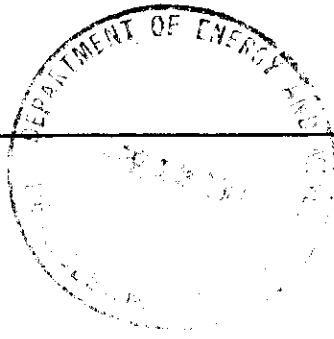


Manitoba

The Oil and Natural Gas
Conservation Board



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

(204) 945-3130

ALB 11 1988

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H3

Attention: Mr. G. Cormack,
Manager, Production Operations

Dear Sir:

Re: Gas Injection - Waskada Unit No. 1

Your letter of February 22, 1988 relating to continued gas injection in the subject Unit is acknowledged. Review of the performance of wells in and around the Unit, shows no major negative performance indicators. This suggests that continued gas injection is not having a negative effect on ultimate reserves at this time. Consequently you are authorized to continue gas injection in the subject Unit through the well, Omega Waskada GIW 6-30-1-25 (WPM).

We suggest, however, that you continue your investigations with respect to storage alternatives for the gas. As has been evidenced in the past, production performance associated with a gas injection project can deteriorate rapidly and with little advance warning. Should such performance deterioration occur, termination of gas injection in the subject Unit may be ordered to minimize losses in recoverable reserves.

Yours sincerely,

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang
Chairman

LRD/HCM/CSK/sml

bc: Petroleum



Action / Route Slip

Date: April 19, 1988

To Charles S. Kang

From: H. Clare Moster

Telephone: _____

- | | | | | |
|---|---|--|--|--|
| <input type="checkbox"/> Take Action | <input type="checkbox"/> Per Your Request | <input type="checkbox"/> Circulate, Initial and Return | <input checked="" type="checkbox"/> For Approval and Signature | <input type="checkbox"/> Make _____ Copies |
| <input type="checkbox"/> May We Discuss | <input type="checkbox"/> For Your Information | <input type="checkbox"/> Return With Comments or Revisions | <input type="checkbox"/> Draft Reply for Signature | <input type="checkbox"/> Please File |

Comments:

GAS INJECTION - WASKADA UNIT NO. 1

In response to Omega's letter dated February 22, 1988 (attached), the
enclosed letter from the Board to Omega is recommended for your signature.

ONG Gas Bd

type

~~Hand~~ 1620P

Omega Hydrocarbons Ltd
1300 Sun Life Plaza III
112 - 4th Ave S.W.
Calgary, Alberta
T2P 043

Attention: Mr. G. Cormack,
Manager, Production Operations

Re: Gas Injection - Washada Unit No. 1

Your letter of February 22, 1988 relating to continued gas injection in the subject Unit is acknowledged. ~~Upon~~ Review of the performance of wells in and around the Unit, ~~the~~ ^{shows} ~~after that indicates~~ no major negative performance indicators. This suggests that continued gas injection is not having a negative effect on ~~reser~~ ultimate reserves at this time. Consequently you are authorized to continue gas injection in the subject Unit through ^{the well, Omega Washada} ~~the well~~ ^{OSIW 6-30-1-25 (WPM).} We suggest, however, that you continue your investigations with respect to ~~all~~ storage alternatives for the gas. ~~As has~~ As has been evidenced in the past, production performance ~~can deteriorate~~ ^{is associated} with a gas injection project can deteriorate rapidly and with little advance warning. Should such performance deterioration occur, termination of gas injection ^{in the subject Unit} may be ordered ~~and~~ to ~~ensure~~ ~~no~~ ~~any~~ minimize losses in recoverable reserves.

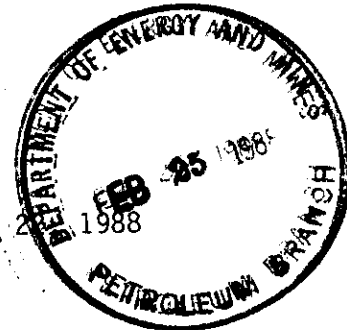
b. Pot Div.

~~CSK~~
CSK
CHAIRMAN



1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743

February 25, 1988



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

Attention: Mr. Clare Moster, Executive Director

Dear Sir:

Re: Waskada Unit No. 1 - Gas Injection

In compliance with the conditions set out in your letter of September 18, 1987, Omega Hydrocarbons has completed a review of the production performance of wells in and adjacent to the gas injection project at Waskada Unit No. 1. As a result of this review, it is the opinion of Omega Hydrocarbons Limited that the ultimate recovery of hydrocarbons can best be achieved through:

1. Continued Board approval of lean gas injection at well Omega Waskada 6-30-1-25 WPM and,
2. Continued suspension of the gas oil ratio limitations outlined in Board Order No. PM 47 for the Waskada Unit No. 1.

We recognize that conditions in the future may change and respect the Board's authority to re-evaluate and, if required, terminate gas injection. However, at this time, we believe that the performance of the gas injection project to date supports our objective of lean gas storage and Upper Alida pressure support.

Our efforts to eliminate communication between the Upper Alida and the Lower Amaranth have been successful. Well Omega Waskada Prov. A7-30-1-25 WPM has been converted to a Lower Amaranth water injection well. There are no other Lower Amaranth wells being adversely affected by the Upper Alida gas injection. The Lower Alida at well 10-30-1-25 WPM may be receiving some support from the 6-30-1-25 WPM gas injection however, the well performance continues to improve. The Upper Alida wells at 4-30-1-25 WPM and 12-30-1-25 WPM continue to show an excellent response to the gas injection at well 6-30-1-25 WPM.

We have also reviewed the potential for alternative gas storage locations. Our studies indicate that the future value of the limited gas storage volume cannot justify the expense of an additional well recompletion or additional surface facilities. Although the gas may prove to be of some value in future years, it is currently proving to be most valuable for Waskada Unit No. 1 pressure maintenance.

Attachment 1 contains a detailed review of the performance of each well in or adjacent to the Waskada Unit No. 1 gas injection project. A production graph and a production printout for each well are also attached.

We look forward to your continued support of this project. If you have any questions regarding this submission, please contact me at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.



Gordon Cormack
Manager, Production Operations

DOR/ns/Letter25

Attachments.

c.c. T.J. HALL

Waskada(MC) Pressure Maintenance
Monitoring File

Attachment 1

2-30-1-25 WPM (LAm) This well has not been affected by gas injection at well 6-30-1-25 WPM. The well performance is expected to improve in the future in response to pressure maintenance at well A7-30-1-25 WPM.

3-30-1-25 WPM (MC3b) This well is on structure (top MC3b porosity) with well 6-30-1-25 WPM. During the first six months of gas injection at 6-30, the well's oil production increased to greater than 300m³/month, the water cut decreased from 90% to 30%, and the gas/oil ratio increased to greater than 500m³/m³. During November and December 1987, the GOR fell back to 473m³/m³ and 340m³/m³ respectively. These production trends suggest that the well is in partial communication with injection well 6-30. The well has now recovered in excess of 16 000m³ of oil and, although some gas breakthrough is now evident, oil production continues at high rates. Continued production from well 3-30 has the advantage of reducing the migration of gas into non-working interest lands in section 28-1-25 WPM.

4-30-1-25 WPM (MC3b) This well is located structurally down dip (MC3b) to well 6-30-1-25 WPM and has demonstrated an excellent response to gas injection. Oil production has increased from 14m³/m to 172m³/m, the water cut has decreased from 98% to 60% and the GOR has been relatively low since gas injection was initiated at 6-30. This well is predicted to continue to perform well in response to the top gas drive from 6-30.

4-30-1-25 WPM (LAm) High GORs were observed during the last six months of 1987 however, these measurements often coincided with low oil production rates making accurate GOR measurements difficult. The oil production from this well has always been erratic and it does not appear as if gas injection at well 6-30 has adversely affected production.

5-30-1-25 WPM (LAm) This Lower Amaranth water injection well has not been affected by gas injection at well 6-30. It is worth noting that the well was previously completed in the MC3b and watered out shortly after water injection was initiated in the MC3b at well 6-30-1-25 WPM in 1976. This demonstrates the significance of structure in the MC3b in controlling fluid movement. It is likely that the MC3b at this location would have responded favourably to gas injection at well 6-30.

A7-30-1-25 WPM (LAm) The problem of gas breakthrough from the MC3b at 6-30-1-25 WPM into the Lower Amaranth formation at well A7-30 has been well documented. The communication channel at A7-30 was squeezed off with cement in September 1987 and Lower Amaranth water injection was initiated on December 8, 1987.

8-30-1-25 WPM (LAm) There has been no response to the 6-30 gas injection at this well.

9-30-1-25 WPM (LAm) There has been no response to the 6-30 gas injection at this well.

10-30-1-25 WPM (MC3a) This well is the only well in the area completed in the Lower Alida (MC3a). Since gas injection was initiated at 6-30, the well

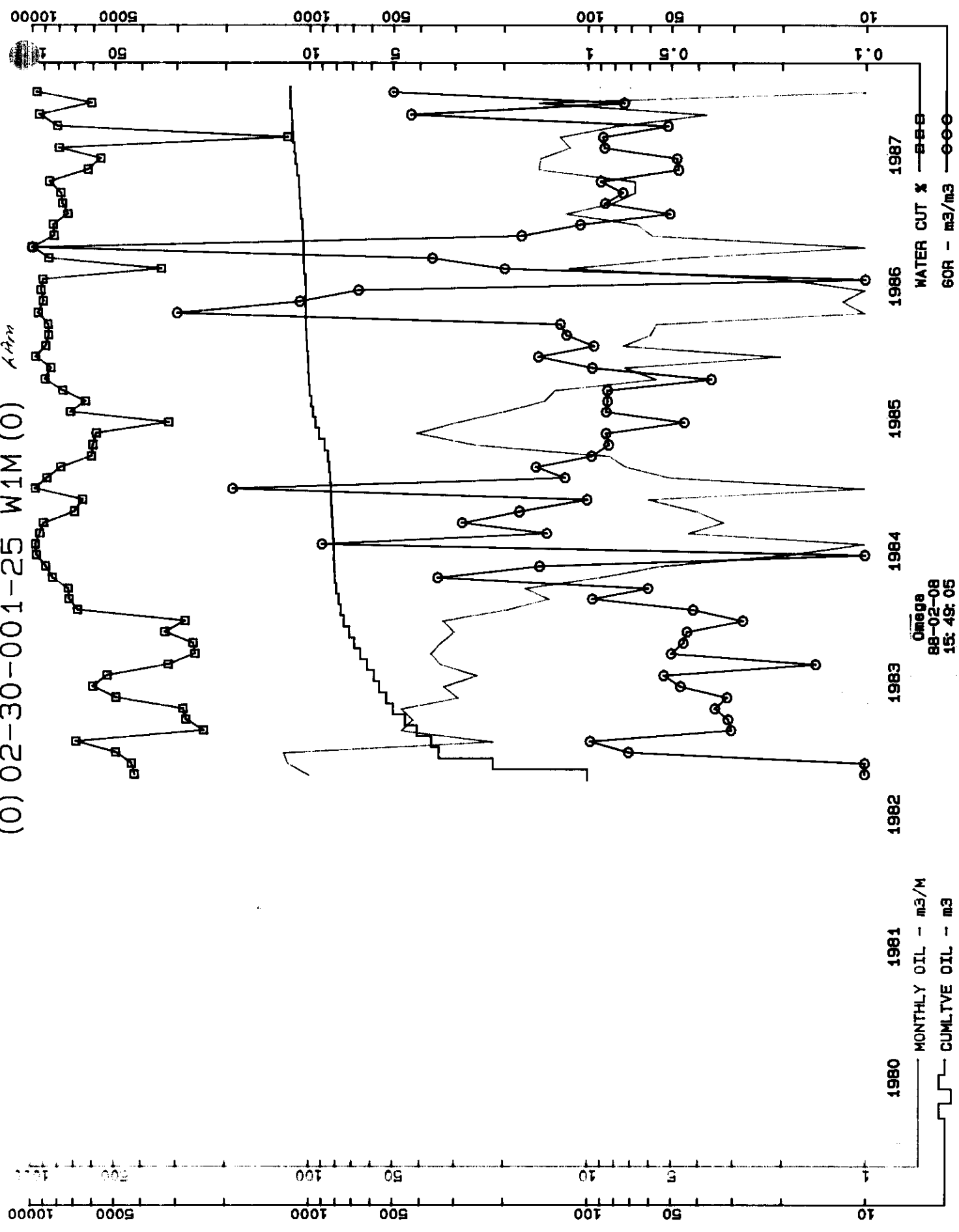
has had a decline in the water cut, an increase in oil production of about 50m³/m and a general trend of increasing GORs. These trends may suggest some partial pressure support from the gas injection project or from water injection at 15-30-1-25 WPM. In either event, the well is performing very well in the absence of any designed pressure support system.

11-30-1-25 WPM (LAm) There has been no response to the 6-30 gas injection at this well.

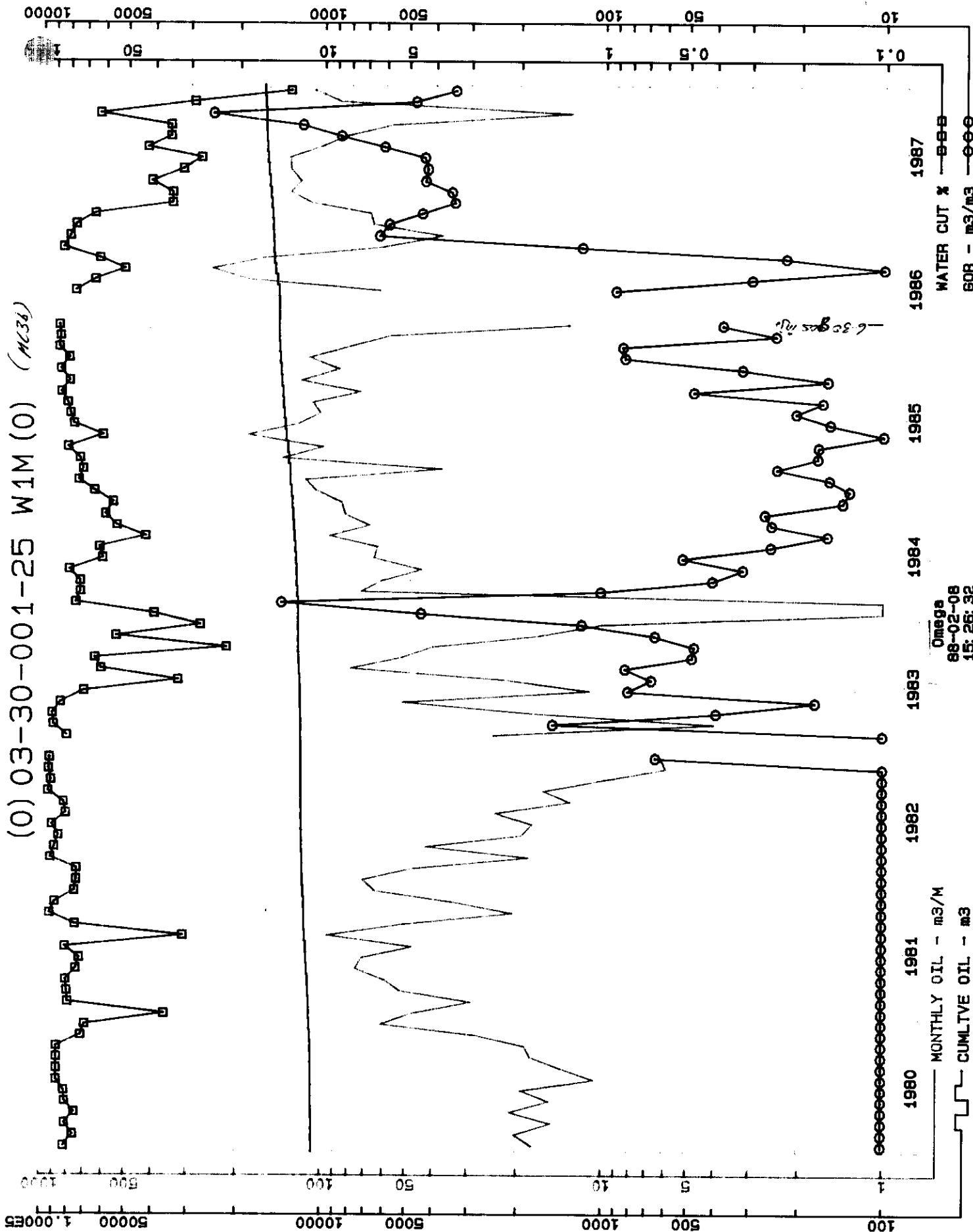
12-30-1-25 WPM (MC3b) As in the case of well 4-30-1-25 WPM (MC3b), this structurally low well has benefitted from the up dip gas injection at 6-30-1-25 WPM. Since gas injection was initiated, the oil production has remained relatively constant. However, the water cut and GOR have declined significantly.

12-30-1-25 WPM (LAm) There has been no response to the 6-30 gas injection at this well.

(0) 02-30-001-25 W1M (0) *hAm*



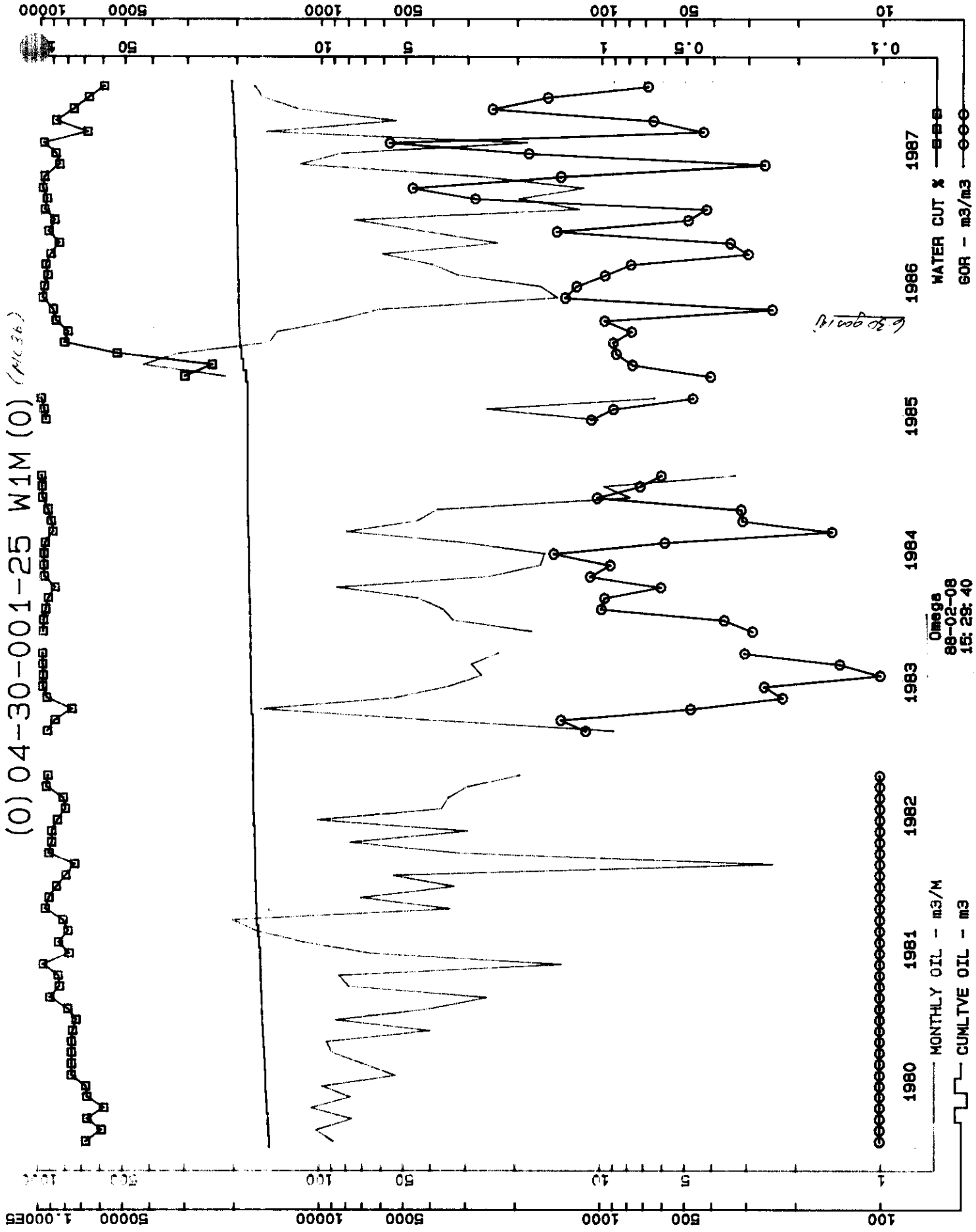
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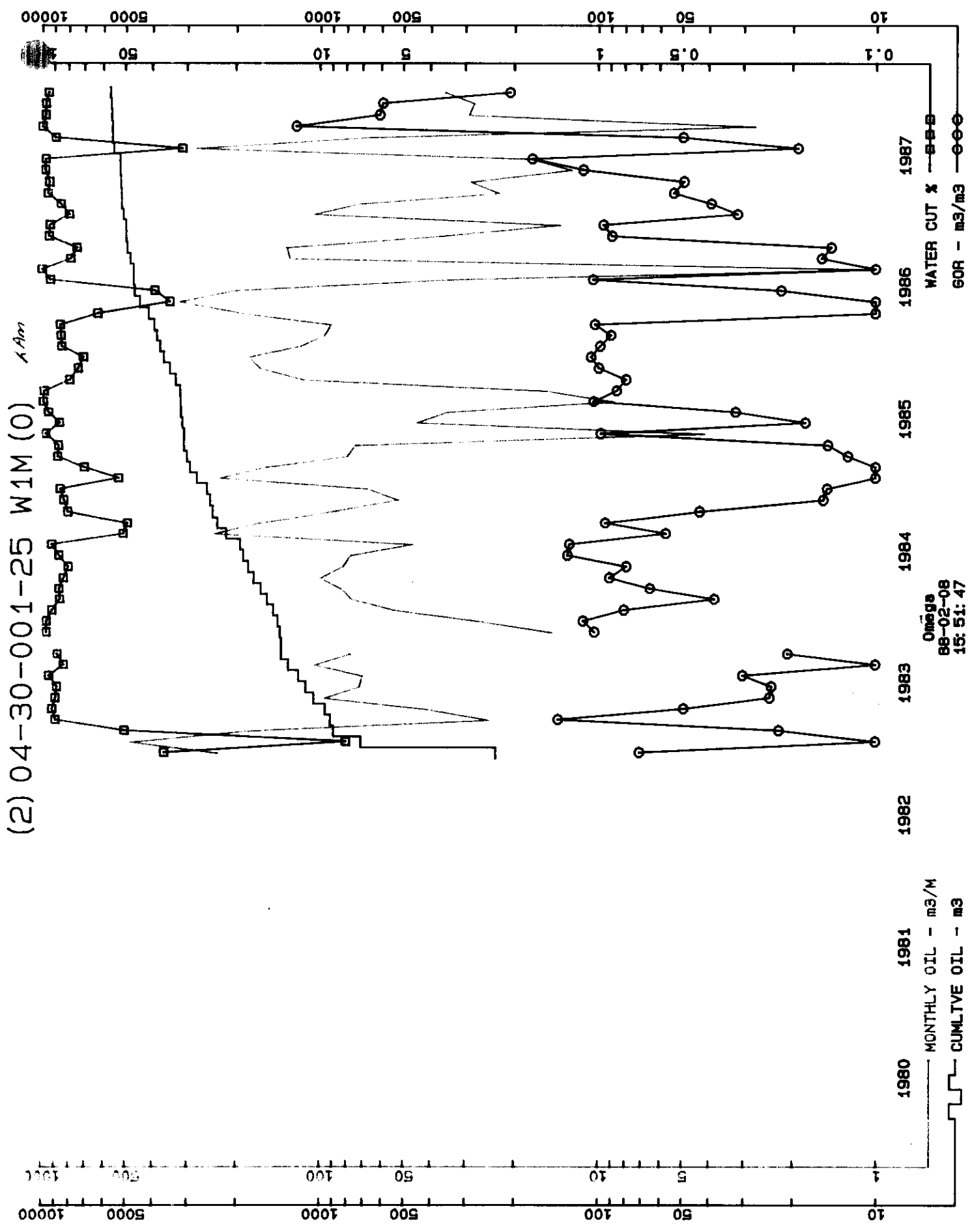
Omega
88-02-08
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MONTHLY OIL - m³/M
CUMULATIVE OIL - m³

(0) 04-30-001-25 W1M (0) (M136)



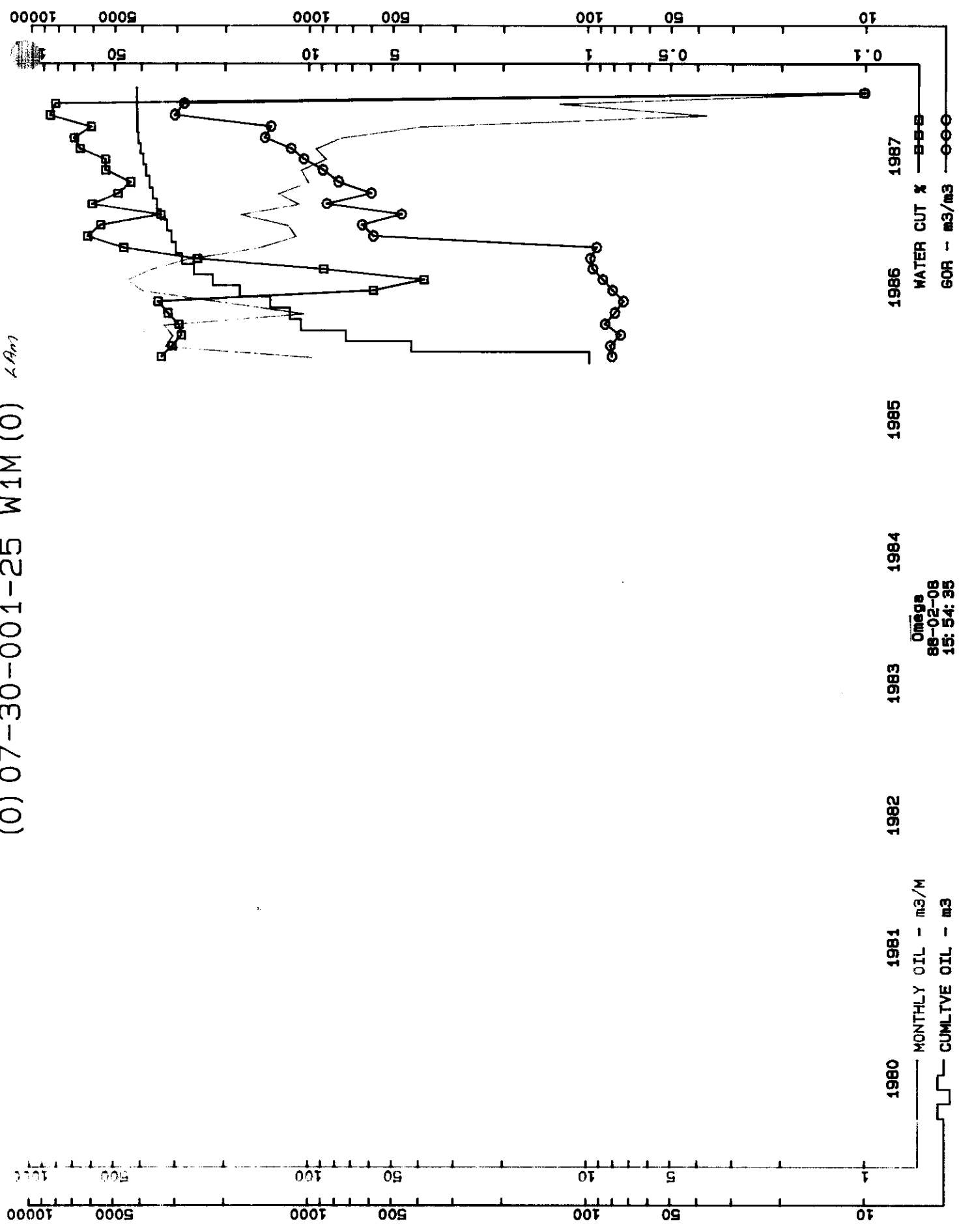
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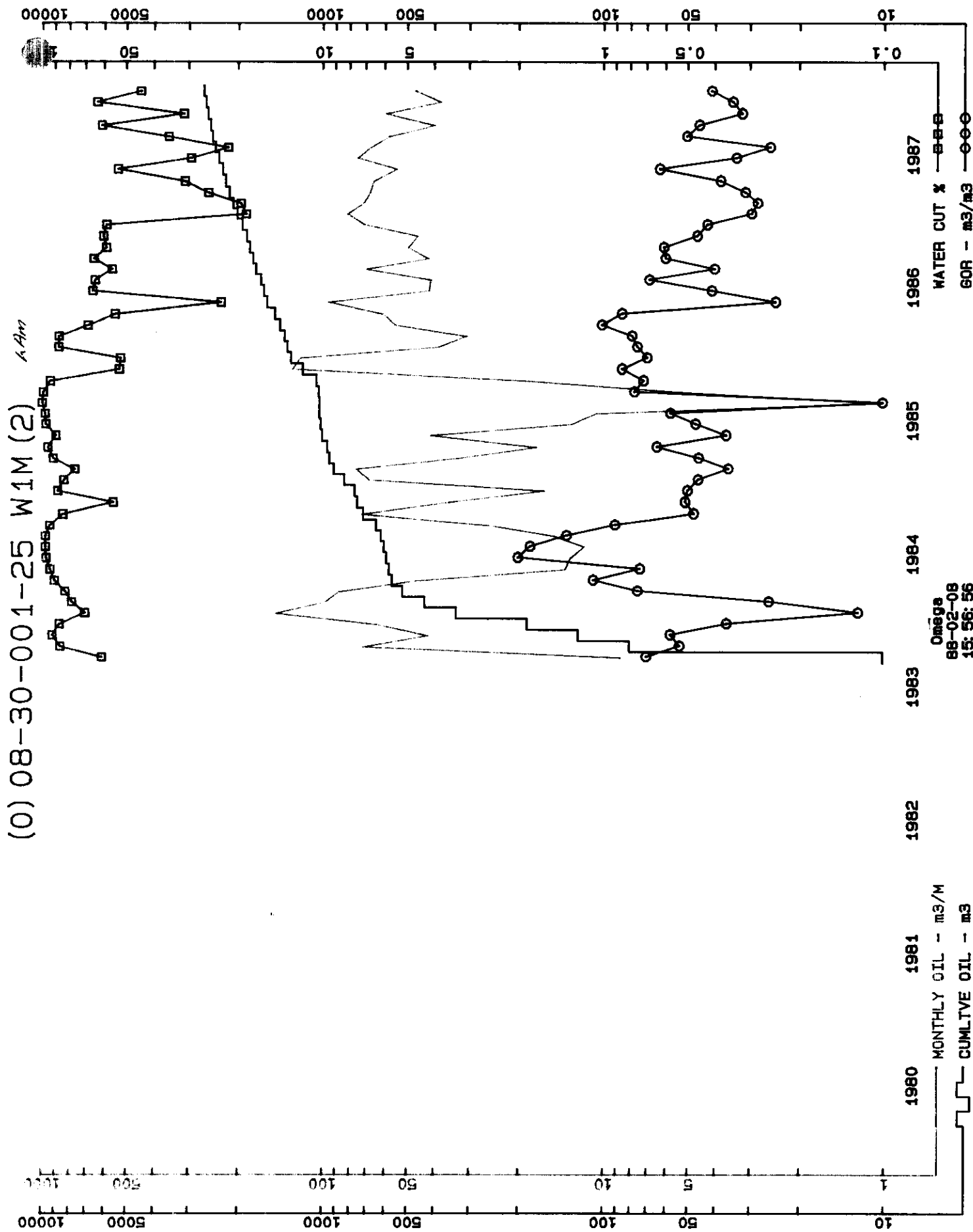
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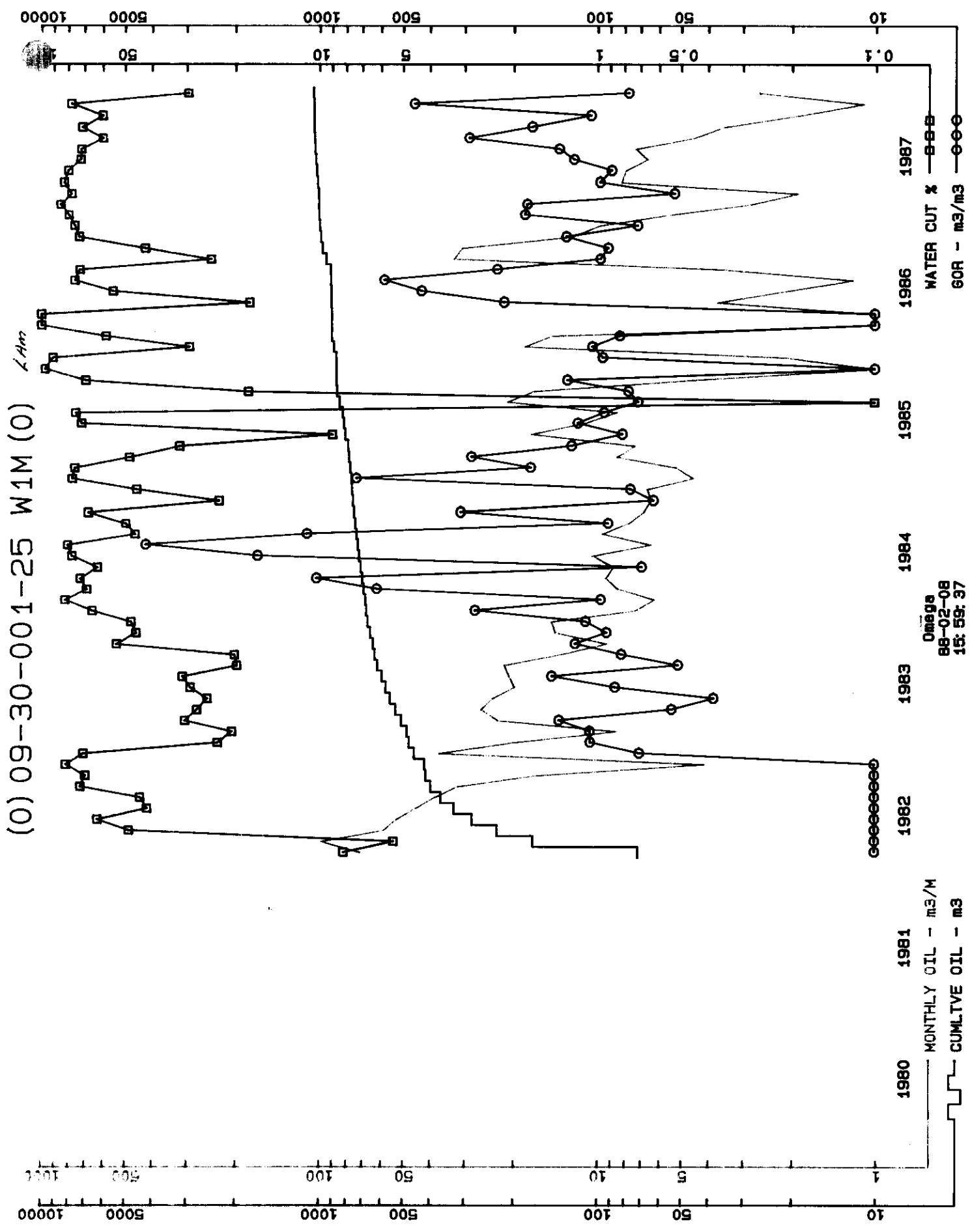
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(0) 07-30-001-25 W1M (0) *L.P.m*

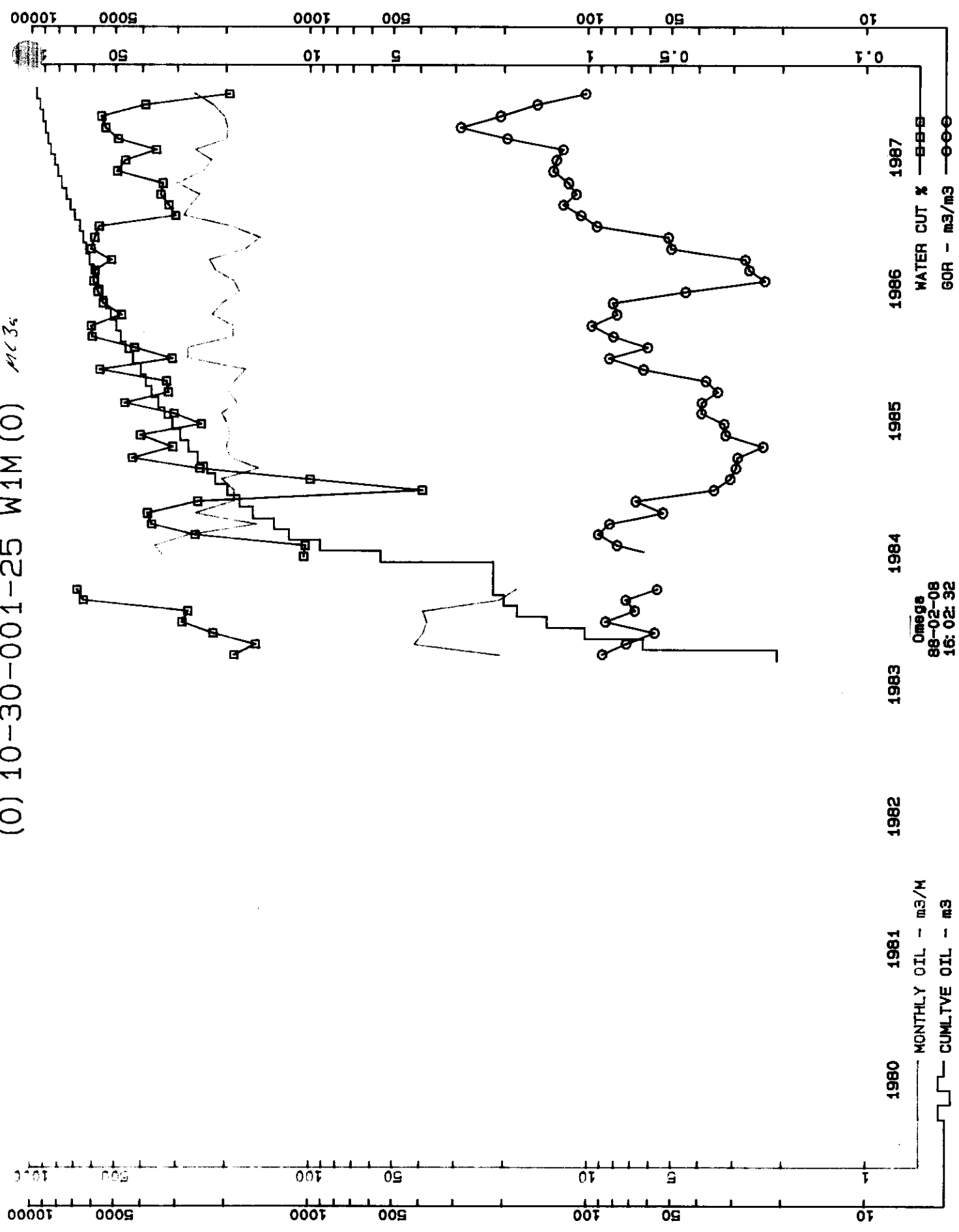


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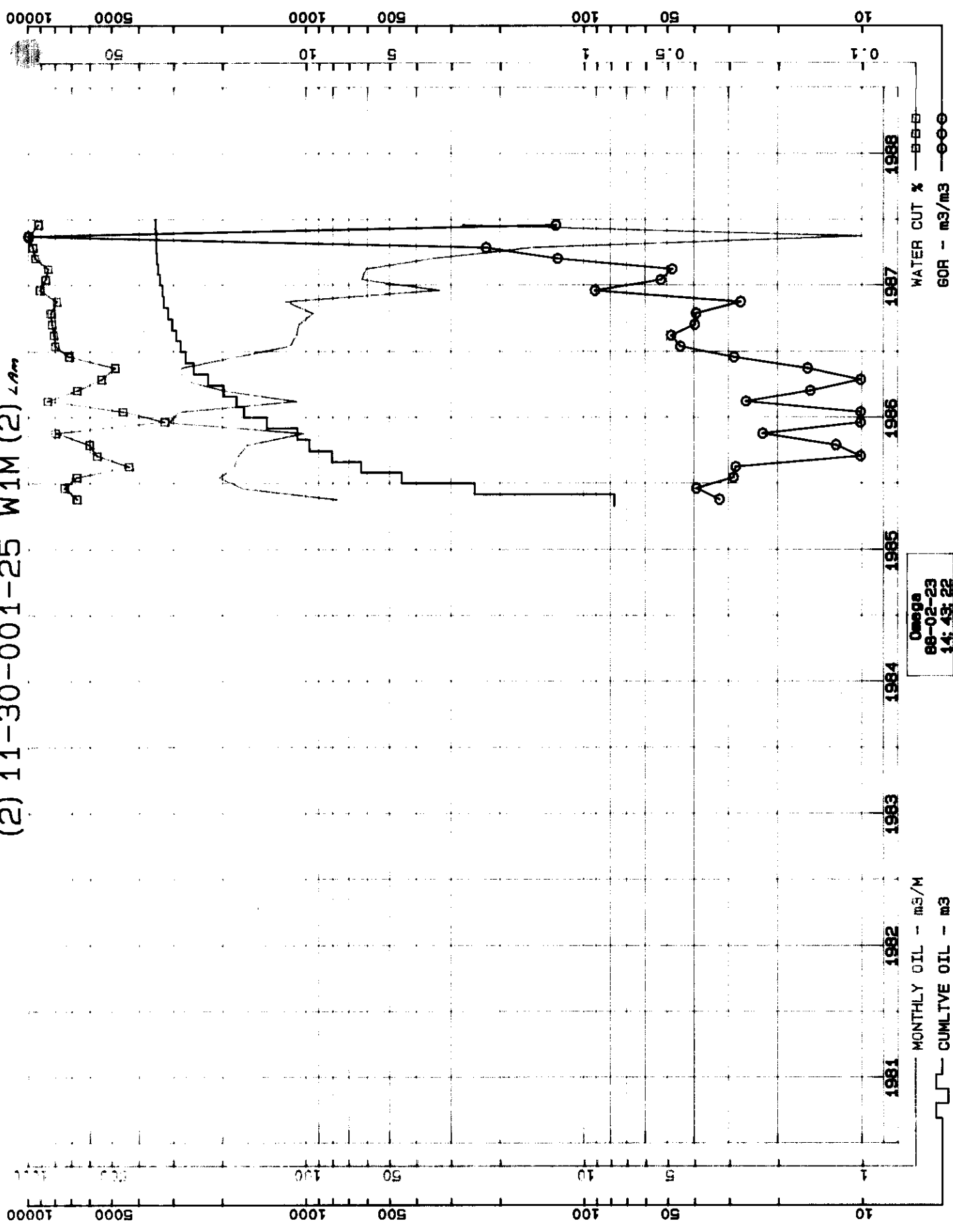




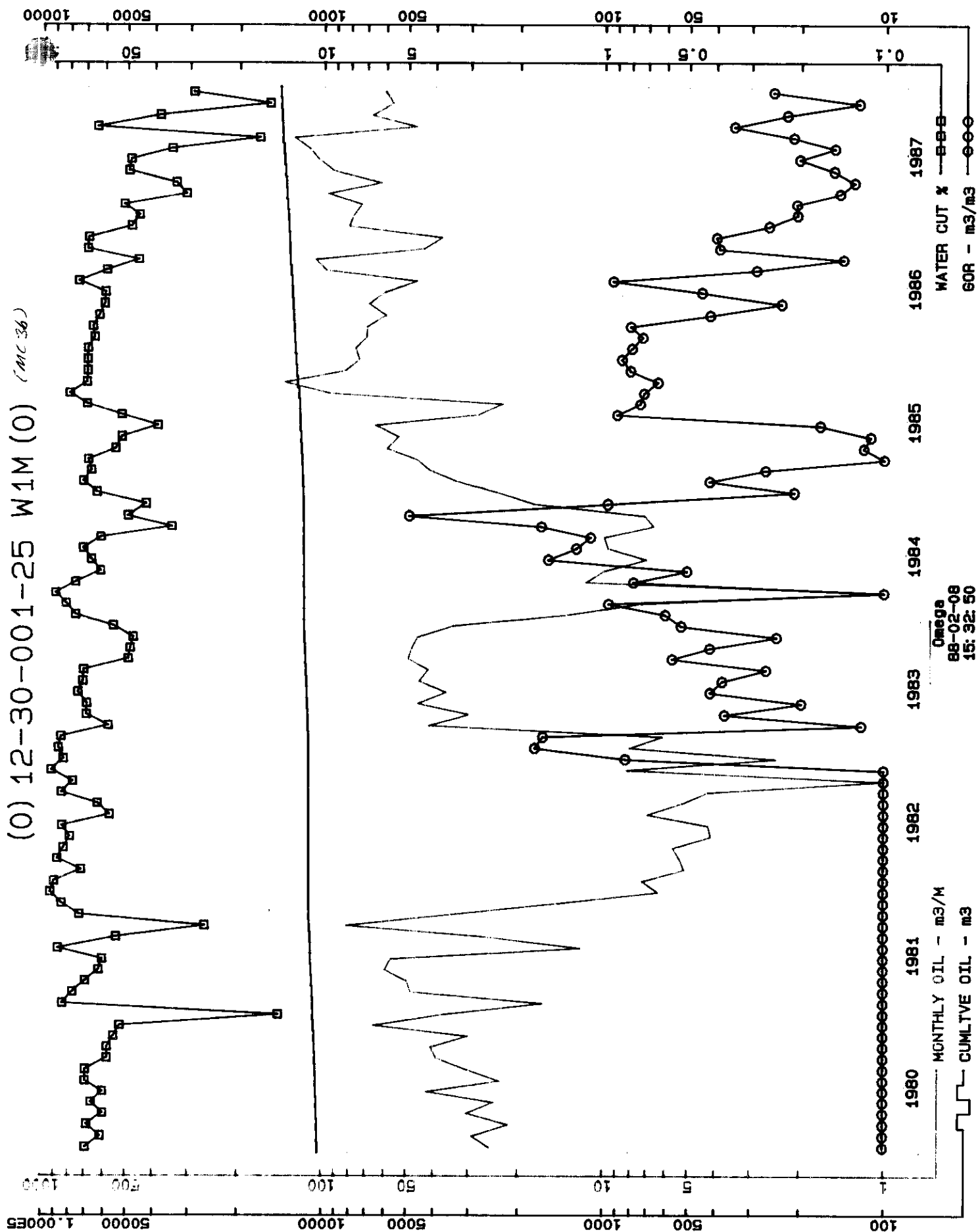
(O) 10-30-001-25 W1M (O) *μC3s*



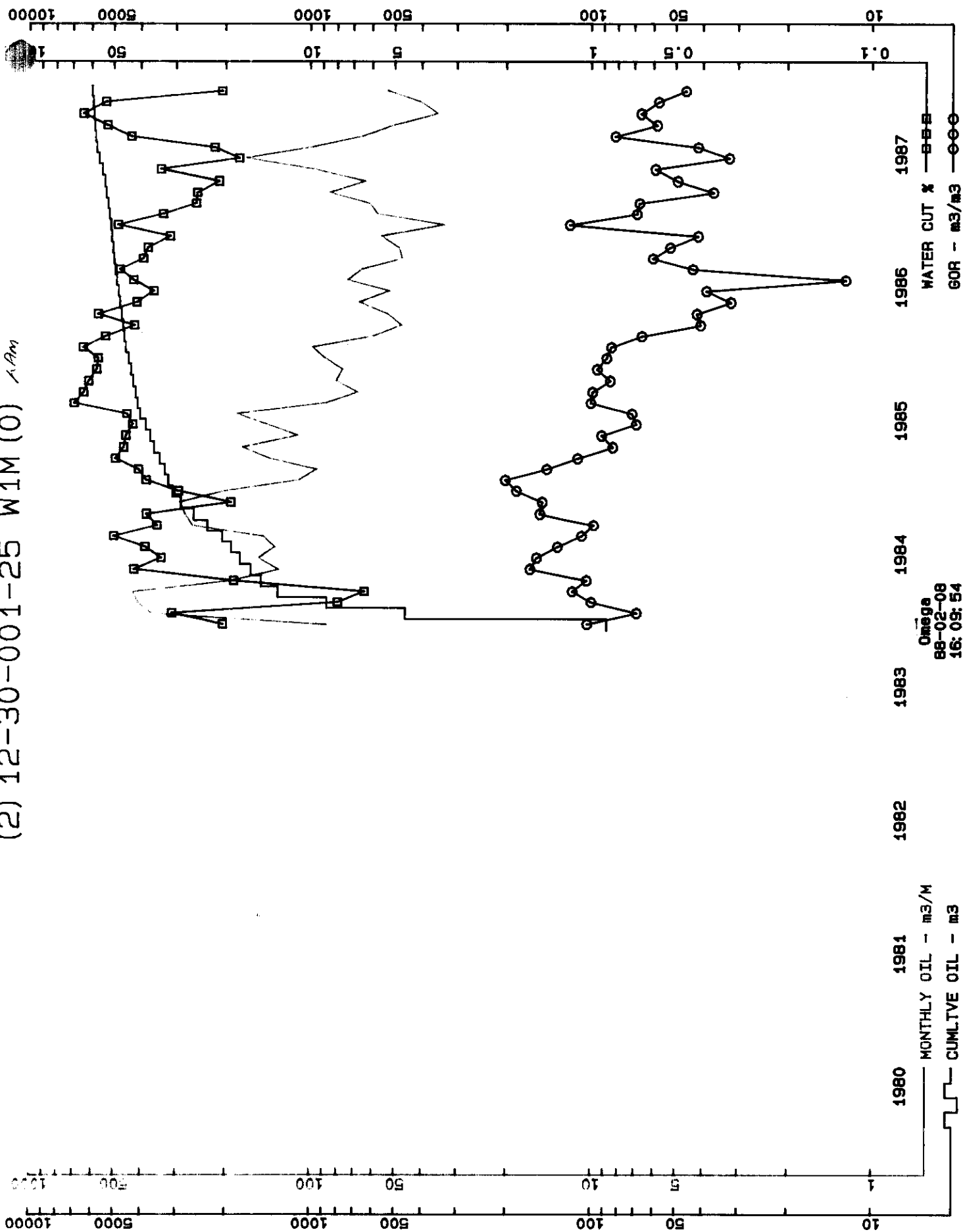
(2) 11-30-001-25 W1M (2) $\angle Am$



(0) 12-30-001-25 W1M (0) (MC 36)



(2) 12-30-001-25 W1M (0) *Am*



*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL (002-30-001-25 MIN(0))

Omega
88-02-08
16:13:34

FIELD 1
POOL 1
BLOCK 3
ACCTG 3

PROVINCE MAN.
WORKING INTEREST 100.0000Z
ON PROD 1982-10-11
ON INJN NOT ON YET

LAND#1 0
LAND#2 0
LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	GOR	I. WATER	I. GAS	CUM. DIL.	CUM. NAT.	CUM. GAS	C.I. NAT.	C.I. GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1982-10	420	99.3	73.0	0.0	5.7	4.2	9.8	42.4	0.74	0	0.0	0.0	99.3	73.0	0.0	0.0	0.0
1982-11	620	117.8	90.2	0.0	4.6	3.5	8.1	43.4	0.77	0	0.0	0.0	217.1	163.2	0.0	0.0	0.0
1982-12	744	123.1	120.4	8.7	4.0	3.9	7.9	49.4	0.98	71	0.0	0.0	340.2	283.6	8.7	0.0	0.0
1983-01	718	21.6	47.4	2.1	0.7	1.6	2.3	68.7	2.19	97	0.0	0.0	561.8	331.0	10.8	0.0	0.0
1983-02	628	46.3	14.5	1.4	1.8	0.6	2.3	23.8	0.31	30	0.0	0.0	408.1	345.5	12.2	0.0	0.0
1983-03	548	41.9	16.0	1.3	1.8	0.7	2.5	27.6	0.38	31	0.0	0.0	450.0	361.5	13.5	0.0	0.0
1983-04	720	46.3	18.3	1.6	1.5	0.6	2.2	28.3	0.40	35	0.0	0.0	496.3	379.8	15.1	0.0	0.0
1983-05	744	28.8	28.1	0.9	0.9	0.9	1.8	49.4	0.98	31	0.0	0.0	525.1	407.9	16.0	0.0	0.0
1983-06	720	32.6	48.5	1.5	1.1	1.1	2.7	59.8	1.49	46	0.0	0.0	557.7	456.4	17.5	0.0	0.0
1983-07	744	24.6	27.9	1.3	0.8	0.9	1.7	53.1	1.13	53	0.0	0.0	582.3	484.3	18.8	0.0	0.0
1983-08	738	33.3	15.7	0.5	1.1	0.5	1.6	32.0	0.47	15	0.0	0.0	615.6	500.0	19.3	0.0	0.0
1983-09	706	36.2	12.5	1.8	1.2	0.4	1.7	25.7	0.35	50	0.0	0.0	651.8	512.5	21.1	0.0	0.0
1983-10	726	33.4	11.8	1.5	1.1	0.4	1.5	26.1	0.35	45	0.0	0.0	685.2	524.3	22.6	0.0	0.0
1983-11	720	29.8	14.7	1.3	1.0	0.5	1.5	33.0	0.49	44	0.0	0.0	715.0	539.0	23.9	0.0	0.0
1983-12	744	32.8	12.7	0.9	1.1	0.4	1.5	27.9	0.39	27	0.0	0.0	747.8	551.7	24.8	0.0	0.0
1984-01	744	19.3	41.4	0.8	0.6	1.3	2.0	68.2	2.15	41	0.0	0.0	767.1	593.1	25.6	0.0	0.0
1984-02	696	13.6	37.3	1.3	0.5	1.3	1.8	73.3	2.74	96	0.0	0.0	780.7	630.4	26.9	0.0	0.0
1984-03	744	16.6	46.9	1.0	0.5	1.5	2.0	73.9	2.83	60	0.0	0.0	797.3	677.3	27.9	0.0	0.0
1984-04	720	9.0	48.8	3.1	0.3	1.6	1.9	84.4	5.42	344	0.0	0.0	806.3	726.1	31.0	0.0	0.0
1984-05	742	5.4	45.1	0.8	0.2	1.5	1.6	89.3	8.35	149	0.0	0.0	811.7	771.2	31.8	0.0	0.0
1984-06	713	1.9	48.9	0.0	0.1	1.6	1.7	96.3	25.74	0	0.0	0.0	813.6	820.1	31.8	0.0	0.0
1984-07	738	1.0	34.2	0.9	0.0	1.1	1.1	97.2	34.20	900	0.0	0.0	814.6	854.3	32.7	0.0	0.0
1984-08	768	4.3	62.3	0.6	0.1	1.9	2.1	93.5	14.49	140	0.0	0.0	818.9	916.5	33.3	0.0	0.0
1984-09	716	3.2	30.7	0.9	0.1	1.0	1.1	90.6	9.59	281	0.0	0.0	822.1	947.3	34.2	0.0	0.0
1984-10	745	4.0	9.3	0.7	0.1	0.3	0.4	69.9	2.33	175	0.0	0.0	826.1	956.6	34.9	0.0	0.0
1984-11	716	6.0	11.3	0.6	0.2	0.4	0.6	65.3	1.88	100	0.0	0.0	832.1	967.9	35.5	0.0	0.0
1984-12	744	0.9	29.6	1.7	0.0	1.0	1.0	97.0	32.89	1889	0.0	0.0	833.0	997.5	37.2	0.0	0.0
1985-01	740	5.0	36.1	0.6	0.2	1.2	1.3	87.8	7.22	120	0.0	0.0	838.0	1033.6	37.8	0.0	0.0
1985-02	672	7.2	26.0	1.1	0.3	0.9	1.2	78.3	3.61	153	0.0	0.0	845.2	1059.6	38.9	0.0	0.0
1985-03	740	8.3	12.8	0.8	0.3	0.4	0.7	60.7	1.54	96	0.0	0.0	853.5	1072.4	39.7	0.0	0.0
1985-04	719	25.1	37.6	2.1	0.8	1.3	2.1	60.0	1.50	84	0.0	0.0	878.6	1110.0	41.8	0.0	0.0
1985-05	740	40.9	57.2	3.5	1.3	1.9	3.2	58.3	1.40	86	0.0	0.0	919.5	1167.2	45.3	0.0	0.0
1985-06	720	29.1	13.7	1.3	1.0	0.5	1.4	32.0	0.47	45	0.0	0.0	948.6	1190.9	46.6	0.0	0.0
1985-07	740	19.3	51.9	1.7	0.6	1.7	2.3	72.3	2.61	85	0.0	0.0	968.5	1232.8	48.3	0.0	0.0
1985-08	741	14.2	25.1	1.2	0.5	0.8	1.3	63.9	1.77	85	0.0	0.0	982.7	1257.9	49.5	0.0	0.0
1985-09	550	13.0	43.8	1.1	0.6	1.9	2.5	77.1	3.37	85	0.0	0.0	995.7	1301.7	50.6	0.0	0.0
1985-10	744	5.6	46.6	0.2	0.2	1.5	1.7	89.3	8.32	36	0.0	0.0	1001.3	1348.3	50.8	0.0	0.0
1985-11	720	7.3	41.8	0.7	0.2	1.4	1.6	85.1	5.73	96	0.0	0.0	1008.6	1390.1	51.5	0.0	0.0
1985-12	742	2.0	57.1	0.3	0.1	1.8	1.9	96.6	25.55	150	0.0	0.0	1010.6	1447.2	51.8	0.0	0.0
1986-01	744	7.4	58.8	0.7	0.2	1.9	2.1	88.8	7.95	95	0.0	0.0	1018.0	1506.0	52.5	0.0	0.0
1986-02	672	5.9	38.7	0.7	0.2	1.4	1.6	86.8	6.56	119	0.0	0.0	1023.9	1544.7	53.2	0.0	0.0
1986-03	744	5.6	37.8	0.7	0.2	1.2	1.4	87.1	6.75	125	0.0	0.0	1029.5	1582.5	53.9	0.0	0.0
1986-04	719	0.5	8.6	1.5	0.3	0.3	0.3	94.5	17.20	3000	0.0	0.0	1030.0	1591.1	55.4	0.0	0.0

*** S T O R E ***
 OMEGA PRODUCTION DATA BASE
 WELL (0)02-30-001-25 WIN(0)

Uuega
 98-02-08
 16:13:34

FIELD 1
 POOL 1
 BLOCK 3
 ACCTG 3

PROVINCE MAN.
 WORKING INTEREST 100.00000Z
 ON PRDN 1982-10-11
 ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	GOR	I.WATER	I.GAS	CUM.OIL	CUM.WATE	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1986-05	744	1.2	11.6	1.3	0.0	0.4	0.4	90.6	9.67	1083	0.0	0.0	1031.2	1602.7	56.7	0.0	0.0
1986-06	720	0.3	3.7	0.2	0.0	0.1	0.1	92.5	12.33	667	0.0	0.0	1031.5	1606.4	56.9	0.0	0.0
1986-07	744	1.9	19.3	0.0	0.1	0.6	0.7	91.0	10.16	0	0.0	0.0	1033.4	1625.7	56.9	0.0	0.0
1986-08	744	11.6	6.0	2.3	0.4	0.2	0.6	34.1	0.52	198	0.0	0.0	1045.0	1631.7	59.2	0.0	0.0
1986-09	663	4.7	30.5	1.7	0.2	1.1	1.3	86.6	5.49	362	0.0	0.0	1049.7	1662.2	60.9	0.0	0.0
1986-10	745	0.1	15.2	1.7	0.0	0.5	0.5	99.3	152.0	17000	0.0	0.0	1049.8	1677.4	62.6	0.0	0.0
1986-11	720	5.8	28.4	1.0	0.2	0.9	1.1	83.0	4.90	172	0.0	0.0	1055.6	1705.8	63.6	0.0	0.0
1986-12	744	6.6	33.9	0.7	0.2	1.1	1.3	83.7	5.14	106	0.0	0.0	1062.2	1739.7	64.3	0.0	0.0
1987-01	640	11.9	34.0	0.6	0.4	1.3	1.7	74.1	2.86	50	0.0	0.0	1074.1	1773.7	64.9	0.0	0.0
1987-02	671	8.1	29.0	0.7	0.3	1.0	1.3	77.6	3.46	96	0.0	0.0	1082.2	1801.7	65.6	0.0	0.0
1987-03	744	6.7	24.8	0.5	0.2	0.8	1.0	78.7	3.70	75	0.0	0.0	1088.9	1826.5	66.1	0.0	0.0
1987-04	719	6.7	42.2	0.6	0.2	1.4	1.6	86.3	6.30	90	0.0	0.0	1095.6	1868.7	66.7	0.0	0.0
1987-05	744	14.9	25.0	0.7	0.5	0.8	1.3	62.7	1.68	47	0.0	0.0	1110.5	1893.7	67.4	0.0	0.0
1987-06	720	14.7	19.1	0.7	0.5	0.6	1.1	56.5	1.30	48	0.0	0.0	1125.2	1912.8	68.1	0.0	0.0
1987-07	744	11.5	45.5	1.0	0.4	1.5	1.8	79.8	3.96	87	0.0	0.0	1136.7	1958.3	69.1	0.0	0.0
1987-08	744	12.5	1.7	1.1	0.4	0.1	0.5	12.0	0.14	88	0.0	0.0	1149.2	1960.0	70.2	0.0	0.0
1987-09	720	7.8	33.2	0.4	0.3	1.1	1.4	81.0	4.26	51	0.0	0.0	1157.0	1993.2	70.6	0.0	0.0
1987-10	744	3.7	59.7	1.6	0.1	1.9	2.0	94.2	16.14	432	0.0	0.0	1160.7	2052.9	72.2	0.0	0.0
1987-11	720	14.9	23.3	1.1	0.5	0.8	1.3	61.0	1.56	74	0.0	0.0	1175.6	2076.2	73.3	0.0	0.0
1987-12	336	0.8	19.9	0.4	0.1	1.4	1.5	96.1	24.88	500	0.0	0.0	1176.4	2096.1	73.7	0.0	0.0

*** STORE ***
 OMEGA PRODUCTION DATA BASE
 WELL (0103-30-001-25 W1M10)

Daega
 88-02-08
 15:37:36

FIELD 1
 POOL 2
 BLOCK 0
 ACCTG 4141

PROVINCE MAN.

WORKING INTEREST 100.0000%
 ON FROM 1967-12-??
 ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	DIL	WATER	FLUID	WATER	GOR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/M	m3/M	m3/M	m3/d	m3/d	m3/d	CUT %	m3/m3	m3/M	m3/M	m3	m3	m3	m3	m3
1980-01	744	17.51	82.2	0.0	0.61	2.7	3.2	82.4	4.70	0	0.0	10711.8	3711.4	0.0	0.0	0.0
1980-02	696	20.2	66.1	0.0	0.71	2.3	3.0	76.6	3.27	0	0.0	10732.0	3777.5	0.0	0.0	0.0
1980-03	744	15.0	67.8	0.0	0.51	2.2	2.7	81.3	4.52	0	0.0	10747.0	3845.3	0.0	0.0	0.0
1980-04	720	21.1	65.8	0.0	0.71	2.2	2.9	75.7	3.12	0	0.0	10768.1	3911.1	0.0	0.0	0.0
1980-05	744	15.2	68.7	0.0	0.51	2.2	2.7	81.3	4.52	0	0.0	10783.3	3979.8	0.0	0.0	0.0
1980-06	720	19.2	90.2	0.0	0.61	3.0	3.6	82.4	4.70	0	0.0	10802.5	4070.0	0.0	0.0	0.0
1980-07	744	10.5	75.3	0.0	0.31	2.4	2.8	87.8	7.17	0	0.0	10813.0	4145.3	0.0	0.0	0.0
1980-08	744	13.8	98.6	0.0	0.41	3.2	3.6	87.7	7.14	0	0.0	10826.8	4243.9	0.0	0.0	0.0
1980-09	720	17.8	127.2	0.0	0.61	4.2	4.8	87.7	7.15	0	0.0	10844.6	4371.1	0.0	0.0	0.0
1980-10	744	18.7	133.4	0.0	0.61	4.3	4.9	87.7	7.13	0	0.0	10863.3	4504.5	0.0	0.0	0.0
1980-11	720	28.0	172.0	0.0	0.91	7.2	8.3	72.0	2.57	0	0.0	10891.3	4576.5	0.0	0.0	0.0
1980-12	744	60.9	139.9	0.0	2.0	4.5	6.5	63.7	2.20	0	0.0	10952.2	4716.4	0.0	0.0	0.0
1981-01	432	47.3	27.0	0.0	2.61	1.5	4.1	36.3	0.57	0	0.0	10999.5	4743.4	0.0	0.0	0.0
1981-02	672	29.0	117.0	0.0	1.0	4.2	5.2	80.1	4.03	0	0.0	11028.5	4860.4	0.0	0.0	0.0
1981-03	744	52.0	218.8	0.0	2.0	8.7	10.7	81.6	4.42	0	0.0	11080.5	5079.2	0.0	0.0	0.0
1981-04	720	59.2	261.8	0.0	2.0	8.7	10.7	81.6	4.42	0	0.0	11139.7	5341.0	0.0	0.0	0.0
1981-05	696	75.1	224.8	0.0	2.61	7.8	10.3	75.0	2.99	0	0.0	11214.8	5565.8	0.0	0.0	0.0
1981-06	672	71.2	192.8	0.0	2.51	6.9	9.4	73.0	2.71	0	0.0	11286.0	5758.6	0.0	0.0	0.0
1981-07	720	47.0	216.0	0.0	1.61	7.2	8.8	82.1	4.60	0	0.0	11333.0	5974.5	0.0	0.0	0.0
1981-08	720	95.0	43.2	0.0	3.21	1.4	4.6	31.3	0.45	0	0.0	11428.0	6017.8	0.0	0.0	0.0
1981-09	624	51.2	161.4	0.0	2.0	6.2	8.2	75.3	3.15	0	0.0	11479.2	6179.2	0.0	0.0	0.0
1981-10	648	20.6	288.6	0.0	0.81	10.7	11.5	93.3	14.01	0	0.0	11499.8	6467.8	0.0	0.0	0.0
1981-11	720	33.6	295.0	0.0	1.1	9.8	11.0	89.8	8.78	0	0.0	11533.4	6762.8	0.0	0.0	0.0
1981-12	696	64.0	207.8	0.0	2.2	7.2	9.4	75.5	3.23	0	0.0	11597.4	6970.6	0.0	0.0	0.0
1982-01	696	70.9	215.9	0.0	2.4	7.4	9.9	75.3	3.05	0	0.0	11668.3	7186.5	0.0	0.0	0.0
1982-02	600	47.2	142.9	0.0	1.9	5.7	7.6	75.2	3.03	0	0.0	11715.5	7329.4	0.0	0.0	0.0
1982-03	336	18.1	250.8	0.0	1.3	17.9	19.2	93.3	13.86	0	0.0	11733.6	7580.2	0.0	0.0	0.0
1982-04	720	42.3	396.8	0.0	1.4	13.2	14.6	90.4	9.38	0	0.0	11775.9	7977.0	0.0	0.0	0.0
1982-05	384	19.3	136.0	0.0	1.2	8.5	9.7	87.6	7.05	0	0.0	11795.2	8113.0	0.0	0.0	0.0
1982-06	480	17.6	212.6	0.0	0.91	10.6	11.5	92.4	12.08	0	0.0	11812.8	8325.6	0.0	0.0	0.0
1982-07	744	23.9	113.8	0.0	0.81	3.7	4.4	82.6	4.76	0	0.0	11836.7	8439.4	0.0	0.0	0.0
1982-08	480	12.9	67.7	0.0	0.61	3.4	4.0	84.0	5.25	0	0.0	11849.6	8507.1	0.0	0.0	0.0
1982-09	696	16.1	343.6	0.0	0.61	11.8	12.4	95.3	21.34	0	0.0	11865.7	8850.7	0.0	0.0	0.0
1982-10	344	9.9	137.6	0.0	0.71	9.6	10.3	93.3	13.90	0	0.0	11875.5	8988.3	0.0	0.0	0.0
1982-11	138	5.9	107.8	0.0	1.0	18.7	19.8	94.8	18.27	0	0.0	11881.5	9096.1	0.0	0.0	0.0
1982-12	232	6.2	97.6	0.4	0.61	10.1	10.7	94.0	15.74	65	0.0	11887.7	9193.7	0.4	0.0	0.0
SHUT IN																
1983-01	254	24.3	108.1	0.1	2.3	10.2	12.5	81.6	4.45	4	0.0	11912.0	9301.8	0.5	0.0	0.0
1983-02	131	4.0	40.2	0.6	0.71	7.4	8.1	91.0	10.05	150	0.0	11916.0	9342.0	1.1	0.0	0.0
1983-03	620	17.8	198.0	0.7	0.71	7.7	8.4	91.8	11.12	39	0.0	11933.8	9540.0	1.8	0.0	0.0
1983-04	744	51.6	308.2	0.9	1.71	9.9	11.6	85.7	5.97	17	0.0	11983.4	9848.2	2.7	0.0	0.0
1983-05	528	11.1	27.0	0.9	0.51	1.2	1.7	70.9	2.43	81	0.0	11996.5	9875.2	3.6	0.0	0.0
1983-06	744	22.4	10.9	1.5	0.71	0.4	1.1	32.7	0.49	67	0.0	12018.9	9886.1	5.1	0.0	0.0

*** STORE ***
 OREGA PRODUCTION DATA BASE
 WELL (0103-30-001-25 WIRIO)

Ureaga
 88-02-08
 13:37:35

FIELD 1
 POOL 2
 BLOCK 0
 ACCTS 4141

PROVINCE MAN.

WORKING INTEREST 100.000002

ON PRDN 1987-12-??

ON INJN NOT ON VET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	SR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	CUT %	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1983-08	330	79.4	127.9	6.6	5.8	9.3	15.1	61.7	1.61	83	0.0	0.0	12098.3	10014.0	11.7	0.0	0.0
1983-09	706	52.1	96.4	2.5	1.8	3.3	5.0	64.9	1.85	48	0.0	0.0	12150.4	10110.4	14.2	0.0	0.0
1983-10	742	40.3	11.4	1.9	1.3	0.4	1.7	22.1	0.28	47	0.0	0.0	12196.7	10121.8	16.1	0.0	0.0
1983-11	720	16.9	20.3	1.1	0.6	0.7	1.2	54.6	1.26	55	0.0	0.0	12207.6	10142.1	17.2	0.0	0.0
1983-12	744	10.1	3.8	1.2	0.3	0.1	0.4	27.3	0.38	119	0.0	0.0	12217.7	10145.9	18.4	0.0	0.0
1984-01	240	0.9	0.6	0.4	0.1	0.1	0.2	40.0	0.67	444	0.0	0.0	12218.6	10146.5	18.8	0.0	0.0
1984-02	533	0.5	1.6	0.7	0.0	0.1	0.1	76.2	3.20	1400	0.0	0.0	12219.1	10148.1	19.5	0.0	0.0
1984-03	744	72.8	201.7	7.4	2.3	6.5	8.9	73.5	2.77	192	0.0	0.0	12291.9	10349.8	26.9	0.0	0.0
1984-04	720	61.6	171.2	2.5	2.1	5.7	7.8	73.5	2.78	41	0.0	0.0	12353.5	10521.0	29.4	0.0	0.0
1984-05	744	44.2	182.4	1.4	1.4	5.9	7.3	80.5	4.13	32	0.0	0.0	12397.7	10703.4	30.8	0.0	0.0
1984-06	713	65.5	103.5	3.4	2.2	3.5	5.7	61.2	1.58	52	0.0	0.0	12463.2	10806.9	34.2	0.0	0.0
1984-07	742	63.5	107.3	1.6	2.1	3.5	5.3	62.8	1.69	25	0.0	0.0	12526.7	10914.2	35.8	0.0	0.0
1984-08	758	94.7	71.6	1.5	3.0	2.2	5.2	43.1	0.76	16	0.0	0.0	12621.4	10985.8	37.3	0.0	0.0
1984-09	720	67.8	81.0	1.7	2.3	2.7	5.0	54.4	1.19	25	0.0	0.0	12689.2	11046.8	39.0	0.0	0.0
1984-10	745	83.1	123.1	2.2	2.7	4.0	6.6	59.7	1.48	26	0.0	0.0	12772.3	11189.9	41.2	0.0	0.0
1984-11	720	85.9	109.9	1.2	2.9	3.7	6.5	56.1	1.28	14	0.0	0.0	12858.2	11299.8	42.4	0.0	0.0
1984-12	744	105.8	201.3	1.4	3.4	6.5	9.3	65.5	1.90	13	0.0	0.0	12964.0	11501.1	43.8	0.0	0.0
1985-01	744	115.3	335.5	1.8	3.7	10.8	14.5	74.4	2.91	16	0.0	0.0	13079.3	11836.6	45.6	0.0	0.0
1985-02	361	37.5	95.8	0.9	2.5	6.4	8.9	71.9	2.55	24	0.0	0.0	13115.8	11932.4	46.5	0.0	0.0
1985-03	720	139.7	394.1	2.4	4.7	13.1	17.8	73.8	2.82	17	0.0	0.0	13256.5	12326.5	48.9	0.0	0.0
1985-04	719	99.6	434.8	1.7	3.3	14.5	17.8	81.4	4.37	17	0.0	0.0	13356.1	12761.3	50.6	0.0	0.0
1985-05	740	185.6	293.5	1.8	6.0	9.5	15.3	61.3	1.58	10	0.0	0.0	13541.7	13054.8	52.4	0.0	0.0
1985-06	720	122.4	427.4	1.9	4.1	14.2	18.3	77.7	3.49	16	0.0	0.0	13664.1	13482.2	54.3	0.0	0.0
1985-07	744	102.2	408.4	2.1	3.3	13.2	16.5	80.0	4.00	21	0.0	0.0	13766.3	13890.6	56.4	0.0	0.0
1985-08	741	109.0	491.9	1.8	3.5	15.9	19.5	81.9	4.51	17	0.0	0.0	13875.3	14382.5	58.2	0.0	0.0
1985-09	687	73.5	461.7	3.5	2.6	16.1	18.7	86.3	6.28	48	0.0	0.0	13948.8	14844.2	61.7	0.0	0.0
1985-10	691	119.7	498.4	1.9	4.2	17.3	21.5	80.6	4.16	16	0.0	0.0	14068.5	15342.6	63.6	0.0	0.0
1985-11	720	87.7	571.5	2.8	2.9	19.1	22.0	86.7	6.52	32	0.0	0.0	14156.2	15914.1	66.4	0.0	0.0
1985-12	742	112.1	478.3	9.4	3.6	15.5	19.1	81.0	4.27	84	0.0	0.0	14268.3	16392.4	75.8	0.0	0.0
1986-01	744	80.7	585.9	6.9	2.6	18.9	21.5	87.9	7.26	86	0.0	0.0	14349.0	16978.3	82.7	0.0	0.0
1986-02	672	57.6	389.5	1.4	2.1	13.9	16.0	87.1	6.76	24	0.0	0.0	14406.6	17367.8	84.1	0.0	0.0
1986-03	247	13.3	96.4	0.5	1.3	9.4	10.7	87.9	7.25	38	0.0	0.0	14419.9	17464.2	84.6	0.0	0.0
SHUT IN																	
1986-06	380	62.9	210.8	5.7	4.0	13.3	17.3	77.0	3.35	91	0.0	0.0	14482.8	17875.0	90.3	0.0	0.0
1986-07	744	185.5	356.9	5.5	6.0	11.5	17.5	65.8	1.92	30	0.0	0.0	14668.3	18031.9	95.8	0.0	0.0
1986-08	744	250.8	267.0	0.7	8.1	8.6	16.7	51.6	1.06	3	0.0	0.0	14919.1	18298.9	96.5	0.0	0.0
1986-09	720	165.0	285.0	3.7	5.5	9.5	15.0	63.3	1.73	22	0.0	0.0	15084.1	18583.9	100.2	0.0	0.0
1986-10	745	61.7	351.1	7.4	2.0	11.3	13.3	85.1	5.69	120	0.0	0.0	15145.8	18935.0	107.6	0.0	0.0
1986-11	504	37.7	158.0	23.9	1.8	7.5	9.3	80.7	4.19	634	0.0	0.0	15183.5	19033.0	131.5	0.0	0.0
1986-12	592	66.6	221.8	39.1	2.3	7.7	10.0	76.9	3.33	587	0.0	0.0	15250.1	19314.8	170.6	0.0	0.0
1987-01	636	68.4	132.5	30.6	2.6	5.0	7.6	66.0	1.94	447	0.0	0.0	15318.5	19447.3	201.2	0.0	0.0
1987-02	571	110.8	59.6	37.9	4.0	2.1	6.1	35.0	0.54	342	0.0	0.0	15429.3	19506.9	239.1	0.0	0.0
1987-03	744	132.0	71.1	46.3	4.3	2.3	6.6	35.0	0.54	351	0.0	0.0	15561.3	19578.0	285.4	0.0	0.0

88-02-08

15:37:36

FIELD 1
 POOL 2
 BLOCK 0
 ACCTS 4141

PROVINCE MAN.
 WORKING INTEREST 100.000000
 ON PRDN 1967-12-22
 ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	FLUID	WATER	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WATER	CUM. GAS	C.I. WATER	C.I. GAS
		m3/d	m3/d	m3/d	CUT %	m3/m3	m3/m	kg3/m	m3	m3	kg3	m3	kg3
1987-04	719	121.1	85.8	2.9	6.9	41.5	0.71	436	0.0	15682.4	19653.8	338.2	0.0
1987-05	744	132.0	62.1	4.3	6.3	32.0	0.47	428	0.0	15814.4	19725.9	394.7	0.0
1987-06	720	132.9	50.6	4.4	6.1	27.6	0.38	439	0.0	15947.3	19776.5	453.0	0.0
1987-07	744	102.9	77.1	3.3	5.8	42.8	0.75	511	0.0	16050.2	19833.6	515.9	0.0
1987-08	744	83.3	45.9	1.5	4.2	35.5	0.55	874	0.0	16133.5	19899.5	588.7	0.0
1987-09	720	57.0	31.4	1.9	2.9	35.5	0.55	1196	0.0	16190.5	19930.9	656.9	0.0
1987-10	672	13.1	22.7	0.5	1.3	63.4	1.73	2496	0.0	16203.6	19953.6	689.6	0.0
1987-11	570	87.6	36.1	3.7	5.2	29.2	0.41	473	0.0	16291.2	19989.7	731.0	0.0
1987-12	741	108.1	16.5	3.5	4.0	13.2	0.15	340	0.0	16399.3	20006.2	767.8	0.0

*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL (0)04-30-001-25 WIM(0)

Omega
98-02-98
15:37:36

FIELD 1
POOL 2
BLOCK 0
ACCTG 3

PROVINCE MAN.

WORKING INTEREST 100.000002

ON PROD 1967-12-77

ON INJN NOT ON YET

LAND#1 0
LAND#2 0
LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	FLUID	WATER	WOR	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WATER	CUM. GAS	C.I. WATER	C.I. GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1980-01	744	88.5	189.3	0.0	2.9	6.1	9.0	68.1	2.14	0.0	0.0	15020.5	4013.1	0.0	0.0
1980-02	595	102.3	152.3	0.0	3.5	5.3	8.8	59.8	1.49	0.0	0.0	15132.9	4155.4	0.0	0.0
1980-03	744	75.9	155.3	0.0	2.4	5.0	7.5	67.3	2.06	0.0	0.0	15208.8	4321.7	0.0	0.0
1980-04	720	106.9	151.8	0.0	3.6	5.1	8.6	58.7	1.42	0.0	0.0	15315.7	4473.5	0.0	0.0
1980-05	744	76.9	158.5	0.0	2.5	5.1	7.5	67.3	2.06	0.0	0.0	15392.6	4632.0	0.0	0.0
1980-06	720	97.2	207.8	0.0	3.2	6.9	10.2	68.1	2.14	0.0	0.0	15489.8	4839.8	0.0	0.0
1980-07	744	53.0	173.3	0.0	1.7	5.6	7.3	76.6	3.27	0.0	0.0	15542.8	5013.1	0.0	0.0
1980-08	744	69.4	227.0	0.0	2.2	7.3	9.6	76.6	3.27	0.0	0.0	15612.2	5240.1	0.0	0.0
1980-09	720	89.6	292.9	0.0	3.0	9.8	12.8	76.6	3.27	0.0	0.0	15701.8	5533.0	0.0	0.0
1980-10	744	93.9	307.1	0.0	3.0	9.9	12.9	76.6	3.27	0.0	0.0	15795.7	5840.1	0.0	0.0
1980-11	720	40.0	126.0	0.0	1.3	4.2	5.5	75.9	3.15	0.0	0.0	15835.7	5986.1	0.0	0.0
1980-12	744	87.1	244.8	0.0	2.8	7.9	10.7	73.8	2.81	0.0	0.0	15922.8	6210.9	0.0	0.0
1981-01	360	40.3	150.8	0.0	2.7	10.1	12.7	78.9	3.74	0.0	0.0	15963.1	6361.7	0.0	0.0
1981-02	672	25.0	262.6	0.0	0.9	9.4	10.3	91.3	10.50	0.0	0.0	15988.1	6624.3	0.0	0.0
1981-03	672	78.2	426.8	0.0	2.8	15.2	18.0	84.5	5.46	0.0	0.0	16066.3	7051.1	0.0	0.0
1981-04	720	84.8	494.2	0.0	2.8	16.3	19.3	85.4	5.83	0.0	0.0	16151.1	7545.3	0.0	0.0
1981-05	480	13.6	424.4	0.0	0.7	21.2	21.9	96.9	31.21	0.0	0.0	16164.7	7969.7	0.0	0.0
1981-06	528	64.9	232.8	0.0	3.0	10.6	13.5	78.2	3.59	0.0	0.0	16229.6	8202.5	0.0	0.0
1981-07	636	112.4	657.3	0.0	3.9	22.7	26.5	85.4	5.85	0.0	0.0	16342.0	8859.8	0.0	0.0
1981-08	696	166.6	627.0	0.0	5.7	21.6	27.4	79.0	3.76	0.0	0.0	16508.5	9486.3	0.0	0.0
1981-09	672	203.8	964.0	0.0	7.3	34.4	41.7	82.5	4.73	0.0	0.0	16712.4	10450.8	0.0	0.0
1981-10	552	33.9	735.3	0.0	1.5	32.0	33.4	95.6	21.69	0.0	0.0	16746.3	11186.1	0.0	0.0
1981-11	720	70.9	922.0	0.0	2.4	30.7	33.1	92.9	13.00	0.0	0.0	16817.2	12108.1	0.0	0.0
1981-12	288	32.8	222.8	0.0	2.7	18.6	21.3	87.2	6.79	0.0	0.0	16850.0	12330.9	0.0	0.0
1982-01	432	54.5	230.7	0.0	3.0	12.8	15.8	80.9	4.23	0.0	0.0	16904.5	12561.6	0.0	0.0
1982-02	24	2.4	7.3	0.0	2.4	7.3	9.7	75.3	3.04	0.0	0.0	16966.9	12568.9	0.0	0.0
1982-03	336	31.4	432.7	0.0	2.2	31.0	32.2	93.2	13.81	0.0	0.0	16988.3	13002.6	0.0	0.0
1982-04	720	77.4	774.4	0.0	2.6	25.8	28.4	90.9	10.01	0.0	0.0	17015.7	13777.0	0.0	0.0
1982-05	312	29.3	290.9	0.0	2.3	22.4	24.6	90.8	9.93	0.0	0.0	17045.0	14067.9	0.0	0.0
1982-06	720	102.2	661.0	0.0	3.4	22.0	25.4	86.6	6.47	0.0	0.0	17147.2	14728.9	0.0	0.0
1982-07	672	36.5	156.2	0.0	1.3	5.6	6.9	81.1	4.28	0.0	0.0	17183.7	14885.1	0.0	0.0
1982-08	720	34.5	162.4	0.0	1.2	5.4	6.8	82.5	4.71	0.0	0.0	17218.2	15047.5	0.0	0.0
1982-09	720	29.5	525.5	0.0	1.0	17.5	18.5	94.7	17.81	0.0	0.0	17247.7	15572.0	0.0	0.0
1982-10	421	19.3	270.0	0.0	1.1	15.4	16.5	93.3	13.99	0.0	0.0	17267.0	15843.0	0.0	0.0
SHUT IN															
1983-02	187	8.9	128.5	1.0	1.1	16.5	17.6	93.5	14.44	112	0.0	17275.9	15971.5	1.0	0.0
1983-03	496	40.7	295.9	5.6	2.0	14.3	16.3	87.9	7.27	138	0.0	17316.6	16267.4	5.6	0.0
1983-04	542	152.3	531.7	7.7	6.1	19.9	25.9	76.6	3.28	47	0.0	17478.9	16799.1	14.3	0.0
1983-05	672	53.9	837.0	1.2	1.9	29.9	31.8	93.9	15.53	22	0.0	17532.8	17636.1	15.5	0.0
1983-06	631	34.7	1223.8	0.9	1.3	46.5	47.9	97.2	35.27	26	0.0	17567.5	18859.9	16.4	0.0
1983-07	528	26.3	867.6	0.0	1.2	39.4	40.6	97.1	32.99	0	0.0	17593.8	19727.5	16.4	0.0
1983-08	690	28.7	1091.5	0.4	1.0	38.0	39.0	97.4	38.03	14	0.0	17622.5	20819.0	16.8	0.0
1983-09	610	23.0	922.4	0.7	0.9	36.3	37.2	97.6	40.10	30	0.0	17645.5	21741.4	17.5	0.0

*** S T O R E ***

Omega
88-02-08
15:37:36FIELD 1
POOL 2
BLOCK 0
ACCTG 3LAND#1 0
LAND#2 0
LAND#3 0PROVINCE MAN.
WORKING INTEREST 100.000002
ON PRDN 1957-12-22
ON INJN NOT ON YET

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WATER	CUM. GAS	C.I. WATER	C.I. GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
SHUT IN																
1983-11	402	17.5	607.3	0.5	1.0	36.3	37.3	97.2	34.70	29	0.0	0.0	17653.0	22348.7	18.0	0.0
1983-12	720	33.3	1065.5	1.2	1.1	35.5	36.6	97.0	32.00	36	0.0	0.0	17696.3	23414.2	19.2	0.0
1984-01	720	36.4	753.0	2.6	1.2	25.1	26.3	95.4	20.69	99	0.0	0.0	17732.7	24157.2	22.8	0.0
1984-02	632	44.6	635.6	4.3	1.7	24.1	25.8	93.4	14.25	96	0.0	0.0	17777.3	24802.8	27.1	0.0
1984-03	720	87.3	659.6	5.3	2.9	22.0	24.9	88.3	7.56	61	0.0	0.0	17864.6	25462.4	32.4	0.0
1984-04	690	24.9	706.6	2.7	0.9	24.6	25.4	96.6	28.38	108	0.0	0.0	17889.3	26169.0	35.1	0.0
1984-05	507	16.3	546.8	1.5	0.8	25.9	26.7	97.1	33.55	92	0.0	0.0	17906.8	26715.8	36.6	0.0
1984-06	488	15.7	488.6	2.3	0.8	24.0	24.8	96.9	31.12	146	0.0	0.0	17921.5	27204.4	38.9	0.0
1984-07	693	30.6	706.2	1.8	1.1	24.5	25.5	95.8	23.08	59	0.0	0.0	17952.1	27910.6	40.7	0.0
1984-08	730	80.6	729.1	1.2	2.6	24.0	26.6	90.0	9.05	15	0.0	0.0	18032.7	28639.7	41.9	0.0
1984-09	684	45.1	466.0	1.4	1.6	16.4	17.9	91.2	10.33	31	0.0	0.0	18077.8	29105.7	43.3	0.0
1984-10	673	38.2	535.3	1.2	1.4	19.8	21.2	93.6	14.54	31	0.0	0.0	18116.0	29661.0	44.5	0.0
1984-11	696	7.8	385.9	0.8	0.3	13.3	13.6	98.0	49.47	103	0.0	0.0	18123.8	30046.9	45.3	0.0
1984-12	704	9.7	587.1	0.7	0.3	20.0	20.3	98.4	60.53	72	0.0	0.0	18133.5	30634.0	46.0	0.0
1985-01	248	3.3	241.6	0.2	0.3	23.4	23.7	98.7	73.21	51	0.0	0.0	18136.8	30875.6	46.2	0.0
SHUT IN																
1985-06	201	10.2	210.0	1.1	1.2	25.1	26.3	95.4	20.59	108	0.0	0.0	18147.0	31085.6	47.3	0.0
1985-07	696	25.6	759.2	2.3	0.9	26.2	27.1	96.7	29.66	90	0.0	0.0	18172.6	31844.8	49.6	0.0
1985-08	654	6.4	903.3	0.3	0.2	33.1	33.4	99.3	141.1	47	0.0	0.0	18179.0	32748.1	49.9	0.0
SHUT IN																
1985-10	483	217.1	95.2	8.8	10.8	4.7	15.5	30.5	0.44	41	0.0	0.0	18396.1	32843.3	58.7	0.0
1985-11	696	431.2	138.8	33.2	14.9	4.8	19.7	24.4	0.32	77	0.0	0.0	18827.3	32982.1	91.9	0.0
1985-12	742	319.3	363.3	28.1	10.3	11.8	22.1	53.2	1.14	88	0.0	0.0	19146.6	33345.4	120.0	0.0
1986-01	720	152.1	697.7	13.7	5.1	23.3	28.3	82.1	4.59	90	0.0	0.0	19298.7	34043.1	133.7	0.0
1986-02	648	141.8	560.3	11.0	5.3	20.8	26.0	79.8	3.95	78	0.0	0.0	19440.5	34603.4	144.7	0.0
1986-03	672	88.9	654.6	8.6	3.2	23.4	26.6	88.0	7.36	97	0.0	0.0	19529.4	35258.0	153.3	0.0
1986-04	623	61.4	560.3	1.5	2.4	21.6	23.9	90.1	9.13	24	0.0	0.0	19590.8	35818.3	154.8	0.0
1986-05	720	14.2	754.9	1.9	0.5	25.2	25.6	98.2	53.16	134	0.0	0.0	19605.0	36573.2	156.7	0.0
1986-06	552	16.4	536.1	2.0	0.7	23.3	24.0	97.0	32.69	122	0.0	0.0	19621.4	37109.3	158.7	0.0
1986-07	528	32.1	524.6	3.1	1.5	23.8	25.3	94.2	16.34	97	0.0	0.0	19653.5	37633.9	161.8	0.0
1986-08	744	39.7	913.4	3.1	1.3	29.5	30.7	95.8	23.01	78	0.0	0.0	19693.2	38547.3	164.9	0.0
1986-09	720	60.4	604.6	1.8	2.0	22.8	24.8	91.9	11.33	30	0.0	0.0	19753.6	39231.9	166.7	0.0
1986-10	283	23.2	140.9	0.8	2.0	12.0	14.0	85.9	5.07	34	0.0	0.0	19776.8	39372.8	167.5	0.0
1986-11	672	42.5	625.3	6.1	1.5	22.3	23.9	93.6	14.71	144	0.0	0.0	19819.3	39998.1	173.6	0.0
1986-12	698	75.9	625.8	3.7	2.6	21.5	24.1	89.2	8.25	49	0.0	0.0	19895.2	40623.9	177.3	0.0
1987-01	616	11.9	329.1	0.5	0.5	12.8	13.3	96.5	27.66	42	0.0	0.0	19907.1	40953.0	177.8	0.0
1987-02	583	19.6	355.3	5.3	0.8	15.1	15.9	94.9	18.67	281	0.0	0.0	19926.7	41318.9	183.3	0.0
1987-03	524	11.5	716.0	5.4	0.4	27.5	28.0	98.4	62.26	470	0.0	0.0	19938.2	42034.9	188.7	0.0
1987-04	671	26.6	871.4	3.7	1.0	31.2	32.1	97.0	32.76	139	0.0	0.0	19964.8	42906.3	192.4	0.0
1987-05	646	119.2	713.5	3.1	4.4	26.5	30.9	85.7	5.99	26	0.0	0.0	20084.0	43619.8	195.5	0.0
1987-06	624	94.5	648.1	15.3	3.3	24.9	28.2	88.5	7.57	181	0.0	0.0	20168.5	44257.9	210.8	0.0
1987-07	623	18.3	637.8	10.4	0.7	26.6	27.3	97.4	38.13	588	0.0	0.0	20186.8	44965.7	221.2	0.0

*** S T O R E ***
 OMEGA PRODUCTION DATA BASE
 WELL (0104-30-001-25 WIN(O)

Omega
 88-02-08
 15:37:36

FIELD 1
 POOL 2
 BLOCK 0
 ACCTG 3

LAND#1 0
 LAND#2 0
 LAND#3 0

PROVINCE MAN.

WORKING INTEREST 100.000000Z

ON PROD 1967-12-22

ON INJN NOT ON YET

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WDR	SDR	L.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1987-08	568	157.7	339.2	6.8	5.7	12.2	17.9	68.3	2.15	43	0.0	0.0	20344.5	45304.9	228.0	0.0	0.0
1987-09	576	53.8	405.8	3.5	2.2	16.9	19.2	88.3	7.54	65	0.0	0.0	20398.3	45710.7	231.5	0.0	0.0
1987-10	596	120.0	391.0	29.3	4.1	13.5	17.6	76.5	3.26	244	0.0	0.0	20518.3	46101.7	260.8	0.0	0.0
1987-11	720	161.6	334.9	25.0	5.4	11.2	16.6	67.5	2.07	155	0.0	0.0	20679.9	46435.6	285.8	0.0	0.0
1987-12	625	172.2	253.6	11.7	6.6	9.7	15.4	59.5	1.47	68	0.0	0.0	20852.1	46690.2	297.5	0.0	0.0

*** S T O R E ***
CHESA PRODUCTION DATA BASE
WELL (2)04-30-001-25 MIN(0)

Daga
89-02-08
16:13:34

FIELD 1
POOL 1
BLOCK 3
ACCTG 3

PROVINCE MAN.

WORKING INTEREST 100.000007
ON PROD 1982-12-11
ON INJN NOT ON YET

LAND#1 9
LAND#2 0
LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	GOR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	kg3/M	m3/d	m3/d	m3/d	m3/d	kg3/M	m3/d	m3/M	kg3/M	m3	m3	kg3	m3	kg3
1982-12	504	232.1	131.9	16.4	11.1	6.3	17.3	36.2	0.57	71	0.0	0.0	232.1	131.9	16.4	0.0	0.0
1983-01	744	478.1	41.6	2.6	15.4	1.3	16.8	8.0	0.09	53	0.0	0.0	710.2	173.5	19.0	0.0	0.0
1983-02	648	179.8	182.4	4.0	6.7	6.8	13.4	50.4	1.01	22	0.0	0.0	890.0	355.9	23.0	0.0	0.0
1983-03	295	24.5	203.9	3.4	2.0	16.5	18.6	89.3	8.32	139	0.0	0.0	914.5	559.8	26.4	0.0	0.0
1983-04	638	40.8	463.1	2.0	1.5	16.9	18.4	91.3	11.35	49	0.0	0.0	955.3	1022.9	28.4	0.0	0.0
1983-05	714	95.8	802.5	2.3	3.2	27.0	20.2	89.3	8.38	24	0.0	0.0	1051.1	1825.4	30.7	0.0	0.0
1983-06	510	71.8	546.7	1.7	3.4	25.7	29.1	88.4	7.61	24	0.0	0.0	1122.9	2372.1	32.4	0.0	0.0
1983-07	744	69.9	1176.0	2.1	2.3	37.9	40.2	94.4	16.82	30	0.0	0.0	1192.8	3548.1	34.5	0.0	0.0
1983-08	638	104.1	527.1	0.9	3.8	19.2	23.0	83.5	5.06	9	0.0	0.0	1296.9	4075.2	35.4	0.0	0.0
1983-09	706	77.3	566.2	1.6	2.5	19.2	21.9	88.0	7.32	21	0.0	0.0	1374.2	4641.4	37.0	0.0	0.0
SHUT IN																	
1983-11	402	14.6	400.6	1.5	0.9	23.9	24.8	96.5	27.44	103	0.0	0.0	1388.8	5042.0	38.5	0.0	0.0
1983-12	720	26.6	717.2	3.0	0.9	23.9	24.8	96.4	26.96	113	0.0	0.0	1415.4	5739.2	41.5	0.0	0.0
1984-01	712	53.5	604.0	4.3	1.8	20.4	22.2	91.9	11.29	80	0.0	0.0	1468.9	6363.2	45.8	0.0	0.0
1984-02	632	76.3	475.4	2.9	2.9	18.1	21.0	86.2	6.23	38	0.0	0.0	1545.2	6838.6	48.7	0.0	0.0
1984-03	720	83.4	543.1	5.4	2.8	18.1	20.9	86.7	6.51	65	0.0	0.0	1628.6	7381.7	54.1	0.0	0.0
1984-04	680	99.3	507.0	9.0	3.5	17.9	21.4	82.6	5.11	91	0.0	0.0	1727.9	7888.7	63.1	0.0	0.0
1984-05	507	82.4	339.3	6.5	3.9	16.1	20.0	80.5	4.12	79	0.0	0.0	1810.3	8228.0	69.5	0.0	0.0
1984-06	700	77.1	508.6	9.9	2.6	17.4	20.1	86.8	6.60	128	0.0	0.0	1887.4	8736.6	79.5	0.0	0.0
1984-07	665	45.9	540.6	5.8	1.7	19.5	21.2	92.2	11.78	126	0.0	0.0	1933.3	9277.2	85.3	0.0	0.0
1984-08	711	239.0	249.0	13.6	8.1	8.4	16.3	51.0	1.04	57	0.0	0.0	2172.3	9526.2	98.9	0.0	0.0
1984-09	573	165.1	160.0	15.5	6.9	6.7	13.6	49.2	0.97	94	0.0	0.0	2337.4	9686.2	114.4	0.0	0.0
1984-10	640	90.9	378.7	3.9	3.4	14.2	17.6	80.6	4.17	43	0.0	0.0	2428.3	10064.9	118.3	0.0	0.0
1984-11	644	52.0	260.8	0.8	1.9	9.7	11.7	83.4	5.02	15	0.0	0.0	2480.3	10325.7	119.1	0.0	0.0
1984-12	682	67.1	409.1	1.0	2.4	14.4	16.8	85.9	6.10	15	0.0	0.0	2547.4	10734.8	120.1	0.0	0.0
1985-01	679	228.4	257.8	1.6	8.1	9.1	17.2	53.0	1.13	7	0.0	0.0	2775.8	10992.6	121.7	0.0	0.0
1985-02	672	156.3	370.6	1.5	5.6	13.2	18.8	70.3	2.37	10	0.0	0.0	2932.1	11363.2	123.2	0.0	0.0
1985-03	740	79.6	570.2	1.0	2.6	18.5	21.1	87.8	7.16	13	0.0	0.0	3011.7	11933.4	124.2	0.0	0.0
1985-04	719	74.2	500.5	1.1	2.5	16.7	19.2	87.1	6.75	15	0.0	0.0	3085.9	12433.9	125.3	0.0	0.0
1985-05	192	4.1	130.5	0.4	0.5	15.3	16.8	97.0	31.83	98	0.0	0.0	3090.0	12564.4	125.7	0.0	0.0
1985-06	359	44.7	284.0	0.8	3.0	19.0	22.0	86.4	6.35	18	0.0	0.0	3134.7	12848.4	126.5	0.0	0.0
1985-07	697	34.5	635.2	1.1	1.2	21.9	23.1	94.8	19.41	32	0.0	0.0	3169.2	13483.6	127.6	0.0	0.0
1985-08	710	8.7	858.8	0.9	0.3	29.0	29.3	99.0	98.71	103	0.0	0.0	3177.9	14342.4	128.3	0.0	0.0
1985-09	683	15.2	824.5	1.3	0.5	29.0	29.5	98.2	54.24	86	0.0	0.0	3193.1	15156.9	129.8	0.0	0.0
1985-10	527	113.9	440.0	9.0	4.4	16.8	21.2	79.4	3.86	79	0.0	0.0	3307.0	15606.9	138.8	0.0	0.0
1985-11	720	163.4	467.7	16.2	5.4	15.6	21.0	74.1	2.86	99	0.0	0.0	3470.4	16074.6	155.0	0.0	0.0
1985-12	718	180.6	441.3	19.1	6.0	14.8	20.8	71.0	2.44	106	0.0	0.0	3651.0	16515.9	174.1	0.0	0.0
1986-01	720	117.3	660.5	11.5	3.9	22.0	23.3	84.9	5.63	98	0.0	0.0	3768.3	17176.4	185.6	0.0	0.0
1986-02	648	95.9	562.8	8.6	3.6	20.8	24.4	85.4	5.97	90	0.0	0.0	3864.2	17739.2	194.2	0.0	0.0
1986-03	672	90.8	535.6	9.3	3.2	19.8	23.1	86.0	6.12	102	0.0	0.0	3955.0	18294.8	203.5	0.0	0.0
1986-04	607	187.4	319.4	1.0	7.4	12.6	20.0	63.0	1.70	5	0.0	0.0	4142.4	18614.2	204.5	0.0	0.0
1986-05	672	318.5	169.1	2.3	11.4	6.0	17.4	34.7	0.53	7	0.0	0.0	4460.9	18783.3	206.8	0.0	0.0
1986-06	519	201.3	130.1	4.4	9.3	6.0	15.3	39.3	0.65	22	0.0	0.0	4662.2	18913.4	211.2	0.0	0.0

*** STORE ***
 OMEGA PRODUCTION DATA BASE
 WELL (0109-30-001-25 MIM10)

Omega
 88-02-08
 16:13:34

FIELD 1
 POOL 1
 BLOCK 3
 ACCTG 3

PROVINCE MAN.
 WORKING INTEREST 100.00000%
 ON PRIN 1982-03-04
 ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOB	SOR	I. WATER	I. GAS	CUM. OIL	CUM. WATER	CUM. GAS	C.I. WATER	C.I. GAS
		m3/d	m3/d	m3/M	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/M	m3/M	m3	m3	kg3	m3	kg3
1982-03	384	71.1	6.3	0.0	4.4	0.4	4.8	8.1	0.09	0	0.0	0.0	71.1	6.3	0.0	0.0	0.0
1982-04	720	98.5	5.6	0.0	3.3	0.2	3.5	5.4	0.05	0	0.0	0.0	169.6	11.9	0.0	0.0	0.0
1982-05	744	58.7	55.1	0.0	1.9	1.8	3.7	48.4	0.94	0	0.0	0.0	228.3	57.0	0.0	0.0	0.0
1982-06	720	52.8	89.2	0.0	1.8	3.0	4.7	52.3	1.69	0	0.0	0.0	281.1	156.2	0.0	0.0	0.0
1982-07	744	45.0	32.1	0.0	1.5	1.0	2.5	41.6	0.71	0	0.0	0.0	325.1	188.3	0.0	0.0	0.0
1982-08	744	38.3	30.2	0.0	1.2	1.0	2.2	44.1	0.79	0	0.0	0.0	364.4	218.5	0.0	0.0	0.0
1982-09	720	31.6	82.5	0.0	1.1	2.8	3.8	72.3	2.61	0	0.0	0.0	396.0	301.0	0.0	0.0	0.0
1982-10	336	16.4	37.1	0.0	1.2	2.7	3.8	63.3	2.35	0	0.0	0.0	412.4	338.1	0.0	0.0	0.0
1982-11	180	4.1	18.1	0.0	0.5	2.4	3.0	81.5	4.41	0	0.0	0.0	416.5	356.2	0.0	0.0	0.0
1982-12	744	37.0	88.3	2.6	1.2	2.8	4.0	70.5	2.39	70	0.0	0.0	453.5	444.5	2.6	0.0	0.0
1983-01	720	19.9	6.0	2.1	0.7	0.2	0.9	23.2	0.30	106	0.0	0.0	473.4	450.5	4.7	0.0	0.0
1983-02	288	8.5	2.2	0.9	0.7	0.2	0.9	20.6	0.26	106	0.0	0.0	481.9	452.7	5.6	0.0	0.0
1983-03	683	22.7	9.9	3.1	0.8	0.3	1.1	30.4	0.44	137	0.0	0.0	504.6	462.6	8.7	0.0	0.0
1983-04	720	26.1	9.9	1.4	0.9	0.3	1.2	27.5	0.38	54	0.0	0.0	530.7	472.5	10.1	0.0	0.0
1983-05	744	23.7	8.0	0.9	0.8	0.3	1.0	25.2	0.34	38	0.0	0.0	554.4	480.5	11.0	0.0	0.0
1983-06	720	19.8	8.1	1.7	0.7	0.3	0.9	23.0	0.41	86	0.0	0.0	574.2	488.6	12.7	0.0	0.0
1983-07	744	20.7	9.3	3.0	0.7	0.3	1.0	31.0	0.45	145	0.0	0.0	594.9	497.9	15.7	0.0	0.0
1983-08	738	21.6	5.3	1.1	0.7	0.2	0.9	19.7	0.25	51	0.0	0.0	616.5	503.2	16.8	0.0	0.0
1983-09	598	13.5	3.4	1.1	0.5	0.1	0.7	20.1	0.25	81	0.0	0.0	630.0	506.6	17.9	0.0	0.0
1983-10	615	9.2	10.6	1.1	0.4	0.4	0.8	53.5	1.15	120	0.0	0.0	639.2	517.2	19.0	0.0	0.0
1983-11	720	14.1	11.8	1.3	0.5	0.4	0.9	45.6	0.84	92	0.0	0.0	653.3	529.0	20.3	0.0	0.0
1983-12	720	14.6	13.2	1.6	0.5	0.4	0.9	47.5	0.90	110	0.0	0.0	667.9	542.2	21.9	0.0	0.0
1984-01	718	7.3	13.9	2.0	0.2	0.5	0.7	65.6	1.90	274	0.0	0.0	675.2	556.1	23.9	0.0	0.0
1984-02	696	6.2	29.0	0.6	0.2	1.0	1.2	82.4	4.58	97	0.0	0.0	681.4	585.1	24.5	0.0	0.0
1984-03	744	8.4	18.5	5.2	0.3	0.6	0.9	58.8	2.20	619	0.0	0.0	689.8	602.6	29.7	0.0	0.0
1984-04	624	9.3	24.7	9.5	0.4	1.0	1.3	72.6	2.66	1022	0.0	0.0	699.1	628.3	39.2	0.0	0.0
1984-05	648	8.7	14.8	0.6	0.3	0.5	0.9	63.0	1.70	69	0.0	0.0	707.8	643.1	39.8	0.0	0.0
1984-06	576	10.4	35.7	17.3	0.4	1.3	1.7	77.9	3.52	1663	0.0	0.0	718.2	679.8	57.1	0.0	0.0
1984-07	677	6.4	26.7	27.0	0.2	0.9	1.2	80.7	4.17	4219	0.0	0.0	724.6	706.5	84.1	0.0	0.0
1984-08	731	9.6	8.2	10.6	0.3	0.3	0.6	46.1	0.85	1104	0.0	0.0	734.2	714.7	94.7	0.0	0.0
1984-09	660	7.7	7.6	0.7	0.3	0.3	0.6	49.7	0.99	91	0.0	0.0	741.8	722.3	95.4	0.0	0.0
1984-10	696	6.8	14.4	2.1	0.2	0.5	0.7	67.3	2.12	309	0.0	0.0	748.7	736.7	97.5	0.0	0.0
1984-11	607	6.4	1.9	0.4	0.3	0.1	0.3	22.9	0.30	53	0.0	0.0	755.1	738.6	97.9	0.0	0.0
1984-12	706	5.6	5.5	0.5	0.2	0.2	0.4	43.5	0.83	76	0.0	0.0	761.7	744.1	98.4	0.0	0.0
1985-01	674	4.5	15.5	3.3	0.2	0.6	0.7	77.5	3.44	733	0.0	0.0	766.2	759.6	101.7	0.0	0.0
1985-02	610	5.2	16.3	0.9	0.2	0.6	0.8	75.8	3.13	173	0.0	0.0	771.4	775.9	102.6	0.0	0.0
1985-03	655	8.5	7.9	2.4	0.3	0.4	0.6	48.2	0.93	282	0.0	0.0	779.9	782.8	105.0	0.0	0.0
1985-04	210	7.3	3.4	0.9	0.9	0.4	1.2	31.8	0.47	123	0.0	0.0	787.2	787.2	105.9	0.0	0.0
1985-05	464	17.3	1.7	1.4	0.9	0.1	1.0	8.9	0.10	81	0.0	0.0	804.5	788.3	107.3	0.0	0.0
1985-06	436	11.1	28.1	1.3	0.6	1.5	2.2	71.7	2.53	117	0.0	0.0	815.5	817.0	108.5	0.0	0.0
1985-07	476	8.5	25.9	0.8	0.4	1.3	1.7	75.3	3.05	94	0.0	0.0	824.1	842.9	109.4	0.0	0.0
1985-08	478	21.1	0.0	1.5	1.1	0.0	1.1	0.0	0.00	71	0.0	0.0	845.2	842.9	110.9	0.0	0.0
1985-09	452	16.9	3.7	1.3	0.9	0.2	1.1	18.0	0.22	77	0.0	0.0	862.1	846.6	112.2	0.0	0.0

*** S T O R E ***
 OMEGA PRODUCTION DATA BASE
 WELL (0109-30-001-25 WIN(0)

Omega
 98-02-08
 15:13:34

FIELD 1
 POOL 1
 BLOCK 3
 ACCTS 3

PROVINCE MAN.

WORKING INTEREST 100.00000%
 ON PRDN 1982-03-04
 ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	GOR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3
1985-10	423	4.7	10.5	0.6	0.3	0.6	0.9	69.3	2.25	128	0.0	856.8	857.2	112.8	0.0
1985-11	448	0.6	21.1	0.0	0.0	1.1	1.2	97.2	35.17	0	0.0	857.4	878.3	112.8	0.0
1985-12	478	2.1	21.0	0.2	0.1	1.1	1.2	90.9	10.00	95	0.0	859.5	899.3	113.0	0.0
1986-01	486	18.3	7.6	1.9	0.9	0.4	1.3	29.3	0.42	104	0.0	887.8	906.3	114.9	0.0
1986-02	384	14.5	20.5	1.2	0.9	1.3	2.2	58.6	1.41	83	0.0	902.3	927.4	116.1	0.0
1986-03	454	0.0	67.1	0.0	0.0	3.5	3.5	100.0	99.99	0	0.0	902.3	994.5	116.1	0.0
1986-04	464	0.0	62.3	0.0	0.0	3.2	3.2	100.0	99.99	0	0.0	902.3	1056.8	116.1	0.0
1986-05	480	3.7	0.8	0.8	0.2	0.2	0.2	17.8	0.22	216	0.0	906.0	1057.6	116.9	0.0
1986-06	448	2.1	2.6	0.9	0.1	0.1	0.3	55.3	1.24	429	0.0	908.1	1060.2	117.8	0.0
1986-07	480	1.2	3.8	0.7	0.1	0.2	0.3	76.0	3.17	583	0.0	909.3	1064.0	118.5	0.0
1986-08	480	3.5	9.4	0.8	0.2	0.5	0.6	72.9	2.69	229	0.0	912.8	1073.4	119.3	0.0
1986-09	406	32.9	10.7	3.2	1.9	0.6	2.6	24.5	0.33	97	0.0	945.7	1084.1	122.5	0.0
1986-10	496	30.7	22.6	2.8	1.5	1.1	2.6	42.4	0.74	91	0.0	976.4	1106.7	125.3	0.0
1986-11	480	12.4	34.1	1.6	0.6	1.7	2.3	73.3	2.75	129	0.0	988.8	1140.8	126.9	0.0
1986-12	476	9.8	31.4	0.7	0.5	1.5	2.1	76.2	3.20	71	0.0	998.6	1172.2	127.6	0.0
1987-01	448	5.5	21.8	1.0	0.3	1.2	1.5	79.9	3.36	182	0.0	1004.1	1194.0	128.6	0.0
1987-02	256	2.8	15.4	0.5	0.3	1.5	1.8	85.4	5.85	179	0.0	1006.9	1210.4	129.1	0.0
1987-03	84	1.9	6.8	0.1	0.5	1.9	2.5	78.2	3.58	53	0.0	1008.8	1217.2	129.2	0.0
1987-04	437	8.2	40.0	0.8	0.5	2.2	2.6	83.0	4.88	98	0.0	1017.0	1257.2	130.0	0.0
1987-05	454	7.9	32.1	0.7	0.4	1.7	2.1	80.3	4.06	89	0.0	1024.9	1289.3	130.7	0.0
1987-06	432	6.6	17.4	0.8	0.4	1.0	1.3	72.5	2.64	121	0.0	1031.5	1306.7	131.5	0.0
1987-07	454	7.3	18.9	1.0	0.4	1.0	1.4	72.1	2.59	137	0.0	1038.8	1325.6	132.5	0.0
1987-08	440	4.5	6.8	1.3	0.2	0.4	0.6	60.2	1.51	289	0.0	1043.3	1332.4	133.8	0.0
1987-09	416	3.5	8.8	0.6	0.2	0.5	0.7	71.5	2.51	171	0.0	1046.8	1341.2	134.4	0.0
1987-10	158	1.9	2.9	0.2	0.3	0.4	0.7	60.4	1.53	105	0.0	1048.7	1344.1	134.6	0.0
1987-11	343	1.1	4.0	0.5	0.1	0.3	0.4	78.4	3.64	455	0.0	1049.8	1348.1	135.1	0.0
1987-12	448	2.6	1.1	0.2	0.1	0.1	0.2	29.7	0.42	77	0.0	1052.4	1349.2	135.3	0.0

*** S T O R E ***
 OMEGA PRODUCTION DATA BASE
 WELL (0)10-30-001-25 MIN(0)

Casey
 98-02-09
 16:12:34

FIELD 1
 WELL 3
 BLOCK 99
 ACCTS 4149

PROVINCE MAN.

WORKING INTEREST 100.00000Z
 ON PRDN 1983-09-23
 ON INJM NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	GAS	WATER	FLUID	WATER	WOR	GOR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d		m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1983-09	183	20.6	4.7	0.6	3.3	18.6	0.23	87	0.0	0.0	20.6	4.7	1.8	0.0	0.0
1983-10	684	41.8	7.7	1.5	1.7	15.6	0.18	72	0.0	0.0	62.4	12.4	4.8	0.0	0.0
1983-11	720	38.8	11.0	1.3	0.4	1.7	22.1	0.28	57	0.0	101.2	22.4	7.0	0.0	0.0
1983-12	720	37.6	15.1	1.3	0.5	1.8	28.7	0.40	85	0.0	138.8	38.5	10.2	0.0	0.0
1984-01	720	38.9	14.6	1.3	0.5	1.8	27.3	0.38	57	0.0	177.7	53.1	12.8	0.0	0.0
1984-02	567	20.8	38.6	0.9	1.6	2.5	65.0	1.86	72	0.0	198.5	91.7	14.3	0.0	0.0
1984-03	528	18.0	39.1	0.8	1.8	2.6	68.5	2.17	56	0.0	216.5	130.8	15.3	0.0	0.0
SHUT IN															
1984-06	632	334.8	39.1	12.7	1.5	14.2	10.5	0.12	53	0.0	551.3	169.9	32.2	0.0	0.0
1984-07	738	359.8	41.4	11.7	1.3	13.0	10.3	0.12	78	0.0	911.1	211.3	61.1	0.0	0.0
1984-08	648	269.4	93.2	10.0	3.5	13.4	25.7	0.35	91	0.0	1180.5	304.5	85.5	0.0	0.0
1984-09	446	133.8	89.8	12.7	8.3	13.1	36.9	0.58	83	0.0	1334.3	394.3	98.2	0.0	0.0
1984-10	685	258.3	159.7	13.7	9.0	14.6	38.2	0.62	53	0.0	1592.6	554.0	111.9	0.0	0.0
1984-11	561	186.9	62.8	12.4	8.0	10.7	25.2	0.34	66	0.0	1779.5	616.8	124.3	0.0	0.0
1984-12	420	187.1	7.5	10.7	0.4	11.1	3.9	0.04	35	0.0	1966.6	624.4	130.8	0.0	0.0
1985-01	676	207.3	22.8	7.4	0.8	8.2	9.9	0.11	30	0.0	2173.9	647.2	137.1	0.0	0.0
1985-02	539	151.8	49.9	4.4	2.2	9.0	24.7	0.33	29	0.0	2325.7	697.1	141.5	0.0	0.0
1985-03	700	192.3	147.5	5.5	5.1	11.7	43.4	0.77	29	0.0	2518.0	844.6	147.0	0.0	0.0
1985-04	621	198.8	89.2	4.6	7.7	3.4	11.1	0.45	23	0.0	2716.8	933.8	151.6	0.0	0.0
1985-05	674	193.2	132.0	6.1	4.7	11.6	40.6	0.68	32	0.0	2910.0	1065.8	157.7	0.0	0.0
1985-06	601	197.1	63.8	6.3	2.5	10.4	24.5	0.32	32	0.0	3107.1	1129.6	164.0	0.0	0.0
1985-07	700	207.5	91.8	7.9	3.1	10.3	30.7	0.44	39	0.0	3314.6	1221.4	172.0	0.0	0.0
1985-08	717	181.9	155.5	7.0	5.2	11.3	46.2	0.86	38	0.0	3496.5	1377.9	179.0	0.0	0.0
1985-09	671	195.5	92.9	6.6	3.3	10.3	32.2	0.47	34	0.0	3692.0	1470.7	185.6	0.0	0.0
1985-10	659	185.6	90.1	6.9	6.8	3.3	10.0	0.49	37	0.0	3877.6	1560.8	192.5	0.0	0.0
1985-11	720	169.8	224.4	5.7	7.5	13.1	56.9	1.32	62	0.0	4047.4	1785.2	203.1	0.0	0.0
1985-12	742	275.0	124.6	22.9	4.0	12.9	31.2	0.45	83	0.0	4322.4	1909.8	225.9	0.0	0.0
1986-01	744	273.8	203.8	16.5	6.6	15.4	42.7	0.74	60	0.0	4596.2	2113.6	242.4	0.0	0.0
1986-02	672	188.4	289.9	15.1	6.7	10.4	50.6	1.54	80	0.0	4784.6	2403.5	257.5	0.0	0.0
1986-03	744	188.6	296.9	18.1	6.1	9.6	15.7	1.57	96	0.0	4973.2	2700.4	275.6	0.0	0.0
1986-04	695	224.5	204.0	17.5	7.8	14.8	47.6	0.91	78	0.0	5197.7	2904.4	293.1	0.0	0.0
1986-05	696	206.3	256.7	16.6	7.1	16.0	55.4	1.24	80	0.0	5404.0	3161.1	309.7	0.0	0.0
1986-06	696	179.0	246.3	7.9	6.2	8.5	14.7	1.38	44	0.0	5583.0	3407.4	317.6	0.0	0.0
1986-07	744	189.1	292.6	4.3	6.1	9.1	15.2	0.91	23	0.0	5771.1	3690.0	321.3	0.0	0.0
1986-08	744	218.9	320.3	5.7	7.1	10.3	17.4	1.46	26	0.0	5989.9	4010.3	327.6	0.0	0.0
1986-09	720	230.3	247.6	6.2	7.7	8.3	15.9	1.08	27	0.0	6220.2	4257.9	333.8	0.0	0.0
1986-10	745	171.0	270.9	8.5	5.5	8.7	14.2	1.58	50	0.0	6391.2	4528.8	342.3	0.0	0.0
1986-11	718	151.2	222.3	7.7	5.1	7.4	12.5	1.47	51	0.0	6542.4	4751.1	350.0	0.0	0.0
1986-12	744	193.0	260.4	17.9	6.2	8.4	14.6	1.35	92	0.0	6735.4	5011.5	367.8	0.0	0.0
1987-01	644	285.3	124.8	30.0	10.6	4.7	15.3	0.44	105	0.0	7020.7	5136.3	397.8	0.0	0.0
1987-02	623	269.4	127.9	32.8	10.4	4.9	15.3	0.47	122	0.0	7290.1	5264.2	430.6	0.0	0.0
1987-03	648	249.4	130.9	27.3	9.2	4.8	14.1	0.52	109	0.0	7539.5	5395.1	457.9	0.0	0.0
1987-04	713	301.7	154.3	35.2	10.1	5.2	15.2	0.51	117	0.0	7841.2	5549.4	493.1	0.0	0.0

*** S T O R E ***
 OMEGA PRODUCTION DATA BASE
 WELL (0)10-30-001-25 W1H(0)

Omega
 88-02-08
 16:13:34

FIELD 1
 POOL 2
 BLOCK 99
 ACCTS 4149

PROVINCE MAN.
 WORKING INTEREST 100.00000Z
 CN PRDN 1982-09-23
 - ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	SOP	I. WATER	I. GAS	CUM. OIL	CUM. WAT	CUM. GAS	C.I. WAT	C.I. GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1987-05	696	242.5	236.9	32.1	8.4	8.2	16.5	49.4	0.98	132	0.0	0.0	8083.7	5785.3	525.2	0.0	0.0
1987-06	624	226.3	195.2	29.2	8.7	7.5	16.2	46.3	0.86	129	0.0	0.0	8310.0	5981.5	554.4	0.0	0.0
1987-07	665	250.4	145.0	31.8	9.4	5.2	14.6	35.8	0.55	122	0.0	0.0	8570.4	6126.5	586.2	0.0	0.0
1987-08	600	199.3	192.5	38.7	8.0	7.7	15.7	49.1	0.97	194	0.0	0.0	8769.7	6319.0	624.9	0.0	0.0
1987-09	648	197.9	236.7	56.5	7.3	8.8	16.1	54.5	1.20	285	0.0	0.0	8967.6	6555.7	681.4	0.0	0.0
1987-10	672	204.3	266.0	42.0	7.3	9.5	16.6	56.6	1.30	206	0.0	0.0	9171.9	6821.7	723.4	0.0	0.0
1987-11	624	224.7	144.8	34.0	8.6	5.6	14.2	39.2	0.64	151	0.0	0.0	9396.6	6966.5	757.4	0.0	0.0
1987-12	648	260.6	63.2	26.4	9.7	2.3	12.0	19.5	0.24	101	0.0	0.0	9657.2	7029.7	783.8	0.0	0.0

PAGE NO. 1

*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL (2)11-30-001-25 W1M(2)

Omega
88-02-23
14:39:58

FIELD 1
POOL 1
BLOCK 3
ACCTG 3

PROVINCE MAN.
WORKING INTEREST 100.000000Z
ON PRDN 1985-11-18
ON INJM NOT ON YET

LAND#1 0
LAND#2 0
LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	GOR	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/M	m3/d	m3/d	m3/d	CUT %		m3/d	m3	m3	m3	m3	m3
1985-11	3031	77.5	137.7	2.51	6.2	12.6	19.8	57.0	2.03	32	77.5	157.7	2.51	0.0	0.0
1985-12	742	165.0	490.3	6.61	5.5	15.3	21.3	74.4	2.90	39	246.5	648.0	9.1	0.0	0.0
1986-01	696	205.6	420.5	5.9	7.1	14.5	21.6	67.2	2.05	29	452.1	1068.5	15.0	0.0	0.0
1986-02	583	180.9	139.4	5.11	7.4	5.7	13.2	43.5	0.77	28	633.0	1207.9	20.1	0.0	0.0
1986-03	744	176.3	230.5	1.5	5.7	7.4	13.1	56.7	1.31	9	809.3	1438.4	21.6	0.0	0.0
1986-04	719	163.0	247.9	2.0	5.4	8.3	13.7	60.3	1.52	12	972.3	1686.3	23.6	0.0	0.0
1986-05	732	102.0	407.2	2.3	3.3	13.4	16.7	80.0	3.99	23	1074.3	2093.5	25.9	0.0	0.0
1986-06	696	311.8	149.2	2.2	10.8	5.1	15.9	32.4	0.48	7	1386.1	2242.7	28.1	0.0	0.0
1986-07	744	287.2	242.1	2.2	9.3	7.8	17.1	45.7	0.84	8	1673.3	2484.8	30.3	0.0	0.0
1986-08	744	108.1	637.4	2.8	3.5	20.6	24.0	85.5	5.90	26	1781.4	3122.2	33.1	0.0	0.0
1986-09	720	197.3	400.2	3.0	6.5	13.3	19.9	67.0	2.03	15	1978.7	3522.4	36.1	0.0	0.0
1986-10	745	279.7	336.9	2.7	9.0	10.9	19.9	54.6	1.20	10	2258.4	3859.3	38.8	0.0	0.0
1986-11	720	282.8	289.5	4.4	9.4	9.0	18.4	48.8	0.95	16	2541.2	4128.8	43.2	0.0	0.0
1986-12	744	178.5	449.5	5.1	5.8	14.5	20.3	71.6	2.52	29	2719.7	4578.3	48.3	0.0	0.0
1987-01	734	114.2	462.4	5.1	3.7	15.1	18.9	80.2	4.05	45	2833.9	5040.7	53.4	0.0	0.0
1987-02	671	108.0	463.4	5.2	3.9	16.6	20.4	81.1	4.29	48	2941.9	5504.1	58.6	0.0	0.0
1987-03	744	105.0	497.1	4.2	3.4	16.0	19.5	82.4	4.69	40	3047.9	6001.2	62.8	0.0	0.0
1987-04	719	94.4	470.1	3.7	3.2	15.7	18.8	83.3	4.98	39	3142.3	6471.3	66.5	0.0	0.0
1987-05	744	118.1	448.4	3.2	3.8	14.5	18.3	79.2	3.80	27	3250.4	6919.7	69.7	0.0	0.0
1987-06	670	33.1	344.3	3.0	1.2	12.3	13.5	91.2	10.40	91	3293.5	7264.0	72.7	0.0	0.0
1987-07	744	62.9	415.7	3.3	2.0	13.4	15.4	86.9	6.51	52	3356.4	7679.7	76.0	0.0	0.0
1987-08	543	60.7	345.6	2.9	2.7	15.3	18.0	85.1	5.69	48	3417.1	8025.3	78.3	0.0	0.0
1987-09	720	34.9	634.7	4.3	1.2	21.2	22.3	94.8	18.24	124	3451.9	8560.0	83.2	0.0	0.0
1987-10	712	15.2	424.4	3.4	0.5	14.3	14.8	96.5	27.92	224	3467.1	9084.4	86.6	0.0	0.0
1987-11	720	0.0	359.1	3.1	0.0	12.0	12.0	100.0	99.99	99999	3467.1	9443.5	89.7	0.0	0.0
1987-12	744	27.1	327.2	3.4	0.9	10.6	11.4	92.4	12.07	125	3494.2	9770.7	93.1	0.0	0.0

*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL (0)12-30-001-25 WIN(0)

Omega
98-02-02
15:37:36

FIELD 1
F001 2
BLOCK 0
ACCT6 4140

PROVINCE MAN.

WORKING INTEREST 100.00000Z
ON FPN 1967-12-22
ON INJN NOT ON YET

LAND#1 0
LAND#2 0
LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	GOR	I.WATER	I.SAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1980-01	744	25.11	58.31	0.01	0.81	1.91	2.71	59.91	2.321	0	0.01	0.01	10350.01	962.01	0.01	0.01	0.0
1980-02	696	29.01	46.91	0.01	1.01	1.61	2.61	61.81	1.621	0	0.01	0.01	10379.01	1008.91	0.01	0.01	0.0
1980-03	744	21.51	48.21	0.01	0.71	1.61	2.21	59.21	2.241	0	0.01	0.01	10400.51	1057.11	0.01	0.01	0.0
1980-04	720	30.31	46.81	0.01	1.01	1.61	2.61	60.71	1.541	0	0.01	0.01	10430.81	1103.91	0.01	0.01	0.0
1980-05	744	24.21	48.91	0.01	0.81	1.61	2.41	56.91	2.021	0	0.01	0.01	10455.01	1152.81	0.01	0.01	0.0
1980-06	720	42.11	63.51	0.01	1.41	2.21	3.61	60.91	1.561	0	0.01	0.01	10497.11	1218.31	0.01	0.01	0.0
1980-07	744	23.01	54.61	0.01	0.71	1.81	2.51	70.41	2.371	0	0.01	0.01	10520.11	1272.91	0.01	0.01	0.0
1980-08	744	30.11	71.51	0.01	1.01	2.31	3.31	70.41	2.381	0	0.01	0.01	10550.21	1344.41	0.01	0.01	0.0
1980-09	720	38.81	55.41	0.01	1.31	1.81	3.11	58.81	1.431	0	0.01	0.01	10589.01	1399.81	0.01	0.01	0.0
1980-10	744	40.71	58.11	0.01	1.31	1.91	3.21	58.81	1.431	0	0.01	0.01	10629.71	1457.91	0.01	0.01	0.0
1980-11	720	30.01	37.71	0.01	1.01	1.31	2.31	55.71	1.261	0	0.01	0.01	10659.71	1495.61	0.01	0.01	0.0
1980-12	744	65.31	72.31	0.01	2.11	2.41	4.51	52.91	1.121	0	0.01	0.01	10725.01	1568.91	0.01	0.01	0.0
1981-01	744	37.01	6.21	0.01	1.21	0.21	1.41	14.41	0.171	0	0.01	0.01	10762.01	1575.11	0.01	0.01	0.0
1981-02	672	16.21	88.81	0.01	0.61	3.21	3.81	84.61	5.481	0	0.01	0.01	10778.21	1663.91	0.01	0.01	0.0
1981-03	744	48.01	169.21	0.01	1.51	5.51	7.01	77.91	3.531	0	0.01	0.01	10826.21	1832.11	0.01	0.01	0.0
1981-04	720	49.61	116.11	0.01	1.71	3.91	5.51	70.11	2.341	0	0.01	0.01	10875.81	1949.21	0.01	0.01	0.0
1981-05	744	59.41	99.81	0.01	1.91	3.21	5.11	62.71	1.681	0	0.01	0.01	10935.21	2049.01	0.01	0.01	0.0
1981-06	696	56.41	87.81	0.01	1.91	3.01	5.01	60.91	1.561	0	0.01	0.01	10991.61	2136.81	0.01	0.01	0.0
1981-07	696	11.91	84.11	0.01	0.41	2.91	3.31	87.61	7.071	0	0.01	0.01	11003.51	2220.91	0.01	0.01	0.0
1981-08	360	26.11	31.01	0.01	1.71	2.11	3.81	54.31	1.191	0	0.01	0.01	11029.61	2251.91	0.01	0.01	0.0
1981-09	720	81.61	29.11	0.01	2.71	1.01	3.71	26.31	0.361	0	0.01	0.01	11111.21	2281.01	0.01	0.01	0.0
1981-10	648	34.41	95.41	0.01	1.31	3.51	4.81	73.51	2.771	0	0.01	0.01	11145.61	2376.41	0.01	0.01	0.0
1981-11	720	14.41	82.01	0.01	0.51	2.71	3.21	85.11	5.691	0	0.01	0.01	11160.01	2458.41	0.01	0.01	0.0
1981-12	720	6.31	87.21	0.01	0.21	2.91	3.11	93.31	13.841	0	0.01	0.01	11166.31	2545.61	0.01	0.01	0.0
1982-01	744	7.21	68.41	0.01	0.21	2.21	2.41	90.51	9.501	0	0.01	0.01	11173.51	2614.01	0.01	0.01	0.0
1982-02	672	5.11	13.51	0.01	0.21	0.51	0.71	72.61	2.651	0	0.01	0.01	11178.61	2627.51	0.01	0.01	0.0
1982-03	744	5.31	39.21	0.01	0.21	1.01	1.11	88.11	7.401	0	0.01	0.01	11183.91	2666.71	0.01	0.01	0.0
1982-04	720	5.61	28.71	0.01	0.21	0.81	0.91	84.81	5.601	0	0.01	0.01	11189.51	2695.41	0.01	0.01	0.0
1982-05	624	4.11	16.11	0.01	0.21	0.61	0.81	79.71	3.931	0	0.01	0.01	11193.61	2711.51	0.01	0.01	0.0
1982-06	720	4.21	23.51	0.01	0.11	0.81	0.91	84.81	5.601	0	0.01	0.01	11197.81	2735.01	0.01	0.01	0.0
1982-07	744	6.91	9.31	0.01	0.21	0.31	0.51	57.41	1.351	0	0.01	0.01	11204.71	2744.51	0.01	0.01	0.0
1982-08	744	5.21	9.01	0.01	0.21	0.31	0.51	63.41	1.731	0	0.01	0.01	11209.91	2753.31	0.01	0.01	0.0
1982-09	720	4.21	24.11	0.01	0.11	0.81	0.91	85.21	5.741	0	0.01	0.01	11214.11	2777.41	0.01	0.01	0.0
1982-10	24	0.21	0.71	0.01	0.21	0.71	0.91	77.91	3.501	0	0.01	0.01	11214.11	2777.41	0.01	0.01	0.0
1982-11	144	8.21	102.11	0.01	1.41	17.21	18.61	92.61	12.571	0	0.01	0.01	11222.51	2881.21	0.01	0.01	0.0
1982-12	360	2.41	12.51	0.01	0.21	0.81	1.01	83.91	5.211	83	0.01	0.01	11224.91	2893.71	0.21	0.01	0.0
1983-01	264	8.01	55.51	1.41	0.71	5.01	5.81	87.41	6.941	175	0.01	0.01	11232.91	2949.21	1.61	0.01	0.0
1983-02	187	5.11	36.41	1.01	0.81	4.71	5.31	85.61	5.971	164	0.01	0.01	11239.01	2985.61	2.61	0.01	0.0
1983-03	608	41.61	57.91	0.51	1.61	2.31	3.91	58.11	1.391	12	0.01	0.01	11280.61	3043.41	3.11	0.01	0.0
1983-04	720	29.81	68.21	1.11	1.01	2.31	3.31	69.61	2.291	37	0.01	0.01	11310.41	3111.61	4.21	0.01	0.0
1983-05	724	45.71	103.71	0.91	1.51	3.41	5.01	69.41	2.271	20	0.01	0.01	11356.11	3215.31	5.11	0.01	0.0
1983-06	720	36.11	105.91	1.51	1.21	3.51	4.71	74.61	2.931	42	0.01	0.01	11392.21	3321.21	6.61	0.01	0.0
1983-07	744	45.11	113.81	1.71	1.51	3.71	5.11	71.61	2.851	38	0.01	0.01	11437.31	3435.01	8.31	0.01	0.0

*** STORE ***
 OMEGA PRODUCTION DATA BASE
 WELL (0112-30-001-25 W1H10)

Omega
 98-02-68
 15:37:35

FIELD 1
 POOL 2
 BLOCK 0
 ACCTS 4140

PROVINCE MAN.

WORKING INTEREST 100.000000%
 ON FROM 1967-12-31
 ON INJUN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WATER	CUM. GAS	C.I. WAT	C.I. GAS
		m3/d	m3/d	m3/d		m3/d	m3/d	CUT %	m3/m3	m3/m	m3/m	m3	m3	m3	m3	m3
1983-08	7381	41.8	103.4	1.1	1.4	3.4	4.7	71.2	2.47	26	0.0	0.0	11479.1	3538.4	9.4	0.0
1983-09	7101	49.3	48.2	2.8	1.7	1.6	3.3	49.4	0.98	57	0.0	0.0	11528.4	3586.6	12.2	0.0
1983-10	7421	47.9	45.4	2.0	1.5	1.5	3.0	46.7	0.95	42	0.0	0.0	11576.3	3632.0	14.2	0.0
1983-11	7201	45.6	41.3	1.1	1.5	1.4	2.9	47.5	0.91	24	0.0	0.0	11621.9	3673.3	15.3	0.0
1983-12	7441	34.1	43.4	1.8	1.1	1.4	2.5	56.0	1.27	53	0.0	0.0	11656.0	3716.7	17.1	0.0
1984-01	7041	13.3	43.2	0.8	0.5	1.5	1.9	76.3	3.25	60	0.0	0.0	11669.3	3759.9	17.9	0.0
1984-02	6481	7.3	34.8	0.7	0.3	1.3	1.6	82.7	4.77	96	0.0	0.0	11676.6	3794.7	18.6	0.0
1984-03	6961	0.8	7.3	0.0	0.0	0.3	0.3	90.1	9.13	0	0.0	0.0	11677.4	3802.0	18.6	0.0
1984-04	6961	11.5	37.8	0.9	0.4	1.3	1.7	76.7	3.29	78	0.0	0.0	11688.9	3839.8	19.5	0.0
1984-05	7041	9.9	16.4	0.5	0.3	0.6	0.9	62.4	1.66	51	0.0	0.0	11698.8	3856.2	20.0	0.0
1984-06	6691	7.0	14.4	1.1	0.3	0.5	0.8	67.3	2.06	157	0.0	0.0	11705.8	3870.6	21.1	0.0
1984-07	7421	9.6	24.6	1.2	0.3	0.8	1.1	71.9	2.56	125	0.0	0.0	11715.4	3895.2	22.3	0.0
1984-08	7201	9.9	16.3	1.1	0.3	0.5	0.9	62.2	1.65	111	0.0	0.0	11725.3	3911.5	23.4	0.0
1984-09	6101	6.6	3.5	1.1	0.3	0.1	0.4	34.7	0.53	167	0.0	0.0	11731.9	3915.0	24.5	0.0
1984-10	6571	7.1	7.0	3.5	0.3	0.3	0.5	49.6	0.99	493	0.0	0.0	11739.0	3922.0	28.0	0.0
1984-11	6471	17.6	13.2	1.7	0.7	0.5	1.1	42.3	0.75	97	0.0	0.0	11756.6	3935.2	29.7	0.0
1984-12	5591	23.9	42.7	0.5	0.9	1.6	2.4	64.1	1.79	21	0.0	0.0	11790.5	3977.9	30.2	0.0
1985-01	6681	33.4	84.6	1.4	1.2	3.0	4.2	71.7	2.53	42	0.0	0.0	11813.9	4062.5	31.6	0.0
1985-02	6321	41.5	84.9	1.1	1.6	3.2	4.8	67.2	2.05	27	0.0	0.0	11855.4	4147.4	32.7	0.0
1985-03	6791	46.1	102.1	0.2	1.6	3.6	5.2	68.9	2.21	4	0.0	0.0	11901.5	4249.5	32.9	0.0
1985-04	6471	59.2	72.6	0.7	2.2	2.7	4.9	55.1	1.23	12	0.0	0.0	11960.7	4322.1	33.6	0.0
1985-05	6241	53.7	58.9	0.6	2.1	2.3	4.3	52.3	1.10	11	0.0	0.0	12014.4	4381.0	34.2	0.0
1985-06	5791	65.0	41.5	1.1	2.7	1.7	4.4	39.0	0.64	17	0.0	0.0	12079.4	4422.5	35.3	0.0
1985-07	7161	27.9	30.8	2.5	0.9	1.0	2.0	52.5	1.10	90	0.0	0.0	12107.3	4453.3	37.8	0.0
1985-08	6191	22.9	53.2	1.7	0.9	2.1	2.9	69.9	2.32	74	0.0	0.0	12130.2	4506.5	39.5	0.0
1985-09	6191	94.4	395.5	6.8	3.7	15.3	19.0	90.7	4.19	72	0.0	0.0	12224.6	4902.0	46.3	0.0
1985-10	5961	137.0	320.5	8.8	4.7	11.1	15.8	70.1	2.34	64	0.0	0.0	12361.6	5222.5	55.1	0.0
1985-11	5961	83.2	190.9	6.7	2.9	6.6	9.5	69.6	2.29	81	0.0	0.0	12444.8	5413.4	61.8	0.0
1985-12	6941	74.1	169.9	6.4	2.6	5.9	8.4	69.6	2.29	86	0.0	0.0	12518.9	5583.3	68.2	0.0
1986-01	7201	76.7	173.7	6.1	2.6	5.8	8.3	69.4	2.26	80	0.0	0.0	12595.6	5757.0	74.3	0.0
1986-02	6481	70.0	134.3	5.1	2.6	5.0	7.6	65.7	1.92	73	0.0	0.0	12665.6	5891.3	79.4	0.0
1986-03	7441	69.6	138.6	5.6	2.2	4.5	6.7	66.6	1.99	80	0.0	0.0	12735.2	6029.9	85.0	0.0
1986-04	6071	59.7	102.2	2.5	2.4	4.0	6.4	63.1	1.71	42	0.0	0.0	12794.9	6122.1	87.5	0.0
1986-05	6961	68.7	104.9	1.6	2.4	3.6	6.0	60.4	1.53	23	0.0	0.0	12863.6	6237.0	89.1	0.0
1986-06	6721	60.3	90.5	2.7	2.2	3.2	5.4	60.1	1.50	45	0.0	0.0	12923.8	6327.5	91.8	0.0
1986-07	6961	46.3	136.7	4.3	1.6	4.7	6.3	74.7	2.95	93	0.0	0.0	12970.1	6464.2	96.1	0.0
1986-08	5961	97.8	143.2	2.8	3.6	5.2	8.8	59.4	1.46	29	0.0	0.0	13067.9	6607.4	98.9	0.0
1986-09	5961	106.9	90.3	1.5	3.7	3.1	5.8	45.8	0.84	14	0.0	0.0	13174.8	6637.7	100.4	0.0
1986-10	7451	43.9	100.2	1.7	1.4	3.2	4.6	59.5	2.29	39	0.0	0.0	13218.7	6797.9	102.1	0.0
1986-11	6961	37.7	83.6	1.5	1.3	2.9	4.2	68.9	2.22	40	0.0	0.0	13256.4	6881.5	103.6	0.0
1986-12	7441	81.1	76.3	2.1	2.6	2.5	5.1	48.5	0.94	26	0.0	0.0	13337.5	6957.8	105.7	0.0
1987-01	6321	78.0	65.3	1.6	3.0	2.5	5.4	45.6	0.84	21	0.0	0.0	13415.5	7023.1	107.3	0.0
1987-02	6231	72.9	77.6	1.5	2.8	3.0	5.8	51.6	1.06	21	0.0	0.0	13488.4	7100.7	108.8	0.0

98-02-09
15:27:36FIELD 1
POOL 2
BLOCK 0
ACCTG 4140

PROVINCE NAME

WORKING INTEREST 100.00000%

ON PROD 1967-12-??

ON INJN NOT ON YET

LAND#1 0
LAND#2 0
LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WAT	CUM. GAS	C.I. WAT	C.I. GAS
		m3/d	m3/d	kg3/M	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	kg3/M	m3	m3	kg3	m3	kg3
1987-03	548	96.7	43.4	1.4	3.6	1.6	5.2	31.0	0.45	14	0.0	0.0	13585.1	7144.1	110.2	0.0	0.0
1987-04	331	52.3	31.6	0.8	4.5	2.3	6.8	33.7	0.51	13	0.0	0.0	13647.4	7175.7	111.0	0.0	0.0
1987-05	582	92.1	90.8	1.4	3.8	3.7	7.5	49.6	0.99	15	0.0	0.0	13739.5	7266.5	112.4	0.0	0.0
1987-06	548	104.3	99.5	2.1	3.9	3.7	7.5	48.8	0.95	20	0.0	0.0	13843.8	7366.0	114.5	0.0	0.0
1987-07	500	112.5	60.2	1.7	4.5	2.4	6.9	34.9	0.54	15	0.0	0.0	13956.3	7426.2	115.2	0.0	0.0
1987-08	524	127.5	26.1	2.7	4.9	1.0	5.9	17.0	0.20	21	0.0	0.0	14082.8	7452.3	118.9	0.0	0.0
1987-09	540	46.5	83.8	1.6	1.7	3.1	4.9	64.3	1.80	34	0.0	0.0	14130.3	7536.1	120.5	0.0	0.0
1987-10	595	67.2	42.0	1.5	2.3	1.4	3.8	38.5	0.63	22	0.0	0.0	14197.5	7578.1	122.0	0.0	0.0
1987-11	572	56.6	10.5	0.7	2.0	0.4	2.4	15.6	0.19	12	0.0	0.0	14254.1	7588.6	122.7	0.0	0.0
1987-12	569	50.1	24.8	1.5	2.2	0.9	3.0	29.2	0.41	25	0.0	0.0	14314.2	7613.4	124.2	0.0	0.0

*** STORE ***
 ONESA PRODUCTION DATA BASE
 WELL (2)12-30-001-25 MH(10)

Casga
 98-02-09
 15:13:34

PROVINCE MAN.

WORKING INTEREST 100.000002
 ON PRDN 1983-12-13
 ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

FIELD 1
 POOL 1
 BLOCK 3
 ACCTS 3

MONTH	HOURS	OIL	WATER	GAS	DIL	WATER	FLUID	WATER	WOR	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WAT.	CUM. GAS	C.I. WAT.	C.I. GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1983-12	285	87.0	22.4	8.9	7.2	1.9	9.2	20.5	0.26	102	0.0	0.0	87.0	22.4	8.9	0.0	0.0
1984-01	736	368.2	166.8	25.1	12.0	5.4	17.4	31.2	0.45	68	0.0	0.0	455.2	189.2	34.0	0.0	0.0
1984-02	648	412.4	35.6	40.9	15.3	1.3	15.6	7.9	0.09	99	0.0	0.0	867.6	224.8	74.9	0.0	0.0
1984-03	732	436.2	29.3	49.7	14.1	1.0	15.1	6.4	0.07	115	0.0	0.0	1297.8	254.1	124.6	0.0	0.0
1984-04	336	192.2	44.1	19.8	12.7	3.2	15.3	18.7	0.23	103	0.0	0.0	1490.0	298.2	144.4	0.0	0.0
1984-05	308	128.4	95.2	21.0	10.0	7.4	17.4	42.6	0.74	164	0.0	0.0	1618.4	393.4	155.4	0.0	0.0
1984-06	328	152.2	78.4	22.6	11.1	5.7	15.9	34.0	0.52	155	0.0	0.0	1770.5	471.8	189.0	0.0	0.0
1984-07	325	132.6	84.0	17.3	9.8	6.2	16.0	38.8	0.63	130	0.0	0.0	1903.2	555.8	206.3	0.0	0.0
1984-08	432	146.5	147.6	15.7	8.1	8.2	16.3	50.2	1.01	107	0.0	0.0	2049.7	703.4	222.0	0.0	0.0
1984-09	592	261.4	141.6	25.4	9.1	4.9	14.0	35.1	0.54	97	0.0	0.0	2311.1	845.0	247.4	0.0	0.0
1984-10	705	278.5	173.0	42.0	9.5	5.9	15.4	38.3	0.62	151	0.0	0.0	2589.6	1018.0	289.4	0.0	0.0
1984-11	684	289.3	68.4	42.9	10.2	2.4	12.6	19.1	0.24	148	0.0	0.0	2879.5	1086.4	322.3	0.0	0.0
1984-12	702	200.0	83.4	36.6	6.8	2.9	9.7	29.4	0.42	183	0.0	0.0	3079.5	1169.8	368.9	0.0	0.0
1985-01	704	109.3	68.0	21.9	3.7	2.3	6.0	38.4	0.62	200	0.0	0.0	3188.8	1237.8	390.8	0.0	0.0
1985-02	551	94.0	54.9	13.4	4.1	2.8	5.9	40.8	0.59	143	0.0	0.0	3282.8	1302.7	404.2	0.0	0.0
1985-03	623	136.2	134.7	15.3	5.3	5.2	10.5	49.4	0.97	111	0.0	0.0	3421.0	1437.4	419.5	0.0	0.0
1985-04	667	173.4	148.7	14.4	6.2	5.4	11.6	46.2	0.86	83	0.0	0.0	3594.4	1586.1	432.9	0.0	0.0
1985-05	634	109.9	91.2	10.0	4.2	3.5	7.6	45.4	0.83	91	0.0	0.0	3704.3	1677.3	443.9	0.0	0.0
1985-06	559	141.8	106.5	9.7	5.2	3.9	9.0	42.9	0.75	68	0.0	0.0	3846.1	1782.8	453.6	0.0	0.0
1985-07	708	182.1	148.8	12.9	6.2	5.0	11.2	45.0	0.82	71	0.0	0.0	4028.2	1932.6	466.5	0.0	0.0
1985-08	685	87.5	198.4	8.7	3.1	7.0	10.0	59.4	0.27	99	0.0	0.0	4115.7	2131.0	475.2	0.0	0.0
1985-09	625	67.3	120.9	6.6	2.6	4.6	7.2	64.2	1.80	98	0.0	0.0	4183.0	2251.9	481.8	0.0	0.0
1985-10	744	80.3	128.9	6.8	2.6	4.2	6.7	61.6	1.61	85	0.0	0.0	4263.3	2380.8	488.6	0.0	0.0
1985-11	720	76.3	104.2	7.2	2.5	3.5	6.0	57.7	1.37	94	0.0	0.0	4335.6	2485.0	495.8	0.0	0.0
1985-12	742	88.2	117.0	7.7	2.9	3.8	6.6	57.0	1.33	87	0.0	0.0	4427.8	2602.0	503.5	0.0	0.0
1986-01	744	97.7	177.2	8.2	3.2	5.7	8.9	64.5	1.81	84	0.0	0.0	4525.5	2779.2	511.7	0.0	0.0
1986-02	672	59.6	59.1	3.9	2.1	2.5	4.6	53.7	1.16	55	0.0	0.0	4585.1	2848.3	515.6	0.0	0.0
1986-03	744	47.0	34.4	1.9	1.5	1.1	2.6	42.3	0.73	40	0.0	0.0	4632.1	2882.7	517.5	0.0	0.0
1986-04	595	52.8	70.1	2.2	1.8	2.4	4.2	57.0	1.33	42	0.0	0.0	4684.9	2952.8	519.7	0.0	0.0
1986-05	744	56.6	47.2	2.1	2.1	1.5	3.7	41.5	0.71	32	0.0	0.0	4751.5	3006.0	521.8	0.0	0.0
1986-06	595	51.9	29.3	2.0	1.8	1.0	2.8	35.1	0.56	39	0.0	0.0	4803.4	3029.3	523.8	0.0	0.0
1986-07	640	73.3	54.4	0.9	2.7	2.0	4.8	42.6	0.74	12	0.0	0.0	4875.7	3083.7	524.7	0.0	0.0
1986-08	720	65.0	59.1	2.8	2.2	2.0	4.1	47.6	0.91	43	0.0	0.0	4941.7	3142.8	527.5	0.0	0.0
1986-09	695	46.9	30.4	2.8	1.5	1.0	2.7	39.4	0.65	60	0.0	0.0	4995.5	3173.2	530.3	0.0	0.0
1986-10	693	48.2	29.4	2.5	1.7	1.0	2.7	37.9	0.61	52	0.0	0.0	5036.7	3202.6	532.8	0.0	0.0
1986-11	720	55.7	25.7	2.3	1.9	0.9	2.7	31.6	0.46	41	0.0	0.0	5092.4	3229.3	535.1	0.0	0.0
1986-12	720	32.0	31.0	3.9	1.1	1.0	2.1	48.4	0.94	118	0.0	0.0	5125.4	3259.2	539.0	0.0	0.0
1987-01	704	57.3	28.6	3.9	2.0	1.0	2.9	33.4	0.50	68	0.0	0.0	5182.7	3288.1	542.9	0.0	0.0
1987-02	551	61.4	21.0	4.1	2.7	0.9	3.6	25.5	0.34	67	0.0	0.0	5244.1	3309.1	547.0	0.0	0.0
1987-03	508	85.1	28.9	3.1	3.4	1.1	4.5	23.3	0.34	36	0.0	0.0	5292.7	3337.9	550.1	0.0	0.0
1987-04	671	63.5	17.0	3.1	2.3	0.6	2.9	21.1	0.27	49	0.0	0.0	5392.7	3354.9	553.2	0.0	0.0
1987-05	589	97.3	50.4	5.7	4.0	2.1	6.0	34.1	0.52	59	0.0	0.0	5490.0	3405.3	558.9	0.0	0.0
1987-06	576	168.9	35.9	5.4	7.0	1.5	8.5	17.9	0.22	32	0.0	0.0	5559.9	3442.2	564.3	0.0	0.0

*** S T O R E ***
 OMEGA PRODUCTION DATA BASE
 WELL (2012-30-001-25 WIM(0))

Daega
 88-02-08
 16:13:34

FIELD 1
 POOL 1
 BLOCK 3
 ACCTS 3

LAND#1 0
 LAND#2 0
 LAND#3 0

PROVINCE MAN.
 WORKING INTEREST 100.00000Z
 CN PRDN 1993-12-18
 ON INJN NOT ON YET

MONTH	HOURS	OIL	WATER	FLUID	WATER	WOR	GOR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	OUT	IN	m3/d	m3/M	m3/M	m3	m3	m3	m3	m3
1987-07	696	99.3	27.9	4.1	4.4	21.9	0.28	41	0.0	5758.2	3470.1	568.4	0.0	0.0
1987-08	648	65.1	50.1	1.9	4.3	43.5	0.77	81	0.0	5823.3	3520.2	573.7	0.0	0.0
1987-09	624	50.1	56.3	1.9	4.1	52.9	1.12	58	0.0	5873.4	3575.5	576.6	0.0	0.0
1987-10	696	34.9	63.5	1.2	3.4	64.5	1.82	66	0.0	5908.3	3640.0	578.3	0.0	0.0
1987-11	720	40.3	46.6	1.3	2.9	53.6	1.15	57	0.0	5948.6	3686.6	581.2	0.0	0.0
1987-12	549	52.6	13.7	2.3	2.9	20.7	0.26	46	0.0	6001.2	3700.3	583.6	0.0	0.0



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

November 30, 1987

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H3

Attention: Mr. G. E. Patey
Vice President, Production

Re: Omega Waskada GIW 6-30-1-25 (WPM)

Further to your letter of November 17, 1987, you are hereby authorized to resume gas injection in the subject well.

Gas injection in the well will continue to be subject to the provisions of the Board's letter of September 18, 1987.

Yours respectfully,

**ORIGINAL SIGNED BY
CHARLES S. KANG**

Charles S. Kang
Chairman

b.c. Petroleum
B. McDonald

September 14, 1987

The Oil and Natural Gas
Conservation Board

L. R. Dubreuil
Chief Petroleum Engineer

Charles S. Kang - Chairman
Wm. McDonald - Deputy Chairman
R. B. Ball - Member

Re: Waskada Unit No. 1 - Gas Injection

Background

The Oil and Natural Gas Conservation Board Order No. PM 47 authorized injection of gas into the Waskada MC3b A Pool through the well Omega Waskada 6-30-1-25 (WPM). Gas injection commenced in March 1986 (see Fig. No. 1). Continued approval of gas injection was conditional on producing GOR's in surrounding wells remaining below specified limits.

In its letter of August 14, 1987, the Board, noting that producing GOR's in a number of offset wells had become excessive, required Omega Hydrocarbons Limited (the Unit Operator) to review and report on alternative disposition of lean gas and to terminate gas injection by September 15, 1987.

Omega has responded to the Board's request. In its letter of September 9, 1987, Omega contends that gas injection has been beneficial to oil production and, after a cement squeeze to re-establish segregation between the MC3b zone and the Lower Amaranth, should be continued.

Recommendation:

It is recommended that:

1. A remedial workover be performed immediately in the well Omega Waskada Prov. A7-30-1-25 (WPM) in order to segregate the Lower Amaranth and Mission Canyon Formations in this well.
2. Gas injection in the well Omega Waskada 6-30-1-25 (WPM) be approved on an interim basis for a period of six months, terminating on April 1, 1988.
3. Prior to March 1, 1988, a further review of performance of the wells in and adjacent to the Unit be submitted to be used as a basis for either terminating gas injection or continuing injection past April 1, 1988.

4. Gas-oil ratio limitations provided for in Board Order No. PM 47 be suspended for the duration of the interim approval of gas injection.
5. If production performance warrants, the Board may require the immediate termination of gas injection.
6. Monthly progress reports for the gas injection project be modified to include a verbal summary of operations. A draft letter outlining conditions of the interim approval is attached.

Discussion:

Communication between the Mission Canyon (MC) Formation and the overlying Lower Amaranth Formation occurs in the Waskada Field largely as a result of fracture treatments in the Lower Amaranth.

The performance of wells in the area of Section 30-1-25 (WPM) has been affected to some degree by this communication. However, because of the complex geology, development and production history of the area, varying interpretations of the degree and effect of the communication have been developed.

The well Omega Prov. A7-30-1-25 (WPM) was drilled and completed in the Lower Amaranth in late 1985. The well's productivity has exceeded that of offset completions in the Lower Amaranth. While part of this is likely due to better reservoir properties, Omega's contention is that gas injection at 6-30 has supported oil production at A7-30 through interzone fractures. The rapid increase in gas production at A7-30 definitely suggests communication. However, this rapid response to gas injection suggests that any banking of oil would be minimal.

In any case, there is general agreement between Omega and the Petroleum Division that the zones should be segregated at A7-30, and Omega is proceeding in this regard.

Fig. No. 2 is a graph of Waskada Unit No. 1 production from 1979 to date. Indicated on the graph are the dates of termination of water injection and the commencement of gas injection at 6-30. Review of this graph indicates an increasing trend in oil production beginning in early 1984. A relatively stable total fluid rate and a decreasing WOR suggests this was due to the formation of an oil bank from injection operations. Because this trend began some two years before gas injection commenced, it is at least initially, the result of some operation other than gas injection. Two possibilities are suggested:

- (a) Effects of water injection at 6-30. Injection at 6-30 terminated at year end 1983. While decreasing water production is evident subsequent to this, total fluid production remains stable and increases in 1985 indicating an external pressure source continuing to be active.

- (b) Effects of water injection in nearby Lower Amaranth Units through interzone communication. Injection commenced in the Lower Amaranth in February 1983. By year end 1984, 13 wells had been converted to injection in the Waskada Lower Amaranth Unit No. 1 and Waskada Unit No. 3 areas. In addition, there are a number of known occurrences of inter-zone communication in the area (including 4-30-1-25). Given the above, it is likely that the increasing production rate in Waskada Unit No. 1 is at least partially the result of water injection in the Lower Amaranth.

With commencement of gas injection in 1986, Unit oil production continues to increase, although arguably at a somewhat reduced rate, indicating gas injection is not having a drastic effect of performance. One concern, however, is the increase of gas production at the 3-30 well very shortly after gas injection levels were increased in October 1986. This would indicate that sweep efficiency is not favourable. Further, due to the mobility of the gas and quick response to gas injection, constant monitoring is necessary to ensure oil recovery is maximized.

As there is at present little evidence that gas injection is harming oil recovery in the Unit, it is recommended that resumption of gas injection be authorized on an interim basis for a period of six months (until April 1, 1988). Prior to the end of this extension, a further analysis of the effects of gas injection will be required from Omega. However, should performance significantly deteriorate prior to this date, immediate termination of gas injection may be ordered. To assist in analysis of performance, Omega has been asked to submit a verbal summary of operations as part of the monthly progress report.

Board Order No. PM 47 includes a provision to terminate gas injection if producing gas oil ratios exceeding $500 \text{ m}^3/\text{m}^3$. While this number is greatly in excess of solution levels, it is an arbitrary limit designed to minimize the risk of damage to the reservoir. However, the favourable oil production trends observed to date suggest little damage has been done at GOR levels exceeding this limit. It is therefore recommended that the limiting GOR provisions in Board Order PM 47 be waived for the interim period (until April 1, 1988).

Original Signed by
L. R. DUBRUEIL

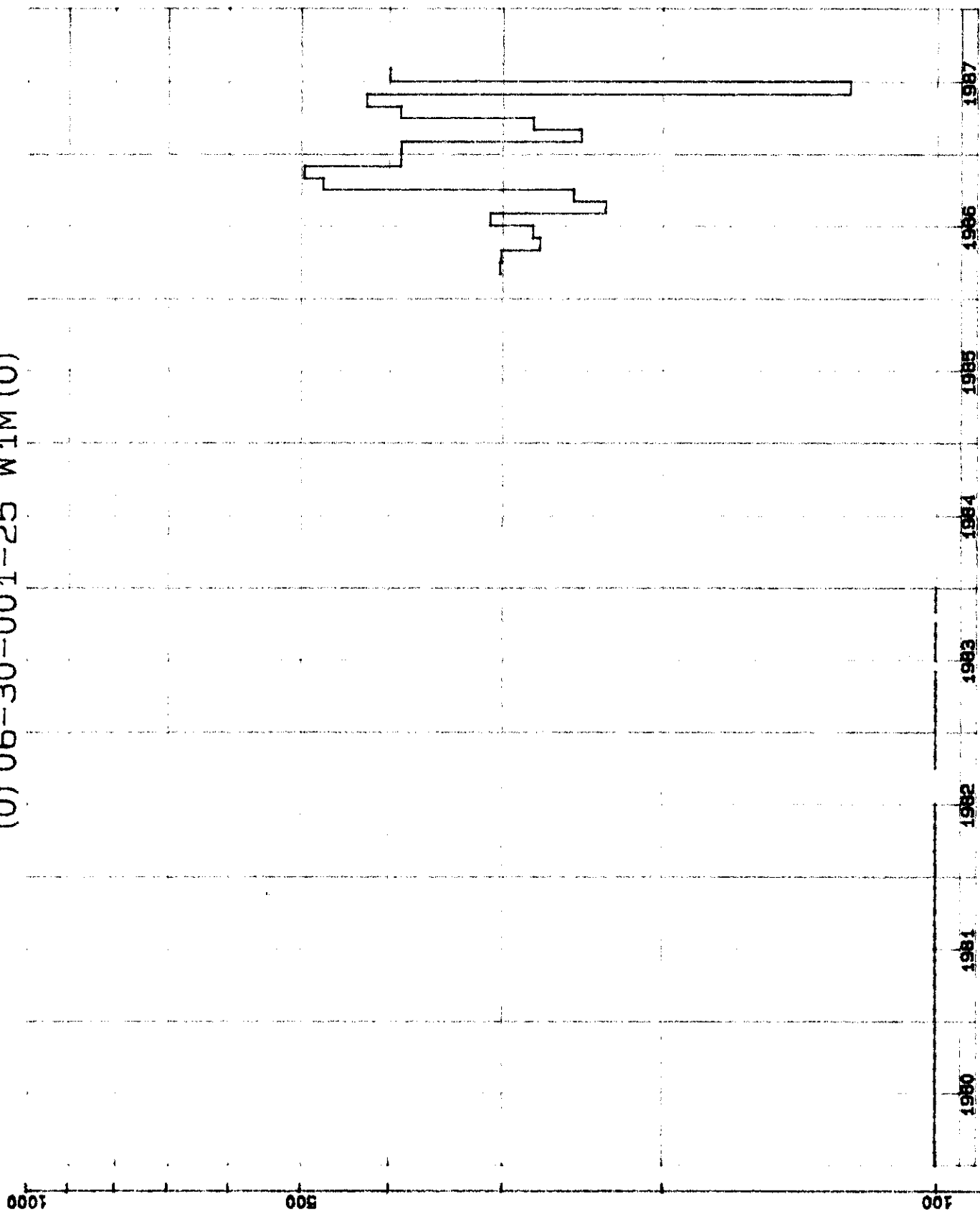
L. R. Dubrueil

LRD/lk

Recommended for Approval _____
Original Signed by H. C. Moster

H. Clare Moster

FIG. No. 1 - GAS INJECTION
(0) 06-30-001-25 W1M (0)



MONTHLY I.B. - km3/M
87-09-08
09:47:09

*** S T O P ***

Iaega

OMEGA PRODUCTION DATA BASE

98-02-68

WELL (2)04-30-001-25 N1M(0)

16:13:24

FIELD 1
POOL 1
BLOCK 3
ACCTS 3

PROVINCE MAN.

WORKING INTEREST 100.000002

ON PRDN 1982-12-11

ON INJN NOT ON YET

LAND#1 0
LAND#2 0
LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	GOR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1986-07	644	34.6	484.8	3.6	1.3	18.1	19.4	93.3	14.0	104	0.0	0.0	4696.8	19398.2	214.8	0.0	0.0
1986-08	512	0.0	433.6	0.0	0.0	20.3	20.3	100.0	99.9	0	0.0	0.0	4696.8	19831.8	214.8	0.0	0.0
1986-09	644	128.0	480.1	2.0	4.8	17.9	22.7	79.0	3.7	16	0.0	0.0	4824.8	20311.9	216.8	0.0	0.0
1986-10	497	131.6	394.4	1.9	6.4	19.0	25.4	75.0	3.0	14	0.0	0.0	4955.4	20706.3	218.7	0.0	0.0
1986-11	672	37.1	541.0	3.3	1.3	22.9	24.2	94.5	17.2	89	0.0	0.0	4992.5	21347.3	222.0	0.0	0.0
1986-12	420	13.6	209.1	1.3	0.8	11.9	12.7	93.9	15.3	96	0.0	0.0	5007.1	21536.4	223.3	0.0	0.0
1987-01	566	105.0	415.4	3.3	4.5	17.6	22.1	79.8	3.9	31	0.0	0.0	5112.1	21971.8	226.6	0.0	0.0
1987-02	597	71.7	427.7	2.9	2.9	17.2	20.1	85.6	5.9	39	0.0	0.0	5183.8	22399.5	229.4	0.0	0.0
1987-03	588	22.5	465.5	1.2	0.9	19.0	19.9	95.4	20.6	53	0.0	0.0	5206.3	22865.0	230.6	0.0	0.0
1987-04	521	28.6	464.3	1.4	1.3	21.4	22.7	94.2	16.2	49	0.0	0.0	5234.9	23329.3	232.0	0.0	0.0
1987-05	451	12.4	507.7	1.4	0.7	27.0	27.7	97.6	40.9	113	0.0	0.0	5247.3	23837.0	233.4	0.0	0.0
1987-06	598	17.4	583.6	3.0	0.7	23.4	24.1	97.1	33.5	172	0.0	0.0	5264.7	24420.6	236.4	0.0	0.0
1987-07	533	278.3	126.9	5.3	10.2	4.7	14.9	31.3	0.4	19	0.0	0.0	5543.0	24547.5	241.7	0.0	0.0
1987-08	576	66.9	581.6	3.3	2.8	24.2	27.0	89.7	8.6	49	0.0	0.0	5609.9	25129.1	245.0	0.0	0.0
1987-09	542	2.7	847.7	3.3	0.1	31.7	31.8	99.7	314.0	1222	0.0	0.0	5612.6	25976.8	248.3	0.0	0.0
1987-10	672	29.1	1089.9	17.8	1.0	38.9	40.0	97.4	37.4	612	0.0	0.0	5641.7	27066.7	266.1	0.0	0.0
1987-11	672	27.7	922.8	15.5	1.0	33.0	33.9	97.1	33.3	596	0.0	0.0	5669.4	27989.5	282.6	0.0	0.0
1987-12	645	35.2	654.3	7.3	1.3	24.3	25.7	94.9	18.5	207	0.0	0.0	5704.6	28643.8	289.9	0.0	0.0

*** S T O R E ***

OMEGA PRODUCTION DATA BASE

WELL (0107-30-001-25 WIM(0))

FIELD 1
POOL 1
BLOCK 3
ACCTS 3

PROVINCE MAN.

WORKING INTEREST 100.00000%

ON PRDN 1985-12-23

ON INJN 1987-12-08

Omega

88-02-08

16:13:34

LAND#1 0

LAND#2 0

LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	DIL	WATER	FLUID	WATER	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WATER	CUM. GAS	C.I. WATER	C.I. GAS
		m3/M	m3/D	m3/M	m3/D	CUT %	m3/D	m3/M	m3/M	m3/M	m3/M	m3	m3	m3	m3	m3
1985-12	195	97.6	50.0	7.9	12.0	18.2	33.9	0.51	81	0.0	0.0	97.6	50.0	7.9	0.0	0.0
1986-01	713	329.2	147.5	27.0	11.1	5.0	16.0	30.3	0.45	82	0.0	0.0	426.8	197.5	34.9	0.0
1986-02	554	308.0	123.8	23.2	11.3	4.5	15.8	28.7	0.40	75	0.0	0.0	734.8	321.3	58.1	0.0
1986-03	728	322.2	137.4	28.5	11.0	4.5	15.5	29.3	0.41	86	0.0	0.0	1067.1	458.7	86.6	0.0
1986-04	272	103.7	48.9	8.2	9.2	4.3	13.5	32.0	0.47	79	0.0	0.0	1170.8	507.6	94.8	0.0
1986-05	548	206.3	110.2	15.2	9.0	4.8	12.9	34.8	0.53	74	0.0	0.0	1377.1	617.8	110.0	0.0
1986-06	706	395.4	24.5	31.9	13.4	0.8	14.3	5.8	0.06	81	0.0	0.0	1772.5	642.3	141.9	0.0
1986-07	704	451.8	18.0	39.5	15.4	0.6	16.0	3.8	0.04	87	0.0	0.0	2224.3	660.3	181.4	0.0
1986-08	697	369.3	35.7	35.1	12.7	1.2	13.9	8.8	0.10	95	0.0	0.0	2593.6	696.0	216.5	0.0
1986-09	720	271.0	91.0	26.3	9.0	3.0	12.1	25.1	0.34	97	0.0	0.0	2864.6	787.0	242.8	0.0
1986-10	648	152.0	131.0	14.0	5.6	4.9	10.5	46.3	0.86	92	0.0	0.0	3016.6	918.0	256.8	0.0
1986-11	628	111.2	186.2	65.3	4.2	7.1	11.4	62.6	1.67	587	0.0	0.0	3127.8	1104.2	322.1	0.0
1986-12	668	119.1	153.1	76.7	4.3	5.5	9.8	56.2	1.29	644	0.0	0.0	3246.9	1257.3	398.8	0.0
1987-01	724	176.9	91.5	82.2	5.9	3.0	8.9	34.1	0.52	465	0.0	0.0	3423.8	1348.8	481.0	0.0
1987-02	671	108.3	164.2	93.6	3.9	5.9	9.7	60.3	1.52	864	0.0	0.0	3532.1	1512.0	574.6	0.0
1987-03	696	129.1	122.5	77.1	4.5	4.2	8.7	48.7	0.95	597	0.0	0.0	3661.2	1635.5	651.7	0.0
1987-04	551	100.5	78.4	78.8	4.3	3.4	7.7	43.8	0.78	784	0.0	0.0	3761.7	1713.9	730.5	0.0
1987-05	744	106.8	124.9	95.4	3.4	4.0	7.5	53.9	1.17	893	0.0	0.0	3868.5	1838.8	825.9	0.0
1987-06	684	86.6	101.6	90.6	3.0	3.6	6.6	54.0	1.17	1046	0.0	0.0	3955.1	1940.4	916.5	0.0
1987-07	722	94.6	190.6	110.2	3.1	6.2	9.4	66.8	2.01	1165	0.0	0.0	4049.7	2131.0	1026.7	0.0
1987-08	720	76.5	179.7	110.7	2.6	6.0	8.5	70.1	2.35	1447	0.0	0.0	4126.2	2310.7	1137.4	0.0
1987-09	384	39.8	62.0	54.8	2.5	3.9	6.4	60.9	1.56	1377	0.0	0.0	4166.0	2372.7	1192.2	0.0
1987-10	176	3.7	22.1	11.3	0.5	3.0	3.5	85.7	5.97	3054	0.0	0.0	4169.7	2394.8	1203.5	0.0
1987-11	720	12.5	57.5	35.3	0.4	1.9	2.3	82.1	4.60	2824	0.0	0.0	4182.2	2452.3	1238.8	0.0
1987-12	312	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0	0.0	4182.2	2452.3	1238.8	649.7	0.0

*** STORE ***
 OMEGA PRODUCTION DATA BASE
 WELL (0108-30-001-25 W1N(2))

Omega
 88-02-08
 16:13:34

FIELD 1
 POOL 1
 BLOCK 3
 ACCT6 3

PROVINCE MAN.

WORKING INTEREST 100.0000001
 ON PRDN 1983-09-29
 ON INJN NOT ON YET

LAND#1 0
 LAND#2 0
 LAND#3 0

MONTH	HOURS	OIL	WATER	GAS	OIL	WATER	FLUID	WATER	WOR	SOR	I.WATER	I.GAS	CUM.OIL	CUM.WAT	CUM.GAS	C.I.WAT	C.I.GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1983-09	40	8.6	13.6	0.6	5.2	13.3	61.3	1.58	70	0.0	0.0	0.0	8.6	13.6	0.6	0.0	0.0
1983-10	732	71.6	440.5	3.8	2.3	14.4	16.8	86.0	6.15	53	0.0	0.0	80.2	454.1	4.4	0.0	0.0
1983-11	720	41.9	478.0	2.4	1.4	15.9	17.3	91.9	11.41	57	0.0	0.0	122.1	932.1	6.8	0.0	0.0
1983-12	744	53.8	418.7	2.3	2.1	13.5	15.6	86.8	6.55	36	0.0	0.0	185.9	1350.8	9.1	0.0	0.0
1984-01	744	147.0	350.5	1.8	4.7	11.3	16.0	70.5	2.38	12	0.0	0.0	332.9	1701.3	10.9	0.0	0.0
1984-02	696	98.2	360.6	2.5	3.4	12.4	15.8	78.6	3.67	25	0.0	0.0	431.1	2061.9	13.4	0.0	0.0
1984-03	744	86.8	421.3	6.5	2.8	13.6	16.4	82.9	4.85	75	0.0	0.0	517.9	2483.2	19.9	0.0	0.0
1984-04	720	46.4	452.1	5.0	1.5	15.1	16.6	90.7	9.74	108	0.0	0.0	564.3	2935.3	24.9	0.0	0.0
1984-05	324	13.6	215.0	1.0	1.0	15.9	16.9	94.1	15.81	74	0.0	0.0	577.9	3150.3	25.9	0.0	0.0
1984-06	713	13.0	450.5	2.6	0.4	15.2	15.6	97.2	34.55	200	0.0	0.0	590.9	3600.8	28.5	0.0	0.0
1984-07	721	11.6	485.3	2.1	0.4	16.2	16.5	97.7	41.84	181	0.0	0.0	602.5	4086.1	30.6	0.0	0.0
1984-08	768	14.9	501.5	2.0	0.5	18.8	19.3	97.6	40.37	134	0.0	0.0	617.4	4687.6	32.6	0.0	0.0
1984-09	715	25.5	406.2	2.3	0.9	13.6	14.5	94.1	15.93	90	0.0	0.0	642.9	5093.8	34.9	0.0	0.0
1984-10	745	72.0	392.7	3.4	2.3	12.7	15.0	84.5	5.45	47	0.0	0.0	714.9	5486.5	38.3	0.0	0.0
1984-11	312	35.3	44.7	1.8	2.7	3.4	6.2	55.7	1.26	51	0.0	0.0	730.4	5531.2	40.1	0.0	0.0
1984-12	229	16.1	118.0	0.8	1.7	12.4	14.1	88.0	7.33	50	0.0	0.0	766.5	5649.2	40.9	0.0	0.0
1985-01	740	68.1	346.6	3.1	2.2	11.2	13.4	83.6	5.09	46	0.0	0.0	834.6	5995.8	44.0	0.0	0.0
1985-02	672	75.9	245.1	2.7	2.7	8.8	11.5	76.4	3.23	36	0.0	0.0	910.5	5240.9	46.7	0.0	0.0
1985-03	740	33.1	343.2	1.5	1.1	11.1	12.2	91.2	10.37	45	0.0	0.0	943.6	6384.1	48.2	0.0	0.0
1985-04	719	17.2	344.5	1.1	0.6	11.5	12.1	95.2	20.03	64	0.0	0.0	960.8	6928.6	49.3	0.0	0.0
1985-05	740	41.4	347.2	1.5	1.3	11.3	12.6	89.3	8.39	36	0.0	0.0	1002.2	7275.8	50.8	0.0	0.0
1985-06	720	12.9	413.4	0.6	0.4	13.8	14.2	97.0	32.05	47	0.0	0.0	1015.1	7689.2	51.4	0.0	0.0
1985-07	740	10.5	424.1	0.6	0.3	13.8	14.1	97.6	40.39	57	0.0	0.0	1025.6	8113.3	52.0	0.0	0.0
1985-08	741	0.0	501.0	0.0	0.0	19.5	19.5	100.0	99.99	0	0.0	0.0	1025.6	8714.3	52.0	0.0	0.0
1985-09	720	5.2	571.2	0.4	0.2	19.0	19.2	99.1	109.8	77	0.0	0.0	1036.8	9285.5	52.4	0.0	0.0
1985-10	427	18.2	259.7	1.3	1.0	14.6	15.6	93.5	14.27	71	0.0	0.0	1049.0	9545.2	53.7	0.0	0.0
1985-11	687	128.0	144.6	10.9	4.5	5.1	9.5	53.0	1.13	85	0.0	0.0	1177.0	9689.8	54.6	0.0	0.0
1985-12	742	119.7	132.4	8.3	3.9	4.3	8.2	52.5	1.11	69	0.0	0.0	1296.7	9822.2	72.9	0.0	0.0
1986-01	744	38.6	263.3	2.9	1.2	8.5	9.7	87.2	6.82	75	0.0	0.0	1335.3	10085.5	75.8	0.0	0.0
1986-02	672	30.6	205.1	2.4	1.1	7.3	8.4	87.0	5.70	78	0.0	0.0	1365.9	10290.6	78.2	0.0	0.0
1986-03	744	54.7	120.0	5.5	1.8	3.9	5.6	68.7	2.19	101	0.0	0.0	1420.6	10410.6	83.7	0.0	0.0
1986-04	719	61.0	74.3	5.2	2.0	2.5	4.5	54.9	1.22	85	0.0	0.0	1481.5	10484.9	88.9	0.0	0.0
1986-05	744	95.3	28.5	2.3	3.1	0.9	4.0	23.0	0.30	24	0.0	0.0	1576.3	10513.4	91.2	0.0	0.0
1986-06	720	41.7	81.2	1.7	1.4	2.7	4.1	56.1	1.95	41	0.0	0.0	1618.6	10594.6	92.9	0.0	0.0
1986-07	744	41.1	75.8	2.8	1.3	2.4	3.8	64.3	1.84	68	0.0	0.0	1659.7	10670.4	95.7	0.0	0.0
1986-08	744	70.2	90.6	2.8	2.3	2.9	5.2	56.3	1.29	40	0.0	0.0	1729.9	10761.0	98.5	0.0	0.0
1986-09	720	41.9	79.6	2.5	1.4	2.7	4.1	65.5	1.90	60	0.0	0.0	1771.8	10840.6	101.0	0.0	0.0
1986-10	706	49.6	71.7	3.0	1.7	2.4	4.1	59.1	1.45	60	0.0	0.0	1821.4	10912.3	104.0	0.0	0.0
1986-11	720	45.7	70.2	2.1	1.5	2.3	3.9	60.6	1.54	46	0.0	0.0	1867.1	10982.5	106.1	0.0	0.0
1986-12	744	70.9	102.3	3.0	2.3	3.3	5.6	59.1	1.44	42	0.0	0.0	1938.0	11084.8	109.1	0.0	0.0
1987-01	734	81.6	18.8	2.4	2.7	0.6	3.3	18.7	0.23	29	0.0	0.0	2019.6	11103.6	111.5	0.0	0.0
1987-02	671	71.5	17.4	2.0	2.6	0.6	3.2	19.6	0.24	28	0.0	0.0	2091.1	11121.0	113.5	0.0	0.0
1987-03	744	67.8	23.3	2.1	2.2	0.8	2.9	25.6	0.34	31	0.0	0.0	2159.9	11144.3	115.6	0.0	0.0

*** S T O R E ***
 OMEGA PRODUCTION DATA BASE
 WELL (0)08-30-001-25 WIM(2)

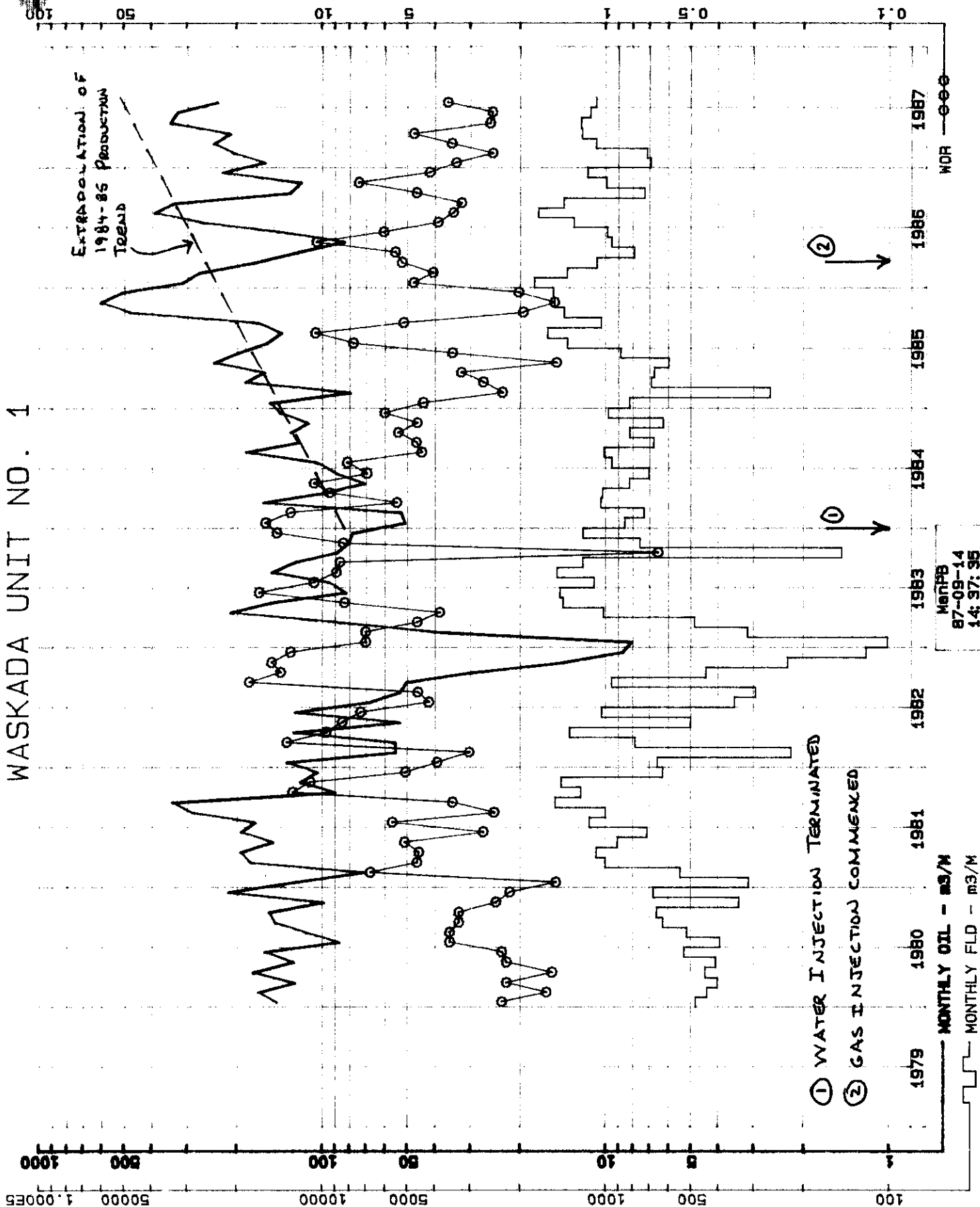
Date:
 88-02-08
 16:13:34

FIELD 1
 POOL 1
 BLOCK 3
 ACCTG 3

PROVINCE NAM.
 WORKING INTEREST 100.000000%
 ON PRDN 1983-09-29
 ON INJN NOT ON VET

MONTH	HOURS	OIL	WATER	FLUID	WATER	WDR	GOR	I. WATER	I. GAS	CUM. OIL	CUM. WATER	CUM. GAS	C.I. WATER	C.I. GAS
		m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3/d	m3	m3	m3	m3	m3
1987-04	719	65.9	29.6	2.2	1.0	3.2	31.0	0.45	0.0	0.0	2224.8	11173.9	118.1	0.0
1987-05	568	54.3	63.0	2.3	2.7	5.0	53.7	1.16	0.0	0.0	2279.1	11236.9	121.5	0.0
1987-06	720	75.1	31.4	2.5	1.0	3.6	29.5	0.42	0.0	0.0	2354.2	11268.3	124.0	0.0
1987-07	744	67.3	18.7	2.2	0.6	2.8	21.7	0.28	0.0	0.0	2421.5	11287.0	125.7	0.0
1987-08	744	58.0	31.8	1.9	1.0	2.9	35.4	0.55	0.0	0.0	2479.5	11318.8	128.6	0.0
1987-09	720	39.8	63.5	1.3	2.1	3.4	61.5	1.60	0.0	0.0	2519.3	11382.3	130.4	0.0
1987-10	744	59.8	27.3	1.9	0.9	2.8	31.3	0.46	0.0	0.0	2579.1	11409.6	132.3	0.0
1987-11	720	37.9	66.8	1.3	2.2	3.5	63.8	1.76	0.0	0.0	2617.0	11476.4	133.6	0.0
1987-12	744	46.6	37.5	1.5	1.2	2.7	44.6	0.80	0.0	0.0	2663.6	11513.9	135.5	0.0

FIG. No. 2
WASKADA UNIT NO. 1



II. Gas Injection

Commenced in March 86 Initial rate = $300 \text{ km}^3/\text{mon}$
Increased to about $500 \text{ km}^3/\text{month}$ in October/86
Now averages about $400 \text{ km}^3/\text{month}$

Coincident with increase in injection in October 86, GOR's at 3-30 (southern offset - completed in MC3b A Pool) and A7-30 (east offset - completed in LAm A Pool) increased sharply. GOR's at 4-30 have also increased but the extremely high water cut at this well makes it difficult to confirm gas injection is the cause.

Current GOR's are 3-30 > 600

A7-30 > 1000

Both are on increasing trends

A plot of Unit production shows a generally increasing trend from 1984 on. Assuming production measurement is accurate, one possible explanation of this pressure maintenance response through interzone communication from the Lower Amaranth waterfloods.

If the production trend from '84 & '85 is extrapolated, the 86-87 levels are slightly below trend. Also the WOR and GOR curves are above trend.

The Tundra wells (13-19 & A14-19) do not show any adverse or positive effects that can be tied to gas injection.

Omega contends that communication exists at A7-30 (probably due to the fracture treatment) and believes it can shut off this communication by a cement squeeze.

If communication can be shut off between the Lower Amaranth and the MC3b, performance of A7-30 should improve. However, performance of the Unit would suggest that some communication exists elsewhere (A7-30 was drilled in late 85 and Unit shows increase since early 84).

The remaining problem of high gas production at 3-30 would not be rectified by a cement squeeze at A7-30. The GOR at 3-30 appears to be sensitive to injection rate at 6-30. Because of the high level of GOR at 3-30, a concern as to production of other Mississippian wells (i.e. Tundra) exists.

Note: current GOR at 3-30 already exceeds maximum specified in Board Order.

What has Omega done to evaluate other options (e.g. storage in a deeper reservoir.

III. Other Concerns

(a) Proration Factors - see chart

(b) Weed Control

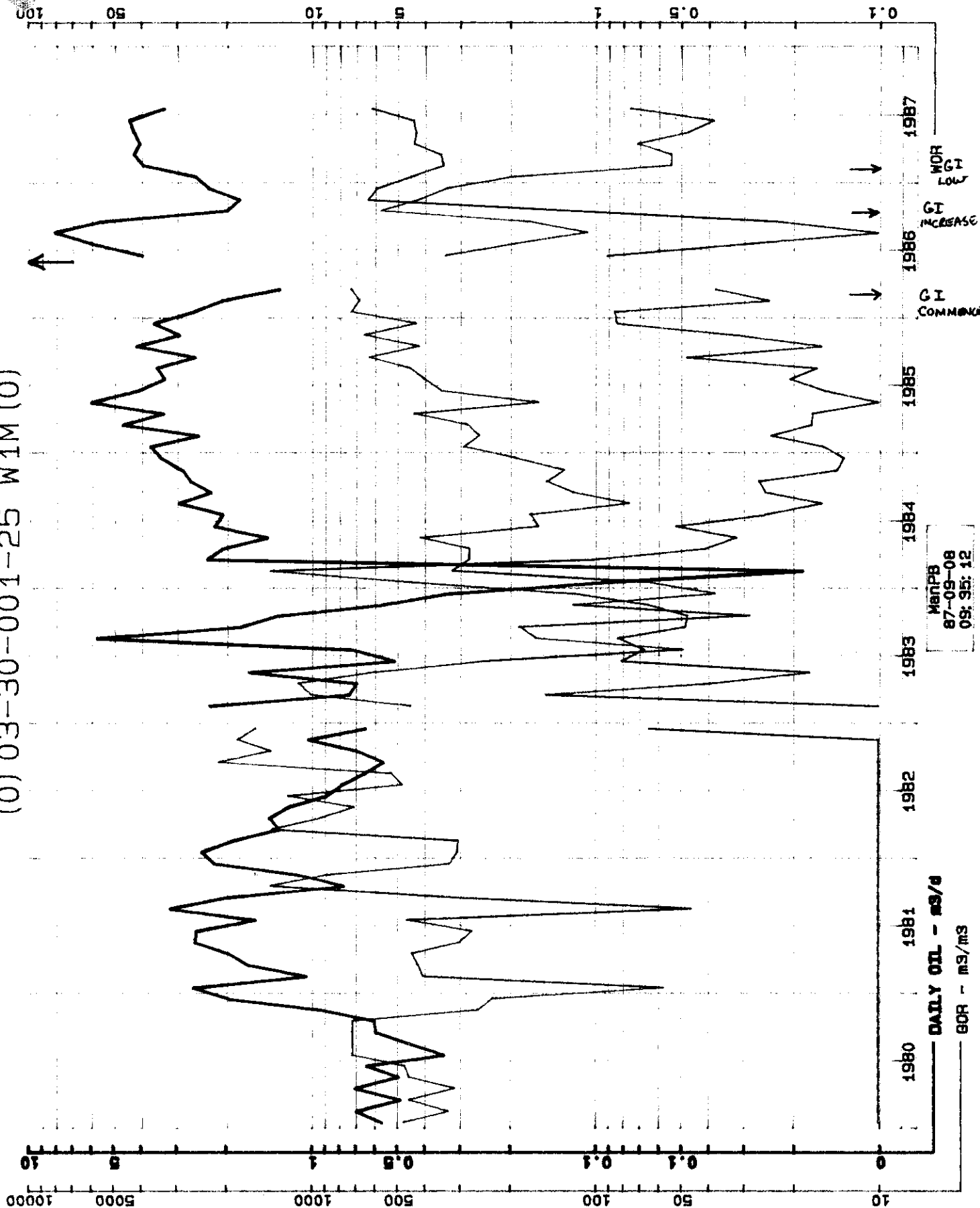
Weed control earlier in the growing season would eliminate complaints from landowners. Would suggest hiring someone for the summer to control weeds instead of sending out someone who's not busy at the time. Need a more organized approach (i.e. start in one corner of the field and work accross).

(c) Spill site reclamation

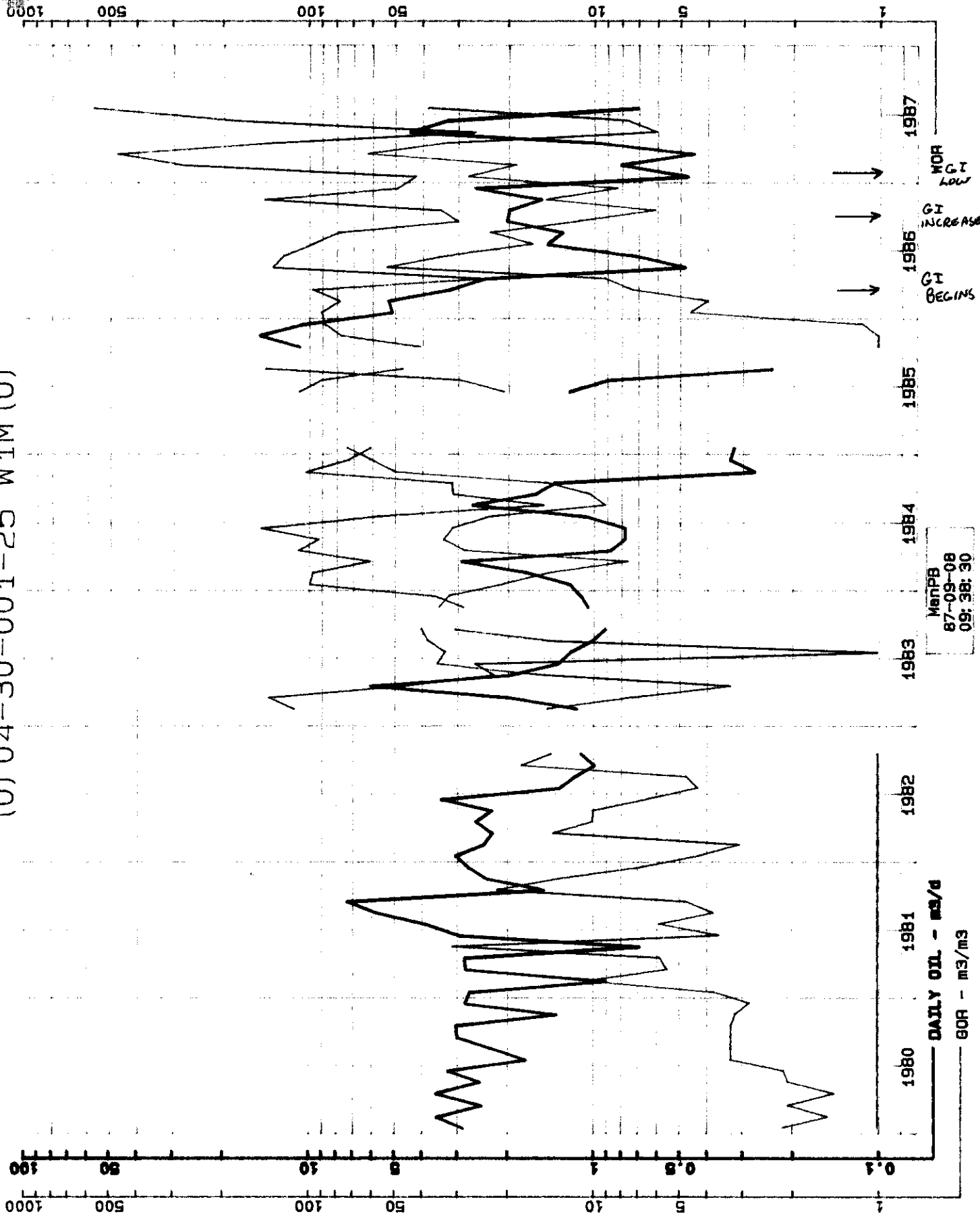
Omega has 10+ old spill sites that will require reclamation work starting next year. Summer student suggested for weed control would also prove helpful in setting this up.

CASING
LEAK
REPAIR

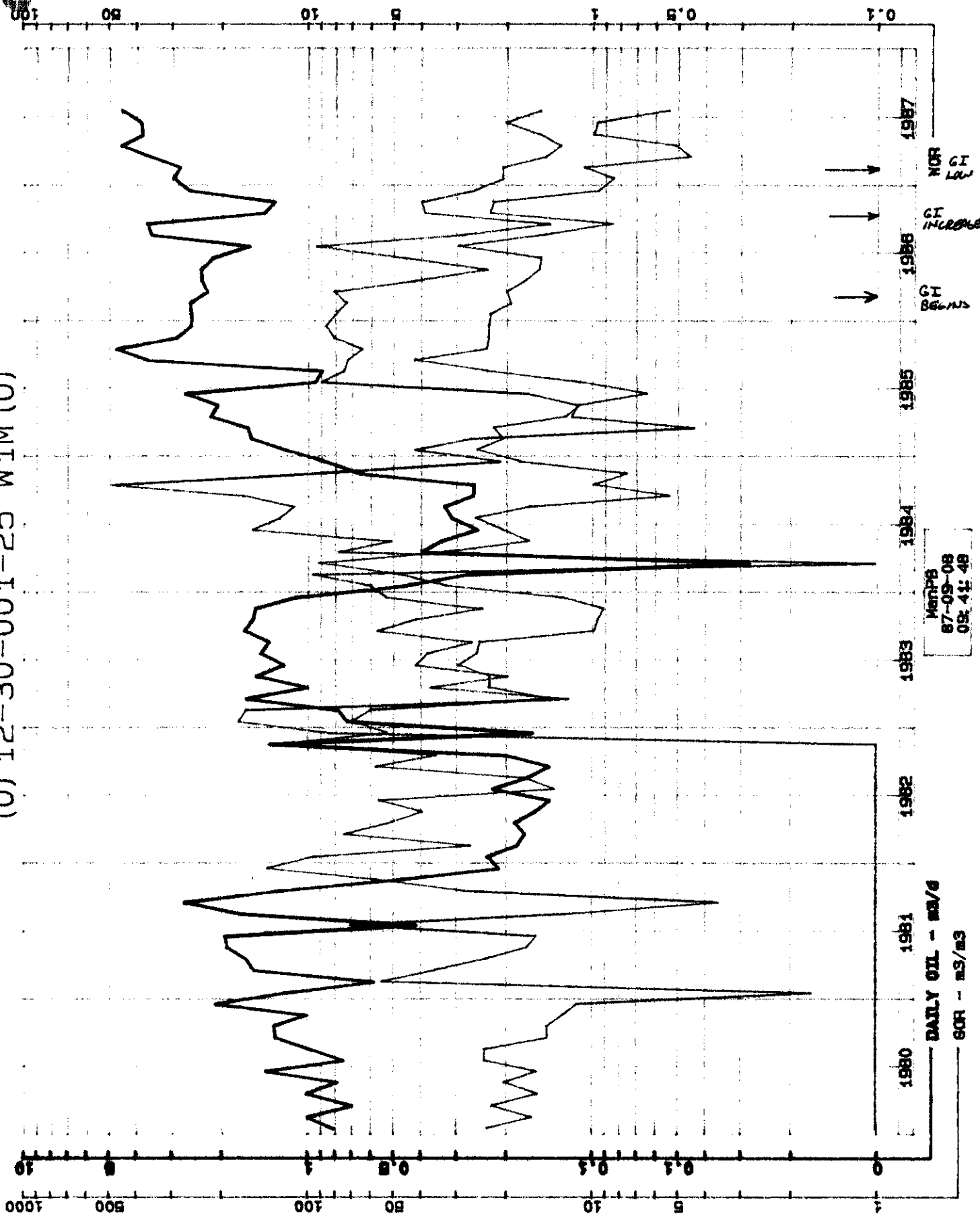
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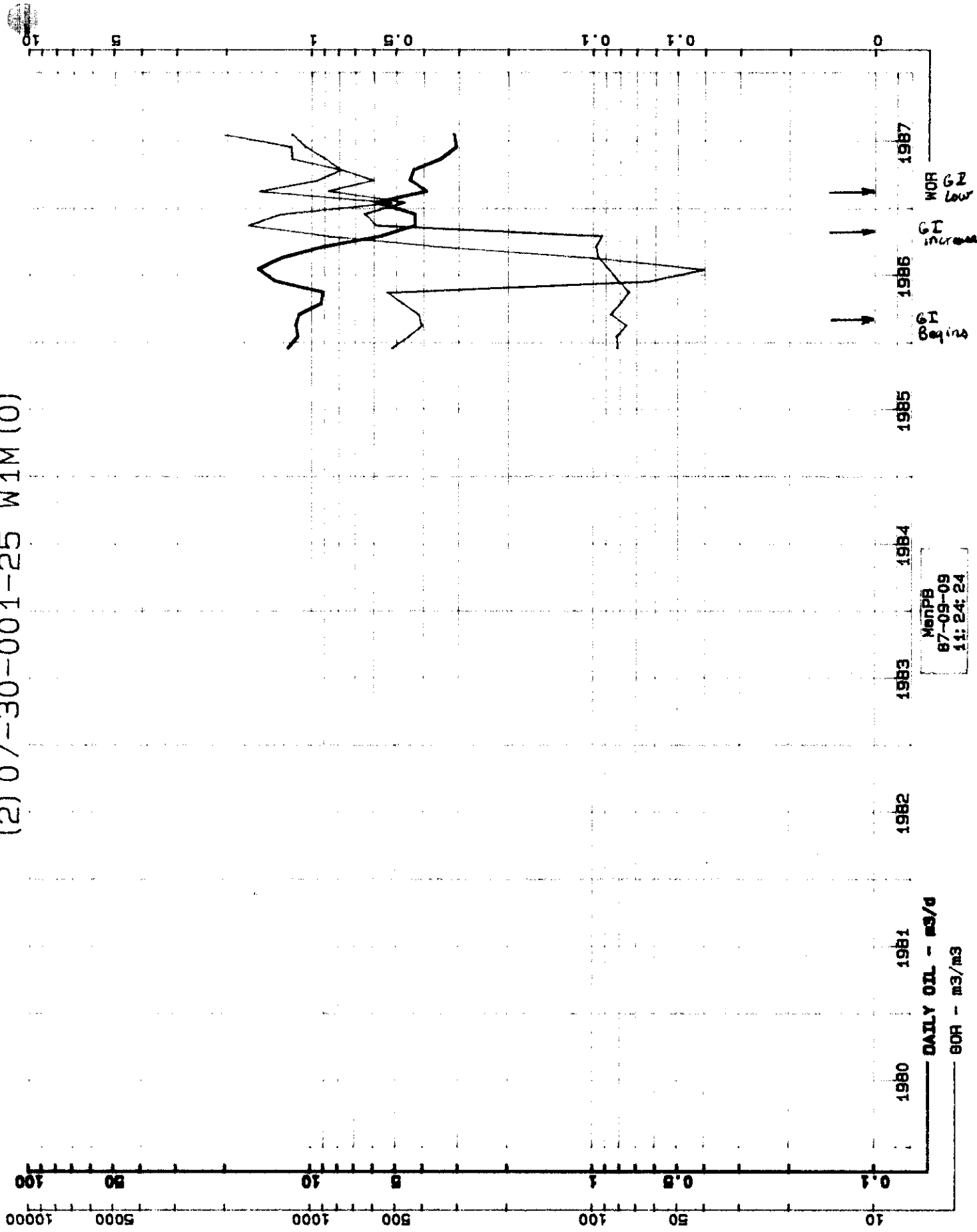
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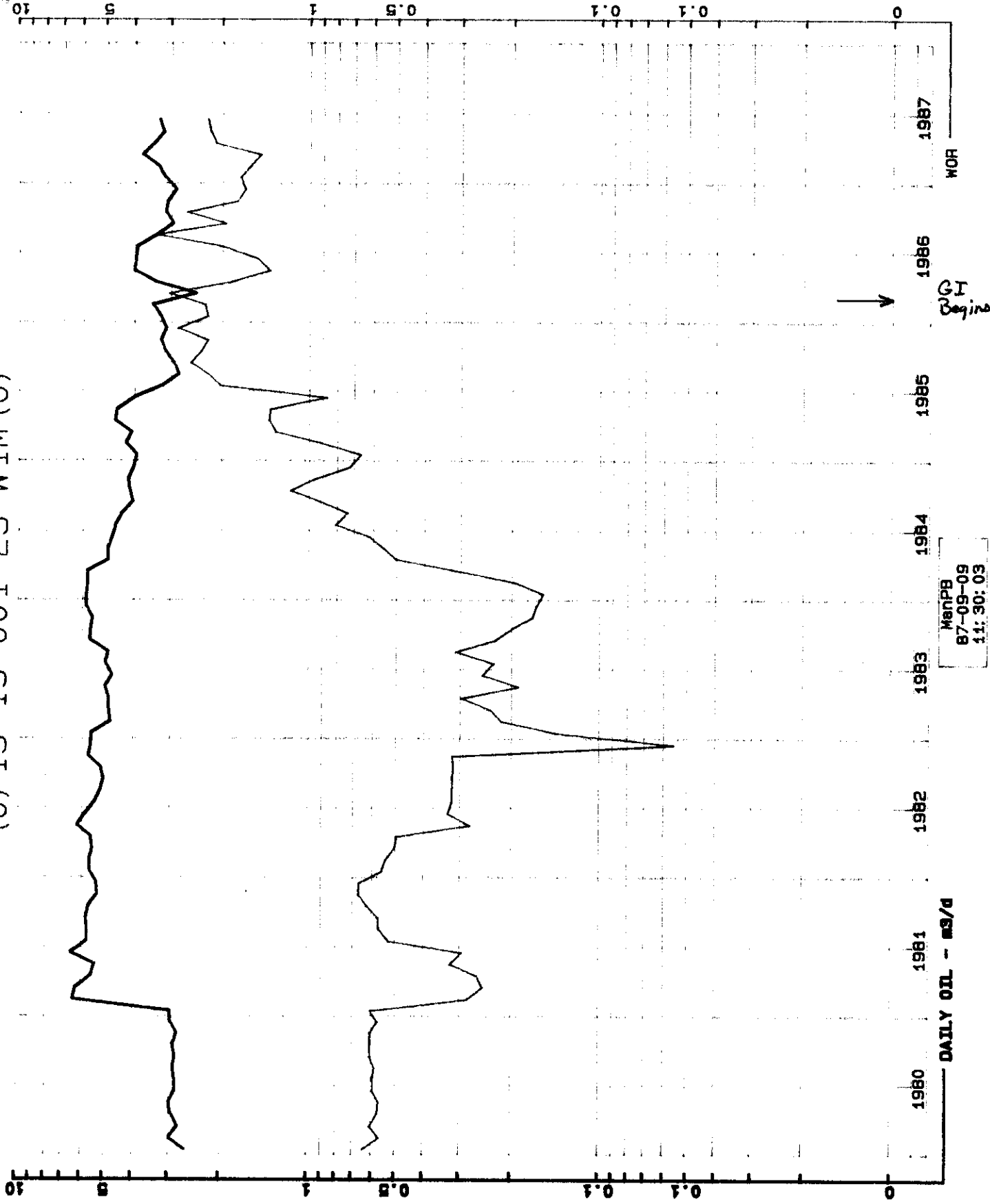
(O) 12-30-001-25 W1M (O)



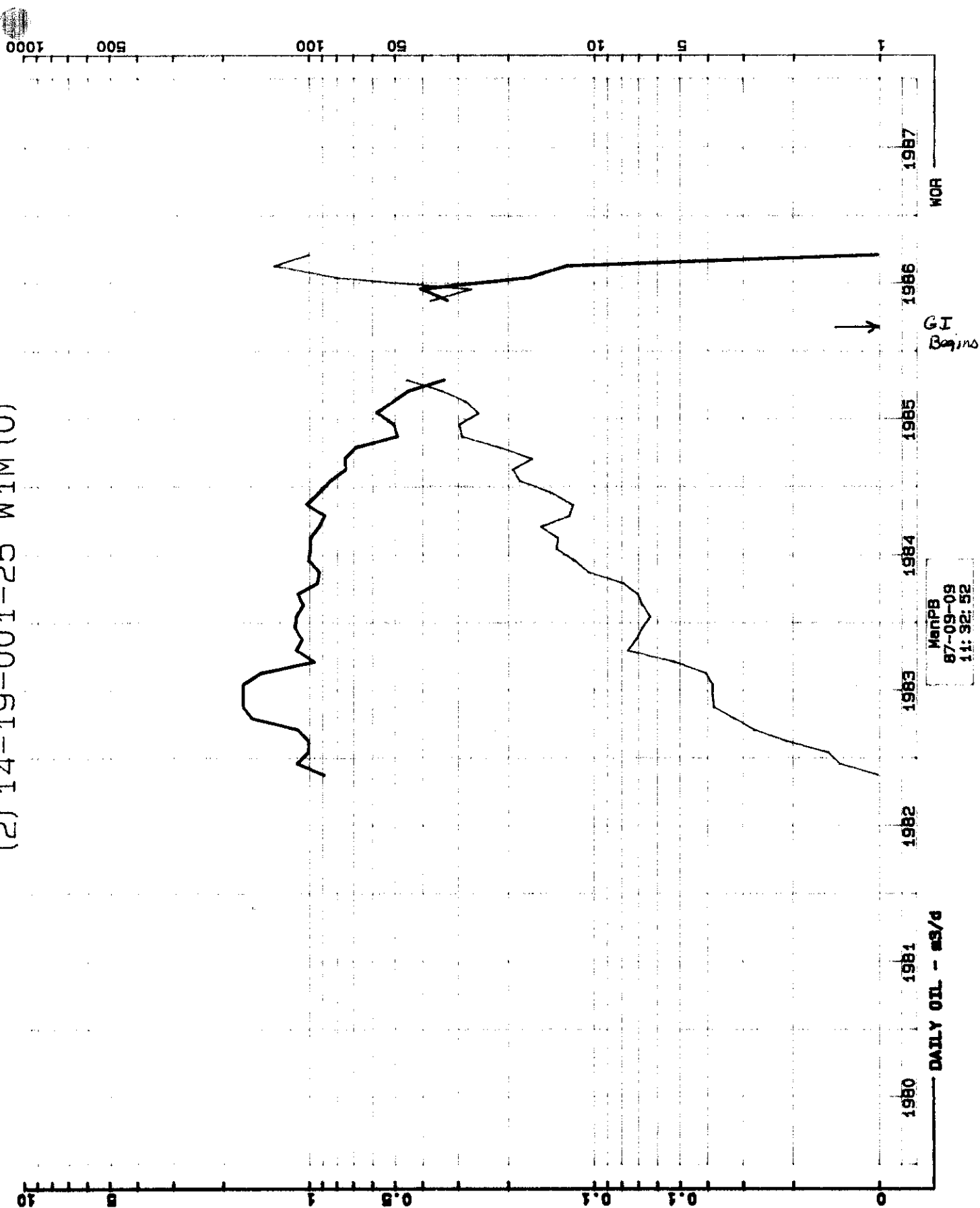
(2) 07-30-001-25 W1M (0)



(0) 13-19-001-25 W1M (0)



(2) 14-19-001-25 W1M (0)



SEP 18 1987

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H3

Attention: T. J. Hall,
President

Dear Sirs:

Re: Waskada Unit No. 1
Gas Injection

Your letter of September 9, 1987 recommending continued gas injection in the subject Unit is acknowledged.

Upon review of your letter and of production performance of wells in and adjacent to the subject Unit, the Board authorizes resumption of gas injection into the well Omega Waskada GIW 6-30-1-25 (WPM) on an interim basis until April 1, 1988 subject to the following conditions:

1. A remedial cement squeeze designed to re-establish isolation between the Lower Amaranth and Mission Canyon Formations be conducted as soon as possible (i.e. prior to October 1, 1987) at the well Omega Waskada Prov. A7-30-1-25 (WPM). Resumption of gas injection should not commence until a satisfactory cement squeeze has been achieved.
2. Prior to March 1, 1988, Omega is to submit a further comprehensive review of production performance of wells in and adjacent to the Unit. The report will be used as a basis for either terminating or continuing gas injection past April 1, 1988.
3. The gas oil ratio limitations provided for in Board Order No. PM 47 are suspended for the duration of the interim approval of gas injection.
4. Monthly progress reports for the gas injection project are to be modified to include a narrative summary of operations, particularly on the affects of gas injection.
5. If production trends warrant, the Board may order the immediate termination of gas injection.

In view of the various production problems that have occurred involving gas injection in oil pools in the Waskada Field, the Board considers gas injection as only a temporary measure. As a result, you are urged to continue your efforts to develop an alternate disposition for the gas. You are requested to keep the Board informed of any developments in this regard.

Sincerely yours

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang
Chairman

LRD/HCM/lk

b.c. Wm.McDonald
B. Ball
Petroleum



HYDROCARBONS LTD

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743

241
THE OIL & NATURAL GAS
CONSERVATION BOARD
WINNIPEG, MANITOBA

SEP 14 1987

RECEIVED

September 9, 1987

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

→ The Oil & Natural Gas
Conservation Board
309 Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: Mr. Clare Moster
Executive Director

Attention: Mr. Charles S. Kang
Chairman

Dear Sir:

RE: Waskada Unit No. 1 - Gas Injection

We have completed a review of the Waskada Unit No. 1 Gas Injection Project as directed by the Manitoba Oil and Natural Gas Conservation Board in their letter of August 14, 1987. As a result of this review, it is the opinion of Omega Hydrocarbons Ltd. that:

- 1) The Lower Amaranth and the Upper Alida formations in section 30-1-25 WPM are in communication as a result of the A7-30-1-25 WPM completion frac job.
- 2) Gas injected at 6-30-1-25 WPM has been sweeping through the Upper Alida and into the Lower Amaranth at A7-30-1-25 WPM via the frac.
- 3) Gas breakthrough at A7-30-1-25 WPM has not yet adversely affected the Lower Amaranth pool performance in section 30-1-25 WPM. No other section 30-1-25 WPM Lower Amaranth well has shown any sign of gas breakthrough. It is recognized that extensive migration of gas into the Lower Amaranth could detrimentally affect future Lower Amaranth enhanced recovery operations.
- 4) Production from A7-30 has been helped by the 6-30 gasflood. The A7-30 production has been greatly supplemented by Upper Alida oil being swept to A7-30. The Lower Amaranth performance of A7-30 is not characteristic of the offsetting Lower Amaranth well performance.

<u>Well</u>	<u>On Production</u>	<u>Cum Oil (m³)</u>	<u>Rate (m³/d) (1987/07)</u>
A7-30	85/12	4000	3.1
2-30	82/10	1125	0.4
8-30	83/09	2350	2.2
9-30	82/03	1030	0.4

Historical production plots for these wells are attached.

- 5) The performance trend of A7-30 suggests that we are approaching the limit of the benefit gained by the communication. The A7-30-1-25 WPM oil production rate has declined to the point where a limited benefit is being realized by the gasflood communication.
- 6) Continued gas injection into the Upper Alida at 6-30-1-25 WPM is required in order to sustain the pool performance.

3-30-1-25 WPM: Although this well is currently producing at a high GOR, oil production is at an all time high and the water production continues to decline. Either primary depletion or waterflooding would result in poorer performance.

4-30-1-25 WPM: The occasional high GOR measurements observed are likely the result of measuring difficulties associated with low oil production rates.

12-30-1-25 WPM: This well has greatly benefited from gas injection. Total oil production continues to improve while water production continues to decline.

Clearly the Upper Alida performance has benefited from gas injection at 6-30-1-25 WPM. Gas injection at 6-30-1-25 WPM should be continued and the restrictive GOR limit of $500 \text{ m}^3/\text{m}^3$ at the producing wells should be waived. Historical production plots for these wells are attached.

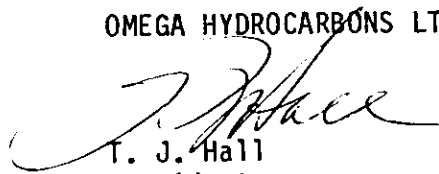
Our conclusion is that gas injection at 6-30-1-25 WPM is critical to optimizing the performance of the Upper Alida formation. Also, to ensure that the future performance of the Lower Amaranth pool is also optimized, steps must be taken to re-establish segregation between the Lower Amaranth and Upper Alida formations. Therefore, we recommend:

- 1) Workover well A7-30-1-25 WPM to re-establish segregation. A cement squeeze should be done.
- 2) Continue to inject lean gas at 6-30-1-25 WPM into the Upper Alida formation.
- 3) Initiate a waterflood in the Lower Amaranth at A7-30-1-25 WPM.

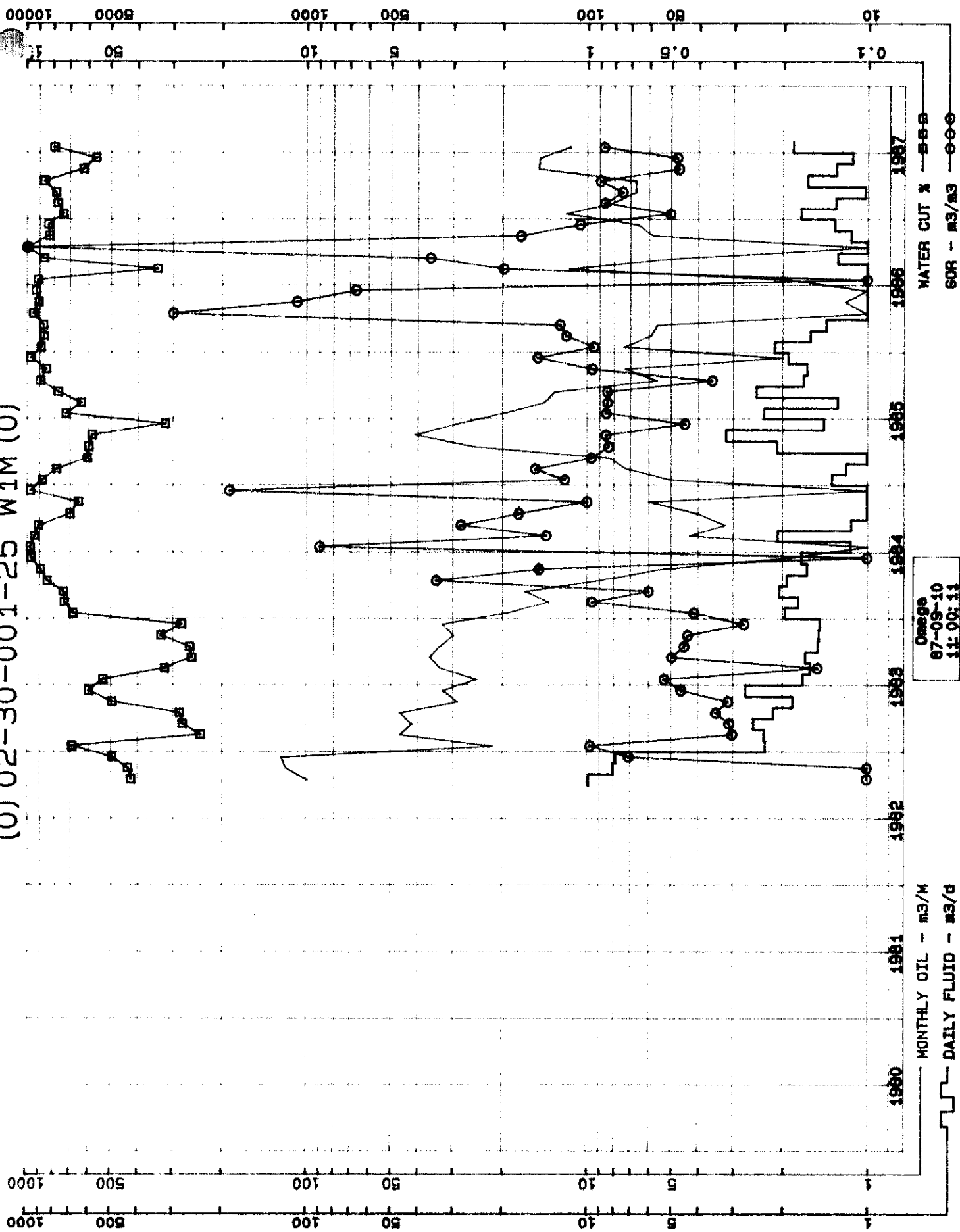
We believe that, by following these three steps, the performance of all pools in section 30-1-25 WPM of the Waskada field can be optimized.

Yours truly,

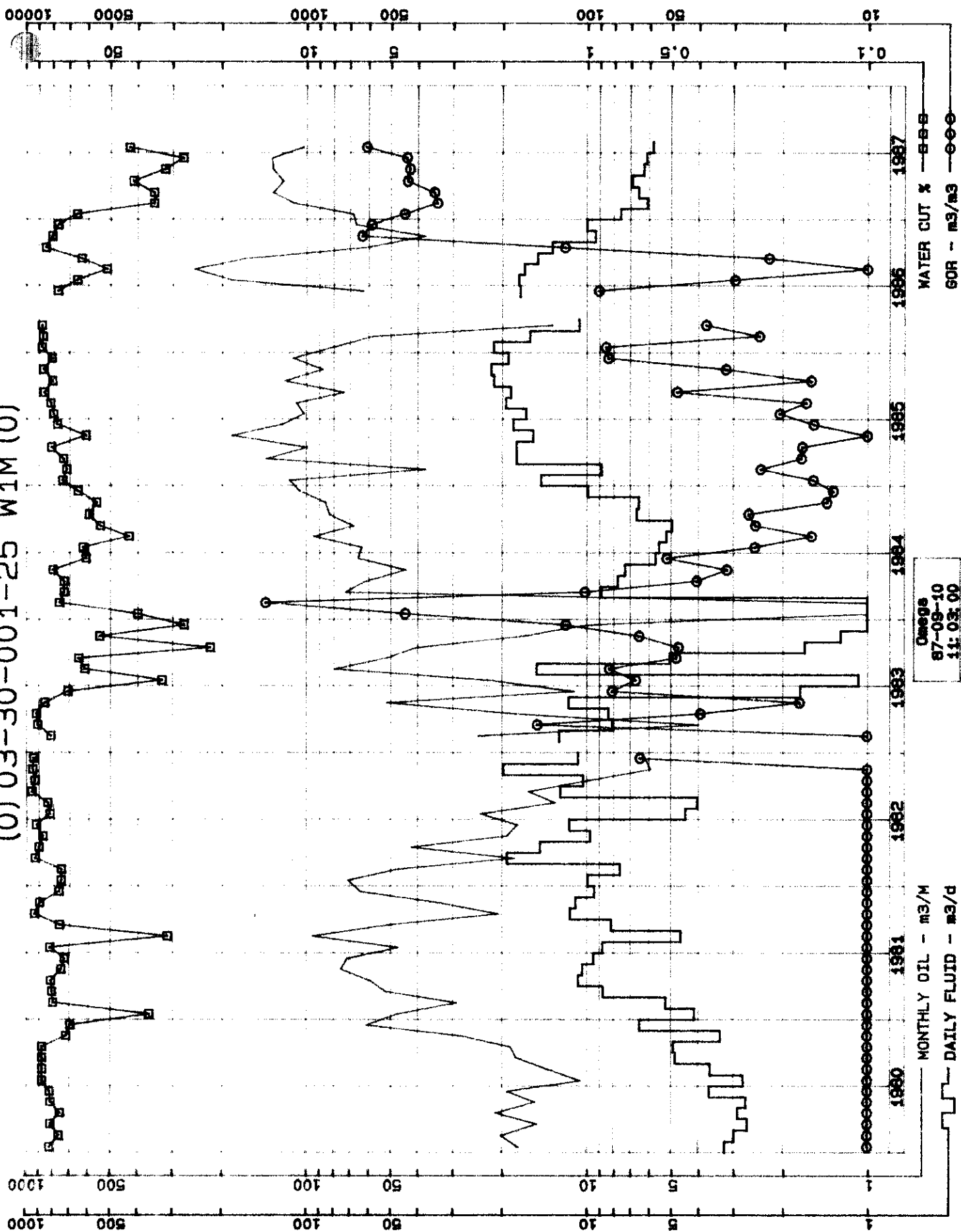
OMEGA HYDROCARBONS LTD.


T. J. Hall
President

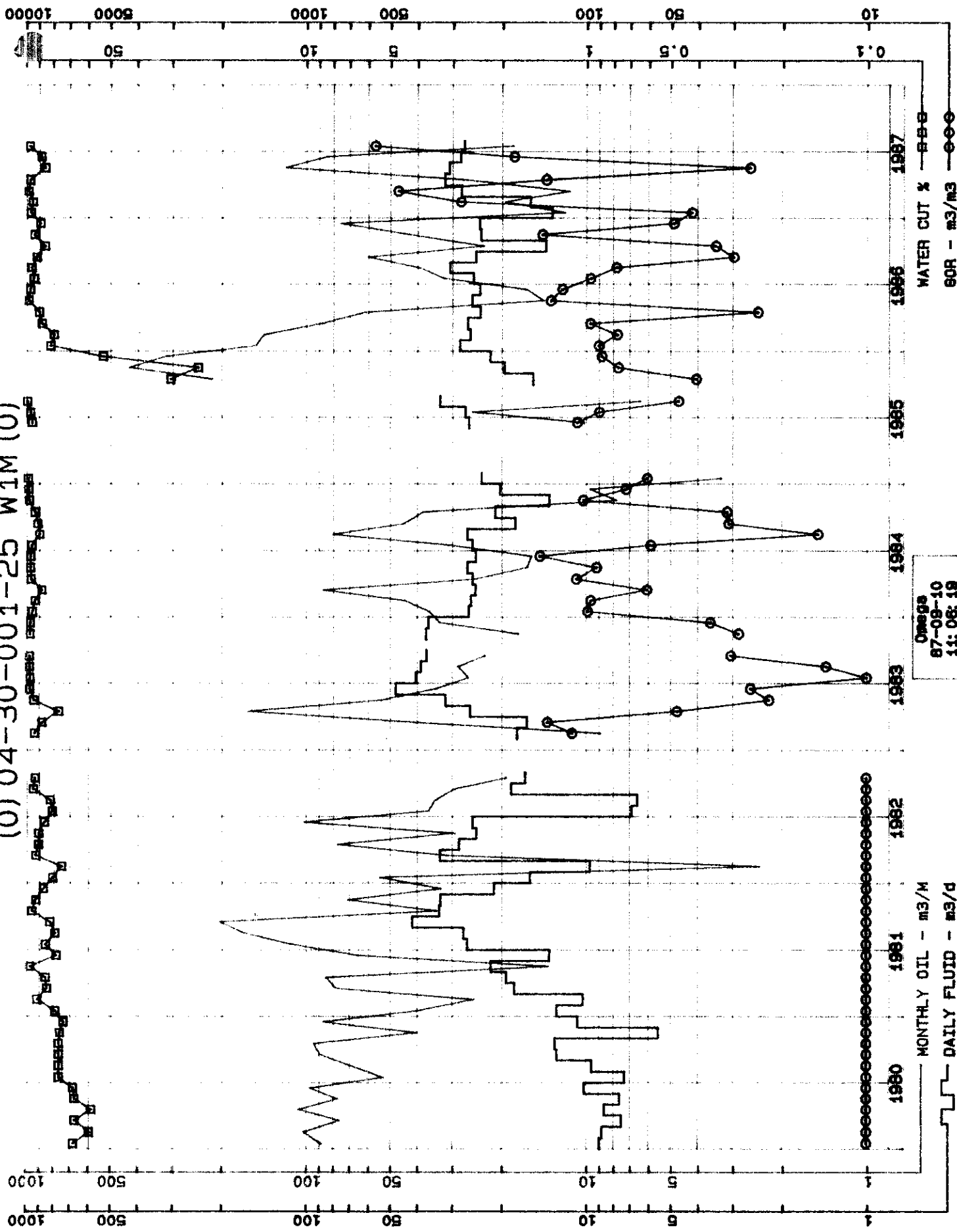
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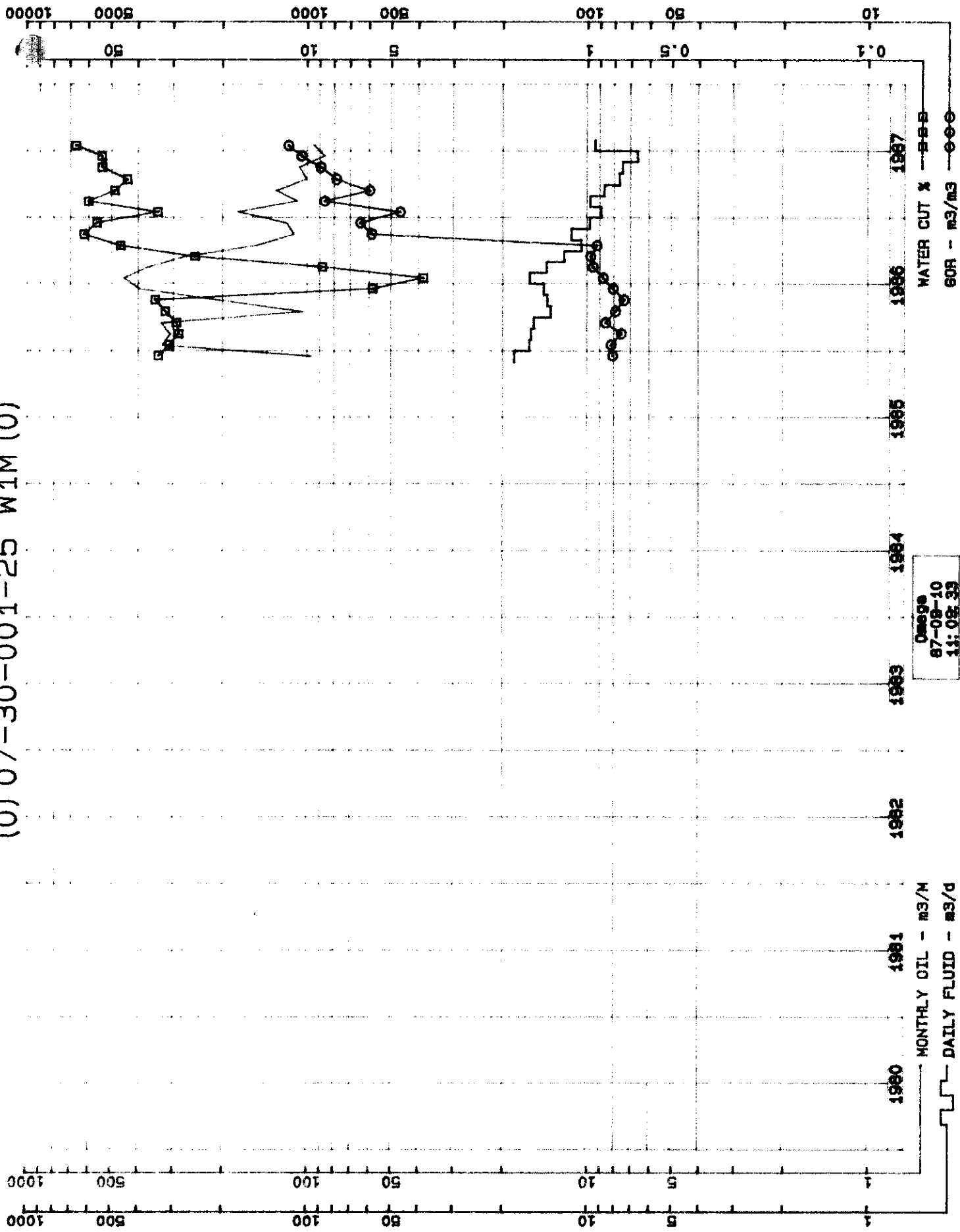
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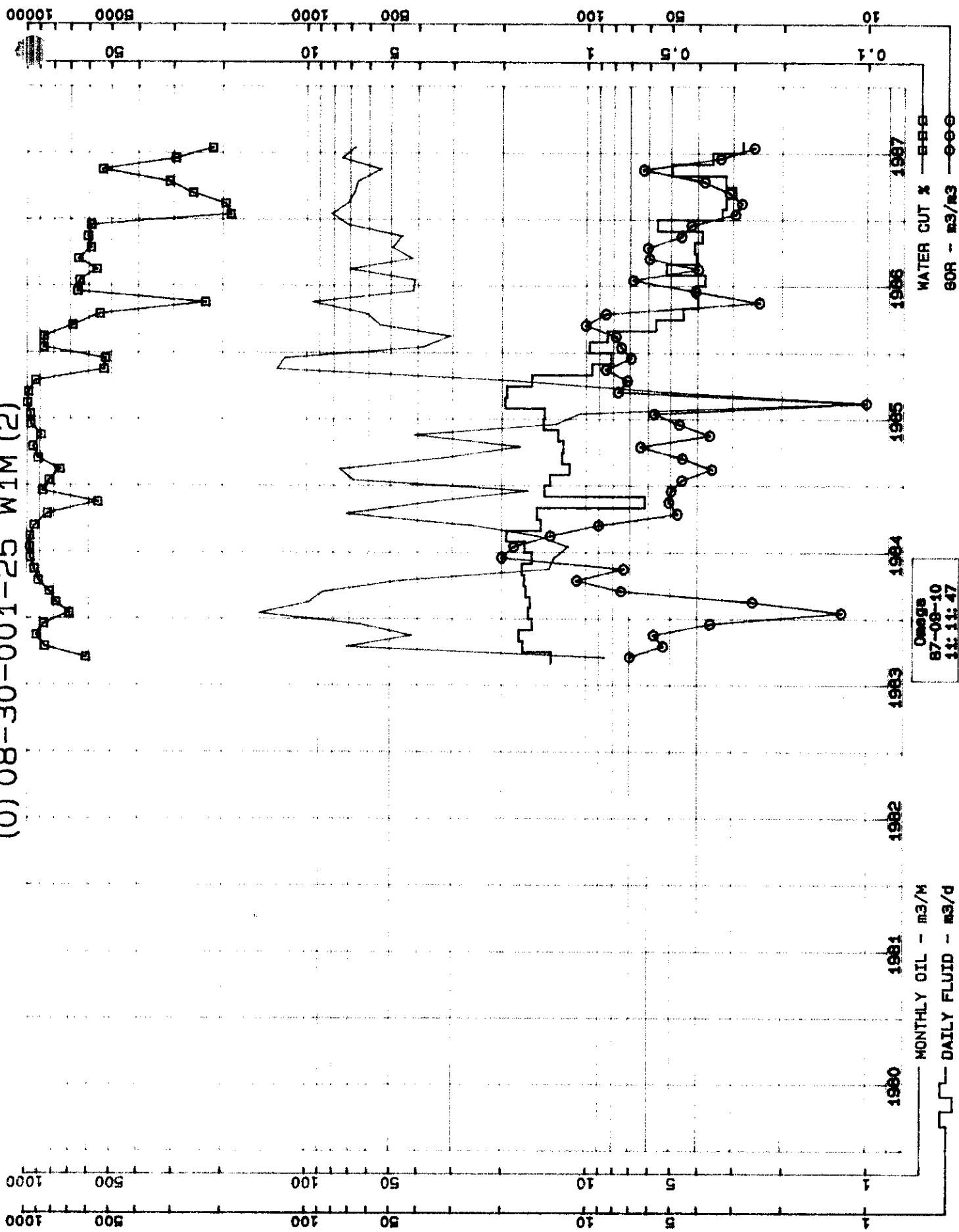
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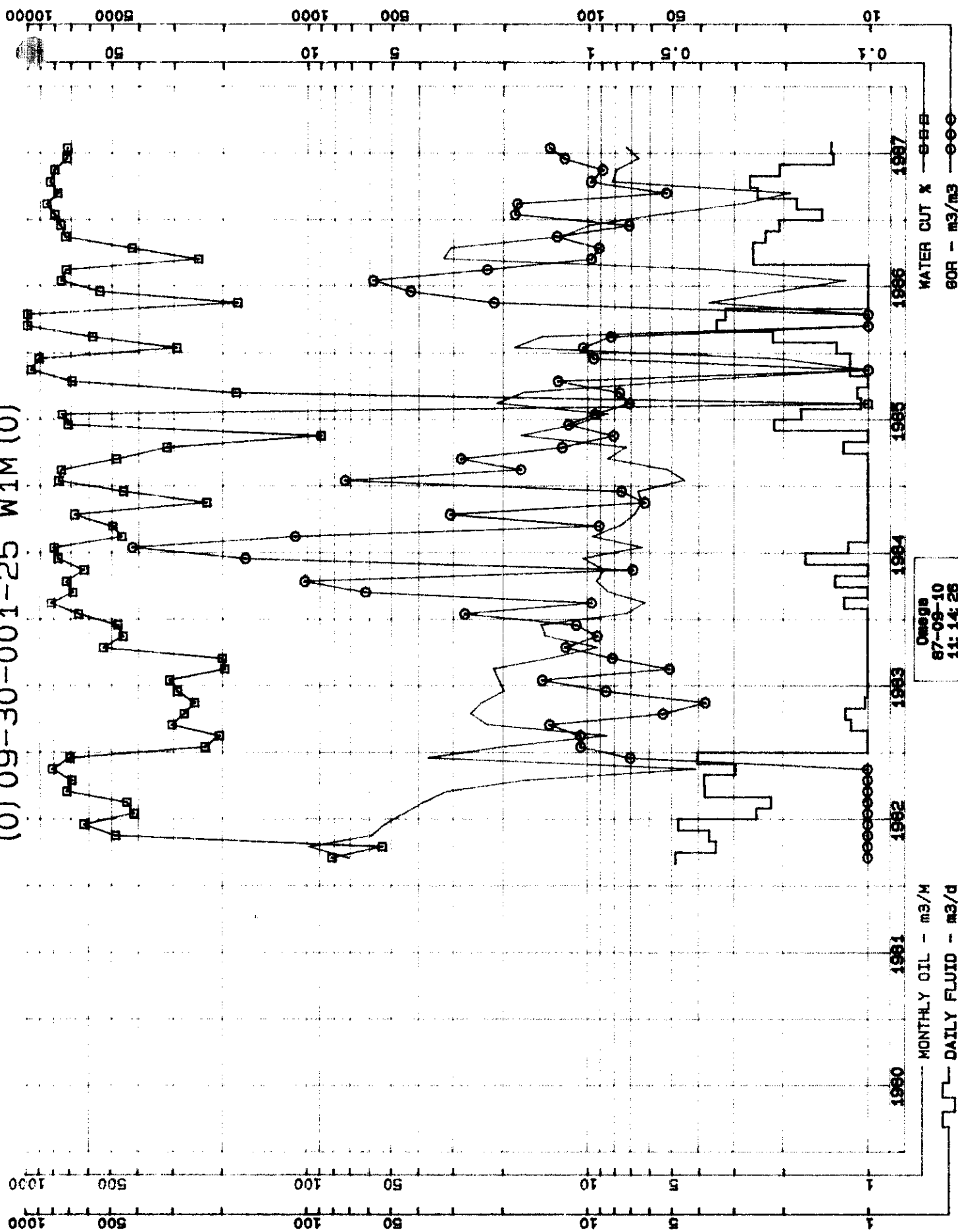
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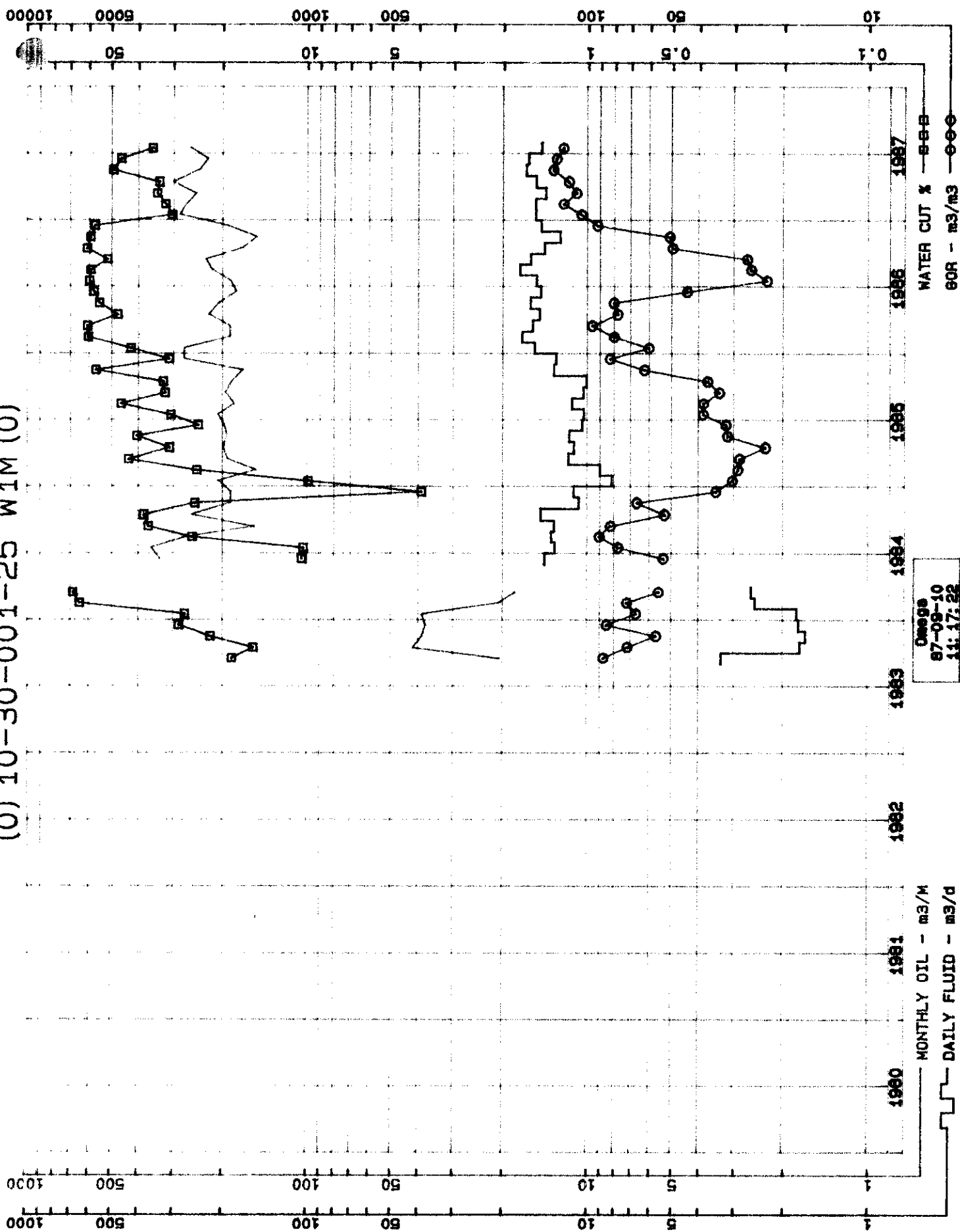
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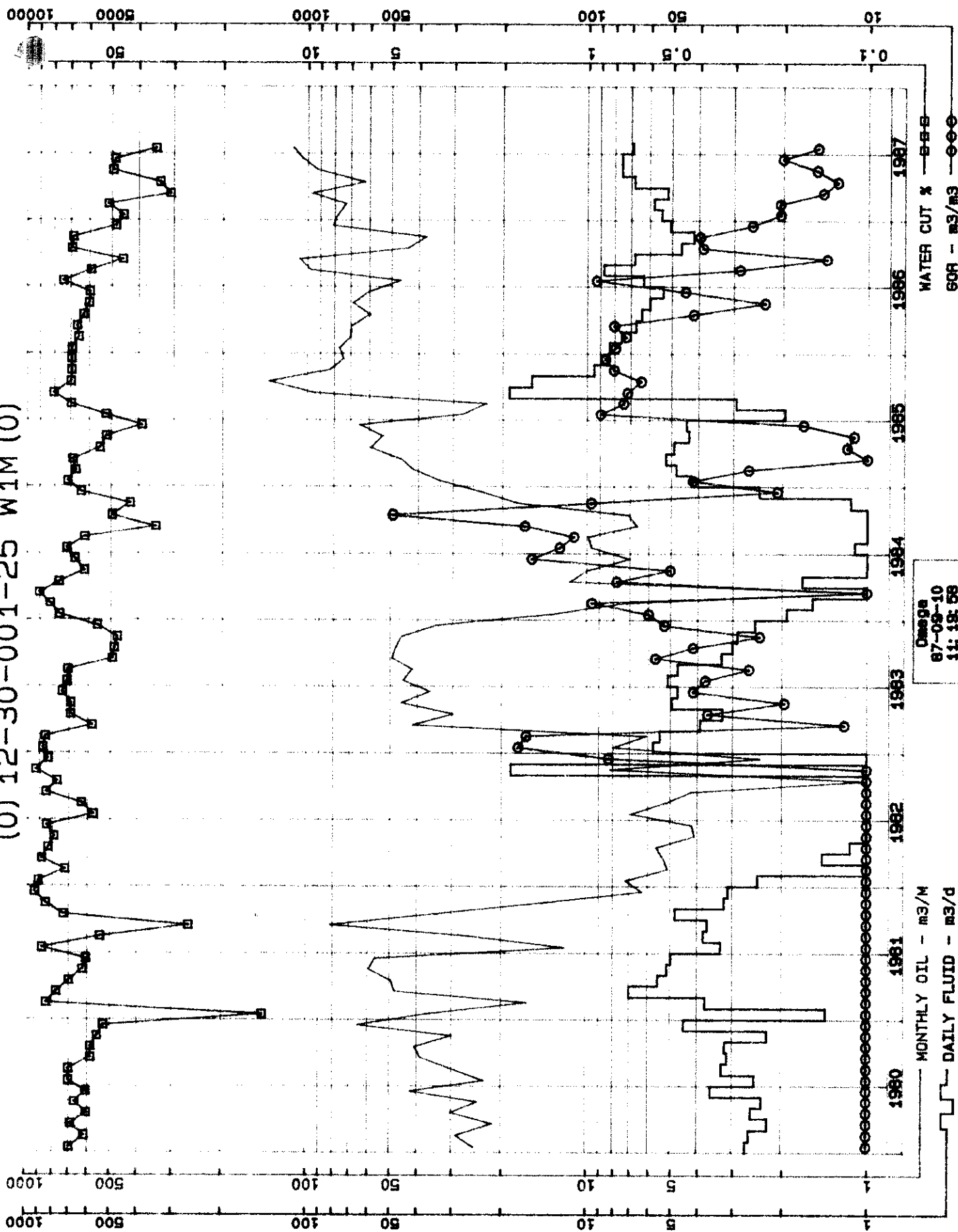


(0) 10-30-001-25 W1M (0)



Omega
87-09-10
11:17:22

(O) 12-30-001-25 W1M (O)



OMEGA WASKADA 3 - 30 - 1 - 25 WPM

13-30-1-25W1 K.B. 1546.4 I.D. 3128

REPRODUCTION

CATALOGUE NO.: 125040 D(B)


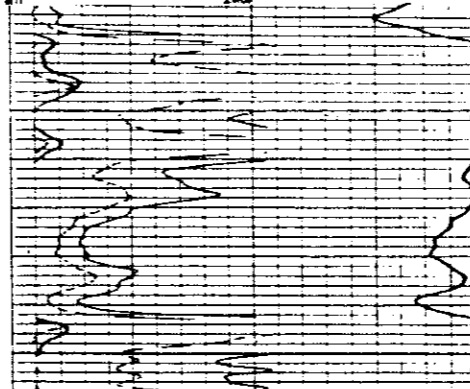
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1 DEC 67 CAL PD

03
Shipped 1800 / 25th Circulation Shipped 2000 / 25th Sent via Surface 0600 / 26th
1st Run Service Order # 4841A
S.H.F. 102

31 - inches

to No. F309
to F424
to M984
to B168
1

SPONTANEOUS - POTENTIAL millivolts	DEPTH feet	CONDUCTIVITY $\frac{1000}{\text{millimhos/m} - \frac{1000}{\text{ohms m/m}}}$
<div style="text-align: center;"> 10 — — — + </div>		<div style="text-align: center;"> INDUCTION 2000 — 1000 — 200 </div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> RESISTIVITY ohms m'/m </div> <div style="text-align: center; margin: 5px;"> 16' NORMAL </div> <div style="text-align: center; margin: 5px;"> INDUCTION </div>
	2800	

SD-3-30-1-25W1 K.0.1546.4 T.D.3127

REPRODUCTION

CATALOGUE NO.: 125041 A

DATE: 5/2/80		Job Name: Standard Order #		5841A
WAGS				
ing Stopped	1800 / 25.1h	Classification Stopped	2000 / 25.1h	Tail on Bottom 05.00 / 26.1h
Type No.				
Edge No.	8 15			
File	5292			
to No.	8 16			
Value Type				

GAMMA RAY CALIBRATION		Total Source CPS		Gross Interval (Seconds)		Penal Source Exp. per Cal.	
Background CPS		560		8.25		500	
60							

GAMMA RAY API UNITS		DEPTH	SONIC INTERVAL TRANSIT TIME microseconds per foot	
Sum 200 - 1.5 Zero 0 - 1.5 0 80 80 150			Speeding 31 Fishy Spm 31	
			140	90 140
			240	190 140

CALIPER		DEPTH	SONIC
Hole Diameter in Inches			
4 7 8 9 10 11 12 13 14			

GAMMA RAY		DEPTH	SONIC
API UNITS			

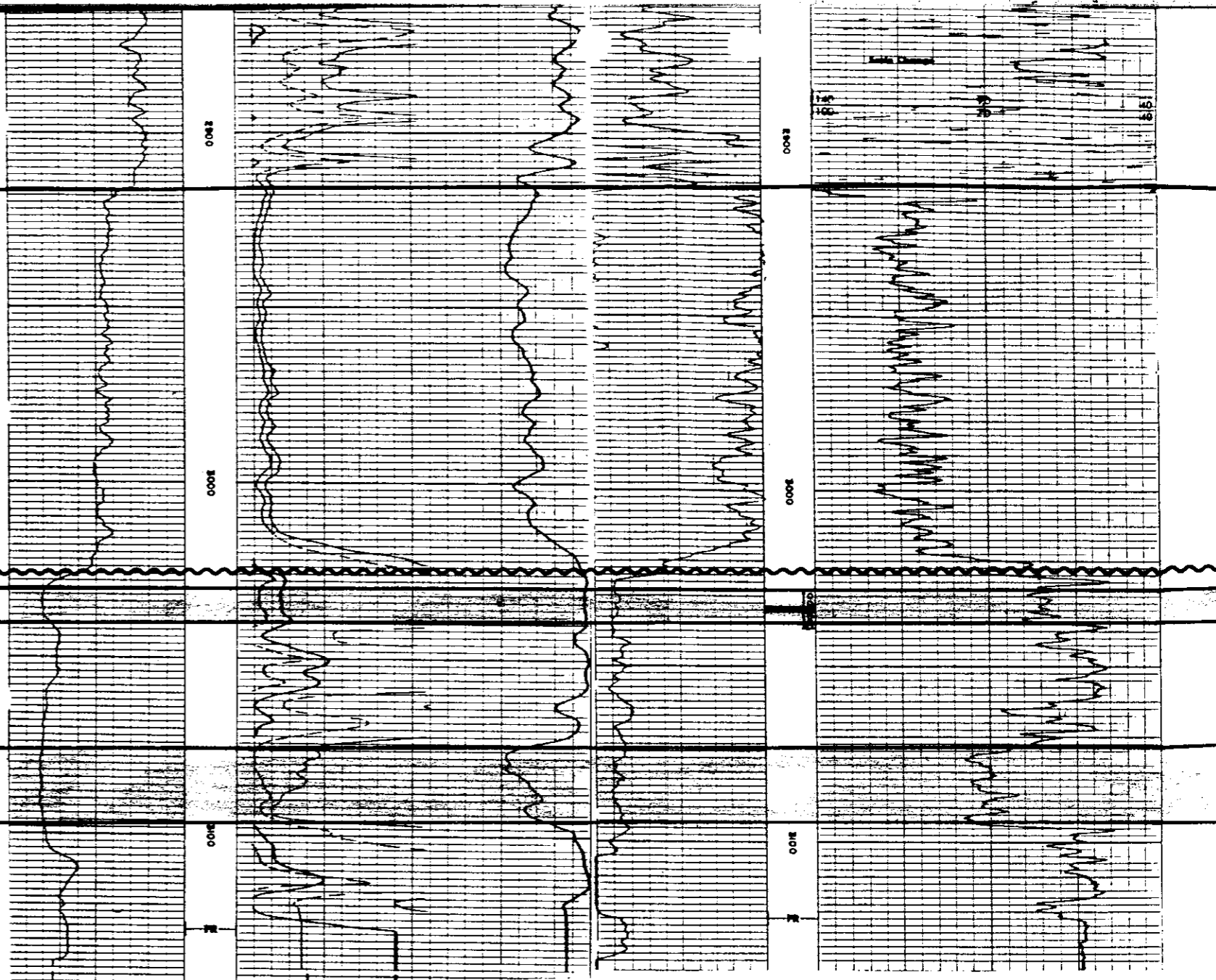
CALIPER		DEPTH	SONIC
Hole Diameter in Inches			

Top Lower Amaranth

Mississippian Unconformity

Upper Alida Porosity

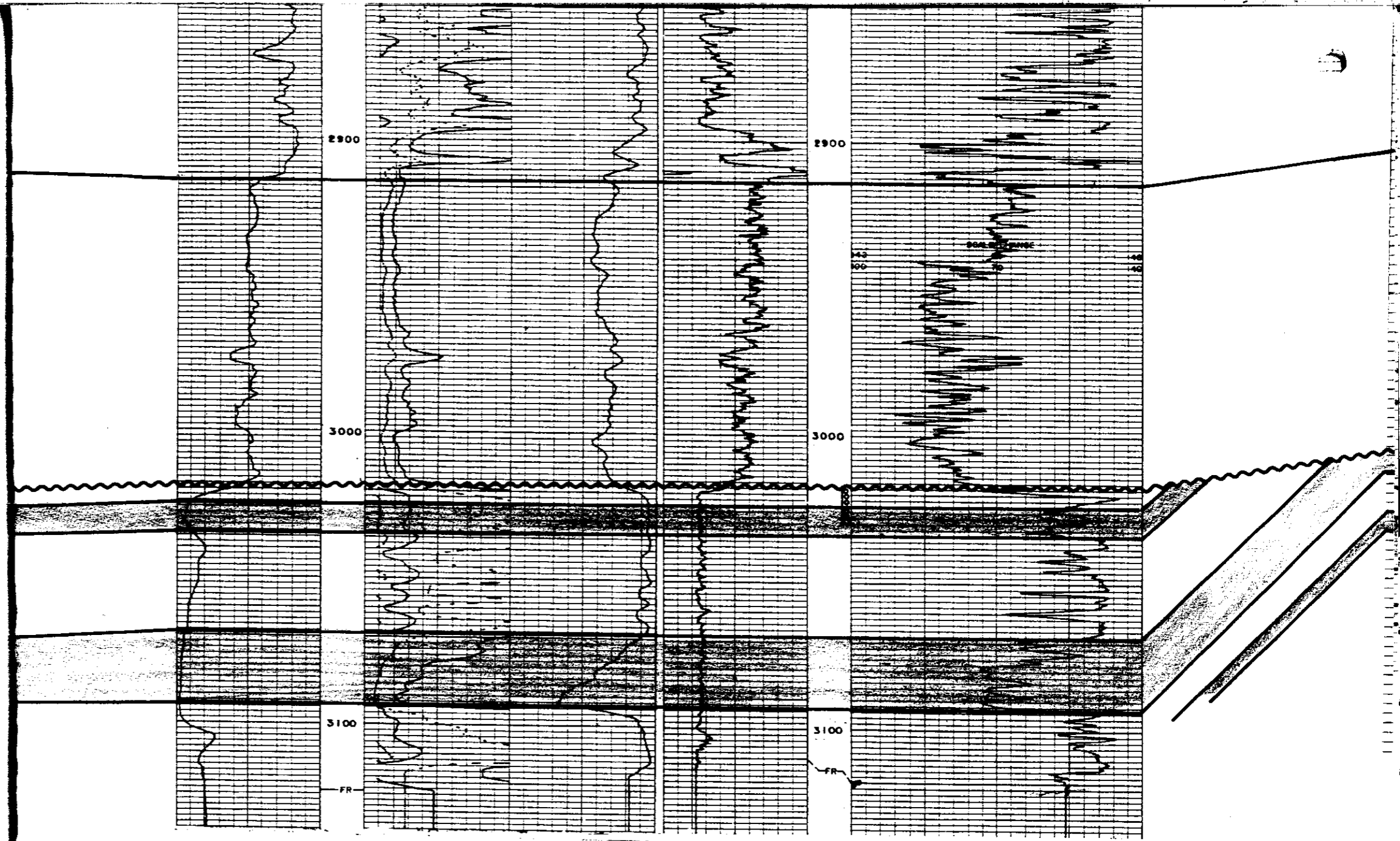
Lower Alida Porosity



OMEGA \


Gas Injector

[illegible]



1-25 WPM

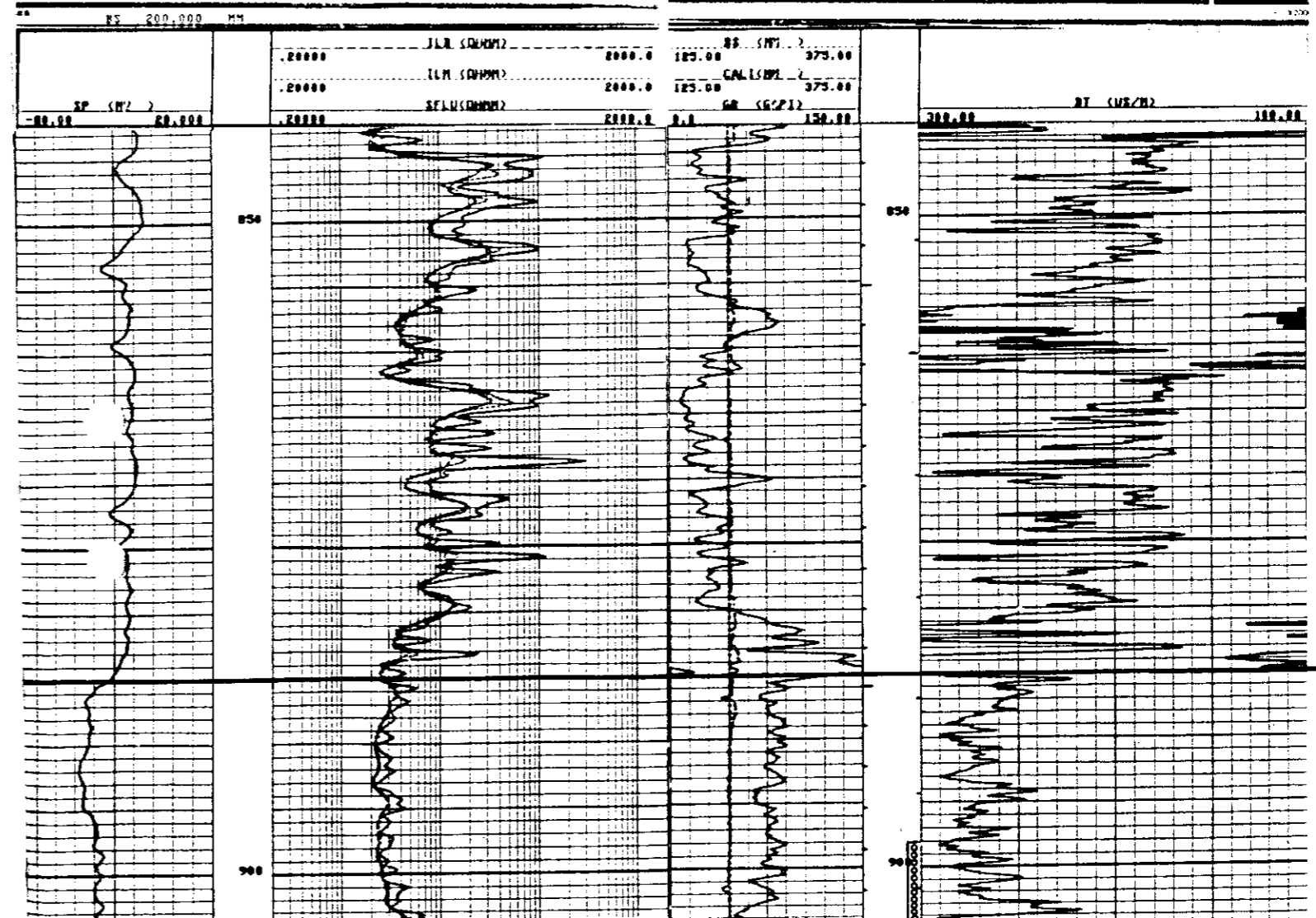
METHOD

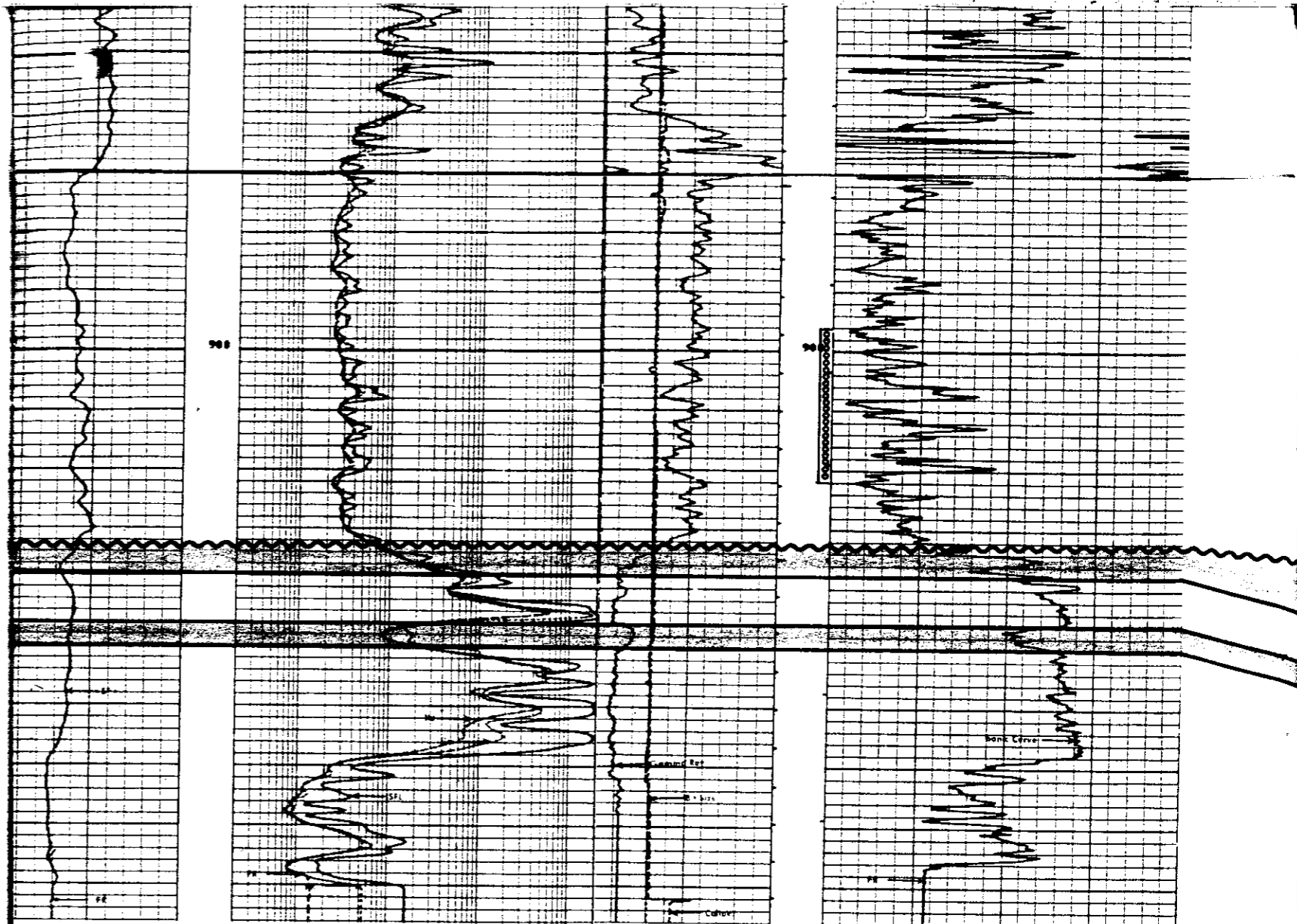
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STATUS AT TIME LICENCE ISSUED: DEF(C)

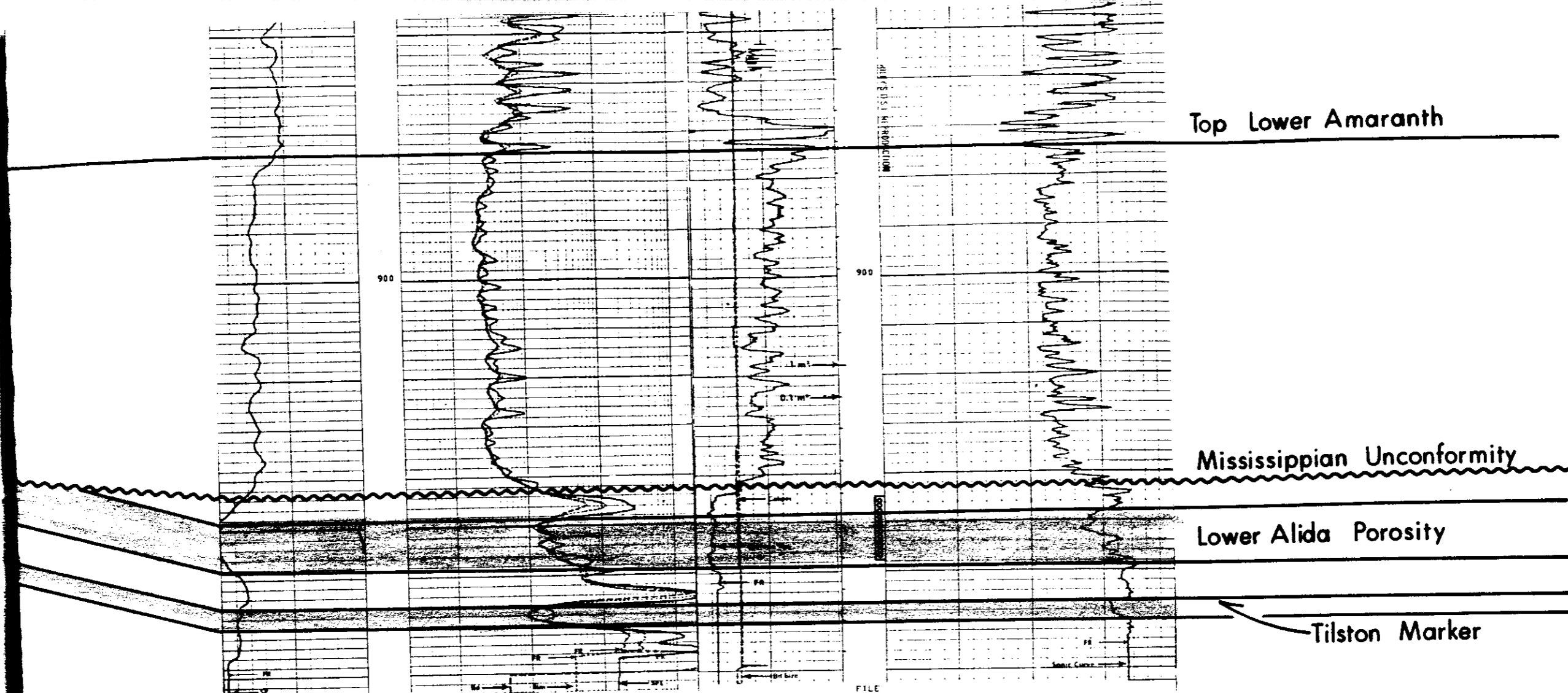
[illegible]

BOREHOLE COMPENSATED





OMEGA WASKADA 10-30-1-25WPM



OMEGA

HYDROCARBONS LTD.

WASKADA AREA, MN.

STRUCTURAL CROSS SECTION A-A'

Scale: Vert: 1:480, Not to Scale Horizontal Date: SEPT. '87

Geology: D. Roberts

Contour Interval:

Revised:

File:

Drafting: PAB.



1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743



August 20, 1987

The Oil and Natural Gas
Conservation Board
309 Legislative Building
450 Broadway Avenue
Winnipeg, Manitoba
R3C 0V8

Attention: Mr. Charles S. Kang
Chairman

Dear Sir:

Re: Waskada Unit No. 1 - Gas Injection

Omega Hydrocarbons Ltd. hereby acknowledges receipt of your August 14, 1987 letter instructing us to terminate gas injection at Waskada Unit No. 1.

We will immediately begin to evaluate alternatives for disposition of the Waskada lean gas. However, beginning September 15, 1987, we will redirect the lean gas to flare until a suitable alternative is found.

Sincerely yours

OMEGA HYDROCARBONS LTD.

G. E. Patey
Vice President - Production

cc: Bob Dubreuil
Warren Sharp
Waskada Unit No. 1 File

DOR/ce

** - follow up*
Sept 15

AUG 14 1987

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H3

Attention: Mr. R. A. Brekke, P. Eng.

Dear Sirs:

Re: Waskada Unit No. 1 - Gas Injection

Upon review of the June 1987 pressure maintenance progress reports, we note that continued gas injection at the well Omega Waskada GIW 6-30-1-25 (WPM) is resulting in disturbing production trends.

In particular, gas/oil ratios at Omega Waskada 3-30-1-25 (WPM) and Omega Waskada Prov. A7-30-1-25 (WPM) have become excessive and there is some indication of increasing GOR at Omega Waskada 4-30-1-25 (WPM).

The high gas production at the A7-30 well, a planned water injection location suggests communication between the Mississippian and Lower Amaranth Formations. We are particularly concerned that the apparent presence of a gas saturated area near the A7-30 well may have a detrimental effect on Lower Amaranth enhanced recovery operations.

In view of the above, the Board is of the opinion that continued gas injection in the 6-30 well is not in the best interests of conservation. You are therefore directed to submit a proposal for alternate disposition of the lean gas, preferably in a deeper non-hydrocarbon producing formation. Pursuant to subclause 1(3) of Board Order No. PM 47, you are hereby advised that, unless otherwise approved, gas injection into the well Omega Waskada GIW 6-30-1-25 (WPM) is to be terminated not later than September 15, 1987.

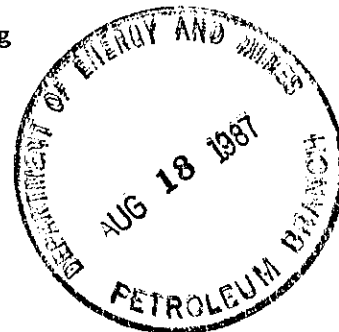
Sincerely yours

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang
Chairman

LRD/HCM/lk

b.c. Wm. McDonald
B. Ball
Petroleum Division
Waskada Office



ALG 3 1 1987

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H3

Attention: Mr. R. A. Brekke, P. Eng.

Dear Sirs:

Re: Waskada Unit No. 1 - Gas Injection

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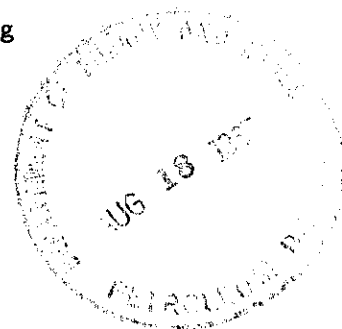
Sincerely yours

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang
Chairman

LRD/HCM/1k

b.c. Wm. McDonald
B. Ball
Petroleum Division
Waskada Office



THEREFORE, the Board orders that:

1. Board Order No. PM 30 (Manitoba Regulation 127/76) is hereby rescinded.
2. The Unit Operator shall conduct pressure maintenance operations by the injection of gas into the pool underlying the Unit Area.
3. The pressure maintenance operation shall be in accordance with, and subject to, the following rules:

PRESSURE MAINTENANCE RULES

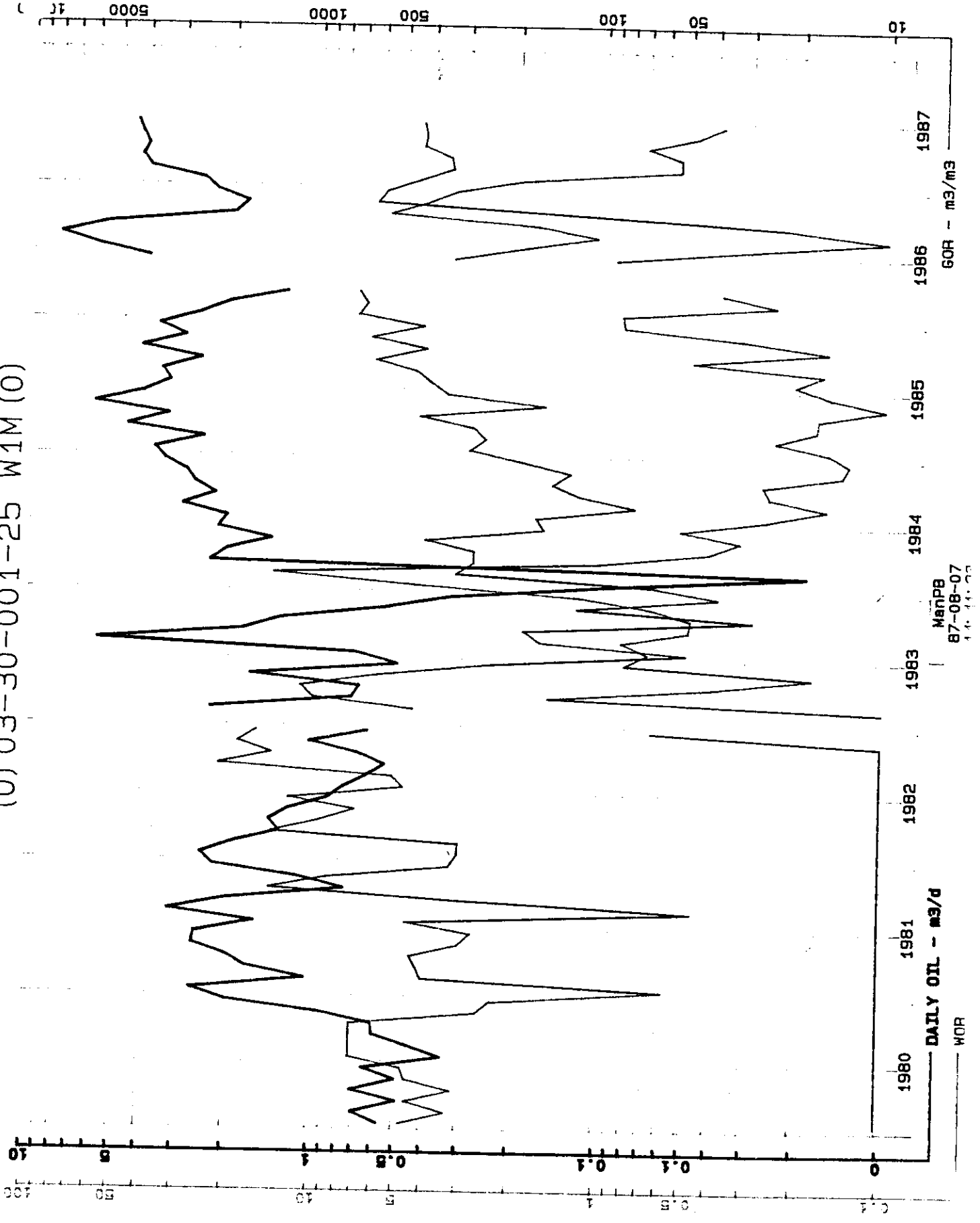
1. (1) Gas shall be injected into the pool through the well

Omega Waskada GIW 6-30-1-25 (WPM)

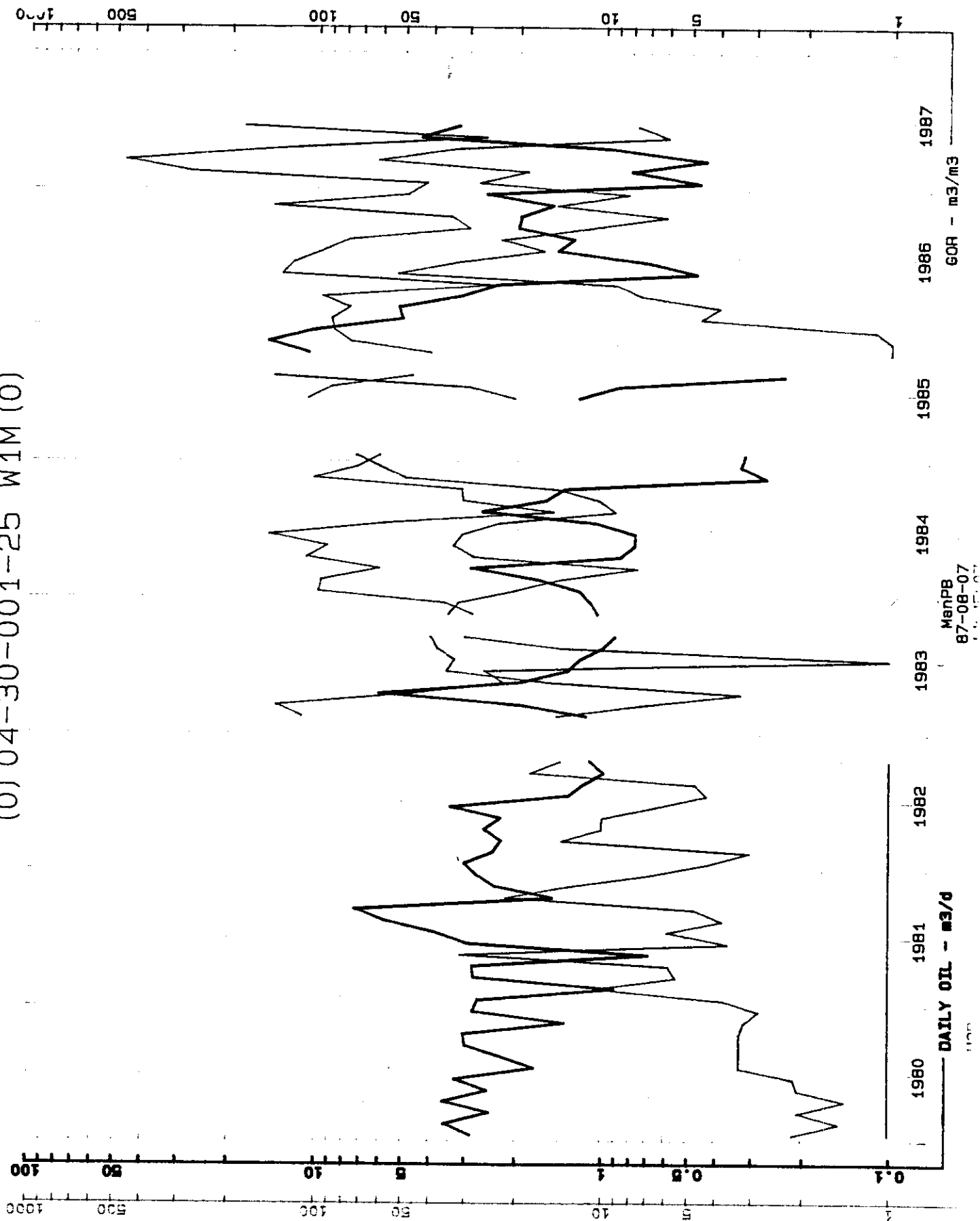
and such other wells in the Unit Area as the Board may approve.

- (2) After the commencement of injection, the Unit Operator shall, subject to any remedial work required to be performed on the wells referred to in subclause (1) of this clause, endeavour to maintain continuous injection.
 - (3) Notwithstanding the provisions of subclause (2), the Board may, upon application by the Unit Operator, or on its own motion, approve or order the suspension of gas injection into any well or wells, provided that the Board is satisfied that pressure maintenance operations in the Unit Area will not be adversely affected.
 - (4) The Board may, upon application by the Unit Operator, or on its own motion, approve or require the conversion of any well or wells from gas injection to water injection if the Board is of the opinion that continued gas injection would be detrimental to pressure maintenance operations, ultimate recovery or the correlative rights of offsetting operators or that there is an insufficient supply of gas for injection.
 - (5) The completion of the well referred to in subclause (1) will be as prescribed by the Director of the Petroleum Branch.
2. (1) Before injection of gas is commenced, the Unit Operator shall submit, to the Board, results of a survey conducted to determine the static reservoir pressure in a minimum of one well in the Unit Area.
 - (2) The Unit Operator shall, not less than six months nor more than 12 months after the commencement of injection, and at yearly intervals thereafter, conduct a survey to determine the static reservoir pressure in a minimum of one well in the Unit Area.

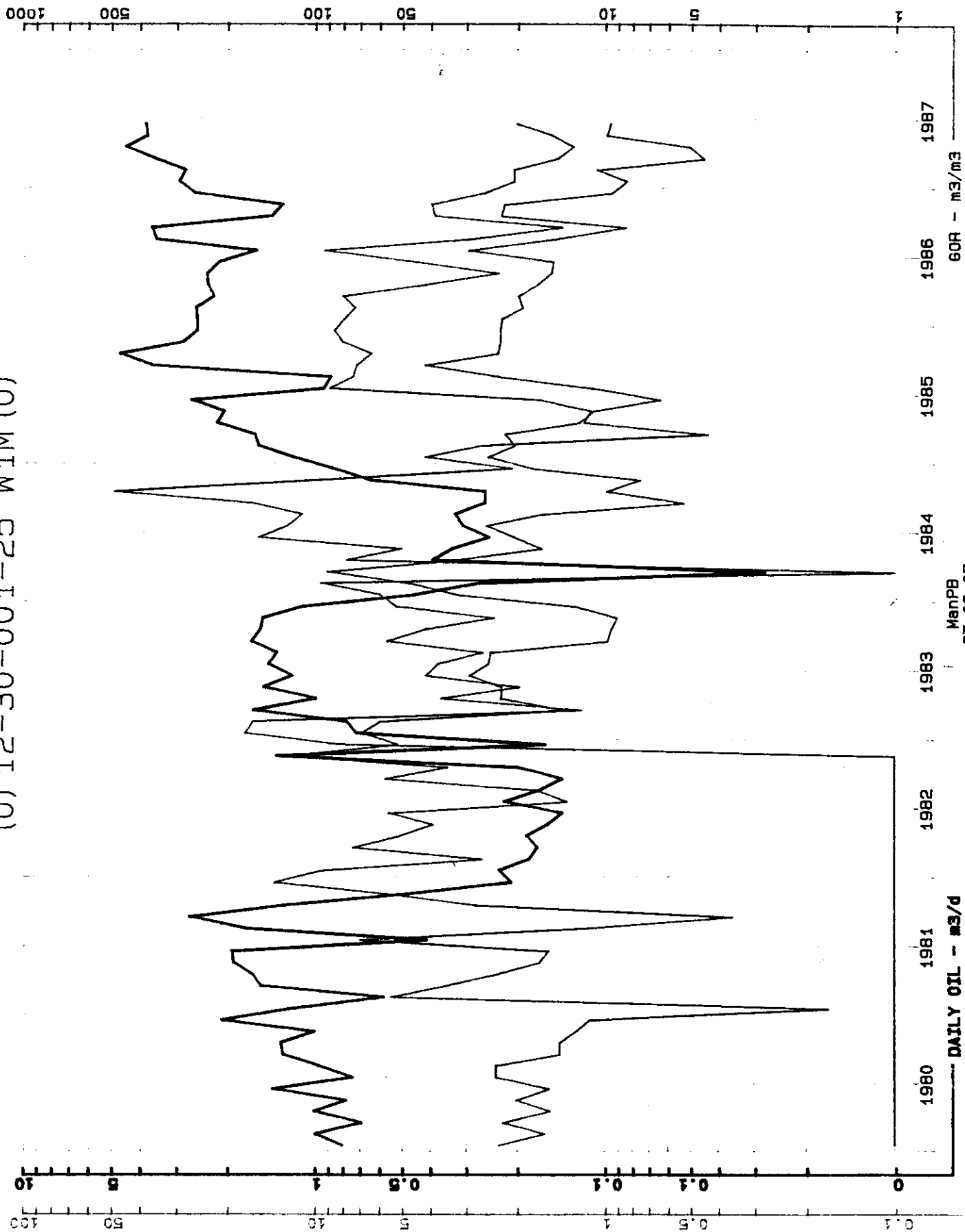
(0) 03-30-001-25 W1M (0)



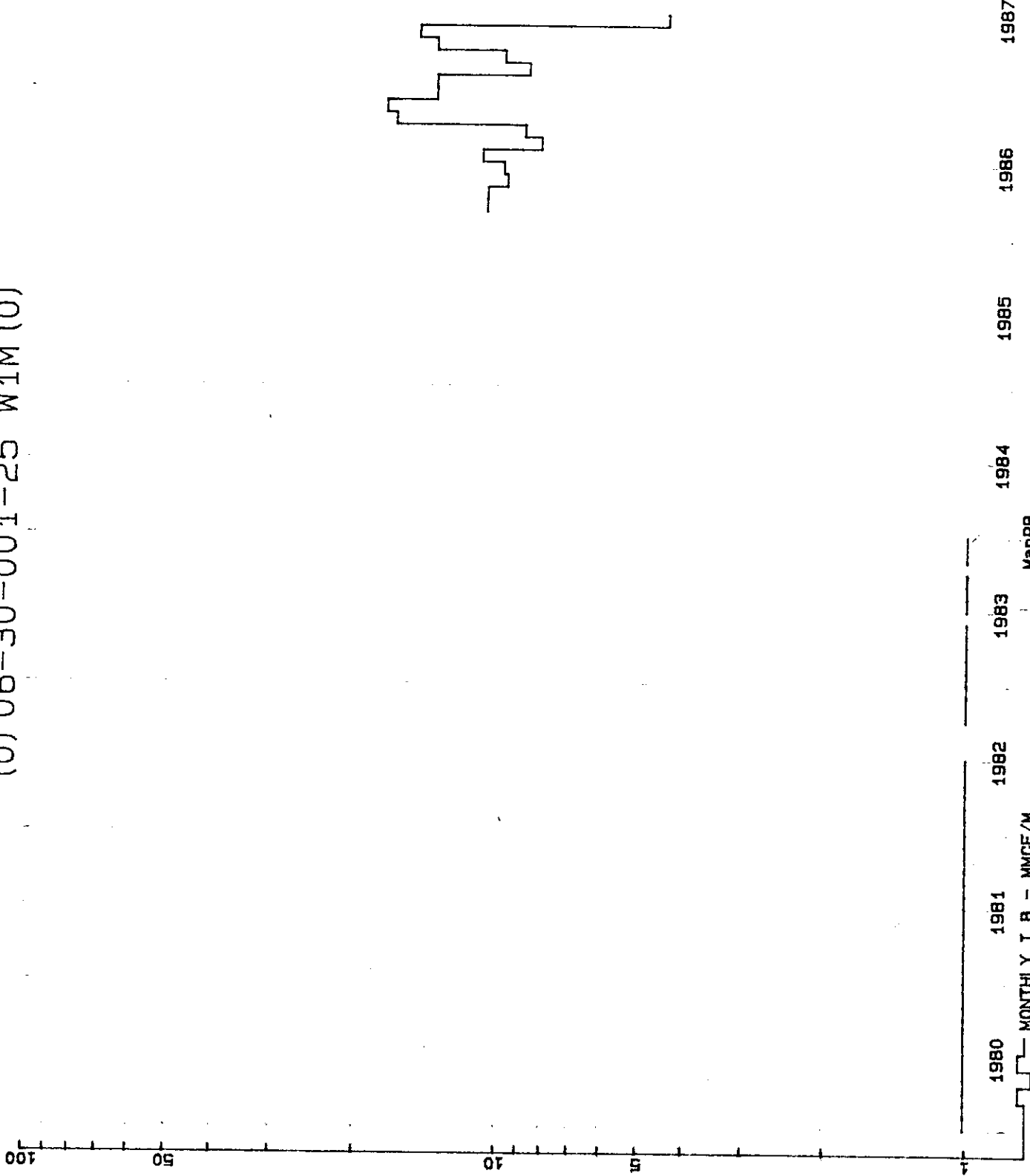
(0) 04-30-001-25 W1M (0)



(0) 12-30-001-25 W1M (0)

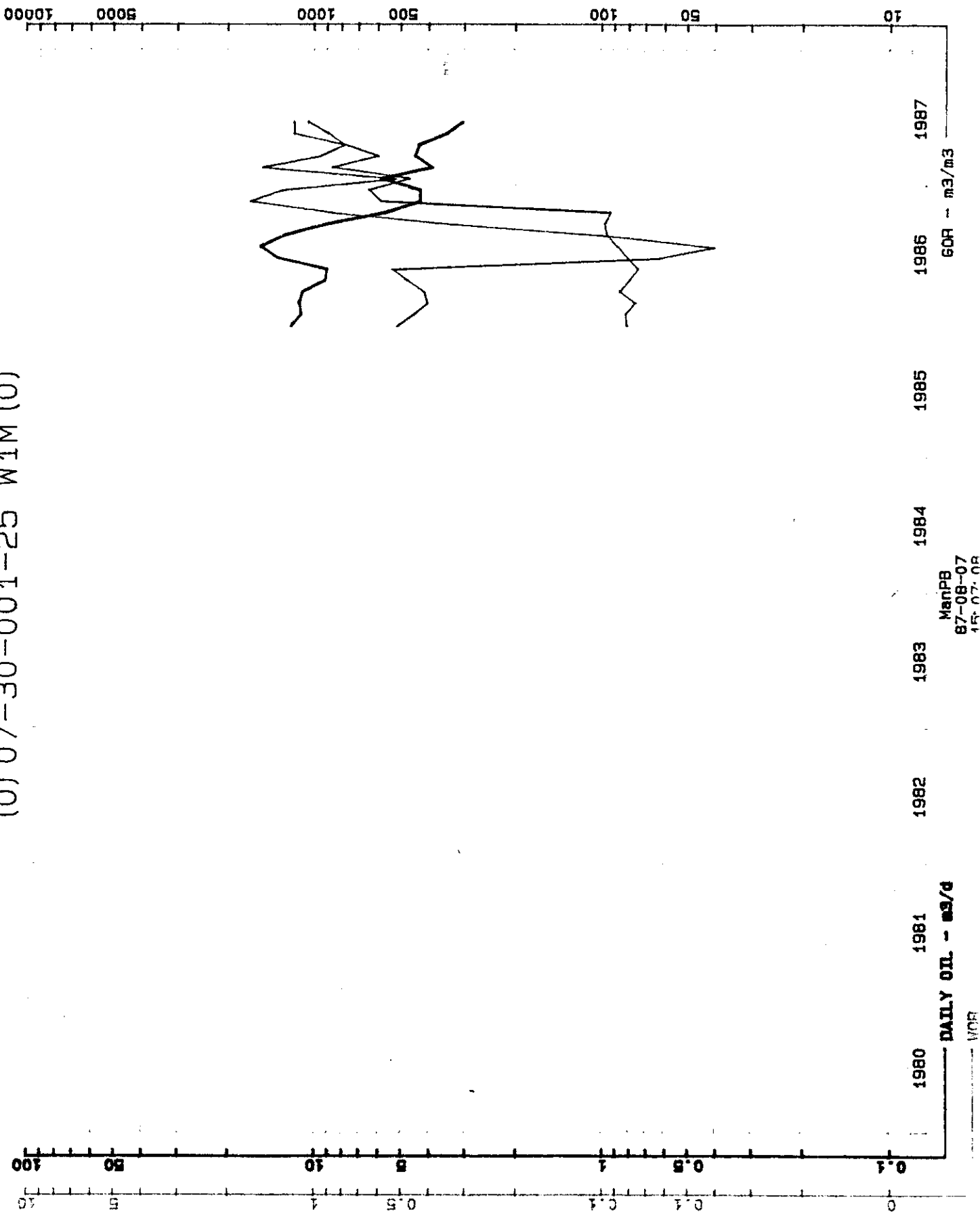


(0) 05-30-001-25 W1M (0)



ManPB
87-08-07
14: 54: 05

(0) 07-30-001-25 W1M (0)



ManPB
87-08-07
15-07-08

March 17, 1986

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S. W.
Calgary, Alberta
T2P 0H3

Attention: Mr. G. E. Patey,
Vice-President, Production

Dear Sir:

Re: Waskada Unit No. 1 - Gas Injection
Omega Waskada GIW 6-30-1-25 (WPM)

Enclosed is Board Order No. PM47 authorizing gas injection into the subject well.

Please note the provisions of this Order, particularly those set out in Pressure Maintenance Rule No. 3 relating to gas oil ratio monitoring of surrounding wells. Also, please note the requirements for submission of monthly summary reports.

Yours sincerely,

L. R. Dubreuil
Chief Petroleum Engineer
Petroleum Branch

LRD/dp

Enclosure



Memorandum

Date March 4, 1986

To The Oil and Natural Gas Conservation Board

From H. Clare Moster
Director, Petroleum Branch

Charles S. Kang - Chairman
Wm. McDonald - Deputy Chairman
J. F. Redgwell - Member

Telephone

Subject Waskada Unit No. 1 - Waskada MC3b A Pool

Pressure Maintenance by Gas Injection

Omega Hydrocarbons Ltd., operator of the Waskada Unit No. 1, has made application for approval to inject gas into the well Omega Waskada WIW 6-30-1-25 (WPM). Notice of the application was published in the Manitoba Gazette (Feb. 8, 1986) and the Melita New Era (Feb. 5, 1986) and was sent to offsetting working interest owners. Although no objections to the notice have been received, Tundra Oil and Gas in a letter to the Board dated February 27, 1986 have indicated their concerns with respect to the application (copy of letter attached).

Upon initial processing of the application, several technical concerns were raised with Omega. These concerns, Omega's response and the Branch's comments are detailed below.

Recommendations:

It is recommended that the application be approved and that Board Order No. PM 47 be issued. Board Order No. PM 47 replaces Board Order No. PM 30 and includes stringent provisions to monitor the movement of injected gas in the reservoir. These conditions will satisfy Tundra's concerns. Copies of Board Order No. PM 47 are attached for the Board's and Minister's signatures.

Discussion:

In the Board's letter of January 28, 1986, a number of concerns to Omega's proposal were stated. In the following, the original stated concern, Omega's response and the Branch's comments are detailed.

Point No. 1 - Original Concern

"Previous history of Waskada Unit No. 1 indicates that an increase in the level of water injection at the subject well was usually reflected almost immediately by an increase in water production particularly in the well Omega Waskada 4-30-1-25."

....2

New file
Application for
gas injection

Omega's Response

"The Omega Waskada 4-30-1-25 WPM did show an increase in water production shortly after the commencement of water injection into 6-30-1-25 WPM. The 4-30-1-25 WPM well is structurally lower than 6-30-1-25 WPM by 6 metres therefore it would be normal for the water to flood from the high well into the lower well. The injection of gas into 6-30-1-25 WPM should trap the gas in the structurally high area of the reservoir pushing the gas along the erosional edge toward the 3-30-1-25 WPM and 11-30-1-25 WPM wells."

Branch's Comment

Comparison of a production vs water-oil ratio plot for the 4-30 well with an injection rate plot for the 6-30 water injector for the period 1981-85 indicates some correlation between injection highs and lows with water-oil ratio highs or lows. However, the correlation is not totally consistent and it is difficult to make a definitive statement in this regard.

Omega's comment that gas will be trapped in the structurally higher portion of the reservoir is partly correct but as the structural difference is not great (approximately 5 metres), the movement of gas will probably be more affected by pressure drawdowns at the offsetting producing wells.

Point No. 2 - Original Concern

"The current high producing rates in Waskada Unit No. 1 reflect increased production at the above mentioned 4-30 well. This increase appears to parallel a similar increase in the well Omega Waskada 4-30LAm-1-25 which is directly offsetting the Lower Amaranth A Pool injector in Lsd 5 of Section 30-1-25."

Omega's Response

Water injection was initiated into the 5-30LAm-1-25 WPM well in August of 1984. We did notice an immediate increase in the 4-30LAm-1-25 WPM well but did not note an increase in the 4-30-1-25 WPM Mississippian until November 1985. The increase in 4-30LAm-1-25 WPM was definitely due to water injection into 5-30LAm-1-25 WPM but I believe the increase in 4-30-1-25 WPM Mississippian was likely due to the fact the 6-30-1-25 WPM well had been badly over injected and we have now produced enough water back to pull the oil back into the well bore. The injection of gas into 6-30-1-25 WPM should help to maintain the flow of oil to the 4-30MCA-1-25 WPM well.

Branch's Comment

The immediate increase in rate at the 4-30LAM well was not sustained (rates had decreased to pre-injection levels within a couple of months) and was observed at its maximum to occur in the same month as 5-30 went on injection. The observed response time in other parts of the Pool indicate it is extremely unlikely that the rate increase at 4-30LAM in August 1984 was due to injection in the Lower Amaranth at 5-30.

In August 1985 the 4-30 well produced at an oil rate of 0.23 m³/day and a water-oil ratio of 141 m³/m³. After a 1 month shut in (during which no well work was done) the well produced at a rate of 10.3 m³/d and a WOR of 0.44 m³/m³. The analysis implied in the Board's letter would appear much more viable than the sudden arrival of a large oil bank from an injection well which has been shut in for 2 years (as implied by Omega). In either case, the erratic production rates recorded suggest inaccurate well testing in this area. This will be pursued further with Omega.

Point No. 3 - Original Concern

"A combination of the observations in items No. 1 & 2 would suggest that injection of high mobility gas could possibly affect the performance of the Waskada Unit No. 3 wells."

Omega's Response

"We do not believe we have communication between the Mississippian and Lower Amaranth in this area or we would have seen flood response in the Lower Amaranth wells at the time the Mississippian was flooded. We did not see Lower Amaranth response until we started the Lower Amaranth flood."

Branch's Comment

When original response was observed in the Waskada MC3b A Pool, there were no Lower Amaranth completions in the Waskada Field. As discussed above, we still feel the Board's concern is warranted although this is difficult or impossible to prove conclusively.

Point No. 4 - Original Concerns

"Because of the high mobility of the gas and the apparent high transmissibility of the reservoir, we are concerned that it may be difficult to react quickly enough to prevent gas breakthrough in the second row of producers (not operated by Omega) if such breakthrough is observed in the offsetting producers."

Omega's Response

"We feel we could monitor the production from the 3-30-1-25 WPM and 4-30-1-25 WPM wells very closely and detect any change in gas-oil ratio well before there would be a chance for the gas to do any harm or to have any effect on the Tundra wells to the south. We would also be monitoring the Lower Amaranth wells in the vicinity of the 6-30-1-25 WPM well and could detect any increase in gas-oil ratio. We would propose to production test the 3-30-1-25 WPM and 4-30-1-25 WPM wells a minimum of every 7 - 10 days (3 to 4 times per month) and this would certainly give everyone adequate time to respond and terminate the gas injection."

Branch's Comment

Omega's proposed testing frequency is acceptable. However, based on the foregoing comments and concerns, this testing program should be expanded to include the 4-30LAM and possibly other wells.

Figure No. 1 shows the gas-oil ratio (GOR) history for two wells in the Waskada Lower Amaranth A Pool; 3-24-1-26 a well in Waskada Unit No. 4 that experienced gas breakthrough, and 4-30LAM-1-26 which as discussed above, could be affected by gas injection at 6-30-1-25. Based on the observed history of the 3-24 well and the current GOR of the 4-30LAM well, the following criteria for termination or restriction of gas at 6-30 are suggested.

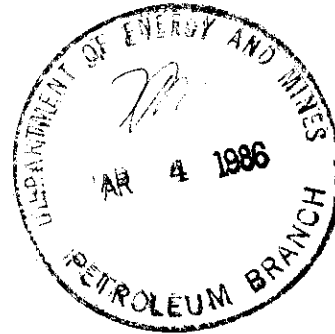
1. If the GOR at any offsetting well exceeds $200 \text{ m}^3/\text{m}^3$ for any well test, the well shall be re-tested within one week. If re-testing confirms the GOR, gas injection may be terminated at the discretion of the Director on a temporary basis. If further investigation indicates that gas breakthrough is occurring, the Board may order the permanent termination of gas injection at 6-30.
2. If the GOR at any offsetting well exceeds $500 \text{ m}^3/\text{m}^3$, gas injection is to be terminated immediately.
3. The suitability of the above provisions are to be reviewed by the Director after one year of gas injection.



H. Clare Moster

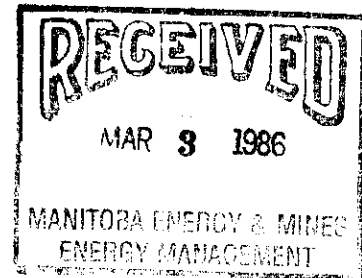
LRD/HCM/lk

300 ASSINIBOINE AVENUE / WINNIPEG / MANITOBA / CANADA / R3C 0X6



February 27, 1986

The Oil & Natural Gas Conservation Board
Room 309, Legislature Building
Winnipeg, Manitoba
R3C 0V8



ATTN: Mr. W. McDonald
Deputy Chairman

Dear Sir:

RE: GAS INJECTION - OMEGA WASKADA WIW 6-30-1-25

Given the potential for deleterious effects of gas injection on offsetting production, as demonstrated by the history of Waskada Unit No. 4, Tundra Oil and Gas has some concerns regarding possible adverse effects on our production in Section 19-1-25 resulting from the proposed injection.

It is our understanding that approval of this injection scheme will be conditional on a requirement for close monitoring of production COR's in offsetting wells in order to detect any adverse effects on production. We assume that any negative effects from gas injection at 6-30 will be detectable at the 3-30 and 4-30 wells prior to affecting our production on Section 19. If the Board is prepared to order Omega to cease gas injection at 6-30 if, and when, any negative effects of this injection are seen at either 3-30 or 4-30, Tundra Oil and Gas has no objection to the proposed scheme.

Sincerely,

Tundra Oil and Gas

A handwritten signature in cursive script, appearing to read "Dan Barchyn".

Dan Barchyn, P.Eng.
Exploration Manager

DB/sc

cc Mr. Bob Dubreuil

FIG. No. 1

46 6690

GOR
m³/m³

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

1000

100

10

- GAS INJ. COMMENCED

- G.I. DISCONTINUED - Swells

- GAS INJ. DISCONTINUED

3-24
GOR

4-30 LAM GOR

SOLUTION GOR
4.4 m³/m³

19 84

19 85

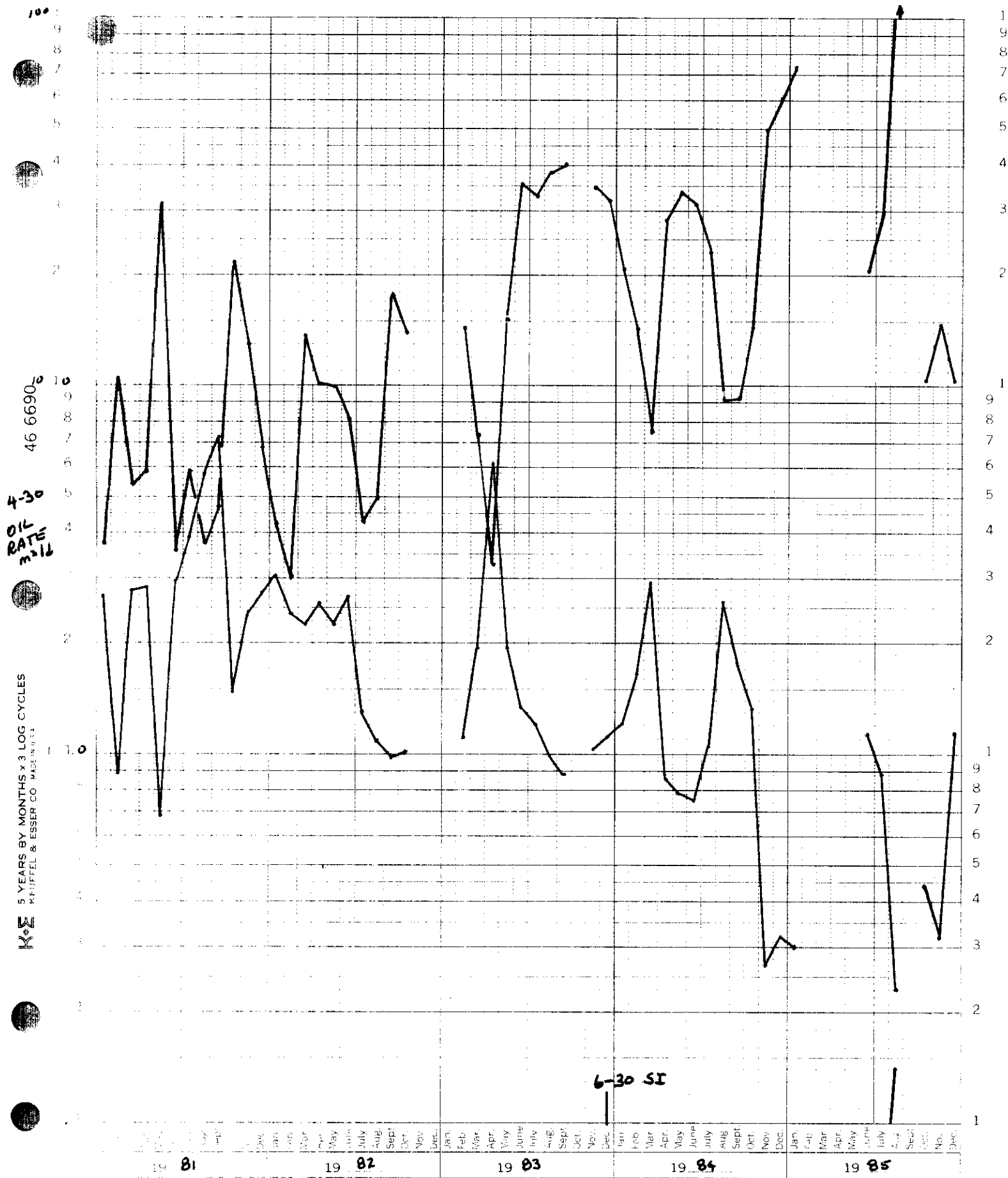
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MISSISSIPPIAN well

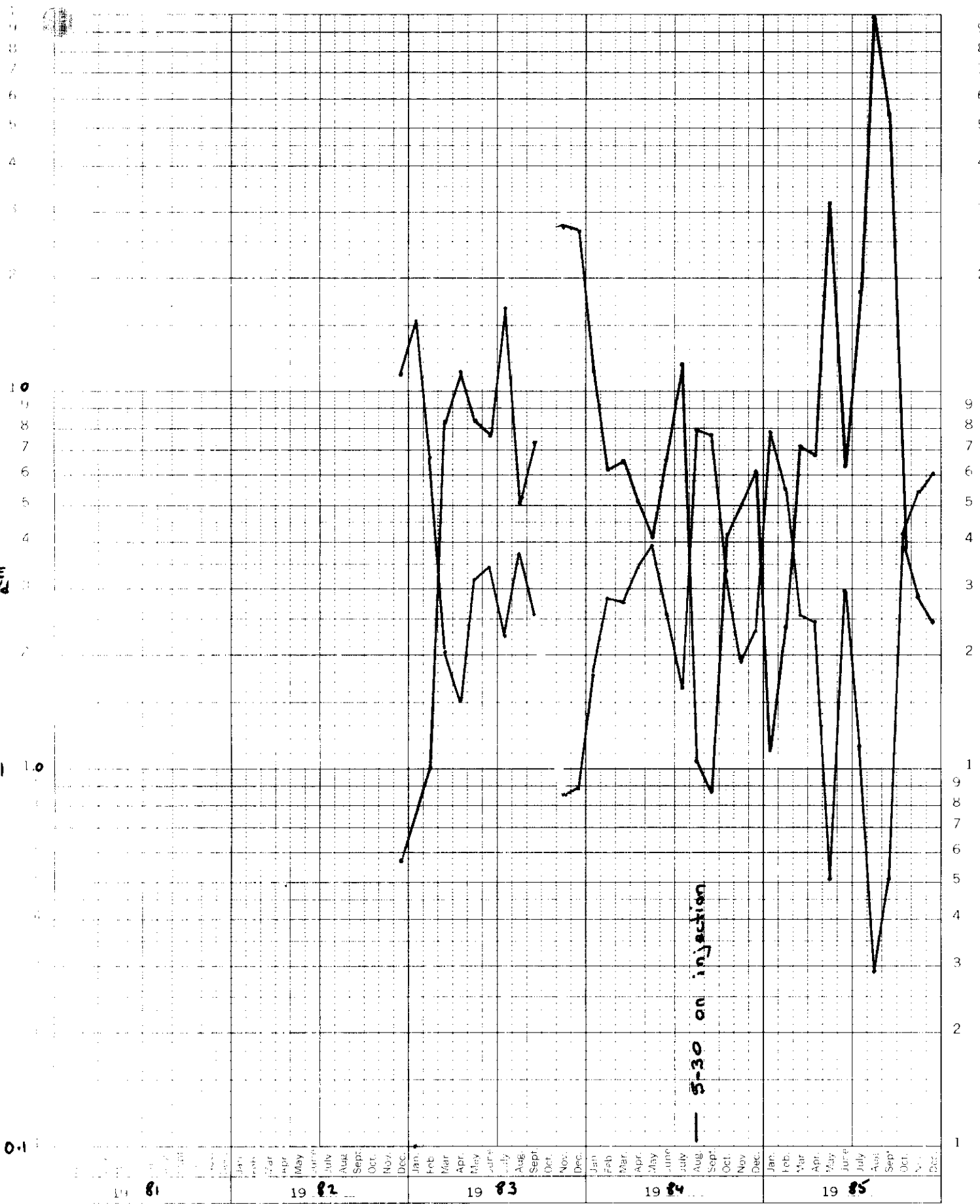


4-30LAm-1-25

46 6690

OIL
RATE
m³/d

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



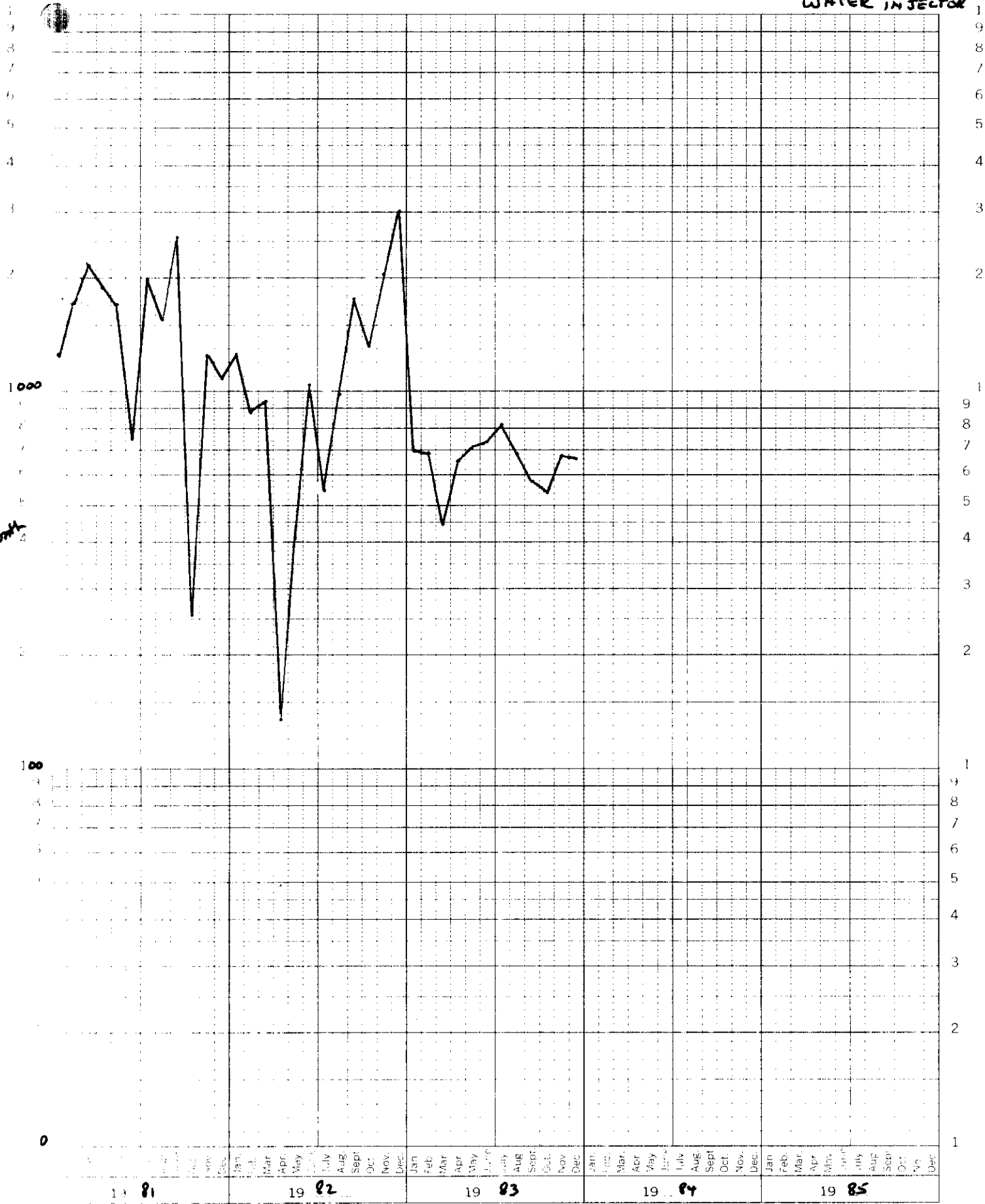
— 5-30 on injection

6-30-1-25

WATER INJECTOR

46 6690
m³/month

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



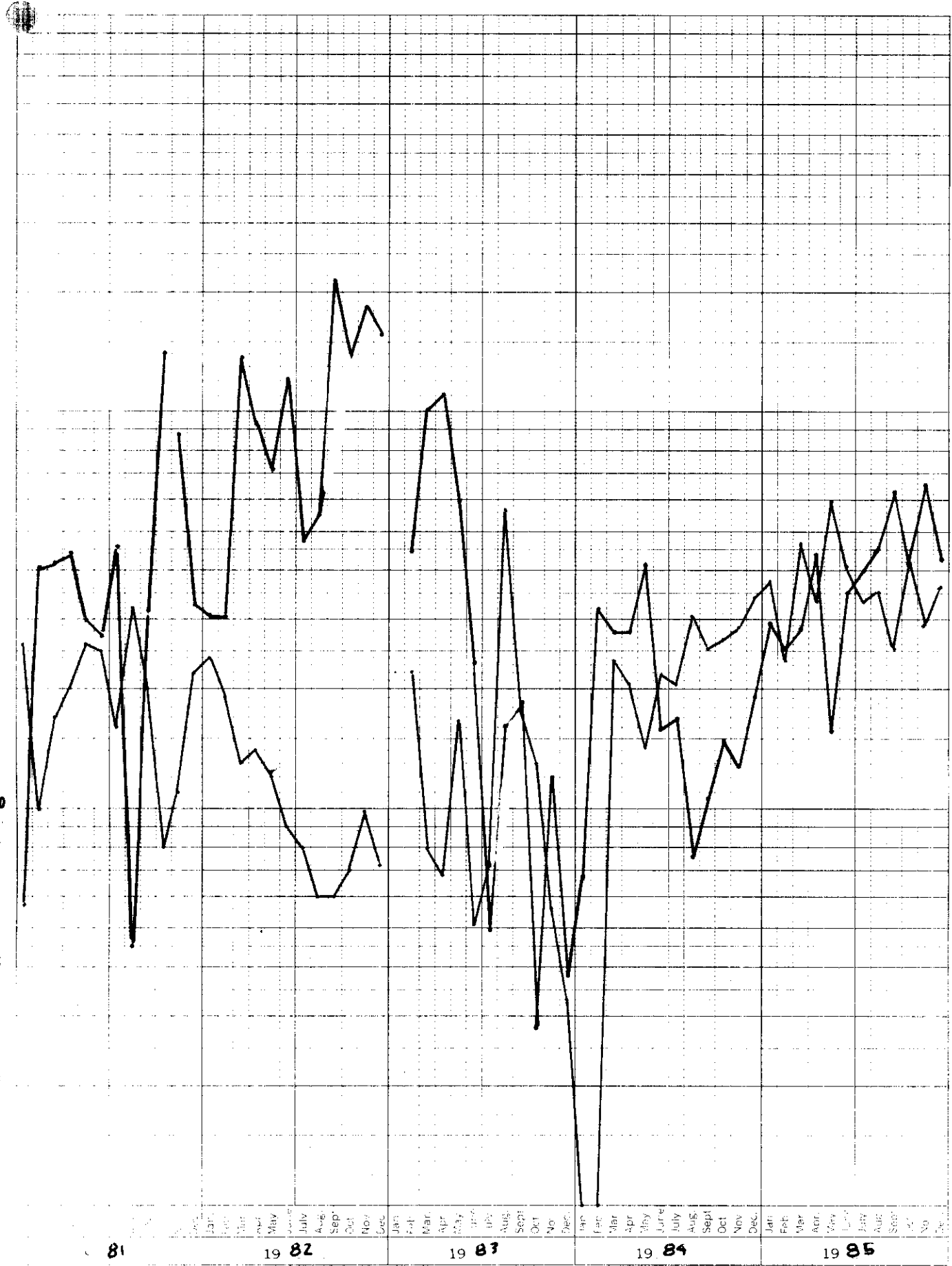
3-30-1-25

WOR
(m³/m³)

46 6690²

OIL
RATE
m³/b

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



W4 Injection pressure = 8000 kPa = 1160 psi

Bottom hole inj pressure =
@ 930m $1160 + 1321 = 2481 \text{ psi}$

Use same BHP for gas injection

gas gradient. $\frac{\text{gas density lb/ft}^3}{144}$

gas density - assume 25% ethane 75% methane
 $= 0.0515 \text{ lb/ft}^3 = 0.0003576 \text{ psi/ft}$

hy. head = $\nabla_g \times D = 0.0003576 \times 3051 = 1.09 \text{ psi}$

max surf pressure = 2480 psi = 27,066 kPa

Limit 4 gas injection = 17000 kPa - use for this project

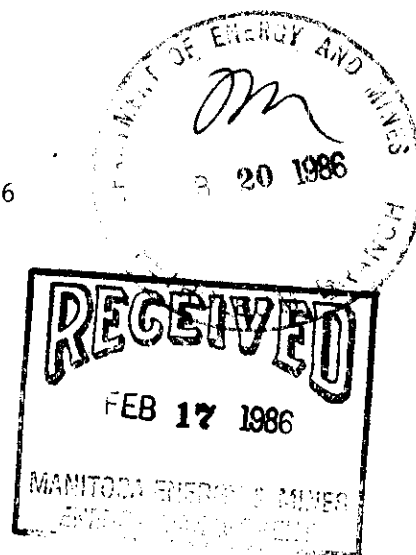
OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743

February 14, 1986

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

Attention: Mr. Wm. McDonald
Deputy Chairman



Dear Sir:

RE: Gas Injection
Omega Waskada WIW 6-30-1-25 WPM

In reply to your letter of January 28, 1986 we wish to advise the following regarding your concerns.

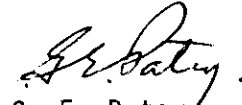
- 1) The Omega Waskada 4-30-1-25 WPM did show an increase in water production shortly after the commencement of water injection into 6-30-1-25 WPM. The 4-30-1-25 WPM well is structurally lower than 6-30-1-25 WPM by 6 meters therefore it would be normal for the water to flood from the high well into the lower well. The injection of gas into 6-30-1-25 WPM should trap the gas in the structurally high area of the reservoir pushing the gas along the erosional edge toward the 3-30-1-25 WPM and 11-30-1-25 WPM wells.
- 2) Water injection was initiated into the 5-30LAm-1-25 WPM well in August of 1984. We did notice an immediate increase in the 4-30LAm-1-25 WPM well but did not note a increase in the 4-30-1-25 WPM Mississippian until November 1985. The increase in 4-30LAm1-25 WPM was definately due to water injection into 5-30LAm-1-25 WPM but I believe the increase in 4-30-1-25 WPM Mississippian was likely due to the fact the 6-30-1-25 WPM well had been badly over injected and we have now produced enough water back to pull the oil back into the well bore. The injection of gas into 6-30-1-25 WPM should help to maintain the flow of oil to the 4-30MCA-1-25 WPM well.
- 3) We do not believe we have communication between the Mississippian and Lower Amaranth in this area or we would have seen flood response in the Lower Amaranth wells at the time the Mississippian was flooded. We did not see Lower Amaranth response until we started the Lower Amaranth flood.

- 4) We feel we could monitor the production from the 3-30-1-25 WPM and 4-30-1-25 WPM wells very closely and detect any change in gas oil ratio well before there would be a chance for the gas to do any harm or to have any effect on the Tundra wells to the south. We would also be monitoring the Lower Amaranth wells in the vicinity of the 6-30-1-25 WPM well and could detect any increase in gas oil ratio. We would propose to production test the 3-30-1-25 WPM and 4-30-1-25 WPM wells a minimum of every 7 - 10 days (3 to 4 times per month) and this would certainly give everyone adequate time to respond and terminate the gas injection.

Please advise if require any further information.

Yours truly,

OMEGA HYDROCARBONS LTD.



G. E. Patey
V. P. Production

GP/cw

are sufficient to demonstrate that the public convenience will not be promoted by the granting of the authority in question. Such further material shall be filed within 14 days or receipt of the copy of the application and supporting documents or on or before Monday, March 17, 1986, whichever is later.

If the Board is not satisfied sufficient evidence has been filed by a Respondent, his Statement of Opposition will be struck. All applications in which a Statement of Opposition has been accepted will be set for public hearing.

Take notice that the Board intends to grant the following application for an extension of Inter-Municipal Livery operating authority:

4. Docket 12785 (20/85)

Joe Parenteau, o/a

Joey's Taxi,

Duck Bay, Manitoba.

Application for extension of Inter-Municipal Livery to increase the livery fleet from the present two (2) vehicles to four (4) Inter-Municipal Liveries to be based at Duck Bay, Manitoba.

Any interested party wishing to oppose the above application shall file a Statement of Opposition setting forth the grounds of his opposition with the Secretary of the Board, 200-301 Weston Street, Winnipeg, Manitoba, R3E 3H4, before 4:30 P.M., on Monday, February 24, 1986. Late opposition will not be accepted.

L. G. OLIJNEK,
Secretary,

THE MANITOBA MOTOR
TRANSPORT BOARD.

—6

UNDER THE MINES ACT

Omega Hydrocarbons Ltd., as operator of Waskada Unit No. 1, has made application under The Mines Act for approval to conduct pressure maintenance operations by gas injection in a portion of the Waskada Mission Canyon 3b A Pool. It is proposed to convert the following well from water injection to gas injection: Omega Waskada WIW 6-30-1-25 (WPM).

If no intervention or objection in writing

is received by the Board at Room 309, Legislative Building, Winnipeg, Manitoba, R3C 0V8, within 14 days of the publication of this notice, the Board may approve the application.

Dated at Winnipeg, this 27th day of January, 1986.

Wm. McDONALD,
Deputy Chairman.

—6

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man Sports Association at 1-800-852-2700 ext. 100.

N.C.C.P. Level I Theory—April 18, 19, and 20th and Level II Theory April 25, 26, 27, May 2, 3, 4. Contact Evening Programs at A.C.C. at 725-4530. Also Level III on request contact Antler River Rec. if you have any questions in regards to any of the above mentioned clinics at 522-8328.

FINGER IN DIKE

Keeping a finger in the dike against a flood is nothing compared to stanching people's wants.

NOTICE

Farmer's specials until further notice at the farmer's outlet where you buy direct. (No dealers)

1 x 1 100 Wall Square tubing.
35 cents a ft. by bundle
10' panels and gapes \$42.50
12' panels and gapes

Extra Special \$48.00
Round Bale Feeders \$72.50
BaleForks \$105.00
Automatic Head Gates \$240.00
Half-ton Cattle Racks \$200.00

All merchandise completely welded and guaranteed. You buy for less at Rea's Livestock and Equipment and Steele Supply. No 2 Highway, Rathwell. Phone 749-2075. 23-13c

This year will be your best if you successfully learn to put off 1986's worrying until 1987.

Whether it's public enterprise or private endeavor, those who contribute the least are the most critical.

BOTH WAYS

Learning from past mistakes is just as important as planning new challenges for the future.

NOTICE

Omega Hydrocarbons Ltd., as operator of Waskada Unit No. 1, has made application under The Mines Act for approval to conduct pressure maintenance operations by gas injection in a portion of the Waskada Mission Canyon 3b A Pool. It is proposed to convert the following well from water injection to gas injection: Omega Waskada WIW 6-30-1-25 (WPM).

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

Dated at Winnipeg, this 27th day of January, 1986.

Wm. McDonald
Deputy Chairman

Attention

BEF PRODUCERS



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

January 28, 1986

Omega Hydrocarbons Ltd.
1300, 112 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H3

Attention: Mr. G. E. Patey,
Vice President, Production

Dear Sirs:

Re: Gas Injection
Omega Waskada WIW 6-30-1-25 (WPM)

Your application for approval to inject gas in the subject well is acknowledged.

Upon review of your proposal, we have the following concerns:

1. Previous history of Waskada Unit No. 1 indicates that an increase in the level of water injection at the subject well was usually reflected almost immediately by an increase in water production particularly in the well Omega Waskada 4-30-1-25.
2. The current high producing rates in Waskada Unit No. 1 reflect increased production at the above mentioned 4-30 well. This increase appears to parallel a similar increase in the well Omega Waskada 4-30LAM-1-25 which is directly offsetting the Lower Amaranth A Pool injector in Lsd 5 of Section 30-1-25.
3. A combination of the observations in items No. 1 & 2 would suggest that injection of high mobility gas could possibly affect the performance of the Waskada Unit No. 3 wells.
4. Because of the high mobility of the gas and the apparent high transmissibility of the reservoir, we are concerned that it may be difficult to react quickly enough to prevent gas breakthrough in the second row of producers (not operated by Omega) if such breakthrough is observed in the offsetting producers.

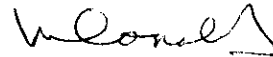
While the Board supports your efforts to terminate gas flaring, we feel that your proposal would have to be monitored very closely to ensure protection of correlative rights of offset operators and to avoid possible detrimental effects of injected gas entering the Lower Amaranth Formation.

You are requested to provide your comments on the above concerns and provide details of a production monitoring and operations program to ensure the possible detrimental effects of gas injection are minimized.

Upon receipt of your comments and further plans, processing of your application will be concluded.

Yours sincerely,

THE OIL AND NATURAL GAS
CONSERVATION BOARD

A handwritten signature in dark ink, appearing to read 'W. McDonald', with a stylized flourish at the end.

Wm. McDonald
Deputy Chairman

January 28, 1986

Queen's Printer
Statutory Publications
200 Vaughan Street

L. R. Dubreuil
Chief Petroleum Engineer
Petroleum Branch
555 - 330 Graham Avenue

MANITOBA GAZETTE

Please have the attached Notice appear in the next issue of the Manitoba Gazette under The Mines Act.

L. R. Dubreuil

LRD/ch
Attachment



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

NOTICE

Omega Hydrocarbons Ltd., as operator of Waskada Unit No. 1, has made application under The Mines Act for approval to conduct pressure maintenance operations by gas injection in a portion of the Waskada Mission Canyon 3b A Pool. It is proposed to convert the following well from water injection to gas injection:

Omega Waskada WIW 6-30-1-25 (WPM)

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

Dated at Winnipeg, this 27th day of January, 1986.

A handwritten signature in dark ink, appearing to read 'Wm. McDonald'.

Wm. McDonald
Deputy Chairman



Memorandum

Date January 23, 1986

To The Oil and Natural Gas
Conservation Board

From H. Clare Moster
Director, Petroleum Branch

Charles S. Kang - Chairman
Wm. McDonald - Deputy Chairman
J. F. Redgwell - Member

Telephone

Subject Board Order No. PM 30

Waskada MC3b A Pool
Proposed Gas Injection

Omega Hydrocarbons, as operator of Waskada Unit No. 1, has made application to convert the well Omega Waskada WIW 6-30-1-25 (WPM) to a gas injection well.

Recommendations:

It is recommended that notice of the application be published in the Manitoba Gazette and the Melita New Era and be sent to offsetting working interest owners (see Table No. 1). A copy of the proposed notice is enclosed.

It is also recommended that Omega be requested to clarify its interpretation of the performance of Waskada Unit No. 1 and how this might effect the viability of gas injection in this well. A draft letter is enclosed.

Discussion:

Under Board Order No. PM 41, Omega was authorized to inject dry sweet gas into the Waskada Lower Amaranth A Pool for purposes of pressure maintenance. Injection of this gas, which is the residue (dry gas) from Omega's liquids recovery plant, was expected to provide pressure maintenance support for the producing wells in Waskada Unit No. 4 as well as eliminate gas flaring. However, within several months of commencement of injection, it was apparent that gas injection was not enhancing oil recovery and that due to rapid breakthrough of the injected gas into the producing wells, gas injection was likely to be detrimental to ultimate oil recovery. As a result of the unfavourable performance, gas injection in Waskada Unit No. 4 was discontinued in September, 1985. Since this time, dry gas from the liquids recovery plant has been flared.

Since it became apparent that gas injection was detrimental to oil recovery in the Waskada Lower Amaranth A Pool, Omega has investigated numerous alternatives including pressurized transport by truck, a pipe line and local use. However, at the present time none of the alternatives appear to be economically viable.

Omega is proposing that gas be injected into the Waskada MC3b A Pool through the well located in Lsd 6 of Section 30-1-25 (WPM). The 6-30 well is classified as a Water Injection Well for Waskada Unit No. 1, however, the well has been inactive since January 1984. The location of the proposed gas injection well, the Unit boundaries and the Pool area are shown on Figure No. 1.

The proposed injection well is within a few feet of being the highest well structurally in the Waskada MC3b A Pool. As such, it is probably one of the more suitable wells for conversion to gas injection. Also all wells offsetting the proposed well are operated by Omega.

However, there are a number of concerns as discussed below:

1. Figure No. 2 is a plot of oil production rate and water-oil ratio for Waskada Unit No. 1 and of production rate for the Waskada MC3b A Pool. Note that the production rate has increased dramatically in October and November 1985. This increase can be traced to the 4-30 well and also reflects a similar increase seen in the 4-30LAm well (see Figure No. 1). The 4-30LAm well is part of the Waskada Unit No. 3 and is directly offset by a water injection well in Lsd 5. This performance suggests that Unit 1 performance (particularly 4-30) is in communication with and influenced by water injection in the Waskada Lower Amaranth A Pool. The presence of communication between the two reservoirs could result in the proposed gas injection affecting Unit No. 3 production.
2. Past performance of the pool has indicated high volumes of water injection at 6-30 have very quickly been translated into high water production, particularly in the 4-30 well. This suggests that transmissibility between the 6-30 well and the 4-30 well is quite high. In view of these observations, together with the high mobility of the gas, it is quite probable that gas injection in 6-30 may affect production in Unit No. 3 wells. Based on the adverse performance of gas injection in Waskada Unit No. 4, this may have a detrimental effect on oil recovery in Unit No. 3.
3. It is also of concern that due to the high gas mobility, it may be possible that gas breakthrough would occur in the second line of producers very quickly after breakthrough in the first line of offset producers. This may make it difficult to react quick enough to prevent gas breakthrough in the second row (which may not be operated by Omega) after breakthrough occurs in the first row.

The above concerns are noted in the attached proposed letter to Omega.

Due to the above concerns, the Branch is not prepared to recommend approval of the application at this time. However, in order to expedite processing of the application, it is proposed that a notice of the application be published (in the Manitoba Gazette and the Melita New Era) and sent to offsetting working interest owners within 1 km of the proposed injection well (see Table No. 1). A proposed notice is attached.

~~Original Signed by H. C. Moster~~

H. Clare Moster

LRD/HCM/lk

TABLE NO. 1

Offsetting Working Interest Owners
within 1 km of 6-30-1-25

N¹/₂-19-1-25 (WPM)

Tundra Oil & Gas

24 & 25-1-26, 30 & 31-1-25

Omega Hydrocarbons

FIG. No. 1
TOP OF POROSITY
(FEET SURSEA)

MC36 Member
WASKADA MC36 A Pool

MG-9815

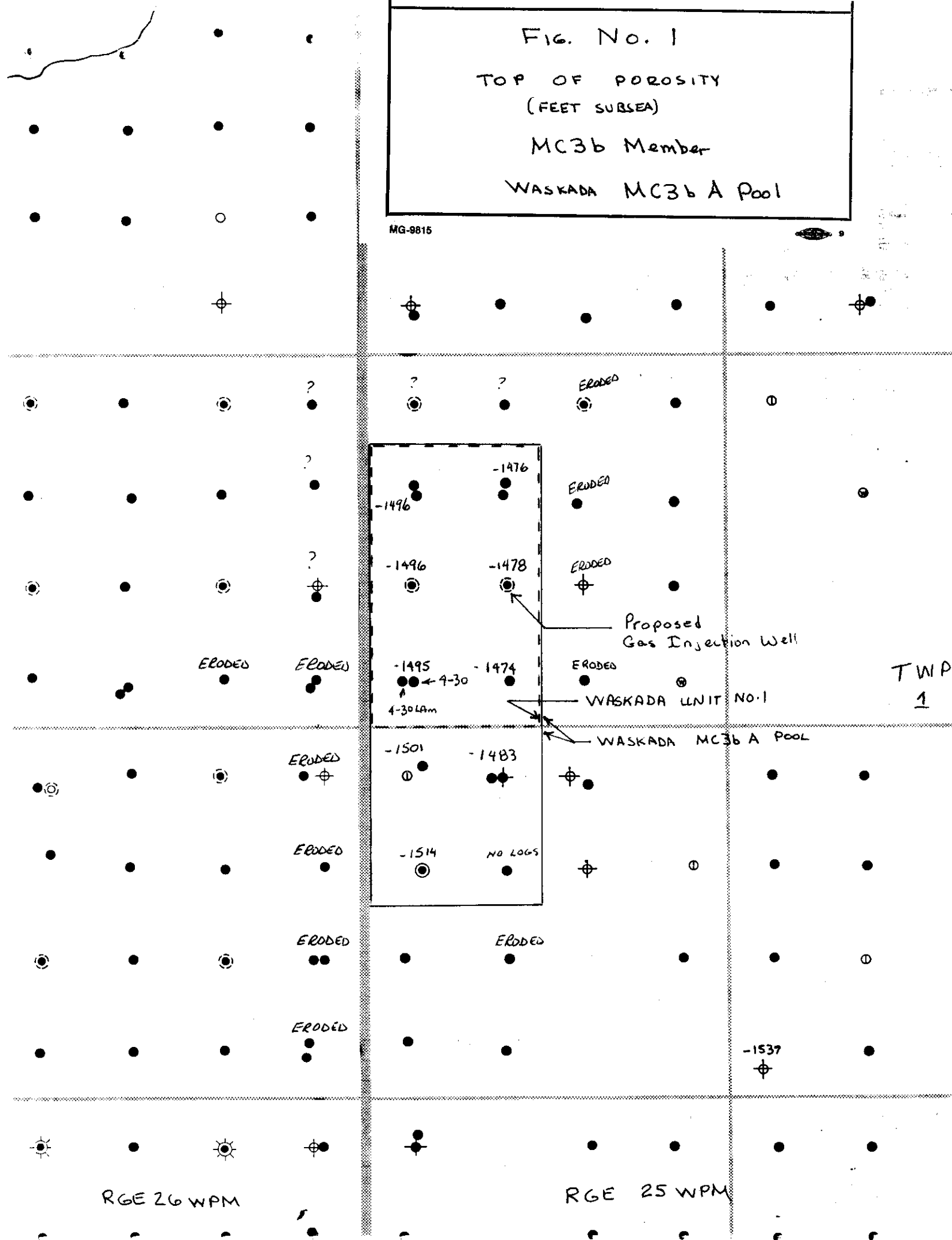


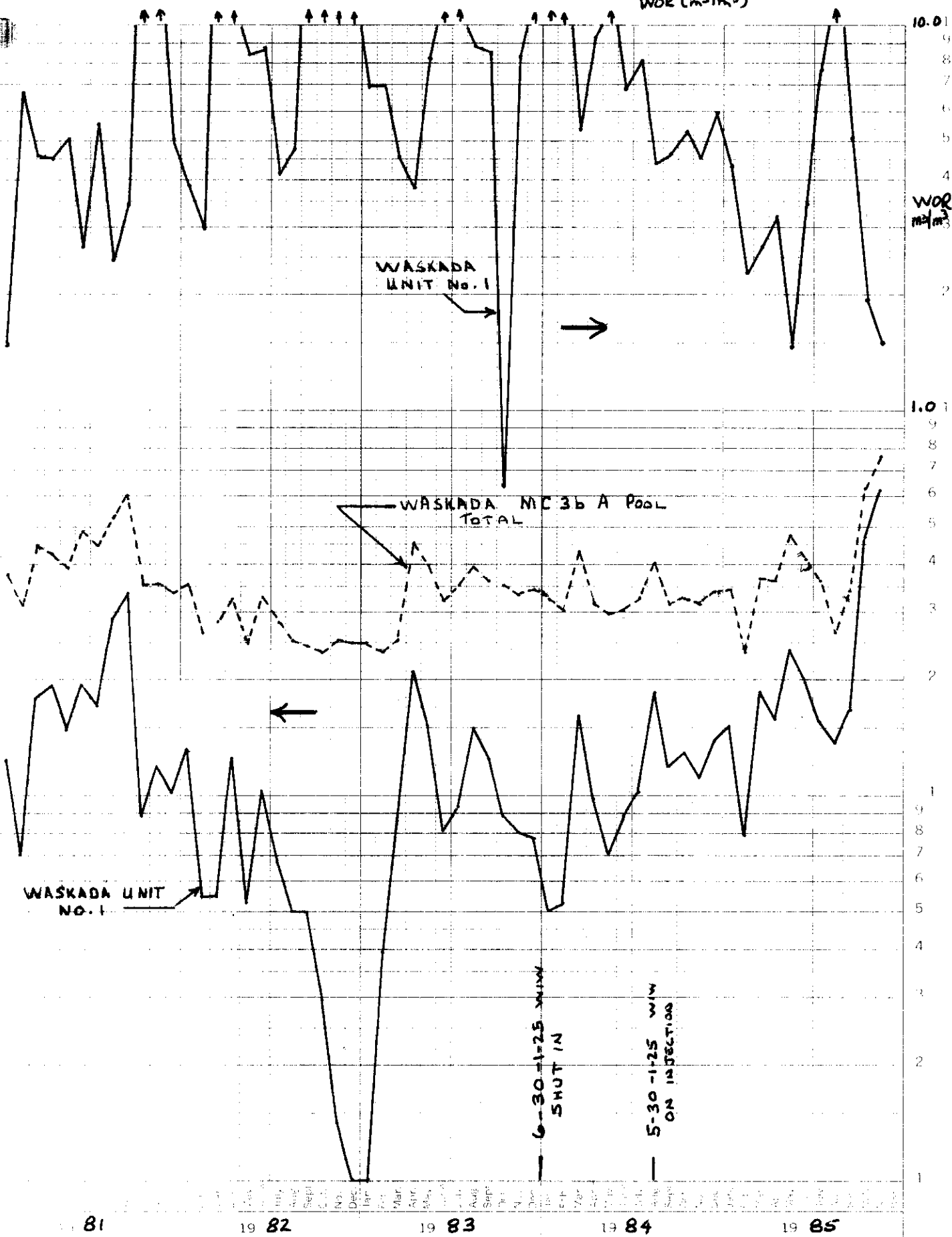
FIGURE No.2 WASKADA MC3b A Pool

Production (m³/month)
WOR (m³/m³)

46 6690

5 YEARS BY MONTHS X 3 LOG CYCLES
REPORTED BY ESSER CO. WASH. D.C.

OIL (m³/month)



81

19 82

19 83

19 84

19 85



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

NOTICE

Omega Hydrocarbons Ltd., as operator of Waskada Unit No. 1, has made application under The Mines Act for approval to conduct pressure maintenance operations by gas injection in a portion of the Waskada Mission Canyon 3b A Pool. It is proposed to convert the following well from water injection to gas injection:

Omega Waskada WIW 6-30-1-25 (WPM)

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

Dated at Winnipeg, this day of January, 1986.

Wm. McDonald
Deputy Chairman



The Oil and Natural Gas
Conservation Board

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

(204) 945-3130

Omega Hydrocarbons Ltd.
1300, 112 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H3

Attention: Mr. G. E. Patey,
Vice President, Production

Dear Sirs:

Re: Gas Injection
Omega Waskada WIW 6-30-1-25 (WPM)

Your application for approval to inject gas in the subject well is acknowledged.

Upon review of your proposal, we have the following concerns:

1. Previous history of Waskada Unit No. 1 indicates that an increase in the level of water injection at the subject well was usually reflected almost immediately by an increase in water production particularly in the well Omega Waskada 4-30-1-25.
2. The current high producing rates in Waskada Unit No. 1 reflect increased production at the above mentioned 4-30 well. This increase appears to parallel a similar increase in the well Omega Waskada 4-30LAM-1-25 which is directly offsetting the Lower Amaranth A Pool injector in Lsd 5 of Section 30-1-25.
3. A combination of the observations in items No. 1 & 2 would suggest that injection of high mobility gas could possibly affect the performance of the Waskada Unit No. 3 wells.
4. Because of the high mobility of the gas and the apparent high transmissibility of the reservoir, we are concerned that it may be difficult to react quickly enough to prevent gas breakthrough in the second row of producers (not operated by Omega) if such breakthrough is observed in the offsetting producers.

While the Board supports your efforts to terminate gas flaring, we feel that your proposal would have to be monitored very closely to ensure protection of correlative rights of offset operators and to avoid possible detrimental effects of injected gas entering the Lower Amaranth Formation.

You are requested to provide your comments on the above concerns and provide details of a production monitoring and operations program to ensure the possible detrimental effects of gas injection are minimized.

Upon receipt of your comments and further plans, processing of your application will be concluded.

Yours sincerely,

THE OIL AND NATURAL GAS
CONSERVATION BOARD

Wm. McDonald
Deputy Chairman

LRD/lk



Date: January 14, 1986

To: ~~Clare Master~~ → BOB
Petroleum Branch (process)

Action / Route Slip

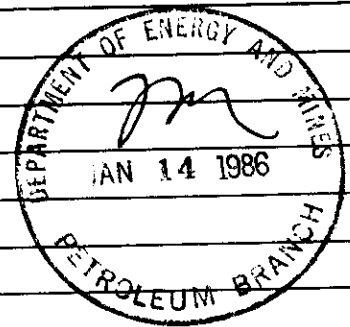
From: Office of the Deputy Minister
Manitoba Energy and Mines
Room 309
Legislative Building
Winnipeg, Manitoba
R3C 0V8

- | | | | | |
|---|---|--|---|--|
| <input type="checkbox"/> Take Action | <input type="checkbox"/> Per Your Request | <input type="checkbox"/> Circulate, Initial and Return | <input type="checkbox"/> For Approval and Signature | <input type="checkbox"/> Make _____ Copies |
| <input type="checkbox"/> May We Discuss | <input type="checkbox"/> For Your Information | <input type="checkbox"/> Return With Comments or Revisions | <input type="checkbox"/> Draft Reply for Signature | <input type="checkbox"/> Please File |

Comments: Please take appropriate action.

Thanks

Barb Zawada





1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743

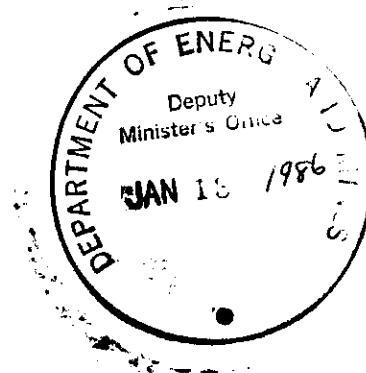
January 7, 1986

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

Attention: Mr. Charles S. Kang
Chairman

Dear Sir:

RE: Waskada Unit No. 1
Order No. PM 30
Upper Alida Formation



The purpose of this submission is to request that PM Order No. 30 be amended to allow the water injection well Omega Waskada 6-30-1-25 WPM to be converted to a gas injector. In support of our submission we offer the following information.

Primary Consideration

The proposed change in the scheme has been developed with due consideration of the following objectives.

- 1) Inject sufficient volumes of gas to replace voidage.
- 2) Conserve the natural gas that is presently being flared.
- 3) Inject the gas into an area of the pool that is structurally high and would minimize possible breakthrough.
- 4) The area that is to be injected with gas is structurally high therefore the gas can be recovered at a later date and either sold when an economic market may be available or used as fuel gas when gas for the battery may no longer be available in adequate volumes.
- 5) Minimize the environmental impact. The flaring of gas is a waste of natural resource and if the gas can be used for pressure maintenance it will also be conserved for future use or sale.
- 6) The offsetting wells to the proposed injector 6-30-1-25 WPM are operated and owned by Omega Hydrocarbons Ltd. These wells will be closely monitored for gas break through and should this occur we would propose to discontinue gas injection so as to eliminate any possible gas breakthrough onto the offsetting lands to the south in Section 19-1-25 WPM.

Supporting Factors

- 1) The 6-30-1-25 WPM well is structurally high and was the water injection well for the Waskada Unit No. 1 Upper Alida water flood until December 1983. No water has been injected since that date. The cumulative voidage replacement is 84% and the current voidage is over 350 Bbls/day.
- 2) The injection of approximately 550 mcf/d of gas at an estimated injection pressure of 1200-1400 psig will displace approximately 1006 Bbls of reservoir capacity per day however the volume of gas available for injection is expected to be reduced by 30-50% due to a reduction of gas oil ratio as the water floods take effect also an additional free water knockout is to be installed in early 1986 and this will also reduce the volume of gas available for injection. Based on these estimates of gas volumes the voidage replacement would be approximately 1.2 to 1.5. If however replacement is excessive we would monitor the cumulative voidage replacement and when it reached 1.2 we would give consideration to flaring some gas to maintain the voidage replacement at this level.

- 3) Cumulative production and injection as of November 30, 1985 is as follows.

Cumulative oil production	77,871 m ³
Cumulative water production	57,819 m ³
Cumulative water injection	124,300 m ³

Using an oil formation volume factor (Bo) of 1.15 and a water formation volume factor (Bw) of 1.00 the cumulative voidage replacement is 84%.

Proposed Scheme

Inject all available gas into the well Omega Waskada 6-30-1-25 WPM. Monitor the offsetting wells for any sign of gas breakthrough. If breakthrough does occur without a reasonable increase in oil production we would propose to shut down the gas injection and resume the flaring of gas.

The 6-30-1-25 WPM well is offset on all sides by wells owned by Omega Hydrocarbons Ltd. therefore by careful monitoring there should be no detrimental effects to offset owners two locations to the south.

Summary

The Waskada Unit No. 1 Upper Alida unit is presently operating at the highest level of production that has been reached for several years. Pressure maintenance by the injection of gas should optimize the oil recovery and serve as a means of conserving the solution gas that is presently being flared.

Enclosed in support of this application are maps showing.

- 1) Structure on the Upper Alida
- 2) Structure on the Lower Alida
- 3) Schematic Structure Cross-Section
- 4) Net Pay map showing postulated area that will be flooded by gas

Please direct any comments or questions to the undersigned.

Yours truly,

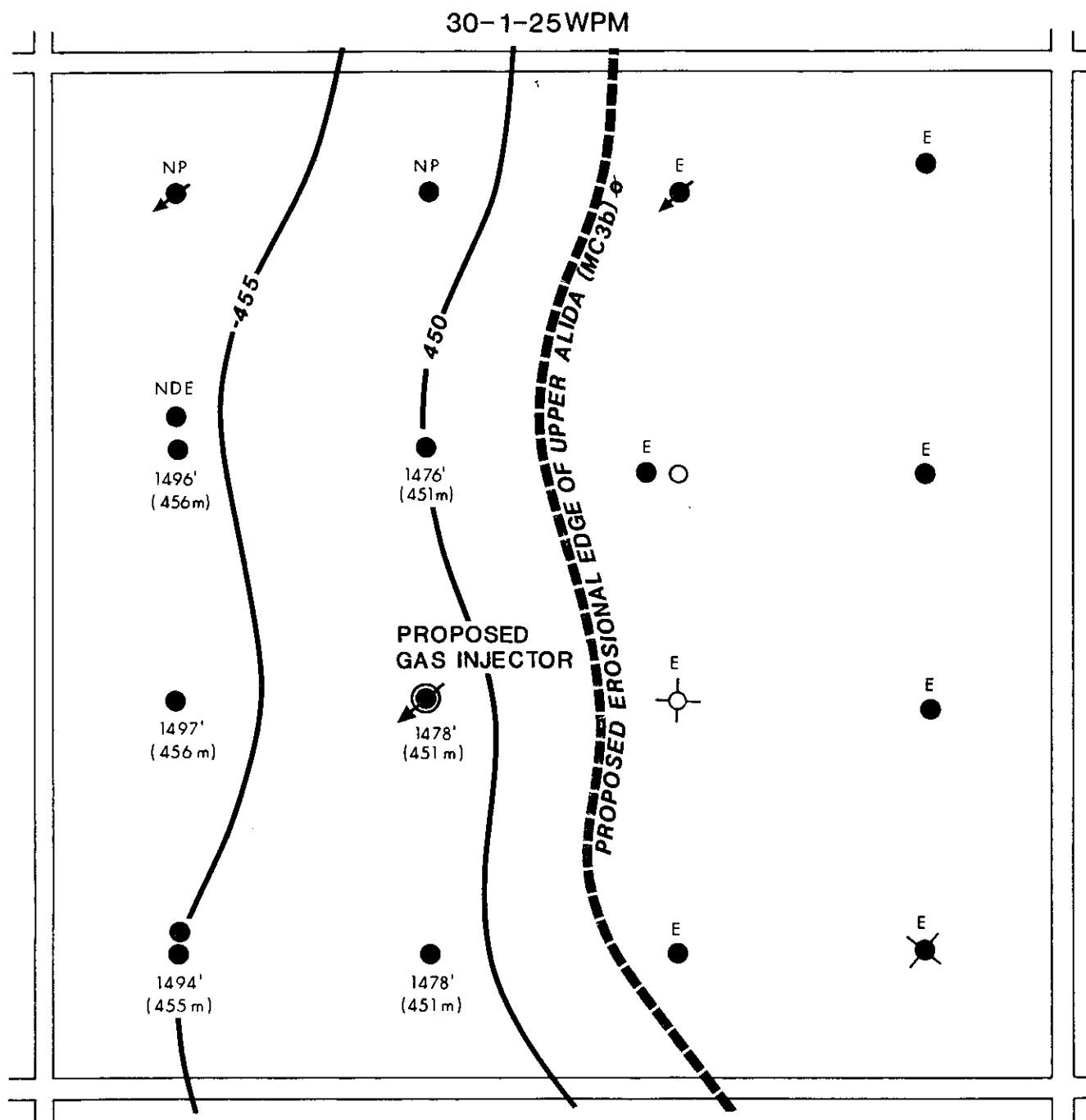
OMEGA HYDROCARBONS LTD.

A handwritten signature in cursive script, appearing to read "G. E. Patey", with a large loop at the end.

G. E. Patey
Vice President Production

GP/cw

Enclosures

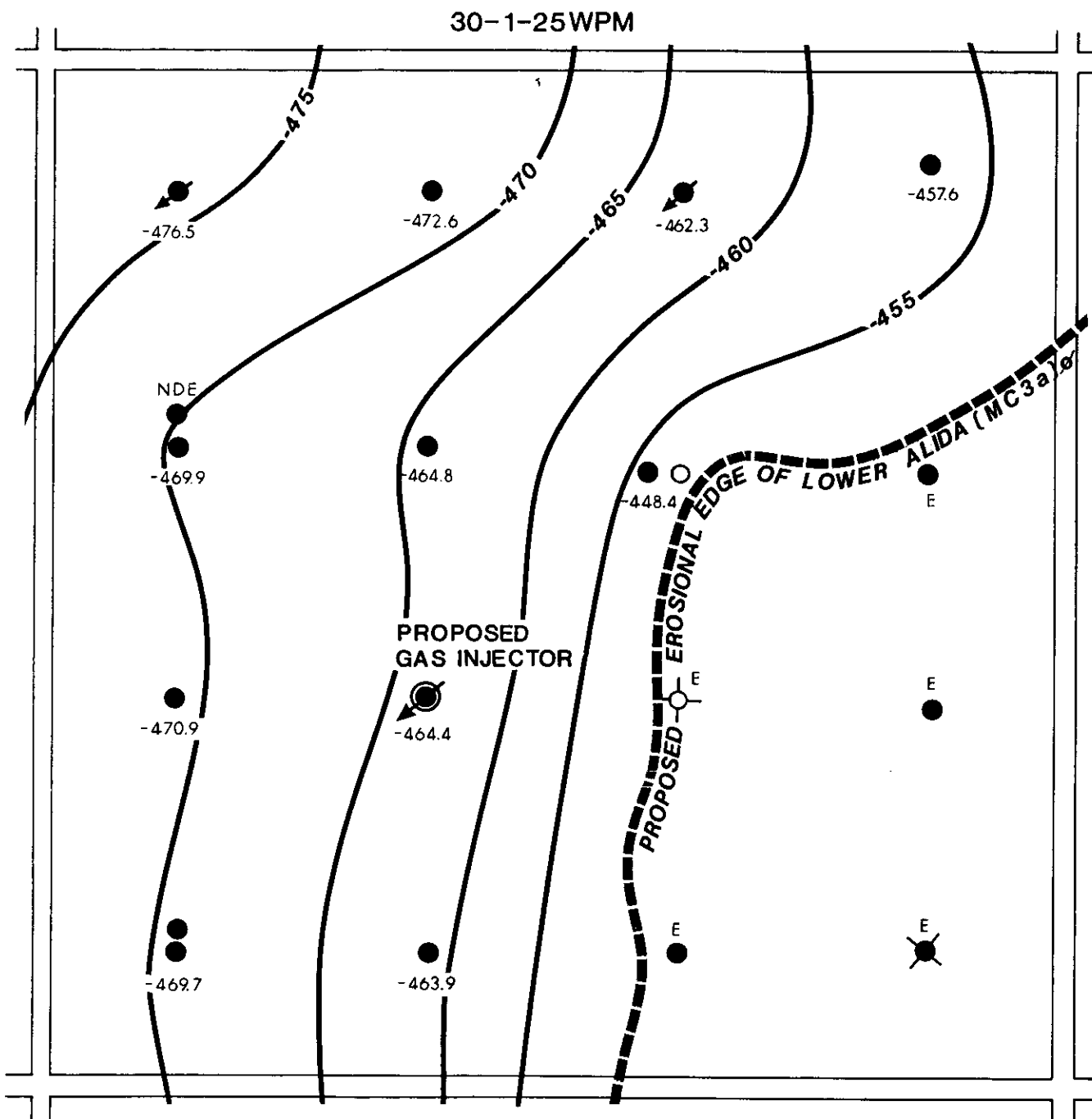


OMEGA HYDROCARBONS LTD.

WASKADA
PROPOSED GAS INJECTION SCHEME
STRUCTURE ON UPPER ALIDA (MC3b)
POROSITY

SCALE: 1: 10000

DATE: NOV. 1985



E = ERODED
NDE = NOT DEEP ENOUGH

OMEGA HYDROCARBONS LTD.

WASKADA
PROPOSED GAS INJECTION SCHEME
STRUCTURE ON LOWER ALIDA (MC3a)
POROSITY

SCALE: 1: 10000

DATE: NOV. 1985

W

5-30-1-25WPM

6-30-1-25WPM

E

7-30-1-25WPM

VERTICAL HEIGHT ABOVE TILSTON (MC-1) POROSITY

225' (68m)
200' (61m)
175' (53m)
150' (46m)
125' (38m)
100' (30m)
75' (23m)
50' (15m)
25' (7.6m)
0

LOWER AMARANTH (SPEARFISH) FORMATION

PROPOSED GAS INJECTION WELL

ALTERED ZONE (ANHYDRITE)

MISSISSIPPIAN EROSIONAL SURFACE

UPPER ALIDA σ

(MC3b)

LOWER ALIDA σ

(MC3a)

TILSTON (MC-2) MARKER

TILSTON σ

(MC-1)

HORIZONTAL DISTANCE

0 200' (61m) 400' (122m) 600' (183m) 800' (244m) 1000' (305m) 1200' (366m) 1400' (427m) 1600' (488m) 1800' (549m) 2000' (610m) 2200' (671m) 2400' (732m) 2600' (793m)

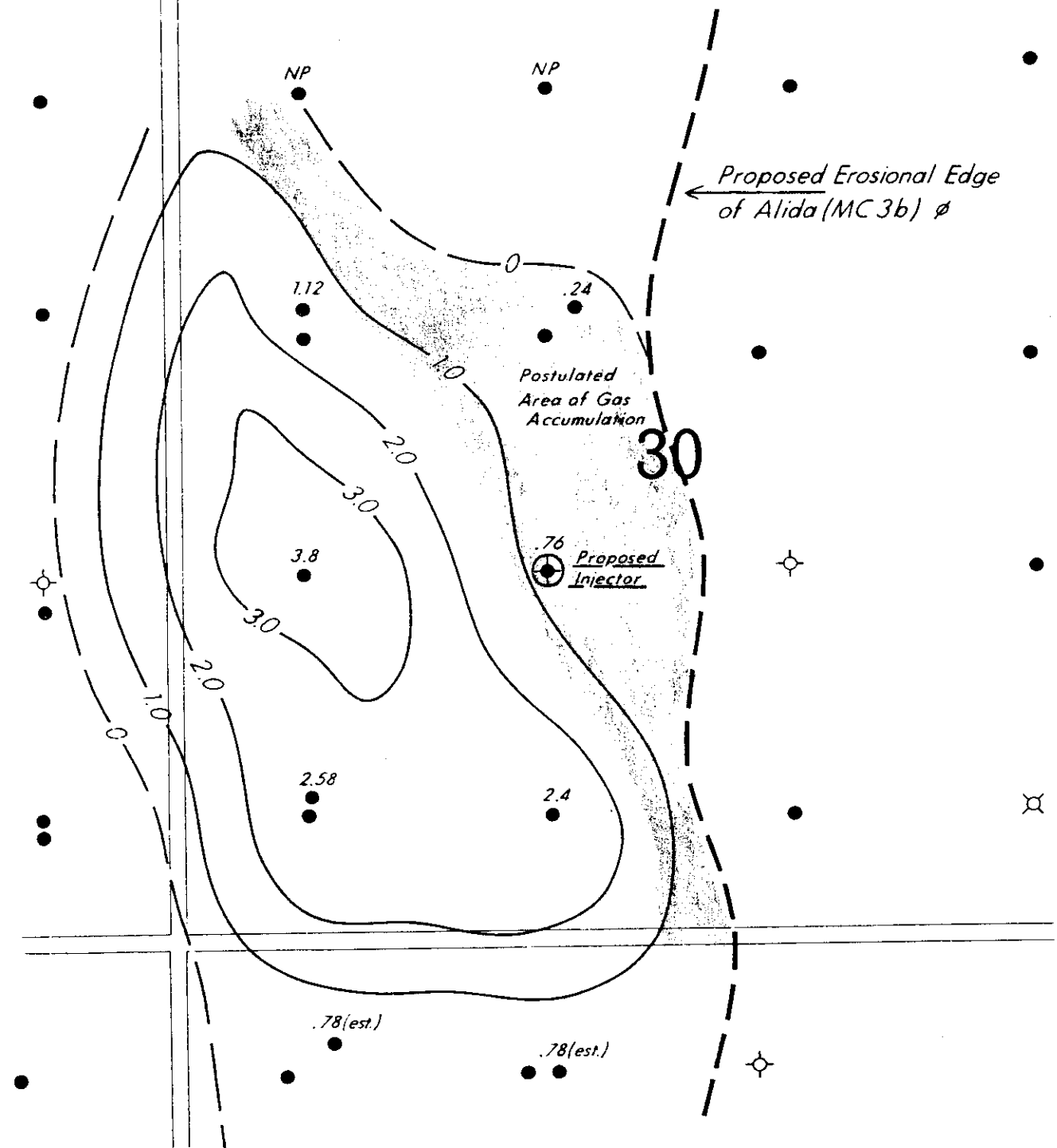
OMEGA HYDROCARBONS LTD


WASKADA

PROPOSED GAS INJECTION
SCHEMATIC STRUCTURE
CROSS-SECTION

SECTION 30-1-25WPM

TP.1 R.25W.1.M.



 HYDROCARBONS LTD.	
WASKADA—PROPOSED GAS INJECTION SCHEME UPPER ALIDA (MC3b) NET PAY (ϕ -ft.)	
Scale 1:10,000	Date JAN. 3/86
Geology M. RODGERS	Contour Interval 1 ϕ ft.
Revised	File Drafting PAB