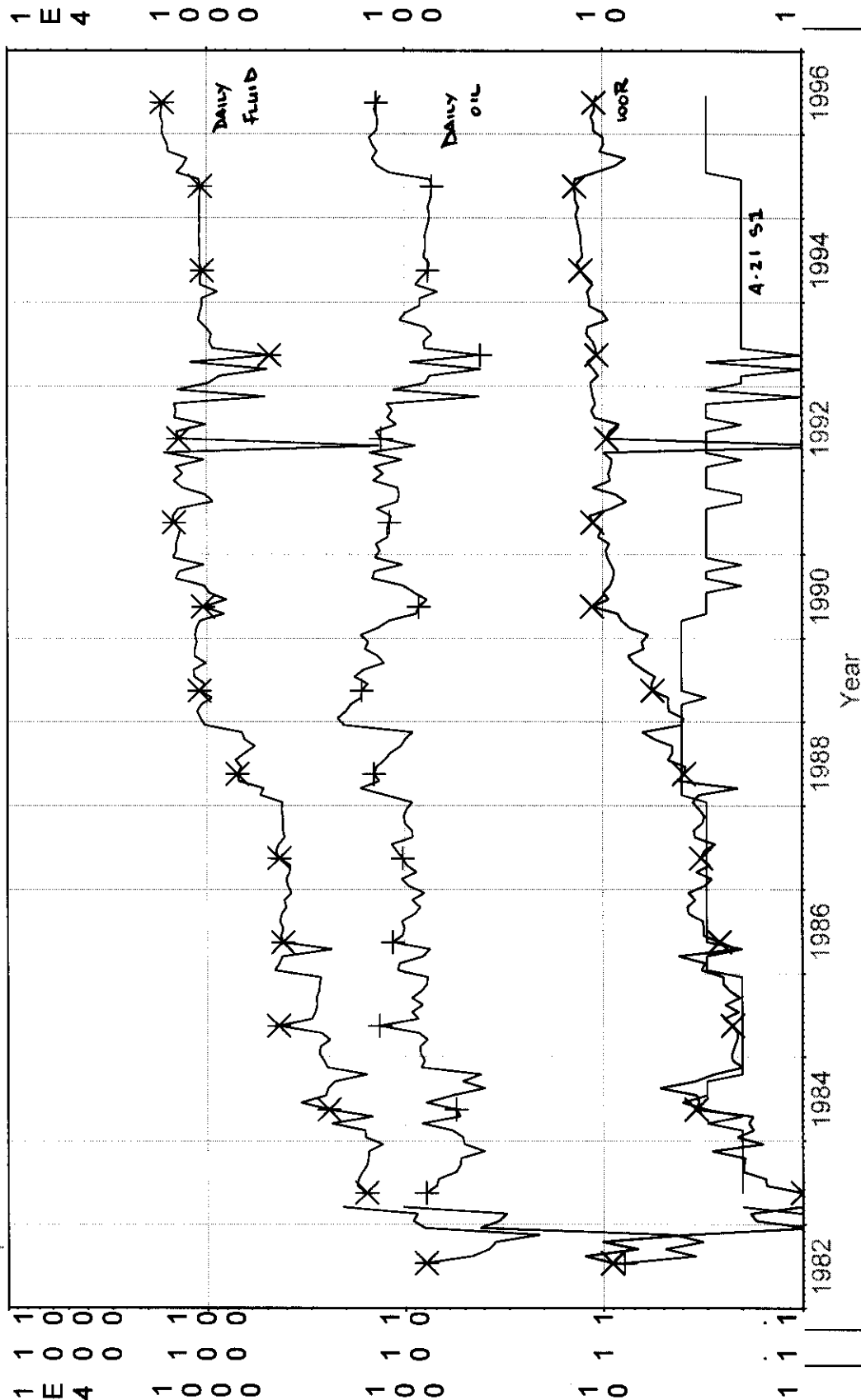
 $q_i = 12.7$
$$q_4 = 7.4$$

Q: 37857-22040

$$d: \frac{365(9.9\%)}{94} = 12.2\% / \text{yr.}$$

Operator
Field:
Zone:
Type: Unknown
Group: Other Areas 52E

Production Cums
Oil: 42293.6 m3
Gas: 0 E6m3
Water: 282629 m3
Cond: 0 m3



Num Wells

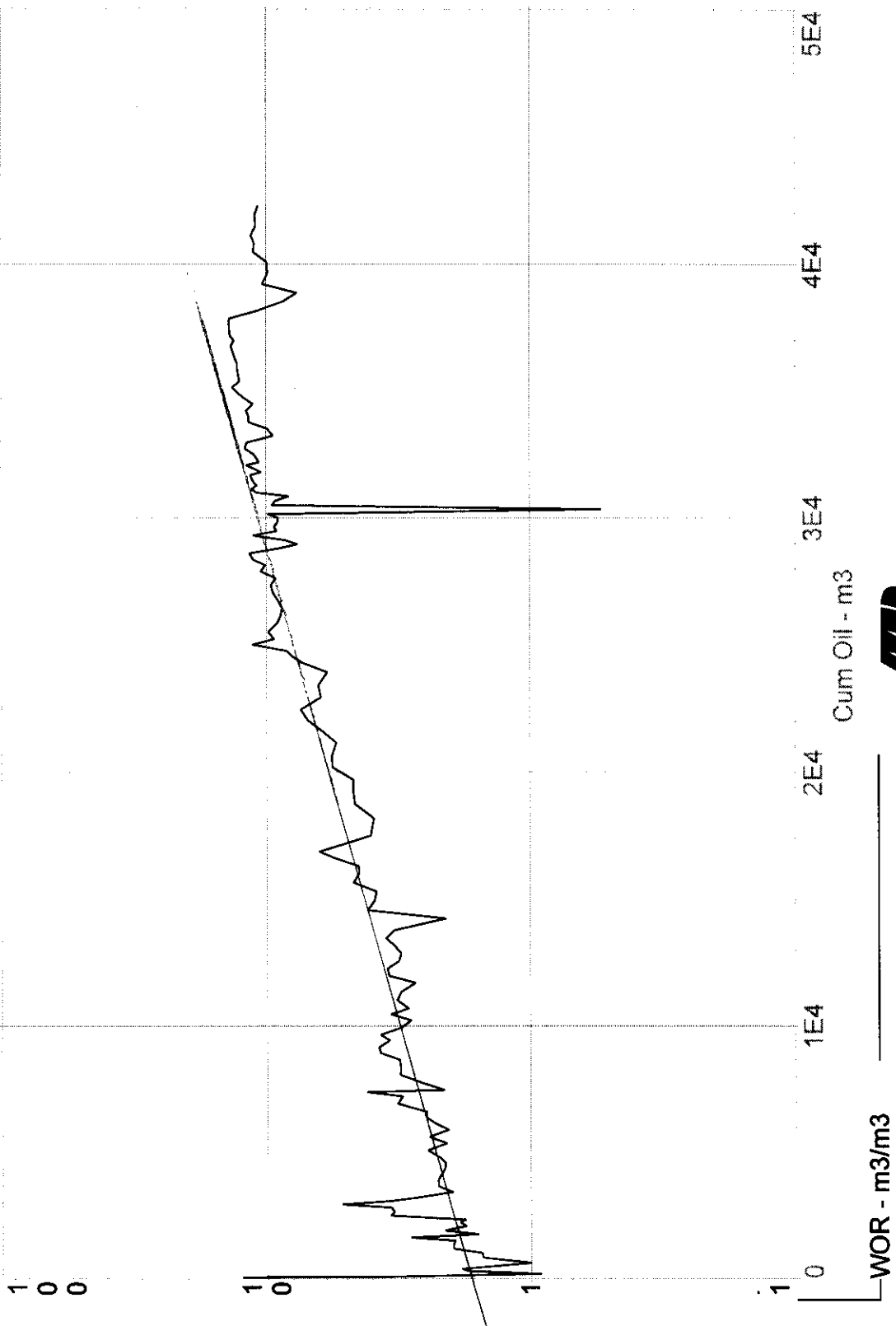


Avg Daily Oil - m3/d
Avg Daily Fluid - m3/d
WOR - m3/m3

Other Areas Lodgepole WLE Pool Data 07/92-06/96

Operator:
Field:
Zone:
Type: Unknown
Group: Other Areas 52E

Production Cums
Oil: 42293.6 m3
Gas: 0 E6m3
Water: 282629 m3
Cond: 0 m3

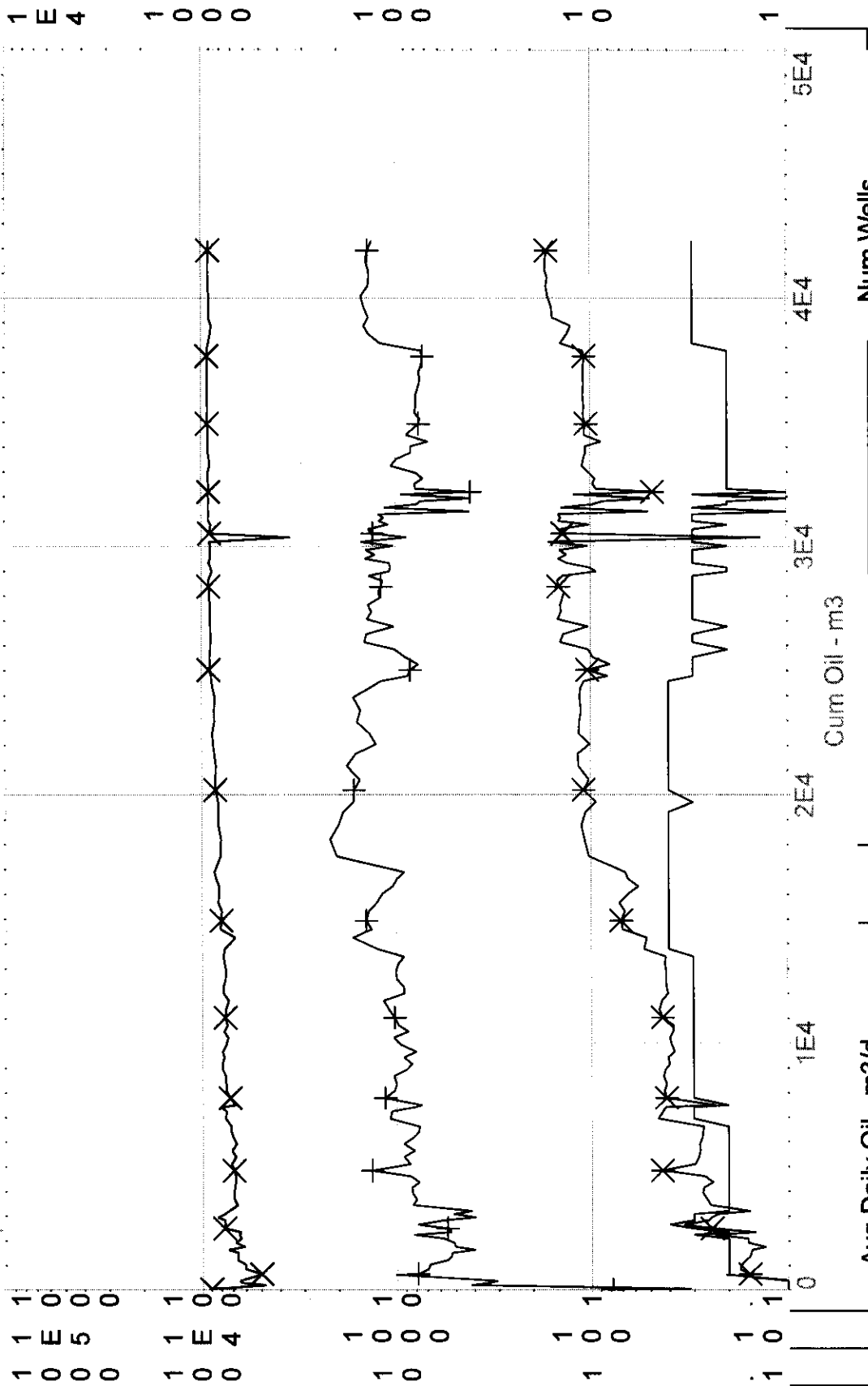


MP

Other Areas Lodgepole WLE Pool Date 07/82-08/96

Operator:
Field:
Zone:
Type: Unknown
Group: Other Areas 52E

Production Cums
Oil: 42293.6 m3
Gas: 0 E6m3
Water: 282629 m3
Cond: 0 m3



Num Wells

Cum Oil - m3

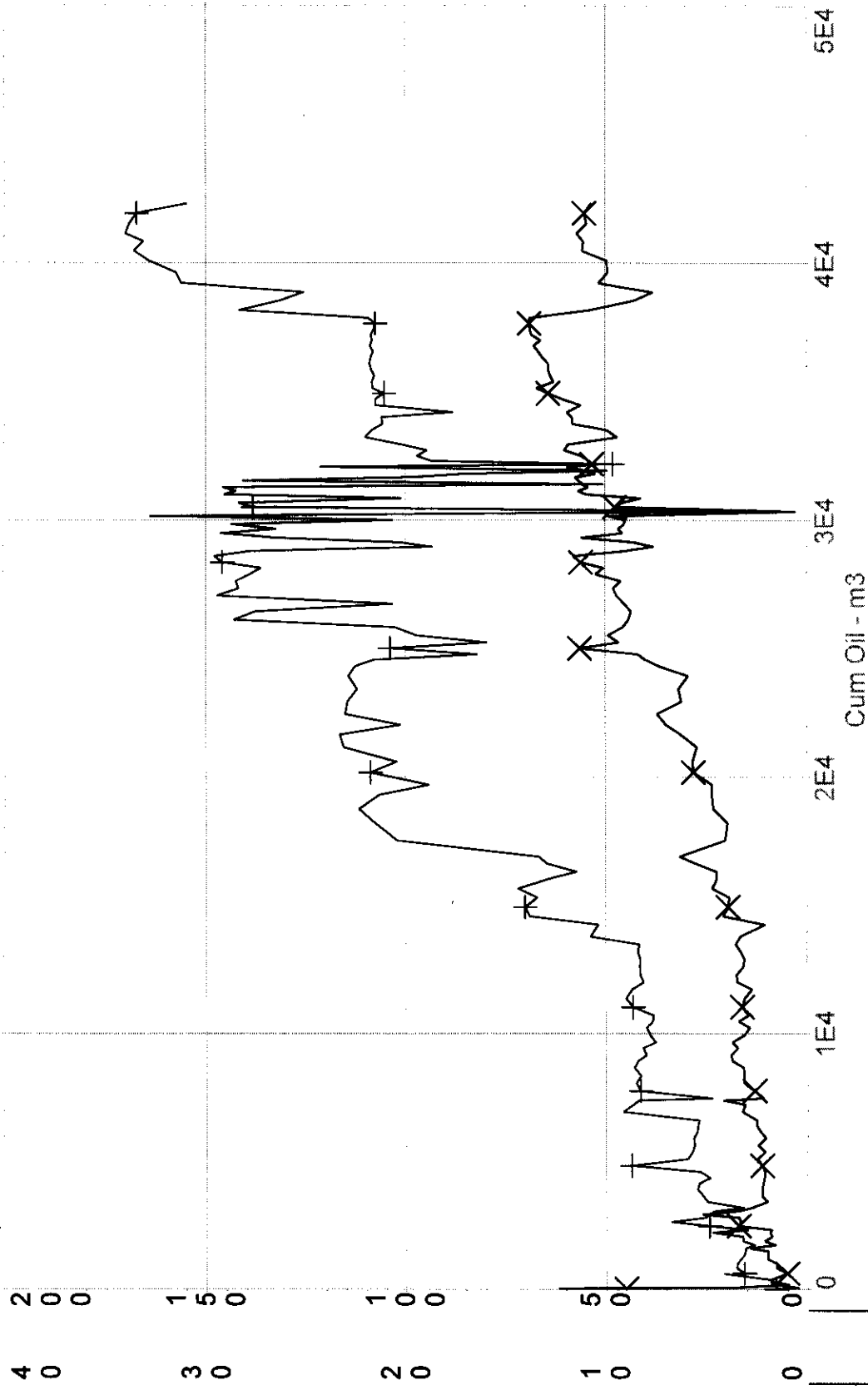
Avg Daily Oil - m3/d

Avg Daily Fluid - m3/d

Water Cut - %

Production Cums
 Oil: 42293.6 m3
 Gas: 0 E6m3
 Water: 282629 m3
 Cond: 0 m3

Operator:
 Field:
 Zone:
 Type: Unknown
 Group: Other Areas 52E



Avg Daily Fluid - m3/d
 WOR - m3/m3

20

◆
5.57●
2.49

21

⊕

●
13.2●
5.65◆
7.05●
◆
11.9

17 16

CUMULATIVE
WOR (m³/m³)

20

21

17 16



--ID--										WELL NAME										CROWN ROYALTY									
UNIQUE WELL IDENTIF		POOL		TEST DT		GOR		PRD #		WELL PRODUCTION		CREDITS		MAX DAY		INTEREST		M3		NEW OIL		FACTOR							
LE LS SC TWP RG WM ES		CODE		YR MO DY				HRS		OIL		GAS		WATER		GAS		WATER		PROD									
OIL EST		GAS EST		GAS EFF		WGR		WAT EST																					
000872 ENRON MOUNTAINSIDE 13-16-2-21W1M																													
00 13 16 002 21 W1		0		?????				738 1		127.5				1626.0															
131.0						1740.4																							
000139 ENRON MOUNTAINSIDE 14-16-2-21WPM																													
00 14 16 002 21 W1		0		?????				738 4		584.1				109.6															
600.2						117.3																							
000877 ENRON MOUNTAINSIDE 16-17-2-21W1M																													
00 16 17 002 21 W1		0		?????				710 5		58.3				2091.6															
59.9						2238.8																							
0001321 ENRON MOUNTAINSIDE 4-21-2-21W1M																													
00 04 21 002 21 W1		0		?????				738 3		106.0				413.1															
108.9						442.2																							

- Temporary MPR increase give us an opportunity to evaluate the well's inflow performance to determine

① WHETHER INCREASING THE DRAWDOWN WILL RESULT IN A GREATER TENDENCY TO CONE WATER

② OPTIMUM RESERVOIR WITHDRAWAL RATE

IN Aug-89 Branch approved a MPR increase from 240 to 375 m³/mon for the 13-16 well

- in Dec-88 con Rexy, the operator at the time, increased reservoir withdrawal at 13-16 from m³/d to m³/d total fluid.
- between Dec-88 & Feb/90, the 13-16 well produced more than 8 m³ O/D, during this period the average prod rate was 11.2 m³/d at a 78.9% water-cut.
- during the 6 months immediately prior to the rate increase the average daily production was 6.3 m³/d at a 78.1% water-cut.
- Fig — is a plot of cumal. oil prod vs. both daily oil & wc.
- examination of the water-cut trend indicates it is insensitive to increased drawdown.
- a review of production from the offsetting producers during this period, Dec-88 to Feb/90 shows no evidence that increased production @ 13-16 had an adverse impact on offsetting producers.

13-16 CURRENT & ULTIMATE RECOVERY

PB OOIP 93415 m³
ENRON OOIP 88444 m³

CURRENT RECOVERY = 27727 m³ (29.7-31.3% OOIP)

ULTIMATE RECOVERY = 34632 m³ (37.1 - 39.2 OOIP)

ASSUMING A 25-30% OOIP RECOVERY FOR
WATER-DRIVE RESERVOIRS, 13-16 WELL IS
DRAINING BETWEEN 20-25 ha

POOL DEVELOPMENT

- Enron is currently developing the other Areas LDGP WLE Pool based on 3D seismic run earlier this year
- the company has drilled 4 wells including the 14-16 well and has licensed 2 other locations.
- based on Enron's revised mapping the OOIP in the pool has increased from 224.7 10³m³ to 548.7 10³m³
- optimum depletion strategy - premature to determine
- company has made a significant investment in the pool
- previously with application for 13-16 MPR increase, the company indicated average pool lifting costs were \$28/m³ (excluding freehold royalties + taxes) and without high productivity from the 13-16 well the economics for producing the LDGP WLE Pool would be greatly reduced
- note since 1990, 9-17 well has been converted to SWD.

- Cdn Pox also increased with draws @ 16-17 during the same time.

- other issue is effective drainage area of wells in the pool
- Other Areas Lodgepole WLE Pool has an active water drive.
- the original reservoir pressure - 7755 kPa (13-16 DST #1, 06-Jul-96)
- current ^{area} reservoir press. 7190 kPa based on AWS (Mar/96), decline of only 7%.
- indication of strong water drive
- postulated o/w contact @ -304 m subsea
- variable o/w not easily identified 15-17 -305.9 m
- transitional o/w contact dependent on reservoir facies

ENRON

16-17	- 303.1 m ss	(903.75 m)
9-17	- 303.4 m ss	(911.8 m)
15-17	- 304.8 m ss	(901.8 m)
13-16	- 304.4 m ss	(904.5 m)

14-16 possible o/w contact @ 904 - @ -301.2 m ss

- X-SECTION 4-21 / 14-16 / 13-16 / 16-17 /

- suggests a slight increase in the oil/water contact

- current oil recovery @ 13-16

P.B. OOI based case, net day cut-off $k=1$ m.d.
assume no o/w in 13-16

OBJECTIONS

- the mineral owners in the NE 16 & SW 21 intervened in the application.
- both RO. expressed concerns that the increased MPR would have a detrimental impact on production from wells on their lands.
- at this time it has not been conclusively determined that increased production at 14-16 will not have an adverse impact on productivity of the offsetting wells.
- in order to make that conclusion it is suggested that an additional MPR be provided to allow Enron to continue to test the 14-16 at rates above the current MPR of 300 m3/mo.
- also give the company an opportunity to review pool economics to determine whether increased production is needed to generate a reasonable rate of return for their investment.

PRODUCTION ANALYSIS

13-16-2-2)

Cum Prod.		
WELL	WIC	WIC
11-16	94.9	1133.3
9-17	571.2	4170.1
1-20	2.1	11.7

- EDN ROXY INCREASED PRODUCTION AT 13-16 IN DEC/88

- JUN - NOV/88 AVERAGE DAILY PRODUCTION
6.3 m³/d @ WIC = 78.1%

DEC/88 - MAY/89 AVERAGE DAILY PRODUCTION
12.44 m³/d (378 m³/month)
@ WIC = 76.2%

- OVER THE PERIOD DEC/88 - FEB/90 13-16 PRODUCED MORE
THAN 86 m³/d, CUMULATIVE PRODUCTION 5067.4 m³
AVERAGE PROD 11.2 m³/d @ WIC = 78.9%

THERE IS NO EVIDENCE THAT INCREASES THE
RESERVOIR DRAWDOWN HAS AN ADVERSE EFFECT
ON RECOVERY @ 13-16 OR AT OFFSETTING LOCATIONS.

HOWEVER INCREASED ^{POOL} WITHDRAWALS APPEAR TO
COINCIDE WITH AN INCREASE IN WOR

AUG/87 - JAN/88
AVG. FLUID PROD 41.3 m³/d @ WIC = 76.4%

OCT/89 - FEB/90 113.7 m³/d @ 86.8%

NOTE: BETWEEN JAN/88 & FEB/90 POOL PRODUCTION NEARLY DOUBLED

DEC 90/ - MAY/91 142.1 m³/d @ 90.9% WIC

Production Report

Group	: Other Areas 52E	Date	: December 11, 1996 2:02:19 pm
Well	: Enron Mountainside 13-16-02-21W1	User	: DAN
	: 00/13-16-002-21W1/0		
Hist.Data	: 07/82-06/96	On Prod	: 01/00
Operator	:	Status	: Unknown
Field	: 99	Zone	: 52E

Production Data from July, 1982 to June, 1996

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	Water Cut %	WOR m3/m3	Cum Oil m3
Jul., 1982	14.9	0.784211	7.84245	89.996	9	14.9
Aug., 1982	7.9	0.343478	4.60015	92.53	12.3924	22.8
Sep., 1982	14.7	0.49	3.77688	87.0206	6.70748	37.5
Oct., 1982	2.2	0.314286	3.50014	91.0168	10.1364	39.7
Nov., 1982	11.5	0.442308	2.10019	78.9304	3.74783	51.2
Dec., 1982	121.1	4.17586	7.99494	47.7457	0.914121	172.3
Jan., 1983	100.9	3.36333	9.13148	63.1515	1.71457	273.2
Feb., 1983	83	3.07407	8.69395	64.6256	1.82771	356.2
Mar., 1983	125.4	4.32414	9.85363	56.097	1.27831	481.6
Apr., 1983						
May., 1983	9.6	3.2	6.36808	49.7272	0.989583	491.2
Jun., 1983	76.8	2.64828	8.64599	69.3564	2.26432	568
Jul., 1983	87.8	3.13571	9.19781	65.893	1.9328	655.8
Aug., 1983	70.1	2.26129	9.16229	75.3087	3.05136	725.9
Sep., 1983	57.6	1.92	8.76085	78.0747	3.5625	783.5
Oct., 1983	56.9	2.03214	9.21161	77.9296	3.53251	840.4
Nov., 1983	63.6	2.12	9.62427	77.9626	3.53931	904
Dec., 1983	49	2.57895	8.45903	69.4991	2.27959	953
Jan., 1984	83.9	2.70645	10.7367	74.7814	2.96663	1036.9
Feb., 1984	101.7	3.5069	11.136	68.4947	2.17502	1138.6
Mar., 1984	91.5	3.15517	10.5393	70.0497	2.33989	1230.1
Apr., 1984	52.8	3.10588	10.3484	69.9737	2.33144	1282.9
May., 1984	68.7	2.29	11.271	79.6734	3.9214	1351.6
Jun., 1984	80.4	2.77241	11.4392	75.7531	3.12562	1432
Jul., 1984	83.2	2.86897	11.1771	74.3205	2.89543	1515.2
Aug., 1984	60.1	2.14643	11.3509	81.082	4.28785	1575.3
Sep., 1984	99.3	3.42414	11.3601	69.845	2.31722	1674.6
Oct., 1984	78.9	2.92222	10.9346	73.2637	2.74145	1753.5
Nov., 1984	172.3	5.74333	16.9992	66.1992	1.95937	1925.8
Dec., 1984	107.9	4.15	12.5211	66.8412	2.01668	2033.7
Jan., 1985	136.9	4.41613	13.4374	67.1211	2.04237	2170.6
Feb., 1985	128.5	4.58929	15.352	70.0931	2.34475	2299.1
Mar., 1985	110.5	4.25	14.6749	71.0263	2.45249	2409.6
Apr., 1985	131.5	4.69643	16.0735	70.7687	2.42205	2541.1
May., 1985	135.4	4.66897	15.9952	70.7973	2.42541	2676.5
Jun., 1985	156.2	5.20667	19.0756	72.6931	2.66325	2832.7
Jul., 1985	174	5.6129	18.2573	69.2431	2.2523	3006.7
Aug., 1985	153.4	4.94839	17.9441	72.4112	2.62581	3160.1
Sep., 1985	191.8	6.39333	19.9328	67.9115	2.11731	3351.9
Oct., 1985	185.4	5.98065	19.8639	69.8787	2.32093	3537.3
Nov., 1985	167	5.56667	19.7891	71.8577	2.55449	3704.3
Dec., 1985	146.3	5.62692	20.064	71.9428	2.56528	3850.6
Jan., 1986	165.1	5.32581	19.5959	72.8099	2.67898	4015.7
Feb., 1986	139.2	4.97143	18.6843	73.3808	2.7579	4154.9

Production Report

Group : Other Areas 52E Date : December 11, 1996 2:02:20 pm
Well : Enron Mountainside 13-16-02-21W1 User : DAN
: 00/13-16-002-21W1/0

Production Data from July, 1982 to June, 1996 (cont.)

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	Water Cut %	WOR m3/m3	Cum Oil m3
Mar., 1986	91.2	4.8	17.6074	72.7267	2.66776	4246.1
Apr., 1986	58.5	6.5	18.7362	65.2925	1.88205	4304.6
May., 1986	170	5.48387	18.7863	70.7963	2.42529	4474.6
Jun., 1986	163	5.43333	18.3291	70.3437	2.37301	4637.6
Jul., 1986	152.4	5.08	18.6589	72.7624	2.67257	4790
Aug., 1986	164.8	5.31613	19.2346	72.3495	2.61772	4954.8
Sep., 1986	145.7	4.85667	19.3421	74.8797	2.98216	5100.5
Oct., 1986	108.4	3.49677	16.1951	78.3989	3.631	5208.9
Nov., 1986	156.8	5.22667	19.1323	72.6694	2.66008	5365.7
Dec., 1986	109.1	4.95909	18.484	73.1591	2.72686	5474.8
Jan., 1987	145.3	4.6871	16.7343	71.9788	2.56986	5620.1
Feb., 1987	166.3	5.93929	19.2883	69.1943	2.24714	5786.4
Mar., 1987	131.9	4.25484	16.9309	74.8583	2.97877	5918.3
Apr., 1987	170.2	5.67333	19.2858	70.5699	2.39894	6088.5
May., 1987	175.1	5.64839	18.8573	70.0335	2.33809	6263.6
Jun., 1987	180	6	19.576	69.3367	2.26222	6443.6
Jul., 1987	196.1	6.32581	19.3286	67.2579	2.05507	6639.7
Aug., 1987	156	5.03226	18.0151	72.0542	2.57949	6795.7
Sep., 1987	166.6	5.55333	18.9591	70.696	2.41357	6962.3
Oct., 1987	200.2	6.45806	20.1674	67.9635	2.12238	7162.5
Nov., 1987	180.9	6.03	20.0293	69.8809	2.32117	7343.4
Dec., 1987	176.4	5.69032	20.2315	71.8616	2.55499	7519.8
Jan., 1988	177.2	5.71613	20.0606	71.4931	2.50903	7697
Feb., 1988	149.1	5.14138	20.1747	74.5045	2.92354	7846.1
Mar., 1988	245.2	7.90968	22.6325	65.0363	1.86093	8091.3
Apr., 1988	202.7	6.75667	28.783	76.5151	3.2595	8294
May., 1988	224.5	7.24194	28.3677	74.46	2.9167	8518.5
Jun., 1988	209.1	7.46786	9.439	20.8481	0.26351	8727.6
Jul., 1988	202.7	6.53871	29.3093	77.6809	3.48199	8930.3
Aug., 1988	190.9	6.15806	30.0382	79.4902	3.87742	9121.2
Sep., 1988	179.9	5.99667	23.9926	74.9952	3.00056	9301.1
Oct., 1988	198.2	6.39355	28.4125	77.4875	3.44349	9499.3
Nov., 1988	158.2	5.27333	27.9723	81.1397	4.30405	9657.5
Dec., 1988	394.8	12.7355	47.6572	73.2651	2.74164	10052.3
Jan., 1989	453.7	14.6355	52.5	72.1106	2.58673	10506
Feb., 1989	363.6	12.9857	54.1557	76.011	3.16997	10869.6
Mar., 1989	379.1	12.229	53.686	77.2112	3.38961	11248.7
Apr., 1989	339.6	11.32	54.7717	79.3233	3.83805	11588.3
May., 1989	333.3	10.7516	51.4273	79.0844	3.78278	11921.6
Jun., 1989	265.5	9.83333	53.9414	81.7623	4.48512	12187.1
Jul., 1989	331.5	10.6935	56.1983	80.9634	4.2549	12518.6
Aug., 1989	327.9	10.5774	54.795	80.6879	4.17993	12846.5
Sep., 1989	253.9	8.46333	47.3004	82.0994	4.58842	13100.4
Oct., 1989	295.7	9.53871	55.2429	82.7255	4.791	13396.1
Nov., 1989	359.4	11.98	55.0786	78.2397	3.59711	13755.5
Dec., 1989	330.3	10.6548	53.2853	79.9954	4.00061	14085.8
Jan., 1990	361.4	11.6581	54.3987	78.5598	3.66574	14447.2
Feb., 1990	277.7	9.91786	53.0794	81.3068	4.35146	14724.9

Production Report

Group : Other Areas 52E Date : December 11, 1996 2:02:21 pm
 Well : Enron Mountainside 13-16-02-21W1 User : DAN
 : 00/13-16-002-21W1/0

Production Data from July, 1982 to June, 1996 (cont.)

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	Water Cut %	WOR m3/m3	Cum Oil m3
Mar., 1990	224.3	7.23548	53.5774	86.4893	6.40437	14949.2
Apr., 1990	187.5	6.25	54.2328	88.4705	7.6768	15136.7
May., 1990	192.2	6.2	54.1253	88.5401	7.72945	15328.9
Jun., 1990	183	6.1	47.316	87.1023	6.75628	15511.9
Jul., 1990	216.2	6.97419	51.7644	86.5211	6.42183	15728.1
Aug., 1990	230.1	7.42258	53.7646	86.1882	6.24294	15958.2
Sep., 1990	219.2	7.82857	53.2784	85.2998	5.8052	16177.4
Oct., 1990	239.8	7.73548	51.897	85.088	5.70851	16417.2
Nov., 1990	239.1	7.97	52.9135	84.931	5.63864	16656.3
Dec., 1990	228.9	7.38387	52.0613	85.8107	6.05024	16885.2
Jan., 1991	229.5	7.40323	51.2904	85.5597	5.92767	17114.7
Feb., 1991	218.6	7.80714	52.2427	85.0494	5.69122	17333.3
Mar., 1991	191.3	6.17097	49.3285	87.4846	6.9932	17524.6
Apr., 1991	198.8	6.62667	52.7429	87.4304	6.95875	17723.4
May., 1991	182	5.87097	52.6574	88.8457	7.96868	17905.4
Jun., 1991	174	5.8	52.7559	89.0011	8.0954	18079.4
Jul., 1991	181.2	5.84516	52.1768	88.7924	7.92605	18260.6
Aug., 1991	172	5.93104	51.2647	88.4255	7.64302	18432.6
Sep., 1991	163.9	5.46333	52.2491	89.5391	8.56315	18596.5
Oct., 1991	144.9	5.36667	52.7913	89.8297	8.83644	18741.4
Nov., 1991	164.9	5.49667	53.8591	89.7899	8.79806	18906.3
Dec., 1991	160.4	5.17419	49.8539	89.6167	8.63466	19066.7
Jan., 1992	176.3	5.6871	54.0606	89.4755	8.50539	19243
Feb., 1992	159.5	5.5	53.5748	89.7295	8.74044	19402.5
Mar., 1992	154.1	4.97097	53.0248	90.6211	9.66645	19556.6
Apr., 1992	178.7	5.95667	6.00596	0.777006	0.00783436	19735.3
May., 1992	160.9	5.19032	50.5958	89.7371	8.74767	19896.2
Jun., 1992	156.9	5.23	53.4423	90.2094	9.21797	20053.1
Jul., 1992	180.2	5.8129	53.6413	89.1586	8.22752	20233.3
Aug., 1992	144.6	4.66452	53.2859	91.2424	10.4232	20377.9
Sep., 1992	128	4.26667	52.3286	91.8428	11.2641	20505.9
Oct., 1992	134.8	4.34839	51.3858	91.534	10.8168	20640.7
Nov., 1992	124.9	4.16333	50.4885	91.7503	11.1265	20765.6
Dec., 1992	133.7	4.3129	50.9471	91.5308	10.8123	20899.3
Jan., 1993	132.6	4.27742	49.66	91.3828	10.6094	21031.9
Feb., 1993	120.4	4.3	50.0555	91.4057	10.6404	21152.3
Mar., 1993	127.1	4.1	49.4921	91.7122	11.0708	21279.4
Apr., 1993	129.8	4.32667	50.2186	91.3805	10.6063	21409.2
May., 1993	107.3	4.12692	48.1018	91.4167	10.6552	21516.5
Jun., 1993	122.4	4.08	48.0651	91.5078	10.7802	21638.9
Jul., 1993	153.1	4.93871	49.3989	89.998	9.00196	21792
Aug., 1993	153.4	4.94839	49.4215	89.983	8.98696	21945.4
Sep., 1993	163.2	5.44	54.4691	90.0083	9.01226	22108.6
Oct., 1993	226	7.29032	60.7322	87.9907	7.33009	22334.6
Nov., 1993	216.3	7.21	60.1065	87.9993	7.33611	22550.9
Dec., 1993	180.8	6.23448	60.9303	89.7633	8.77268	22731.7
Jan., 1994	191.6	6.18065	61.9543	90.0195	9.02349	22923.3
Feb., 1994	144.8	5.17143	49.863	89.6242	8.64158	23068.1

Production Report

Group : Other Areas 52E
Well : Enron Mountainside 13-16-02-21W1
: 00/13-16-002-21W1/0

Date : December 11, 1996 2:02:22 pm
User : DAN

Production Data from July, 1982 to June, 1996 (cont.)

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	Water Cut %	WOR m3/m3	Cum Oil m3
Mar., 1994	190.3	6.34333	60.6661	89.5393	8.56332	23258.4
Apr., 1994	180.3	6.01	61.5726	90.2349	9.24459	23438.7
May., 1994	165.7	6.13704	61.399	90.0003	9.00423	23604.4
Jun., 1994	150.3	6.2625	63.1611	90.0805	9.08516	23754.7
Jul., 1994	189.7	6.32333	62.0495	89.8047	8.81234	23944.4
Aug., 1994	182	6.06667	61.0193	90.0534	9.05769	24126.4
Sep., 1994	179	5.96667	61.2393	90.2525	9.26313	24305.4
Oct., 1994	180.6	5.82581	62.7413	90.7105	9.7691	24486
Nov., 1994	174.7	5.82333	62.7526	90.7161	9.77562	24660.7
Dec., 1994	179	5.77419	63.3574	90.8823	9.97207	24839.7
Jan., 1995	178.7	5.76452	63.2961	90.8888	9.97985	25018.4
Feb., 1995	154.8	5.52857	61.5882	91.0194	10.1395	25173.2
Mar., 1995	169.3	5.46129	61.7121	91.1465	10.2995	25342.5
Apr., 1995	163.8	5.46	61.9157	91.1777	10.3394	25506.3
May., 1995	169.6	5.47097	61.7443	91.1354	10.2854	25675.9
Jun., 1995	157.9	5.26333	61.1957	91.3954	10.6263	25833.8
Jul., 1995	158.9	5.29667	60.7023	91.2705	10.46	25992.7
Aug., 1995	164.4	5.30323	60.3733	91.2121	10.3838	26157.1
Sep., 1995	158.3	5.27667	60.4357	91.2651	10.4529	26315.4
Oct., 1995	145.2	4.68387	61.5085	92.3817	12.1315	26460.6
Nov., 1995	168.1	5.60333	61.1891	90.8386	9.91969	26628.7
Dec., 1995	186	6	64.2672	90.6599	9.71075	26814.7
Jan., 1996	153.6	5.29655	61.6541	91.4055	10.64	26968.3
Feb., 1996	149.7	5.16207	59.6023	91.3353	10.5458	27118
Mar., 1996	109.2	5.2	58.9642	91.1772	10.3388	27227.2
Apr., 1996	161.3	5.56207	62.1749	91.0502	10.1779	27388.5
May., 1996	173.2	5.5871	60.9992	90.8367	9.91744	27561.7
Jun., 1996	164.8	5.49333	60.0191	90.8433	9.92536	27726.5

Production Report

Group	: Other Areas 52E	Date	: December 11, 1996 1:41:48 pm
Well	: Other Areas Lodgepole WL E Pool	User	: DAN
	: 000000122		
Hist.Data	: 07/82-06/96	On Prod	: 01/00
Operator	:	Status	: Unknown
Field	:	Zone	:

Production Data from July, 1982 to June, 1996

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	WOR m3/m3	Water Cut %	Cum Oil m3
Jul., 1982	14.9	0.784211	7.84245	9	89.996	14.9
Aug., 1982	7.9	0.343478	4.60015	12.3924	92.53	22.8
Sep., 1982	14.7	0.49	3.77688	6.70748	87.0206	37.5
Oct., 1982	2.2	0.314286	3.50014	10.1364	91.0168	39.7
Nov., 1982	11.5	0.442308	2.10019	3.74783	78.9304	51.2
Dec., 1982	121.1	4.17586	7.99494	0.914121	47.7457	172.3
Jan., 1983	100.9	3.36333	9.13148	1.71457	63.1515	273.2
Feb., 1983	83	3.07407	8.69395	1.82771	64.6256	356.2
Mar., 1983	256.1	10.244	20.7125	1.02148	50.5202	612.3
Apr., 1983						
May., 1983	19.6	7.84	15.6835	1	49.989	631.9
Jun., 1983	202.2	6.97241	17.5445	1.51583	60.2411	834.1
Jul., 1983	197.8	6.82069	17.2892	1.53438	60.5321	1031.9
Aug., 1983	172.4	5.56129	16.5057	1.96752	66.292	1204.3
Sep., 1983	158	5.26667	15.6457	1.97025	66.323	1362.3
Oct., 1983	154.6	5.24068	15.4125	1.94049	65.9822	1516.9
Nov., 1983	119.4	3.98	15.3118	2.84673	73.9954	1636.3
Dec., 1983	126	5.04	12.9862	1.57619	61.1725	1762.3
Jan., 1984	158.4	5.10968	15.9345	2.11806	67.9191	1920.7
Feb., 1984	167.7	5.78276	15.9646	1.76029	63.7617	2088.4
Mar., 1984	162.1	8.24237	23.5308	1.85441	64.9565	2250.5
Apr., 1984	97.8	5.28649	14.6456	1.76994	63.888	2348.3
May., 1984	150.9	5.52073	24.3061	3.40225	77.2766	2499.2
Jun., 1984	156.8	7.84	33.7185	3.30038	76.7384	2656
Jul., 1984	171	5.76405	25.2969	3.3883	77.2044	2827
Aug., 1984	118.8	3.96	24.5951	5.21044	83.8921	2945.8
Sep., 1984	136.7	5.12625	22.7873	3.44477	77.494	3082.5
Oct., 1984	120	4.13793	15.6329	2.7775	73.5189	3202.5
Nov., 1984	241	8.31035	24.7761	1.98091	66.4434	3443.5
Dec., 1984	226.9	7.9614	25.807	2.24108	69.1367	3670.4
Jan., 1985	255.4	8.37377	27.1775	2.24511	69.175	3925.8
Feb., 1985	227.5	8.42593	26.8259	2.1833	68.5765	4153.3
Mar., 1985	211.8	7.70182	24.0216	2.11851	67.9238	4365.1
Apr., 1985	243.5	8.54386	26.5301	2.10472	67.7814	4608.6
May., 1985	229.1	13.4765	43.5706	2.23265	69.0562	4837.7
Jun., 1985	257.1	8.57	29.6504	2.45935	71.0838	5094.8
Jul., 1985	286.3	9.23548	28.4557	2.08068	67.53	5381.1
Aug., 1985	252.4	8.14194	27.8971	2.42591	70.8016	5633.5
Sep., 1985	276.5	9.21667	28.1107	2.04955	67.1985	5910
Oct., 1985	256.1	8.26129	27.2746	2.30105	69.6973	6166.1
Nov., 1985	232.5	7.75	27.0367	2.48817	71.3227	6398.6
Dec., 1985	218.8	7.67719	26.7016	2.4776	71.2356	6617.4
Jan., 1986	322.4	10.8674	45.6149	3.19696	76.1652	6939.8
Feb., 1986	297.8	10.6357	43.1904	3.06044	75.364	7237.6

Production Report

Group : Other Areas 52E
Well : Other Areas Lodgepole WL E Pool
: 000000122

Date : December 11, 1996 1:41:49 pm
User : DAN

Production Data from July, 1982 to June, 1996 (cont.)

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	WOR m3/m3	Water Cut %	Cum Oil m3
Mar., 1986	161.5	8.075	41.7336	4.1678	80.6425	7399.1
Apr., 1986	82.2	7.47273	23.4033	2.13139	68.0557	7481.3
May., 1986	292	11.5263	41.3538	2.58733	72.1152	7773.3
Jun., 1986	301.6	10.2818	42.4102	3.12434	75.7456	8074.9
Jul., 1986	277.7	10.0373	41.2165	3.10587	75.6365	8352.6
Aug., 1986	320.6	10.3419	42.8658	3.14442	75.8631	8673.2
Sep., 1986	255.8	8.92325	41.9411	3.69977	78.715	8929
Oct., 1986	231.5	8.36747	39.8097	3.75724	78.9721	9160.5
Nov., 1986	272.9	9.19888	40.6625	3.41993	77.3675	9433.4
Dec., 1986	223.2	7.97143	37.5214	3.70654	78.7456	9656.6
Jan., 1987	282.8	9.53259	38.9435	3.08487	75.5112	9939.4
Feb., 1987	290.5	10.375	39.8224	2.83787	73.9354	10229.9
Mar., 1987	235.4	8.71852	38.2483	3.38658	77.1954	10465.3
Apr., 1987	244.3	9.772	38.0483	2.89316	74.3055	10709.6
May., 1987	318.6	10.2774	43.1819	3.20119	76.1892	11028.2
Jun., 1987	329	10.9667	44.8982	3.09362	75.5636	11357.2
Jul., 1987	357.3	11.6511	43.4073	2.72516	73.1469	11714.5
Aug., 1987	283.1	9.13226	40.5427	3.43907	77.4651	11997.6
Sep., 1987	276.1	9.20333	41.3041	3.4875	77.7083	12273.7
Oct., 1987	309.5	9.98387	41.4689	3.15315	75.9138	12583.2
Nov., 1987	303.6	10.12	41.3945	3.08992	75.5415	12886.8
Dec., 1987	304.3	9.81613	41.9785	3.27604	76.606	13191.1
Jan., 1988	284.9	9.19032	41.5944	3.52545	77.8952	13476
Feb., 1988	310	12.5253	53.7186	3.28839	76.6733	13786
Mar., 1988	461.8	16.7927	51.8219	2.08554	67.5811	14247.8
Apr., 1988	328.6	13.4122	68.9529	4.1406	80.5401	14576.4
May., 1988	357.9	14.316	70.1263	3.89802	79.5764	14934.3
Jun., 1988	378.1	13.8752	67.052	3.83206	79.2976	15312.4
Jul., 1988	347.2	12.6255	71.831	4.68894	82.4156	15659.6
Aug., 1988	362.9	11.8016	64.4052	4.45687	81.6679	16022.5
Sep., 1988	287.7	10.4618	57.2737	4.47411	81.7256	16310.2
Oct., 1988	308.8	9.96129	64.6367	5.48834	84.582	16619
Nov., 1988	268.9	9.11526	66.5803	6.30383	86.3034	16887.9
Dec., 1988	629.6	20.3097	102.125	4.02795	80.1042	17517.5
Jan., 1989	679	21.9032	107.668	3.91517	79.6477	18196.5
Feb., 1989	556.6	19.8786	111.712	4.6193	82.1977	18753.1
Mar., 1989	551.9	18.7085	106.517	4.69306	82.4284	19305
Apr., 1989	397.7	16.5708	94.199	4.68418	82.4009	19702.7
May., 1989	485.6	16.461	108.794	5.60873	84.8628	20188.3
Jun., 1989	414.9	15.3667	102.236	5.65269	84.9629	20603.2
Jul., 1989	555.8	17.929	115.505	5.44188	84.4708	21159
Aug., 1989	499.4	16.1097	116.465	6.22907	86.1617	21658.4
Sep., 1989	381.6	12.72	101.272	6.96122	87.4343	22040
Oct., 1989	424.1	13.6806	115.112	7.41382	88.1102	22464.1
Nov., 1989	476.9	15.8967	114.534	6.20445	86.1144	22941
Dec., 1989	472.9	15.2548	112.194	6.3542	86.3971	23413.9
Jan., 1990	515.1	16.6161	114.262	5.87614	85.4515	23929
Feb., 1990	380.5	13.5893	112.702	7.29304	87.937	24309.5

Production Report

Group : Other Areas 52E
Well : Other Areas Lodgepole WL E Pool
: 000000122

Date : December 11, 1996 1:41:50 pm
User : DAN

Production Data from July, 1982 to June, 1996 (cont.)

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	WOR m3/m3	Water Cut %	Cum Oil m3
Mar., 1990	263.9	11.9955	107.942	7.99811	88.8822	24573.4
Apr., 1990	201	8.73913	82.0126	8.38408	89.3395	24774.4
May., 1990	236.9	8.46071	103.893	11.279	91.8527	25011.3
Jun., 1990	231.2	7.70667	79.6234	9.33132	90.3168	25242.5
Jul., 1990	277.5	8.95161	97.262	9.86487	90.7923	25520
Aug., 1990	314.6	10.1484	102.772	9.12651	90.121	25834.6
Sep., 1990	290.6	14.53	143.036	8.84377	89.8373	26125.2
Oct., 1990	326.1	14.1783	137.85	8.72217	89.7102	26451.3
Nov., 1990	308.2	10.2733	103.181	9.04315	90.039	26759.5
Dec., 1990	305.6	14.1046	147.242	9.43881	90.4165	27065.1
Jan., 1991	294	13.3636	141.792	9.60986	90.571	27359.1
Feb., 1991	278.3	13.915	142.461	9.23751	90.2281	27637.4
Mar., 1991	266.1	12.0955	139.069	10.4972	91.2987	27903.5
Apr., 1991	241.5	12.2797	136.155	10.0874	90.9771	28145
May., 1991	222.8	11.9357	145.864	11.2204	91.8136	28367.8
Jun., 1991	238.8	11.7443	147.866	11.59	92.054	28606.6
Jul., 1991	193.2	13.8	138.827	9.05952	90.0552	28799.8
Aug., 1991	173.3	10.8313	93.236	7.60762	88.3779	28973.1
Sep., 1991	165	10.6452	101.411	8.52606	89.4983	29138.1
Oct., 1991	177	10.8367	132.268	11.2051	91.8034	29315.1
Nov., 1991	173.1	14.425	146.381	9.14732	90.1413	29488.2
Dec., 1991	166.6	12.8154	132.498	9.33854	90.3236	29654.8
Jan., 1992	185.6	14.2769	143.691	9.06412	90.0598	29840.4
Feb., 1992	165.1	10.3188	103.186	8.99939	89.9954	30005.5
Mar., 1992	156	15.0968	163.991	9.86218	90.7901	30161.5
Apr., 1992	184.2	8.77143	13.4801	0.536373	34.9017	30345.7
May., 1992	162	13.1351	138.16	9.5179	90.4886	30507.7
Jun., 1992	166.4	13.8667	141.823	9.22716	90.2182	30674.1
Jul., 1992	181	10.9697	101.005	8.20718	89.1347	30855.1
Aug., 1992	150.7	12.2189	145.432	10.9018	91.5945	31005.8
Sep., 1992	130.8	11.5412	142.417	11.3395	91.8926	31136.6
Oct., 1992	139.4	12.3	145.735	10.8479	91.5563	31276
Nov., 1992	124.9	4.16333	50.4885	11.1265	91.7503	31400.9
Dec., 1992	141	11.4324	140.786	11.3142	91.876	31541.9
Jan., 1993	140.7	7.81667	97.6257	11.489	91.9897	31682.6
Feb., 1993	123	7.45455	85.579	10.4797	91.2854	31805.6
Mar., 1993	127.1	4.1	49.4921	11.0708	91.7122	31932.7
Apr., 1993	144.2	9.40435	121.308	11.8988	92.2442	32076.9
May., 1993	107.3	4.12692	48.1018	10.6552	91.4167	32184.2
Jun., 1993	122.6	7.90968	93.3777	10.8051	91.5256	32306.8
Jul., 1993	195.3	7.97143	97.0239	11.171	91.7804	32502.1
Aug., 1993	221.3	7.25574	94.6097	12.0389	92.3275	32723.4
Sep., 1993	227.9	7.85862	100.969	11.8477	92.2134	32951.3
Oct., 1993	275.1	10.5808	110.032	9.39876	90.3796	33226.4
Nov., 1993	277.9	9.925	108.337	9.91508	90.8347	33504.3
Dec., 1993	251.1	8.37	105.687	11.6264	92.0769	33755.4
Jan., 1994	259.5	8.37097	105.936	11.6547	92.0946	34014.9
Feb., 1994	191	6.82143	88.0352	11.9052	92.2481	34205.9

Production Report

Group : Other Areas 52E
Well : Other Areas Lodgepole WL E Pool
: 000000122

Date : December 11, 1996 1:41:51 pm
User : DAN

Production Data from July, 1982 to June, 1996 (cont.)

Year	Monthly Oil m3	Avg Daily Oil m3/d	Avg Daily Fluid m3/d	WOR m3/m3	Water Cut %	Cum Oil m3
Mar., 1994	268.4	8.8	107.479	11.2131	91.8088	34474.3
Apr., 1994	233.3	8.18597	107.435	12.1239	92.3772	34707.6
May., 1994	220.4	7.6	105.248	12.848	92.7758	34928
Jun., 1994	202.5	7.5	108.122	13.4158	93.0603	35130.5
Jul., 1994	243.5	7.98361	108.338	12.5696	92.6276	35374
Aug., 1994	235.4	7.84667	107.737	12.7298	92.7136	35609.4
Sep., 1994	231.3	7.84068	108.492	12.8366	92.7698	35840.7
Oct., 1994	244	7.87097	108.939	12.8402	92.7717	36084.7
Nov., 1994	226.9	7.69152	108.644	13.1247	92.9173	36311.6
Dec., 1994	233.6	7.53548	108.042	13.3373	93.0223	36545.2
Jan., 1995	224.1	7.47	108.843	13.5703	93.1339	36769.3
Feb., 1995	209.4	7.61455	108.349	13.2287	92.9691	36978.7
Mar., 1995	218.3	7.4	108.617	13.6775	93.1841	37197
Apr., 1995	215.6	7.30847	107.837	13.7546	93.2197	37412.6
May., 1995	221.9	7.27541	107.521	13.7783	93.2305	37634.5
Jun., 1995	222	7.4	109.277	13.7667	93.2252	37856.5
Jul., 1995	299.2	11.968	141.657	10.8359	91.5477	38155.7
Aug., 1995	375	13.7195	131.311	8.57067	89.5473	38530.7
Sep., 1995	334.5	14.5435	125.415	7.62302	88.3986	38865.2
Oct., 1995	344.5	13.78	156.074	10.3257	91.167	39209.7
Nov., 1995	415	14.4767	157.349	9.86867	90.7956	39624.7
Dec., 1995	451.2	15.04	164.143	9.91334	90.8332	40075.9
Jan., 1996	396	13.814	167.849	11.1503	91.7664	40471.9
Feb., 1996	355.9	13.6885	165.41	11.0835	91.7209	40827.8
Mar., 1996	296.8	13.6985	169.958	11.4067	91.9366	41124.6
Apr., 1996	387.5	14.1768	169.042	10.9234	91.6097	41512.1
May., 1996	411.7	13.8775	167.15	11.0442	91.6939	41923.8
Jun., 1996	369.8	13.2071	154.627	10.7074	91.455	42293.6

DECEMBER PRODUCTION - NEW WINGS

WING	DAILY OIL	WATER-CUT
11-16	5.5 - 3/8	40%
12-16	6.5 - 3/8	65%
3-21	8.7 - 3/8	50%

- Notes:

12-16 sample description no stain 912.14 m.

Manitoba
Energy and Mines
Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3



(204) 945-6574

Initial Production Report

Two (2) copies of this report are to be completed and submitted to the above address within 14 days following the fifth day after the well has been placed on normal production.

Well Name ENRON MOUNTAINSIDE 11A-16-2-21 Operating Company ENRON OIL CANADA LTD.

Battery Well Produced To
(Name and Location)

ENRON MOUNTAINSIDE 11A-16-2-21

Completion
Interval

899.5 m to

902.5 m

☐ Open Hole
☒ Perforated

Formation

WHITEWATER

Completion Oil:

Source of Completion Oil
(Co. and Location)

Volume Supplied

 m³

Date
Supplied

Y M D

Date

Completion Oil
Used, (m³)

Completion Oil
Recovered, (m³)

Completion Oil To Be
Recovered, (m³)

Water Produced,
(m³)

Y M D

Y	M	D	Completion Oil Used, (m ³)	Completion Oil Recovered, (m ³)	Completion Oil To Be Recovered, (m ³)	Water Produced, (m ³)

(Continue on separate sheet if necessary)

Disposition of Recovered Completion Oil

 m³ to

(Co. and Location)

On Production Date:*

*Official on Production Date (i.e. Date of first new oil production after completion oil recovered)

Y M D

96 11 29

Production Test: (First five days of normal production)

Y	M	D	Hours Produced	Oil Produced, (m ³)	Water Produced, (m ³)	Pumping	Flowing	Gas-Oil Ratio, (m ³ /m ³)	Oil Density, (kg/m ³)
96	11	30	24	.3	16.0	✓			
96	12	01	24	2.7	16.5	✓			
96	12	02	24	4.9	21.1	✓			
96	12	03	24	5.0	21.3	✓			
96	12	04	24	5.6	22.4	✓			
TOTALS			120	18.5	97.3				

Remarks:

OK 96-12-16

9952E

MG-6428

3.7 m³/d 84%

Submitted By: CAMERON TURNBULL

Position: PRODUCTION FOREMAN

Phone Number: 204 673-2732

#4617
Rel Dec 10/96Manitoba
Energy and Mines
Petroleum555 — 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

(204) 945-6574

Initial Production Report

Two (2) copies of this report are to be completed and submitted to the above address within 14 days following the fifth day after the well has been placed on normal production.

Well Name **ENRON MOUNTAINSIDE 12-16-2-21 WPM**Operating Company **ENRON OIL CANADA LTD.**Battery Well Produced To
(Name and Location)**ENRON MOUNTAINSIDE 12-16-2-21 WPM**

Completion Interval

903.0

m to

907.0

m

☐ Open Hole
☒ Perforated

Formation

WHITEWATER

Completion Oil:

Source of Completion Oil
(Co. and Location)

Volume Supplied

 m³

Date Supplied

Y M D

Date
Y M DCompletion Oil
Used, (m³)Completion Oil
Recovered, (m³)Completion Oil To Be
Recovered, (m³)Water Produced,
(m³)

Y	M	D	Completion Oil Used, (m ³)	Completion Oil Recovered, (m ³)	Completion Oil To Be Recovered, (m ³)	Water Produced, (m ³)

(Continue on separate sheet if necessary)

Disposition of Recovered Completion Oil

 m³ to

(Co. and Location)

On Production Date:*

*Official on Production Date (i.e. Date of first new oil production after completion oil recovered)

Y M D

96 11 22

Production Test: (First five days of normal production)

Y	Date M	D	Hours Produced	Oil Produced, (m ³)	Water Produced, (m ³)	Pumping	Flowing	Gas-Oil Ratio, (m ³ /m ³)	Oil Density, (kg/m ³)
96	11	22	20	8.0	12.0	✓			
96	11	23	24	7.5	11.2	✓			
96	11	24	24	7.4	11.0	✓			
96	11	25	24	6.8	12.7	✓			
96	11	26	24	6.8	12.6	✓			
TOTALS			116	36.5	59.5				

Remarks:

7.6 m³/d

62 l.w

Submitted By: **CAMERON TURNBULL**Position: **PRODUCTION FOREMAN**Phone Number: **204 673-2732**

HJK 96 1216

99 52E

CORE LABORATORIES - CANADA, LTD.

COMPANY ROXY PETROLEUM LTD.
WELL ROXY-CLARION ET AL MOUNTAINSIDE 13-16-2-21
FIELD MOUNTAINSIDE, MANITOBA
LOCATION LSD 13-16-2-21 WIN

FORMATION MISSISSIPPIAN
CORING EQUIPMENT DIAMOND
CORE DIAMETER (mm) 100
CORING FLUID WATER BASE MUD

PAGE 1
FILE 7004-82-479
DATE 82-6-16
ANALYSTS RP JH

FULL DIAMETER ANALYSIS

Sample Number	Depth Metres (m)	Rep.	Length	Permeability to Air Millidarcys		Perm. X	Porosity		Density:kg/m3 (Frac of Pore Vol)	Residual Saturation			VISUAL EXAMINATION
				MD Max.	MD 90 des.		MD V	Porosity		Bulk	Grain	Oil	
CORE NO. 1 894.00 m - 912.00 m (REC. 18.00 m) (0 Boxes)													
-	894.00-94.04	0.04	-	-	-	-	-	-	-	-	-	-	anhy
SF 1	894.04-94.13	0.09	-	0.02	-	0.002	0.051	0.005	-	2840	0.102	0.599	dol i ppv
-	894.13-94.33	0.20	-	-	-	-	-	-	-	-	-	-	anhy
SF 2	894.33-94.45	0.12	-	0.71	-	0.085	0.044	0.005	-	2870	0.000	0.402	dol i anhy
-	894.45-94.60	0.15	-	-	-	-	-	-	-	-	-	-	anhy
SF 3	894.60-94.69	0.09	-	1.60	-	0.144	0.069	0.006	-	2870	0.211	0.301	dol i ppv anhy
4	894.69-94.96	0.27	.09	0.53	0.08	0.143	0.036	0.010	2690	2790	trace	0.494	dol i ppv
5	894.96-95.11	0.15	.10	0.38	0.36	0.057	0.058	0.009	2610	2770	trace	0.621	dol i ppv
6	895.11-95.44	0.33	.15	6.08	5.86	2.007	0.082	0.027	2540	2770	0.135	0.288	dol i ppv sv
7	895.44-95.74	0.30	.15	0.77	0.45	0.231	0.040	0.012	2600	2710	0.135	0.287	ls i ppv sv
8	895.74-95.92	0.18	.12	5.74	5.56	1.033	0.072	0.013	2510	2710	0.199	0.246	ls i ppv sv
-	895.92-96.80	0.88	-	-	-	-	-	-	-	-	-	-	ls sty
SF 9	896.80-96.92	0.12	-	2.63	-	0.316	0.105	0.013	-	2760	0.090	0.520	ls i ppv anhy
-	896.92-97.07	0.15	-	-	-	-	-	-	-	-	-	-	ls anhy
10	897.07-97.25	0.18	.10	7.35	7.11	1.323	0.137	0.025	2360	2740	0.035	0.489	ls i ppv sv anhy
11	897.25-97.39	0.14	.08	0.52	0.48	0.073	0.100	0.014	2440	2710	0.000	0.483	ls i ppv shbk
12	897.39-97.61	0.22	.15	44.9	44.0	9.877	0.185	0.041	2200	2700	0.128	0.355	ls i ppv sv foss
13	897.61-97.83	0.22	.08	24.3	20.2	5.346	0.181	0.040	2200	2710	0.212	0.319	ls i ppv sv foss
14	897.83-98.11	0.28	.15	106.	106.	29.678	0.174	0.049	2220	2690	0.120	0.335	ls i ppv sv
15	898.11-98.29	0.18	.09	318.	305.	57.245	0.175	0.032	2230	2700	0.182	0.341	ls i ppv sv foss
16	898.29-98.49	0.20	.13	110.	67.2	22.002	0.140	0.028	2320	2700	0.133	0.336	ls i ppv sv vfrac
17	898.49-98.85	0.36	.13	33.3	30.4	11.988	0.129	0.046	2360	2710	0.115	0.376	ls i ppv sv vfrac
(898.85-99.01	0.16	.07	61.9	61.9	9.906	0.162	0.026	2280	2730	0.101	0.440	ls i ppv sv
1,	899.01-99.25	0.24	.15	11.5	6.28	2.760	0.132	0.032	2330	2690	0.163	0.481	ls i ppv sv

THESE ANALYSES, OPINIONS OR INTERPRETATIONS ARE BASED ON OBSERVATIONS AND MATERIALS SUPPLIED BY THE CLIENT TO WHOM; AND FOR WHOSE EXCLUSIVE AND CONFIDENTIAL USE; THIS REPORT IS MADE. THE INTERPRETATIONS OR OPINIONS EXPRESSED REPRESENT THE BEST JUDGMENT OF CORE LABORATORIES - CANADA LTD. (ALL ERRORS AND OMISSIONS EXCEPTED); BUT CORE LABORATORIES - CANADA LTD. AND ITS OFFICERS AND EMPLOYEES, ASSUME NO RESPONSIBILITY AND MAKE NO WARRANTY OR REPRESENTATIONS, AS TO THE PRODUCTIVITY, PROPER OPERATIONS, OR PROFITABLENESS OF ANY

CORE LABORATORIES - CANADA, LTD.

COMPANY ROXY PETROLEUM LTD.
WELL ROXY-CLARION ET AL MOUNTAINSIDE 13-16-2-21

FORMATION
CORING EQUIPMENT

MISSISSIPPIAN
DIAMOND

PAGE 2
FILE 7004-82-479

FULL DIAMETER ANALYSIS

Sample Number	Depth Metres (m)	Rep.	Sample Length	Permeability to Air		Perm. X	Porosity		Density: kg/m3 (Frac of Pore Vol)	Residual Saturation			VISUAL EXAMINATION	
				mD Max.	mD 90 deg.		mD V	X		m	Bulk	Grain		Oil
CORE NO. 1 CONTINUED														
20	899.25-99.51	0.26	.07	36.7	30.7	14.3	9.542	0.144	0.037	2320	2710	0.149	0.337	ls i PPV sv
21	899.51-99.76	0.25	.16	2.95	2.74	1.45	0.737	0.117	0.029	2380	2690	0.174	0.405	ls i PPV sv
22	899.76-99.91	0.15	-	53.8	-	-	8.070	0.147	0.022	-	2700	0.148	0.206	ls i PPV sv
23	899.91- 0.09	0.18	.09	*	5.54	*	0.997	0.121	0.022	2380	2710	0.000	0.398	ls i PPV sv
24	900.09- 0.27	0.18	.08	810.	681.	174.	145.778	0.160	0.029	2290	2720	0.144	0.183	ls i PPV sv
25	900.27- 0.64	0.37	.14	142.	133.	116.	52.537	0.173	0.064	2240	2700	0.173	0.213	ls i PPV sv
26	900.64- 0.78	0.14	.09	4.74	4.37	0.93	0.664	0.117	0.016	2390	2700	0.202	0.167	ls i PPV sv
27	900.78- 1.05	0.27	.09	95.6	91.4	13.2	25.809	0.099	0.027	2450	2720	0.214	0.145	ls i PPV sv
28	901.05- 1.22	0.17	.07	4.51	4.00	0.07	0.767	0.080	0.014	2500	2710	0.164	0.368	ls i PPV sv
29	901.22- 1.42	0.20	.14	8.24	6.29	4.20	1.648	0.083	0.017	2470	2690	0.142	0.244	ls i PPV sv
30	901.42- 1.64	0.22	.10	5.52	5.46	4.82	1.214	0.107	0.024	2410	2700	0.146	0.292	ls i PPV sv
31	901.64- 1.79	0.15	.09	12.9	12.9	9.06	1.935	0.109	0.016	2420	2710	0.163	0.159	ls i PPV sv
32	901.79- 2.09	0.30	.17	16.9	16.0	9.49	5.070	0.109	0.033	2400	2700	0.157	0.170	ls i PPV sv
33	902.09- 2.25	0.16	.07	8.96	7.03	1.53	1.433	0.081	0.013	2480	2700	0.153	0.188	ls i PPV sv
34	902.25- 2.53	0.28	.06	10.6	9.40	3.42	2.968	0.102	0.029	2450	2730	0.174	0.202	ls i PPV sv
35	902.53- 2.65	0.12	.07	4.00	3.50	0.47	0.480	0.094	0.011	2450	2700	0.224	0.218	ls i PPV sv
36	902.65- 2.88	0.23	.14	18.3	18.3	3.46	4.209	0.123	0.028	2370	2700	0.214	0.144	ls i PPV sv
37	902.88- 3.06	0.18	.10	31.2	31.2	3.14	5.616	0.114	0.021	2410	2730	0.210	0.183	ls i PPV sv
38	903.06- 3.30	0.24	.12	5.50	5.50	1.24	1.320	0.093	0.022	2450	2700	0.224	0.234	ls i PPV sv
39	903.30- 3.53	0.23	.16	104.	39.9	35.7	23.921	0.116	0.027	2380	2700	0.206	0.240	ls i PPV sv
40	903.53- 3.65	0.12	.06	0.21	0.21	0.06	0.025	0.057	0.007	2550	2710	0.185	0.252	ls i PPV sv
41	903.65- 3.85	0.20	.08	44.3	42.5	3.16	8.859	0.135	0.027	2340	2700	0.199	0.270	ls i PPV sv
42	903.85- 4.02	0.17	.10	48.2	24.9	2.78	8.195	0.128	0.022	2360	2700	0.202	0.177	ls i PPV sv
43	904.02- 4.22	0.20	.11	65.2	62.2	21.9	13.039	0.152	0.030	2290	2700	0.200	0.176	ls i PPV sv
44	904.22- 4.42	0.20	.14	55.0	50.4	4.92	11.002	0.143	0.029	2310	2690	0.206	0.206	ls i PPV sv

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CORE LABORATORIES - CANADA, LTD.

COMPANY ROXY PETROLEUM LTD.
WELL ROXY-CLARION ET AL MOUNTAINSIDE 13-16-2-21

FORMATION
CORING EQUIPMENT

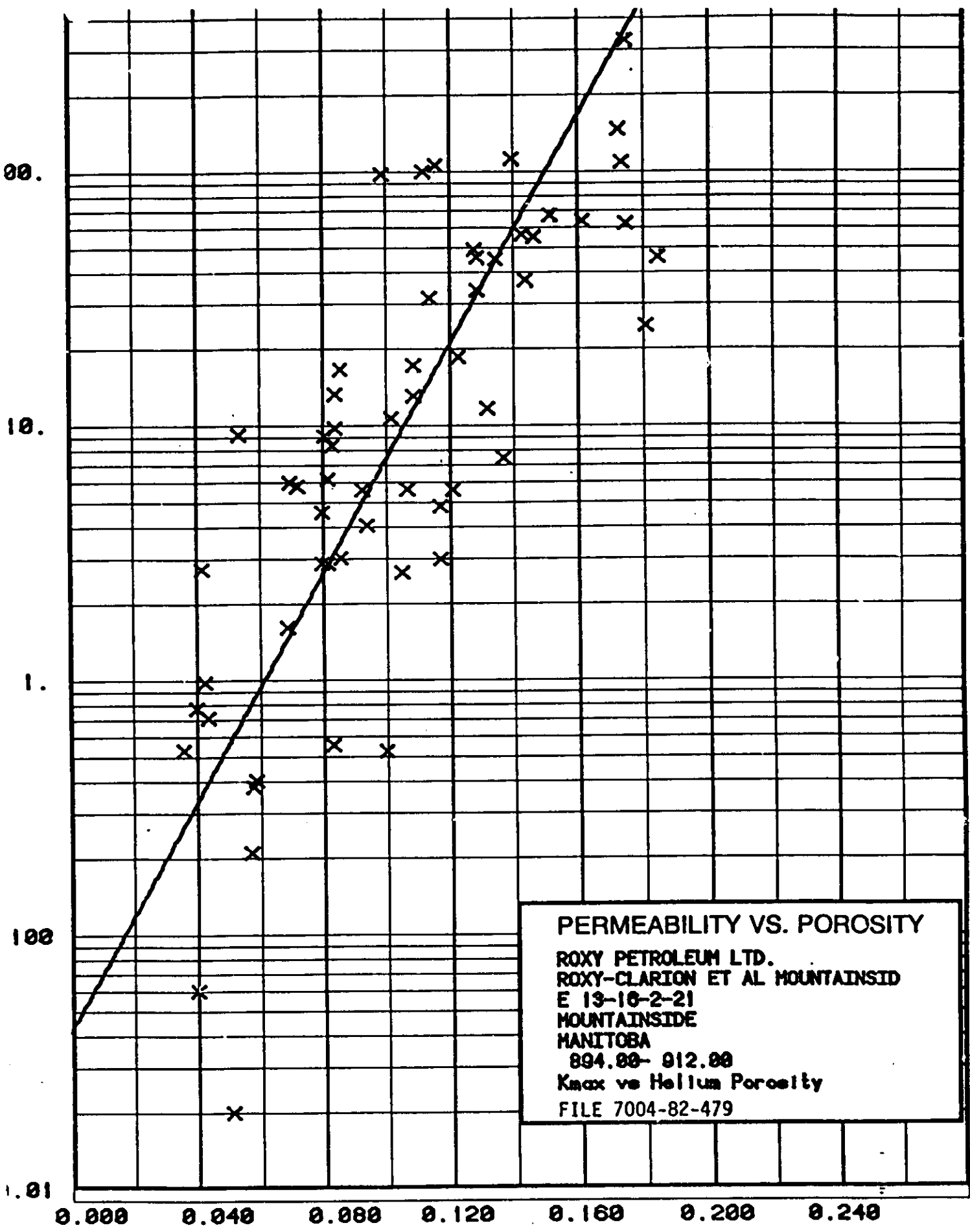
MISSISSIPPIAN
DIAMOND

PAGE 3
FILE 7004-82-479

FULL DIAMETER ANALYSIS

Sample Number	Depth Metres (m)	Rep.	Sample Length	Permeability to Air Millidarcys		Perm. X	Porosity		Density:kg/m3 (Frac of Pore Vol)	Residual Saturation			VISUAL EXAMINATION
				md Max.	md 90 deg.		md V	X		m	Bulk	Grain	
CORE NO. 1 CONTINUED													
45	904.42-4.71	0.29	.11	44.6	43.9	0.96	12.935	0.129	0.037	2350	2690	0.125	0.139 ls i vus
46	904.71-4.79	0.08	.05	*	0.40	*	0.032	0.059	0.005	2520	2680	0.060	0.251 ls i ppv sv
-	904.79-4.83	0.04	-	-	-	-	-	-	-	-	-	-	sh
47	904.83-4.96	0.13	.09	2.71	2.29	<0.01	0.352	0.042	0.005	2580	2690	0.091	0.530 ls i vus foss styl
48	904.96-5.18	0.22	.05	2.85	2.73	0.62	0.627	0.080	0.018	2490	2710	0.070	0.472 ls i ppv sv
49	905.18-5.30	0.12	.06	*	13.1	*	1.572	0.084	0.010	2460	2690	0.099	0.428 ls i ppv styl
50	905.30-5.50	0.20	.08	*	3.01	*	0.602	0.086	0.017	2470	2700	0.157	0.291 ls i ppv sv
51	905.50-5.75	0.25	.08	*	5.92	*	1.480	0.070	0.018	2510	2690	0.217	0.246 ls i ppv sv frac
52	905.75-5.92	0.17	.07	*	16.4	*	2.788	0.086	0.015	2460	2690	0.270	0.316 ls i ppv sv
53	905.92-6.19	0.27	.11	*	60.7	*	16.390	0.175	0.047	2210	2690	0.212	0.270 ls i ppv sv
54	906.19-6.45	0.26	.11	*	9.69	*	2.519	0.084	0.022	2460	2690	0.188	0.224 ls i ppv sv
55	906.45-6.62	0.17	.08	*	0.55	*	0.093	0.083	0.014	2480	2700	0.219	0.176 ls i ppv
56	906.62-6.88	0.26	.10	97.3	82.5	18.9	25.298	0.112	0.029	2390	2700	0.178	0.207 ls i vus foss
SP 57	906.88-6.96	0.08	-	2.86	-	-	0.229	0.082	0.007	-	2700	0.172	0.271 ls i ppv sv
-	906.96-7.00	0.04	-	-	-	-	-	-	-	-	-	-	ls anhy
58	907.00-7.25	0.25	.10	9.07	8.32	2.35	2.267	0.054	0.014	2530	2690	0.142	0.246 ls i ppv sv styl
-	907.25-7.74	0.49	-	-	-	-	-	-	-	-	-	-	ls shy
59	907.74-7.96	0.22	.09	0.97	0.95	0.12	0.213	0.043	0.009	2570	2690	0.194	0.194 ls i ppv pyr
60	907.96-8.25	0.29	.14	0.06	0.06	0.02	0.017	0.040	0.012	2600	2700	0.000	0.593 ls i ppv styl pyr
-	908.25-12.00	3.75	-	-	-	-	-	-	-	-	-	-	ls shy sty
2.60													
0.639													

THESE ANALYSES, OPINIONS OR INTERPRETATIONS ARE BASED ON OBSERVATIONS AND MATERIALS SUPPLIED BY THE CLIENT TO WHOM; AND FOR WHOSE EXCLUSIVE AND CONFIDENTIAL USE; THIS REPORT IS MADE. THE INTERPRETATIONS OR OPINIONS EXPRESSED REPRESENT THE BEST JUDGMENT OF CORE LABORATORIES - CANADA LTD. (ALL ERRORS AND OMISSIONS EXCEPTED); BUT CORE LABORATORIES - CANADA LTD. AND ITS OFFICES AND EMPLOYEES, AGREE IN CONNECTION WITH THIS REPORT.



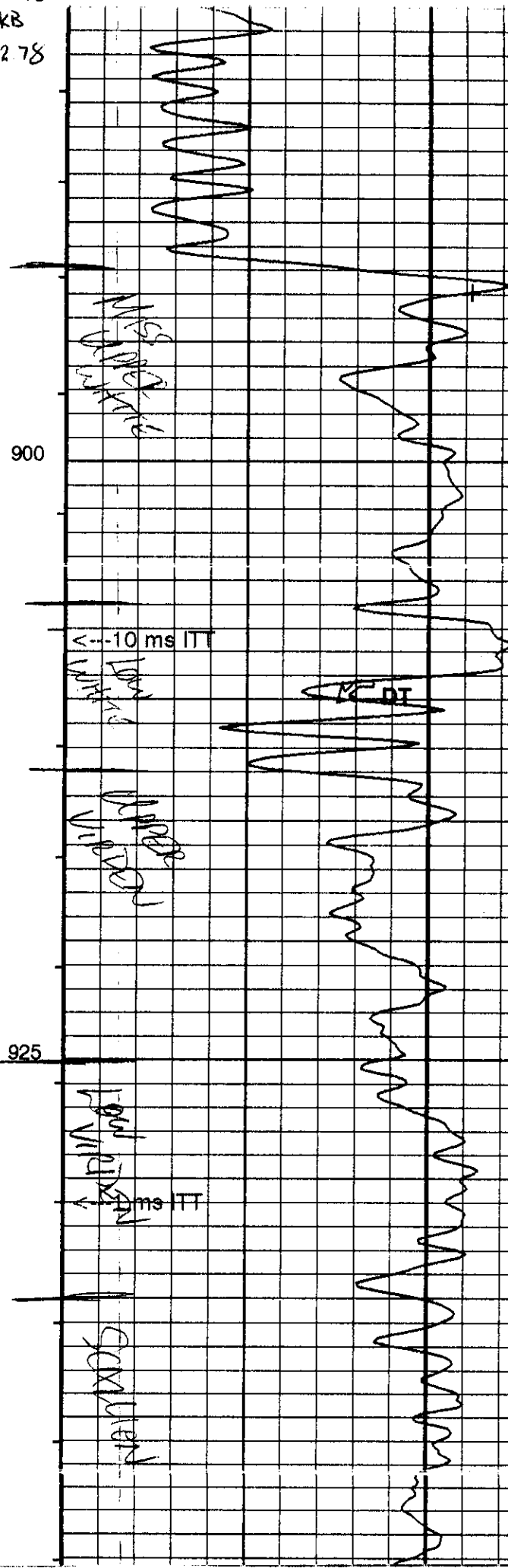
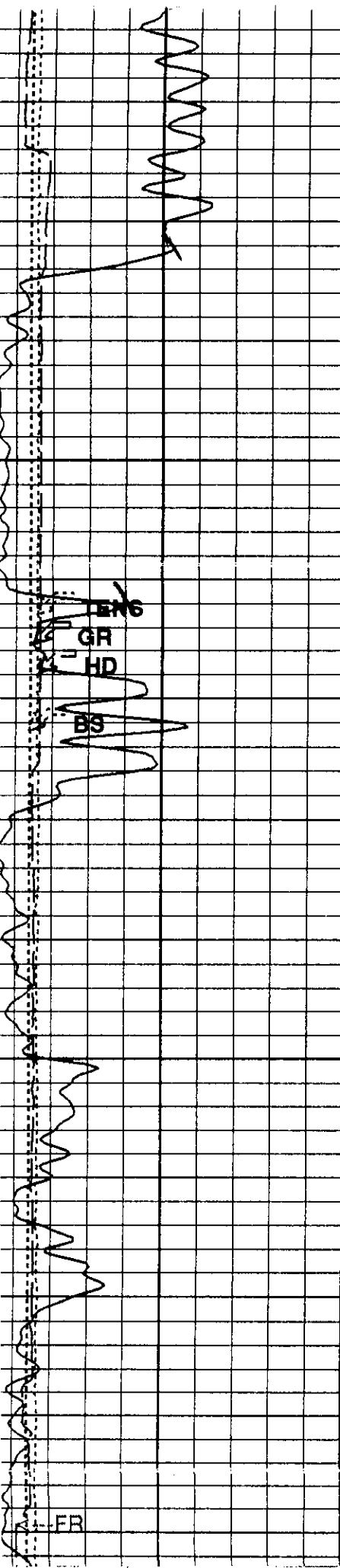
14-16-2-21

OOLP DETERMINATION

INTERVAL	ϕ_N	ϕ_D	ϕ_{N-D}	R_t	SW
893.4 - 94.8	12.5	9		3.8	
894.8 - 96.0	11.5	8.5		8	
896 - 97.5	19.5	18		10	
897.5 - 98	15	15		4.6	
898 - 98.5	12.5	11.5		5.5	
898.5 - 99.5	15	15		20	
899.5 - 902	10	8			
902 - 03	10.5	10			
903 - 03.5	11.5	11			
903.5 - 04.5	15	14.5			
904.5 - 05	12.5	12			
905 - 06	11	10.5			

INDUCTION
LOW MISREADING.

14-16
KB
602.78



14-16
KB
60278

900

925

0000

FR

FR

14-16
KB
602.78

875

LODGE.
UP. WHITE

880

900

LOW
WHITE

UP
VIRID

925

L. VIRIDEN

12-16

KB

607.7

Blt Size (BS)
(MM)

125

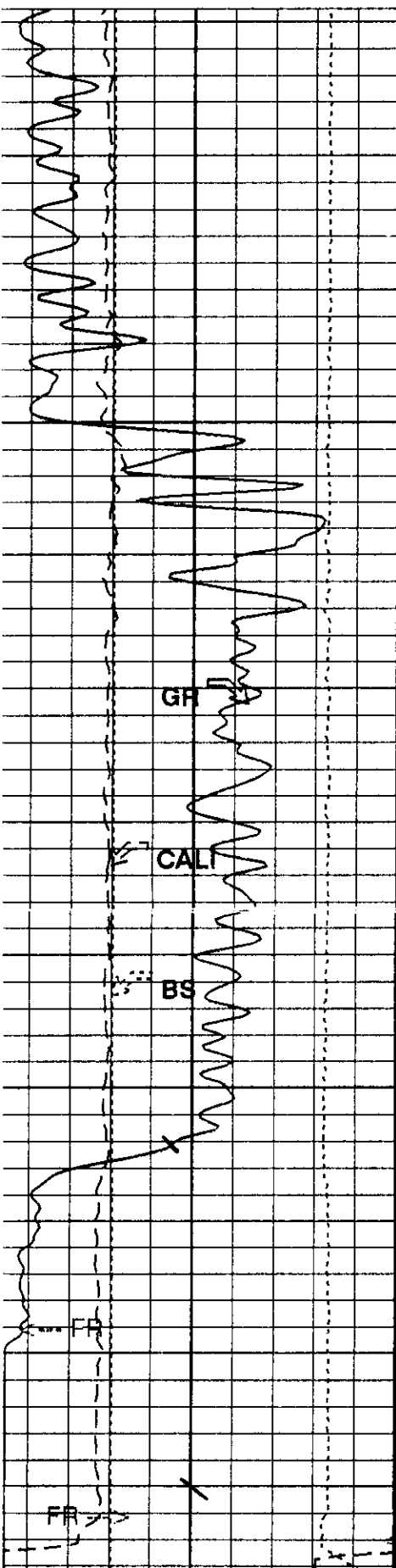
375

Density Porosity (DPHI)
(V/V)

0.45

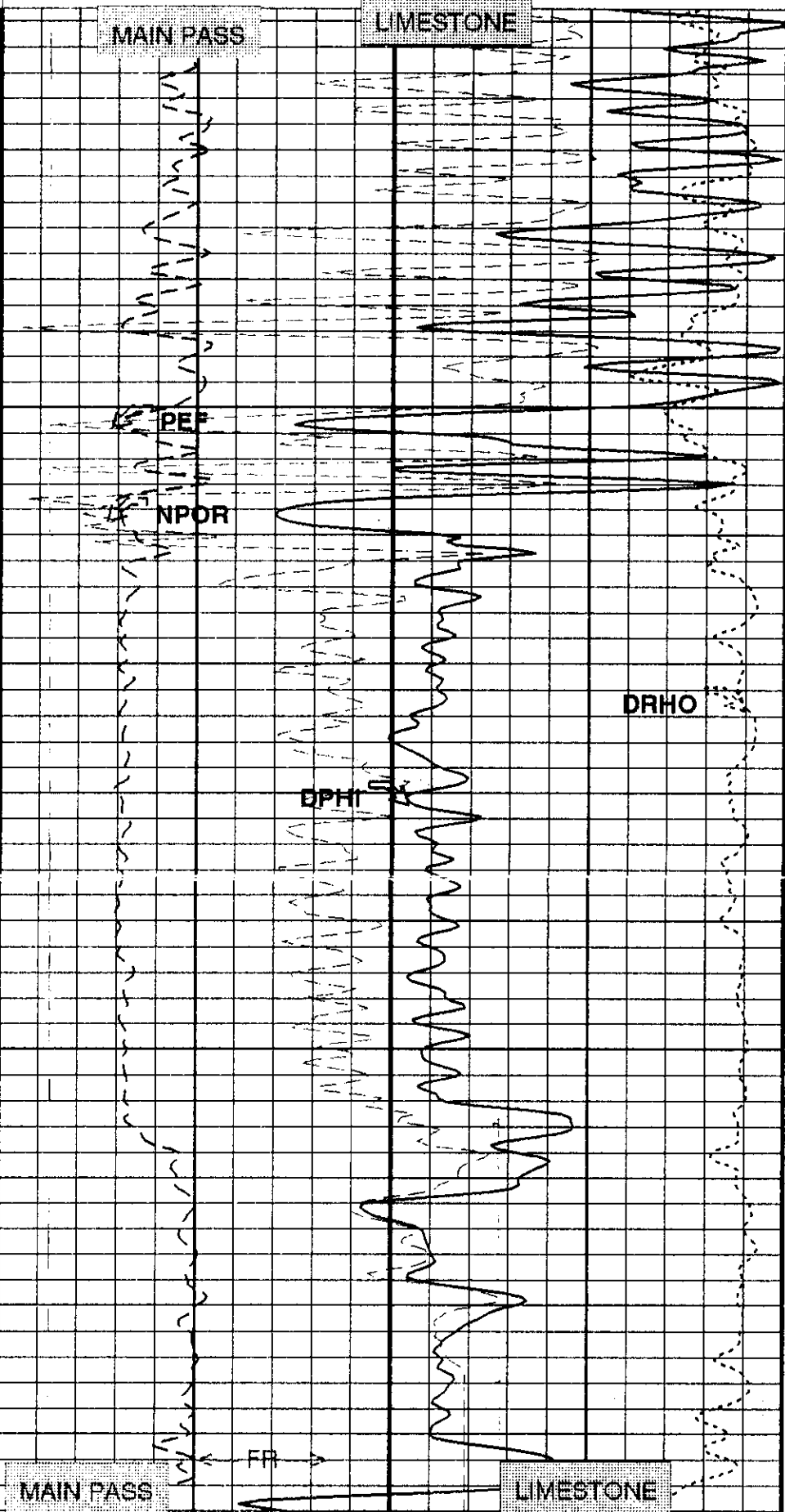
(V/V)

-0.15



875

900



Blt Size (BS)
(MM)

25

375

Density Porosity (DPHI)
(V/V)

0.45

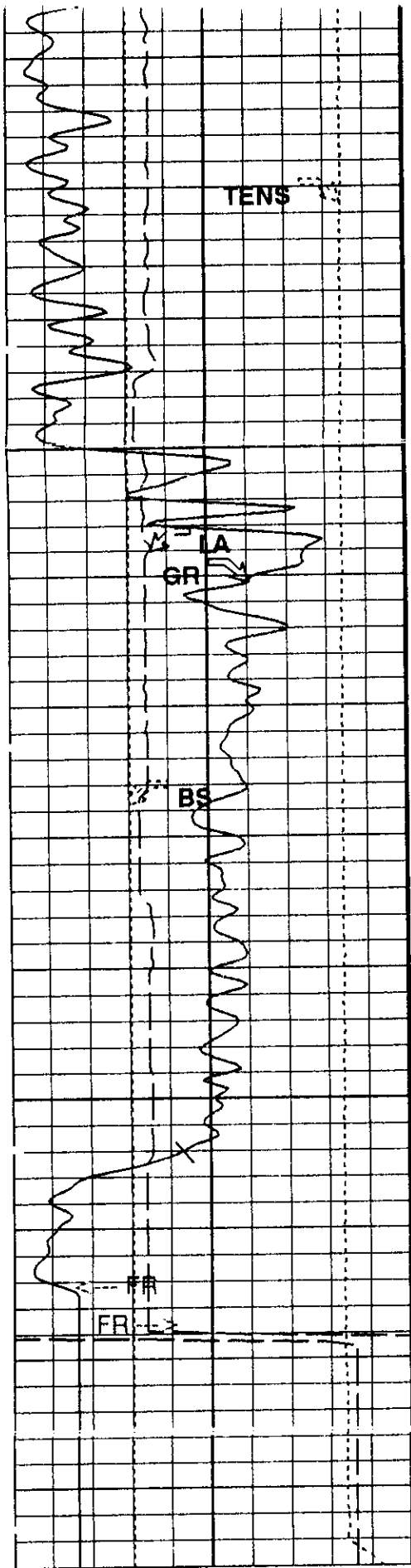
(V/V)

-0.15

Caliper (CALI)

Alpha Processed Neutron Porosity (NPOR)

12-16
KB
607.7

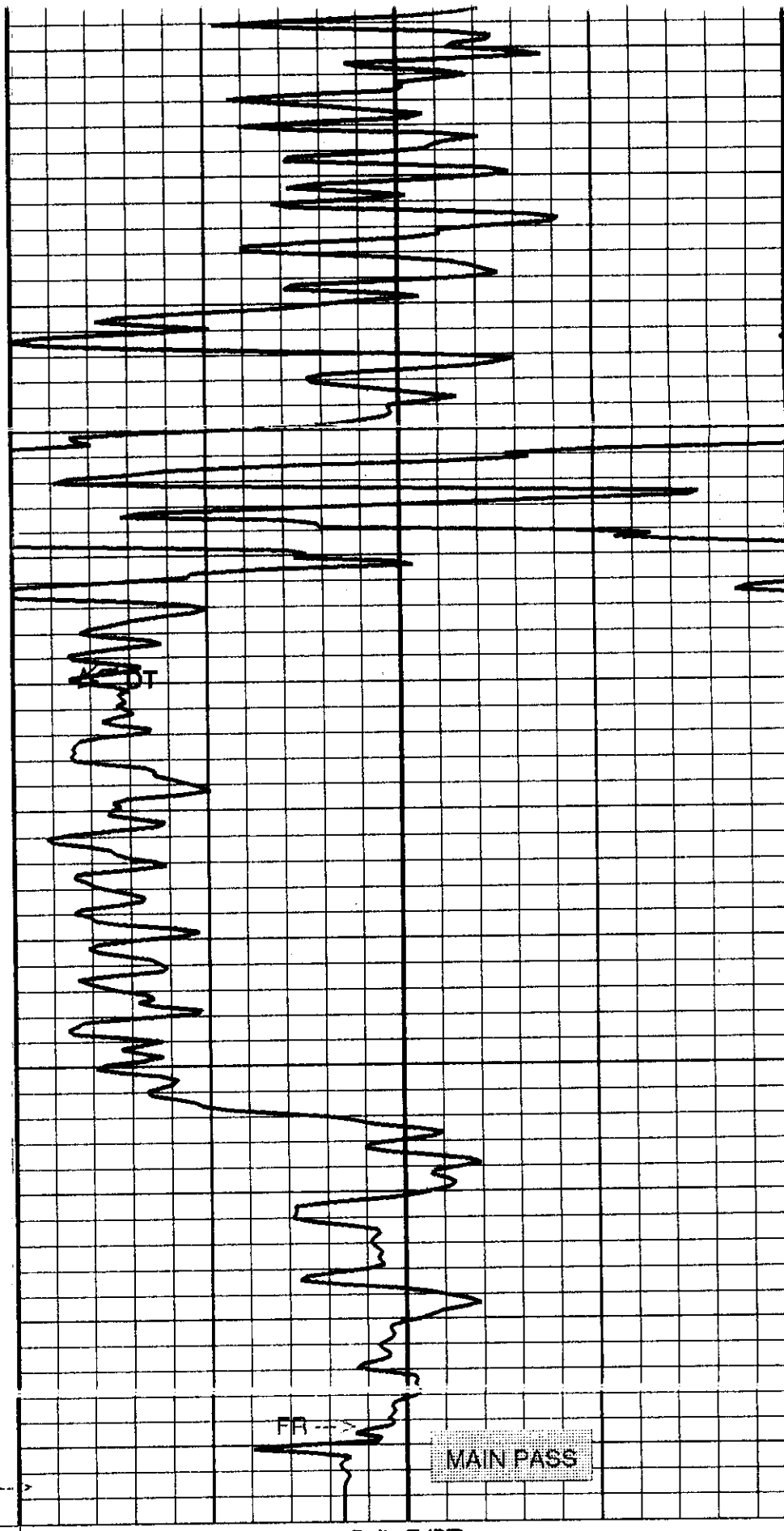


125 Bit Size (BS) (MM) 375
0 Gamma Ray (GR) (GAPI) 150

875

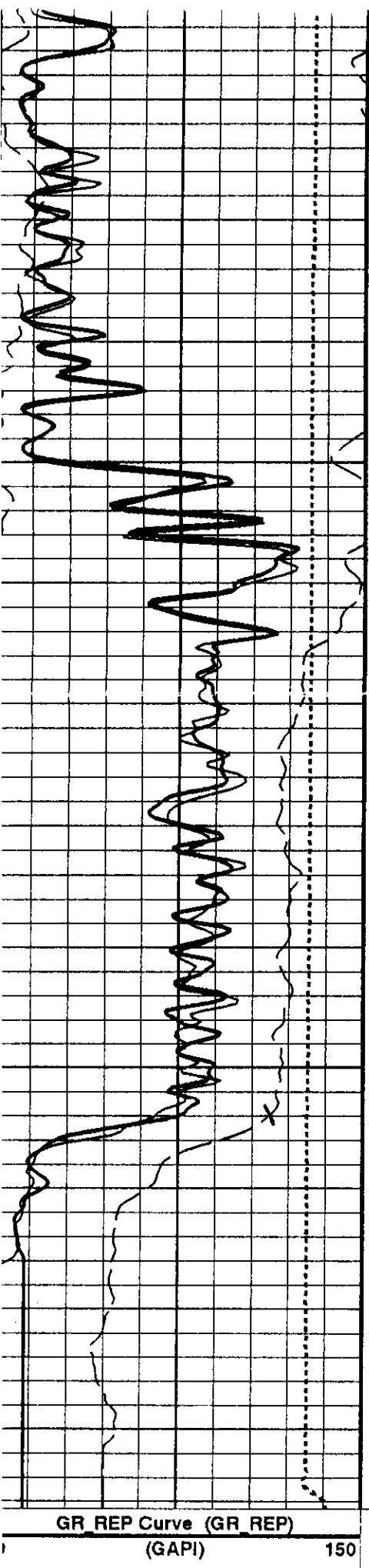
900

← TD →



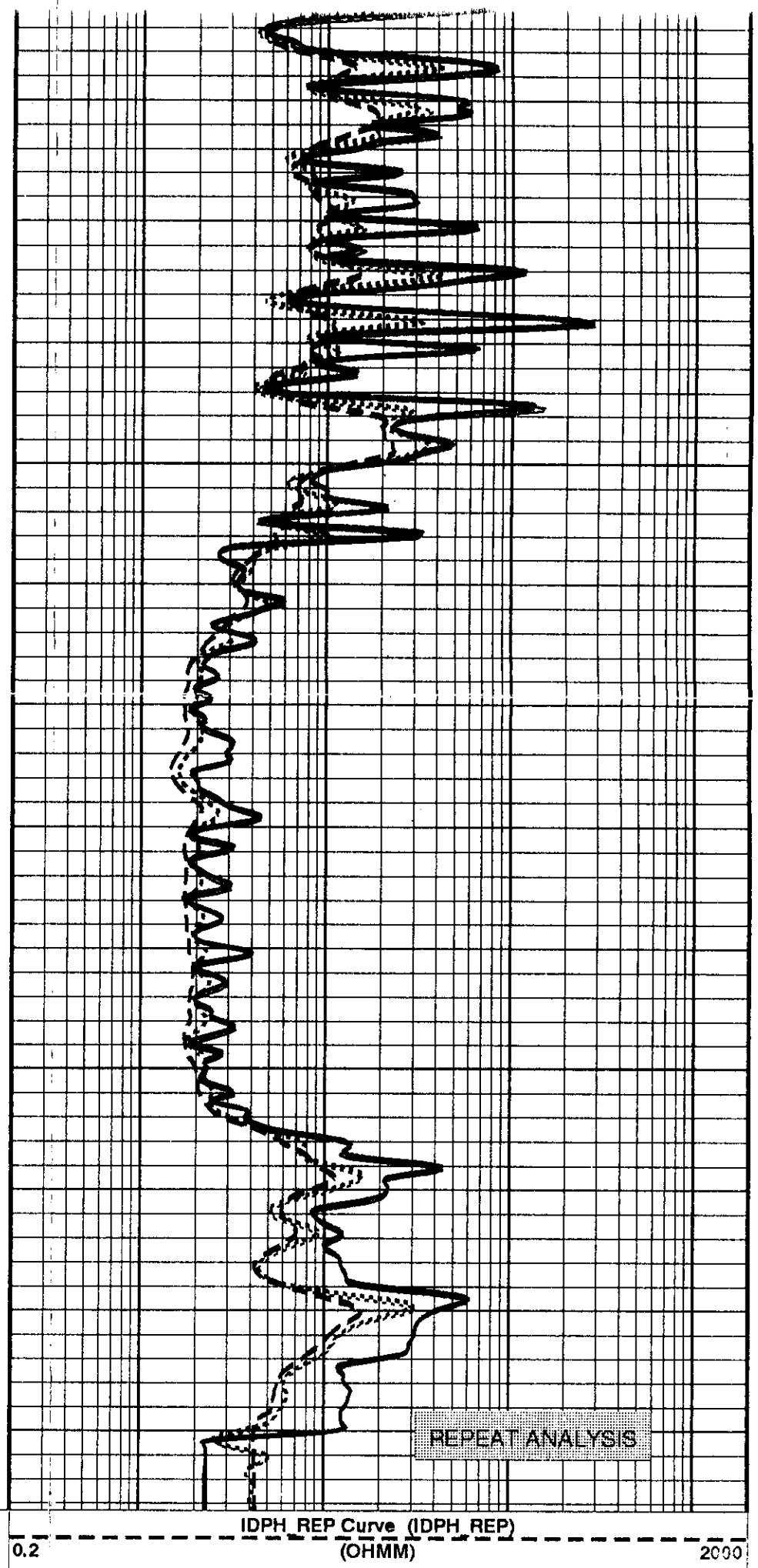
300 Delta-T (DT) (US/M)

12-16
KB
607.7

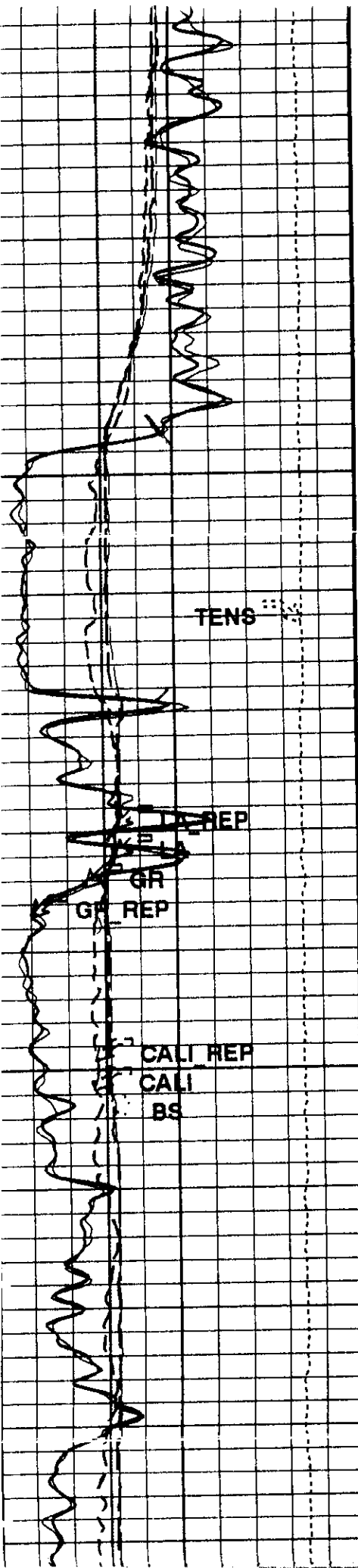


875

900

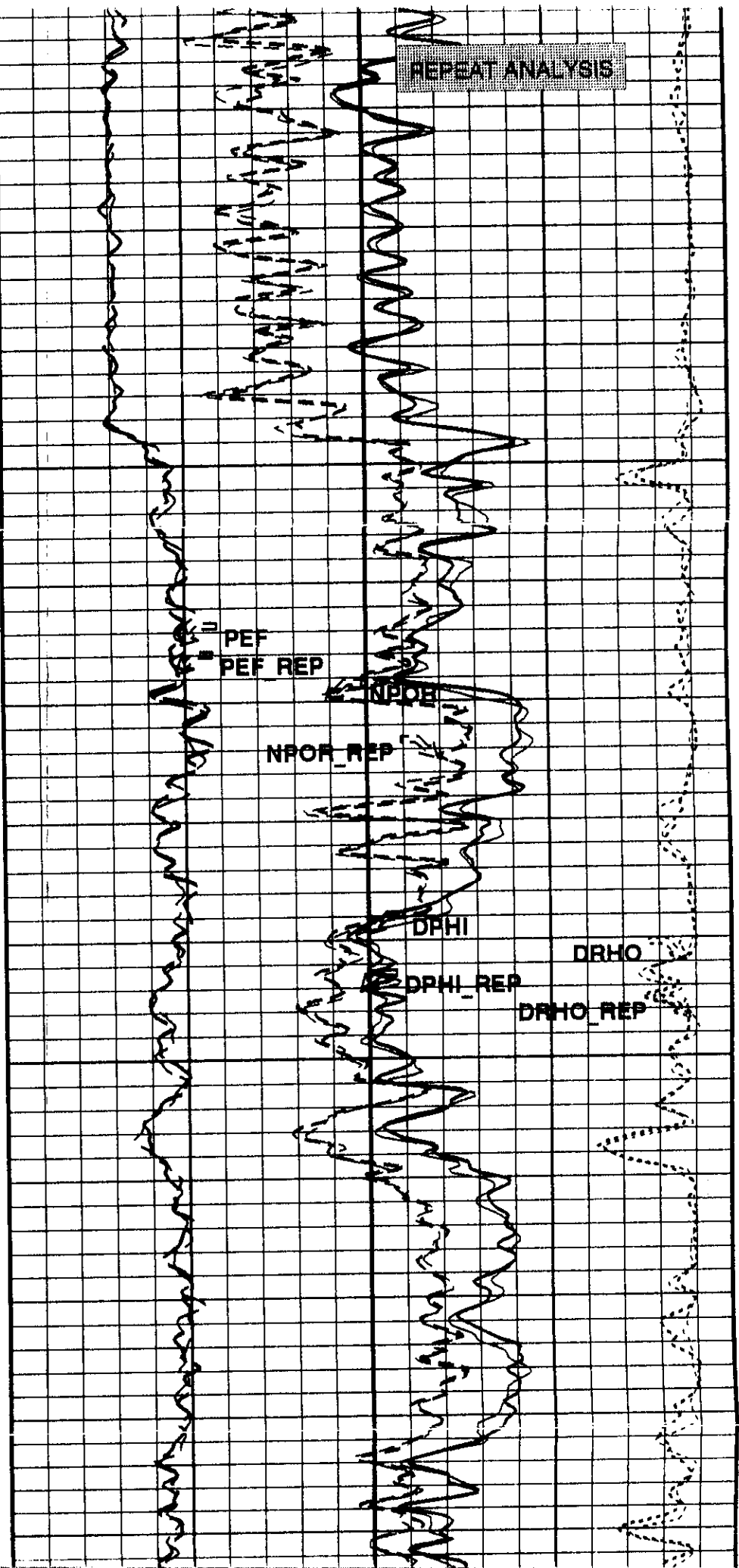


411-16
KB
605 45



900

925



A11-16
KB
605.45

900

TENS
SP REP

SP

SFQF

925

IMQF

IDQF

950

SFLU REP

SFLU

IMPH REP

IDPH REP

IMPH

IDPH

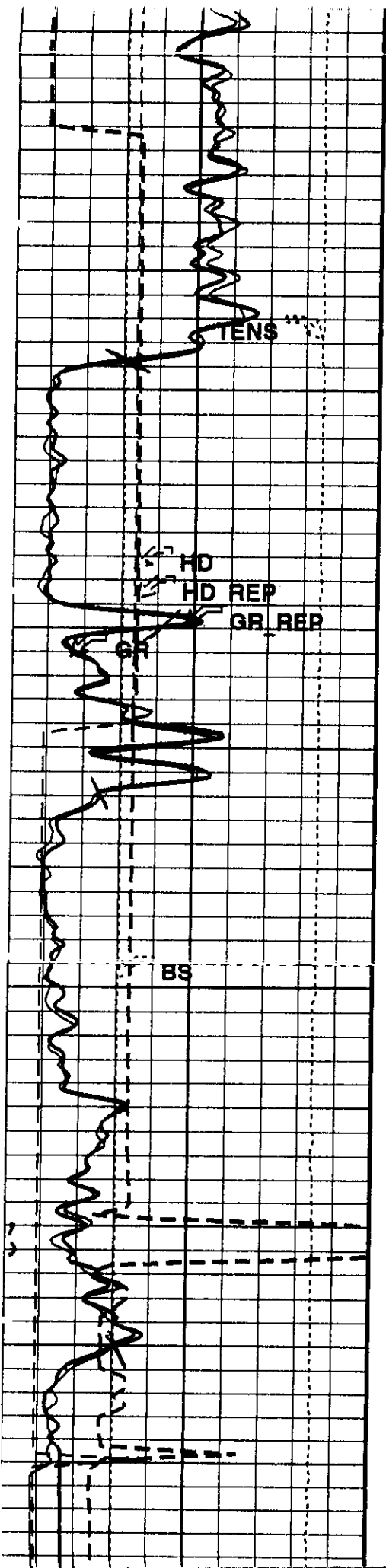
A11-16
KB
605.45

900

925

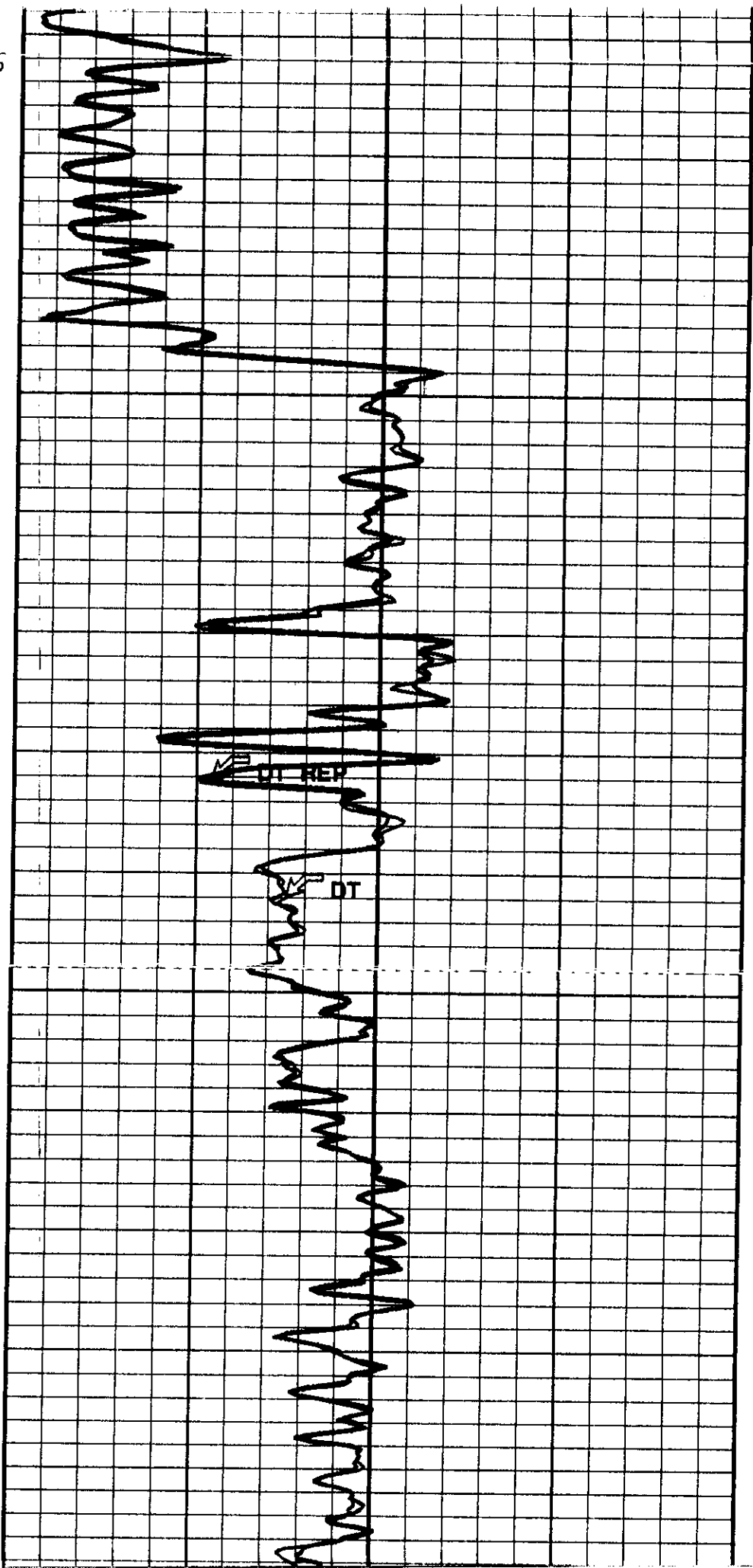
A hand-drawn graph on millimeter paper. The vertical axis is marked with a central horizontal line and several horizontal grid lines above and below it. Two curves are plotted: a solid line and a dashed line. Both curves start at the bottom left, rise to a sharp peak, then fall to a sharp dip, and finally rise again towards the top right. The solid line has a higher peak and a deeper dip than the dashed line. The curves are roughly symmetric about the central horizontal axis.

R11-16
KB
605.45

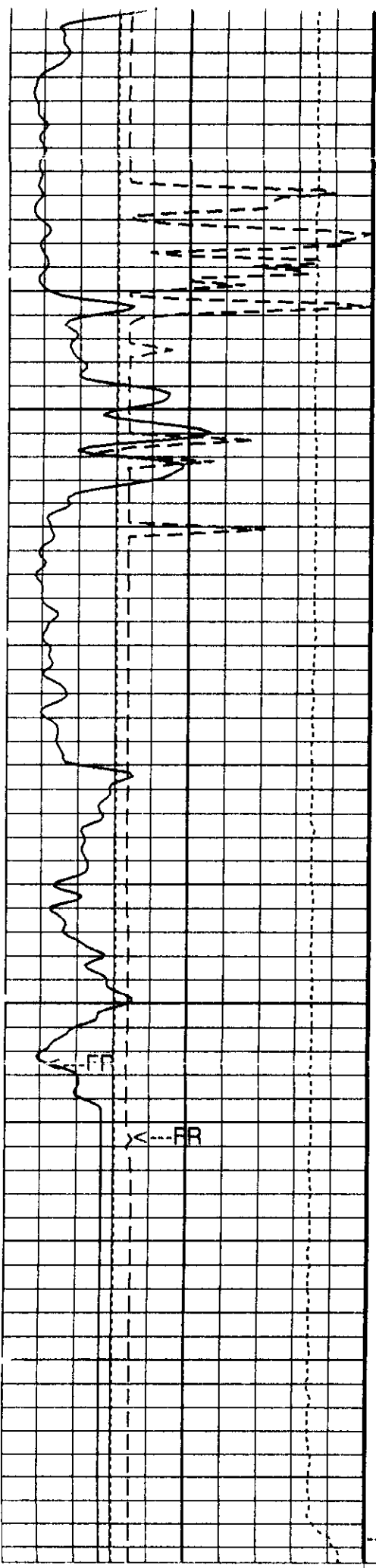


900

925

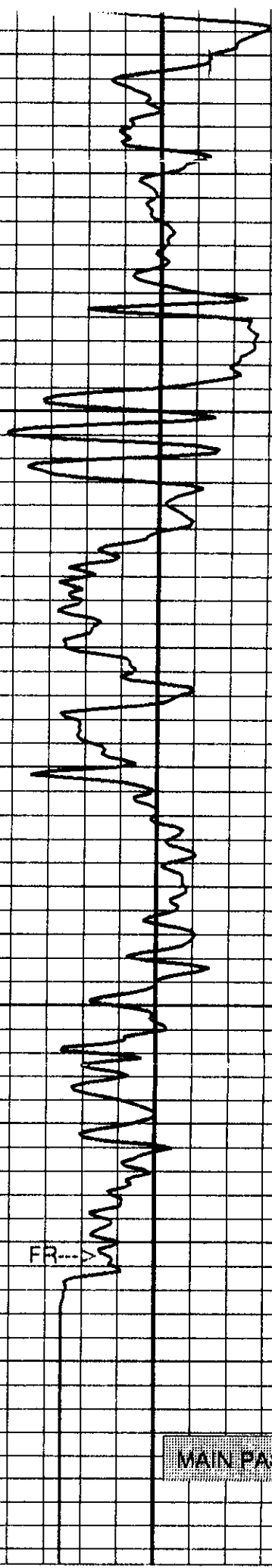


3-21
KB
596.42



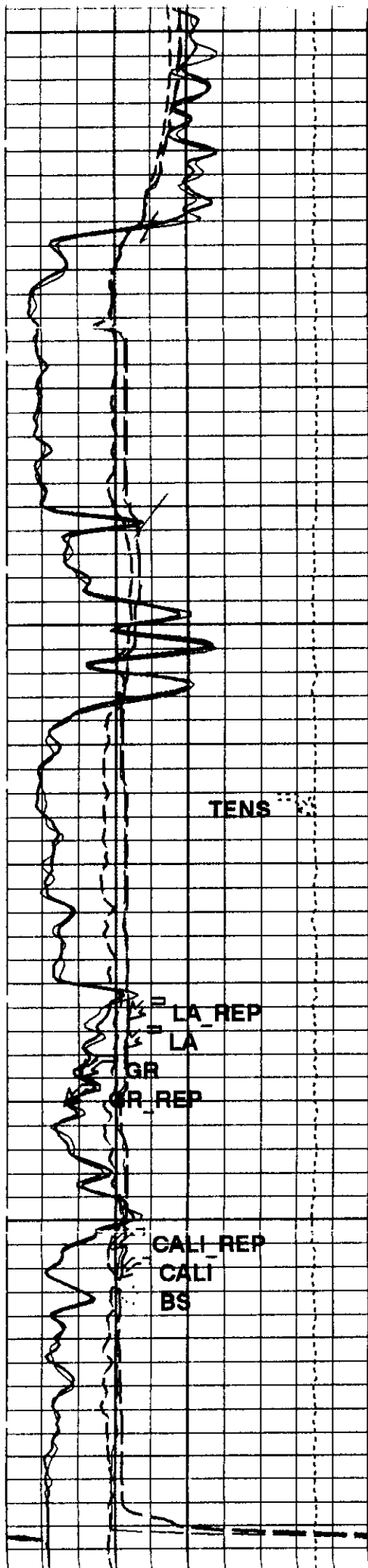
900

925



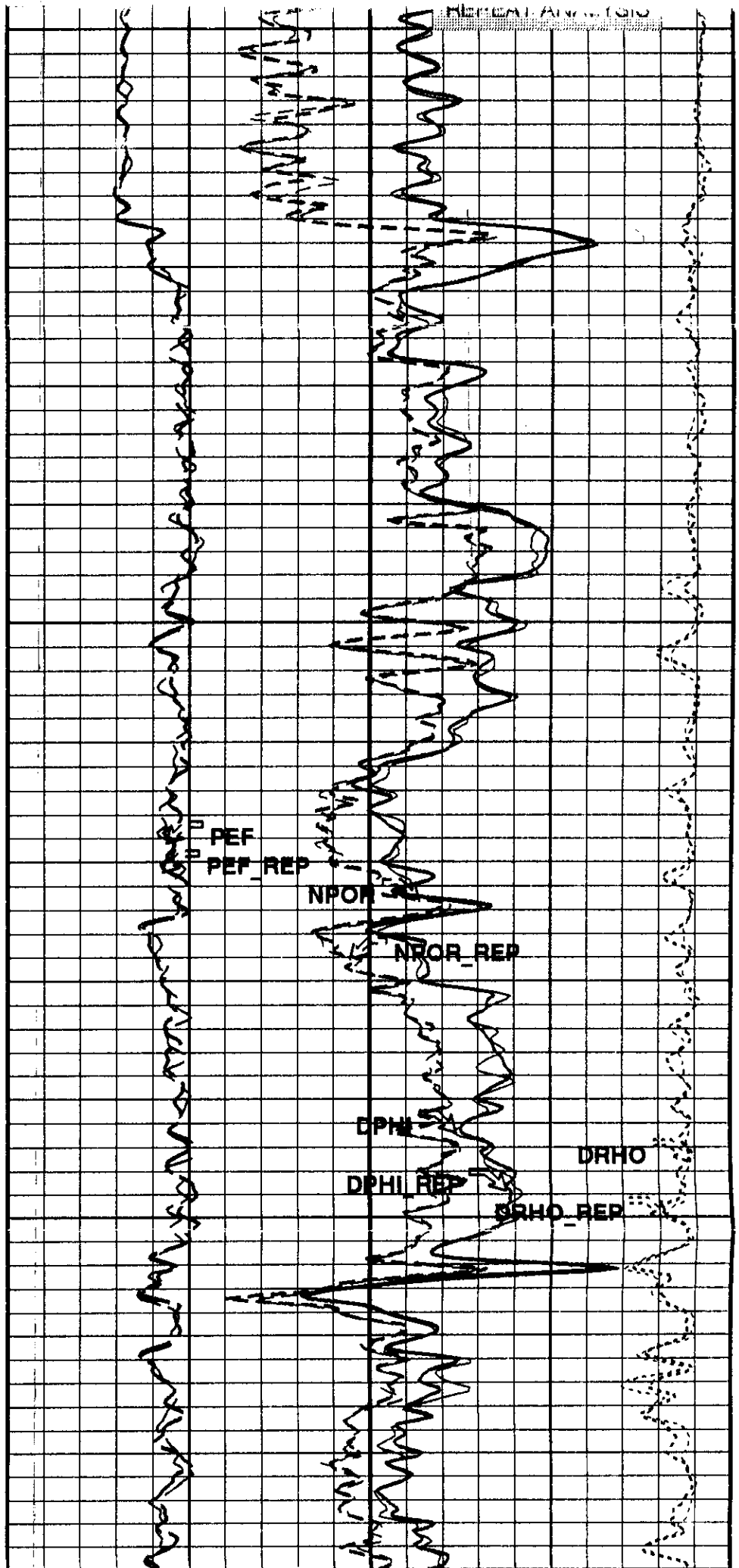
MAIN PASS

3-21
875
KB
59542



900

925



3-21
KB
595.42

900

925

MAIN PASS



Memorandum

Date August 7, 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

Subject

Telephone

FILE
OTHER AREAS
Lodgepole WL E Pool
MPR Application
13-16-2-21

RE: Application for MPR Increase
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

Canadian Roxy Petroleum Ltd. (Cdn Roxy) applied June 26, 1990 to increase the maximum permissible production rate (MPR) for the subject well to 375 m³/month and to retire the accumulated over-production. The lessors and lessees within 0.5 km of the subject well were notified directly by the Board of the application. No objections to or interventions in the application were received.

RECOMMENDATIONS

It is recommended that the Board approve an increase in the daily and monthly maximum permissible production rate for the 13-16-2-21 (WPM) well to 15 m³ and 375 m³ clean oil, respectively. It is also recommended that the company be requested to conduct a pressure survey in the Lodgepole WL E Pool this year. A copy of the proposed Board letter of approval is attached.

DICUSSION

The 13-16-2-21 well produces from the Upper Whitewater Lake (UWWL) Member of the Lodgepole Formation in the Lodgepole WL E Pool. The pool which is located halfway between the Lulu Lake and Whitewater Fields was discovered in July, 1982.

The Lodgepole WL E Pool is located on a very localized structural high along the erosional edge of the UWWL Member. There are six wells in the pool (Figure 1), four producers, one of which is shut-in, and two abandoned producers. There is also a standing well just outside the pool boundary.

The estimated original oil-in-place in the Lodgepole WL E Pool is 224.7 x 10³m³. To May 31, 1990 a total of 24.9 x 10³m³ oil and 97.4 x 10³m³ water have been produced. The 13-16-2-21 well has produced 62% of the cumulative pool production. Table 1 lists the average reservoir parameters for the pool.

First | Fold

PRODUCTION PERFORMANCE

It is extremely difficult to predict individual well performance in the Lodgepole WL E Pool based on log and core parameters. For example, the 11-16 well has average porosity and permeability of 13% and 12.4 md over a 2.9 m interval in the UWWL. This interval also has a calculated water saturation of 54%. Yet prior to abandonment, the 11-16 well only produced 94.9 m³ oil and 1133 m³ water. By comparison, the 13-16 well has average porosity and permeability of 12.9% and 27.5 md and a calculated water saturation of 50% over a thicker 7.1 m interval. The 13-16 well has produced 15 238 m³ oil and 48 757 m³ water.

Structural position and gross thickness of the UWWL Member appear to correlate well with individual well performance. The structurally highest wells and wells with the thickness UWWL section; 13-16-2-21, 16-17-2-21 and 4-21-2-21 are the most productive (Table 2). These three wells account for 98% of the Lodgepole WL E Pool's cumulative production.

Individual production plots of the 13-16, 16-17 and 4-21 wells are shown in Figures 2 to 4. Increased production at the 13-16 commenced in December, 1988 after a tubing pump was installed to increase reservoir withdrawal rates. From December, 1988 to April, 1990 production averaged 331 m³ per month (Figure 2). The increase in withdrawal rates has resulted in a slight increase in water-cut from an average of 73.8% in 1988 to 84.7% in 1990. Water-cut performance appears to be consistent with the anticipated increase in water-cut associated with a water drive reservoir rather than an indication of water-cut sensitivity to producing rate.

Increased production at 13-16 does not appear to have had an adverse effect on production at the offsetting wells. A tubing pump was run in the 16-17 well in November, 1988 at the same time as 13-16 and resulted in an increase in production of 1.2 m³ OPD and 18.7 m³ WPD. Oil production has steadily declined since December, 1988 back to levels similar to those prior to the tubing pump installation (Figure 3).

The 4-21 has produced at marginally economics rates (< 1.0 m³ OPD) since early in 1988 (Figure 4). In an effort to increase productivity additional perforations were added in April, 1988. After some flush production, the well's production appears to have returned to its previous decline.

ECONOMICS

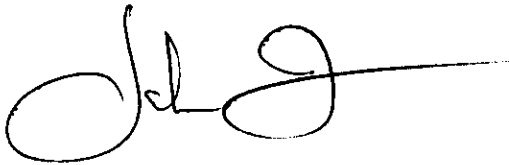
Cdn Roxy's average lifting costs in the Lodgepole WL E Pool are \$28 /m³. The lifting costs included trucking costs of \$8 /m³ but do not include freehold royalties and freehold production tax. There is quite a variation in lifting costs between wells. The lifting costs for the 13-16 well are \$15 /m³. While the combined lifting costs for the 16-17 and 4-21 wells are \$54 /m³. Without high productivity from the 13-16 well, the economics for producing the Lodgepole WL E Pool would be greatly reduced.

SUMMARY

Increased production from the 13-16 well totalling 1467.4 m³ above the MPR over a 17 month period has not had an adverse impact on offsetting producers. Continued production of 13-16 at elevated rates is also not expected to have an adverse impact on ultimate recovery from the pool.

In addition, the 13-16 well which has produced 62% of the cumulative pool production and presently (May, 1990) produces 78% of the daily pool production greatly enhances the economics of producing the pool.

For these reasons, it is recommended that the Board approve Cdn Roxy's application for an increase in MPR to 375 m³ /month and a corresponding increase in the daily MPR to 15m³/d.



John N. Fox
Chief Petroleum Engineer

Encl.

Approved:

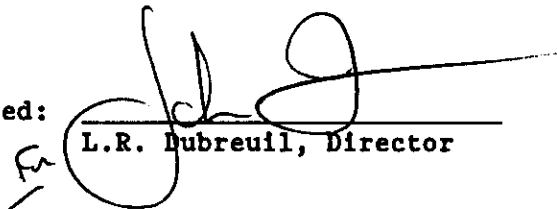

L.R. Dubreuil, Director

TABLE 1
RESERVOIR PARAMETERS
LODGEPOLE WL E POOL

Area	110 hectares
Net Pay	3.6 m
Porosity	13.8%
Water Saturation	55.7%
Shrinkage	0.94
Original Oil in Place	224 700 m ³
Cumulative Production (to May 31, 1990)	24 914.3 m ³
Recovery Factor (to May 31, 1990)	11%
Remaining Recoverable Reserves	14 600 m ³
Ultimate Recovery Factor	18%

TABLE 2

WELL	UWWL TOP (m 55)	GROSS PAY (m)	MONTHLY PRODUCTION (May/90)		CUMULATIVE PRODUCTION	
			Daily Oil (m ³ /d)	WOR (m ³ /m ³)	Oil (m ³)	Water (m ³)
11-16-2-21	-297.4	6.0	ABD	P	94.9	1133.3
13-16-21	-292	14.5	6.2	7.7	15328.9	48756.7
9-17	-299.6	9.2	SI		591.2	4170.1
15-17	-298.9	9.8	STANDING		--	--
16-17	-294.3	14.0	1.8	28.8	5010.7	36559
1-20	-297.7	7.0	ABD	P	2.1	11.7
4-21	-293.7	9.0	<u>0.2</u>	<u>7.9</u>	<u>3983.5</u>	<u>8604.5</u>
		TOTAL	8.0	11.3	24914.3	97416.2



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

August 8, 1990

Mr. W.L. Williamson
Manager, Engineering
Canadian Roxy Petroleum Ltd.
2200, 700 - 6th Avenue S.W.
Calgary, Alberta
T2P 0T8

Dear Mr. Williamson:

RE: Application for Maximum Permissible Production Rate Increase
Cdn Roxy et al Mountainside 13-16-2-2 (WPM)

Your application dated June 26, 1990 for an increase in the monthly maximum permissible production rate (MPR) from 240 m³ /month to 375 m³ /month is hereby acknowledged.

The authorized daily and monthly MPR's for the subject well effective August 1, 1990 are 15 m³ and 375 m³ clean oil, respectively. The previously accumulated over-production to July 31, 1990 is hereby retired.

Canadian Roxy is requested to conduct a pressure survey on a well in the Lodgepole WL E Pool this year. The details of the proposed survey including (1) the well to be surveyed, (2) the measurement technique to be used, and (3) the intended shut-in time are to be submitted to the Director of Petroleum for approval.

Yours respectfully,

ORIGINAL SIGNED BY
H. CLARE MOSTER

H. Clare Moster
Deputy Chairman

TWP.2 RGE. 21 W.1M.

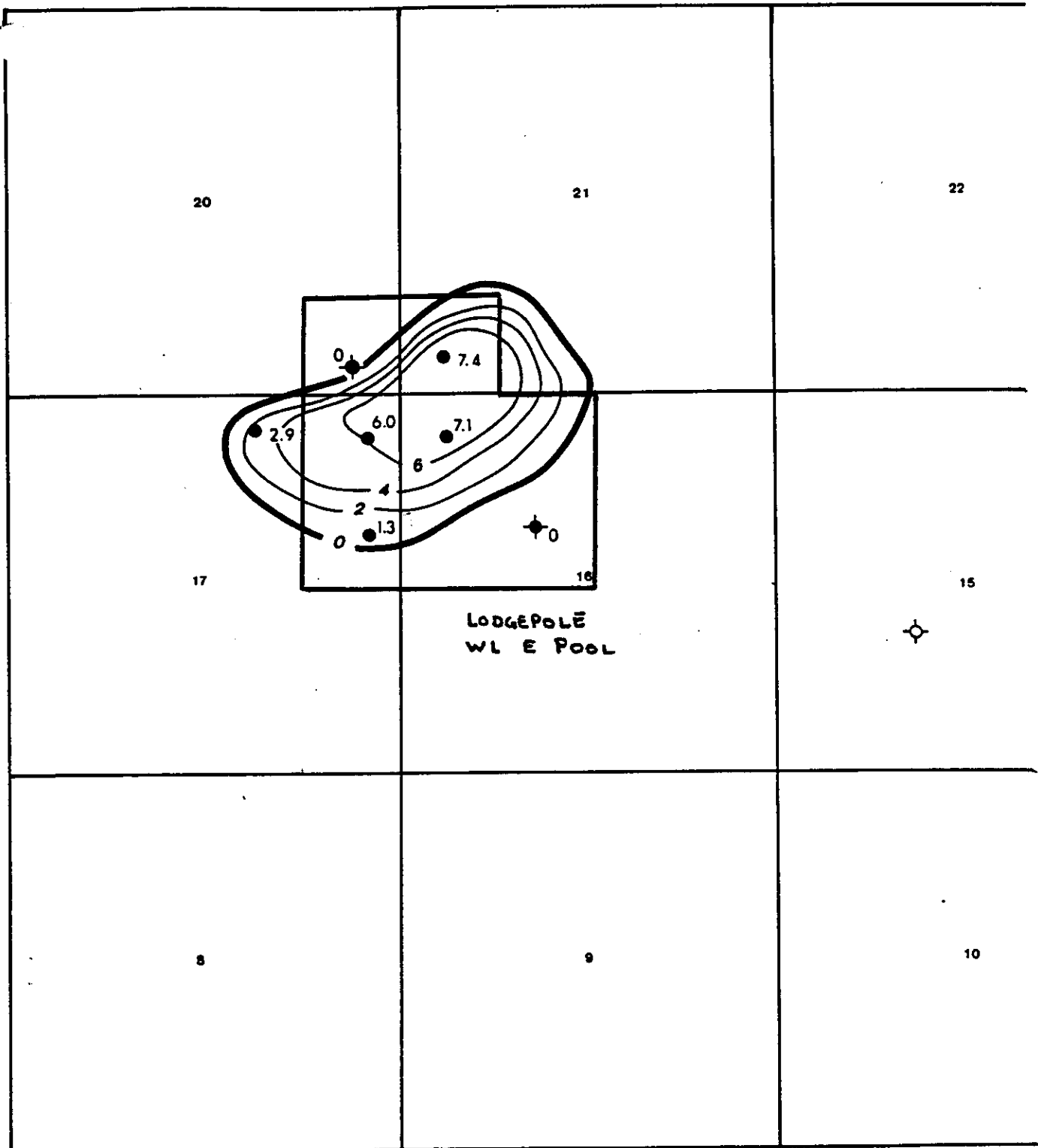


Fig. 1

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA**

**UPPER WHITEWATER
NET PAY MAP**

C.I.:2m

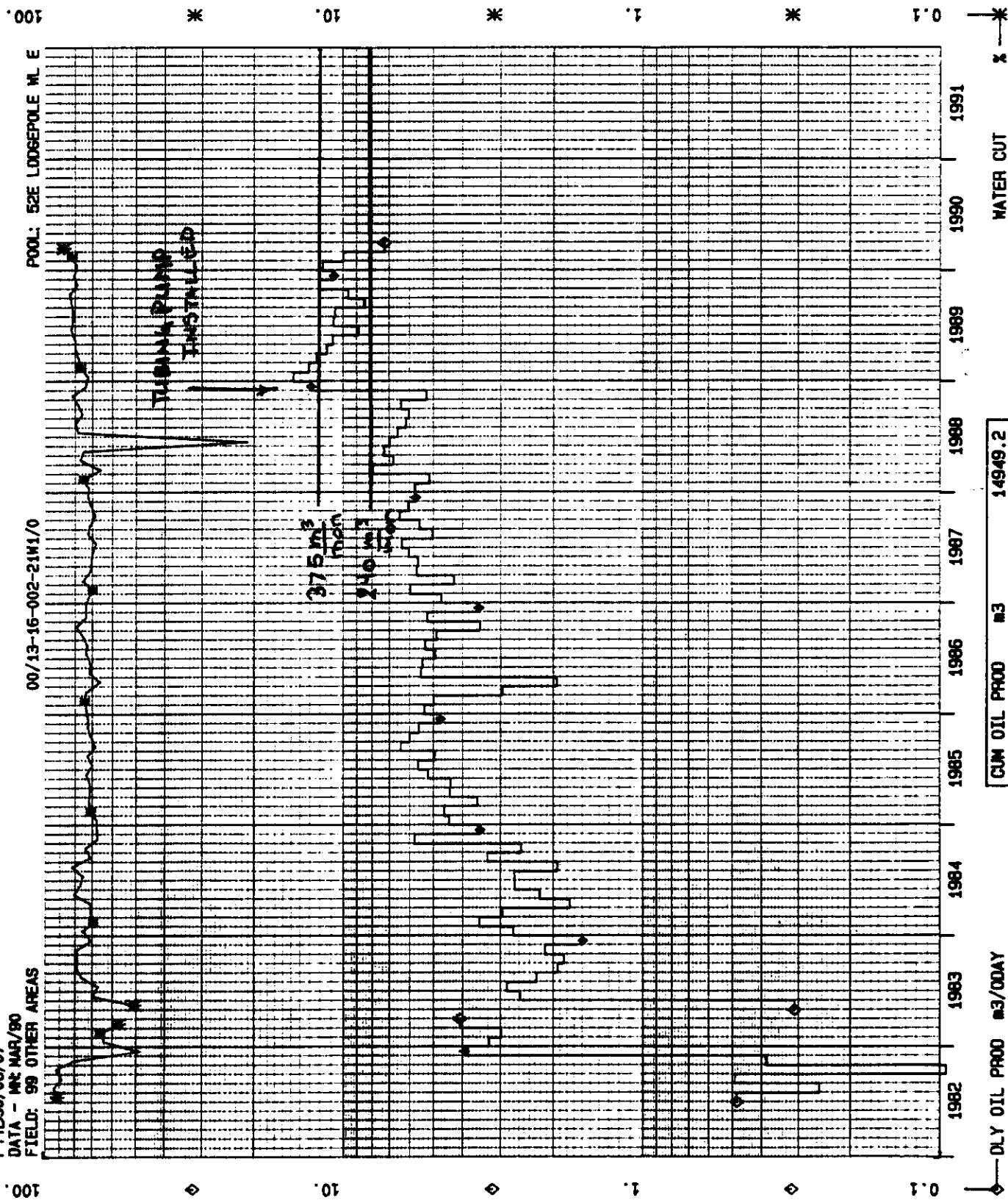
SCALE: 1:25,000

DATE: MAY 1990

PHD80/06/07
DATA - MNC MAR/80
FIELD: 99 OTHER AREAS

00/13-16-002-24W1/0

POOL: 52E LODGEPOLE WL E



CUM OIL PROD	m3	14949.2
CUM WTR PROD	m3	45157.6

DLY OIL PROD m3/ODAY

WATER CUT %

FIG. 2

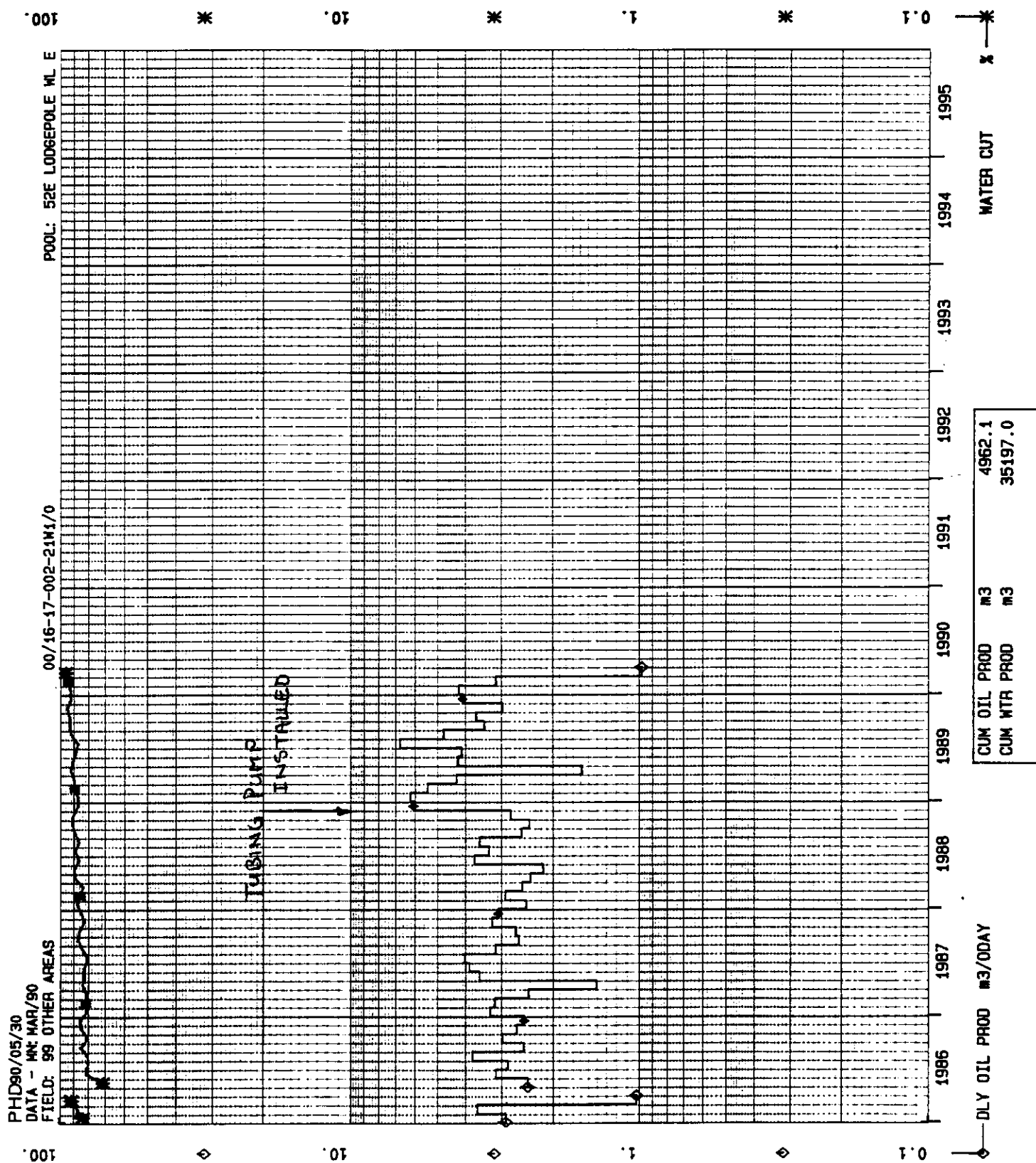
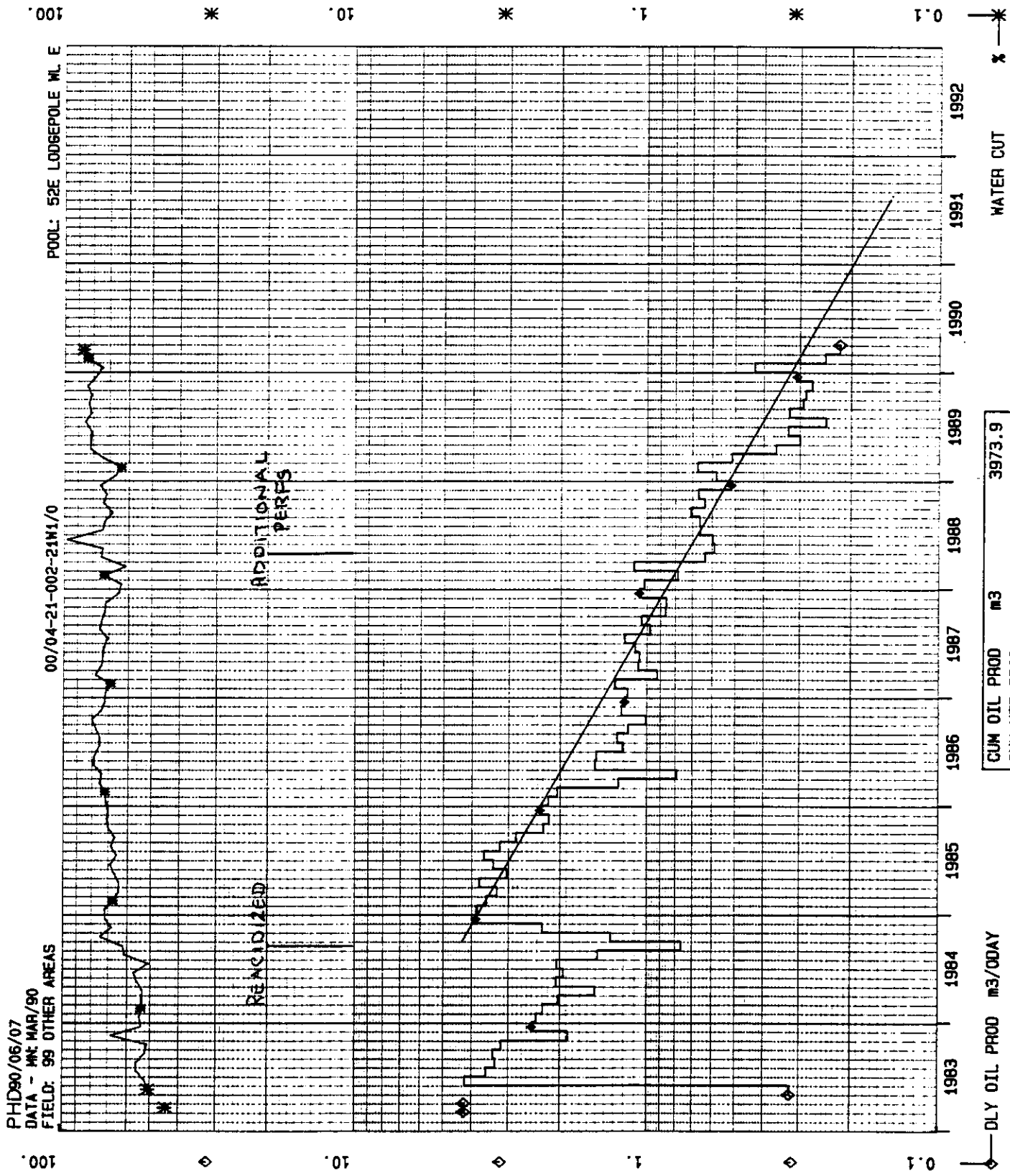


Fig. 3

SMITH & WESTERNE



CUM OIL PROD	m3	3973.9
CUM WTR PROD	m3	8534.3

10-07-30

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



ATTENTION: Mr. John N. Fox
Chief Petroleum Engineer

Dear Sir:

**RE: APPLICATION FOR INCREASED MAXIMUM PERMISSABLE
PRODUCTION RATE (MPPR)
CDN ROXY ET AL MOUNTAINSIDE 13-16-2-21 WIM**

Please find attached the additional information which you requested to accompany our Application for Increased Maximum Permissible Production Rate, dated June 26, 1990.

Attached for your review are the following data:

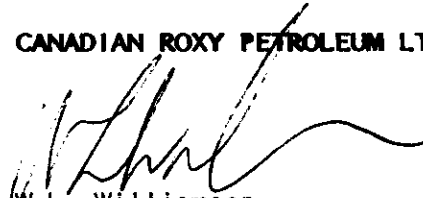
1. Composite Pool Production Plots
 - all wells
 - all wells except 13-16
2. Summary of Year to Date Operating Costs

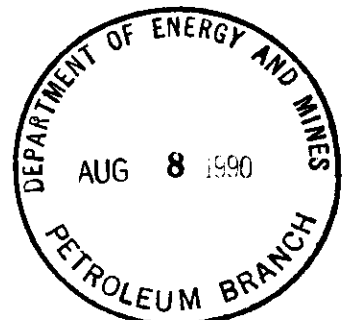
In reference to your request for an economic limit, our actual economic limit is determined by our operations group which reviews performance and cost data for each individual well. Oil production in the range of 1 m³/day or less is considered to be approaching the economic limit. Low productivity wells are constantly reviewed to determine profitability.

If any further information is required, please contact D.M. (Daryl) Brost (403) 260-9529.

Yours truly,

CANADIAN ROXY PETROLEUM LTD.


W.L. Williamson
Manager Engineering

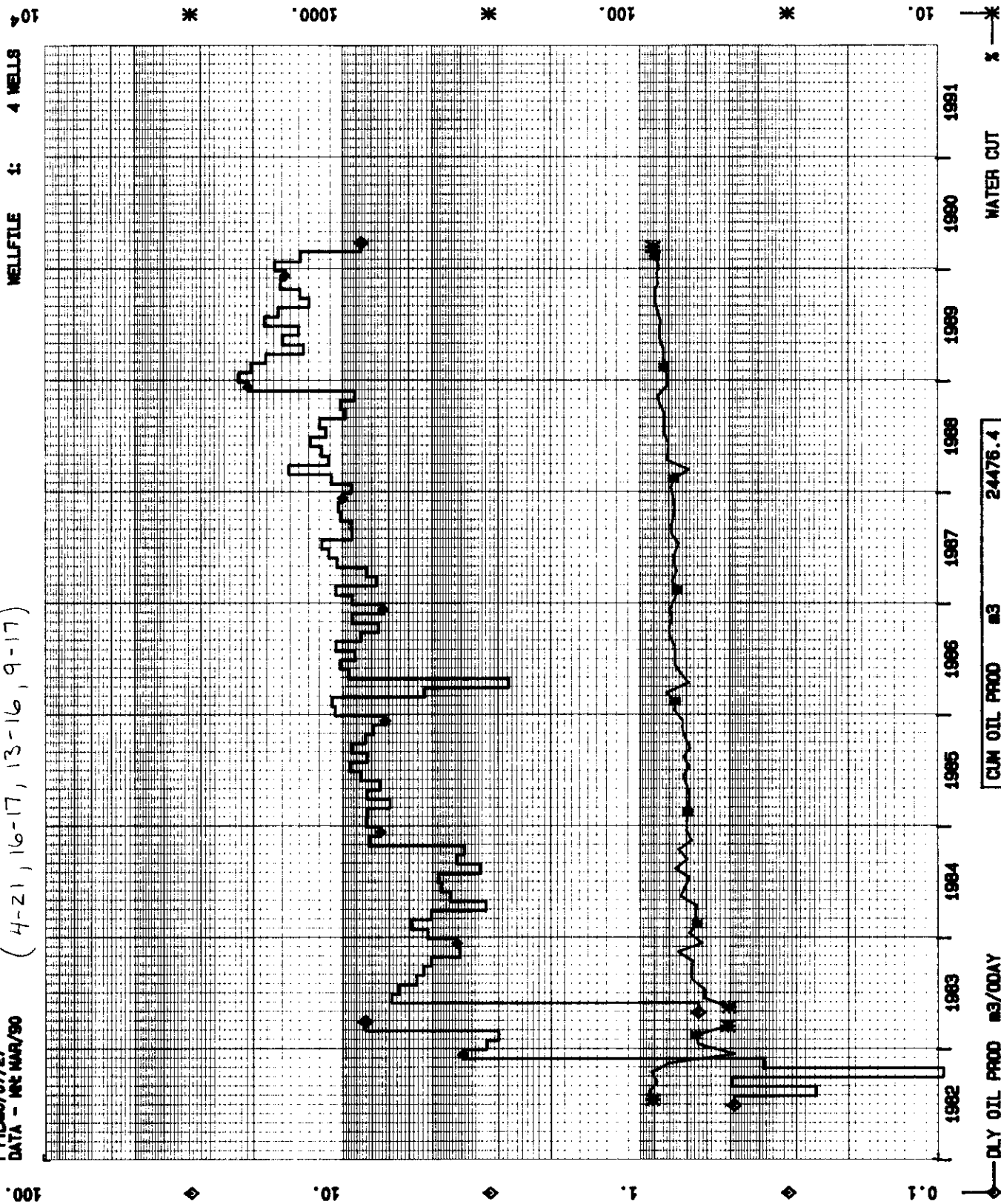


SK:jch
Attachment
cc: Well File

COMPOSITE Pool Plots - ALL WELLS (4-21, 16-17, 13-16, 9-17)

PHD80/07/27
DATA - NET MAR/90

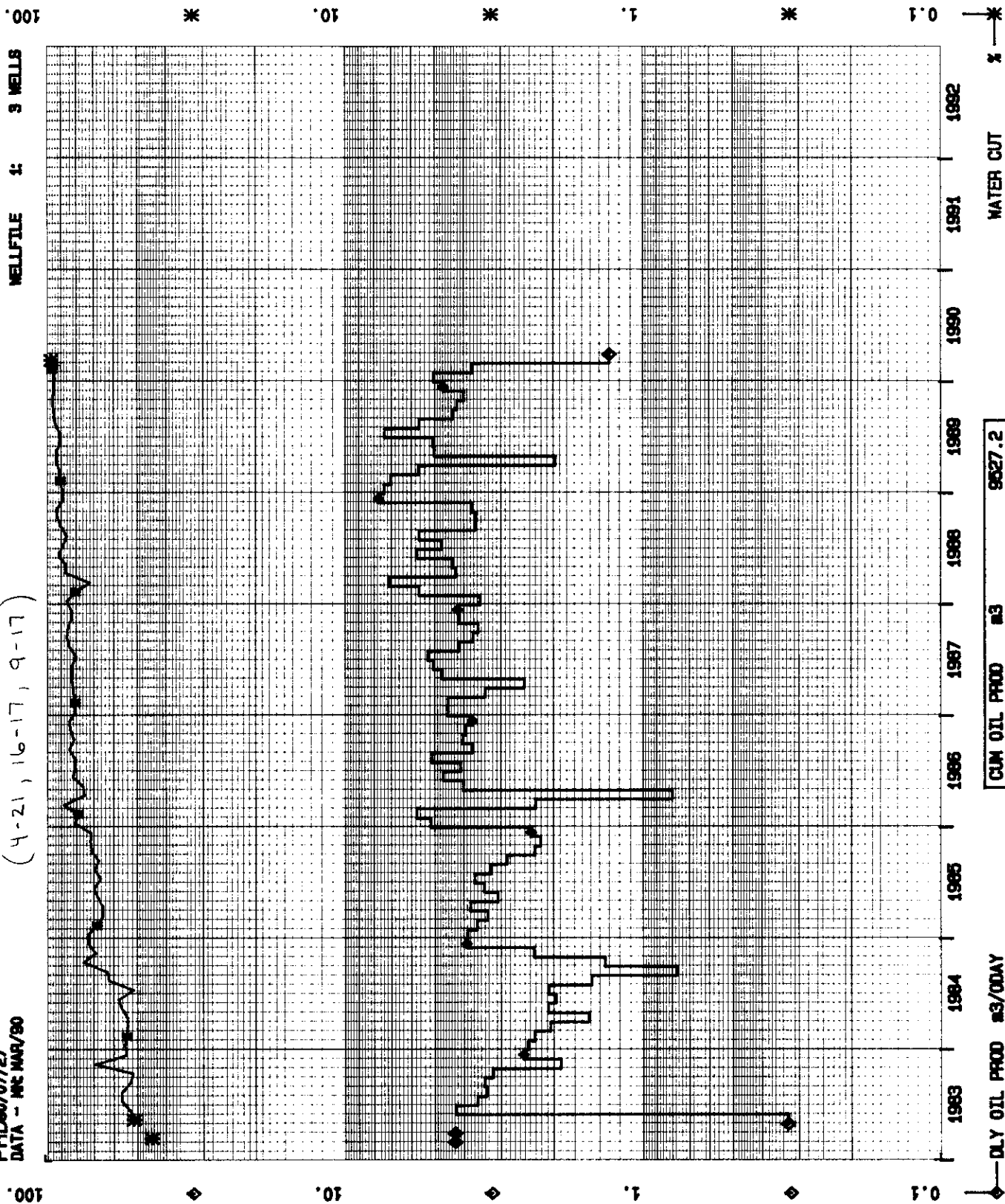
WELLFILE 1: 4 WELLS



CUM OIL PROD	m3	24476.4
CUM WTR PROD	m3	93059.0

Composite Pool Plot - All Wells Except 13-16 (4-21, 16-17, 9-17)

PHD80/07/27
DATA - MC MAR/80



CUM OIL PROD	m3	9627.2
CUM WTR PROD	m3	47901.4

SUMMARY OF MOUNTAINSIDE OPERATING COSTS
YEAR TO DATE (90/07/27)

	-----YTD TO 90/07/27-----	
WELL	OPER COSTS	PROD
	\$	m3
-----	-----	-----
4-21	\$9,936	48.7
16-17	\$11,087	405.3
13-16	\$11,370	1,627.7
9-17	\$9,680	20.3
15-17 S.I.	\$10	0.0
	-----	-----
	\$42,083	2,102.0

$$q_1 = q_i \cdot e^{-D \cdot t}$$

$$q_1 = 30$$

$$q_4 = 9$$

$$t = 5$$

$$D = \ln\left(\frac{q_1}{q_4}\right) / 5$$

$$= 24\%$$

May Prod.

use economic

$$Q_{crit} = 1.0 \times 10^6 \text{ bbl}$$

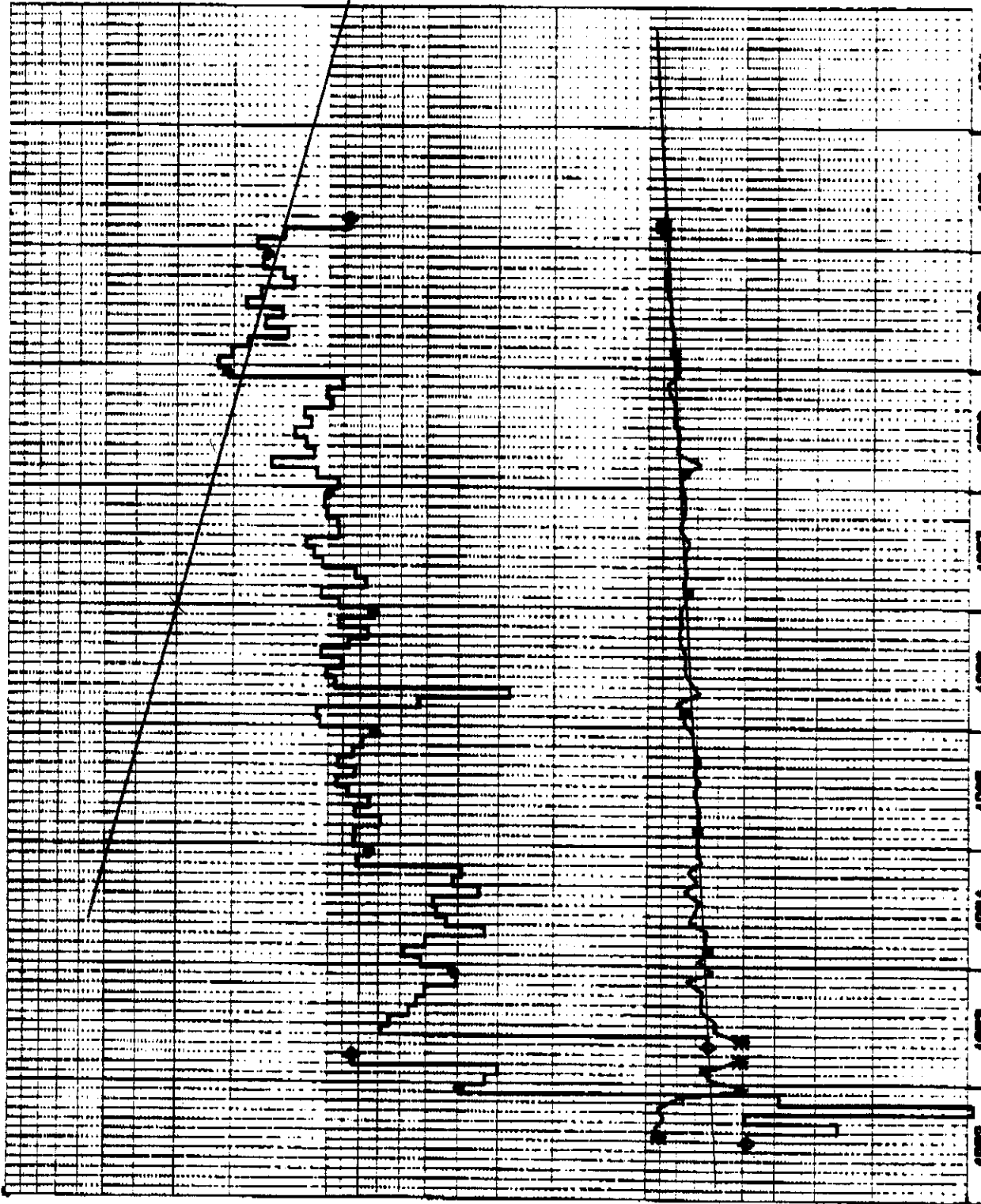
$$Q = \frac{(10.6 - 1) \cdot 365}{24}$$

$$Q = 14600 \text{ bbl}$$

COMPOSITE Pool Plots - ALL WELLS (4-21, 16-17, 13-16, 9-17)

PHDData/17/27
DATA - INC 100/50

WELLS 4 WELLS



CUM OIL PROD	MS	24479.4
CUM WTR PROD	MS	95009.0

ELY OIL PROD MS/DAY

WATER CUT

IN

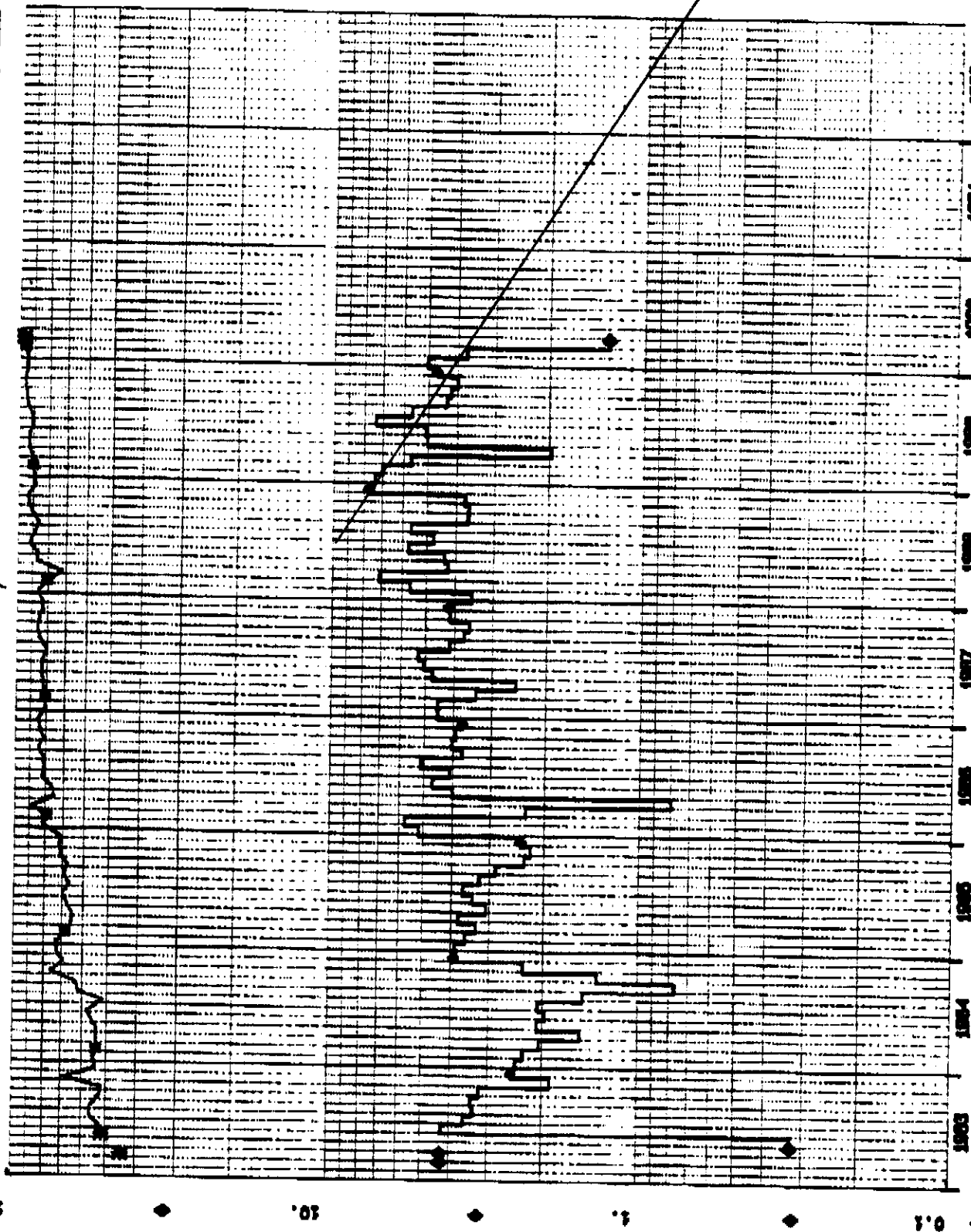
CONSTANT INCREASE IN WATER CUT NOT noticeably affected by increased prod @ 13-16

prod decal 13-16 + 16-17 since installation of 4 1/2\"/>

COMPOSITE POOL PLOT - ALL WELLS EXCEPT 13-16
(4-21, 16-17, 9-17)

PHIDEN/07/27
DATA - DEC 1989/90

WELLFIELD 2 3 WELLS



CUM OIL PROD MB	9827.2
CUM WTR PROD MB	47801.4

ILY OIL PROD MB/DAY

WATER CUT

0.1

10

0.1

10

100

**SUMMARY OF MOUNTAINSIDE OPERATING COSTS
YEAR TO DATE (90/07/27)**

-----YTD TO 90/07/27-----			
WELL	OPER COSTS \$	PROD m3	LIFTING COSTS \$/m ³
-----	-----	-----	-----
4-21	\$9,936	48.7	204
16-17	\$11,087	405.3	27
13-16	\$11,370	1,627.7	7
9-17	\$9,680	20.3	477
15-17 S.I.	\$10	0.0	
	<hr/>	<hr/>	
	\$42,083	2,102.0	20

TRUCKING - \$7.70 m³
+
PROCESSING

MAY/90 OIL PRICE - \$106.22
AFTER TRUCKING

FREEHOLD PROD. TAX - is included(?)

July 5, 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 MPR Increase
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

Canadian Roxy Petroleum 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 subject well to 375 m³ /month and to retire the accumulated over-production.

Recommendations:

It is recommended that the lessors and lessees in and within 0.5 km of the subject well be notified directly by the Board of the application. A copy of the proposed letter of notification is attached.

Discussion:

The well, Cdn Roxy et al Mountainside 13-16-2-21 (WPM), produces from the Lodgepole WL E Pool (Figure 1). After a tubing pump was installed in November, 1988 to increase reservoir withdrawal rates, the well has averaged 11 m³ OPD. Figure 2 shows the production history for the well. As of April 1, 1990, the well was 1451.7 m³ over-produced.

Prior to making a decision on the application, the lessors and lessees in the pool should be notified of the application and given until July 23, 1990 to file an objection to or intervention in the application.

ORIGINAL SIGNED BY
JOHN N. FOX

John N. Fox

Original Signed
L. R. DUBREUIL

Approved by:

L.R. Dubreuil, Director

TWP.2 RGE. 21 W.1M.

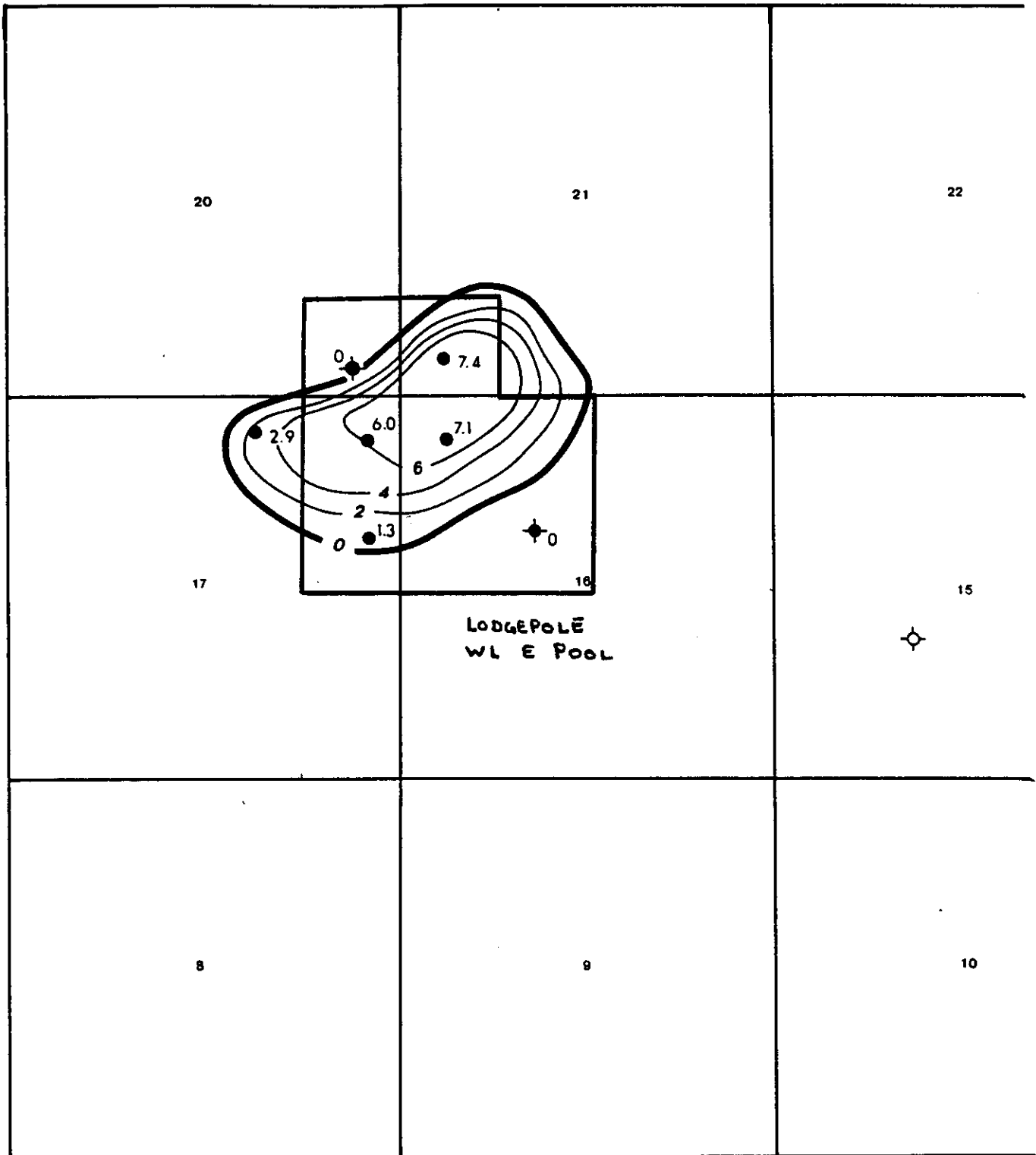


Fig. 1

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA**

**UPPER WHITEWATER
NET PAY MAP**

C.I.:2m

SCALE: 1:25,000

DATE: MAY 1990



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 5, 1990

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

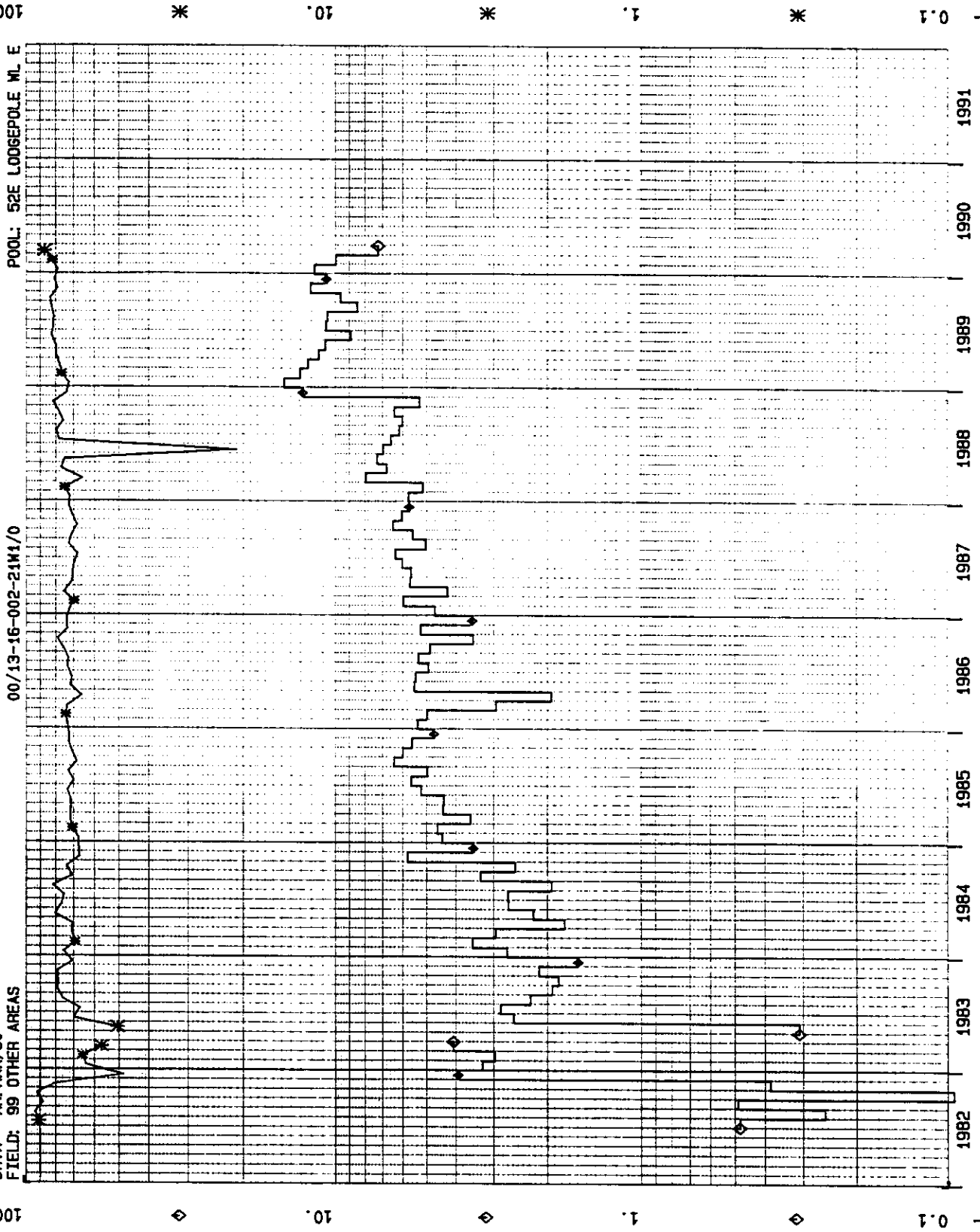
This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

Yours respectfully,

H. Clare Moster
Deputy Chairman

PHD90/06/07
DATA - MAR/90
FIELD: 99 OTHER AREAS

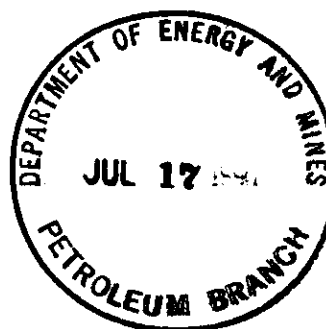


DLY OIL PROD m3/DDAY

WATER CUT %

Fig. 2

SOUTH WESTERN



1990-07-10

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

ATTENTION: Mr. John N. Fox
Chief Petroleum Engineer

Dear Sir:

**RE: APPLICATION FOR INCREASED MAXIMUM PERMISSABLE
PRODUCTION RATE (MPPR)
CDN ROXY ET AL MOUNTAINSIDE 13-16-2-21 W1M**

Please find attached a list of addresses to accompany the Lessor and Lessee maps forwarded to you dated June 26, 1990.

If any further information is required, please contact D.M. (Daryl) Brost (403) 260-9529.

Yours truly,

CANADIAN ROXY PETROLEUM LTD.

A handwritten signature in black ink, appearing to read "W.L. Williamson", written over a horizontal line.

W.L. Williamson
Manager Engineering

SK:gw
Attachment

cc: Well File

LESSOR INFORMATION

DIELL, Ruby Eleanor
Box 549
Taylor, B.C.
V0C 2K0

NE 1/4, 17-2-21 W1

MARTENS, Jerry Steven
120 - 15 Street
Winkler, Manitoba
R6W 1T7

NE 1/4, 17-2-21 W1

61475 MANITOBA LTD.
c/o Scarth, Dooley & Co.
903 - 386 Broadway
Winnipeg, Manitoba
R3C 3R6

S 1/2, 20-2-21 W1
S 1/2, 12-2-21 W1

TALCORP LIMITED
c/o Shaikh & Shaikaze Oil & Gas
Division
1860, 840- 7 Avenue S.W.
Calgary, Alberta
T2P 3G2

NW 1/4, 16-2-21 W1

LESSEE INFORMATION

ENRON OIL CANADA LTD.
1300, 700 - 9 Avenue S.W.
Calgary, Alberta
T2P 3V4

DOME PETROLEUM LTD.
c/o Aikins, Macaulay & Thorvaldson
360 Main Street
Winnipeg, Manitoba
R3C 4G1

PANCANADIAN PETROLEUM LTD. (CPR)
150 - 9 Avenue S.W.
Calgary, Alberta
T2P 2S5

WHITEWATER MINERALS GROUP LTD.
500 - 3 Lombard Place
Winnipeg, Manitoba
R3V 1N4



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

Yours respectfully,

A handwritten signature in dark ink, appearing to read "H. Clare Moster", with a stylized flourish at the end.

H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 5, 1990

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

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Yours respectfully,

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 10, 1990

Jerry Steven Martens
Box 2685
Winkler, Manitoba
R0G 2X0

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

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Yours respectfully,

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 10, 1990

61475 Manitoba Limited
c/o Scarth, Dooley & Co.
903 - 386 Broadway Avenue
Winnipeg, Manitoba
R3C 3R6

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 10, 1990

Mr. L.E. Fenwick
Vice-President, Production
Enron Oil Canada Ltd.
1300, 700 - 9 Avenue S.W.
Calgary, Alberta
T2P 3V4

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

Yours respectfully,

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 12, 1990

Whitewater Minerals Group Ltd.
500 - 3 Lombard Place
Winnipeg, Manitoba
R3V 1N4

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

Yours respectfully,

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 12, 1990

PanCanadian Petroleum Ltd. (CPR)
150 - 9 Avenue S.W.
Calgary, Alberta
T2P 2S5

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

Yours respectfully,

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 12, 1990

Talcorp Limited
c/o Shaikh & Shaikase Oil and Gas
Division
1860, 840 - 7 Avenue S.W.
Calgary, Alberta
T2P 3G2

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

Yours respectfully,

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 12, 1990

Ruby Eleanor Diell
Box 549
Taylor, B.C.
V0C 2K0

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

Yours respectfully,

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H. Clare Moster
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

July 12, 1990

Dome Petroleum Ltd.
c/o Aikins, Macauley & Thorvaldson
360 Main Street
Winnipeg, Manitoba
R3C 4G1

Dear Sir/Madam:

RE: Application for an Increase in the
Maximum Permissible Production Rate
Cdn Roxy et al Mountainside 13-16-2-21 (WPM)

This letter is to notify you that Canadian Roxy Petroleum Ltd. has made application to increase the maximum permissible production rate for the subject well from 240 m³ /month to 375 m³ /month of clean oil and to retire the accumulated over-production.

If no valid objection or intervention in writing is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, before July 23, 1990, the Board may approve the application.

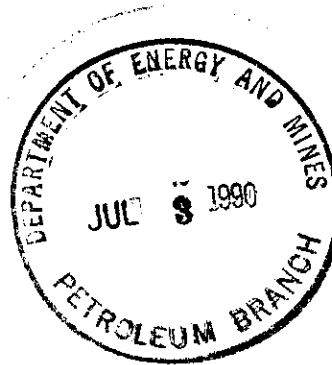
Yours respectfully,

A handwritten signature in black ink, appearing to read "H. Clare Moster". The signature is fluid and cursive, with a large, sweeping flourish at the end.

H. Clare Moster
Deputy Chairman

1990-06-26

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



ATTENTION: Mr. John N. Fox
Chief Petroleum Engineer

Dear Sir:

**RE: APPLICATION FOR INCREASED MAXIMUM PERMISSABLE PRODUCTION RATE (MPPR)
CDN ROXY ET AL MOUNTAINSIDE 13-16-2-21 WIM**

Canadian Roxy Petroleum hereby applies under Section 51 of the Manitoba Oil & Gas Regulations to increase the MPPR of the well Cdn Roxy et al Mountainside 13-16-2-21 WIM from 240 m³/month to 375 m³/month and to retire the current overproduction.

A tubing pump was installed in the 13-16 well in November, 1988 to test increased reservoir withdrawal rates. As depicted on the production graph (Attachment #2), the increased withdrawal rates have significantly increased oil production with no detrimental impact on water cut. The increased production rate has not resulted in reduced oil recoveries at the offset wells (Attachment #4). Well 4-21 has produced at less than 0.7 m³/day for the past two years and has been near the economic limit during this period. Well 16-17 has produced at a constant rate of approximately 2.8 m³/day for the first three years of production. Oil production was increased to 4.2 m³/day commencing in November, 1988 when a tubing pump was installed in the wellbore. Well 9-17 came on production in February 1988 and is producing at or below the economic limit. Production from this well has declined steadily to a current rate of 0.2 m³/day with water cuts generally in excess of 90%. The increased withdrawal rate at 13-16 has significantly increased oil production rates with no detrimental impact on the anticipated recoveries of the offset wells.

The Mountainside wells produce from the Upper Whitewater Lake Member of the Lodgepole formation. The oil water contact in the Upper Whitewater is not present in the reservoir interval of 13-16-2-21 WIM. The base of porosity in net oil pay is at 904.5m KB (-304.4m SS) which compares to the pool average oil-water contact of -304m SS. The oil water contact appears to be transitional depending on the local rock facies. It has been picked at 903.75m KB (-303.1m SS) in 16-17, 911.8m KB (-303.4m SS) in 9-17 and 901.8m KB (-304.8 mSS) in 15-17. As a result of this the pool oil-water contact has been accepted to be at -304m SS on the Upper Whitewater Lake structure contour map (Attachment No. 4).



Page Two

In support of this application, Canadian Roxy Petroleum submits the following data in the form of Attachments for your review:

- Attachment #1 - Summary of Completion Operations;
13-16, 9-17, 16-17 and 4-21
- Attachment #2 - Production Plots and Reports;
13-16, 9-17, 16-17 and 4-21
- Attachment #3 - Upper Whitewater Net Pay Map
- Attachment #4 - Upper Whitewater Structure Map
- Attachment #5 - Lessor Ownership Map
- Attachment #6 - Lessee Ownership Map

In conclusion, Canadian Roxy Petroleum requests approval for an increase in the maximum permissible production rate for well 13-16-2-21 W1 to 375 m³/month, and to retire the current overproduction.

If any further information is required please contact D.M. (Daryl) Brost
(403) 260-9529.

Yours truly,

CANADIAN ROXY PETROLEUM LTD.

ORIGINAL SIGNED BY
W. L. WILLIAMSON

W.L. Williamson
Manager Engineering

SK:gw

Attachment
cc: Well File

ATTACHMENT NO. 1

CANADIAN ROXY ET AL MOUNTAINSIDE 13-16-2-21 W1M

July, 1982

- Completed Mississippian Whitewater 901.5 - 904.0m K.B.
- Acid wash and squeeze.
- Perforate Mississippian Whitewater 897.0 - 898.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.

September, 1982

- Perforate the Mississippian Whitewater 901.5 - 904.0m K.B.
- Acid wash and squeeze.
- Perforate the Mississippian Whitewater 895.0 - 898.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.

November, 1982

- Perforate the Mississippian Whitewater 895.0 - 898.5m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.

December, 1982

- Perforate 895.0 - 898.5m K.B.
- Acid wash and squeeze.
- Ran Axelson RWBC 50.8mm x 38.1mm x 3.65m pump # AX2317.

October, 1983

- Set retainer @ 901 - 901.5m K.B.
- Perform cement squeeze.
- Perforated Whitewater formation 895.0 - 899.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP

November, 1983

- Set retrievable bridge plug @ 899.35m K.B. (top).
- Perform cement squeeze.
- Perforated Whitewater formation 895.0 - 899.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.
- Perforated 897.0 - 899.0m K.B.
- Acid wash and squeeze.
- Ran AX RWBC # 2317 50.8mm x 38.1mm x 3.65mm BHP.

December, 1983

- Performed cement squeeze to 904m K.B.
tagged cement at 877m K.B.
- Perforated interval 895.0 - 899.0m K.B.
- Acid wash and squeeze.
- Performed cement squeeze to 902m K.B.
tagged cement at 874m K.B.
- Perforated interval 897.0 - 899.0m K.B.
- Acid wash and squeeze.

March, 1985

- Ran BHP # AX1938 2" x 1 1/2" x 12'.

November, 1988

- Ran in THM pump plunger with standing
valve. Tubing Pump # CRNO-8.

ROXY-ANDEX MOUTAINSIDE 16-17-2-21 W1

December, 1985

- Completed Whitewater zone 898.0 - 905.0m K.B.
- Acid Wash & Squeeze
- Ran BHP# AX5717 RWBC 2" x 1 1/2" x 12'.

November, 1988

- Ran in THM pump plunger with standing valve. Tubing pump #CRNO-8.

ROXY-ANDEX MOUNTAIN SIDE 4-21-2-21 W1M

March, 1983

- Completed Upper Whitewater zone 887.0 - 890.0m K.B.
- Acid wash formation.
- Ran Axelson 50.8mm x 38.1mm x 3.65mm BHP # AX2736.

October, 1984

- Acidized perfs at 887.0 to 890.0m K.B.
- Ran new pump 50.8mm x 38.1mm x 3.65mm # AXZ991.

April, 1988

- Perforate Upper Whitewater
887.0 - 890.0m K.B.
891.0 - 893.0m K.B.
- Acid wash and squeeze.
- Ran serviced bottom hole pump.

CDN ROXY ENRON MOUNTAIN INSIDE 9-17-2-21 W1

December, 1987

- Completed Upper Whitewater 908.5 - 911.0m K.B.
- Acid Wash & Squeeze

February, 1988

- Perforate 913.5 - 914.5m K.B.
- Set cement retainer at 912.0m K.B.
- Performed cement squeeze 913.5 - 914.5m K.B.
- Squeezed .08m³ into upper perms.
- Perforated 908.5 - 910.0m K.B.
- Acid wash and squeeze
- Installed BHP (31.25mm)

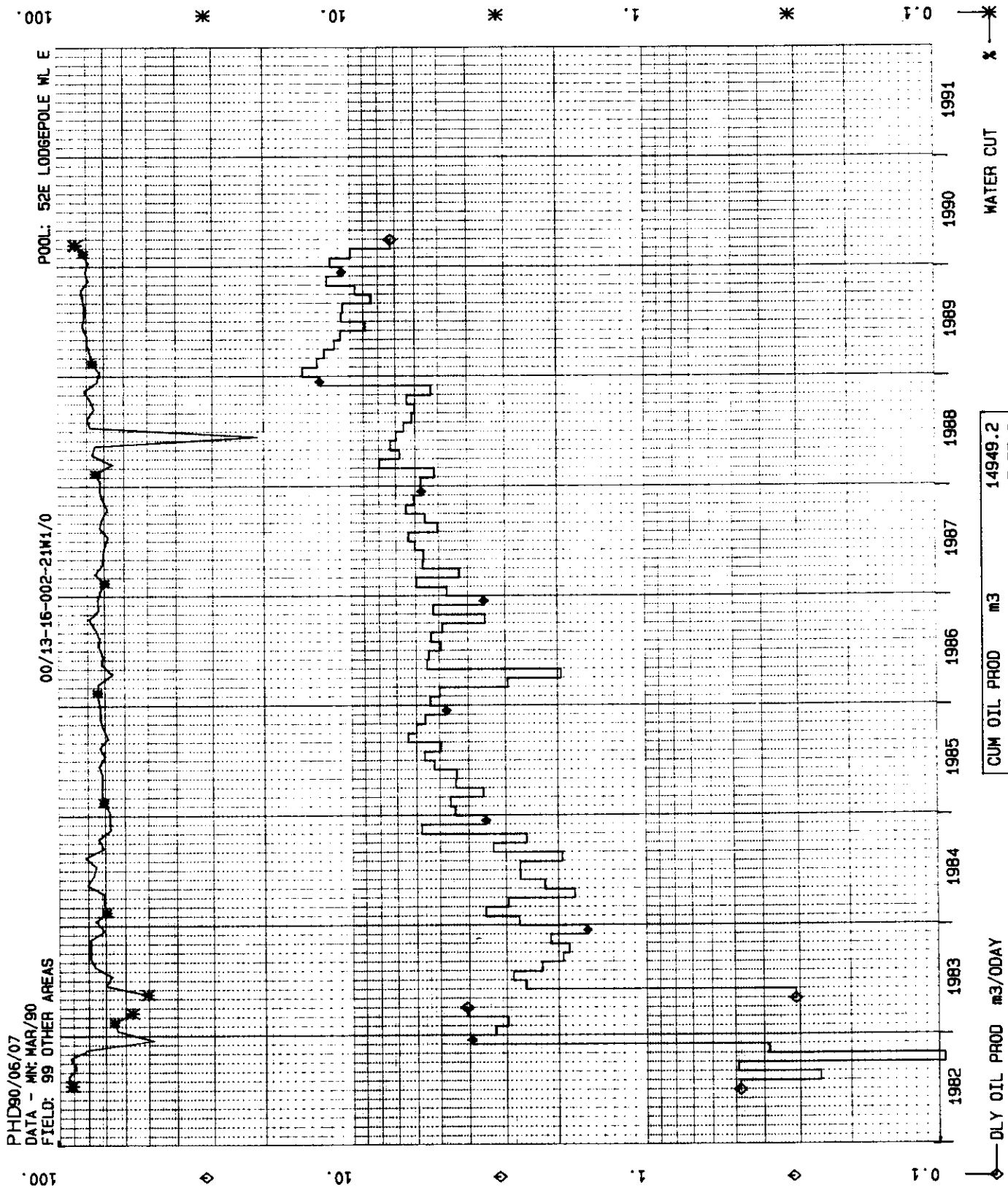
ATTACHMENT #2

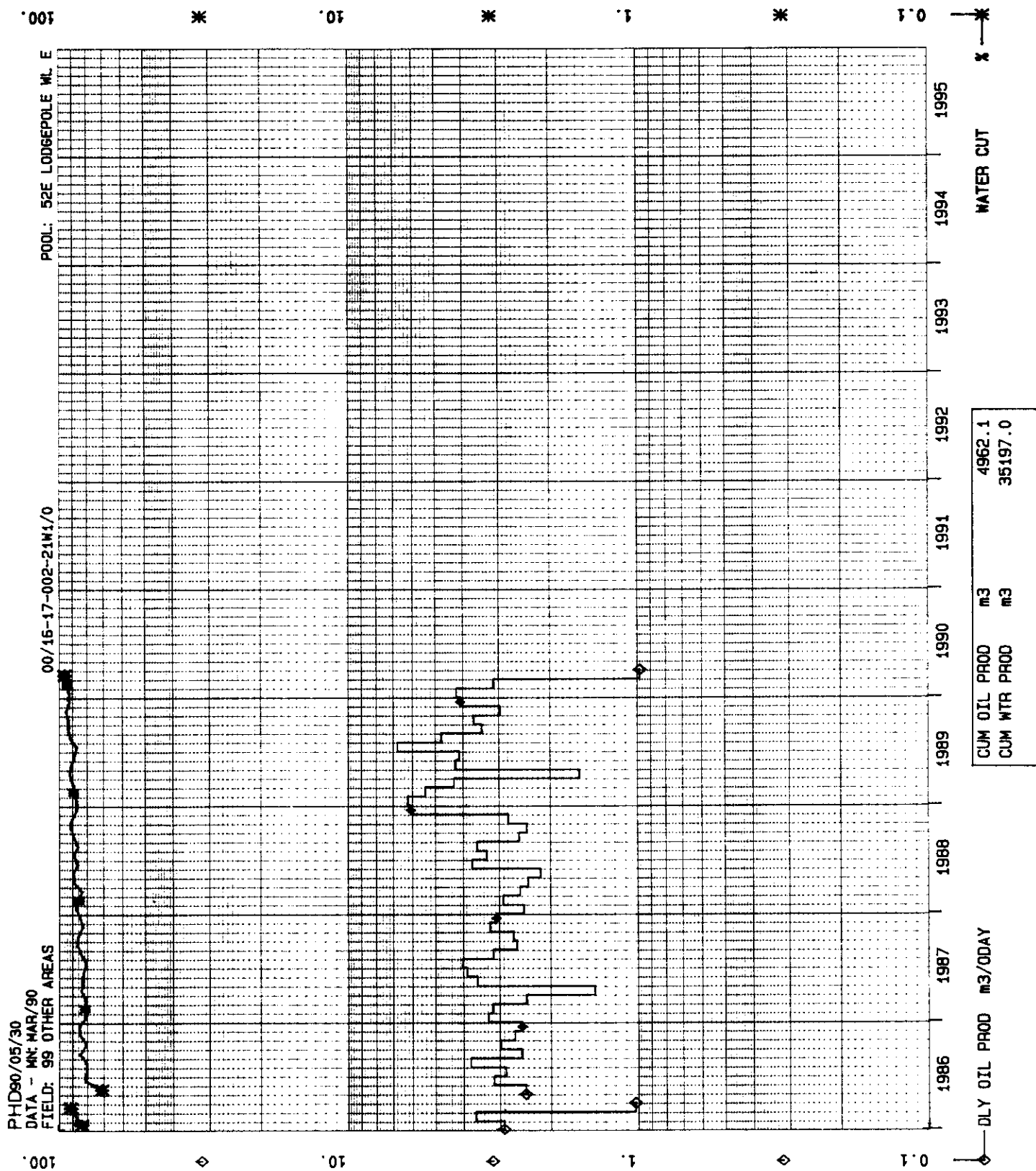
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PP HH HH DD DD
PP HH HH DDDDDDDDD
PP HH HH DDDDDDD
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Petroleum History Database

Output delivery instructions:

WESTCOAST PETROLEUM
SUITE 1700
700 9TH AVENUE, S.W.
CALGARY, ALBERTA
ATTN: SCOTT KING

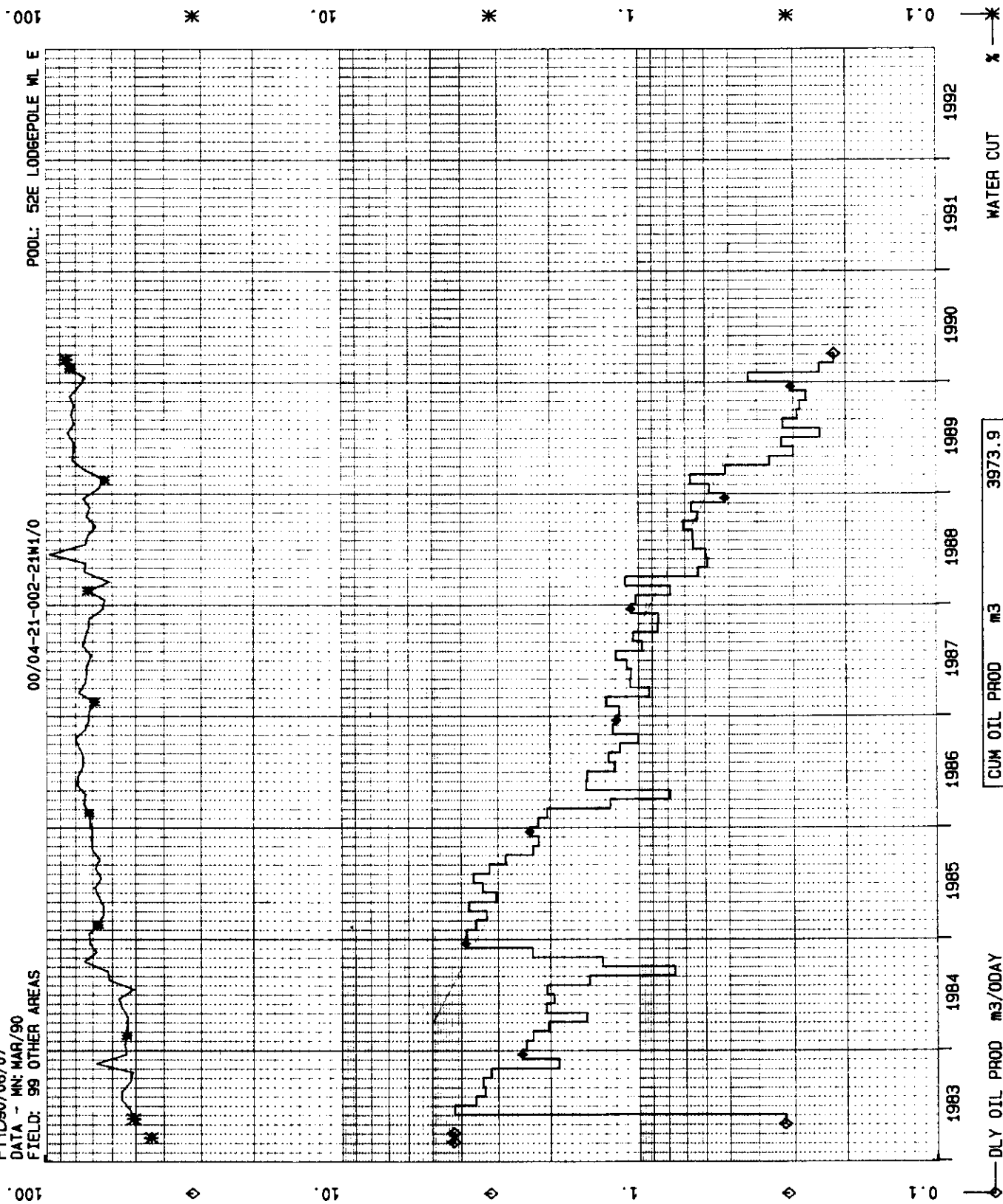




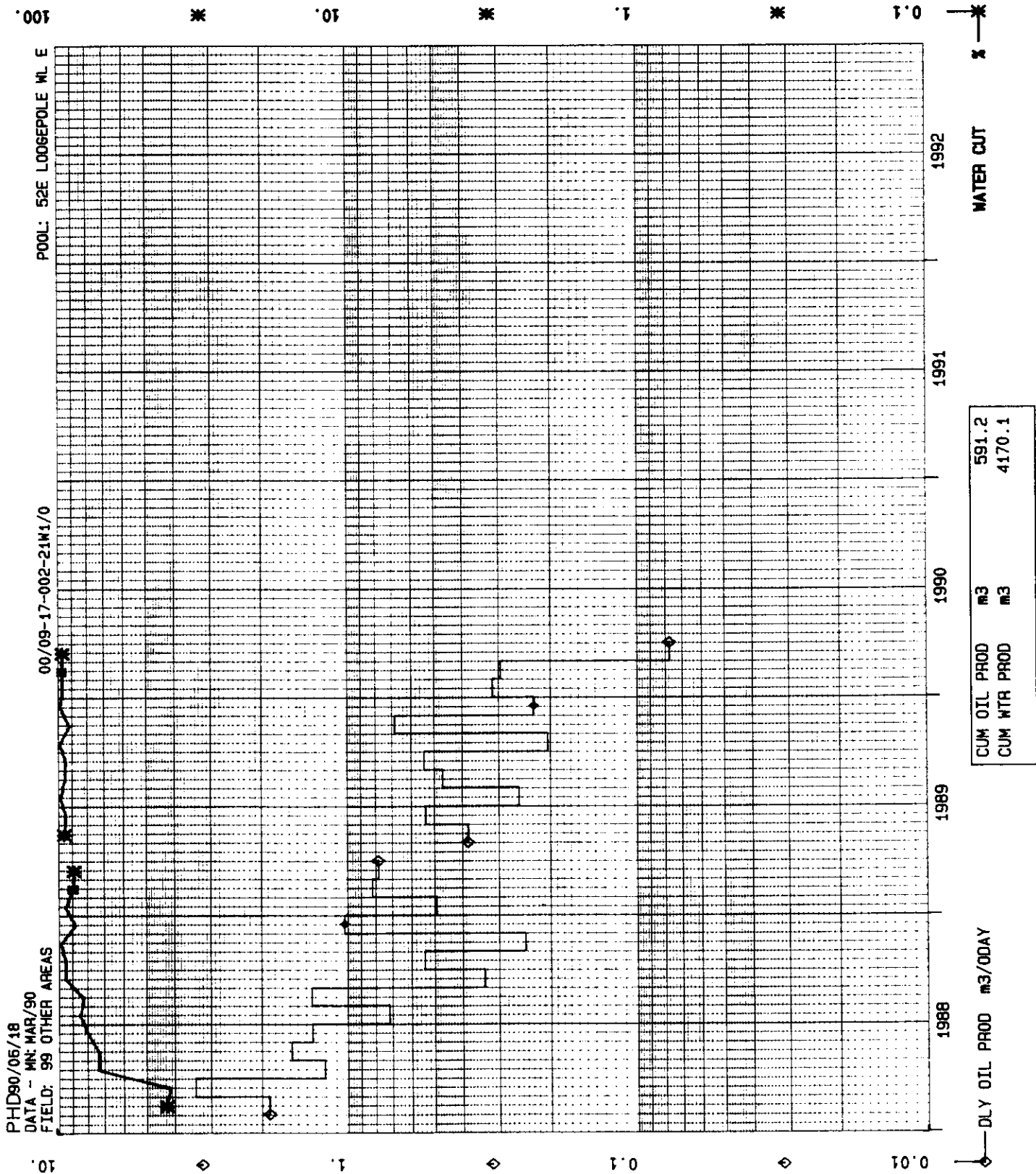
PHD90/05/07
DATA - MN: MAR/90
FIELD: 99 OTHER AREAS

00/04-21-002-21M1/0

POOL: 52E LODGEPOLE WL E



CUM OIL PROD	m3	3973.9
CUM WTR PROD	m3	8534.3



PHD: 90/ 6/ 7 17:11
00/13-16-002-21W1/0

WELL: 1 WELLFILE: 1 PAGE: 1
JAN 1982 to MAR 1990

00/13-16-002-21W1/0

WELL NAME: FIELD NAME: OTHER AREAS POOL NAME: LODGEPOLE WL E
PRODUCTION DATE: 00/00/00 BATTERY CODE: OPERATOR CODE: 005
INJECTION DATE: 00/00/00 OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.

ASSESSMENT #: STATUS CODE: STATUS DATE: 00/00/00
BLOCK CODE: I.S. CODE:
POOL TYPE: PSU CODE:
PROJECT CODE:
RECORDED DATA: OIL P, WATER P

DATE	OIL PRODUCTION m3	DAILY OIL m3/DDAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/DDAY	CUMULATIVE WATER m3	WCUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
FEB 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
MAR 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
APR 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
MAY 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
JUN 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
JUL 1982	14.9	0.5	15.	134.1	4.3	134.	90.0
AUG 1982	7.9	0.3	23.	97.9	3.2	232.	92.5
SEP 1982	14.7	0.5	38.	98.6	3.3	331.	87.0
OCT 1982	2.2	0.1	40.	22.3	0.7	353.	91.0
NOV 1982	11.5	0.4	51.	43.1	1.4	396.	78.9
DEC 1982	121.1	3.9	172.	110.7	3.6	507.	47.8
1982	172.3	0.9	172.	506.7	2.8	507.	74.6
JAN 1983	100.9	3.3	273.	173.0	5.6	680.	63.2
FEB 1983	83.0	3.0	356.	151.7	5.4	831.	64.6
MAR 1983	125.4	4.0	482.	160.3	5.2	992.	56.1
APR 1983	0.0	0.0	482.	0.0	0.0	992.	0.0
MAY 1983	9.6	0.3	491.	9.5	0.3	1001.	49.7
JUN 1983	76.8	2.6	568.	173.9	5.8	1175.	69.4
JUL 1983	87.8	2.8	656.	169.7	5.5	1345.	65.9
AUG 1983	70.1	2.3	726.	213.9	6.9	1559.	75.3
SEP 1983	57.6	1.9	784.	205.2	6.8	1764.	78.1
OCT 1983	56.9	1.8	840.	201.0	6.5	1965.	77.9
NOV 1983	63.6	2.1	904.	225.1	7.5	2190.	78.0
DEC 1983	49.0	1.6	953.	111.7	3.6	2302.	69.5
1983	780.7	2.3	953.	1795.0	5.4	2302.	69.7

PHD: 90/ 6/ 7 17:11
 00/13-16-002-21W1/0

WELL: 1 WELLFILE: 1 PAGE: 2
 JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/DDAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/DDAY	CUMULATIVE WATER m3	WCUT %
JAN 1984	83.9	2.7	1037.	248.9	8.0	2551.	74.8
FEB 1984	101.7	3.5	1139.	221.2	7.6	2772.	68.5
MAR 1984	91.5	3.0	1230.	214.1	6.9	2986.	70.1
APR 1984	52.8	1.8	1283.	123.1	4.1	3109.	70.0
MAY 1984	68.7	2.2	1352.	269.4	8.7	3378.	79.7
JUN 1984	80.4	2.7	1432.	251.3	8.4	3630.	75.8
JUL 1984	83.2	2.7	1515.	240.9	7.8	3871.	74.3
AUG 1984	60.1	1.9	1575.	257.7	8.3	4128.	81.1
SEP 1984	99.3	3.3	1675.	230.1	7.7	4358.	69.9
OCT 1984	78.9	2.5	1753.	216.3	7.0	4575.	73.3
NOV 1984	172.3	5.7	1926.	337.6	11.3	4912.	66.2
DEC 1984	107.9	3.5	2034.	217.6	7.0	5130.	66.9
1984	1080.7	3.0	2034.	2828.2	7.7	5130.	72.4
JAN 1985	136.9	4.4	2171.	279.6	9.0	5410.	67.1
FEB 1985	128.5	4.6	2299.	301.3	10.8	5711.	70.1
MAR 1985	110.5	3.6	2410.	271.0	8.7	5982.	71.0
APR 1985	131.5	4.4	2541.	318.5	10.6	6300.	70.8
MAY 1985	135.4	4.4	2676.	328.4	10.6	6629.	70.8
JUN 1985	156.2	5.2	2833.	416.0	13.9	7045.	72.7
JUL 1985	174.0	5.6	3007.	391.9	12.6	7437.	69.3
AUG 1985	153.4	4.9	3160.	402.8	13.0	7839.	72.4
SEP 1985	191.8	6.4	3352.	406.1	13.5	8246.	67.9
OCT 1985	185.4	6.0	3537.	430.3	13.9	8676.	69.9
NOV 1985	167.0	5.6	3704.	426.6	14.2	9102.	71.9
DEC 1985	146.3	4.7	3851.	375.3	12.1	9478.	72.0
1985	1816.9	5.0	3851.	4347.8	11.9	9478.	70.5
JAN 1986	165.1	5.3	4016.	442.3	14.3	9920.	72.8
FEB 1986	139.2	5.0	4155.	383.9	13.7	10304.	73.4
MAR 1986	91.2	2.9	4246.	243.3	7.8	10547.	72.7
APR 1986	58.5	2.0	4305.	110.1	3.7	10657.	65.3
MAY 1986	170.0	5.5	4475.	412.3	13.3	11070.	70.8
JUN 1986	163.0	5.4	4638.	386.8	12.9	11456.	70.4
JUL 1986	152.4	4.9	4790.	407.3	13.1	11864.	72.8
AUG 1986	164.8	5.3	4955.	431.4	13.9	12295.	72.4
SEP 1986	145.7	4.9	5100.	434.5	14.5	12730.	74.9
OCT 1986	108.4	3.5	5209.	393.6	12.7	13123.	78.4
NOV 1986	156.8	5.2	5366.	417.1	13.9	13540.	72.7
DEC 1986	109.1	3.5	5475.	297.5	9.6	13838.	73.2
1986	1624.2	4.4	5475.	4360.1	11.9	13838.	72.9

PHD: 90/ 6/ 7 17:11
 00/13-16-002-21W1/0

WELL: 1 WELLFILE: 1 PAGE: 3
 JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
JAN 1987	145.3	4.7	5620.	373.4	12.0	14211.	72.0
FEB 1987	166.3	5.9	5786.	373.7	13.3	14585.	69.2
MAR 1987	131.9	4.3	5918.	392.9	12.7	14978.	74.9
APR 1987	170.2	5.7	6088.	408.3	13.6	15386.	70.6
MAY 1987	175.1	5.6	6264.	409.4	13.2	15795.	70.0
JUN 1987	180.0	6.0	6444.	407.2	13.6	16203.	69.3
JUL 1987	196.1	6.3	6640.	403.0	13.0	16606.	67.3
AUG 1987	156.0	5.0	6796.	402.4	13.0	17008.	72.1
SEP 1987	166.6	5.6	6962.	402.1	13.4	17410.	70.7
OCT 1987	200.2	6.5	7162.	424.9	13.7	17835.	68.0
NOV 1987	180.9	6.0	7343.	419.9	14.0	18255.	69.9
DEC 1987	176.4	5.7	7520.	450.7	14.5	18706.	71.9
1987	2045.0	5.6	7520.	4867.9	13.3	18706.	70.4
JAN 1988	177.2	5.7	7697.	444.6	14.3	19150.	71.5
FEB 1988	149.1	5.1	7846.	435.9	15.0	19586.	74.5
MAR 1988	245.2	7.9	8091.	456.3	14.7	20043.	65.0
APR 1988	202.7	6.8	8294.	660.7	22.0	20703.	76.5
MAY 1988	224.5	7.2	8518.	654.8	21.1	21358.	74.5
JUN 1988	209.1	7.0	8728.	55.1	1.8	21413.	20.9
JUL 1988	202.7	6.5	8930.	705.8	22.8	22119.	77.7
AUG 1988	190.9	6.2	9121.	740.2	23.9	22859.	79.5
SEP 1988	179.9	6.0	9301.	539.8	18.0	23399.	75.0
OCT 1988	198.2	6.4	9499.	682.5	22.0	24081.	77.5
NOV 1988	158.2	5.3	9657.	680.9	22.7	24762.	81.1
DEC 1988	394.8	12.7	10052.	1082.4	34.9	25845.	73.3
1988	2532.5	6.9	10052.	7139.0	19.5	25845.	73.8
JAN 1989	453.7	14.6	10506.	1173.6	37.9	27018.	72.1
FEB 1989	363.6	13.0	10870.	1152.6	41.2	28171.	76.0
MAR 1989	379.1	12.2	11249.	1285.0	41.5	29456.	77.2
APR 1989	339.6	11.3	11588.	1303.4	43.4	30759.	79.3
MAY 1989	333.3	10.8	11922.	1260.8	40.7	32020.	79.1
JUN 1989	265.5	8.9	12187.	1190.8	39.7	33211.	81.8
JUL 1989	331.5	10.7	12519.	1410.5	45.5	34621.	81.0
AUG 1989	327.9	10.6	12846.	1370.6	44.2	35992.	80.7
SEP 1989	253.9	8.5	13100.	1165.0	38.8	37157.	82.1
OCT 1989	295.7	9.5	13396.	1416.7	45.7	38574.	82.7
NOV 1989	359.4	12.0	13755.	1292.8	43.1	39867.	78.2
DEC 1989	330.3	10.7	14086.	1321.4	42.6	41188.	80.0
1989	4033.5	11.1	14086.	15343.2	42.0	41188.	79.2
JAN 1990	361.4	11.7	14447.	1324.8	42.7	42513.	78.6
FEB 1990	277.7	9.9	14725.	1208.4	43.2	43721.	81.3
MAR 1990	224.3	7.2	14949.	1436.5	46.3	45158.	86.5
1990	863.4	9.6	14949.	3969.7	44.1	45158.	82.1

PHD: 90/ 5/30 17:07
00/16-17-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 4
JAN 1982 to MAR 1990

00/16-17-002-21W1/0

WELL NAME:		ASSESSMENT #:	STATUS CODE:
FIELD NAME: OTHER AREAS	FIELD CODE: 99	BLOCK CODE:	STATUS DATE: 00/00/00
POOL NAME: LODGEPOLE WL E	POOL CODE: 52E	POOL TYPE:	I.S. CODE:
PRODUCTION DATE: 00/00/00 BATTERY CODE:	OPERATOR CODE: 005	PROJECT CODE:	PSU CODE:
INJECTION DATE: 00/00/00 OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.	RECORDED DATA: OIL P, WATER P		

DATE	OIL PRODUCTION m3	DAILY OIL m3/DDAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/DDAY	CUMULATIVE WATER m3	WCUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1986	89.3	2.9	89.	424.8	13.7	425.	82.6
FEB 1986	101.3	3.6	191.	385.6	13.8	810.	79.2
MAR 1986	31.6	1.0	222.	317.1	10.2	1127.	90.9
APR 1986	0.0	0.0	222.	0.0	0.0	1127.	0.0
MAY 1986	75.1	2.4	297.	177.5	5.7	1305.	70.3
JUN 1986	93.8	3.1	391.	400.9	13.4	1706.	81.0
JUL 1986	87.8	2.8	479.	343.9	11.1	2050.	79.7
AUG 1986	116.6	3.8	596.	462.8	14.9	2513.	79.9
SEP 1986	75.4	2.5	671.	397.2	13.2	2910.	84.0
OCT 1986	91.8	3.0	763.	357.0	11.5	3267.	79.5
NOV 1986	79.4	2.6	842.	413.7	13.8	3681.	83.9
DEC 1986	77.2	2.5	919.	437.4	14.1	4118.	85.0
1986	919.3	2.7	919.	4117.9	12.3	4118.	81.7
JAN 1987	101.4	3.3	1021.	410.2	13.2	4528.	80.2
FEB 1987	88.2	3.1	1109.	373.4	13.3	4902.	80.9
MAR 1987	74.9	2.4	1184.	306.7	9.9	5208.	80.4
APR 1987	42.0	1.4	1226.	210.2	7.0	5418.	83.3
MAY 1987	110.5	3.6	1336.	521.9	16.8	5940.	82.5
JUN 1987	116.0	3.9	1452.	525.1	17.5	6465.	81.9
JUL 1987	124.2	4.0	1576.	483.5	15.6	6949.	79.6
AUG 1987	96.8	3.1	1673.	481.5	15.5	7430.	83.3
SEP 1987	78.1	2.6	1751.	473.8	15.8	7904.	85.8
OCT 1987	82.4	2.7	1834.	483.1	15.6	8387.	85.4
NOV 1987	96.8	3.2	1931.	454.2	15.1	8842.	82.4
DEC 1987	94.9	3.1	2025.	486.8	15.7	9328.	83.7
1987	1106.2	3.0	2025.	5210.4	14.3	9328.	82.5

PHD: 90/ 5/30 17:07
00416-17-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 5
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/DDAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/DDAY	CUMULATIVE WATER m3	WCUT %
JAN 1988	75.9	2.4	2101.	505.9	16.3	9834.	87.0
FEB 1988	84.2	2.9	2186.	486.1	16.8	10320.	85.2
MAR 1988	78.5	2.5	2264.	382.5	12.3	10703.	83.0
APR 1988	71.1	2.4	2335.	556.6	18.6	11259.	88.7
MAY 1988	67.0	2.2	2402.	567.8	18.3	11827.	89.4
JUN 1988	111.6	3.7	2514.	669.7	22.3	12497.	85.7
JUL 1988	102.1	3.3	2616.	759.4	24.5	13256.	88.1
AUG 1988	110.6	3.6	2727.	651.3	21.0	13908.	85.5
SEP 1988	76.5	2.6	2803.	566.6	18.9	14474.	88.1
OCT 1988	74.3	2.4	2877.	737.5	23.8	15212.	90.8
NOV 1988	83.4	2.8	2961.	739.6	24.7	15951.	89.9
DEC 1988	187.3	6.0	3148.	1201.7	38.8	17153.	86.5
1988	1122.5	3.1	3148.	7824.7	21.4	17153.	87.5
JAN 1989	192.1	6.2	3340.	1238.1	39.9	18391.	86.6
FEB 1989	151.4	5.4	3491.	1210.4	43.2	19602.	88.9
MAR 1989	132.9	4.3	3624.	1099.3	35.5	20701.	89.2
APR 1989	47.2	1.6	3672.	512.4	17.1	21213.	91.6
MAY 1989	131.2	4.2	3803.	1227.8	39.6	22441.	90.3
JUN 1989	123.6	4.1	3926.	905.8	30.2	23347.	88.0
JUL 1989	208.8	6.7	4135.	1351.4	43.6	24698.	86.6
AUG 1989	147.0	4.7	4282.	1487.2	48.0	26185.	91.0
SEP 1989	102.8	3.4	4385.	1248.7	41.6	27434.	92.4
OCT 1989	113.2	3.7	4498.	1474.7	47.6	28909.	92.9
NOV 1989	89.0	3.0	4587.	1437.4	47.9	30346.	94.2
DEC 1989	126.1	4.1	4713.	1443.9	46.6	31790.	92.0
1989	1565.3	4.3	4713.	14637.1	40.1	31790.	90.3
JAN 1990	130.7	4.2	4844.	1464.5	47.2	33255.	91.8
FEB 1990	87.7	3.1	4932.	1354.1	48.4	34609.	93.9
MAR 1990	30.4	1.0	4962.	588.3	19.0	35197.	95.1
1990	248.8	2.8	4962.	3406.9	37.9	35197.	93.2

PHD: 90/ 6/ 7 17:11
00/04-21-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 4
JAN 1982 to MAR 1990

00/04-21-002-21W1/0

WELL NAME:		ASSESSMENT #:	STATUS CODE:
FIELD NAME: OTHER AREAS	FIELD CODE: 99	BLOCK CODE:	STATUS DATE: 00/00/00
POOL NAME: LODGEPOLE WL E	POOL CODE: 52E	POOL TYPE:	I.S. CODE:
PRODUCTION DATE: 00/00/00	BATTERY CODE:	OPERATOR CODE: 005	PROJECT CODE:
INJECTION DATE: 00/00/00	OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.		PSU CODE:
		RECORDED DATA: OIL P, WATER P	

DATE	OIL PRODUCTION m3	DAILY OIL m3/DDAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/DDAY	CUMULATIVE WATER m3	WOUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1983	0.0	0.0	0.	0.0	0.0	0.	0.0
FEB 1983	0.0	0.0	0.	0.0	0.0	0.	0.0
MAR 1983	130.7	4.2	131.	101.3	3.3	101.	43.7
APR 1983	0.0	0.0	131.	0.0	0.0	101.	0.0
MAY 1983	10.0	0.3	141.	10.1	0.3	111.	50.2
JUN 1983	125.4	4.2	266.	132.6	4.4	244.	51.4
JUL 1983	110.0	3.5	376.	133.8	4.3	378.	54.9
AUG 1983	102.3	3.3	478.	125.3	4.0	503.	55.1
SEP 1983	100.4	3.3	579.	106.1	3.5	609.	51.4
OCT 1983	97.7	3.2	677.	99.0	3.2	708.	50.3
NOV 1983	55.8	1.9	732.	114.8	3.8	823.	67.3
DEC 1983	77.0	2.5	809.	86.9	2.8	910.	53.0
1983	809.3	2.9	809.	909.9	3.3	910.	52.9
JAN 1984	74.5	2.4	884.	86.6	2.8	997.	53.8
FEB 1984	66.0	2.3	950.	74.0	2.6	1071.	52.9
MAR 1984	62.8	2.0	1013.	69.8	2.3	1140.	52.6
APR 1984	45.0	1.5	1058.	50.0	1.7	1190.	52.6
MAY 1984	63.6	2.1	1121.	77.3	2.5	1268.	54.9
JUN 1984	58.1	1.9	1179.	75.1	2.5	1343.	56.4
JUL 1984	63.3	2.0	1243.	63.8	2.1	1407.	50.2
AUG 1984	45.5	1.5	1288.	69.9	2.3	1476.	60.6
SEP 1984	22.8	0.8	1311.	36.4	1.2	1513.	61.5
OCT 1984	41.1	1.3	1352.	117.0	3.8	1630.	74.0
NOV 1984	68.7	2.3	1421.	139.8	4.7	1770.	67.1
DEC 1984	119.0	3.8	1540.	290.9	9.4	2061.	71.0
1984	730.4	2.0	1540.	1150.6	3.1	2061.	61.2

PHD: 90/ 6/ 7 17:11
00/04-21-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 5
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
JAN 1985	118.5	3.8	1658.	293.8	9.5	2354.	71.3
FEB 1985	99.0	3.5	1757.	195.4	7.0	2550.	66.4
MAR 1985	101.3	3.3	1859.	177.7	5.7	2727.	63.7
APR 1985	112.0	3.7	1971.	194.0	6.5	2921.	63.4
MAY 1985	93.7	3.0	2064.	183.1	5.9	3105.	66.1
JUN 1985	100.9	3.4	2165.	216.3	7.2	3321.	68.2
JUL 1985	112.3	3.6	2277.	203.8	6.6	3525.	64.5
AUG 1985	99.0	3.2	2376.	209.5	6.8	3734.	67.9
SEP 1985	84.7	2.8	2461.	160.6	5.4	3895.	65.5
OCT 1985	70.7	2.3	2532.	159.0	5.1	4054.	69.2
NOV 1985	65.5	2.2	2597.	151.9	5.1	4206.	69.9
DEC 1985	72.5	2.3	2670.	166.8	5.4	4372.	69.7
1985	1130.1	3.1	2670.	2311.9	6.3	4372.	67.2
JAN 1986	68.0	2.2	2738.	163.6	5.3	4536.	70.6
FEB 1986	57.3	2.0	2795.	141.9	5.1	4678.	71.2
MAR 1986	38.7	1.2	2834.	112.7	3.6	4791.	74.4
APR 1986	23.7	0.8	2857.	65.1	2.2	4856.	73.3
MAY 1986	46.9	1.5	2904.	165.7	5.3	5021.	77.9
JUN 1986	44.8	1.5	2949.	154.6	5.2	5176.	77.5
JUL 1986	37.5	1.2	2987.	111.3	3.6	5287.	74.8
AUG 1986	39.2	1.3	3026.	113.9	3.7	5401.	74.4
SEP 1986	34.7	1.2	3061.	114.7	3.8	5516.	76.8
OCT 1986	31.3	1.0	3092.	119.2	3.8	5635.	79.2
NOV 1986	36.7	1.2	3129.	102.5	3.4	5738.	73.6
DEC 1986	36.9	1.2	3165.	92.4	3.0	5830.	71.5
1986	495.7	1.4	3165.	1457.6	4.0	5830.	74.6
JAN 1987	36.1	1.2	3202.	88.8	2.9	5919.	71.1
FEB 1987	36.0	1.3	3238.	77.3	2.8	5996.	68.2
MAR 1987	28.6	0.9	3266.	97.6	3.1	6094.	77.3
APR 1987	32.1	1.1	3298.	88.3	2.9	6182.	73.3
MAY 1987	33.0	1.1	3331.	88.6	2.9	6271.	72.9
JUN 1987	33.0	1.1	3364.	85.5	2.8	6356.	72.2
JUL 1987	37.0	1.2	3401.	87.2	2.8	6443.	70.2
AUG 1987	30.3	1.0	3432.	89.7	2.9	6533.	74.7
SEP 1987	31.4	1.0	3463.	87.0	2.9	6620.	73.5
OCT 1987	26.9	0.9	3490.	67.9	2.2	6688.	71.6
NOV 1987	25.9	0.9	3516.	64.0	2.1	6752.	71.2
DEC 1987	33.0	1.1	3549.	59.4	1.9	6811.	64.3
1987	383.3	1.1	3549.	981.3	2.7	6811.	71.9

PHD: 90/ 6/ 7 17:11
00/04-21-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 6
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WOUT %
JAN 1988	31.8	1.0	3581.	53.9	1.7	6865.	62.9
FEB 1988	22.8	0.8	3603.	58.5	2.0	6924.	72.0
MAR 1988	34.5	1.1	3638.	53.0	1.7	6977.	60.6
APR 1988	19.0	0.6	3657.	53.7	1.8	7030.	73.9
MAY 1988	18.3	0.6	3675.	49.4	1.6	7080.	73.0
JUN 1988	17.9	0.6	3693.	581.5	19.4	7661.	97.0
JUL 1988	20.4	0.7	3713.	55.0	1.8	7716.	72.9
AUG 1988	20.5	0.7	3734.	52.2	1.7	7769.	71.8
SEP 1988	21.3	0.7	3755.	44.2	1.5	7813.	67.5
OCT 1988	19.7	0.6	3775.	52.6	1.7	7865.	72.8
NOV 1988	20.0	0.7	3795.	48.7	1.6	7914.	70.9
DEC 1988	16.0	0.5	3811.	47.4	1.5	7961.	74.8
1988	262.2	0.7	3811.	1150.1	3.1	7961.	81.4
JAN 1989	18.0	0.6	3829.	35.6	1.1	7997.	66.4
FEB 1989	18.8	0.7	3848.	31.8	1.1	8029.	62.8
MAR 1989	15.9	0.5	3864.	42.3	1.4	8071.	72.7
APR 1989	10.9	0.4	3875.	47.1	1.6	8118.	81.2
MAY 1989	9.3	0.3	3884.	38.3	1.2	8157.	80.5
JUN 1989	9.9	0.3	3894.	40.4	1.3	8197.	80.3
JUL 1989	7.6	0.2	3901.	40.4	1.3	8237.	84.2
AUG 1989	10.1	0.3	3911.	40.3	1.3	8278.	80.0
SEP 1989	8.8	0.3	3920.	39.7	1.3	8317.	81.9
OCT 1989	8.9	0.3	3929.	36.4	1.2	8354.	80.4
NOV 1989	8.2	0.3	3937.	38.9	1.3	8393.	82.6
DEC 1989	9.5	0.3	3947.	33.2	1.1	8426.	77.8
1989	135.9	0.4	3947.	464.4	1.3	8426.	77.4
JAN 1990	13.3	0.4	3960.	36.7	1.2	8463.	73.4
FEB 1990	6.9	0.2	3967.	33.5	1.2	8496.	82.9
MAR 1990	6.8	0.2	3974.	38.3	1.2	8534.	84.9
1990	27.0	0.3	3974.	108.5	1.2	8534.	80.1

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JAN 1979 to MAR 1990

00/09-17-002-21W1/0

WELL NAME:
FIELD NAME: OTHER AREAS
POOL NAME: LODGEPOLE WL E
PRODUCTION DATE: 00/00/00 BATTERY CODE:
INJECTION DATE: 00/00/00 OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.

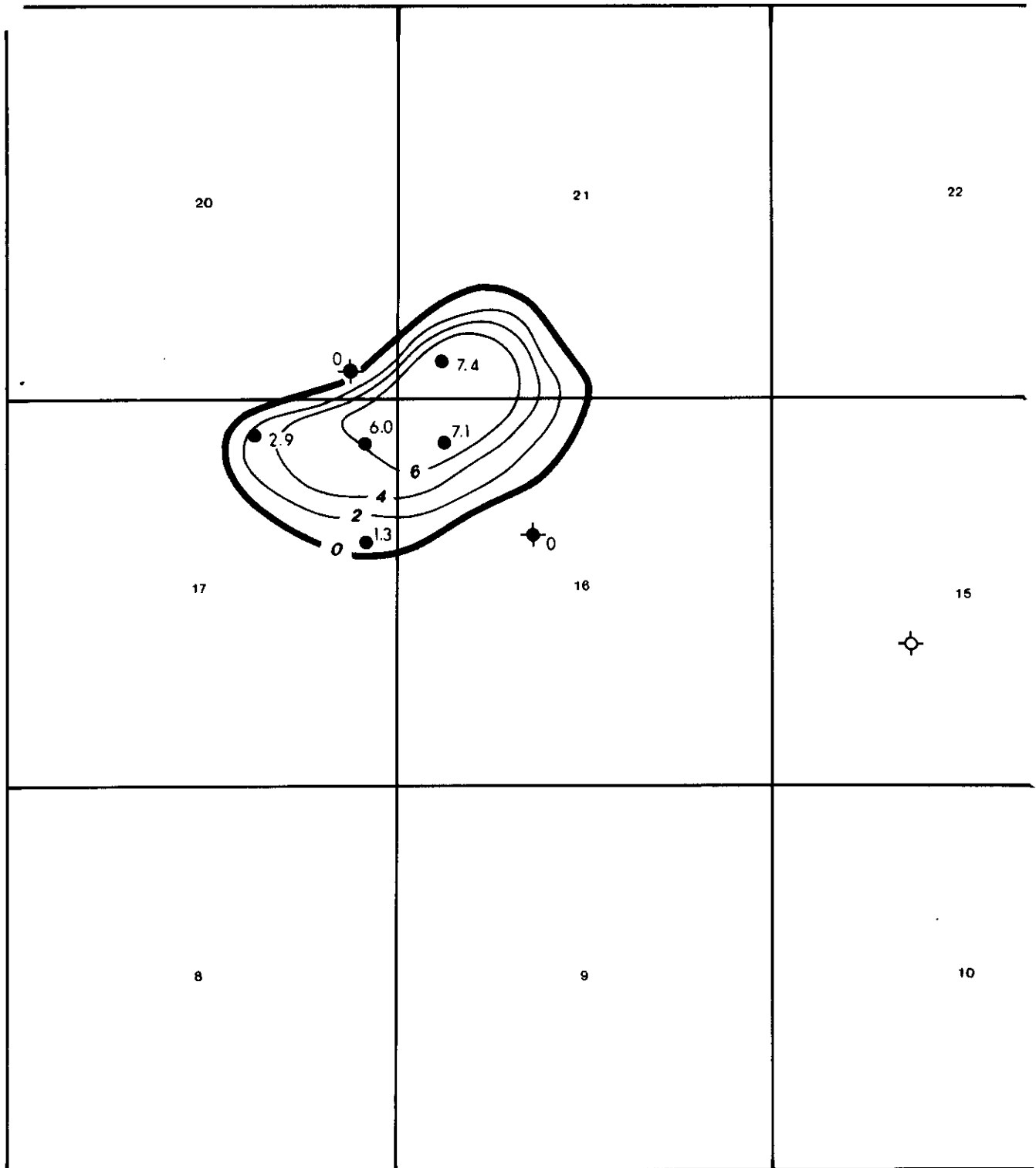
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OPERATOR CODE: 005

ASSESSMENT #:
BLOCK CODE:
POOL TYPE:
PROJECT CODE:
RECORDED DATA: OIL P, WATER P

STATUS CODE:
STATUS DATE: 00/00/00
I.S. CODE:
PSU CODE:

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1988	0.0	0.0	0.	0.0	0.0	0.	0.0
FEB 1988	53.9	1.9	54.	38.9	1.3	39.	41.9
MAR 1988	103.6	3.3	158.	71.3	2.3	110.	40.8
APR 1988	35.8	1.2	193.	89.6	3.0	200.	71.5
MAY 1988	48.1	1.6	241.	123.1	4.0	323.	71.9
JUN 1988	39.5	1.3	281.	142.6	4.8	466.	78.3
JUL 1988	22.0	0.7	303.	107.8	3.5	573.	83.1
AUG 1988	40.9	1.3	344.	173.7	5.6	747.	80.9
SEP 1988	10.0	0.3	354.	136.6	4.6	884.	93.2
OCT 1988	16.6	0.5	370.	222.2	7.2	1106.	93.0
NOV 1988	7.3	0.2	378.	225.9	7.5	1332.	96.9
DEC 1988	31.5	1.0	409.	204.5	6.6	1536.	86.7
1988	409.2	1.2	409.	1536.2	4.6	1536.	79.0
JAN 1989	15.2	0.5	424.	211.1	6.8	1747.	93.3
FEB 1989	22.8	0.8	447.	176.3	6.3	1924.	88.5
MAR 1989	24.0	0.8	471.	163.5	5.3	2087.	87.2
APR 1989	0.0	0.0	471.	0.0	0.0	2087.	0.0
MAY 1989	11.8	0.4	483.	196.7	6.3	2284.	94.3
JUN 1989	15.9	0.5	499.	208.3	6.9	2492.	92.9
JUL 1989	7.9	0.3	507.	222.3	7.2	2714.	96.6
AUG 1989	14.4	0.5	521.	212.7	6.9	2927.	93.7
SEP 1989	16.1	0.5	537.	203.0	6.8	3130.	92.7
OCT 1989	6.3	0.2	544.	216.4	7.0	3347.	97.2
NOV 1989	20.3	0.7	564.	189.8	6.3	3536.	90.3
DEC 1989	7.0	0.2	571.	206.4	6.7	3743.	96.7
1989	161.7	0.5	571.	2206.5	6.6	3743.	93.2
JAN 1990	9.7	0.3	581.	200.8	6.5	3944.	95.4
FEB 1990	8.2	0.3	589.	179.0	6.4	4123.	95.6
MAR 1990	2.4	0.1	591.	47.6	1.5	4170.	95.2
1990	20.3	0.2	591.	427.4	4.7	4170.	95.5

TWP.2 RGE. 21 W.1M.



ATTACHMENT #3

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA**

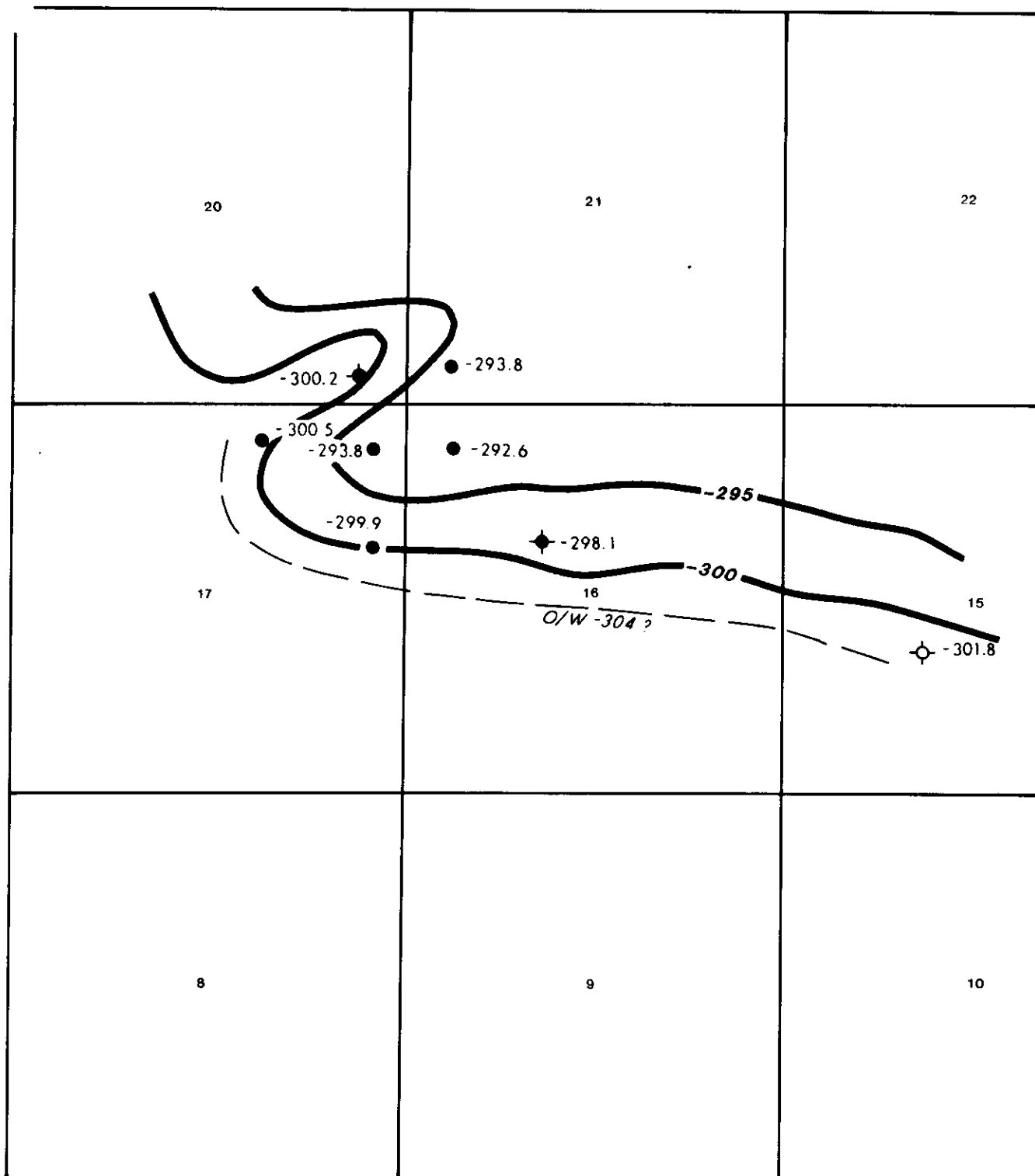
**UPPER WHITEWATER
NET PAY MAP**

C.I.: 2m

SCALE: 1:25,000

DATE: MAY 1990

TWP.2 RGE. 21 W.1M.



ATTACHMENT #4

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA**

**STRUCTURE ON
UPPER WHITEWATER**

C.I.: 5m

SCALE: 1:25,000

DATE: MAY 1990

TWP.2 RGE.21 W.1M.

			DOMESTIC PETROLEUM LTD. (1/2) HEMERYCK. ALBERT & IDA (1/8) KERMOTT. MARJORIE (1/4) CANADA PERMANENT TRUST COMPANY (1/8)	
LISCHKA. DAVID & BEVERLY	WASHINGTON. LAWRENCE			RYAN. DORIS
CONROY. THOMAS & DORIS	61475 MANITOBA LIMITED	61475 MANITOBA LIMITED	61475 MANITOBA LIMITED	61475 MANITOBA LIMITED
CONROY. THOMAS & DORIS	GIESBRECHT. HENRY	DIELL. RUBY (1/2) MARTENS. JERRY (1/2)	TALCORP LIMITED	EKIN. ERIC
CONROY. THOMAS & DORIS	HARVEY. HENRY (1/2) PRAIRIE LEASEHOLDS LTD. (1/2)	DOMINION CROWN LAND	UNDISPOSED CROWN LAND	
CPR				
	HEALY. TOLBERT	RANSOM. GARY & NANCY	GRAHAM. STEVEN (1/2) JOHN ADAMSON (1/4) ADAMSON. ANNIE (1/4)	HAMBLEY. DAVID (1/2) STORMON. SHAUN. BOYUM. MARY (1/2)
BALLANTYNE. WALTER (1/4) YOST. NANCY (1/4) GELDOF. JULIA. VERCAIGNE. GEORGE (1/2)	OLSON. MARIAN	McKEE. MARY (1/4) DIELL. WILLIAM (3/4)	GRAHAM. STEVEN (1/2) LUMGIAR. JOHN (1/2)	LUMGIAR. JOHN (1/2) GILES. EARL (1/4) TRI-M ENERGY INC. (1/8) JIM MUNN CO. INC. (1/8)

ATTACHMENT #5

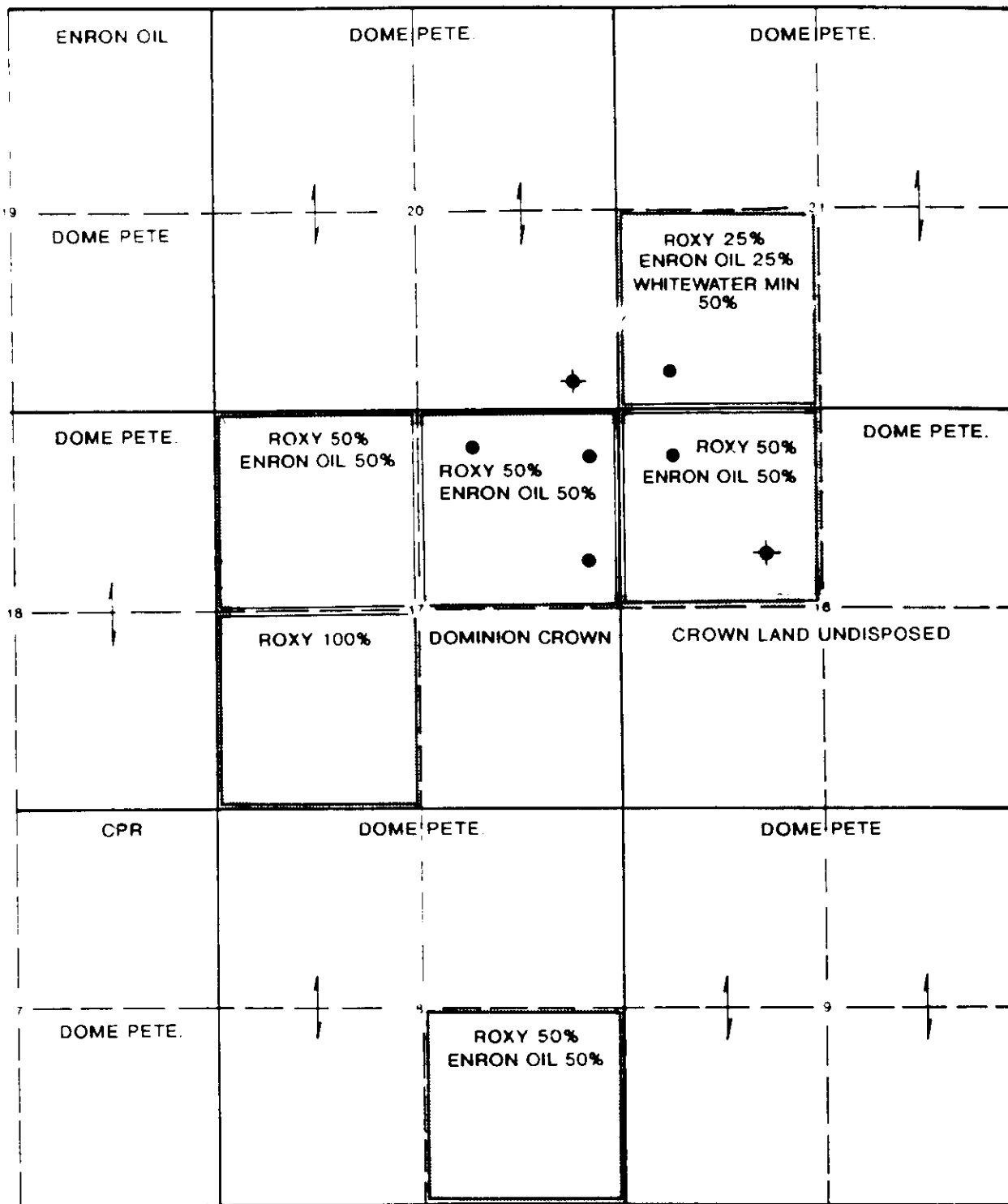
CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA
LESSOR OWNERSHIP**

SCALE: 1:25,000

DATE: JUNE 1980

TWP.2 RGE.21 W.1M.



ATTACHMENT #6

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA
LESSEE OWNERSHIP**

SCALE: 1:25,000

DATE: JUNE 1990

TWP.2 RGE.21 W.1M.

ENRON OIL	DOME PETE		DOME PETE.
19	DOME PETE	20	21
			ROXY 25% ENRON OIL 25% WHITEWATER MIN 50%
DOME PETE.	ROXY 50% ENRON OIL 50%	ROXY 50% ENRON OIL 50%	ROXY 50% ENRON OIL 50%
18			16
	ROXY 100%	DOMINION CROWN	CROWN LAND UNDISPOSED
CPR	DOME PETE		DOME PETE
DOME PETE.		ROXY 50% ENRON OIL 50%	

ATTACHMENT #6

CANADIAN ROXY PETROLEUM LTD.

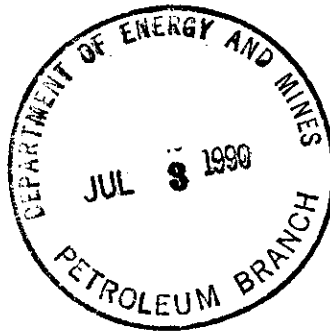
**MOUNTAINSIDE
MANITOBA
LESSEE OWNERSHIP**

SCALE: 1:25,000

DATE: JUNE 1990

1990-06-26

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



ATTENTION: Mr. John N. Fox
Chief Petroleum Engineer

Dear Sir:

RE: APPLICATION FOR INCREASED MAXIMUM PERMISSIBLE PRODUCTION RATE (MPPR)
CDN ROXY ET AL MOUNTAINSIDE 13-16-2-21 WIM

Canadian Roxy Petroleum hereby applies under Section 51 of the Manitoba Oil & Gas Regulations to increase the MPPR of the well Cdn Roxy et al Mountainside 13-16-2-21 WIM from 240 m³/month to 375 m³/month and to retire the current overproduction.

A tubing pump was installed in the 13-16 well in November, 1988 to test increased reservoir withdrawal rates. As depicted on the production graph (Attachment #2), the increased withdrawal rates have significantly increased oil production with no detrimental impact on water cut. The increased production rate has not resulted in reduced oil recoveries at the offset wells (Attachment #4). Well 4-21 has produced at less than 0.7 m³/day for the past two years and has been near the economic limit during this period. Well 16-17 has produced at a constant rate of approximately 2.8 m³/day for the first three years of production. Oil production was increased to 4.2 m³/day commencing in November, 1988 when a tubing pump was installed in the wellbore. Well 9-17 came on production in February 1988 and is producing at or below the economic limit. Production from this well has declined steadily to a current rate of 0.2 m³/day with water cuts generally in excess of 90%. The increased withdrawal rate at 13-16 has significantly increased oil production rates with no detrimental impact on the anticipated recoveries of the offset wells.

The Mountainside wells produce from the Upper Whitewater Lake Member of the Lodgepole formation. The oil water contact in the Upper Whitewater is not present in the reservoir interval of 13-16-2-21 WIM. The base of porosity in net oil pay is at 904.5m KB (-304.4m SS) which compares to the pool average oil-water contact of -304m SS. The oil water contact appears to be transitional depending on the local rock facies. It has been picked at 903.75m KB (-303.1m SS) in 16-17, 911.8m KB (-303.4m SS) in 9-17 and 901.8m KB (-304.8 mSS) in 15-17. As a result of this the pool oil-water contact has been accepted to be at -304m SS on the Upper Whitewater Lake structure contour map (Attachment No. 4).



Page Two

In support of this application, Canadian Roxy Petroleum submits the following data in the form of Attachments for your review:

- Attachment #1 - Summary of Completion Operations;
13-16, 9-17, 16-17 and 4-21
- Attachment #2 - Production Plots and Reports;
13-16, 9-17, 16-17 and 4-21
- Attachment #3 - Upper Whitewater Net Pay Map
- Attachment #4 - Upper Whitewater Structure Map
- Attachment #5 - Lessor Ownership Map
- Attachment #6 - Lessee Ownership Map

In conclusion, Canadian Roxy Petroleum requests approval for an increase in the maximum permissible production rate for well 13-16-2-21 W1 to 375 m³/month, and to retire the current overproduction.

If any further information is required please contact D.M. (Daryl) Brost (403) 260-9529.

Yours truly,

CANADIAN ROXY PETROLEUM LTD.

W.L. Williamson
Manager Engineering

SK:gw

Attachment
cc: Well File

ATTACHMENT NO. 1

CANADIAN ROXY ET AL MOUNTAIN INSIDE 13-16-2-21 W1M

July, 1982

- Completed Mississippian Whitewater 901.5 - 904.0m K.B.
- Acid wash and squeeze.
- Perforate Mississippian Whitewater 897.0 - 898.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.

September, 1982

- Perforate the Mississippian Whitewater 901.5 - 904.0m K.B.
- Acid wash and squeeze.
- Perforate the Mississippian Whitewater 895.0 - 898.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.

November, 1982

- Perforate the Mississippian Whitewater 895.0 - 898.5m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.

December, 1982

- Perforate 895.0 - 898.5m K.B.
- Acid wash and squeeze.
- Ran Axelson RWBC 50.8mm x 38.1mm x 3.65m pump # AX2317.

October, 1983

- Set retainer @ 901 - 901.5m K.B.
- Perform cement squeeze.
- Perforated Whitewater formation 895.0 - 899.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP

November, 1983

- Set retrievable bridge plug @ 899.35m K.B. (top).
- Perform cement squeeze.
- Perforated Whitewater formation 895.0 - 899.0m K.B.
- Acid wash and squeeze.
- Ran 31.75mm BHP.
- Perforated 897.0 - 899.0m K.B.
- Acid wash and squeeze.
- Ran AX RWBC # 2317 50.8mm x 38.1mm x 3.65mm BHP.

- Page Two -

December, 1983

- Performed cement squeeze to 904m K.B.
tagged cement at 877m K.B.
- Perforated interval 895.0 - 899.0m K.B.
- Acid wash and squeeze.
- Performed cement squeeze to 902m K.B.
tagged cement at 874m K.B.
- Perforated interval 897.0 - 899.0m K.B.
- Acid wash and squeeze.

March, 1985

- Ran BHP # AX1938 2" x 1 1/2" x 12'.

November, 1988

- Ran in THM pump plunger with standing
valve. Tubing Pump # CRNO-8.

ROXY-ANDEX MOUTAINSIDE 16-17-2-21 W1

December, 1985

- Completed Whitewater zone 898.0 - 905.0m K.B.
- Acid Wash & Squeeze
- Ran BHP# AX5717 RWBC 2" x 1 1/2" x 12'.

November, 1988

- Ran in THM pump plunger with standing valve. Tubing pump #CRNO-8.

ROXY-ANDEX MOUNTAIN INSIDE 4-21-2-21 W1M

March, 1983

- Completed Upper Whitewater zone 887.0 - 890.0m K.B.
- Acid wash formation.
- Ran Axelson 50.8mm x 38.1mm x 3.65mm BHP # AX2736.

October, 1984

- Acidized perfs at 887.0 to 890.0m K.B.
- Ran new pump 50.8mm x 38.1mm x 3.65mm # AXZ991.

April, 1988

- Perforate Upper Whitewater
887.0 - 890.0m K.B.
891.0 - 893.0m K.B.
- Acid wash and squeeze.
- Ran serviced bottom hole pump.

CDN ROXY ENRON MOUNTAINSIDE 9-17-2-21 W1

December, 1987

- Completed Upper Whitewater 908.5 - 911.0m K.B.
- Acid Wash & Squeeze

February, 1988

- Perforate 913.5 - 914.5m K.B.
- Set cement retainer at 912.0m K.B.
- Performed cement squeeze 913.5 - 914.5m K.B.
- Squeezed .08m³ into upper perms.
- Perforated 908.5 - 910.0m K.B.
- Acid wash and squeeze
- Installed BHP (31.25mm)

ATTACHMENT #2

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Petroleum History Database

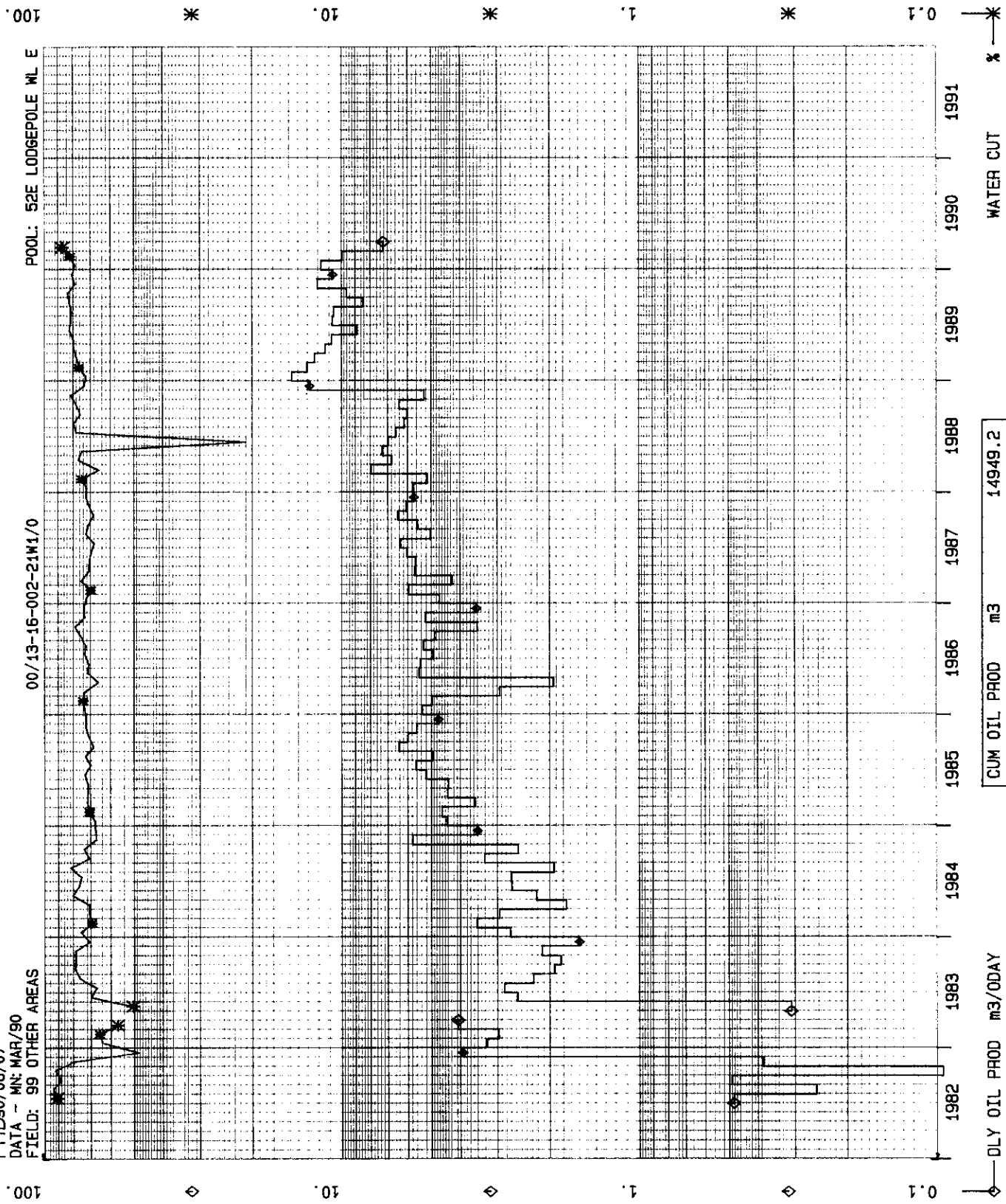
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700 9TH AVENUE, S.W.
CALGARY, ALBERTA
ATTN: SCOTT KING

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FIELD: 99 OTHER AREAS

00/13-15-002-21W1/0

POOL: 52E LODGEPOLE WL E

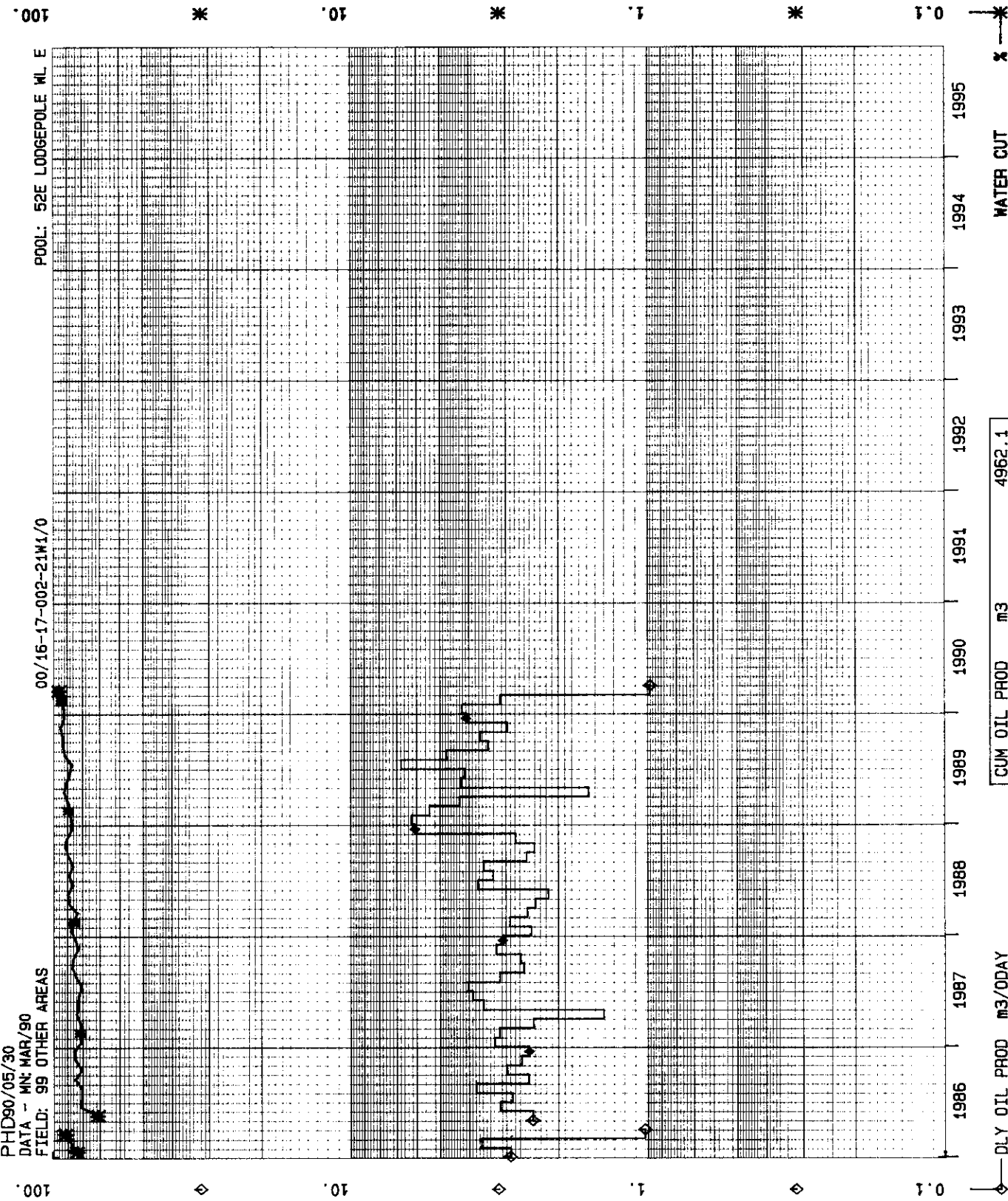


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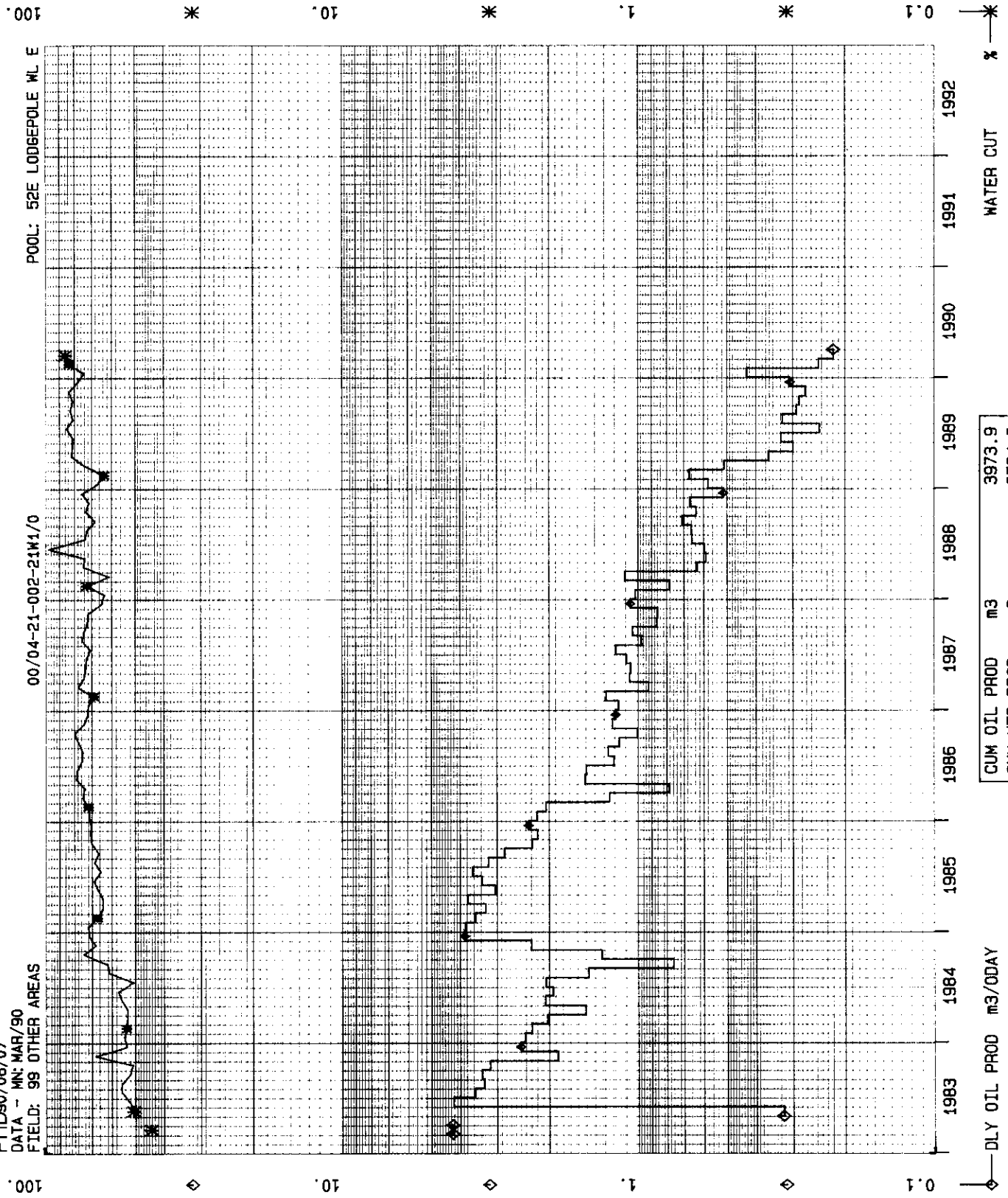


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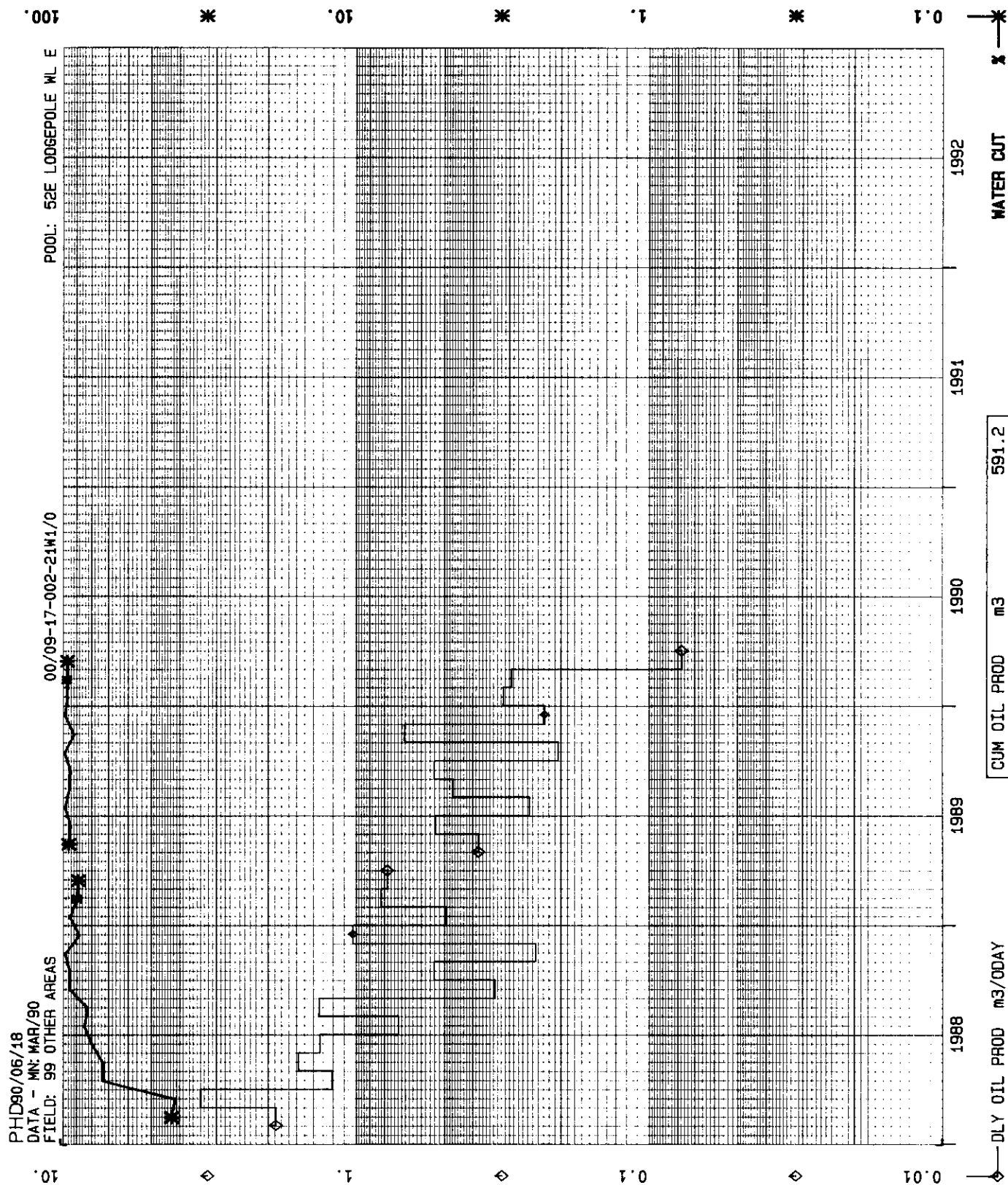
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POOL: 52E LODGEPOLE WL E



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PHD: 90/ 6/ 7 17:11
00/12-16-002-21W1/0

WELL: 1 WELLFILE: 1 PAGE: 1
JAN 1982 to MAR 1990

00/13-16-002-21W1/0

WELL NAME: FIELD NAME: OTHER AREAS POOL NAME: LODGEPOLE WL E
PRODUCTION DATE: 00/00/00 BATTERY CODE: OPERATOR CODE: 005
INJECTION DATE: 00/00/00 OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.

ASSESSMENT #: 99 BLOCK CODE: 52E POOL TYPE: I.S. CODE:
STATUS CODE: STATUS DATE: 00/00/00
PROJECT CODE: PSU CODE:
RECORDED DATA: OIL P, WATER P

DATE	OIL PRODUCTION m3	DAILY OIL m3/DDAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/DDAY	CUMULATIVE WATER m3	WOUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
FEB 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
MAR 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
APR 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
MAY 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
JUN 1982	0.0	0.0	0.	0.0	0.0	0.	0.0
JUL 1982	14.9	0.5	15.	134.1	4.3	134.	90.0
AUG 1982	7.9	0.3	23.	97.9	3.2	232.	92.5
SEP 1982	14.7	0.5	38.	98.6	3.3	331.	87.0
OCT 1982	2.2	0.1	40.	22.3	0.7	353.	91.0
NOV 1982	11.5	0.4	51.	43.1	1.4	396.	78.9
DEC 1982	121.1	3.9	172.	110.7	3.6	507.	47.8
1982	172.3	0.9	172.	506.7	2.8	507.	74.6
JAN 1983	100.9	3.3	273.	173.0	5.6	680.	63.2
FEB 1983	83.0	3.0	356.	151.7	5.4	831.	64.6
MAR 1983	125.4	4.0	482.	160.3	5.2	992.	56.1
APR 1983	0.0	0.0	482.	0.0	0.0	992.	0.0
MAY 1983	9.6	0.3	491.	9.5	0.3	1001.	49.7
JUN 1983	76.8	2.6	568.	173.9	5.8	1175.	69.4
JUL 1983	87.8	2.8	656.	169.7	5.5	1345.	65.9
AUG 1983	70.1	2.3	726.	213.9	6.9	1559.	75.3
SEP 1983	57.6	1.9	784.	205.2	6.8	1764.	78.1
OCT 1983	56.9	1.8	840.	201.0	6.5	1965.	77.9
NOV 1983	63.6	2.1	904.	225.1	7.5	2190.	78.0
DEC 1983	49.0	1.6	953.	111.7	3.6	2302.	69.5
1983	780.7	2.3	953.	1795.0	5.4	2302.	69.7

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WELL: 1 WELLFILE: 1 PAGE: 2
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
JAN 1984	83.9	2.7	1037.	248.9	8.0	2551.	74.8
FEB 1984	101.7	3.5	1139.	221.2	7.6	2772.	68.5
MAR 1984	91.5	3.0	1230.	214.1	6.9	2986.	70.1
APR 1984	52.8	1.8	1283.	123.1	4.1	3109.	70.0
MAY 1984	68.7	2.2	1352.	269.4	8.7	3378.	79.7
JUN 1984	80.4	2.7	1432.	251.3	8.4	3630.	75.8
JUL 1984	83.2	2.7	1515.	240.9	7.8	3871.	74.3
AUG 1984	60.1	1.9	1575.	257.7	8.3	4128.	81.1
SEP 1984	99.3	3.3	1675.	230.1	7.7	4358.	69.9
OCT 1984	78.9	2.5	1753.	216.3	7.0	4575.	73.3
NOV 1984	172.3	5.7	1926.	337.6	11.3	4912.	66.2
DEC 1984	107.9	3.5	2034.	217.6	7.0	5130.	66.9
1984	1080.7	3.0	2034.	2828.2	7.7	5130.	72.4
JAN 1985	136.9	4.4	2171.	279.6	9.0	5410.	67.1
FEB 1985	128.5	4.6	2299.	301.3	10.8	5711.	70.1
MAR 1985	110.5	3.6	2410.	271.0	8.7	5982.	71.0
APR 1985	131.5	4.4	2541.	318.5	10.6	6300.	70.8
MAY 1985	135.4	4.4	2676.	328.4	10.6	6629.	70.8
JUN 1985	156.2	5.2	2833.	416.0	13.9	7045.	72.7
JUL 1985	174.0	5.6	3007.	391.9	12.6	7437.	69.3
AUG 1985	153.4	4.9	3160.	402.8	13.0	7839.	72.4
SEP 1985	191.8	6.4	3352.	406.1	13.5	8246.	67.9
OCT 1985	185.4	6.0	3537.	430.3	13.9	8676.	69.9
NOV 1985	167.0	5.6	3704.	426.6	14.2	9102.	71.9
DEC 1985	146.3	4.7	3851.	375.3	12.1	9478.	72.0
1985	1816.9	5.0	3851.	4347.8	11.9	9478.	70.5
JAN 1986	165.1	5.3	4016.	442.3	14.3	9920.	72.8
FEB 1986	139.2	5.0	4155.	383.9	13.7	10304.	73.4
MAR 1986	91.2	2.9	4246.	243.3	7.8	10547.	72.7
APR 1986	58.5	2.0	4305.	110.1	3.7	10657.	65.3
MAY 1986	170.0	5.5	4475.	412.3	13.3	11070.	70.8
JUN 1986	163.0	5.4	4638.	386.8	12.9	11456.	70.4
JUL 1986	152.4	4.9	4790.	407.3	13.1	11864.	72.8
AUG 1986	164.8	5.3	4955.	431.4	13.9	12295.	72.4
SEP 1986	145.7	4.9	5100.	434.5	14.5	12730.	74.9
OCT 1986	108.4	3.5	5209.	393.6	12.7	13123.	78.4
NOV 1986	156.8	5.2	5366.	417.1	13.9	13540.	72.7
DEC 1986	109.1	3.5	5475.	297.5	9.6	13838.	73.2
1986	1624.2	4.4	5475.	4360.1	11.9	13838.	72.9

PHD: 90/ 6/ 7 17:11
00/12-16-002-21W1/0

WELL: 1 WELLFILE: 1 PAGE: 3
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
JAN 1987	145.3	4.7	5620.	373.4	12.0	14211.	72.0
FEB 1987	166.3	5.9	5786.	373.7	13.3	14585.	69.2
MAR 1987	131.9	4.3	5918.	392.9	12.7	14978.	74.9
APR 1987	170.2	5.7	6088.	408.3	13.6	15386.	70.6
MAY 1987	175.1	5.6	6264.	409.4	13.2	15795.	70.0
JUN 1987	180.0	6.0	6444.	407.2	13.6	16203.	69.3
JUL 1987	196.1	6.3	6640.	403.0	13.0	16606.	67.3
AUG 1987	156.0	5.0	6796.	402.4	13.0	17008.	72.1
SEP 1987	166.6	5.6	6962.	402.1	13.4	17410.	70.7
OCT 1987	200.2	6.5	7162.	424.9	13.7	17835.	68.0
NOV 1987	180.9	6.0	7343.	419.9	14.0	18255.	69.9
DEC 1987	176.4	5.7	7520.	450.7	14.5	18706.	71.9
1987	2045.0	5.6	7520.	4867.9	13.3	18706.	70.4
JAN 1988	177.2	5.7	7697.	444.6	14.3	19150.	71.5
FEB 1988	149.1	5.1	7846.	435.9	15.0	19586.	74.5
MAR 1988	245.2	7.9	8091.	456.3	14.7	20043.	65.0
APR 1988	202.7	6.8	8294.	660.7	22.0	20703.	76.5
MAY 1988	224.5	7.2	8518.	654.8	21.1	21358.	74.5
JUN 1988	209.1	7.0	8728.	55.1	1.8	21413.	20.9
JUL 1988	202.7	6.5	8930.	705.8	22.8	22119.	77.7
AUG 1988	190.9	6.2	9121.	740.2	23.9	22859.	79.5
SEP 1988	179.9	6.0	9301.	539.8	18.0	23399.	75.0
OCT 1988	198.2	6.4	9499.	682.5	22.0	24081.	77.5
NOV 1988	158.2	5.3	9657.	680.9	22.7	24762.	81.1
DEC 1988	394.8	12.7	10052.	1082.4	34.9	25845.	73.3
1988	2532.5	6.9	10052.	7139.0	19.5	25845.	73.8
JAN 1989	453.7	14.6	10506.	1173.6	37.9	27018.	72.1
FEB 1989	363.6	13.0	10870.	1152.6	41.2	28171.	76.0
MAR 1989	379.1	12.2	11249.	1285.0	41.5	29456.	77.2
APR 1989	339.6	11.3	11588.	1303.4	43.4	30759.	79.3
MAY 1989	333.3	10.8	11922.	1260.8	40.7	32020.	79.1
JUN 1989	265.5	8.9	12187.	1190.8	39.7	33211.	81.8
JUL 1989	331.5	10.7	12519.	1410.5	45.5	34621.	81.0
AUG 1989	327.9	10.6	12846.	1370.6	44.2	35992.	80.7
SEP 1989	253.9	8.5	13100.	1165.0	38.8	37157.	82.1
OCT 1989	295.7	9.5	13396.	1416.7	45.7	38574.	82.7
NOV 1989	359.4	12.0	13755.	1292.8	43.1	39867.	78.2
DEC 1989	330.3	10.7	14086.	1321.4	42.6	41188.	80.0
1989	4033.5	11.1	14086.	15343.2	42.0	41188.	79.2
JAN 1990	361.4	11.7	14447.	1324.8	42.7	42513.	78.6
FEB 1990	277.7	9.9	14725.	1208.4	43.2	43721.	81.3
MAR 1990	224.3	7.2	14949.	1436.5	46.3	45158.	86.5
1990	863.4	9.6	14949.	3969.7	44.1	45158.	82.1

PHD: 90/ 5/30 17:07
00/16-17-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 4
JAN 1982 to MAR 1990

00/16-17-002-21W1/0

WELL NAME: FIELD NAME: OTHER AREAS
POOL NAME: LODGEPOLE WL E
PRODUCTION DATE: 00/00/00 BATTERY CODE:
INJECTION DATE: 00/00/00 OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.

FIELD CODE: 99
POOL CODE: 52E
OPERATOR CODE: 005

ASSESSMENT #:
BLOCK CODE:
POOL TYPE:
PROJECT CODE:
RECORDED DATA: OIL P, WATER P

STATUS CODE:
STATUS DATE: 00/00/00
I.S. CODE:
PSU CODE:

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1986	89.3	2.9	89.	424.8	13.7	425.	82.6
FEB 1986	101.3	3.6	191.	385.6	13.8	810.	79.2
MAR 1986	31.6	1.0	222.	317.1	10.2	1127.	90.9
APR 1986	0.0	0.0	222.	0.0	0.0	1127.	0.0
MAY 1986	75.1	2.4	297.	177.5	5.7	1305.	70.3
JUN 1986	93.8	3.1	391.	400.9	13.4	1706.	81.0
JUL 1986	87.8	2.8	479.	343.9	11.1	2050.	79.7
AUG 1986	116.6	3.8	596.	462.8	14.9	2513.	79.9
SEP 1986	75.4	2.5	671.	397.2	13.2	2910.	84.0
OCT 1986	91.8	3.0	763.	357.0	11.5	3267.	79.5
NOV 1986	79.4	2.6	842.	413.7	13.8	3681.	83.9
DEC 1986	77.2	2.5	919.	437.4	14.1	4118.	85.0
1986	919.3	2.7	919.	4117.9	12.3	4118.	81.7
JAN 1987	101.4	3.3	1021.	410.2	13.2	4528.	80.2
FEB 1987	88.2	3.1	1109.	373.4	13.3	4902.	80.9
MAR 1987	74.9	2.4	1184.	306.7	9.9	5208.	80.4
APR 1987	42.0	1.4	1226.	210.2	7.0	5418.	83.3
MAY 1987	110.5	3.6	1336.	521.9	16.8	5940.	82.5
JUN 1987	116.0	3.9	1452.	525.1	17.5	6465.	81.9
JUL 1987	124.2	4.0	1576.	483.5	15.6	6949.	79.6
AUG 1987	96.8	3.1	1673.	481.5	15.5	7430.	83.3
SEP 1987	78.1	2.6	1751.	473.8	15.8	7904.	85.8
OCT 1987	82.4	2.7	1834.	483.1	15.6	8387.	85.4
NOV 1987	96.8	3.2	1931.	454.2	15.1	8842.	82.4
DEC 1987	94.9	3.1	2025.	486.8	15.7	9328.	83.7
1987	1106.2	3.0	2025.	5210.4	14.3	9328.	82.5

PHD: 90/ 5/30 17:07
00/16-17-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 5
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
JAN 1988	75.9	2.4	2101.	505.9	16.3	9834.	87.0
FEB 1988	84.2	2.9	2186.	486.1	16.8	10320.	85.2
MAR 1988	78.5	2.5	2264.	382.5	12.3	10703.	83.0
APR 1988	71.1	2.4	2335.	556.6	18.6	11259.	88.7
MAY 1988	67.0	2.2	2402.	567.8	18.3	11827.	89.4
JUN 1988	111.6	3.7	2514.	669.7	22.3	12497.	85.7
JUL 1988	102.1	3.3	2616.	759.4	24.5	13256.	88.1
AUG 1988	110.6	3.6	2727.	651.3	21.0	13908.	85.5
SEP 1988	76.5	2.6	2803.	566.6	18.9	14474.	88.1
OCT 1988	74.3	2.4	2877.	737.5	23.8	15212.	90.8
NOV 1988	83.4	2.8	2961.	739.6	24.7	15951.	89.9
DEC 1988	187.3	6.0	3148.	1201.7	38.8	17153.	86.5
1988	1122.5	3.1	3148.	7824.7	21.4	17153.	87.5
JAN 1989	192.1	6.2	3340.	1238.1	39.9	18391.	86.6
FEB 1989	151.4	5.4	3491.	1210.4	43.2	19602.	88.9
MAR 1989	132.9	4.3	3624.	1099.3	35.5	20701.	89.2
APR 1989	47.2	1.6	3672.	512.4	17.1	21213.	91.6
MAY 1989	131.2	4.2	3803.	1227.8	39.6	22441.	90.3
JUN 1989	123.6	4.1	3926.	905.8	30.2	23347.	88.0
JUL 1989	208.8	6.7	4135.	1351.4	43.6	24698.	86.6
AUG 1989	147.0	4.7	4282.	1487.2	48.0	26185.	91.0
SEP 1989	102.8	3.4	4385.	1248.7	41.6	27434.	92.4
OCT 1989	113.2	3.7	4498.	1474.7	47.6	28909.	92.9
NOV 1989	89.0	3.0	4587.	1437.4	47.9	30346.	94.2
DEC 1989	126.1	4.1	4713.	1443.9	46.6	31790.	92.0
1989	1565.3	4.3	4713.	14637.1	40.1	31790.	90.3
JAN 1990	130.7	4.2	4844.	1464.5	47.2	33255.	91.8
FEB 1990	87.7	3.1	4932.	1354.1	48.4	34609.	93.9
MAR 1990	30.4	1.0	4962.	588.3	19.0	35197.	95.1
1990	248.8	2.8	4962.	3406.9	37.9	35197.	93.2

PHD: 90/ 6/ 7 17:11
00/04-21-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 4
JAN 1982 to MAR 1990

00/04-21-002-21W1/0

WELL NAME: FIELD NAME: OTHER AREAS POOL NAME: LODGEPOLE WL E
PRODUCTION DATE: 00/00/00 BATTERY CODE: OPERATOR CODE: 005
INJECTION DATE: 00/00/00 OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.

ASSESSMENT #: STATUS CODE: STATUS DATE: 00/00/00
BLOCK CODE: I.S. CODE:
POOL TYPE: PSU CODE:
PROJECT CODE: RECORDED DATA: OIL P, WATER P

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1983	0.0	0.0	0.	0.0	0.0	0.	0.0
FEB 1983	0.0	0.0	0.	0.0	0.0	0.	0.0
MAR 1983	130.7	4.2	131.	101.3	3.3	101.	43.7
APR 1983	0.0	0.0	131.	0.0	0.0	101.	0.0
MAY 1983	10.0	0.3	141.	10.1	0.3	111.	50.2
JUN 1983	125.4	4.2	266.	132.6	4.4	244.	51.4
JUL 1983	110.0	3.5	376.	133.8	4.3	378.	54.9
AUG 1983	102.3	3.3	478.	125.3	4.0	503.	55.1
SEP 1983	100.4	3.3	579.	106.1	3.5	609.	51.4
OCT 1983	97.7	3.2	677.	99.0	3.2	708.	50.3
NOV 1983	55.8	1.9	732.	114.8	3.8	823.	67.3
DEC 1983	77.0	2.5	809.	86.9	2.8	910.	53.0
1983	809.3	2.9	809.	909.9	3.3	910.	52.9
JAN 1984	74.5	2.4	884.	86.6	2.8	997.	53.8
FEB 1984	66.0	2.3	950.	74.0	2.6	1071.	52.9
MAR 1984	62.8	2.0	1013.	69.8	2.3	1140.	52.6
APR 1984	45.0	1.5	1058.	50.0	1.7	1190.	52.6
MAY 1984	63.6	2.1	1121.	77.3	2.5	1268.	54.9
JUN 1984	58.1	1.9	1179.	75.1	2.5	1343.	56.4
JUL 1984	63.3	2.0	1243.	63.8	2.1	1407.	50.2
AUG 1984	45.5	1.5	1288.	69.9	2.3	1476.	60.6
SEP 1984	22.8	0.8	1311.	36.4	1.2	1513.	61.5
OCT 1984	41.1	1.3	1352.	117.0	3.8	1630.	74.0
NOV 1984	68.7	2.3	1421.	139.8	4.7	1770.	67.1
DEC 1984	119.0	3.8	1540.	290.9	9.4	2061.	71.0
1984	730.4	2.0	1540.	1150.6	3.1	2061.	61.2

PHD: 90/ 6/ 7 17:11
00/04-21-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 5
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WOUT %
JAN 1985	118.5	3.8	1658.	293.8	9.5	2354.	71.3
FEB 1985	99.0	3.5	1757.	195.4	7.0	2550.	66.4
MAR 1985	101.3	3.3	1859.	177.7	5.7	2727.	63.7
APR 1985	112.0	3.7	1971.	194.0	6.5	2921.	63.4
MAY 1985	93.7	3.0	2064.	183.1	5.9	3105.	66.1
JUN 1985	100.9	3.4	2165.	216.3	7.2	3321.	68.2
JUL 1985	112.3	3.6	2277.	203.8	6.6	3525.	64.5
AUG 1985	99.0	3.2	2376.	209.5	6.8	3734.	67.9
SEP 1985	84.7	2.8	2461.	160.6	5.4	3895.	65.5
OCT 1985	70.7	2.3	2532.	159.0	5.1	4054.	69.2
NOV 1985	65.5	2.2	2597.	151.9	5.1	4206.	69.9
DEC 1985	72.5	2.3	2670.	166.8	5.4	4372.	69.7
1985	1130.1	3.1	2670.	2311.9	6.3	4372.	67.2
JAN 1986	68.0	2.2	2738.	163.6	5.3	4536.	70.6
FEB 1986	57.3	2.0	2795.	141.9	5.1	4678.	71.2
MAR 1986	38.7	1.2	2834.	112.7	3.6	4791.	74.4
APR 1986	23.7	0.8	2857.	65.1	2.2	4856.	73.3
MAY 1986	46.9	1.5	2904.	165.7	5.3	5021.	77.9
JUN 1986	44.8	1.5	2949.	154.6	5.2	5176.	77.5
JUL 1986	37.5	1.2	2987.	111.3	3.6	5287.	74.8
AUG 1986	39.2	1.3	3026.	113.9	3.7	5401.	74.4
SEP 1986	34.7	1.2	3061.	114.7	3.8	5516.	76.8
OCT 1986	31.3	1.0	3092.	119.2	3.8	5635.	79.2
NOV 1986	36.7	1.2	3129.	102.5	3.4	5738.	73.6
DEC 1986	36.9	1.2	3165.	92.4	3.0	5830.	71.5
1986	495.7	1.4	3165.	1457.6	4.0	5830.	74.6
JAN 1987	36.1	1.2	3202.	88.8	2.9	5919.	71.1
FEB 1987	36.0	1.3	3238.	77.3	2.8	5996.	68.2
MAR 1987	28.6	0.9	3266.	97.6	3.1	6094.	77.3
APR 1987	32.1	1.1	3298.	88.3	2.9	6182.	73.3
MAY 1987	33.0	1.1	3331.	88.6	2.9	6271.	72.9
JUN 1987	33.0	1.1	3364.	85.5	2.8	6356.	72.2
JUL 1987	37.0	1.2	3401.	87.2	2.8	6443.	70.2
AUG 1987	30.3	1.0	3432.	89.7	2.9	6533.	74.7
SEP 1987	31.4	1.0	3463.	87.0	2.9	6620.	73.5
OCT 1987	26.9	0.9	3490.	67.9	2.2	6688.	71.6
NOV 1987	25.9	0.9	3516.	64.0	2.1	6752.	71.2
DEC 1987	33.0	1.1	3549.	59.4	1.9	6811.	64.3
1987	383.3	1.1	3549.	981.3	2.7	6811.	71.9

PHD: 90/ 6/ 7 17:11
00/04-21-002-21W1/0

WELL: 2 WELLFILE: 1 PAGE: 6
JAN 1982 to MAR 1990

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WOUT %
JAN 1988	31.8	1.0	3581.	53.9	1.7	6865.	62.9
FEB 1988	22.8	0.8	3603.	58.5	2.0	6924.	72.0
MAR 1988	34.5	1.1	3638.	53.0	1.7	6977.	60.6
APR 1988	19.0	0.6	3657.	53.7	1.8	7030.	73.9
MAY 1988	18.3	0.6	3675.	49.4	1.6	7080.	73.0
JUN 1988	17.9	0.6	3693.	581.5	19.4	7661.	97.0
JUL 1988	20.4	0.7	3713.	55.0	1.8	7716.	72.9
AUG 1988	20.5	0.7	3734.	52.2	1.7	7769.	71.8
SEP 1988	21.3	0.7	3755.	44.2	1.5	7813.	67.5
OCT 1988	19.7	0.6	3775.	52.6	1.7	7865.	72.8
NOV 1988	20.0	0.7	3795.	48.7	1.6	7914.	70.9
DEC 1988	16.0	0.5	3811.	47.4	1.5	7961.	74.8
1988	262.2	0.7	3811.	1150.1	3.1	7961.	81.4
JAN 1989	18.0	0.6	3829.	35.6	1.1	7997.	66.4
FEB 1989	18.8	0.7	3848.	31.8	1.1	8029.	62.8
MAR 1989	15.9	0.5	3864.	42.3	1.4	8071.	72.7
APR 1989	10.9	0.4	3875.	47.1	1.6	8118.	81.2
MAY 1989	9.3	0.3	3884.	38.3	1.2	8157.	80.5
JUN 1989	9.9	0.3	3894.	40.4	1.3	8197.	80.3
JUL 1989	7.6	0.2	3901.	40.4	1.3	8237.	84.2
AUG 1989	10.1	0.3	3911.	40.3	1.3	8278.	80.0
SEP 1989	8.8	0.3	3920.	39.7	1.3	8317.	81.9
OCT 1989	8.9	0.3	3929.	36.4	1.2	8354.	80.4
NOV 1989	8.2	0.3	3937.	38.9	1.3	8393.	82.6
DEC 1989	9.5	0.3	3947.	33.2	1.1	8426.	77.8
1989	135.9	0.4	3947.	464.4	1.3	8426.	77.4
JAN 1990	13.3	0.4	3960.	36.7	1.2	8463.	73.4
FEB 1990	6.9	0.2	3967.	33.5	1.2	8496.	82.9
MAR 1990	6.8	0.2	3974.	38.3	1.2	8534.	84.9
1990	27.0	0.3	3974.	108.5	1.2	8534.	80.1

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00/22-17-002-21W1/0

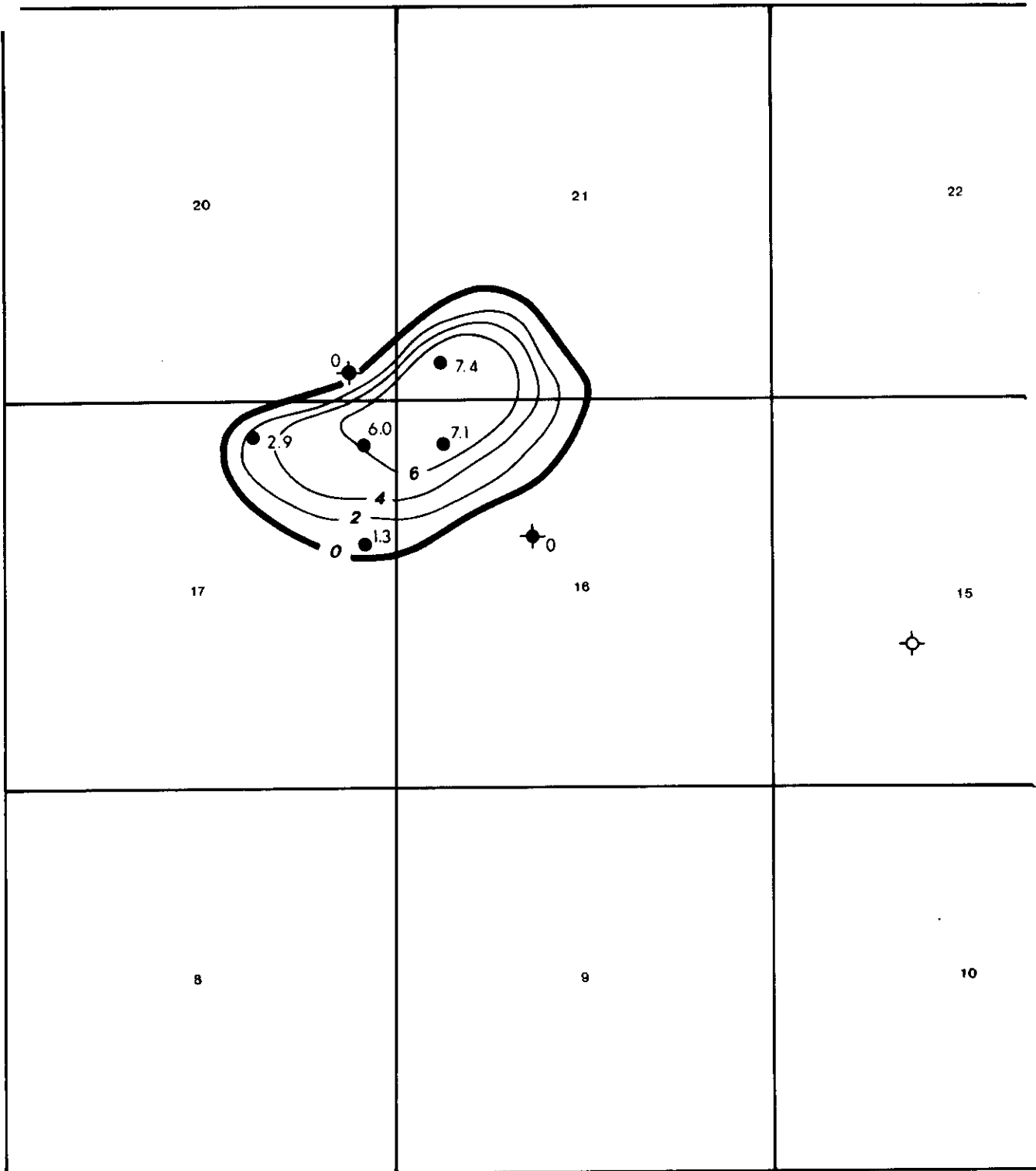
WELL: 1 WELLFILE: 1 PAGE: 1
JAN 1979 to MAR 1990

00/09-17-002-21W1/0

WELL NAME:	ASSESSMENT #:	STATUS CODE:
FIELD NAME: OTHER AREAS	FIELD CODE: 99	STATUS DATE: 00/00/00
POOL NAME: LODGEPOLE WL E	POOL CODE: 52E	I.S. CODE:
PRODUCTION DATE: 00/00/00	BATTERY CODE:	PROJECT CODE:
INJECTION DATE: 00/00/00	OPERATOR NAME: CANADIAN ROXY PETROLEUM LTD.	PSU CODE:
		RECORDED DATA: OIL P, WATER P

DATE	OIL PRODUCTION m3	DAILY OIL m3/ODAY	CUMULATIVE OIL m3	WATER PRODUCTION m3	DAILY WATER m3/ODAY	CUMULATIVE WATER m3	WCUT %
CUM PRIOR	0.0	0.0	0.	0.0	0.0	0.	0.0
JAN 1988	0.0	0.0	0.	0.0	0.0	0.	0.0
FEB 1988	53.9	1.9	54.	38.9	1.3	39.	41.9
MAR 1988	103.6	3.3	158.	71.3	2.3	110.	40.8
APR 1988	35.8	1.2	193.	89.6	3.0	200.	71.5
MAY 1988	48.1	1.6	241.	123.1	4.0	323.	71.9
JUN 1988	39.5	1.3	281.	142.6	4.8	466.	78.3
JUL 1988	22.0	0.7	303.	107.8	3.5	573.	83.1
AUG 1988	40.9	1.3	344.	173.7	5.6	747.	80.9
SEP 1988	10.0	0.3	354.	136.6	4.6	884.	93.2
OCT 1988	16.6	0.5	370.	222.2	7.2	1106.	93.0
NOV 1988	7.3	0.2	378.	225.9	7.5	1332.	96.9
DEC 1988	31.5	1.0	409.	204.5	6.6	1536.	86.7
1988	409.2	1.2	409.	1536.2	4.6	1536.	79.0
JAN 1989	15.2	0.5	424.	211.1	6.8	1747.	93.3
FEB 1989	22.8	0.8	447.	176.3	6.3	1924.	88.5
MAR 1989	24.0	0.8	471.	163.5	5.3	2087.	87.2
APR 1989	0.0	0.0	471.	0.0	0.0	2087.	0.0
MAY 1989	11.8	0.4	483.	196.7	6.3	2284.	94.3
JUN 1989	15.9	0.5	499.	208.3	6.9	2492.	92.9
JUL 1989	7.9	0.3	507.	222.3	7.2	2714.	96.6
AUG 1989	14.4	0.5	521.	212.7	6.9	2927.	93.7
SEP 1989	16.1	0.5	537.	203.0	6.8	3130.	92.7
OCT 1989	6.3	0.2	544.	216.4	7.0	3347.	97.2
NOV 1989	20.3	0.7	564.	189.8	6.3	3536.	90.3
DEC 1989	7.0	0.2	571.	206.4	6.7	3743.	96.7
1989	161.7	0.5	571.	2206.5	6.6	3743.	93.2
JAN 1990	9.7	0.3	581.	200.8	6.5	3944.	95.4
FEB 1990	8.2	0.3	589.	179.0	6.4	4123.	95.6
MAR 1990	2.4	0.1	591.	47.6	1.5	4170.	95.2
1990	20.3	0.2	591.	427.4	4.7	4170.	95.5

TWP.2 RGE. 21 W.1M.



ATTACHMENT #3

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA**

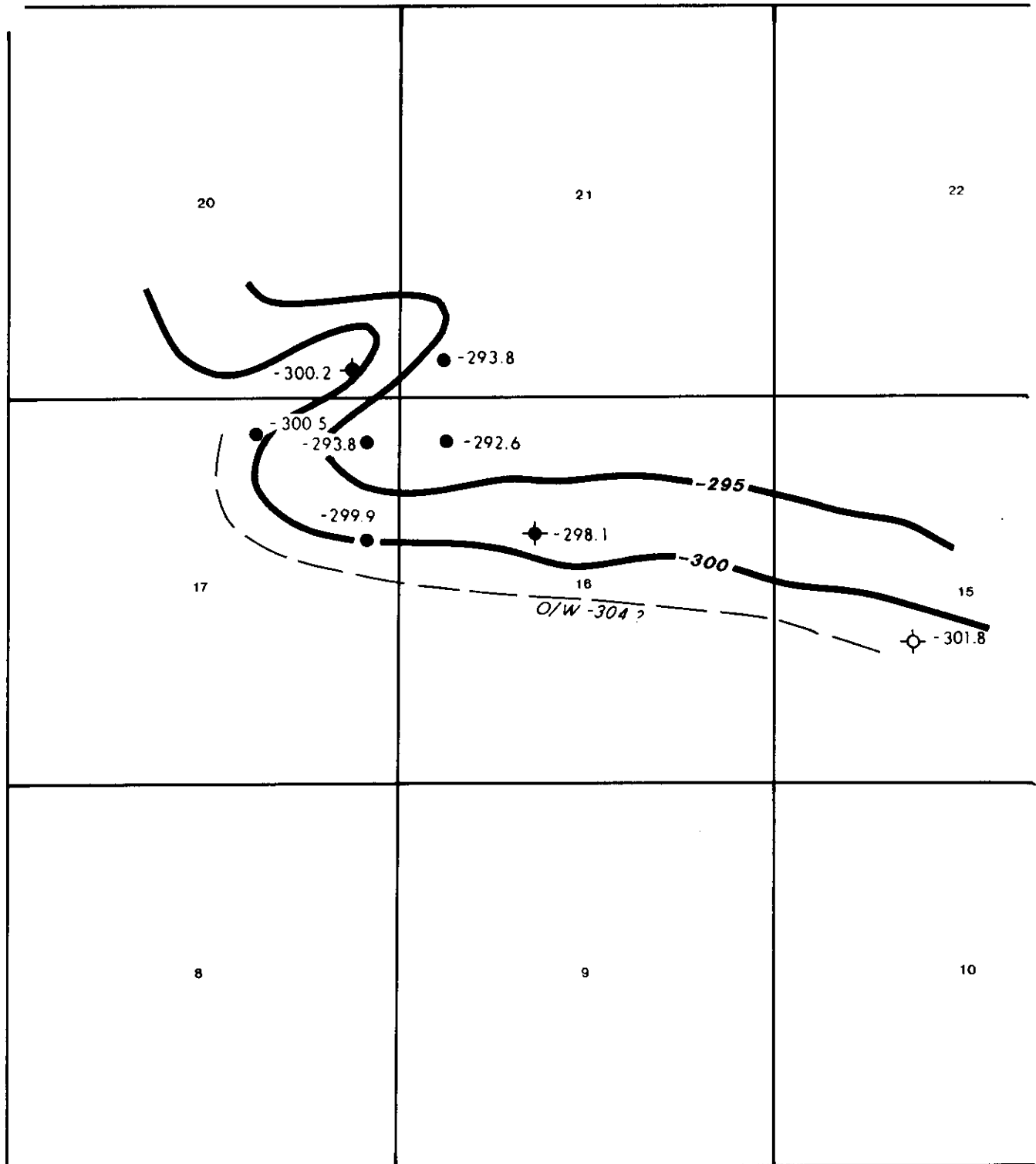
UPPER WHITEWATER
NET PAY MAP

C.I.:2m

SCALE: 1:25,000

DATE: MAY 1990

TWP.2 RGE. 21 W.1M.



ATTACHMENT #4

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA**

**STRUCTURE ON
UPPER WHITEWATER**

C.I.: 5m

SCALE: 1:25,000

DATE: MAY 1990

TWP.2 RGE.21 W.1M.

			DOME PETROLEUM LTD. (1/2) HEMERYCK, ALBERT & IDA (1/8) KERMOTT, MARJORIE (1/4) CANADA PERMANENT TRUST COMPANY (1/8)	
LISCHKA, DAVID & BEVERLY	WASHINGTON, LAWRENCE			RYAN, DORIS
CONROY, THOMAS & DORIS	61475 MANITOBA LIMITED		61475 MANITOBA LIMITED	61475 MANITOBA LIMITED
CONROY, THOMAS & DORIS	GIESBRECHT, HENRY	DIELL, RUBY (1/2) MARTENS, JERRY (1/2)	TALCORP LIMITED	EKIN, ERIC
CONROY, THOMAS & DORIS	HARVEY, HENRY (1/2) PRAIRIE LEASEHOLDS LTD. (1/2)	DOMINION CROWN LAND	UNDISPOSED CROWN LAND	
CPR				
	HEALY, TOLBERT	RANSOM, GARY & NANCY	GRAHAM, STEVEN (1/2) JOHN ADAMSON (1/4) ADAMSON, ANNIE (1/4)	HAMBLEY, DAVID (1/2) STORMON, SHAUN; BOYUM, MARY (1/2)
BALLANTYNE, WALTER (1/4) YOST, NANCY (1/4) GELDOF, JULIA; VERCAIGNE, GEORGE (1/2)	OLSON, MARIAN	McKEE, MARY (1/4) DIELL, WILLIAM (3/4)	GRAHAM, STEVEN (1/2) LUMGIAR, JOHN (1/2)	LUMGIAR, JOHN (1/2) GILES, EARL (1/4) TRI-M ENERGY INC. (1/8) JIM MUNN CO. INC. (1/8)

ATTACHMENT #5

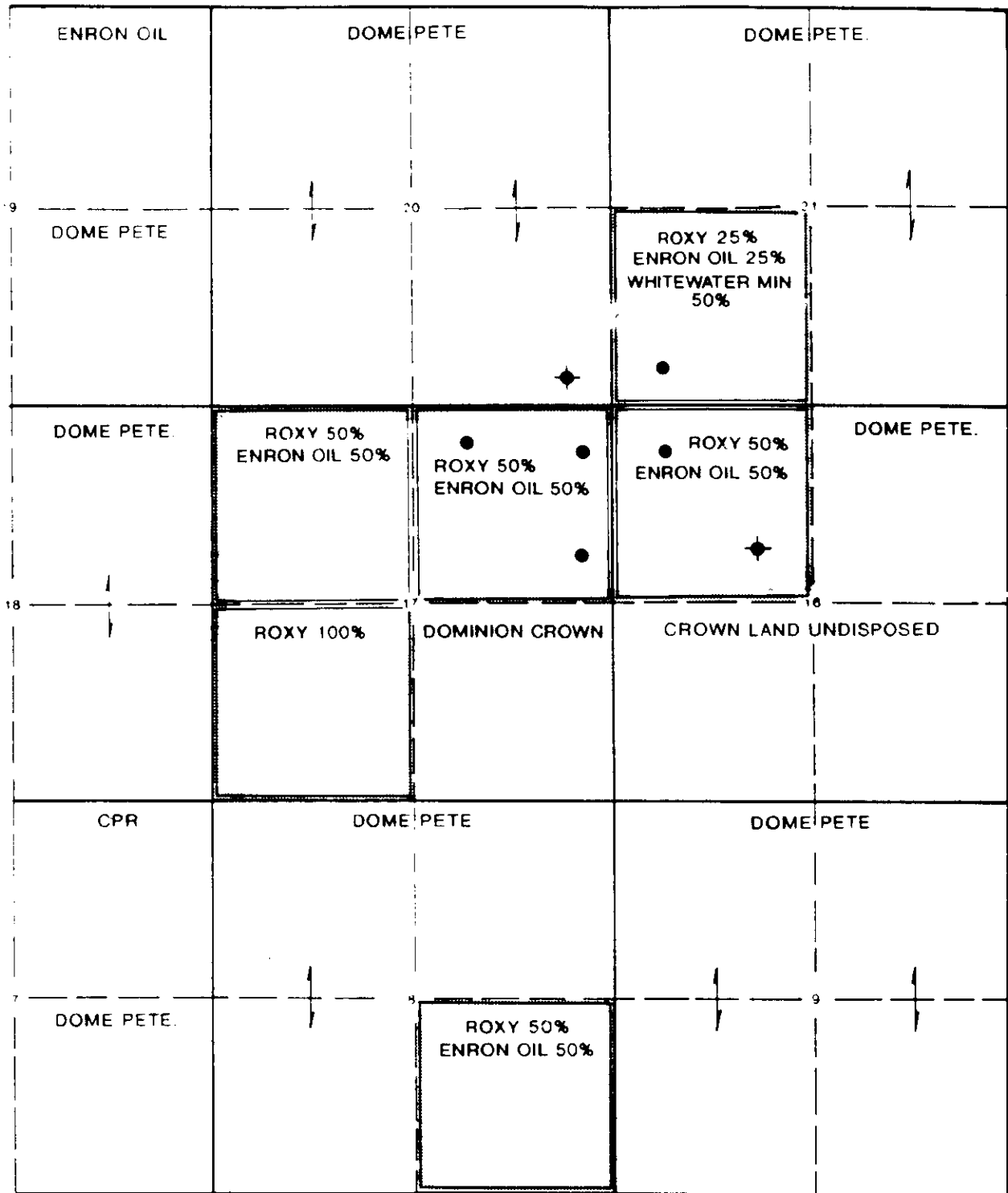
CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA
LESSOR OWNERSHIP**

SCALE: 1:25,000

DATE: JUNE 1990

TWP.2 RGE.21 W.1M.



ATTACHMENT #6

CANADIAN ROXY PETROLEUM LTD.

**MOUNTAINSIDE
MANITOBA
LESSEE OWNERSHIP**

SCALE: 1:25,000

DATE: JUNE 1990

GEOTECH CORE SERVICE 4500 - 50th St N.E. Calgary, Alberta T2E 7G3 (403) 230-4128

ROXY PETROLEUMS LTD

Well: ROXY-ANDEX MOUNTAINSIDE
Location: 11-16-2-21W1

Date: 22 Mar 1984
GC File #: 225

CORE ANALYSIS REPORT

Sample Number	Depth (meters)	Thick (ad)	Horz (ad)	Permeability		Porosity Inter. (Z) Meters	Saturation Grain		Remarks
				Horz (ad)	Vert Inter. (ad) Meters		Oil (Z)	H2O Density (Z) (kg/mc)	

CORE #1:910-924.25

UPPER WHITEWATER FORMATION

1	910.00 - 910.43	0.43	2.12	1.65	0.41	0.91	7.6	0.03	29.4	30.3	2782	FB:
2	910.43 - 910.62	0.19	2.44	8	0.50	0.50	6.7	0.01	29.4	40.1	2725	P:
3	910.62 - 910.98	0.36	10.30	9.16	3.71	3.71	15.6	0.06	17.7	19.6	2763	FB:
4	910.98 - 911.16	0.18	97.56	8	5.74	17.56	15.9	0.03	17.4	40.8	2706	P:
5	911.16 - 911.46	0.30	26.34	24.52	12.07	7.90	12.6	0.04	16.4	26.1	2705	FB:
6	911.46 - 911.57	0.11	29.05	8	3.20	3.20	11.9	0.01	25.0	36.2	2704	P:
7	911.57 - 911.88	0.31	11.31	9.31	4.52	3.51	12.1	0.04	19.1	25.9	2700	FB:
8	911.88 - 912.10	0.22	18.53	13.61	6.92	4.08	13.6	0.03	16.9	22.9	2720	FB:
9	912.10 - 912.25	0.15	22.66	8	3.40	3.40	13.8	0.02	10.3	60.8	2723	P:
10	912.25 - 912.50	0.25	9.37	8.60	4.52	2.34	11.4	0.03	28.8	28.2	2749	FB:
11	912.50 - 912.80	0.30	0.89	8	0.27	0.27	9.8	0.03	12.7	60.2	2717	P:
12	912.80 - 913.17	0.37	6.01	4.91	2.54	2.22	13.7	0.05	27.5	29.8	2736	FB:
13	913.17 - 913.43	0.26	43.77	8	11.38	11.38	12.3	0.03	22.3	30.1	2705	P:

LOWER WHITEWATER FORMATION

913.43 - 924.25 10.82

$K = 12.4 \text{ md}$

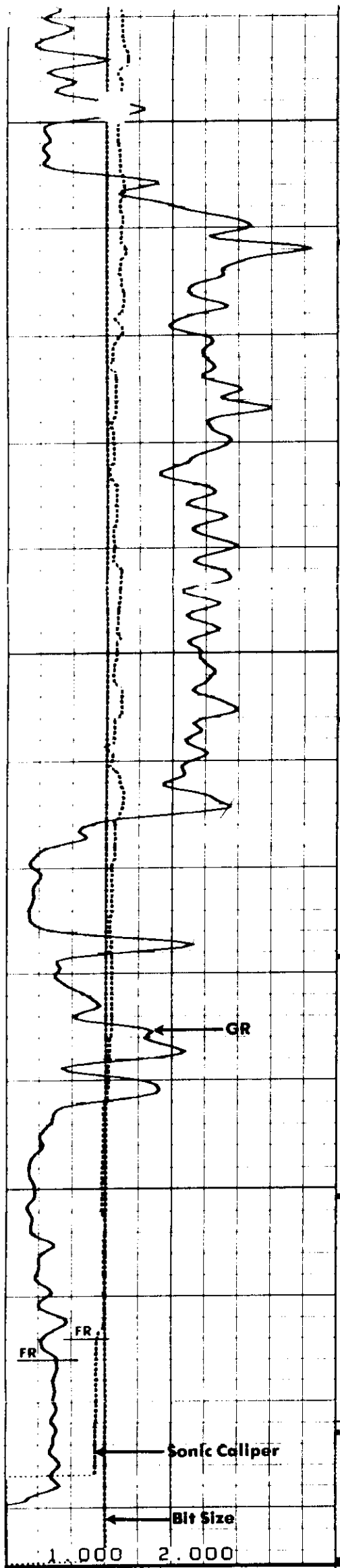
$h = 2.94 \text{ m.}$
 $\phi = 13\%$

$S_w = 54\%$

$R_i = 12$
 $R_v = 0.06$

ITLS

* Flux permeability - sample not suitable for full diameter measurement



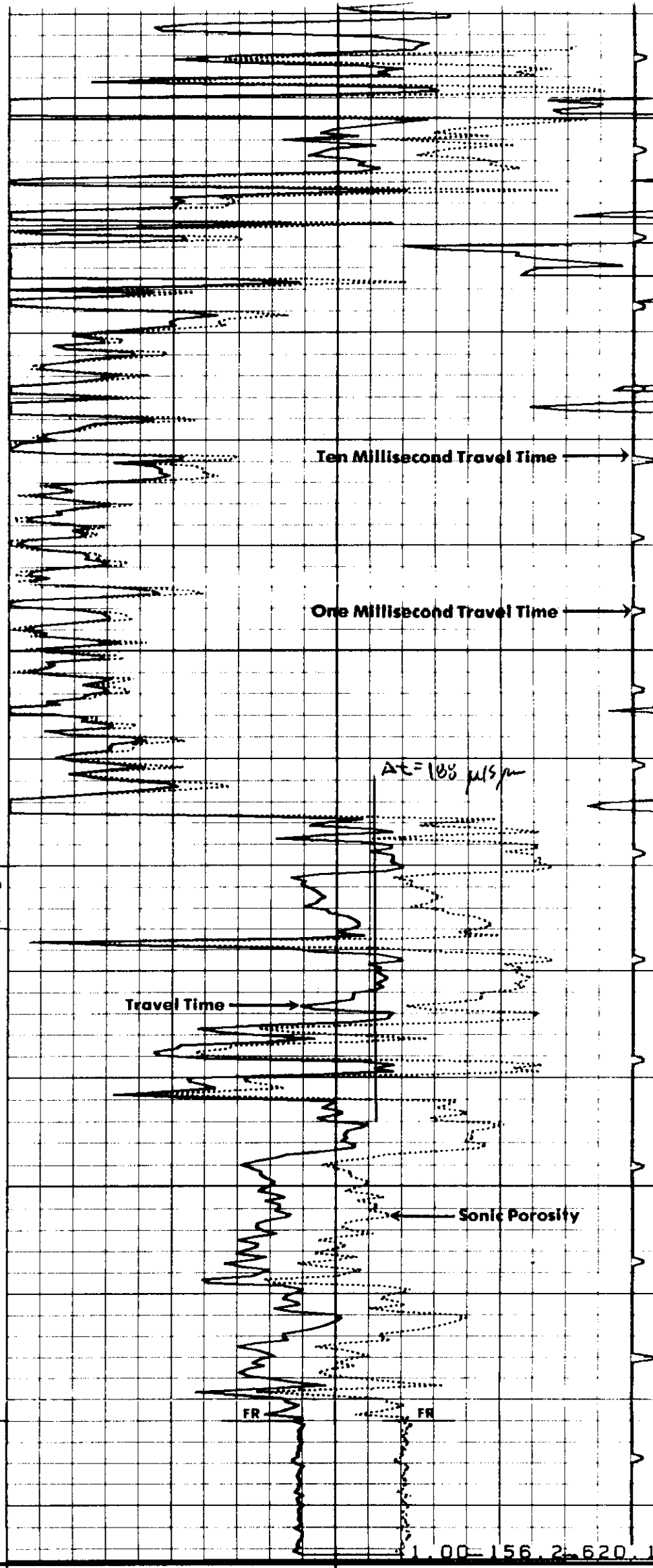
W-16
RB
609.56
00875

00900

00925

FR

0	GR API	150
125	CALIPER X	375



Ten Millisecond Travel Time

One Millisecond Travel Time

$\Delta t = 188 \mu s/\mu$

Travel Time

Sonic Porosity

FR

FR

300	BCS Δt	100
30	ϕ (BCS)	0

LIMESTONE

11-16

00875

00900

Intervenor

SP

FR

FR

0.2

Medium Induction

Deep Induction

Laterolog

FR

FR

FR

200

COMPANY
WELL
FIELD
LOCATION

FULL DIAMETER ANALYSIS

$$\phi = 12.9^\circ \quad S_w = 50\%$$

Sample Number	Depth Meters (m)	Sample Rep. Length	Permeability to Air Millidarcys		Pore. X	Porosity %	Porosity %	Density (g/cc)	Residual Saturation (Frac of Pore Vol)			VISUAL EXAM
			ad Max.	ad 90 des.					ad V	Bulk	Grain	
CORE NO. 1 894.00 m - 912.00 m (REC. 18.00 m) (0 Boxes)												
SF 1	894.00-94.04	0.04	-	-	-	-	-	-	-	-	-	-
-	894.04-94.13	0.09	-	-	-	0.002	0.051	0.005	-	2840	0.102	0.599 dol i ppv
SF 2	894.13-94.33	0.20	-	-	-	-	-	-	-	-	-	anhy
-	894.33-94.45	0.12	-	-	-	0.085	0.044	0.005	-	2870	0.000	0.402 dol i anhy
-	894.45-94.60	0.15	-	-	-	-	-	-	-	-	-	anhy
SF 3	894.60-94.69	0.09	-	-	-	0.144	0.069	0.006	-	2870	0.211	0.301 dol i ppv
4	894.69-94.96	0.27	0.08	0.08	-	0.143	0.036	0.010	2690	2790	trace	0.494 dol i ppv
5	894.96-95.11	0.15	0.36	0.36	-	0.057	0.058	0.009	2610	2770	trace	0.621 dol i ppv
6	895.11-95.44	0.33	6.08	5.86	-	2.007	0.082	0.027	2540	2770	0.135	0.288 dol i ppv
7	895.44-95.74	0.30	0.45	0.45	-	0.231	0.040	0.012	2600	2710	0.135	0.287 dol i ppv
8	895.74-95.92	0.18	5.56	5.56	-	1.033	0.072	0.013	2510	2710	0.199	0.246 dol i ppv
9	895.92-96.80	0.88	-	-	-	-	-	-	-	-	-	ls sty
10	896.80-96.92	0.12	-	-	-	0.316	0.105	0.013	-	2760	0.090	0.520 dol i ppv
11	897.07-97.25	0.15	-	-	-	-	-	-	-	-	-	ls anhy
12	897.25-97.39	0.18	7.11	7.11	-	1.323	0.137	0.025	2360	2740	0.035	0.489 dol i ppv
13	897.39-97.61	0.14	0.48	0.48	-	0.073	0.100	0.014	2440	2710	0.000	0.483 dol i ppv
14	897.61-97.83	0.22	44.0	44.0	-	9.877	0.185	0.041	2200	2700	0.128	0.355 dol i ppv
15	897.83-98.11	0.22	20.2	20.2	-	5.346	0.181	0.040	2200	2710	0.212	0.319 dol i ppv
16	898.11-98.29	0.28	106.	106.	-	29.678	0.174	0.049	2220	2690	0.120	0.335 dol i ppv
17	898.29-98.49	0.18	318.	305.	-	57.245	0.175	0.032	2230	2700	0.182	0.341 dol i ppv
18	898.49-98.85	0.20	110.	67.2	-	22.002	0.140	0.028	2320	2700	0.133	0.336 dol i ppv
19	898.85-99.01	0.36	33.3	30.4	-	11.988	0.129	0.046	2360	2710	0.115	0.376 dol i ppv
20	899.01-99.25	0.16	61.9	61.9	-	9.906	0.162	0.026	2280	2730	0.101	0.440 dol i ppv
21	899.01-99.25	0.24	11.5	6.28	-	2.760	0.132	0.032	2330	2690	0.163	0.481 dol i ppv

THESE ANALYSES, OPINIONS OR INTERPRETATIONS ARE BASED ON OBSERVATIONS AND MATERIALS SUPPLIED BY THE CLIENT TO US; AND FOR WHOLE EXCLUSIVE AND CONFIDENTIAL. USE! THIS REPORT IS BASED. THE INTERPRETATIONS OR OPINIONS EXPRESSED REPRESENT THE BEST JUDGMENT OF CORE LABORATORIES - CANADA LTD.(ALL ERRORS AND OMISSIONS EXCEPTED); BUT CORE LABORATORIES - CANADA LTD. AND ITS OFFICERS AND EMPLOYEES, ASSUME NO RESPONSIBILITY AND MAKE NO WARRANTY OR REPRESENTATIONS, AS TO THE PRODUCTIVITY, PROPER OPERATIONS, OR PROFITABILITY OF ANY OTHER. USE! THIS REPORT IS USED AS SET FOR US.

CORE LABORATORIES - CANADA, LTD.

COMPANY ROXY PETROLEUM LTD.

ELL ROXY-CLARION ET AL MOUNTAINSIDE 13-16-2-21

FORMATION MISSISSIPPIAN CORING EQUIPMENT DIAMOND

PAGE 2
FILE 7004-82-479

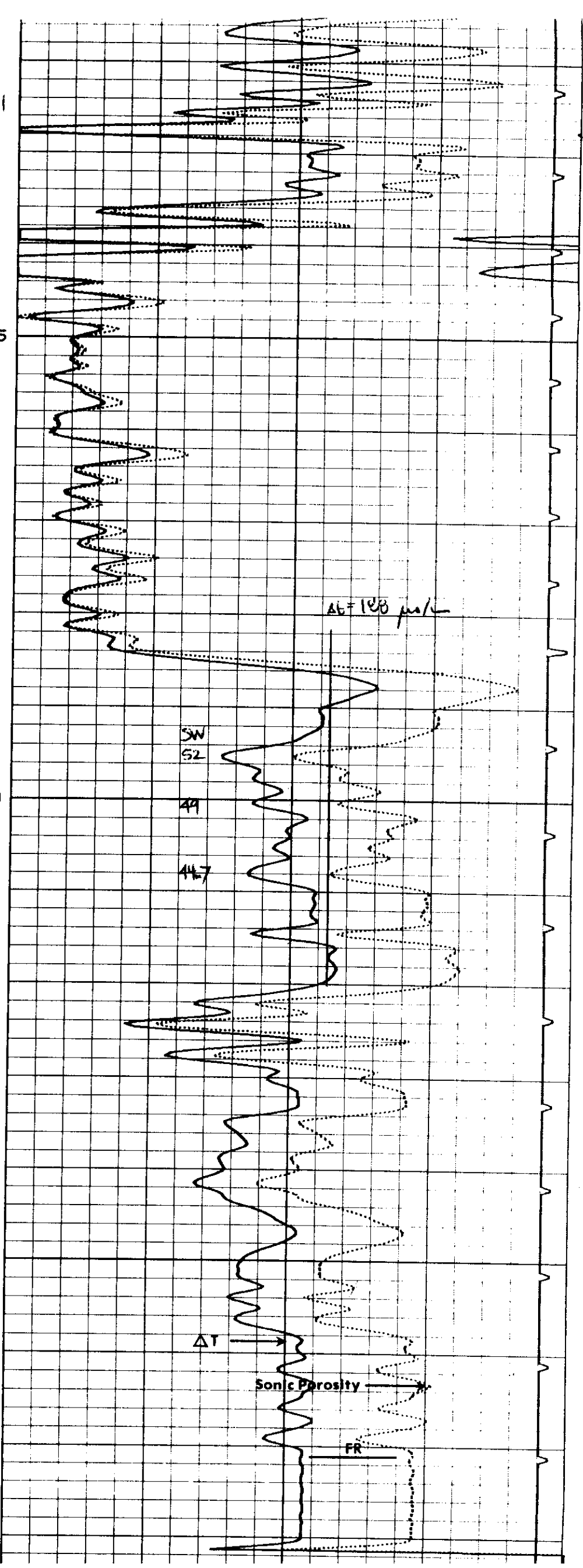
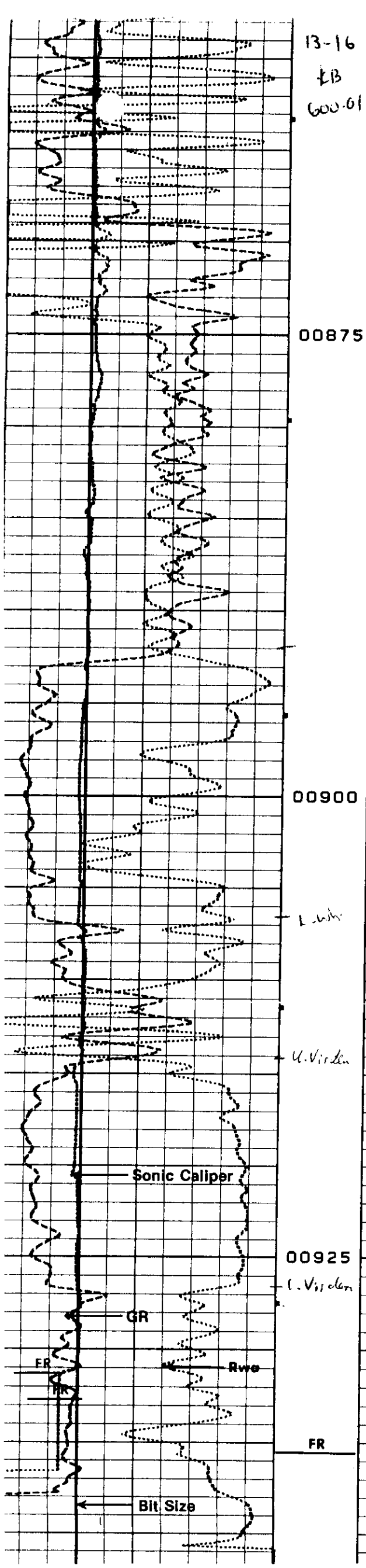
FULL DIAMETER ANALYSIS

Core No.	Depth Metres (m)	Rep. Length	Permeability to Air Millidarcys		Pore. X	Porosity		Density g/cm ³	Residual Saturation (Frac of Pore Vol)		Visual Examination
			ad Max.	ad 90 des.		X	a		Dulk	Oil	Water

CORE NO. 1 CONTINUED

899.25-99.51	0.26 .07	36.7	30.7	14.3	9.542	0.144	0.037	2320	2710	0.149	0.337	1s i PPV SV
899.51-99.76	0.25 .16	2.95	2.74	1.45	0.737	0.117	0.029	2380	2690	0.174	0.405	1s i PPV SV
899.76-99.91	0.15 -	53.8	-	-	8.070	0.147	0.022	-	2700	0.148	0.206	1s i PPV SV
899.91-0.09	0.18 .09	810.	5.54	174.	0.997	0.121	0.022	2380	2710	0.000	0.398	1s i PPV SV
900.09-0.27	0.18 .08	142.	681.	116.	145.778	0.160	0.029	2290	2720	0.144	0.183	1s i PPV SV
900.27-0.64	0.37 .14	4.74	133.	0.93	52.533	0.173	0.064	2240	2700	0.173	0.213	1s i PPV SV
900.64-0.78	0.14 .09	95.6	4.37	13.2	0.664	0.117	0.016	2390	2700	0.202	0.167	1s i PPV SV
900.78-1.05	0.27 .09	4.51	91.4	0.07	25.809	0.099	0.027	2450	2720	0.214	0.145	1s i PPV SV
901.05-1.22	0.17 .07	8.24	4.00	4.20	0.767	0.080	0.014	2500	2710	0.164	0.368	1s i PPV SV
901.22-1.42	0.20 .14	5.52	6.29	4.82	1.648	0.083	0.017	2470	2690	0.142	0.244	1s i PPV SV
901.42-1.64	0.22 .10	12.9	5.46	9.06	1.214	0.107	0.024	2410	2700	0.146	0.292	1s i PPV SV
901.64-1.79	0.15 .09	16.9	12.9	9.49	1.935	0.109	0.016	2420	2710	0.163	0.159	1s i PPV SV
901.79-2.09	0.30 .17	8.96	16.0	1.53	5.070	0.109	0.033	2400	2700	0.157	0.170	1s i PPV SV
902.09-2.25	0.16 .07	10.6	7.03	3.42	1.433	0.081	0.013	2480	2700	0.153	0.188	1s i PPV SV
902.25-2.53	0.28 .06	4.00	9.40	0.47	2.968	0.102	0.029	2450	2730	0.174	0.202	1s i PPV SV
902.53-2.65	0.12 .07	18.3	3.50	3.46	0.480	0.094	0.011	2450	2700	0.224	0.218	1s i PPV SV
902.65-2.88	0.23 .14	31.2	18.3	3.14	4.209	0.123	0.028	2370	2700	0.214	0.144	1s i PPV SV
902.88-3.06	0.18 .10	5.50	31.2	1.24	5.616	0.114	0.021	2410	2730	0.210	0.183	1s i PPV SV
903.06-3.30	0.24 .12	104.	5.50	35.7	1.320	0.093	0.022	2450	2700	0.224	0.234	1s i PPV SV
903.30-3.53	0.23 .16	0.21	39.9	0.06	23.921	0.116	0.027	2380	2700	0.206	0.240	1s i PPV SV
903.53-3.65	0.12 .06	44.3	0.21	3.16	0.025	0.057	0.007	2550	2710	0.185	0.252	1s i PPV SV
903.65-3.85	0.20 .08	48.2	42.5	2.78	8.859	0.135	0.027	2340	2700	0.199	0.270	1s i PPV SV
903.85-4.02	0.17 .10	65.2	24.9	21.9	8.195	0.128	0.022	2360	2700	0.202	0.177	1s i PPV SV
904.02-4.22	0.20 .11	55.0	62.2	4.92	13.039	0.152	0.030	2290	2700	0.200	0.176	1s i PPV SV
904.22-4.42	0.20 .14	55.0	50.4	-	11.002	0.143	0.029	2310	2690	0.206	0.206	1s i PPV SV

THESE ANALYSES, OPINIONS OR INTERPRETATIONS ARE BASED ON OBSERVATIONS AND MATERIALS SUPPLIED BY THE CLIENT TO MINS AND FOR UNDER EXCLUSIVE AND CONFIDENTIAL USE; THIS REPORT IS MADE. THE INTERPRETATIONS OR OPINIONS EXPRESSED REPRESENT THE BEST JUDGMENT OF CORE LABORATORIES - CANADA LTD. (ALL ERRORS AND OMISSIONS EXCEPTED); BUT CORE LABORATORIES - CANADA LTD. AND ITS OFFICERS AND EMPLOYEES, ASSUME NO RESPONSIBILITY AND MAKE NO WARRANTY OR REPRESENTATIONS, AS TO THE PRODUCTIVITY, PROPER OPERATIONS, OR PROFITABILITY OF ANY OIL, GAS OR OTHER MINERAL WELL OR SHAFT IN CONNECTION WITH WHICH SUCH REPORT IS USED OR RELIED UPON.



13-16

00875

DST #1
RCC.
150m GO
90m OCM
440m SW
FSIP 7733 KA

00800

INITIAL PERFS
0.3 m 30 PD
800 WC

00925

SP

Deep Induction

Medium Induction

Laterolog

FR

00950

1.000 2.000

1.00 155.8 620.1

Well Name
Well Location
Customer
Customer Rep
Testing Company
Tester

DUAL CLARION ET AL MOUNTAIN
13-16-2-21-W1M
BOXY PETROLEUMS LTD.
RICK HAYWARD
V&D OILFIELD SERVICES LTD.
JERRY BRILTZ

DATE
13-16-2-21-W1M
ONE
MISSISSIPPIAN
894-905
945
601.01
DUAL STRADDLE

TIME PRESSURE DATA

Preflow	10 mins	ISI	60 mins	Flow	114 mins	FSI	228 mins
	In X Rec. No. Range Depth	In X Rec. No. Range Depth	In X Rec. No. Range Depth	Out X Rec. No. Range Depth	In X Rec. No. Range Depth	Out X Rec. No. Range Depth	In X Rec. No. Range Depth
Initial Hydrostatic Pressure	10995	10995	10995	10995	10995	10995	10995
Initial Shut-In Pressure	24243	24243	24243	24243	24243	24243	24243
Initial Flow Pressure	887.93	887.93	887.93	887.93	887.93	887.93	887.93
Final Flow Pressure	10931	10931	10931	10931	10931	10931	10931
Final Shut-In Pressure	7715	7715	7715	7715	7715	7715	7715
Final Hydrostatic Pressure	2637	2637	2637	2637	2637	2637	2637
	6693	6693	6693	6693	6693	6693	6693
	7733	7733	7733	7733	7733	7733	7733
	10708	10708	10708	10708	10708	10708	10708

FLUID RECOVERY

Total Recovery
Recovered
Recovered
Recovered
Recovered

680Meters
150Meters of
90Meters of
440Meters of
Meters of

GASSIFIED OIL.
FROTHY OIL MUD CUT.
GASSIFIED SALT WATER.

GAS RECOVERY

Measured with
Flow Time
Minutes

Reading
KPA

Temperature
°C

Orifice Size
MM

Flow Rate
M3/D

NO GAS TO SURFACE.

TEST DATA

Meters of Net Pay
Drill Pipe Size
Drill Collar ID
Main Hole Size
Cushion Amount
Weight to Seal
Bottom Hole
Mud Type

4
114
73
200
14
32
GEL

Percentage Porosity
Drill Pipe Weight
Meters of Collars Above Tool
Packer Size
Cushion Type
Weight to Pull Loose
Bottom Choke Size

13
30
114.57
177.8
10
254
15
1210

REMARKS

PRODUCTION: STRONG AIR FLOW

BOXY CLARION ET AL MOUNTAIN

13-16-2-21-W1M

ONE

JUNE 6/82

Well Name

Well Location

Test No.

Date

9-17

00900

Ø	SW
13	57
8	60
11	67
12	80

$\Delta 6-10\% \mu\text{SI}$

TITE

Ten Millisecond Travel Time

One Millisecond Travel Time

00925

One Minute
Survey Interval

Sonic Caliper

GR

00950

Travel Time

FR

FR

Bit Size

FR

FR

9-17
KB
608.4

00900

00925

00950

FR

One Minute
Survey Interval

Upper Warden
(136.0m)

Lower Warden
(136.7m)

Upper Warden
(136.0m)

Lower Warden
(136.7m)

Deep Induction

Laterolog

Medium Induction

SP

FR

FR

FR

FR

COMPANY: CANADIAN ROXY PETROLEUM LTD.
 WELL NAME: CON-ROXY ANDEX MOUNTAINSIDE 15-17
 LOCATION: 15-17-2-21W1

DATE: FEB 05, 1986
 FILE: 86-0C-87
 PAGE: 1

CORE ANALYSIS REPORT

Sample Number	Depth (meters)	Thick	Permeability		Inter. meters	Porosity		Saturation		Grain Density (kg/mc)	Remarks
			Horz (mD)	Vert (mD)		(Z)	Inter. meters (Z)	Oil (Z)	H2O (Z)		

UPPER WHITEWATER LAKE MEMBER

CORE 11 879.00 - 917.00 m
 RECOVERY/CUT : 18.00 % / 18.00 %

1	899.00-899.21	0.21	0.17	0.11	0.02	0.04	6.2	0.01	TR	52.1	2847	FD:
2	899.21-899.40	0.19	6.79	*		1.29	13.9	0.03	18.9	54.1	2825	P:
3	899.40-899.52	0.12	0.02	*		0.00	2.1	0.00	TR	41.9	2711	P:
4	899.52-899.87	0.35	4.15	3.30	0.78	1.45	7.4	0.03	18.0	35.8	2728	FD:
5	899.87-900.17	0.30	21.04	*		6.31	13.9	0.04	19.4	49.7	2696	P:
6	900.17-900.47	0.30	50.76	49.84	13.82	15.23	14.1	0.04	24.9	44.7	2687	FD:
7	900.47-900.70	0.23	28.92	26.54	2.13	6.65	9.6	0.02	29.1	47.6	2695	FD:
8	900.70-900.80	0.10	16.37	*		1.64	12.7	0.01	32.0	56.9	2707	P:
9	900.80-901.20	0.40	15.26	14.93	2.70	6.10	10.7	0.04	17.6	38.8	2705	FD:
10	901.20-901.55	0.35	5.36	*		1.88	7.9	0.03	24.8	52.1	2743	P:
11	901.55-901.95	0.40	1.05	0.88	0.36	0.42	8.1	0.03	7.0	53.3	2735	FD:
12	901.95-902.23	0.28	2.15	1.85	0.39	0.60	9.0	0.03	6.2	45.8	2750	FD:
13	902.23-902.43	0.20	0.94	*		0.19	7.6	0.02	17.5	54.0	2741	P:
14	902.43-902.75	0.32	0.27	0.20	0.01	0.09	4.9	0.02	TR	52.4	2746	FD:
	902.75-902.80	0.05						0.02				ANHY
15	902.80-903.10	0.30	0.81	0.08	0.30	0.24	5.1	0.02	TR	37.4	2821	FD:INFIL VRTL FRAC
16	903.10-903.40	0.30	0.71	*		0.21	0.9	0.03	3.7	50.2	2697	P:

* Fluid permeability - sample not suitable for full diameter measurement

$$h = 2.9 \text{ m} \quad \phi = 10.3 \% \quad S_w = 56 \%$$

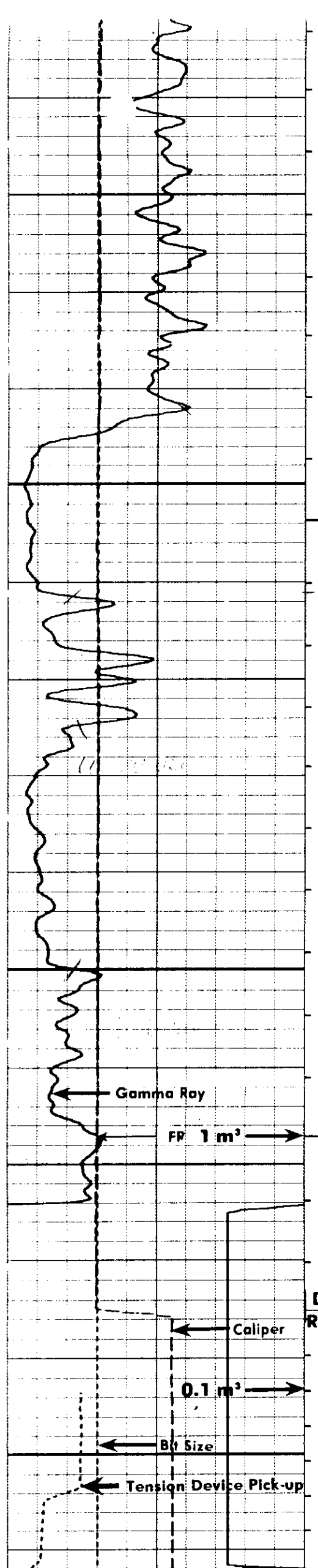
Cdn Rxy Under Mountainside

15-17-2-21

Application to Suspend.

1986

1. Well was drilled ^{30m} to a TD of 955 m KB. One core was cut (899-917) with full recovery. No DST's were run.
2. The well was perforated over the interval 899 - 901.5 m KB. in the Upper White water. Several acid washes and squeezes and a cement squeeze and re-perforation were all unsuccessful in achieving any significant oil cuts while swabbing.
3. Permeability over completion interval ranges ~~to~~ up to 50 md. with core porosities up to 14%. Lithology is primarily limestone. The completed zone looks excellent on logs and cores and the completion attempt was certainly thorough but did not yield oil.
4. Potential other than in this zone is limited
5. Cdn Rxy wants to suspend well pending possible conversion to salt water disposal (in Scallion zone)
6. Approval to suspend for one year (expires June 1, 1988) is recommended.



15.17

KB
592.1

900

10.3 56

11.4 68

~~12.2~~

11.4 68

Gamma Ray

FR 1 m³

Caliper

0.1 m³

Bit Size

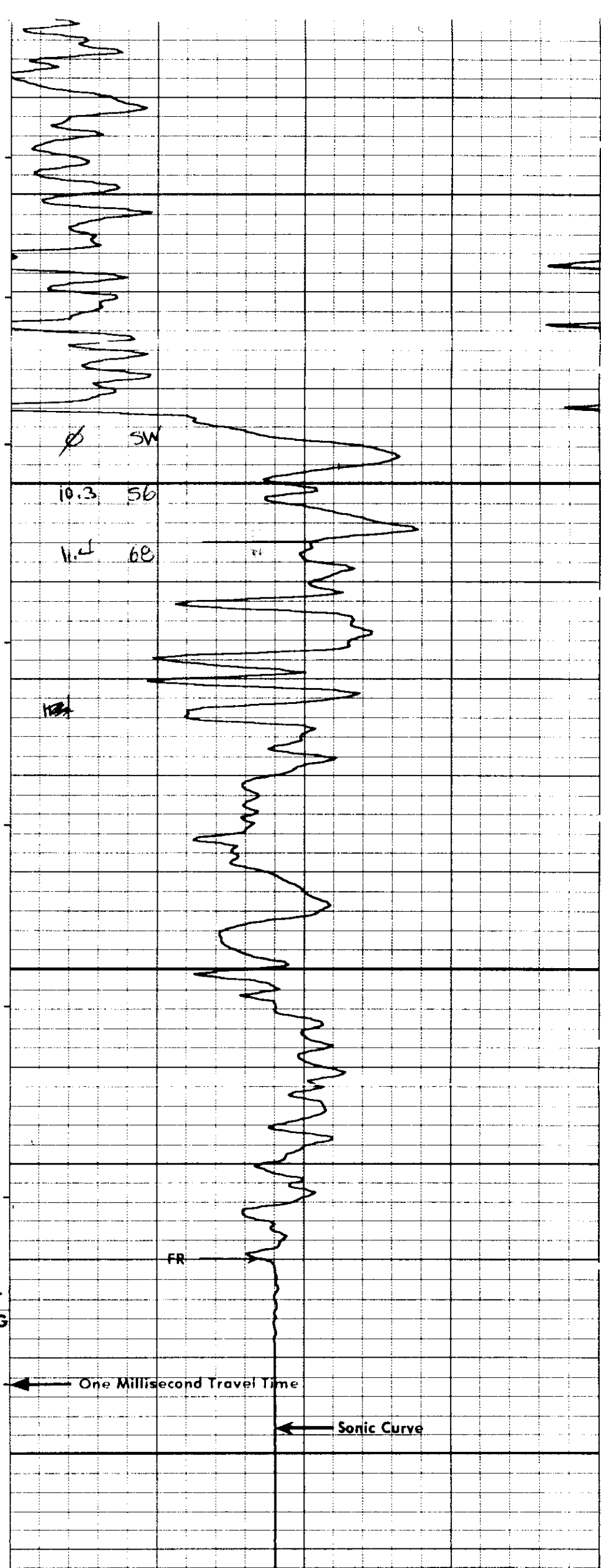
Tension Device Pick-up

DEEPEST
READING

950

FILE

5



SW

56

68

FR

One Millisecond Travel Time

Sonic Curve

15-17

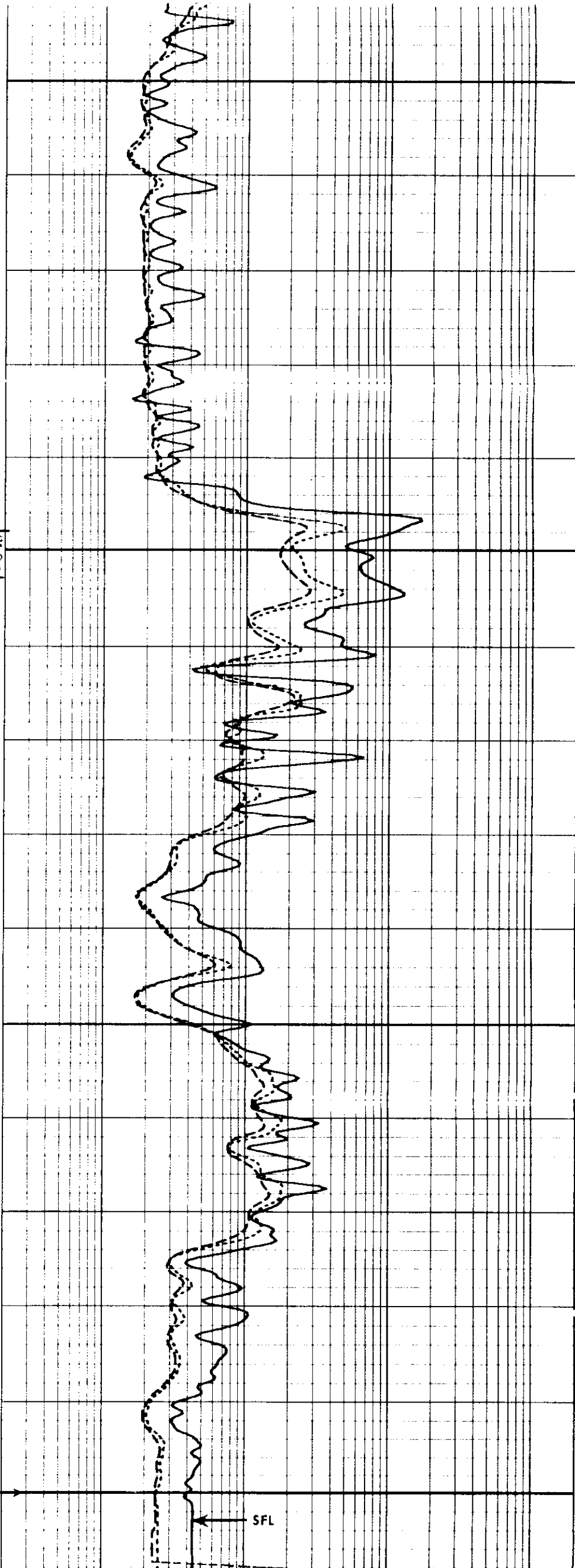
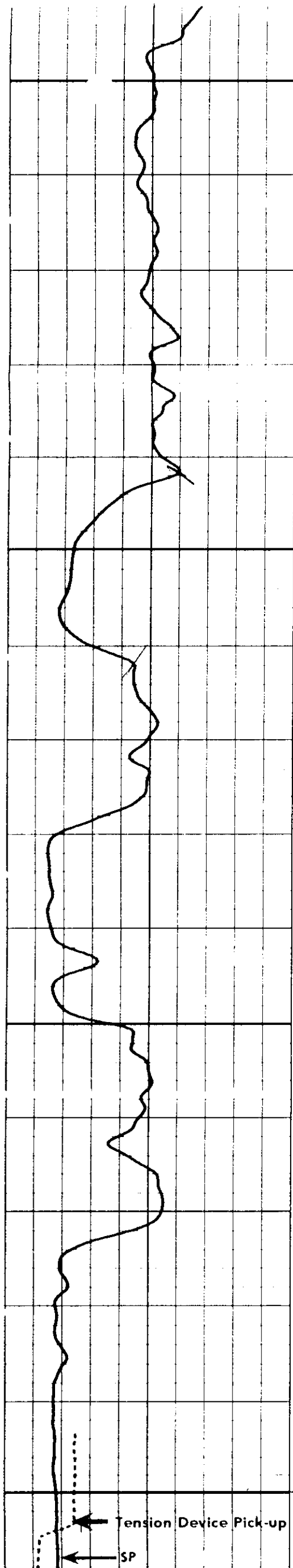
900

FR 950

Tension Device Pick-up

SP

SFL



GEOTECH

DATE: DEC 29, 1983
FILE: 85-8C-1231
PAGE: 1

COMPANY: CANADIAN ROXY PETROLEUM LTD.
WELL NAME: CNR ROXY ANNEX MOUNTAIN 16-17
LOCATION: 16-17-2-21W1

CORE ANALYSIS REPORT

Sample Number	Depth (meters)	Thick	Horz (ad)	Permeability Horz-90' Vert (ad)	Inter. meters	Porosity Inter. (Z)	Saturation Oil (Z)	Saturation H2O (Z)	Grain Density (kg/cc)	Remarks
---------------	----------------	-------	-----------	---------------------------------	---------------	---------------------	--------------------	--------------------	-----------------------	---------

LOGGEPOLLE FORMATION (UPPER WHITEMATER LAKE MEMBER)

CORE # 1 894.00 m - 912.00 m
RECOVERY/CUT : 11.40 m / 18.00 m

1	894.00-894.85	0.85								TT LS
	894.85-894.95	0.10	0.31		0.03	4.9	0.00	31.3	34.4	P: 2747
2	894.95-896.55	1.60								TT LS
	896.55-896.77	0.22	0.74	0.53	0.18	9.7	0.02	41.1	31.3	FD:FRAC 2723
3	896.77-897.05	0.28	83.38	83.06	56.20	22.9	0.06	15.8	28.8	FD: 2686
4	897.05-897.35	0.30	107.77	107.11	89.44	22.1	0.07	17.5	19.9	FD: 2700
5	897.35-897.50	0.15	230.72	203.01	150.47	19.9	0.03	16.9	18.1	FD:ANHY 2713
6	897.50-897.80	0.30	226.57	196.30	112.23	16.3	0.05	21.4	29.9	FD: 2707
7	897.80-897.95	0.15	83.16	82.90	6.88	14.7	0.02	19.6	32.3	FJISTYL 2703
8	897.95-898.30	0.35	88.38	86.85	71.13	15.2	0.05	27.1	32.1	FD: 2703
9	898.30-898.45	0.15	30.99			12.4	0.02	29.0	43.8	PIFRAC 2698
10	898.45-898.65	0.20	13.13	11.83	4.45	13.2	0.03	14.0	57.2	FD:IMFIL FRAC 2701
11	898.65-898.90	0.25	10.75	9.36	7.80	12.3	0.03	34.7	39.5	FD: 2699
12	898.90-899.10	0.20	17.10			14.2	0.03	25.0	26.9	P: 2695
13	899.10-899.30	0.20	2.67	2.60	1.62	14.5	0.03	19.6	46.3	FD: 2705
14	899.30-899.55	0.25	26.87	24.58	21.85	11.6	0.03	16.4	51.6	FD:ANHY 2754
15	899.55-899.85	0.30	78.62	77.53	44.61	17.9	0.05	27.1	25.6	FD: 2706

COMPANY: CANADIAN ROXY PETROLEUM LTD.
WELL NAME: CDR ROXY ARDEX MOUNTAINSIDE 16-17
LOCATION: 16-17-2-21W1

GEOTECH

DATE: DEC 30, 1985
FILE: 85-8C-1231
PAGE: 2

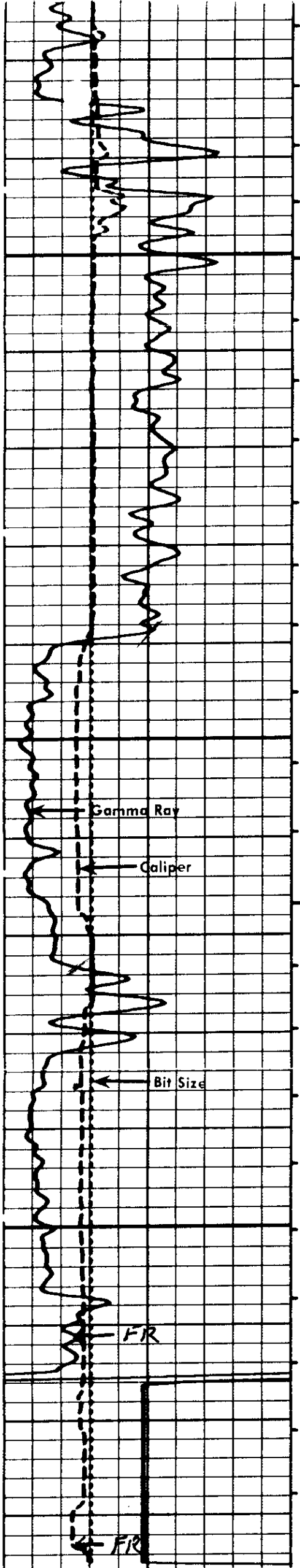
CORE ANALYSIS REPORT

Sample Number	Depth (meters)	Thick	Horz (mD)	Permeability Horz-90° Vert (mD)	Inter. meters	Porosity Inter. (Z)	Saturation Oil (Z)	Grain Density (kg/cc)	Remarks
16	899.85- 900.10	0.25	510.70	?	127.68	20.9	23.5	34.0	Pi
17	900.10- 900.35	0.25	15.60	14.71	2.64	14.2	18.2	41.8	FD:
18	900.35- 900.50	0.15	44.11	37.77	7.38	13.7	22.8	53.0	FD:INFIL FRAC
19	900.50- 900.80	0.30	66.08	61.37	39.44	14.4	15.7	37.3	FD:WHY
20	900.80- 900.95	0.15	5.53	4.80	1.69	9.2	25.7	50.1	FD:
21	900.95- 901.25	0.30	24.10	24.04	7.07	11.8	13.9	21.5	FD:
22	901.25- 901.45	0.20	28.40	26.40	11.71	10.9	21.4	36.3	FD:
23	901.45- 901.65	0.20	13.46	13.01	3.04	12.6	18.3	29.4	FD:
24	901.65- 901.85	0.20	15.59	5.01	3.81	13.7	16.7	28.1	FD:FRAC
25	901.85- 902.00	0.15	12.72	?	1.91	11.8	32.6	33.1	Pi
26	902.00- 902.25	0.25	11.64	11.18	1.44	12.9	31.2	33.0	FD:
27	902.25- 902.50	0.25	12.17	11.56	3.72	13.1	24.0	42.7	FD:
28	902.50- 902.75	0.25	7.58	6.82	0.91	10.9	35.7	41.7	FD:
29	902.75- 903.15	0.40	29.13	27.30	14.48	14.0	14.6	38.5	FD:
30	903.15- 903.35	0.20	4.43	?	0.89	10.1	23.0	56.6	Pi
31	903.35- 903.78	0.43	33.17	32.74	11.36	15.0	14.9	44.2	FD:
32	903.78- 904.02	0.24	789.94	173.44	22.54	15.9	8.5	35.2	FD:VUGS
33	904.02- 904.14	0.12							IT LS
34	904.14- 904.45	0.31	30.70	?	9.52	12.2	13.1	46.6	Pi
35	904.45- 904.60	0.15	7.79	7.39	1.51	10.1	11.6	46.1	FD:
36	904.60- 904.80	0.20	17.05	16.46	7.35	11.6	21.7	48.7	FD:
37	904.80- 905.05	0.25	5.19	4.81	3.05	11.2	10.8	52.6	FD:
38	905.05- 905.40	0.35	3.56	2.62	2.68	9.7	12.7	43.4	FD:VUGS
39	905.40- 912.00	6.60							MISSING CORE

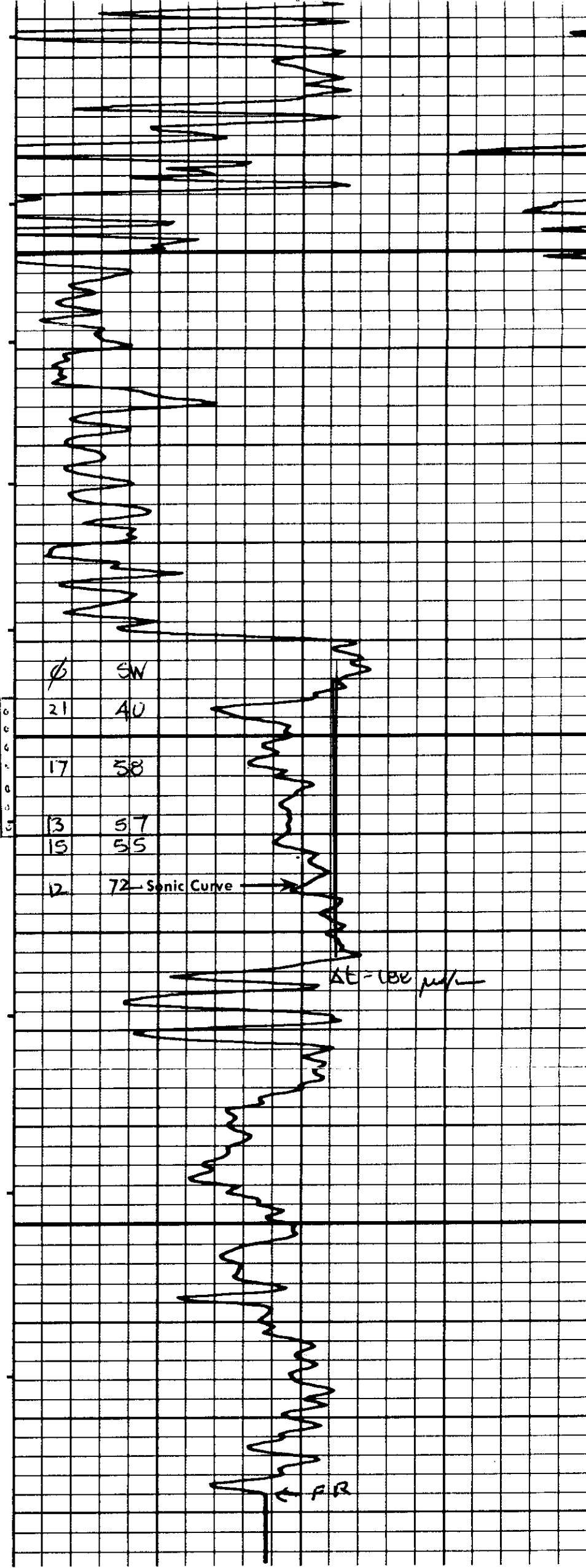
* Plus permeability - sample not suitable for full diameter measurement

$$h = 9.51 \quad \phi = 14.2\%$$

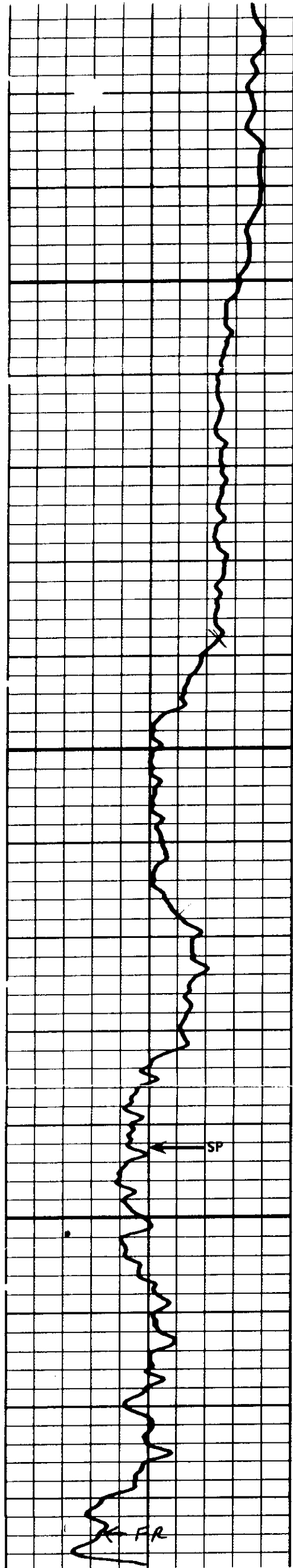
16-17



900

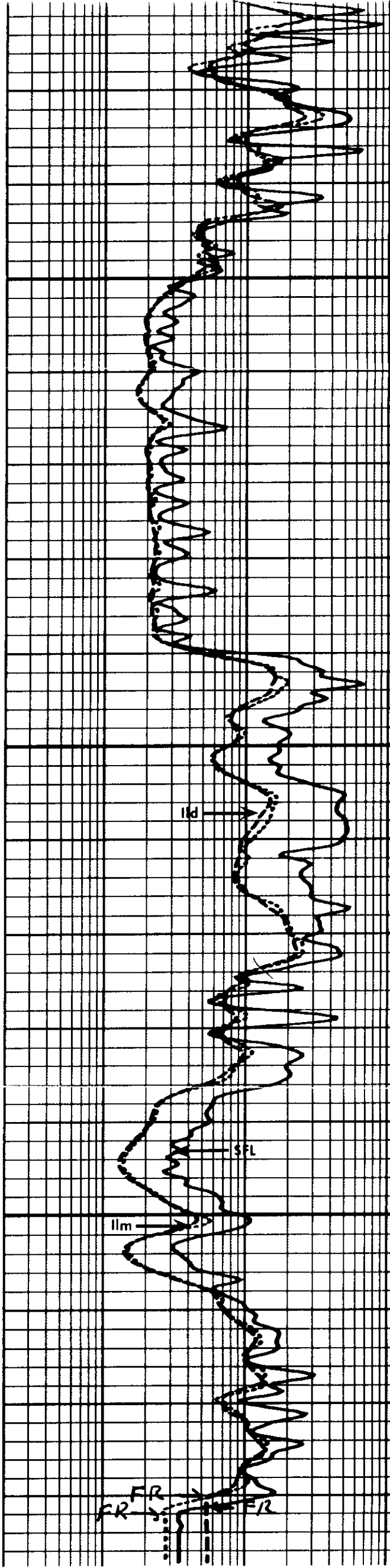


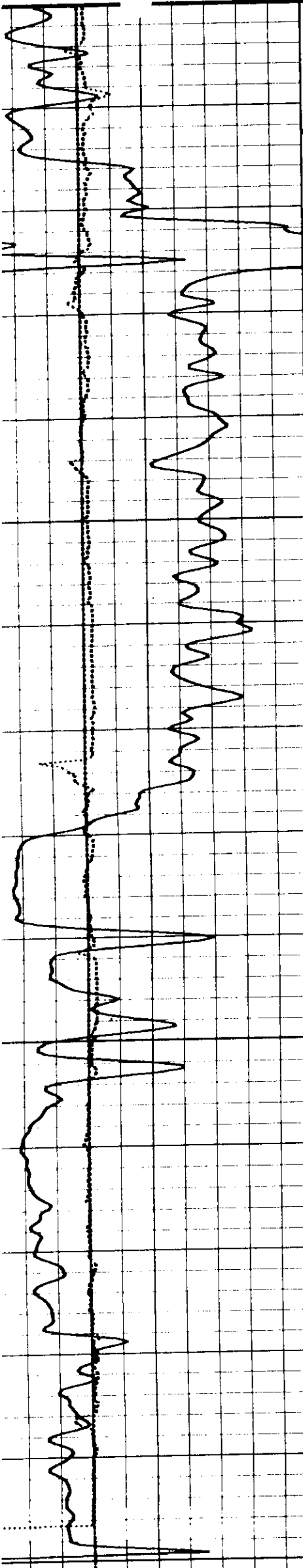
FILE



16-17
KB
600.7

900





1-20

589.8

00875

100

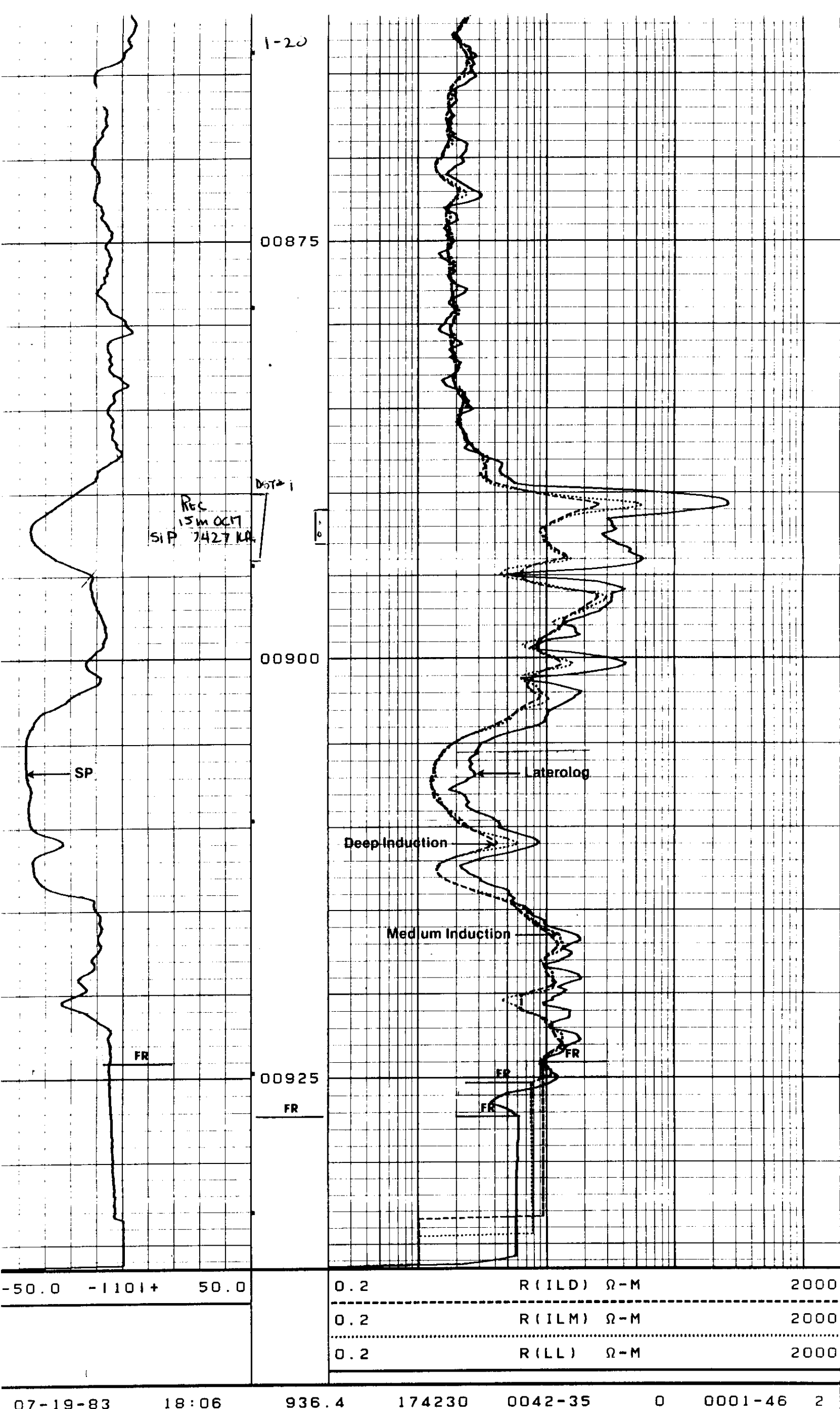
Ø	SW
14	46
10	81

Δt = 180 μs

00900

FR

00925



Rec
15m OC17
SIP 7427 KQ

DATA 1

0

FR

FR

FR

FR

COMPANY **Roxy Petroleum Ltd.**

WELL NAME ROXY et al Mountainside
WELL LOCATION 1-20-2-21-W1
INTERVAL 890-894

KB ELV.	589.80
GR ELV.	586.77
NET PAY	

DATE 83/07/20
TICKET # 4848 DST.# One
FORMATION Mississippian
TYPE of TEST Straddle

Roxy et al Mountainside 1-20-2-21-W1
WELL NAME

RECORDED DATA

ALL MEASUREMENTS ARE 'RT'

FF	10	REL. #	13710	13711	13712	13713
SI	60	INAGE	33767	33848	41015	
SF	60	CLOCK	12	24	24	
FB	90	DEPTH	884.78	890.51	897.25	
A. Inlt. Nrd.			8924	8987	10088	
B. First Flow			-	287	-	
C. Final Flow			242	211	-	
D. In Shet-In			7638	7714	-	
E. Inlt. Flow			468	397	A1 7867	
F. Final Flow			275	278	-	
G. Fl Shet-In			7383	7427	-	
H. Final Nrd.			10024	10088	10168	

Inside/Outside

Inside Outside episode

[illegible]

DESCRIPTION		MUD DATA	
		MUD TYPE	Gel Chem
08:10	Mr. STR. CHOKE	25.40	
10:05	Mr. HOLE SIZE	200	
10:23	Mr. B. CELL I.B.	73.0	1170 ts/m
14:03	Mr. B. PIPE I.B.	82.5	70 S/L
04:00	Mr. B.C. LENS	115.0	10.0 cm ³
	and B.P. LENS	772.21	1.59 cm
10 000			N11 #
19 000			dam ANT. OF FILL N11 #
16 000			dam STR. M. TEMP 39 C'
18 000			dam POROSITY 1 -

RECOVERY

REVENUE
TOTAL FUND 15 0 of 15
15 0 of 011 out mud - in D.C. and - in D.P.

TIME
GAS RECOVERY MEASURED WITH
CRITICS

DATE 83/07/20

TICKET # 4848 DST. # One
FORMATION Mississippian
TYPE of TEST Straddle

CONVENTIONAL

Letdown Sampler	Total Fuel	97500	97501
.81			
1.60			
.25			
.30			

Hydraulic Tool

Leaf

Reg. #13710

Safety Joint

PACIS

58.1

TOTAL TOOL

ABOVE INTERVAL 11.58

EXON

with a 390.08

4015

234

Blank Off Sub

511

891 00

PACKED

4848

TICKET No.

1.40

•

REC. # 1331

Perfs
13711

229

3.

54

1

4-21
KB
592.3

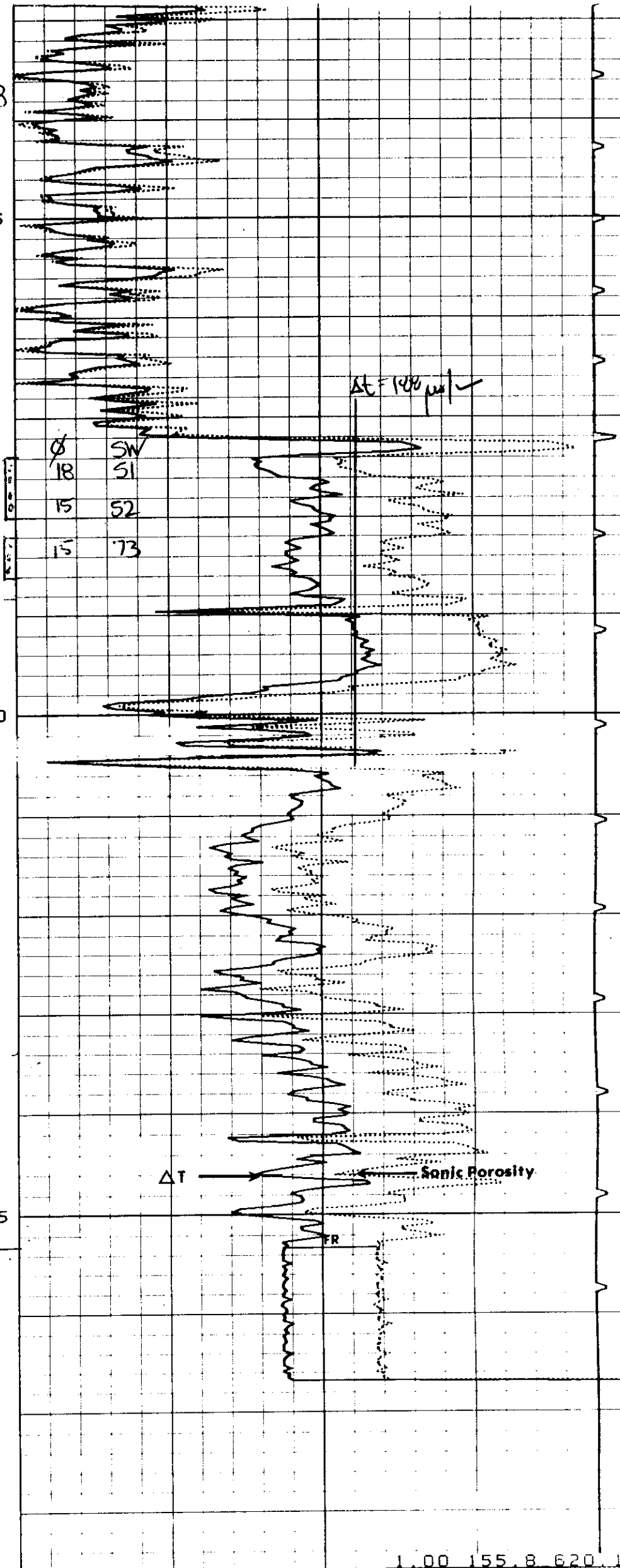
00875

Apr 1966

00900

00925

FR



GR

RWD

Sonic Caliper

FR

FR

Bit Size

1.000 2.000

4-21

00875

00900

00925

FR

SP

FR

Deep Induction

Medium Induction

Laterolog

FR

FR

FR

-50.0 -1101+ 50.0

0.2

R(ILD) Ω -M

2000

0.2

R(ILM) Ω -M

2000

0.2

R(LL) Ω -M

2000

INDIVIDUAL WELL PARAMETERS FROM POF 5-86

Well	h	K	ϕ	SW	OOIP/unit area
11-16-2-21	0.8	33	15	55	0.12
13-16-2-21	32	50	16	57	0.52
9-17-2-21					
15-17-2-21					
16-17-2-21					
1-20-2-21	0.3	5	11	82	0.06
4-21-2-21	0.9	20	14	78	.12

CUMULATIVE PRODUCTION TO MAY 31/90		CUMULATIVE	
oil	MAY 190 water	oil	water
11-16-2-21	Abd 'P'	94.9	1133.3
13-16-2-21	6.2 7.73	15328.9	48756.7
9-17-2-21	51	591.2	4170.1
16-17-2-21	1.8 28.8	5010.7	36559
15-17-2-21	standing		
1-20-2-21	Nol 'P'	2.1	11.7
4-21-2-21	0.2 7.9	8983.5	8604.5
TOTAL		24914.3	97416.2

1990 - 13-16-2-21 has produced 78% of the
pool production, cumulative 62% of the pool
production

over-broke 1467.4 L³ MAR 1/90
to JUN 1 - 1351.4 L³

WELL	UWWL TOP	UWWL BASE	GROSS PAY (m)
11-16-2-21	-297.4	-303.4	6.0
13-16-2-21	-292	-306.5	14.5
9-17	-299.6	-308.8	9.2
15-17	-298.9	-308.7	9.8
16-17	-294.3	-308.3	14.0
1-20	-297.7	-304.7	7.0
4-21	-293.7	-302.7	9.0

The structural high and gross thickness of the UWWL member appear to correlate well with well performance. The structurally highest wells and the well with the thickness UWWL section are the most productive, with 13-16 being both the highest well structurally and the well with the thickness section.

2-13-11-27

ORXY - ANNOUN		SW
Reading	NET	✓
with	✓	✓
NET	✓	✓
9-17	0.5	13
2	11	67
15-17	2.9	✓ 16.3
3	14	✓ 56.2
1	✓ 21	✓ 40
2	✓ 17	✓ 58
4-24	✓ 19	✓ 51
2	✓ 15	✓ 73
1	✓ 15	✓ 52
13-16	7	12.9
		50
		✓ 22.4
		308.67
		12.479

ESTIMATE OOIP

13-16-2-21

$$OOIP = 10000 \times A \times h \times \phi \times (1 - S_w) \times \frac{1}{B_{oi}}$$

$$= 10000 \times 16 \times 7.03 \times .129 \times (1 - 0.5) \times .94$$

$$= 68197 \text{ m}^3$$

→ 30% of total OOIP = pool

Cumulative Production to May 31/90 = 15329 m³

Recovery Factor to May 31/90 = 22.5% of OOIP

LOGUEPOLE WL E Pool

• based on Proxy net pay map

$$\phi_{\text{net}} = 13.8\%$$

$$S_w_{\text{net}} = 55.7\%$$

$$1/B_{oi} = 0.94$$

CI	Δh(m)	Area(Ha)	VOLUME (ha · m)
0	-	110	
2	2	72	178
4	2	50	121
6	2	26	75
8	2	8	17
			<hr/>
			391 ha · m

$$OOIP = 10000 \times 391 \times .138 \times .443 \times .94$$
$$= 224692 \text{ m}^3$$

Cur PROD = 24914 m³
Rec to date = 11%

July 182
13-16.2-21 producing in Upper Whitwater member

11-16 & 1-20 Mod "P"

Isolated structural high in the UWWL member -
- evidence of fracturing in core
UWWL is thickest at 13-16
stage

$$\phi_c = \frac{\Delta t - 166}{299} \text{ percent}$$

cut-offs $k = 1 \text{ m d}$
 $\phi_c = 7.5\%$
 $\Delta t = 188 \text{ ms/L}$

- bottom water in UWWL
Upper Virgil is wet

$$R_w = 0.06 \text{ B.L.}$$

1989 Reserves Estimate ~~Core Pro.~~ Alt. Res = 46260

vi) Reservoir Properties

The following table lists some of the reservoir properties for the "Mountainside" Pool.

TABLE 4: "Mountainside" Pool Reservoir Properties

I. General Information:

1. Year of discovery	1982
2. Number of Wells:	
a) Capable of Oil Production	3
b) Produced during 1985	2
c) Service	0
d) Active during 1985	2
e) Previous Producers	2
3. Spacing	16 ha
4. Average Depth of Producing Zone	895 m KB
5. Crude Oil Quality: a) Density	860 kg/m ³
b) Sulphur Content	10.30 g/kg
6. Permeability (cut off 1.0 md)	31 md
7. Initial Pressure	Not Available
Current Pressure	Not Available
9. Recovery Mechanism:	Water Drive

II. Reserves Information:

1. Production Area (A)	13 ha
2. Net Pay (h) (cutoffs; $\phi = 7.5\%$, $k = 1.0$ md)	2.7 m
3. Porosity (ϕ)	15 %
4. Connate Water Saturation (S_w)	63 %
5. Shrinkage Factor (1/Boi)	0.94
6. Original Oil in Place	157 795 m ³
7. Recovery Factor	5 %
8. Ultimate Recoverable Reserves	7 670 m ³
9. Cumulative Production (to Dec. 31, 1985)	6 520 m ³
10. Remaining Recoverable Reserves (Dec. 31, 1985)	1 150 m ³

(b) "Mountainside" Pool

i) Water Saturation (Fig. 27)

Upper Whitewater Lake Member water saturations increase from the southeast to the northwest (55% at 11-16-2-21 WPM to 82% at 1-20-2-21 WPM). The Upper Whitewater Lake Member drops off (structurally) to the west-southwest. The discrepancy between Sw and structure may be attributable to the lack of data in the area.

ii) Porosity (Fig. 28)

Porosity changes generally correlate with structural variations. Upper Whitewater Lake Member porosities decrease when the formation becomes structurally lower.

iii) Permeability (Fig. 29)

As expected, porosity and permeability trends match (i.e. decreasing permeability with decreasing porosity).

iv) Net Pay 'h' (Fig. 30)

The net pay thickness at 13-16-2-21 WPM is 3.2 m. Net pay thicknesses decrease away from this location. Net pay contours follow a northwest-southeast trend.

v) Oil-In-Place (Fig. 31)

Oil-in-place appears to be concentrated in the 13-16-2-21 WPM spacing unit and decreases rapidly away from this location. Oil-in-place contours trend in a northwest-southeast direction.

OTHER AREAS

MISSION CANYON I D POOL
99 44D

OTHER AREAS

OIL WATER	Cum. Prod. Dec. 31/89 m	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	MAY Daily m	1990 Y.T.Q. m	Cum. Total m
NON-UNIT PREVIOUS PRODUCERS	435.4 2 414.3															435.4 2 414.3
MISSION CANYON I D POOL :	435.4 2 414.3		--		--											435.4 2 414.3
TOTAL OIL		--		--		--									--	
TOTAL WATER		--		--		--									--	

LODGEPOLE WL B POOL
99 52B

NON-UNIT PREVIOUS PRODUCERS	171.3 152.6															171.3 152.6
LODGEPOLE WL B POOL :	171.3 152.6	--	--		--											171.3 152.6
TOTAL OIL		--		--		--									--	
TOTAL WATER		--		--		--									--	

LODGEPOLE WL C POOL
99 52C

NON-UNIT PREVIOUS PRODUCERS	14.3 107.6															14.3 107.6
LODGEPOLE WL C POOL :	14.3 107.6	--	--		--											14.3 107.6
TOTAL OIL		--		--		--									--	
TOTAL WATER		--		--		--									--	

LODGEPOLE WL D POOL
99 52D

NON-UNIT PREVIOUS PRODUCERS	194.0 378.1															194.0 378.1
LODGEPOLE WL D POOL :	194.0 378.1	--	--		--											194.0 378.1
TOTAL OIL		--		--		--									--	
TOTAL WATER		--		--		--									--	

LODGEPOLE WL E POOL
99 52E

CANADIAN ROXY PETROLEUM LTD.

13 -16-02-21	14 085.8 41 187.9	361.4 1324.8	277.7 1208.4	6.8 38.3	187.5 1439.4	192.2 1485.6										
09 -17-02-21	570.9 3 742.7	9.7 200.8	8.2 179.0	2.4 47.6	-- --	-- --										
16 -17-02-21	4 713.3 31 790.1	130.7 1464.5	87.7 1354.1	30.4 588.3	8.4 211.0	40.2 1151.0										
04 -21-02-21	3 946.9 8 425.8	13.3 36.7	6.9 33.5	224.3 1436.5	5.1 34.8	4.5 35.4										
	23 316.9 85 146.5	380.5 2 775.0		201.0 1 685.2												
TOTAL OIL		515.1		263.9		236.9										
TOTAL WATER		3 026.8		2 110.7		2 672.0										
NON-UNIT PREVIOUS PRODUCERS	97.0 1 145.0															97.0 1 145.0

1243.1

6894.7

6.20

1 025.6

5 496.5

20.3

427.4

1.83

297.4

4 768.9

0.15

254.1

1 576.9

1 597.4

12 269.7

15 111.4

46 684.4

591.2

4 170.1

5 010.7

36 559.0

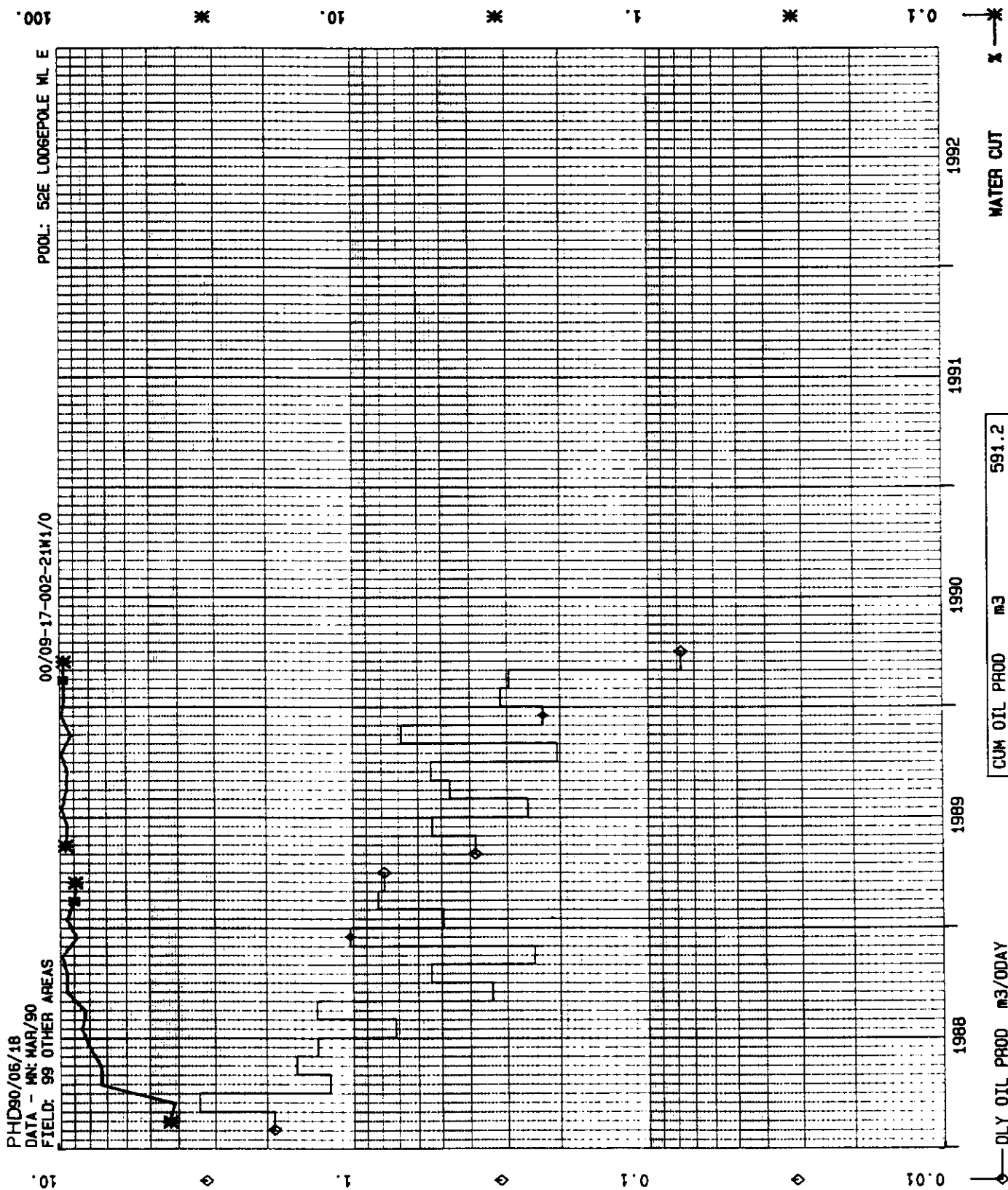
4 201.0

10 002.7

24 914.3

97 416.2

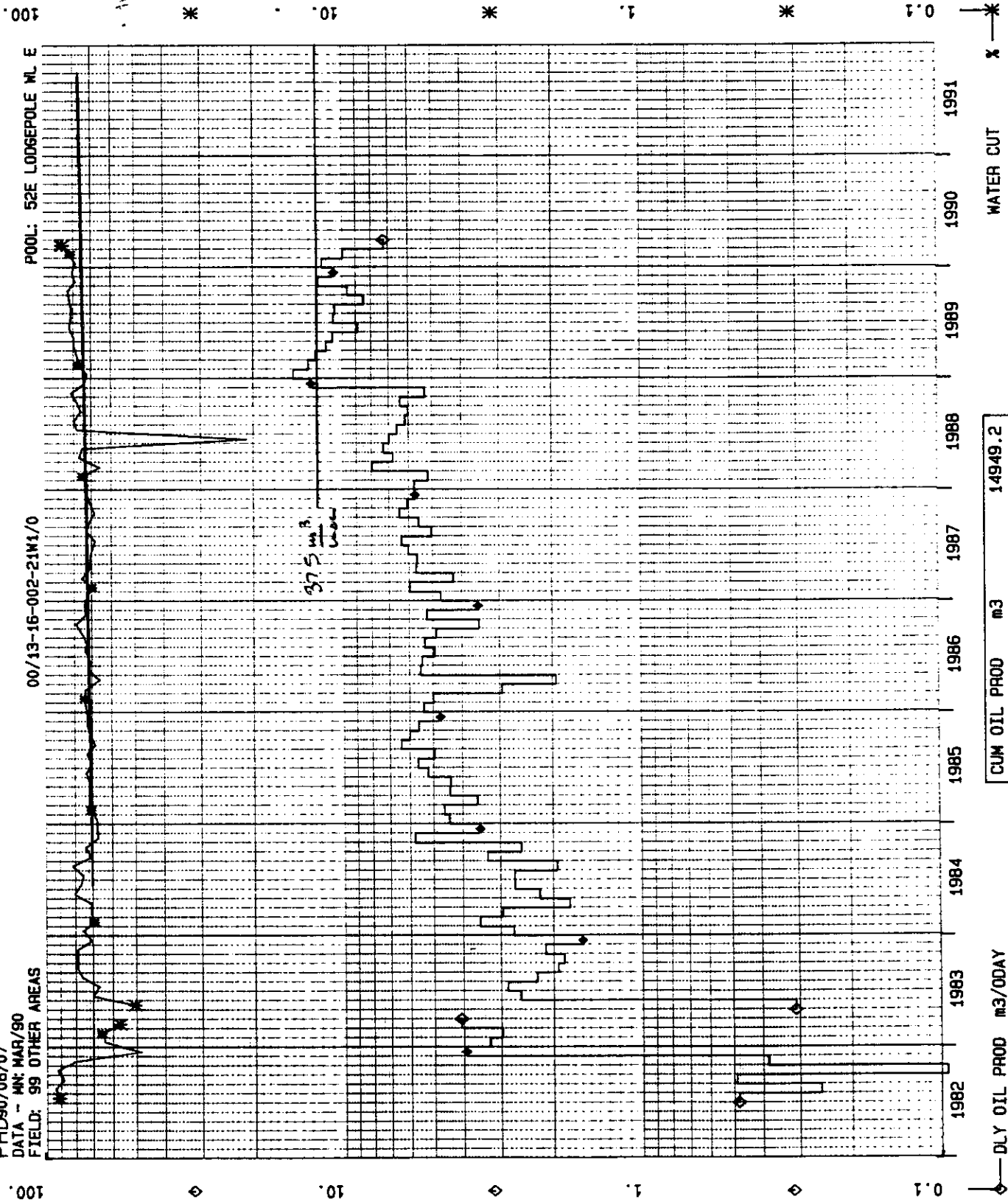
UNECONOMIC TO PRODUCE



PHD90/06/07
DATA - MN: MAR/90
FIELD: 99 OTHER AREAS

00/13-16-002-21M1/0

POOL: 52E LODGEPOLE WL E



CUM OIL PROD	m3	14949.2
CUM WTR PROD	m3	45157.6

DLY OIL PROD m3/ODAY

WATER CUT %

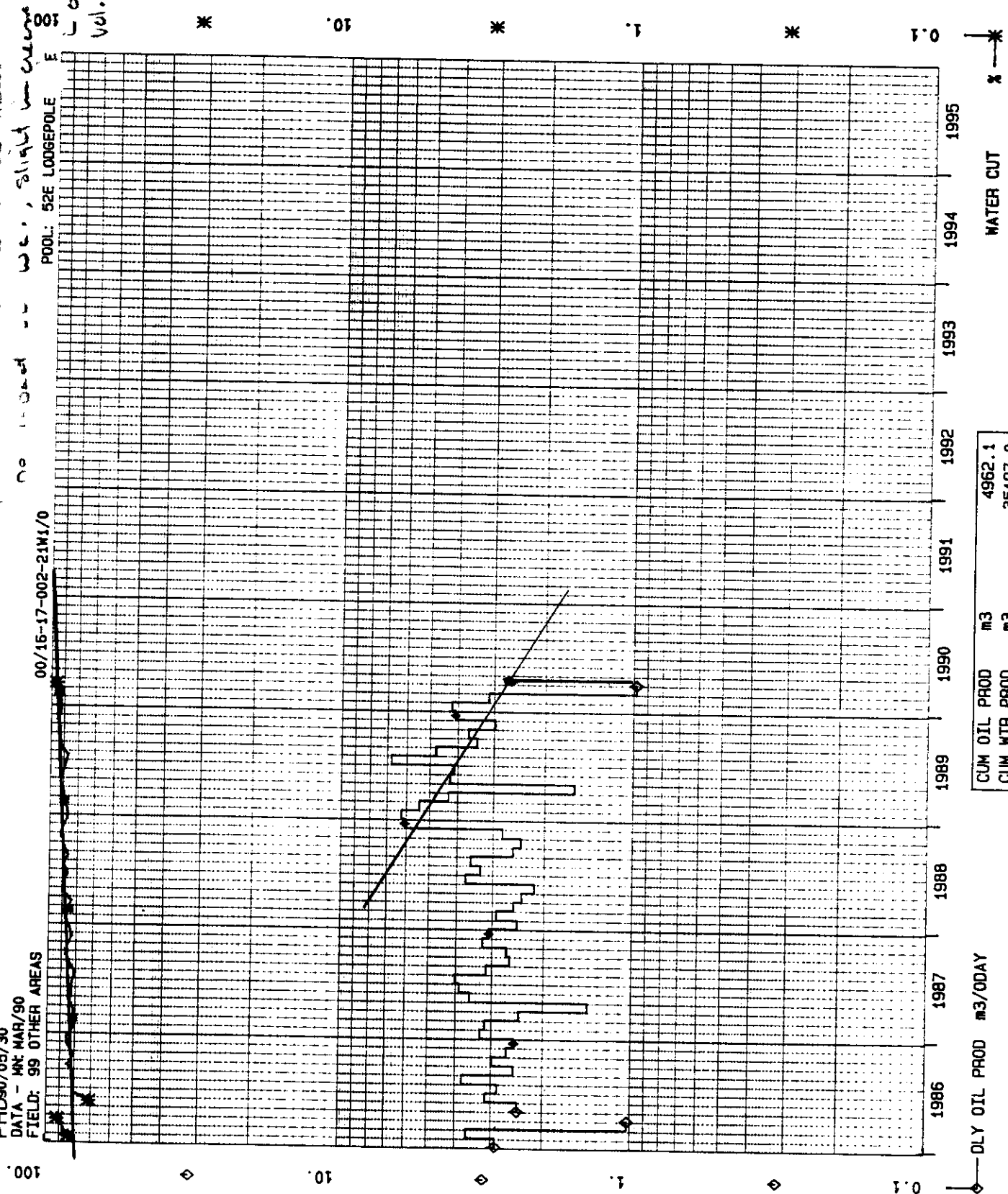
a big pump ran Nov/86
resulting in a massive withdrawal rates
no record -- well, slight increase
Vol.

PHD90/05/30
DATA - MNE MAR/90
FIELD: 99 OTHER AREAS

00/15-17-002-21W1/0

POOL: 52E LODGEPOLE

Oil



CUM OIL PROD	m3	4962.1
CUM WTR PROD	m3	35197.0

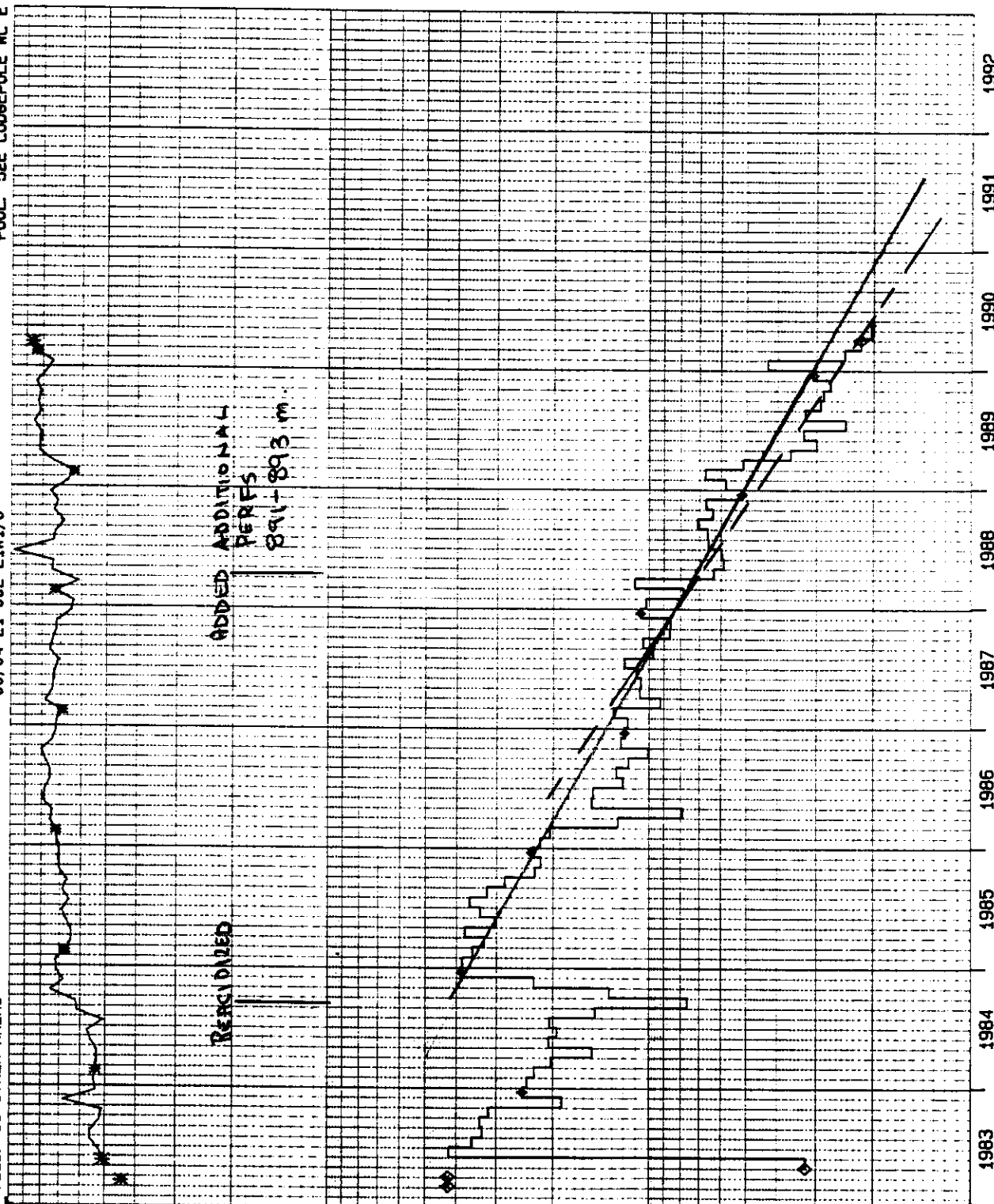
ONLY OIL PROD m3/ODAY

WATER CUT

PHD90/06/07
DATA - MNC MAR/90
FIELD: 99 OTHER AREAS

00/04-21-002-21M1/0

POOL: 52E L006EPOLE ML E



CUM OIL PROD	m3	3973.9
CUM WTR PROD	m3	8534.3

— DLY OIL PROD m3/ODAY

WATER CUT %

SMITH & WESTERNE
COMPUTING INC.

file

CDN. Roxy - FREEMOLD PROD
TAX PAYMENTS - 1990

	Initials	Date
Prepared by Préparé par	CD	Aug 14/90
Approved by Approuvé par		

	1	2	3	4	5	6	7
			JAN. 1990	FEB. 1990	MARCH 1990	APRIL 1990	MAY 1990
13-16-2-21							
1 TAX PAID			\$ 4201.82	\$ 3110.85	\$ 2095.93	\$ 1406.82	\$ 988.75
2 SHOULD HAVE PAID			3974.57	2945.79	1970.32	1308.57	1351.51
3 TAX (OVERPAID)/UNDERPAID			\$ <227.25>	\$ <165.06>	\$ <125.61>	\$ <98.25>	\$ <362.76>
4							
5 SELLING PRICE			\$ 147.92	\$ 150.77	\$ 133.49	\$ 114.55	\$ 113.92
6 TRUCKING COST			8.00	8.00	8.00	8.00	7.70
7 AVERAGE WELLHEAD PRICE			\$ 139.92	\$ 142.77	\$ 125.49	\$ 106.55	\$ 106.22
8							
9							
10							
11 16-17-2-21							
12 TAX PAID			\$ 2575.17	\$ 1353.99	\$ 0	\$ 0	\$ 2638
13 SHOULD HAVE PAID			2435.90	1282.14	0	0	4868
14 TAX (OVERPAID)/UNDERPAID			\$ <139.27>	\$ <71.85>	\$ 0	\$ 0	\$ <22.30>
15							
16 SELLING PRICE			\$ 147.92	\$ 150.77	\$ 133.49	\$ 114.55	\$ 113.92
17 TRUCKING COST			8.00	8.00	8.00	8.00	7.70
18 AVERAGE WELLHEAD PRICE			\$ 139.92	\$ 142.77	\$ 125.49	\$ 106.55	\$ 106.22
19							
20							
21 4-21-2-21							
22 TAX PAID			\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
23 SHOULD HAVE PAID			0	0	0	0	0
24 TAX (OVERPAID)/UNDERPAID			\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25							
26 SELLING PRICE			\$ 147.92	\$ 150.77	\$ 133.49	\$ 114.55	\$ 113.92
27 TRUCKING COST			8.00	8.00	8.00	8.00	7.70
28 AVERAGE WELLHEAD PRICE			\$ 139.92	\$ 142.77	\$ 125.49	\$ 106.55	\$ 106.22
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